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Ethylene Dibromide *In Situ* Biodegradation Pilot Test Quarterly Summary

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Michelle Lujan Grisham Governor

Howie C. Morales
Lieutenant Governor

# NEW MEXICO ENVIRONMENT DEPARTMENT

Ground Water Quality Bureau

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James C. Kenney
Cabinet Secretary

Jennifer J. Pruett
Deputy Secretary

#### **CERTIFIED MAIL - RETURN RECEIPT REQUESTED**

February 28, 2020

Colonel David S. Miller, Commander 377<sup>th</sup> Air Base Wing 2000 Wyoming Blvd SE Kirtland AFB NM 87117

RE:

KAFB, Groundwater Discharge Permit DP-1839, Approval of Work Plan for Installation of Class V Underground Injection Control Well KAFB-106IN2, Bulk Fuels Facility, Solid Waste Management Unit ST-106/SS-111

Dear Colonel Miller,

On December 24, 2019, the Ground Water Quality Bureau of the New Mexico Environment Department (NMED) received the above referenced Work Plan from Kirtland Air Force Base (KAFB or Permittee). The Work Plan identifies tasks associated with the installation of a Class V underground injection control (UIC) well. Condition 10 of KAFB's Groundwater Discharge Permit (DP-1839 or "Permit" associated with the Bulk Fuels Facility and the associated Ground Water Treatment System (GWTS)) requires submittal of such a Work Plan for NMED's approval, requires the Work Plan address numerous specific groundwater protection criteria, and that the Work Plan satisfy the corrective action provisions at Part 6 of the Resource Conservation and Recovery Act (RCRA) Permit.

DP-1839 authorizes the Permittee to discharge treated GWTS effluent via UIC wells not to exceed 1,440,000 gallons per day (gpd). Current effluent disposition methods for the treated effluent include irrigation of the on-Base golf course and underground placement via Class V injection well KAFB-7. A second Class V UIC injection well (KAFB-106IN2), the subject of this correspondence, will provide needed redundancy for the disposition of the treated GWTS effluent.

NMED finds the Work Plan satisfies all requirements of DP-1839 and the corrective action provisions at Part 6 of the RCRA Permit and therefore approves the Work Plan as submitted. Groundwater discharges associated with the Work Plan shall be performed in accordance with the Work Plan and are subject to all conditions of DP-1839. Prior to discharging to the new UIC well, the Permittee must submit written notification to NMED stating the date that the discharge is to commence.

Colonel David S. Miller February 28, 2020 Page 2 of 2

In accordance with Permit Condition 4, KAFB-106IN2 will be located within the Designated UIC Area and therefore the addition of this well does not constitute a discharge permit modification as defined at 20.6.2.D(4) NMAC and does not trigger the public notice and participation requirements at 20.6.2.3108 NMAC. NMED provides a revised DP-1839 Table 1 listing the UIC wells authorized by the Permit.

Groundwater in the area near proposed KAFB-106IN2 exists in the regional aquifer. The nearest regional aquifer monitoring well (KAFB-2628) to the proposed KAFB-106IN2 is approximately 175 feet (ft) to the north-northeast and in 2018 the depth to water in the well was 499 ft below ground surface (bgs).

Groundwater in the area near proposed KAFB-106IN2 also exists variably within a perched groundwater system with depths ranging from 200 to 415 ft bgs. The perched aquifer monitoring well nearest to proposed KAFB-106IN2 having measurable groundwater is KAFB-0506. KAFB-0506 is located approximately 1,350 ft south of proposed KAFB-106IN2 and has a measured depth to groundwater of approximately 210 ft bgs. The three perched groundwater monitoring wells located most proximal to proposed KAFB-106IN2 are KAFB-2627, KAFB-2524, and KAFB-2623. These wells are located 250, 800, and 600 ft respectively south-southwest from the proposed UIC well and as of 2018 are dry at the depth of the perched aquifer.

Approval of the Work Plan does not relieve the Permittees of the responsibility to comply with any other applicable federal, state, and/or local laws and regulations. This approval also does not relieve the Permittees of liability should operations associated with this Work Plan result in actual pollution of ground or surface waters.

If you have any questions, please contact Andrew Romero at (505) 827-0076. Thank you for your cooperation.

Sincerely

Michelle Hunter, Chief

Ground Water Quality Bureau

MH:AR

Attachment: revised Permit Table 1

cc:

Rebecca Roose, NMED WPD Stephanie Stringer, NMED RPD Dave Cobrain, NMED HWB Steve Pullen, NMED GWQB Melanie Sandoval, NMED GWQB Kathryn Lynnes, SAF-IEE Scott Clark, AFCEC/CZ



Michelle Lujan Grisham Governor

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# NEW MEXICO ENVIRONMENT DEPARTMENT

#### Hazardous Waste Bureau

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**CERTIFIED MAIL - RETURN RECEIPT REQUESTED** 



James C. Kenney Cabinet Secretary

Jennifer J. Pruett
Deputy Secretary

MAR 0 4 2020

Colonel David S. Miller Base Commander 377 ABW/CC 2000 Wyoming Blvd SE Kirtland AFB, NM 87117 Lt. Colonel Wayne J. Acosta Civil Engineer Office 377 Civil engineer Division 2050 Wyoming Blvd SE, Suite 116 Kirtland AFB, NM 87117

RE:

**DISAPPROVAL** 

ETHYLENE DIBROMIDE IN SITU BIODEGRADATION PILOT TEST REPORT BULK FUELS FACILITY SOLID WASTE MANAGEMENT UNITS ST-106 AND SS-111 KIRTLAND AIR FORCE BASE, NEW MEXICO EPA ID# NM6213820974 HWB-KAFB-19-011

Dear Colonel Miller and Lt. Colonel Acosta:

The New Mexico Environment Department (NMED) is in receipt of the Kirtland Air Force Base (Permittee) Ethylene Dibromide In Situ Biodegradation Pilot Test Report (Report), dated April 2019. NMED has reviewed the Report and hereby issues this Disapproval. Although the Permittee demonstrated that in-situ biodegradation of 1,2-dibromoethane (EDB) had occurred during the pilot test, deficiencies were identified throughout the Report. This should not be construed to mean that the approach would be an effective remedial option, but simply that biodegradation of EDB was observed to occur during the pilot test.

The attached comments are related to general inadequacies and inaccuracies, technical inadequacies and inaccuracies, and direction for future light nonaqueous phase liquids (LNAPL) delineation and mitigation. Determining the extent of LNAPL is necessary for establishment of an effective monitoring system and the evaluation of future remedial alternatives. The Permittee must address the attached comments.

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The Permittee must submit a revised Report that addresses all comments contained in the attachment to this Disapproval. Two hard copies and an electronic version of the revised Report must be submitted to the NMED. The Permittee must also include a redline-strikeout version in electronic format showing where all revisions to the Report have been made. The revised Report must be accompanied with a response letter that details where all revisions have been made, cross-referencing NMED's numbered comments. The Revised Report must be submitted to NMED no later than **June 5**, **2020**.

Should you have any questions or wish to meet with us to discuss these comments, please contact me at (505) 476-6035 or have your staff contact Michiya Suzuki of my staff at (505) 476-6046.

Sincerely,

Kevin M. Pierard, Chief Hazardous Waste Bureau

cc:

D. Cobrain, NMED HWB

B. Wear, NMED HWB

M. Suzuki, NMED HWB

L. King EPA Region 6 (6LCRRC)

S. Clark, KAFB

K. Lynnes, KAFB

File: KAFB 2020 Bulk Fuels Facility Spill and Reading

Attachment

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#### **GENERAL COMMENT**

#### 1. Inconsistency in the Designations of Wells

**NMED Comment:** The Permittee used multiple designations for wells in the Report. For instance, on Figure 2 of the Report, well KAFB-106008 is designated as KAFB-1068. Use of multiple designations for wells results in confusion for document reviewers and the public. The Permittee must use the official full designation for each well in every instance in all future documents submitted to NMED.

#### SPECIFIC COMMENTS

#### 2. Executive Summary, page ES-3

**Permittee Statement:** "The modified Phase 3 was approved by the NMED in a letter dated August 7, 2018 (NMED, 2018)."

**NMED Comment:** It should be noted that the NMED's letter dated August 7, 2018 approved the proposed modification under the following conditions: 1. Bioaugmentation shall remain as an approved, but deferred, component of the pilot test, and 2. The biochemistry/LNAPL technical working group shall meet as soon as practicable to review pilot test results and to discuss the deferral of bioaugmentation. The response letter must include details of the technical work group meeting where the deferral of bioaugmentation was discussed and along with any conclusions reached.

#### 3. Section 1, Introduction, page 1-1

**Permittee Statement:** "[Anaerobic in- situ bioremediation] ISB, with and without bioaugmentation, is a common remedial approach to treat chlorinated solvents such as trichloroethene and is a promising technology for promoting the degradation of EDB to nontoxic products."

NIMED Comment: Anaerobic in-situ bioremediation of chlorinated solvents (e.g., trichloroethene) produces toxic byproducts such as vinyl chloride. Some byproducts are recalcitrant under anaerobic conditions. Although Section 4.5.2, *EDB*, *EDB Degradation Products*, pages 4-20, discusses EDB degradation products, the discussion lacks detail; therefore, it is not clear whether or not EDB produces toxic byproducts under anaerobic conditions (e.g., bromoethane, bromoethanol, vinyl bromide). Provide a more detailed discussion regarding EDB toxic degradation byproducts under anaerobic conditions in the revised Report.

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#### 4. Section 1.3, Site History, page 1-3

**Permittee Statement:** "Based on historical Air Force fuel usage, AvGas containing EDB as a lead scavenger would have been in use from approximately the 1940s to 1975."

**NMED Comment:** Aviation fuels are known to contain additives. Clarify whether or not the fuels currently used at the site contain other potentially toxic fuel additives in the revised Report.

# 5. Section 1.4, Site Conditions, pages 1-3 and 1-4

**Permittee Statement:** "Based on data reviewed for the pilot test design, the groundwater gradient in the pilot test area was less than 0.002 foot/foot (First Quarter 2016), and the direction of groundwater flow had shifted from north-northeast to a more east-southeast direction, likely due to continuing water-conservation practices and seasonal fluctuations, as discussed in the Second Quarter 2018 Quarterly Monitoring Report (USACE, 2018b)."

NMED Comment: According to Figure 2, *Site Location Map*, extraction well KAFB-106EX1 is located downgradient (east-southeast) from injection well KAFB-106IN1 that is consistent with current groundwater flow direction; hence, well KAFB-106EX1 is likely effective to enhance the hydraulic gradient, recirculate groundwater in the vicinity, and facilitate the distribution of the injection fluid. However, extraction well KAFB-106EX2 is located upgradient (west-northwest) from injection well KAFB-106IN1. Well KAFB-106EX2 is less effective for the distribution of the injection fluid as demonstrated during the tracer test. In the response letter, provide an explanation for the purpose of using well KAFB-106EX2.

# 6. Section 1.4, Site Conditions, page 1-4

Permittee Statement: "Additionally, treatability testing using Kirtland AFB soil and groundwater showed that bioaugmentation with a known debrominating culture (SDC-9) significantly enhanced EDB degradation rates (Figure 3). These results indicated that ISB, by stimulating the activity of indigenous EDB degrading organisms (i.e., biostimulation) or bioaugmenting with a debrominating culture (e.g., SDC-9), showed promise for enhancing EDB degradation at Kirtland AFB."

**NMED Comment:** According to Figure 3, Concentrations of EDB in Anaerobic Microcosms Prepared with Aquifer Samples Collected from the BFF Source Area, the microcosm vessel augmented with the debrominating culture demonstrated EDB degradation. However, other vessels amended with nutrients but only aimed to stimulate indigenous microbes did

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not appear to demonstrate EDB degradation. Accordingly, the statement is inaccurate and misleading. Correct the statement for accuracy or provide an additional explanation regarding other vessels/methods that did not appear to demonstrate EDB degradation in the revised Report.

#### 7. Section 2.3, Well Design and Installation, page 2-3

**Permittee Statement:** "Existing monitoring wells KAFB-106063 (screened from 505 to 520 feet bgs [below ground surface], with top of screen approximately 25 feet below the water table) and KAFB-106064 (screened from 485 to 505 feet bgs, with top of screen approximately 5 feet below the water table) were used for groundwater monitoring during the pilot test, along with the other newly installed wells."

**NMED Comment:** According to Appendix A, *Site Photographs*, a photograph shows that light non-aqueous phase liquid (LNAPL) was detected in well KAFB-106S2. Presumably, KAFB-106S2 is the same well identified as KAFB-1068 in Figure 2, *Site Location Map*. In the revised Report, correct the well nomenclature in Figure 2 as necessary to be consistent. Additionally, since well KAFB-106S2 is located upgradient of the pilot test area, LNAPL may be present in the pilot test area as well. Wells with screened intervals submerged below the water table are not appropriate to evaluate the presence or absence of LNAPL. Well KAFB-106063 was used to evaluate the intermediate groundwater zone for the purpose of the pilot test; therefore, the submerged screen is acceptable. However, well KAFB-106064 was used to evaluate the shallow groundwater zone; therefore, the screened interval must not be submerged. It is critical that the extent of LNAPL plume is delineated. If this issue has not already been addressed, submit a work plan to propose to replace submerged screened intervals of all monitoring wells installed to evaluate the shallow groundwater zone in the source area (e.g., KAFB-106064).

#### 8. Section 2.3, Well Design and Installation, page 2-4

Permittee Statement: "The two pairs of nested groundwater monitoring wells, two extraction wells, and one injection well were installed by Cascade Drilling (formerly National Exploration Wells & Pumps) using an Air Rotary Casing Hammer (ARCH) drill rig from January through March 2017. During borehole advancement, soil cuttings were logged every 5 feet by the site geologist in accordance with the Unified Soil Classification System and American Standard Test Method International D1586-84."

**NMED Comment:** The Air Rotary Casing Hammer (ARCH) drilling method pulverizes soil cuttings and prevents the ability to observe details in soil cores such as presence or absence of fractures and exact locations of hydrocarbon stains. Undisturbed soil cores characterize the subsurface conditions more accurately and such information can maximize the

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effectiveness of remediation later on. Acknowledge the shortcomings related to the drilling method used in the revised Report.

#### 9. Section 2.3, Well Design and Installation, page 2-4

Permittee Statement: "Soil drill cuttings from just above and in the saturated zone were screened for presence of NAPL and volatile organic compounds (VOCs) using a photo ionization detector (PID) to collect headspace measurements. Drill cuttings were also visually inspected for evidence of staining. PID readings were recorded on the soil boring logs (Appendix C)."

**NMED Comment:** The collection of soil samples for laboratory analyses is necessary for every boring in the source area. The soil sampling data will provide useful information to determine the extent of soil contamination. The described field screening method does not provide sufficient data for site characterization. Propose to collect soil samples from every boring at the site in all future work plans.

### 10. Section 2.3, Well Design and Installation, page 2-4

**Permittee Statement:** "Table 1 presents the completion details for the wells, including surveyed elevations and coordinates, and screen depths."

NMED Comment: According to Table 1, Well Completion and Survey Data, the depth to groundwater and the depth to the screened interval in injection well KAFB-106IN1 are recorded as 477.00 feet bgs and 477 – 497 feet bgs, respectively. The depth to the top of the screened interval coincides with the depth of the water table. However, the depth to the top of the filter pack is recorded as 467 feet bgs according to Appendix C, Well Installation Forms, which is 10 feet above the depth to the water table. Since the filter pack is positioned above the water table, the injection fluid applied from the well is likely to follow the least resistant pathway above the water table, rather than in the aquifer matrix due to the lack of the hydrostatic pressure. The screen and filter pack intervals should have been positioned below the water table. The pilot test data obtained from the injection wells with screened intervals positioned above the water table may generate positively biased results for the shallow groundwater zone because injection fluids will be distributed in larger lateral extent on the groundwater interface. No revision required.

# 11. Section 2.3.1, Groundwater Monitoring Well Installation, page 2-5

Permittee Statement: "The two shallow monitoring wells (KAFB-106MW1-S and KAFB 106MW2-S) were constructed with 4-inch diameter, Schedule 80, polyvinyl chloride (PVC) riser pipe; and the two intermediate wells (KAFB-106MW1-I and KAFB-106MW2-I) were constructed with 3-inch diameter, Schedule 80, PVC riser pipe."

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NMED Comment: The screened intervals for intermediate wells KAFB-106MW1-I and KAFB-1062-I were both installed at 513 – 523 feet bgs. According to Section 1.4, Site Conditions, the deepest depths of the water table at the site ranged from 500 to 502 feet bgs in 2009, which is approximately 25 feet below the current groundwater table. According to Appendix C, Well Installation Forms, the elevated PID readings are recorded at the depths ranging from 485 feet to 510 feet bgs in the borings installed in the pilot test area. Adsorbed and submerged LNAPL may be present at depths of 485 feet to 510 feet bgs. The PID readings corresponding with the depth of the screened intervals for the intermediate wells (513 - 523 feet bgs) are relatively low; therefore, adsorbed LNAPL is unlikely to be present at the screened depth. These intermediate wells may be useful to evaluate the distribution of the injection fluids at the deeper groundwater bearing zone during the pilot test; however, since the screened intervals of the wells do not correspond with the depths where adsorbed/submerged LNAPL is present, these wells are not suitable for future LNAPL monitoring and remediation purposes. No revision required.

#### 12. Section 2.4.4, Pump Installation, page 2-11

Permittee Statement: "A 6-inch sanitary well seal and a 1.5-inch-diameter threaded steel pipe were installed in the injection well casing to convey water from the piping exiting the system Conex box to the screened interval of the injection well. The injection pipe extended down into the water column and was fitted with a 4-inch diameter, custom designed and fabricated down-hole flow control valve (FCV, manufactured by Baski, Inc.) to limit risks of cavitation within the pipe, and to minimize volatilization and aeration of the anaerobic recirculation water."

**NMED Comment:** The flow control valve was used to regulate the injection flowrate, indicating that the injection was controlled by flowrate rather than pressure. Explain whether the injection flowrate was regulated by the height of the water column or the groundwater extraction flowrate or both. In addition, during the Phase 2 and Phase 3 periods of the pilot test, the height of the water column in the injection well significantly increased due to the biofouling of the screen. Unless this issue is resolved, the tested remedial approach would not be practicable for long-term or large-scale operations due to well screens clogging from biofouling and restricting the ability to add amendments to the contaminated groundwater. Discuss potential measures to resolve the issue in the revised Report.

### 13. Section 2.6, Recirculation Pilot System Equipment and Materials, page 2-13

Permittee Statement: "The system was designed to extract groundwater from the two extraction well locations and reinject that groundwater in the injection well after tracer or amendment addition, at a design flow rate of up to 24 gpm."

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**NMED Comment:** According to Figure 6, *Process Flow Diagram*, and Figure 5, *Recirculation and Amendment System Piping and Instrumentation Diagram*, an injection or transfer pump that delivers the injection fluid is not depicted in the system. Explain how the fluid is delivered to the injection well without a transfer pump in the response letter. In addition, LNAPL is present at the site; however, the components depicted in the system do not appear to have a mechanism to remove LNAPL, if present, from the recovered groundwater. Explain how LNAPL is handled by the recirculation system in the response letter. The system must have a mechanism to remove LNAPL from the recovered groundwater.

#### 14. Section 3.3, Phase 1 – Tracer Testing, page 3-3

Permittee Statement: "During the entire Phase 1 recirculation period, approximately 1,024,000 gallons of water were extracted and reinjected."

**NMED Comment:** Based on the distance from the injection well to the extraction wells, aquifer thickness, effective porosity, and volume of groundwater extracted and reinjected, provide an estimate for how many pore volumes of groundwater were exchanged in the treatment zone. Additionally, provide the estimate of pore volumes exchanged for the subsequent phases of the pilot test. Include the calculations and discussion in the revised Report.

#### 15. Section 3.3, Phase 1 - Tracer Testing, page 3-4

Permittee Statements: "The likely cause of the inaccurate [pressure transducer] readings was electrical interference from the extraction well pumps' power leads running down the well to the pump near the drop tubes where the transducers and their control wires were housed. As a result, manual water level readings were periodically measured using the Solinst water level meter. Manual water level readings are summarized in Table 5." and,

"During recirculation system operation, it became apparent that the water level readings from pressure transducers located in the extraction well drop pipes were not accurate. While the readings returned to the SCADA were erratic, the overall trends in the data were decipherable."

NMED Comment: The recirculation operation during the Phase 1 period was conducted from October 2 to November 3, 2017. According to Table 5, Manual Extraction Well Water Level Measurements, only three measurements (October 17, 23, and 31, 2017) were collected during that time. The data should have been collected more frequently, particularly at the beginning of the recirculation process because the drawdown data would be useful to determine the properties of the aquifer. In the revised Report, provide the original data initially collected from the pressure transducers and demonstrate how the data is decipherable. Additionally, correlate the erratic data collected from the pressure

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transducers with the limited data collected manually and provide interpreted data for the missing portion of the drawdown data between October 2 and 17, 2017, if possible.

#### 16. Section 3.3, Phase 1 – Tracer Testing, page 3-5

**Permittee Statement:** "The field water quality parameters, NAPL, and water level measurements were recorded on the purge logs for each well. Purge logs and sample collection logs are included as Appendix F."

**NMED Comment:** Appendix F, Field Sampling Records, does not clearly indicate whether NAPL was detected in the wells. A photograph included in Appendix A shows the presence of LNAPL in the vicinity of the test site. In the response letter explain whether LNAPL was detected from the wells, and if so, provide the gauging data in the revised Report.

#### 17. Section 3.4, Phase 2 – Biostimulation, page 3-6

Permittee Statement: "During the recirculation period, groundwater was extracted and an easily fermentable sodium lactate-based substrate (WilClear Plus®, manufactured by JRW Bioremediation), nutrient (DAP), and conservative tracer (KI) were added to the recirculated process water stream."

**NMED Comment:** Commercially available remediation products were used for the pilot test. The Report does not include information for the products. Provide all available information for the products (e.g., safety data sheets) in the revised Report.

#### 18. Section 3.4, Phase 2 - Biostimulation, page 3-7

**Permittee Statement:** "A pulsed amendment injection scenario was implemented in an attempt to minimize biofouling in the injection well."

**NMED Comment:** Explain how a pulsed amendment injection scenario would minimize biofouling in the injection well in the revised Report.

#### 19. Section 3.4, Phase 2 – Biostimulation, page 3-7

**Permittee Statement:** "... an increase in mounding (up to 9 feet above static [476 feet bgs]) at the injection well was observed."

**NMED Comment:** The water column increased to 467 feet bgs due to the mounding in the injection well. The depth to the top of the filter pack is 467 feet bgs according to Appendix C. The mounded water laterally asserts pressure through the interval of the filter pack and

Col. Miller and Lt. Col. Acosta EDB Biodegradation Report Attachment Page 8 of 20

spreads above the groundwater interface. Based on the inappropriate design of the injection well, the data collected from the pilot test is likely biased (see Comment 10).

### 20. Section 3.4, Phase 2 - Biostimulation, page 3-8

Permittee Statement: "Introduction of amendments using the new concentrations began on December 29, 2017. The active portion of Phase 2 was extended until February 7, 2018 to deliver the planned mass of amendments."

**NMED Comment:** Clarify the design (target) concentrations of the amendments in the aquifer beneath the pilot test area and explain the basis for the design concentrations. Provide the calculations and explanation in terms of the total volume of groundwater to be recirculated, the mass and volume of amendments, and the stoichiometric/theoretical requirement of the amendments in the revised Report.

#### 21. Section 3.4, Phase 2 - Biostimulation, page 3-8

**Permittee Statement:** "During Phase 2, approximately 11 feet of water level drawdown was observed at KAFB-106EX2 during active Phase 2 system operations. The flowrate at KAFB-106EX2 was incrementally reduced to 7 gpm beginning on January 8 through January 22, 2018 to prevent drawdown of water below the top of the screened interval."

NMED Comment: Contrary to the action taken during the operation of the Phase 2 period, it is appropriate to reduce the water level to intersect the screened interval in the extraction well. Eleven feet of water level drawdown is sufficient to reduce the water level below the top of the screened interval and it should have been maintained. The drawdown would have allowed LNAPL that may be present at the interface to be recovered from the extraction well. However, despite the benefit of potential LNAPL recovery, the flowrate was reduced to prevent drawdown of water below the top of the screened interval. The reduction of flowrate was intended to minimize aeration of groundwater. LNAPL recovery must be a primary focus of remedial efforts and must not be compromised. The issues associated with aeration of groundwater must be resolved by other means, as necessary. No revision necessary.

# 22. Section 3.5, Phase 3 - Biostimulation, page 3-9

**Permittee Statement:** "Therefore, similar to Phase 2, the purpose of Phase 3 was to continue to evaluate biostimulation in the subsurface after distribution of treatment amendments in recirculated groundwater. Phase 3 also consisted of two operational periods, a recirculation/mixing (active) period, and a subsequent passive monitoring period (no recirculation)."

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**NMED Comment:** Since the Permittee did not implement an evaluation of bioaugmentation during the Phase 3 period of the pilot test, the testing conducted during Phases 2 and 3 appears to be almost identical. Explain the significance of conducting Phase 3 of the pilot test in the revised Report. Revise the Report to combine the discussion of Phase 3 with that of Phase 2, as appropriate.

#### 23. Section 3.5, Phase 3 – Biostimulation, page 3-10

Permittee Statement: "Increased mounding was also observed throughout the active portion of Phase 3 at the injection well (see Figure 7), increasing to approximately 35 feet above the static level by the end of Phase 3 active recirculation."

**NMED Comment:** Since the filter pack of the injection well is set above the water table, an excessive injection pressure (35 feet of water) likely further pushed the fluid laterally above the water table, rather than within the aquifer matrix. Due to the design of the injection well, the distribution of amendments is likely limited to the interface (see Comments 10 and 19). Additionally, the issue of well screen fouling must be resolved, if this remedy is to be considered as part of a future remedy. No revision necessary.

#### 24. Section 3.5, Phase 3 - Biostimulation, page 3-11

**Permittee Statement:** "After approximately 40 minutes of pumping, the water level in the well was manually checked and found to have drawn down below the transducer to the level of the pump intake (492 feet bgs). Thus, it seemed the loss of well capacity suggested by the increased mounding at the injection well (shown on Figure 7) was preventing groundwater from flowing into the well to sustain pumped flow to the surface; likely due to fouling of the well screen."

**NMED Comment:** Explain whether measures to remediate the biofouling were developed during the pilot test. If so, provide a detailed explanation in the revised Report. Unless the issue is resolved, the remedial approach would not be practicable for long-term or larger scale implementation (see Comments 12 and 23).

#### 25. Section 3.5, Phase 3 – Biostimulation, page 3-11

**Permittee Statement:** "As a result, of the decreased well capacity, sample collection using the injection well pump was no longer possible, and samples from KAFB-106IN1 were collected using a 0.85-inch by 36-inch stainless steel bailer lowered to the groundwater through the transducer drop tube."

**NMED Comment:** It should be noted that the sample collected from the injection well was not representative of groundwater conditions. The sample collected from the injection well

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was likely the remaining injection fluid that is stagnant in the injection well. The data obtained from the sample must not be used in any decision-making process, such as the evaluation and selection of remedial alternatives, confirmation that an area meets contaminant standards, or conclusion that a site meets the requirements for a Corrective Action Complete status. No revision necessary.

#### 26. Section 3.7, NAPL Sampling, page 3-12

Permittee Statement: "Measurable NAPL was detected in the shallow nested well KAFB 106MW1-S during QED pump installation on September 5, 2017. Three separate measurements were collected using a Solinst interface probe and confirmed a thickness of approximately 0.27 to 0.31 feet. NAPL was not detected at any other shallow monitoring wells within or around the treatment zone, or in the injection well."

**NMED Comment:** LNAPL was also present in well KAFB-106S2 that is located near the pilot test area. Unless the extent of the LNAPL plume is delineated and eliminated, the groundwater that is treated for dissolved phase constituents (e.g., EDB) will be recontaminated by residual LNAPL. LNAPL will act as a source of the dissolved phase contaminants. It is essential to eliminate all recoverable LNAPL from the site (see Comment 30).

#### 27. Section 3.7, NAPL Sampling, page 3-12

Permittee Statement: "The extraction wells were not gauged for NAPL, as the top of the well screens were designed to be installed below the static water level."

**NMED Comment:** A primary focus for the remedy at the site is an abatement of LNAPL. Once LNAPL is abated, the concentrations of the dissolved constituents are likely to gradually decrease. Therefore, the screened intervals of the extraction wells should not have been designed to be submerged below the water table. In the future, the screened intervals of all shallow groundwater monitoring and recovery wells must intersect the water table to capture LNAPL unless otherwise pre-approved by NMED.

#### 28. Section 3.7, NAPL Sampling, page 3-13

**Permittee Statement:** "Additional product recovery was attempted on September 13 and 14, 2017, and approximately 60 milliliters [of LNAPL] were recovered and sent to the APTIM Lawrenceville laboratory."

**NMED Comment:** APTIM executed the pilot test and prepared the Report. APTIM should not have sent the samples to an internal corporate-owned laboratory. Industry standards provide that all laboratory analyses should have been conducted by a certified and

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independent third-party laboratory to avoid the perception of conflict of interest. The analytical results reported from the laboratory affiliated with the consultant must be identified as such in the Report. Revise the Report accordingly.

#### 29. Section 3.7, NAPL Sampling, page 3-13

**Permi**ttee **Statement:** "The  $\delta^{13}$ C value of the EDB in the NAPL, as determined by the University of Oklahoma, was approximately -21±2%."

**NMED Comment:** In the revised Report, discuss the implication of the finding associated with the C<sup>13</sup> isotope analysis for the EDB in the NAPL in comparison to the ratios of isotopes for the EDB in the groundwater samples collected during the pilot test.

#### 30. Section 3.7, NAPL Sampling, page 3-13

**Permittee Statement:** "The fall and rise of the water table during well installation and development may have impacted the vertical transport and subsequent distribution of NAPL in the lower vadose zone, capillary fringe, and top of the unconfined aquifer; causing the measureable [sic] NAPL at KAFB-106MW1-S."

NMED Comment: Section 1.4 states, "[t]he deepest depth to water, representing the lowest historical groundwater elevation, measured at groundwater wells in the BFF source area ranged from approximately 500 to 502 feet bgs in 2009. In recent years, the water table has been rising due to water-conservation efforts by the Albuquerque community and reduction of pumping of production wells by Albuquerque Bernalillo County Water Utility Authority. As a result, the current vadose zone at the BFF site is approximately 455 to 480 feet thick." At the time the LNAPL release occurred, the water table was approximately 20 to 30 feet below the current depth of the water table. Therefore, adsorbed and submerged LNAPL may also be present at depths below the current groundwater interface. Propose to submit a work plan to investigate the vertical and lateral extent of LNAPL at the current groundwater interface and at depths below the current water table where LNAPL was likely trapped as the water table rose.

#### 31. Section 3.10, Quality Control, page 3-15

Permittee Statement: "Laboratory data packages are also provided in Appendix G-2."

**NMED Comment:** Appendix G-2 was not included in the Report. Ensure that Appendix G-2 is included in the revised Report.

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#### 32. Section 3.11.1, Soil IDW, page 3-16

**Permittee Statement:** "All drill cuttings were containerized in plastic-lined, steel roll-off containers pending laboratory analysis for waste characterization and disposal. Each roll-off was sampled for waste characterization."

**NMED Comment:** Provide more detailed information regarding the sampling method for waste characterization in the revised Report. More specifically, explain the frequency of sample collection (e.g., soil volume per sample), whether composite or discrete samples were collected, and the number of subsamples in a composite sample, if collected, in the revised Report.

# 33. Section 3.11.2, Liquid IDW - Development and Decontamination, page 3-18

Permittee Statement: "Non-hazardous waste manifests are included in Appendix H-3. Hazardous liquid IDW generated from development and decontamination activities was disposed of by Chemical Transportation, Inc. and Clean Harbors at Clean Harbors Deer Trail, LLC in Colorado. Hazardous waste manifests are included in Appendix H-4."

**NMED Comment:** Non-hazardous waste manifests are included in Appendix H-4 and hazardous waste manifests are included in Appendix H-3 of the Report. Correct the typographical errors in the revised Report.

# 34. Section 4.2.2, Tracer Distribution During Phase 2 and 3, Phase 2, page 4-5

Permittee Statements: "Also evident in the iodide data is that final concentrations observed at the nearest monitoring wells of 17 mg/L (KAFB-106MW2-S) and 18 mg/L (KAFB-106064) are equivalent with injected iodide concentrations (KAFB-106IN), which indicates that most of the groundwater observed at these wells was previously amended and reinjected."

and,

"Overall, iodide concentrations observed during the Phase 2 recirculation period indicated good distribution of injected waters, particularly within the treatment zone encompassing the shallow monitoring wells nearest to the injection well."

NMED Comment: The tracer volume injected into the aquifer is estimated to be less than 30% of pore volume for the radial distance between the injection well and well KAFB-106MW2-S. Therefore, the highest concentrations of the tracer detected in the wells cannot be equivalent to the tracer concentrations of the injection fluid if uniform distribution of the injection fluid was achieved within the aquifer matrix. The top depth to the filter pack was set above the water table; therefore, the injection fluid may have migrated above the groundwater interface without being adequately mixed in the aquifer. Consequently, an

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> undiluted or less diluted tracer solution may have reached the wells and been detected in the samples collected from the wells. The injection well construction likely provides positively biased data (see Comments 10, 19 and 23).

#### 35. Section 4.2.3, Distribution of Fermentable Substrate, page 4-7

**Permittee Statement:** "Recirculated groundwater during Phase 2 and Phase 3 was amended with WilClear Plus®, which served as a fermentable substrate to stimulate debrominating organisms in the subsurface during the pilot test."

**NMED Comment:** Although the Permittee asserts that debrominating organisms are present at the site, the data provided in Figure 3, Concentrations of EDB in Anaerobic Microcosms Prepared with Aquifer Samples Collected from the BFF Source Area, indicate otherwise (see Comment 6). The result of the microcosm study appears contradictory; however, the pilot test successfully demonstrated the occurrence of in-situ EDB degradation through carbon isotope analysis of EDB. No revision necessary.

#### 36. Section 4.2.3, Distribution of Fermentable Substrate, page 4-8

Permittee Statement: "While lactate was introduced to the subsurface at around 110 mg/L, concentrations at monitoring wells never exceeded 4 mg/L."

**NMED Comment:** Provide information regarding the volume of the lactate solution introduced through the injection well in the revised Report.

#### 37. Section 4.2.3, Distribution of Fermentable Substrate, page 4-8

**Permittee Statement:** "The observed increases in acetate and propionate strongly suggest that organic substrate capable of stimulating reductive debromination of EDB was distributed to most wells during the pilot test."

**NMED Comment:** Lactate is fermented to acetate and propionate by various bacteria and is not limited by debrominating bacteria. The statement is speculative and can be misleading. Revise the statement for accuracy.

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#### 38. Section 4.3, Microbial Analysis, page 4-9

Permittee Statement: "This increase in EBAC [eubacteria] after Phase 1 recirculation activity may be the result of organic carbon and nutrient redistribution in the treatment zone along with the increased groundwater flows due to recirculation."

NMED Comment: Although the carbon substrate and nutrients were not distributed during the Phase 1 period of the pilot test, the measured microbial population increased approximately two orders of magnitude. The increase in microbial population occurred before the biostimulation period was implemented. The observation indicates that microbial population can be increased with or without biostimulation amendments. Since hydrocarbon constituents (e.g., benzene, toluene) are ubiquitous in the groundwater, they may also be utilized as carbon substrates by anaerobic bacteria. In this case, an amendment of appropriate electron acceptors (e.g., sulfate) may further increase microbial populations and enhance biodegradation of the contaminants. Figure 19, APS Concentrations – All Wells, indicates that the population of sulfate reducing bacteria in groundwater samples collected from all wells except injection well KAFB-106IN plateaued during the Phase 2 and Phase 3 biostimulation period of the pilot test; sulfate may be a limiting factor for the population growth. Evaluate whether an amendment of appropriate electron acceptors enhances biodegradation of contaminants without compromising EDB degradation. Provide the discussion in the revised Report.

#### 39. Section 4.3, Microbial Analysis, page 4-9

**Permittee Statement:** "As with the high cell numbers prior to recirculation and amendments at the site, the large numbers of organisms capable of reductive debromination ( $10^5$  to  $10^6$  cells/mL for DHBt, and around  $10^5$  cells/mL for DSB) after biostimulation, suggest that EDB debromination activity may have been stimulated during the pilot test."

NMED Comment: According to Figure 21, *DHBt Concentrations – All Wells*, and Figure 24, *DSB Concentrations – All Wells*, the populations of DHBt and DSB appear to have plateaued during the Phase 2 and Phase 3 biostimulation period of the pilot test in all wells. These figures suggest that EDB debromination activity may not be stimulated by carbon substrate and nutrient amendments. The increase of the DHBt and DSB population was observed in groundwater samples collected from intermediate wells KAFB-106063, KAFB-106MW1-I and KAFB-106MW2-I during the Phase 1 period that was not related to biostimulation. Correct the statement for accuracy, discuss the implication of the observed population growth, acknowledge that other conclusions could be reached, and state that the data is not conclusive in the revised Report.

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#### 40. Section 4.4, Geochemistry, pages 4-10 and 4-11

Permittee Statement: "DO [dissolved oxygen] concentrations were below 1 mg/L at all wells, with most concentrations below 0.5 mg/L." and,

"The low DO concentrations within the treatment zone reflect favorable conditions for reductive debromination of EDB."

NMED Comment: The site groundwater is anaerobic due to the presence of hydrocarbons which favors reductive debromination of EDB. Hydrocarbons in the aquifer may serve as carbon substrate to degrade EDB anaerobically. When dissolved hydrocarbons are utilized for EDB debromination, the concentrations of hydrocarbons may also decrease which provides synergistic degradation. However, carbon substrates (e.g., lactic acid) that were amended to stimulate indigenous bacteria are more readily utilized in comparison to hydrocarbons. Subsequently, the degradation of hydrocarbons may potentially be hindered. Since EDB may be naturally degrading due to the current site conditions (e.g., anaerobic conditions, presence of hydrocarbons), the amendment of the carbon substrate may not be useful. Evaluate the necessity of the amendment to balance the EDB and hydrocarbon constituents degradation and provide the discussion in the revised Report.

#### 41. Section 4.4, Geochemistry, page 4-11

Permittee Statement: "With the exception of KAFB-106EX2 (25 mg/L), sulfate concentrations in shallow wells were low (<5 mg/L) under baseline conditions presumably due to past sulfate reduction to sulfide."

NMED Comment: Sulfate is a critical component for anaerobic biodegradation of dissolved hydrocarbon constituents. Since hydrocarbons are present in addition to EDB at the site, hydrocarbons must be remediated as well. According to Figure 19, APS Concentrations — All Wells, the population of sulfate reducing bacteria is abundant; however, sulfate concentrations appear to be insufficient to increase the activity of the sulfate reducing bacteria. Evaluate the viability of sulfate amendment to promote biodegradation of dissolved phase hydrocarbons in the revised Report (see Comment 38) and propose to submit a work plan for a pilot test to evaluate the effect of sulfate amendment, as appropriate.

#### 42. Section 4.4, Geochemistry, page 4-11

**Permittee Statement:** "The low sulfate concentrations within the treatment zone reflect favorable conditions for reductive debromination of EDB."

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**NMED Comment:** Clarify whether elevated sulfate levels inhibit reductive debromination of EDB in the revised Report. Also, propose to submit a work plan to evaluate the sulfide concentrations in the groundwater; if sulfide levels are too high in the groundwater, sulfate amendment may not increase the activity of sulfate reducing bacteria.

#### 43. Section 4.4, Geochemistry, page 4-12

Permittee Statement: "Due to the low solubility of ferric (Fe(III)) iron under circumneutral conditions as found at the site, dissolved iron concentrations are often assumed to reflect concentrations of more reduced ferrous (Fe(II)) iron. Minerals containing oxidized Fe(III) are fairly ubiquitous and elevated dissolved iron concentrations are usually indicative of iron reducing environments. Baseline measurements at the site indicated dissolved iron concentrations ranging from 1 mg/L (KAFB-106MW1-S) to 12 mg/L (KAFB-106MW2-S) in shallow wells, but concentrations at deeper, less impacted wells were all less than 1 mg/L."

NMED Comment: According to Figure 27, *Iron (Dissolved) Concentrations – All Wells*, the dissolved iron concentration in the baseline groundwater sample collected from intermediate well KAFB-106MW2-I exceeds 11 mg/L. Accordingly, the statement is not accurate. Correct the statement or Figure 27 to resolve the discrepancy in the revised Report. Additionally, the dissolved oxygen concentration in the baseline groundwater sample collected from the same intermediate well KAFB-106MW2-I is recorded as approximately 1.8 mg/L, which is higher than the most wells according to Figure 25, *Dissolved Oxygen – All Wells*. The inverse relationship between the levels of dissolved iron and oxygen is not clearly demonstrated by the data collected during the pilot test. Remove or revise the statement, as appropriate.

#### 44. Section 4.4, Geochemistry, page 4-12

Permittee Statement: "During the Phase 2 recirculation period when lactate amendments were introduced, methane concentrations generally fell again, but increased by many OOM [(orders of magnitude)] at several wells during the following passive period, with concentrations exceeding 10,000  $\mu$ g/L at the injection well and KAFB-106MW2-S."

NMED Comment: Methane may be beneficial to EDB remediation since it is considered a viable substrate for similar halogenated compounds (e.g., chlorinated ethenes). However, methanogens are known to produce ethene and ethane under the presence of brominated compounds (e.g., EDB). If methanogens produce more ethene and ethane which are main end products of EDB, they may potentially hinder degradation of EDB (e.g., via Le Chatelier's principle). Regardless, the increased methane production is merely an indicator of bacterial activity but not necessarily effective remediation. No revision or response required.

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#### 45. Section 4.5.1, Benzene and Toluene, page 4-14

Permittee Statements: "With the exception of the injection well (KAFB-106IN1) and monitoring well KAFB-106MW1-S, benzene concentrations in shallow monitoring wells for the remainder of the pilot test ranged in concentration from 1,680  $\mu$ g/L at KAFB-106MW2S to 4,400  $\mu$ g/L at KAFB-106EX2, indicating limited losses due to biodegradation or abiotic mechanisms (e.g., volatilization, dilution)." and.

"Interestingly, benzene increased during the passive periods at the shallow well KAFB-106MW1-S to concentrations as high as 9,800  $\mu$ g/L. The higher concentration at KAFB-106MW1-S is similar to baseline conditions prior to recirculation and may be the result of increased mass transfer from residual NAPL phases, as NAPL had previous[ly] been observed at that location."

**NiMED Comment:** Unless LNAPL is eliminated, LNAPL constituents will constantly leach into the groundwater and re-contaminate the aquifer. In order to abate LNAPL, the extent of LNAPL plume must be delineated laterally and vertically (see Comment 30). The reduction of all dissolved phase constituent concentrations will likely occur once the bulk of LNAPL is removed from the site.

#### 46. Section 4.5.1, Benzene and Toluene, page 4-15

**Permittee Statement:** "Interestingly, toluene concentrations decreased during Phase 4 passive monitoring at shallow wells KAFB-106MW2-S to 150  $\mu$ g/L (from 4,900  $\mu$ g/L in the previous sampling event) and KAFB-106064 to 960  $\mu$ g/L (from 11,000  $\mu$ g/L in the previous sampling event). These decreases were far greater than for benzene and may indicate some anaerobic biodegradation of toluene."

**NMED Comment:** Toluene is known to be more bioavailable as a carbon substrate than benzene. Presumably, anaerobic bacteria responsible for hydrocarbon degradation depleted the amended carbon substrates (e.g., lactate) during the Phase 4 passive monitoring period and initiated utilization of subsequently bioavailable hydrocarbon constituent, toluene. Further decline of toluene levels may be expected along with the decline of benzene level later in the passive monitoring period. Clarify whether the passive monitoring is on-going at this time and provide a reference that presents the most recent analytical data in the revised Report.

#### 47. Section 4.5.2, EDB, EDB Degradation Products, pages 4-20 and 4-21

**Permittee Statements:** "Based the assumption of reductive debromination and its stoichiometry, equivalent quantities of EDB degraded can be estimated using measured concentrations of ethene and ethane..."

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and,

"During and after the Phase 2 recirculation period, estimates of EDB equivalents degraded based on ethene and ethane increased to magnitudes similar to initial EDB concentrations, suggesting substantial conversion. The highest estimate of EDB equivalents degraded occurred at KAFB-106MW1-S after Phase 3 biostimulation efforts with an estimated concentration of approximately 270  $\mu g/L$ ."

**NMED Comment:** According to Tables 7 through 15, the concentrations of ethane, ethene, and methane were detected in the baseline groundwater samples collected from the pilot test wells. These dissolved gas constituents may or may not be degradation products of EDB. Since other hydrocarbon constituents (e.g., benzene and toluene) are concurrently present with EDB and the degradation products (ethane, ethene, and methane) are not exclusive to EDB biodegradation products, the quantity of degraded EDB cannot be estimated by measured concentrations of ethene and ethane. It should be noted that methanogens produce ethane and ethene under the presence of halogenated compounds and the presence of brominated compounds drives methanogens to produce even more ethane and ethene from small organic compounds such as carbon dioxide. Remove the statements from the revised Report.

# 48. Section 4.5.2, EDB, EDB Degradation Products, page 4-22

Permittee Statement: "The largest apparent increase in bromide to chloride ratio occurred during and after the Phase 3 recirculation period. This coincided with use of a new certified analytical laboratory after the original analytical laboratory measuring bromide ceased operations. Several of the increases in bromide appear to be on the order of 1 mg/L, which corresponds to degradation of approximately 1,200  $\mu$ g/L of EDB – much more than was observed in aqueous phase measurements during the pilot test."

**NMED Comment:** Since the notable increase occurred when an analytical laboratory was changed, the data generated from the new laboratory may or may not be accurate. Even if the analytical method is consistent and the new laboratory is certified for the analysis, the observed increase may potentially be caused by changes associated with various differences among laboratories. The samples should have been analyzed by two independent certified laboratories to confirm the results. Incorporate this measure when an analytical laboratory is to be changed during the course of periodic groundwater monitoring and sampling in the future. No revision required.

# 49. Section 4.5.2, EDB, Carbon Isotope Analysis of EDB, page 4-22

**Permittee Statement:** "As EDB degrades, its carbon (C) stable isotope composition can change as EDB with a heavy C isotope substitution ( $^{13}$ C) degrades slightly slower than EDB with only  $^{12}$ C (Koster van Groos et al, 2018)."

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**NMED Comment:** Provide information regarding the difference in degradability of EDB with  $^{12}\text{C}$  and  $^{13}\text{C}$  in the revised Report. Additionally, according to Figure 38, EDB  $\delta^{13}C$  – Shallow Wells, EDB  $\delta^{13}C$  values notably increased in groundwater samples collected from wells KAFB-106MW2-S and KAFB-106064 prior to Phase 2 of the pilot test, in which biostimulation was initiated. Provide an explanation for whether the occurrence of abiotic degradation (e.g., hydrolysis, oxidation) can also increase the fraction of  $^{13}\text{C}$  EDB in the revised Report.

#### 50. Section 5.1, Conclusions, pages 5-1 and 5-2

**Permittee Statements:** "Baseline measurements indicated that EDB was likely degrading prior to the pilot test." and,

"ISB appears to be a promising approach targeting EDB source areas in Kirtland AFB groundwater. While debromination may be occurring at Kirtland AFB without additional support, the addition of biostimulation amendments and mixing of water appeared to enhance reductive debromination."

**NMED Comment:** The degradation of hydrocarbon constituents (e.g., benzene and toluene) appeared to be hindered by the amended carbon substrates (see Comment 46). The pilot test demonstrated in-situ anaerobic biodegradation of EDB in the most pilot test wells; however, future remediation must focus on the abatement of LNAPL. Once the LNAPL plume is delineated and remediated, EDB levels will likely reduce naturally. The vertical and lateral extent of LNAPL must be investigated (see Comment 30).

#### 51. Figure 9, Fluoroscein [sic] Concentrations - Shallow Wells

NMED Comment: The tracer concentrations in injection well KAFB-106IN1 are depicted below 10 ug/L during the baseline, Phase 1 Tracer Test, and Non-pumping Passive Phase according to Figure 9. Section 4.2.1, *Tracer Distribution During Phase 1*, page 4-2, states that three measurements of fluorescein concentrations of injected water collected directly from the KAFB-106IN1 sample port averaged 570  $\mu$ g/L during the 24 hours of tracer injection, while background concentrations were not detected. The data presented in the figure is therefore not accurate. Revise the figure to show that the tracer concentration in the injection well was 570 ug/L during the injection period.

#### 52. Figure 11, $\delta^2$ H Concentrations – Shallow Wells

**NMED Comment:** The  $\delta^2$ H values of deuterium labeled water in injection well KAFB-106IN1 are depicted between -80% and -100% during the baseline, Phase 1 Tracer Test, and Non-pumping Passive Phase according to Figure 11. Section 4.2.1, *Tracer Distribution During Phase 1*, page 4-3, states that three measurements of  $\delta^2$ H values of the injected water

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averaged +590% during the 24 hours of tracer injection, while background  $\delta 2H$  values at the test area ranged from -97% to -92%. The data presented in the figure is therefore not accurate. Revise the figure to show that the  $\delta^2H$  value in the injection well was +590% during the injection period.

### 53. Figure 13, Iodide Concentrations - Shallow Wells

**NMED Comment:** The tracer concentrations in injection well KAFB-106IN1 are depicted below 9 mg/L during the Phase 2 and 3 Biostimulation Recirculation, Non-pumping Passive Phase according to Figure 13. Section 4.2.2, *Tracer Distribution During Phase 2 and 3*, page 4-4, states that iodide results from the injectate ranged from 18 to 26 mg/L. The data presented in the figure is therefore not accurate. Revise the figure to show that the tracer concentration in the injection well was 18 to 26 mg/L during the injection period.

## 54. Figure 15, Lactic Acid Concentrations – All Wells (Except 106IN1)

**NMED Comment:** The lactic acid concentrations were positively detected in groundwater samples collected from wells KAFB-106MW2-S, KAFB-106MW2-I, KAFB-106MW1-S, and KAFB-106064 prior to Phase 1 Tracer Recirculation according to Figure 15 although lactic acid was not amended to the injection fluid during Phase 1. Provide an explanation for the detections in the revised Report.



Michelle Lujan Grisham Governor

Howie C. Morales
Lieutenant Governor

# **Ground Water Quality Bureau**

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James C. Kenney
Cabinet Secretary

Jennifer J. Pruett
Deputy Secretary

March 10, 2020

Colonel David S. Miller, Commander Kirtland Air Force Base 377<sup>th</sup> Air Base Wing 2000 Wyoming Blvd SE Kirtland AFB NM 87117

RE: Response to Notice of Intent to Discharge; Discharge Permit Not Required for Kirtland Air Force Base, AI-2404

Dear Colonel Miller:

The New Mexico Environment Department's (NMED) Ground Water Quality Bureau (GWQB) received a Notice of Intent (NOI) from Kirtland Air Force Base (KAFB) on December 17, 2019, proposing to discharge groundwater associated with the maintenance of injection well KAFB-7 that has the potential to impact groundwater. The proposed discharge location is to the lined KAFB Golf Course Main Pond (GCMP) in Section 9, Township 9, Range 4, Bernalillo County, for utilization as irrigation water. The NOI satisfies the requirements of New Mexico's Ground and Surface Water Protection Regulations (20.6.2 NMAC), specifically 20.6.2.1201.B NMAC.

The proposed discharge is described as follows:

KAFB-7, which receives treated water from the Bulk Fuels Facility (BFF) Groundwater Treatment System (GWTS) for underground injection as permitted under Groundwater Discharge Permit DP-1839, is proposed to undergo rehabilitation activities and routine disinfection. The NOI describes the operation as generating water with constituent concentrations below NM's groundwater standards (20.6.2.3103 NMAC) and EPA maximum contaminant levels (MCLs; November 2019).

The proposal describes mechanical rehabilitation of the well to include gentle brushing, surging, bailing and pumping. Well disinfection will occur utilizing a dilute sodium hypochlorite solution placed in the well, surged to treat surrounding sediments, left in the well overnight. then pumped to the surface to remove the free chlorine in accordance with the NMED letter dated August 6, 2018 regarding well disinfection. Water removed from the well is proposed to be containerized, characterized, and then discharged to the lined GCMP if the water conforms to the above referenced standards.

Based on the information in the NOI and KAFB's obligation to perform the discharge as described in the NOI, NMED has determined that an adverse groundwater quality impact is not apt to occur and that a groundwater discharge permit is not required.

Although a discharge permit is not required for this discharge at this time, KAFB is not relieved of liability should the proposed operation result in the pollution of surface or groundwaters. Further, this decision by NMED does not relieve KAFB of the responsibility to comply with any and all other applicable federal, state, and/or local laws and regulations, zoning requirements, plumbing codes, and nuisance ordinances.

If at some time in the future KAFB intends to change the amount, character or location of the discharge, or if observation or monitoring shows that the discharge is not as described in the NOI, KAFB must file a revised NOI with the GWQB.

If you have any questions please contact either Andrew Romero at (505) 827-0076 or Steve Pullen, Program Manager of the Ground Water Pollution Prevention Section, at (505) 827-2962.

Michelle Hunter, Chie Ground Water Quality Bureau

MH:AR

cc: Steve Pullen, Program Manager

John Rhoderick, District Manager, NMED District I

Kathryn Lynnes, (Kathryn.lynnes@us.af.mil)

Scott Clark, (scott.clark@us.af.mil)

County File



Michelle Lujan Grisham Governor

Howie C. Morales
Lt. Governor

# NEW MEXICO ENVIRONMENT DEPARTMENT

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Deputy Secretary

**CERTIFIED MAIL - RETURN RECEIPT REQUESTED** 

APR 0 2 2020

Colonel Christopher J. King Vice Commander 377 ABW/CC 2000 Wyoming Blvd SE Kirtland AFB, NM 87117

RE:

REQUEST FOR EXTENSION
RESPONSE TO DISAPPROVAL FOR THE
ETHYLENE DIBROMIDE IN-SITU BIODEGRADATION REPORT
BULK FUELS FACILITY SOLID WASTE MANAGEMENT UNIT ST-106/SS-111
KIRTLAND AIR FORCE BASE, NEW MEXICO
EPA ID# NM6213820974
HWB-KAFB-20-001

**Dear Colonel King:** 

Thank you for your letter of March 26, 2020, regarding the NMED Disapproval of the EDB Bioremediation Report for KAFB. Our Disapproval cited several deficiencies in the report as well as several observations concerning the study itself. The intent of the pilot study was not only to determine if the bioaugmentation and biostimulation enhanced EDB biodegradation, but also to ascertain the scalability of the approach and its potential inclusion of this option in any array of feasible remedial alternatives.

At the conclusion of the pilot study many questions remained. It was clear that EDB biodegradation had occurred, but the study also raised other questions concerning breakdown products and the physical design of the wells that are important considerations in any decision to move forward with the technology. This does not represent a failure of the pilot. In fact, it is to be expected that pilots such as this answer the immediate question, provide insights for

Col. Miller and Col. King EDB In-Situ Biodegradation Report Page 2

future work, and identify additional questions that must be answered before a decision is made on the acceptability of the approach.

We agree, as I mentioned in a follow up e-mail to your staff, that the scope of the pilot was not to determine the extent of LNAPL. However, the presence or absence of LNAPL is very important to the success or failure of biodegradation and was prominently highlighted in the workplan. As you mention, the presence and distribution of LNAPL in the vadose and saturated zones is critical to defining the nature and extent of contamination and evaluating potential corrective measures. Bioremediation can be one potential component of any corrective measure. Understanding the limits of this technology and how the technology could be most efficiently deployed must be a goal during the study phase. Understanding such issues at an early stage will allow us to efficiently and cost effectively proceed to a remedy evaluation and ultimate remedy selection. To that end, our comments in the March 4, 2020 Disapproval included questions and concerns that remain regarding the implementation and potential success of this technology. If some of our comments were misinterpreted by your staff, a teleconference would be helpful to resolve any misunderstandings. Your letter requests a meeting with NMED to discuss the Disapproval. We will reach out to your staff to arrange this teleconference.

Regarding the continuation of monitoring associated with this pilot, I want to acknowledge receipt of the In-Situ Bioremediation Long Term Monitoring Workplan and advise that this plan does not require NMED approval. We hope that you will use the information provided in our March 4, 2020 Disapproval to support the ongoing assessment of the efficacy of bioremediation. Once the results from this continued monitoring effort are available, please submit them as a supplement to the existing Report. This approach should make any extension of time for submittal of the revised report unnecessary. However, in order to assure KAFB has sufficient time to make the necessary changes to the Report and, in light of workload challenges associated with the COVID-19 pandemic, we are extending the due date for a response to our Disapproval to September 18, 2020.

I appreciate your dedication to this project, and we look forward to continued work with you and your staff toward its completion. Should you or your staff have any questions, please contact me at (505) 476-6035.

Sincerely,

Kevin M. Pierard, Chief Hazardous Waste Bureau

Mmy -

Col. Miller and Col. King EDB In-Situ Biodegradation Report Page 3

cc: Stephanie Stringer, Director NMED RPD

Colonel David S. Miller, Base Commander KAFB

D. Cobrain, NMED HWB

B. Wear, NMED HWB

M. Suzuki, NMED HWB

L. King EPA Region 6 (6LCRRC)

S. Kottkamp, KAFB

K. Lynnes, KAFB

File: KAFB 2020 Bulk Fuels Facility Spill and Reading

# KIRTLAND AIR FORCE BASE ALBUQUERQUE, NEW MEXICO

# QUARTERLY BIOVENTING STATUS REPORT BULK FUELS FACILITY SOLID WASTE MANAGEMENT UNITS ST-106/SS-111

# **JUNE 2020**





377 MSG/CEI 2050 Wyoming Boulevard SE Kirtland Air Force Base, New Mexico 87117-5270

# KIRTLAND AIR FORCE BASE ALBUQUERQUE, NEW MEXICO

# Quarterly Bioventing Status Report Bulk Fuels Facility Solid Waste Management Units ST-106/SS-111

June 2020

#### **Prepared for**

Kirtland Air Force Base 2050 Wyoming Boulevard SE Kirtland Air Force Base, New Mexico 87117-5270

#### Prepared by

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Contract No. W9128F-13-D-0006
Delivery Order DM02

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13. SUPPLEMENTARY NOTES						
14. ABSTRACT						
This Quarterly Bioventing Status Report summarizes activities that occurred during the first quarter of long-term						
bioventing spanning from October 7, 2019 to January 13, 2020 as well as discusses bioventing parameter assessment						
and current system operation.						
15. SUBJECT TERMS						
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#### **PREFACE**

This report was prepared for Kirtland Air Force Base under U.S. Army Corps of Engineers Contract Number W9128F-13-D-0006, Delivery Order DM02 by EA Engineering, Science, and Technology, Inc., PBC. This report provides the data obtained from the bioventing pilot testing performed at the Bulk Fuels Facility, Solid Waste Management Units ST-106/SS 111, located in Albuquerque, New Mexico during the fourth quarter of 2019. The first quarter of the long-term bioventing pilot test took place between October 2019 and January 2020. The data presented herein were used to obtain system operational parameters in order to evaluate system performance.

This report was prepared in accordance with applicable federal, state, and local laws and regulations, including the New Mexico Hazardous Waste Act, New Mexico Statutes Annotated 1978, New Mexico Hazardous Waste Management Regulations, Resource Conservation and Recovery Act, and regulatory correspondence between the New Mexico Environment Department Hazardous Waste Bureau and the U.S. Air Force, dated March 25 and May 20, 2016.

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### LIST OF ACRONYMS AND ABBREVIATIONS

% percent

AFB Air Force Base

BFF Bulk Fuels Facility

BTEX benzene, toluene, ethylbenzene, and total xylenes

EDB ethylene dibromide

EPA U.S. Environmental Protection Agency

GRO gasoline range organics

mg/kg/day milligram(s) per kilogram per day

NMED New Mexico Environment Department

RCRA Resource Conservation and Recovery Act

ROI radius of Influence

scfm standard cubic feet per minute
SVEW soil vapor extraction well
SVMW soil vapor monitoring well
SWMU Solid Waste Management Unit

TPH total petroleum hydrocarbons

USACE U.S. Army Corps of Engineers

#### **EXECUTIVE SUMMARY**

The investigation and remediation of the Kirtland Air Force Base (AFB) Bulk Fuels Facility (BFF) release (Solid Waste Management Units ST-106/SS 111) are being implemented pursuant to the Resource Conservation and Recovery Act (RCRA) corrective action provisions in Part 6 of Kirtland AFB's Hazardous Waste Treatment Facility Operating Permit (Permit Number NM9570024423 [RCRA Permit]) (New Mexico Environment Department [NMED], 2010). This report summarizes the first quarter operation of the long-term bioventing pilot test.

A historic release of petroleum hydrocarbons occurred at the BFF and the use of bioventing is being evaluated to assess its effectiveness at site remediation. The goal of the bioventing respiration pilot test is to determine if bioventilation (air injection) promotes the natural degradation of organic contaminants by providing oxygen to microbes in the subsurface. The rate at which the supplied oxygen is utilized is directly proportional to the rate of fuel hydrocarbon degradation. This oxygen utilization rate and corresponding degradation rate can be used to determine the effectiveness of bioventing to achieve site cleanup.

The bioventing pilot test is being performed in accordance with the Bioventing Respiration Pilot Testing Procedure (Kirtland AFB, 2018) and the Work Plan for Bioventing and Air-Lift Enhanced Bioremediation Pilot Tests, dated November 2017 (Kirtland AFB, 2017a). These documents were approved by NMED in letters dated February 25, 2019 (NMED, 2019) and April 6, 2018 (NMED, 2018a), respectively. The bioventing soil vapor monitoring wells KAFB-106V1 and KAFB-106V2 were installed under the Work Plan for Vadose Zone Coring, Vapor Monitoring, and Water Supply Sampling, Revision 1 dated December 2017 (Kirtland AFB, 2017b). This work plan was approved by NMED in a letter dated February 23, 2018 (NMED, 2018b).

The long-term bioventing pilot test was initiated on October 7, 2019, utilizing operational parameters obtained from the data analysis of the bioventing respiration pilot tests. This report includes data collected between October 7, 2019 and January 13, 2020. Monitoring of the long-term bioventing pilot test is ongoing in accordance with the Work Plan (Kirtland AFB, 2017a).

During the first quarter of bioventing, field data to assess oxygen utilization and radius of influence were collected. Soil vapor samples were also collected and submitted to an analytical laboratory for analysis of total petroleum hydrocarbons and volatile organic constituents to assess hydrocarbon degradation. The data are presented herein. Field data will continue to be collected monthly and analytical samples will continue to be collected quarterly. An annual report for the first year of bioventing pilot test operation is anticipated to be included within the appropriate quarterly groundwater monitoring report. The annual report will provide an assessment of the progress of bioventilation based on the data collected for the year.

#### 1. INTRODUCTION

Solid Waste Management Units (SWMUs) ST-106/SS-111 are located at Kirtland Air Force Base (AFB) in Bernalillo County, New Mexico. Kirtland AFB is located southeast of, and adjacent to, the City of Albuquerque and the Albuquerque International Sunport. The approximate area of the base is 52,287 acres. The Bulk Fuels Facility (BFF or Site) is located in the northwestern portion of Kirtland AFB (Figure 1-1).

Dr. Robert Hinchee, coauthor of Principles and Practices of Bioventing, Volume 2: Bioventing Design (Leeson and Hinchee, 1996), acted as subject matter expert for the pilot test. Dr. Hinchee provided technical guidance on pilot test operation, reviewed data, and assisted with the data interpretation.

#### 1.1 Regulatory Framework

Environmental restoration efforts at the BFF are being performed pursuant to the corrective action provisions in Part 6 of the Resource Conservation and Recovery Act (RCRA) Permit Number NM9570024423 (RCRA Permit). The New Mexico Environment Department (NMED) is the lead regulatory agency (NMED, 2010). This work has been performed under U.S. Army Corps of Engineers (USACE) Contract Number W9128F-13-D-0006, Delivery Order DM02.

The bioventing pilot test is being performed in accordance with the Bioventing Respiration Pilot Testing Procedure (Kirtland AFB, 2018) and the Work Plan for Bioventing and Air-Lift Enhanced Bioremediation Pilot Tests, dated November 2017 (Work Plan [Kirtland AFB, 2017a]). These documents were approved by NMED in letters dated February 25, 2019 (NMED, 2019) and April 6, 2018 (NMED, 2018a), respectively. The bioventing soil vapor monitoring wells (SVMWs) KAFB-106V1 and KAFB-106V2 were installed under the Work Plan for Vadose Zone Coring, Vapor Monitoring, and Water Supply Sampling, Revision 1 dated December 2017 (Kirtland AFB, 2017b). Well details are provided in Table 1-1 and well locations are shown on Figure 1-2. This Work Plan was approved by NMED in a letter dated February 23, 2018 (NMED, 2018b).

### 1.2 Bioventing Pilot Test Objectives and Scope

The bioventing pilot test is being performed to evaluate the feasibility of this technology to remediate residual petroleum hydrocarbon concentrations in the vadose zone. The goal of the bioventing respiration pilot test is to determine if bioventing (air injection) promotes the natural degradation of organic contaminants by providing oxygen to microbes in the subsurface. The rate at which the supplied oxygen is utilized is directly proportional to the rate of fuel hydrocarbon degradation. This oxygen utilization rate and corresponding degradation rate can be used to determine the effectiveness of bioventing to achieve site cleanup.

The bioventing respiration pilot test utilizes soil vapor extraction wells (SVEWs) SVEW-01, SVEW-02/03, and SVEW-04/05 as well as SVMW-10 and SVMW-11 for air injection (Kirtland AFB, 2017a, 2018) and two new SVMW clusters at KAFB-106V1 and KAFB-106V2 (Kirtland AFB, 2017b) for observation. Well details are provided in Table 1-1 and well locations are shown on Figure 1-2. The long-term bioventing pilot test was initiated on October 7, 2019. The system was shut down between January 6 and January 13, 2020 in order to obtain respirometry data. This report includes data collected between October 7, 2019 and January 13, 2020.

Data collected during this quarter were used to calculate oxygen utilization rates, and corresponding biodegradation rates, and estimate intrinsic permeability and radius of influence (ROI). Details regarding

the operational parameters were provided in the Bioventilation Construction and Initiation Report (Kirtland AFB, 2020).

Respirometry was monitored in wells KAFB-106V1 and KAFB-106V2 as identified in Table 1-1. Injection flow rates and pressures are provided in Tables 1-2 through 1-4. Respirometry readings were collected using a sample train consisting of 0.5-inch fluorinated ethylene propylene tubing and a 4-way stainless-steel cross equipped with quick connects was connected to the well head. Well head pressures were collected using a digital manometer.

Well purging was performed by removing one well volume (casing volume plus the filter pack pore space volume of the screened interval) from the monitoring well utilizing a Gast rotary vane pump. Each well was purged at a predetermined flow rate for a given amount of time to ensure adequate volume removal.

Soil vapor relative humidity and temperature were collected during purging by placing an Amprobe TH 3 humidity meter inside a clear flow cell and positioning the instrument where the extracted soil vapor passes directly over the sensor. Relative humidity and temperature readings were collected just prior to completing the purge to allow stabilization. After purging was completed, volatile organic compound (VOC), oxygen, and carbon dioxide readings were collected using the Horiba Mexa-584L; barometric pressure and temperature readings were collected from the Albuquerque Sunport Weather Station. Baseline respirometry readings were recorded and are presented in Tables 1-5 through 1-16.

Analytical sampling was performed weekly for the first month of operation and quarterly thereafter. Immediately after collection of field parameters, analytical samples were collected from each well screen from SVMWs KAFB-106V1 and KAFB-106V2. Analytical samples were collected using 6-liter Summa cannisters and analyzed for total petroleum hydrocarbons (TPH)-gasoline range organics (GRO) by U.S. Environmental Protection Agency (EPA) Method TO-3; VOCs including EDB, benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method TO 15 selected ion monitoring; and fixed gases/C1-C5 hydrocarbon compounds by ASTM International D1945 (Table 1-17). Samples were shipped to Eurofins Air Toxics under chain-of-custody documentation.

Status reports will be provided quarterly as an appendix to the appropriate Groundwater Monitoring Report. A summary report will be provided at the end of four quarters of data collection that will summarize the results of the previous year's data.

#### 2. BIOVENTING MONITORING RESULTS

The data that were collected and the calculation of the long-term bioventing operational parameters are discussed below.

#### 2.1 Bioventing Parameter Assessment

Data collected during the bioventing pilot test were utilized to assess oxygen utilization rates and corresponding biodegradation rates. Bioventing assessment and operational parameters were calculated using the field data that were collected and calculated as described in the Work Plan (Kirtland AFB, 2017a). Discussion of the operational parameters is provided below.

#### 2.1.1 Field Parameters

Field parameters were collected throughout the first quarter of the long-term bioventing pilot test and are provided in Tables 1-5 through 1-16. Oxygen concentration increased from the low background concentrations (between 0.12% and 13.97%) to near ambient air concentrations (between 18.57% and 20.97%) while carbon dioxide concentrations generally decreased from high background concentrations (between 8.3% and 12.46%) to near ambient concentrations (between 0.0% and 2.36%) as the bioventing system supplied ambient air throughout the vadose zone. Oxygen and carbon dioxide concentrations remained near ambient condition until January 6, 2020 when the bioventing blowers were shut down to assess bioventing parameters. Field soil vapor VOC concentrations generally decreased throughout the first quarter, however, remained relatively high in the majority of the observation points (Tables 1-5 through 1-16). Relative humidity generally varied between approximately 35% and 70% throughout the quarter. Extracted vapor temperature generally decreased throughout the quarter as ambient temperatures decreased in the winter months.

#### 2.1.2 Oxygen Utilization Rate

To assess the oxygen utilization rates, the bioventing blowers were shut down between January 6 and January 13, 2020. Field measurements were collected and plotted versus time (Appendix A provides graphs of oxygen utilization). A linear regression was applied to determine the oxygen utilization rate.

Oxygen utilization rates varied between 0.03 and 0.18 percent (%) per day for KAFB-106V1 and between 0.07 and 0.81% per day for KAFB-106V2 (Appendix A and Table 2-1). The site-wide oxygen utilization rate averaged 0.18% per day.

#### 2.1.3 Biodegradation Rate

Biodegradation rates were calculated for each observation well utilizing the oxygen utilization rates obtained at the end of the fourth quarter 2019. Biodegradation rates for each well were calculated in accordance with the Work Plan (Kirtland AFB, 2017a). The formula used to calculate the biodegradation rates is provided in Appendix B. The degradation of hexane was used to establish the oxygen utilization in accordance with the Work Plan (Kirtland AFB, 2017a) and Leeson and Hinchee (1996).

Biodegradation rates during the dry respiration testing ranged between 0.020 and 0.107 milligrams per kilogram per day (mg/kg/day) for KAFB-106V1 and between 0.041 and 0.480 mg/kg/day KAFB-106V2 (Table 2-1). The site-wide biodegradation rate averaged 0.105 mg/kg/day.

### 2.1.4 Oxygen Demand Air Flow Rate

The oxygen demand flow rate represents the minimum ambient air injection flow rate required to maintain the biodegradation rates obtained in the respirometry calculations. The oxygen demand air flow rate was calculated for each injection well using the average oxygen utilization rate obtained from the observation wells (Appendix B-1).

Oxygen demand flow rates varied between 0.27 and 0.82 standard cubic feet per minute (scfm) for the SVMWs and between 0.91 and 1.05 scfm for the SVEWs (Table 2-1).

#### 2.1.5 Intrinsic Permeability

Intrinsic permeability was calculated for the SVEWs utilizing data from January 13, 2020 (Table 2-1). The calculations are provided in Appendix B-2. Intrinsic permeability varied between 46 and 52 darcys. Intrinsic permeability was not calculated for the SVMWs as the large amount of head loss that occurred in the 0.5-inch diameter wells did not allow for accurate pressure monitoring at the injection point.

#### 2.1.6 Radius of Influence

In accordance with the Work Plan (Kirtland AFB, 2017a), the ROI was monitored using two methods: physical or pressure response and oxygen response. Physical pressure monitoring was performed prior to respirometry monitoring at the observation wells (Tables 1-5 through 1-16). However, due to low injection flow rates, injection pressures could not overcome the variability in barometric pressure, a reliable pressure ROI was not obtained.

As a result, the oxygen ROI was calculated using the average oxygen utilization rate of wells KAFB-106V1 and KAFB-106V2 and the operation flow rates as described in the Work Plan (Kirtland AFB, 2017a). The oxygen ROI for each well is presented in Table 2-1 and calculations are provided in Appendix B-1. The oxygen ROI varied between 134 and 264 feet.

#### 2.1.7 Soil Vapor Analytical Results

Laboratory analytical samples were collected weekly for the first month of operation and quarterly thereafter. Laboratory analytical samples were collected from each of the screened intervals in SVMWs KAFB-106V1 and KAFB-106V2 to assess the changes in concentration of BTEX, ethylene dibromide (EDB), and TPH-GRO. Field parameters collected during sampling are provided in Tables 1-5 through 1-16. Soil vapor analytical data and the analytical laboratory reports are provided in Appendix C. TPH-GRO, BTEX, and EDB concentrations were collected and are provided in Table 2-2.

Laboratory results for vapor samples from wells KAFB-106V1-102, KAFB-106V1-113, KAFB-106V1-160, and KAFB-106V1-217 collected on October 22, 2019 appear to have been diluted with atmospheric air during the sample collection process. The TPH and related VOC concentrations were reported to be significantly lower than the concentrations reported for the same samples collected on October 15 and 31, 2019 (Table 2-2). Laboratory receipt vacuums indicate that a leak in transit did not occur. In addition, a leak in the sample train is unlikely as the field parameters are collected from the same sample train and a significant decrease in VOC concentrations was not observed.

It is believed that the leak occurred during sampling within the canister fittings and connections to the sample trains. As a result, the canisters and fittings will be thoroughly inspected for tightness and proper seal prior to sampling. Additional inspection of each canister gauge/filter assembly will be performed

during the initial vacuum recording to ensure that a leak is not occurring within assembly or the valving on the canister. If a leak is observed within the canister assembly, the filter/gauge assembly will be flagged and replaced, and the canister and assembly will be re-inspected. If the leak still occurs, the canister will be flagged and replaced.

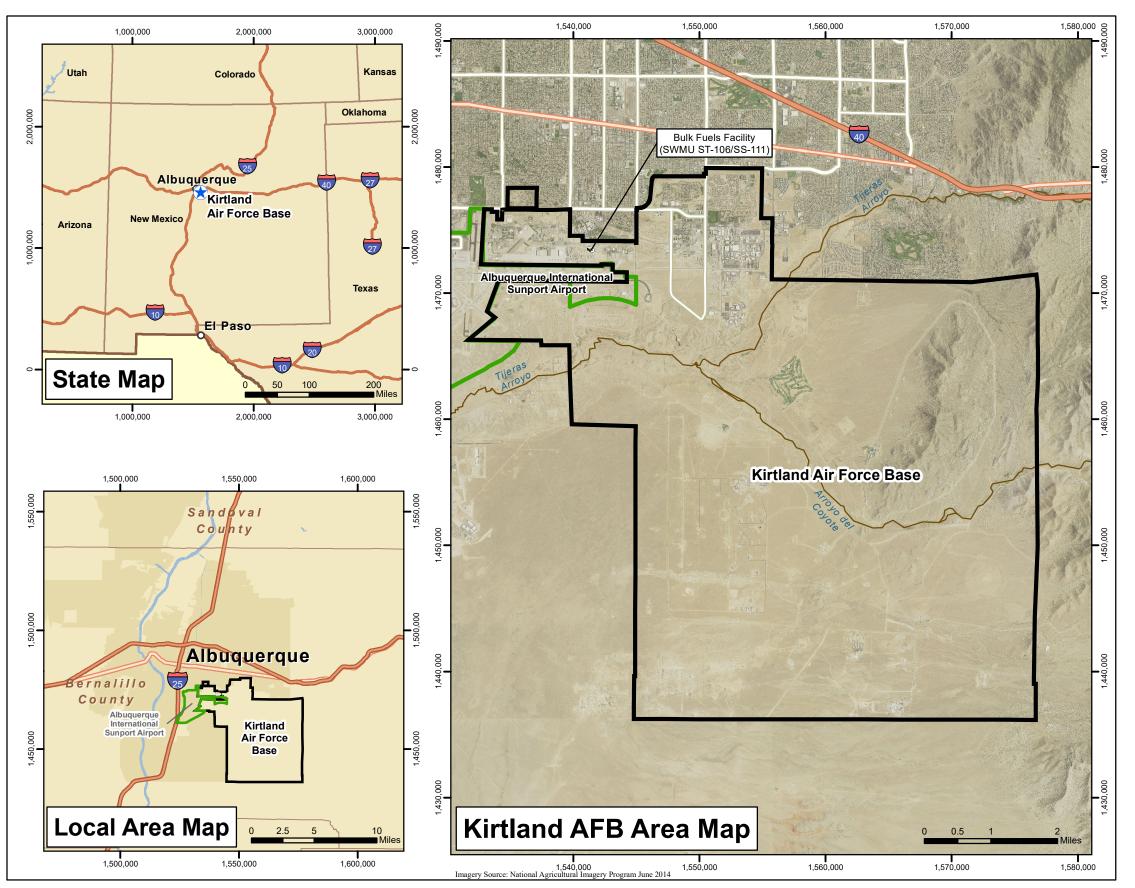
Based on the data usability and comparability assessment by the project team, the VOC, TPH and fixed gases/hydrocarbon sample data have been qualified "R," signifying rejected data in the project database for the four samples collected on October 22, 2019. No additional suspect data was detected for the remainder of the quarter.

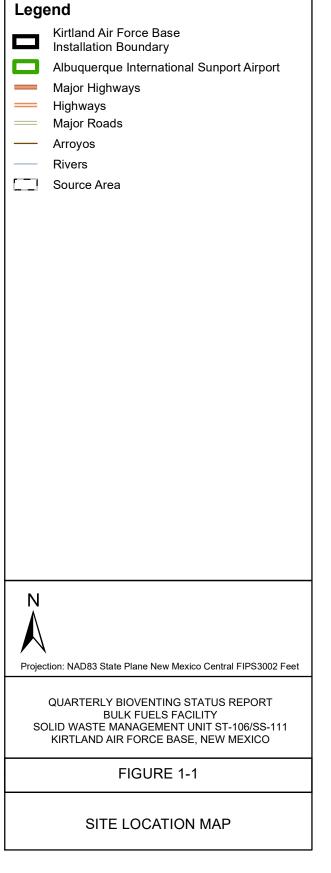
High concentrations of VOCs and TPH were observed in laboratory samples throughout the quarter with all but one monitoring location being equal to or greater than  $60,000,000~\mu g/m^3$  of TPH during the January 2020 sampling event. Analytical samples will continue to be monitored quarterly after a weeklong respirometry event to allow for a comparable data set collected under similar conditions and will allow for more accurate trend analysis.

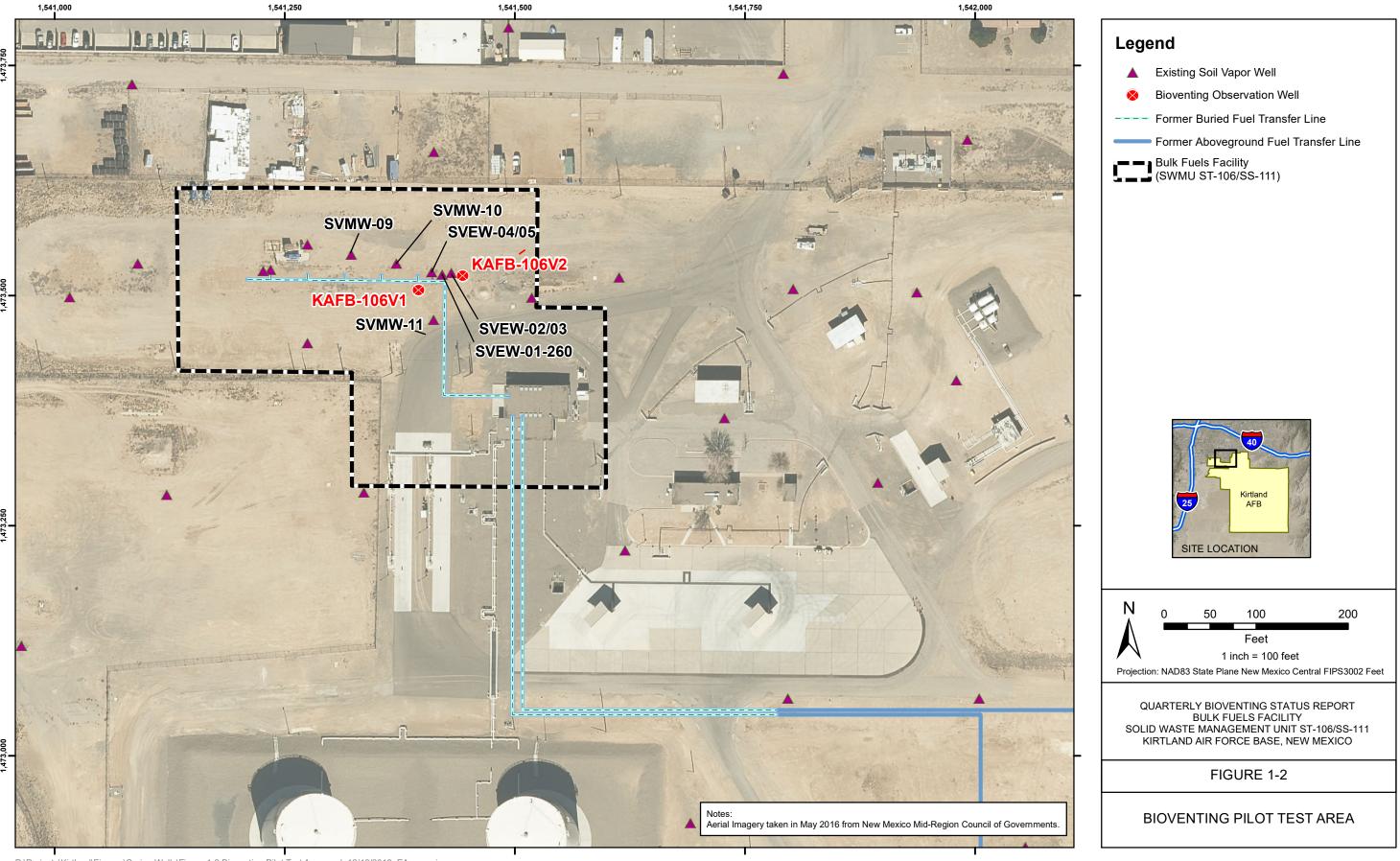
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- New Mexico Environment Department (NMED). 2010. Hazardous Waste Treatment Facility Operation Permit, EPA ID No. NM95700024423. Issued to U.S. Air Force for the Open Detonation Unit Located at Kirtland Air Force Base, Bernalillo County, New Mexico, by the NMED Hazardous Waste Bureau. July.
- NMED. 2018a. April 6, 2018 correspondence from Mr. Juan Carlos Borrego, Deputy Secretary to Colonel Richard W. Gibbs, Base Commander, 377 AB/CC, Kirtland AFB, NM and Mr. Chris Segura, Chief, Installation Support Section, AFCEC/CZOW, Kirtland AFB, NM, re: Work Plan for Bioventing and Air-Lift Enhanced Bioremediation Pilot Tests, Bulk Fuels Facility, Solid Waste Management Unit ST-106/SS-111, Kirtland Air Force Base, EPA ID# NM9570024423, HWB-KAFB-19-MISC.
- NMED. 2018b. February 23, 2018 correspondence from Mr. Juan Carlos Borrego, Deputy Secretary to Colonel Richard W. Gibbs, Base Commander, 377 AB/CC, Kirtland AFB, NM and Mr. Chris Segura, Chief, Installation Support Section, AFCEC/CZOW, Kirtland AFB, NM, re: Work Plan for Vadose Zone Coring, Vapor Monitoring, and Water Supply Sampling, Revision 2, Bulk Fuels Facility, Solid Waste Management Unit ST-106/SS-111, Kirtland Air Force Base, EPA ID# NM9570024423, HWB-KAFB-19-MISC.
- NMED. 2019. February 25, 2019 correspondence from Mr. John Keiling, Bureau Chief to Colonel Richard W. Gibbs, Base Commander, 377 AB/CC, Kirtland AFB, NM and Mr. Chris Segura, Chief, Installation Support Section, AFCEC/CZOW, Kirtland AFB, NM, re: Bulk Fuels Facility Spill, Solid Waste Management Unit ST-106/SS-11, Kirtland Air Force Base, EPA ID# NM9570024423, HWB-KAFB-19-MISC.

## **FIGURES**







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## **TABLES**

Table 1-1
Bioventing Respiration Pilot Test Well Details and Function

Well ID	Screened Interval (ft bgs)	Diameter (inches)	Status	Well Use	Applicable Tests	Attendant Observation Wells <sup>a</sup>	Radial Distance between Observation and Injection Well (ft)
SVMW-11-100	100-102.5	0.5	Existing	Air Injection	Long-Term Bioventing	KAFB-106V1-102	36
						KAFB-106V2-102	57
SVMW-11-250	250-252.5	0.5	Existing	Air Injection	Long-Term Bioventing	KAFB-106V1-252	36
						KAFB-106V2-252	57
SVMW-11-260	260-262.5	0.5	Existing	Air Injection	Long-Term Bioventing	KAFB-106V1-252	36
						KAFB-106V2-252	57
SVEW-01-260	245-260	4	Existing	Air Injection	Long-Term Bioventing	KAFB-106V2-252	31
						KAFB-106V1-252	22
SVMW-10-100	100-102.5	0.5	Existing	Air Injection	Long-Term Bioventing	KAFB-106V1-102	37
						KAFB-106V2-102	73
SVMW-10-150	150-152.5	0.5	Existing	Air Injection	Long-Term Bioventing	KAFB-106V1-160	37
						KAFB-106V2-160	73
SVMW-10-250	250-252.5	0.5	Existing	Air Injection	Long-Term Bioventing	KAFB-106V1-252	37
						KAFB-106V2-252	73
SVEW-02/03-160	145-160	2	Existing	Air Injection	Long-Term Bioventing	KAFB-106V2-160	41
						KAFB-106V1-160	13

Table 1-1 **Bioventing Respiration Pilot Test Well Details and Function** 

Well ID	Screened Interval (ft bgs)	Diameter (inches)	Status	Well Use	Applicable Tests	Attendant Observation Wells <sup>a</sup>	Radial Distance between Observation and Injection Well (ft)
SVEW-04/05-313	298-313	2	Existing	Air Injection	Long-Term Bioventing	KAFB-106V1-263	24
						KAFB-106V2-270	34
KAFB-106V1	100-102.5	0.75	Existing	Observation	Long-Term	NA	NA
	115-117.5	0.75	G		Bioventing	NA	NA
	157.5-160	0.75				NA	NA
	215-217.5	0.75				NA	NA
	250-252.5	0.75				NA	NA
	270-272.5	0.75				NA	NA
KAFB-106V2	100-102.5	0.75	Existing	Observation	Long-Term	NA	NA
	115-117.5	0.75			Bioventing	NA	NA
	157.5-160	0.75				NA	NA
	215-217.5	0.75				NA	NA
	250-252.5	0.75				NA	NA
	270-272.5	0.75				NA	NA

<sup>&</sup>lt;sup>a</sup> During the long-term bioventing test, observation wells will also be used for respiration measurements. bgs = below ground surface

ft = foot/feet

ID = identification

NA = not applicable

Table 1-2
Bioventing Respiration Pilot Test Air Injection Summary - SVMW-10

Well ID		SVMW-10-1	00		SVMW-10-1	50		SVMW-10-2	250
			Long-Te	rm Biovent	ing Pilot Te	st			
Flow Rate Press		Well Head Pressure (in-WC)	Total Volume Injected (ft <sup>3</sup> )	Flow Rate (scfm)	Well Head Pressure (in-WC)	Total Volume Injected (ft <sup>3</sup> )	Flow Rate (scfm)	Well Head Pressure (in-WC)	Total Volume Injected (ft <sup>3</sup> )
10/7/2019 8:30	2.5	81.4	0.0	2.0	65.5	0.0	2.8	129.0	0.0
10/8/2019 11:43	2.5	81.0	4083	2.0	68.9	3266	2.8	130.3	4572
10/9/2019 11:49	2.5	80.3	7697	2.0	68.5	6158	2.8	132.6	8621
10/15/2019 13:00	2.5	83.3	29475	2.0	69.0	23580	2.8	134.6	33012
10/22/2019 11:51	2.5	82.7	54503	2.0	62.7	43602	2.8	132.5	61043
10/31/2019 10:58	2.5	88.9	86770	2.0	63.9	69416	2.8	138.4	97182
11/5/2019 11:38	2.5	80.4	104870	2.0	65.8	83896	2.8	126.7	117454
1/6/2020 9:00	0	0	327675	0.0	0	262140	0.0	0.0	366996
1/13/2020 11:04	2.5	73	327675	2.0	62.5	262140	2.8	134.0	366996

Bioventing blowers were turned off on January 1, 2020 to assess oxygen utilization rates. The blowers were restarted on January 13, 2020.

ft<sup>3</sup> = cubic feet

ID = identification

in-WC = inches of water column

scfm = standard cubic feet per minute

Table 1-3
Bioventing Respiration Pilot Test Air Injection Summary - SVMW-11

Well ID		SVMW-11-1	100		SVMW-11-2	250		SVMW-11-2	260					
	Long-Term Bioventing Pilot Test													
Date and Time	Flow Rate (scfm)	Well Head Pressure (in-WC)	Total Volume Injected (ft <sup>3</sup> )	Flow Rate (scfm)	Well Head Pressure (in-WC)	Total Volume Injected (ft <sup>3</sup> )	Flow Rate (scfm)	Well Head Pressure (in-WC)	Total Volume Injected (ft <sup>3</sup> )					
10/7/2019 8:30	3.3	111.9	0.0	2.5	92.5	0.0	3.0	78.2	0.0					
10/8/2019 11:45	3.3	107.1	5396	2.5	86.7	4088	3.0	71.0	4905					
10/9/2019 11:52	3.3	111.2	10171	2.5	76.4	7705	3.0	73.2	9246					
10/15/2019 13:02	3.3	104.1	38914	2.5	87.4	29480	3.0	68.8	35376					
10/22/2019 11:54	3.3	103.4	71953	2.5	87.5	54510	3.0	73.2	65412					
10/31/2019 11:43	3.3	104.7	114685	2.5	86.2	86883	3.0	74.8	104259					
11/5/2019 11:41	3.3	100.3	138438	2.5	84.5	104878	3.0	75.6	125853					
1/6/2020 9:00	0	0	432531	0.0	0	327675	0.0	0.0	393210					
1/13/2020 11:10	3.3	102.2	432531	2.5	77.7	327675	3.0	68.8	393210					

Bioventing blowers were turned off on January 6, 2020 to assess oxygen utilization rates. The blowers were restarted on January 13, 2020.

ft<sup>3</sup> = cubic feet

ID = identification

in-WC = inches of water column

scfm = standard cubic feet per minute

Table 1-4
Bioventing Respiration Pilot Test Air Injection Summary - SVEWs

Well ID		SVEW-01-2	260	,	SVEW-02/03	-160	,	SVEW-04/05	-313					
	Long-Term Bioventing Pilot Test													
Flow Rate Pre		Well Head Pressure (in-WC)	Total Volume Injected (ft <sup>3</sup> )	Flow Rate (scfm)	Well Head Pressure (in-WC)	Total Volume Injected (ft <sup>3</sup> )	Flow Rate (scfm)	Well Head Pressure (in-WC)	Total Volume Injected (ft <sup>3</sup> )					
10/7/2019 8:30	12	-1.1	0.0	15.0	-0.7	0.0	10.0	-1.7	0.0					
10/8/2019 11:45	12	2.1	19620	15.0	2.8	0	10.0	2.0	16350					
10/9/2019 11:52	12	2.6	36984	15.0	3.3	21705	10.0	2.7	30820					
10/15/2019 13:02	12	0.6	141504	15.0	1.2	152355	10.0	0.0	117920					
10/22/2019 11:54	12	0	261648	15.0	0	302535	10.0	-1.0	218040					
10/31/2019 11:43	12	-1.7	417036	15.0	-1.5	496770	10.0	-2.2	347530					
11/5/2019 11:41	12	0.8	503412	15.0	1.2	604740	10.0	0.5	419510					
1/6/2020 9:00	0	0	1572840	0.0	0	1941525	0.0	0.0	1310700					
1/13/2020 11:10	12	1.4	1572840	15.0	2.2	1941525	10.0	1.3	1310700					

On October 7, 2019 at 1330, the flowmeter to SVEW-02/03-160 was damaged. Air injection on that well was shut off. On October 8, 2019 at 0720, the flowmeter was repaired and air injection was resumed.

Bioventing blowers were turned off on January 6, 2020 to assess oxygen utilization rates. The blowers were restarted on January 13, 2020.

ft<sup>3</sup> = cubic feet

ID = identification

in-WC = inches of water column

scfm = standard cubic feet per minute

Table 1-5
KAFB-106V1-102 Respiration Monitoring

Date and Time	Well Head Pressure Pre/Post Purge (in-WC)	Flow Rate (scfm)	Vacuum (in-WC)	VOC (ppmv)	Relative Humidity (%)	Vapor Temperature (°F)	Ambient Temperature (°F)	Barometric Pressure (in-Hg)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	CH₄ (%)			
Long-Term Bioventing														
10/7/2019 12:42 0.8/0.9 2 42.1 18,690 35.6 75.7 66 30.35 4.20 9.60 NM														
10/8/2019 12:21	0.0/0.0	2	44.1	18,440	47.2	72.9	72	30.13	4.18	9.50	NM			
10/9/2019 12:03	0.8/0.9	2	41	19,430	52.1	79.0	70	30.10	4.09	9.58	NM			
10/15/2019 9:23	0.0/0.0	2	44.5	19,440	52.2	65.8	56	30.07	12.18	7.32	NM			
10/22/2019 8:25	0.0/0.0	2	44.3	18,260	69.4	45.4	36	30.27	16.80	3.96	NM			
10/31/2019 8:09	0.0/0.0	2	46.3	17,380	52.0	24.5	22	30.51	18.65	2.42	NM			
11/5/2019 8:13	0.0/0.0	2	46.5	18,820	59.0	44.5	41	30.22	19.06	1.88	NM			
1/6/2020 9:00	-0.6	2	-40.3	19,590	47.0	48.2	36	30.51	19.99	0.96	NM			
1/7/2020 8:15	-0.3	2	-42.3	18,640	57.5	31.1	21	30.52	19.52	0.86	NM			
1/8/2020 8:27	0.5	2	-39.1	19,340	49.5	37.6	22	30.15	19.54	0.84	NM			
1/9/2020 8:13	0.1	2	-43.9	19,200	60.9	36.7	33	30.02	19.69	0.72	NM			
1/10/2020 8:34	0.1	2	-37.7	19,120	65.3	39.5	34	29.95	19.02	0.74	NM			
1/13/2020 8:49	0.0/0.0	2	42.3	18,110	60.1	34.7	32	30.11	19.73	0.5	NM			

°F = degrees Fahrenheit

 $CH_4$  = methane

 $CO_2$  = carbon dioxide

in-Hg = inches of mercury

in-WC = inches of water column

NM = not measured

 $O_2$  = oxygen

ppmv = part per million by volume

scfm = standard cubic feet per minute

Table 1-6
KAFB-106V1-113 Respiration Monitoring

	Well Head Pressure	Flow			Relative	Vapor	Ambient	Barometric						
	Pre/Post Purge	Rate	Vacuum	voc	Humidity	Temperature	Temperature	Pressure	$O_2$	CO2	CH₄			
Date and Time	(in-WC)	(scfm)	(in-WC)	(ppmv)	(%)	(°F)	(°F)	(in-Hg)	(%)	(%)	(%)			
Long-Term Bioventing														
10/7/2019 12:48 1.2/1.2 2 40.3 20,900 58.7 74.5 66 30.35 4.26 9.40 NM														
10/8/2019 12:25	0.0/0.0	2	44	20,330	47.2	72.9	72	30.13	4.11	9.38	NM			
10/9/2019 12:08	1.0/1.0	2	43.2	21,350	54.3	78.3	70	30.10	3.08	10.36	NM			
10/15/2019 9:32	0.0/0.0	2	46.8	21,280	55.5	63.4	56	30.07	12.08	7.90	NM			
10/22/2019 8:49	0.0/0.0	2	46.9	20,280	69.9	47.1	36	30.27	15.98	4.96	NM			
10/31/2019 8:29	0.0/-0.5	2	45.2	18,710	52.0	24.6	22	30.51	17.77	3.58	NM			
11/5/2019 8:29	0.0/0.0	2	45.3	20,760	61.1	45.3	41	30.22	18.30	2.90	NM			
1/6/2020 9:04	-0.6	2	-43.5	21,370	46.7	50.1	36	30.51	19.62	1.41	NM			
1/7/2020 8:20	-0.3	2	-44.5	20,490	51.8	35.2	21	30.52	19.22	1.26	NM			
1/8/2020 8:30	0.4	2	-42.6	21,070	47.2	40.0	22	30.15	19.03	1.34	NM			
1/9/2020 8:16	0.1	2	-48.2	20,700	60.4	37.5	33	30.02	18.51	1.68	NM			
1/10/2020 8:37	0	2	-43.3	20,700	64.5	37.7	34	29.94	17.89	1.78	NM			
1/13/2020 9:07	0.0/0.0	2	43.8	19,360	64.0	35.9	32	30.11	18.89	1.18	NM			

°F = degrees Fahrenheit

 $CH_4$  = methane

 $CO_2$  = carbon dioxide

in-Hg = inches of mercury

in-WC = inches of water column

NM = not measured

 $O_2$  = oxygen

ppmv = part per million by volume

scfm = standard cubic feet per minute

Table 1-7
KAFB-106V1-160 Respiration Monitoring

	Well Head Pressure Pre/Post Purge	Flow Rate	Vacuum	voc	Relative Humidity	Vapor Temperature	Ambient Temperature	Barometric Pressure	O <sub>2</sub>	CO <sub>2</sub>	CH₄	
Date and Time	(in-WC)	(scfm)	(in-WC)	(ppmv)		(°F)	(°F)	(in-Hg)	(%)	(%)	(%)	
Long-Term Bioventing												
10/7/2019 12:51	-1.4/-1.4	2	45.0	21,840	58.2	73.8	66	30.35	0.18	10.94	NM	
10/8/2019 12:28	0.7/0.7	2	44.5	21,040	47.2	72.9	72	30.13	0.25	10.72	NM	
10/9/2019 12:11	2.4/2.3	2	42.7	21,710	55.6	77.8	71	29.77	2.69	10.68	NM	
10/15/2019 9:52	-1.4/-1.3	2	44.8	21,150	62.6	62.3	56	30.07	19.16	1.82	NM	
10/22/2019 9:00	-2.1/-2.1	2	46.5	19,130	70.0	47.7	36	30.27	19.92	0.46	NM	
10/31/2019 8:45	-3.5/-3.5	2	47.6	10,170	55.5	25.4	22	30.51	20.34	0.42	NM	
11/5/2019 8:41	-0.9/-0.9	2	45.6	17,560	66.2	46.4	41	30.22	20.00	0.28	NM	
1/6/2020 9:08	-2.8	2	-46.6	13,270	43.0	52.0	36	30.10	20.81	0.30	NM	
1/7/2020 8:24	-2.7	2	-46.6	12,480	51.0	39.5	21	30.52	19.98	0.34	NM	
1/8/2020 8:34	1.3	2	-40.6	13,430	45.5	42.3	22	30.15	19.86	0.30	NM	
1/9/2020 8:19	1.8	2	-42.7	14,030	62.5	37.9	33	30.02	19.86	0.30	NM	
1/10/2020 8:40	2	2	-47.6	13,820	64.2	37.5	34	29.95	20.03	0.30	NM	
1/13/2020 9:22	0.5/0.5	2	41.6	13,250	66.5	37.3	32	30.11	19.41	0.32	NM	

°F = degrees Fahrenheit

 $CH_4$  = methane

 $CO_2$  = carbon dioxide

in-Hg = inches of mercury

in-WC = inches of water column

NM = not measured

 $O_2$  = oxygen

ppmv = part per million by volume

scfm = standard cubic feet per minute

Table 1-8
KAFB-106V1-217 Respiration Monitoring

	Well Head	EI.			Dalati a	Wassas	Al. Cod	D			
	Pressure	Flow			Relative	Vapor	Ambient	Barometric	_		l
	Pre/Post Purge	Rate	Vacuum	VOC	Humidity	Temperature	Temperature	Pressure	O <sub>2</sub>	CO <sub>2</sub>	CH₄
Date and Time	(in-WC)	(scfm)	(in-WC)	(ppmv)	(%)	(°F)	(°F)	(in-Hg)	(%)	(%)	(%)
Long-Term Bioventing											
10/7/2019 12:57	-1.5/-1.5	2	53.9	25,170	61.7	71.6	66	30.35	0.12	12.20	NM
10/8/2019 12:33	0.6/0.6	2	48.2	24,420	55.3	75.1	72	30.13	0.35	11.72	NM
10/9/2019 12:15	2.3/2.3	2	48.1	25,530	57.0	77.4	71	29.77	1.66	11.38	NM
10/15/2019 10:20	-1.2/-1.3	2	48.6	23,160	65.1	62.2	59	30.07	12.96	5.02	NM
10/22/2019 9:20	-2.1/-2.2	2	50.6	9,800	65.6	49.9	44	30.25	18.77	1.42	NM
10/31/2019 9:12	-3.5/-3.5	2	54.2	996	60.7	27.4	27	30.53	20.65	0.18	NM
11/5/2019 9:09	-0.6/-0.6	2	47.6	6,420	69.1	49.3	45	30.20	19.84	0.64	NM
1/6/2020 9:12	-2.9	2	-47.9	20,596	44.7	53.3	36	30.10	19.63	0.88	NM
1/7/2020 8:27	-2.6	2	-44.4	5,700	49.0	40.3	21	30.52	20.10	0.34	NM
1/8/2020 8:37	1.2	2	-47.8	15,850	46.0	43.0	22	30.15	18.79	1.06	NM
1/9/2020 8:22	1.8	2	-44.2	18,670	66.1	38.8	33	30.02	18.79	1.08	NM
1/10/2020 8:43	1.9	2	-44.8	18,760	68.1	37.4	34	24.95	18.99	1.10	NM
1/13/2020 9:43	0.7/0.8	2	45.0	19,080	69.0	35.5	40	30.10	18.53	1.02	NM

°F = degrees Fahrenheit

 $CH_4$  = methane

 $CO_2$  = carbon dioxide

in-Hg = inches of mercury

in-WC = inches of water column

NM = not measured

 $O_2$  = oxygen

ppmv = part per million by volume

scfm = standard cubic feet per minute

Table 1-9
KAFB-106V1-252 Respiration Monitoring

Date and Time	Well Head Pressure Pre/Post Purge (in-WC)	Flow Rate (scfm)	Vacuum (in-WC)	VOC (ppmv)	Relative Humidity (%)	Vapor Temperature (°F)	Ambient Temperature (°F)	Barometric Pressure (in-Hg)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	CH₄ (%)
				Long-T	erm Biove	nting					
10/7/2019 13:00	-1.3/-1.3	2	44.0	21,540	63.0	73.3	66	30.35	2.63	9.20	NM
10/8/2019 12:35	0.8/0.7	2	50.8	21,690	54.0	78.7	72	30.13	3.11	8.88	NM
10/9/2019 12:19	2.5/2.5	2	44.9	22,430	57.3	77.0	71	29.77	10.25	7.80	NM
10/15/2019 10:35	-1.2/-1.1	2	47.6	22,350	69.0	62.9	59	30.07	19.60	0.14	NM
10/22/2019 9:33	-2.0/-2.0	2	47.5	19,870	71.4	51.1	44	30.25	20.07	0.00	NM
10/31/2019 9:28	-3.3/-3.3	2	51.4	15,290	64.4	28.8	27	30.53	20.28	0.00	NM
11/5/2019 9:23	-0.9/-0.9	2	47.7	18,990	70.8	51.0	46	30.20	20.04	0.00	NM
1/6/2020 9:16	-2.8	2	-47.9	17,790	42.9	55.8	36	30.51	20.91	0.04	NM
1/7/2020 8:31	-2.8	2	-46.5	15,590	51.2	41.3	21	30.52	20.11	0.18	NM
1/8/2020 8:41	1.2	2	-42.1	16,010	48.0	44.0	22	30.15	19.90	0.16	NM
1/9/2020 8:25	1.9	2	-43.3	16,830	64.7	39.7	33	30.02	19.97	0.16	NM
1/10/2020 8:47	2	2	-44.0	15,870	70.1	37.2	34	29.95	20.29	0.18	NM
1/13/2020 9:58	0.0/0.0	2	43.2	16,380	71.2	41.1	40	30.10	19.86	0.14	NM

°F = degrees Fahrenheit

 $CH_4$  = methane

 $CO_2$  = carbon dioxide

in-Hg = inches of mercury

in-WC = inches of water column

NM = not measured

 $O_2$  = oxygen

ppmv = part per million by volume

scfm = standard cubic feet per minute

Table 1-10
KAFB-106V1-263 Respiration Monitoring

Date and Time	Well Head Pressure Pre/Post Purge (in-WC)	Flow Rate (scfm)	Vacuum (in-WC)	VOC (ppmv)	Relative Humidity (%)	Vapor Temperature (°F)	Ambient Temperature (°F)	Barometric Pressure (in-Hg)	O <sub>2</sub> (%)	_	CH₄ (%)
40/7/0040 40 05	4.0/4.0		44.4		n Bioventin			00.05	0.05		
10/7/2019 13:05	-1.3/-1.3	2	44.4	22,910	63.6	72.9	66	30.35	3.35	8.38	NM
10/8/2019 12:39	0.6/0.6	2	50.7	22,220	54.0	78.2	72	30.13	3.17	8.36	NM
10/9/2019 12:23	2.5/2.4	2	44.0	22,990	54.7	76.7	71	29.77	5.44	8.36	NM
10/15/2019 10:51	-1.1/-1.0	2	45.3	23,150	70.8	63.8	59	30.07	18.82	1.10	NM
10/22/2019 9:47	-2.0/-2.0	2	47.2	20,650	71.0	54.0	44	30.25	19.96	0.02	NM
10/31/2019 9:50	-3.2/-3.3	2	47.5	16,670	68.0	30.5	30	30.50	20.28	0.00	NM
11/5/2019 9:43	-0.7/-0.7	2	47.1	21,470	70.7	53.5	49	30.18	19.99	0.00	NM
1/6/2020 9:20	-2.9	2	-52.9	19,040	41.2	56.8	36	30.51	20.97	0.02	NM
1/7/2020 8:35	-2.8	2	-44.3	16,690	50.1	43.5	21	30.52	20.45	0.02	NM
1/8/2020 8:44	1.3	2	-45.3	17,210	47.3	45.3	22	30.15	20.00	0.10	NM
1/9/2020 8:28	1.9	2	-40.7	18,190	68.3	40.9	33	30.02	20.03	0.10	NM
1/10/2020 8:51	1.9	2	-43.0	16,960	70.1	37.5	34	29.95	20.23	0.16	NM
1/13/2020 10:15	0.0/0.0	2	43.2	17,600	71.1	42.5	40	30.10	19.90	0.04	NM

°F = degrees Fahrenheit

 $CH_4$  = methane

 $CO_2$  = carbon dioxide

in-Hg = inches of mercury

in-WC = inches of water column

NM = not measured

 $O_2$  = oxygen

ppmv = part per million by volume

scfm = standard cubic feet per minute

Table 1-11
KAFB-106V2-102 Respiration Monitoring

	Well Head Pressure Pre/Post Purge	Flow Rate	Vacuum	VOC	Relative Humidity	Vapor Temperature	Ambient Temperature	Barometric Pressure	02	CO2	CH₄
Date and Time	(in-WC)	(scfm)	(in-WC)	(ppmv)	(%)	(°F)	(°F)	(in-Hg)	(%)	(%)	(%)
					erm Biover	nting					
10/7/2019 13:30	0.0/0.0	2	41.3	27,780	61.4	74.2	66	30.35	1.98	10.80	NM
10/8/2019 13:00	0.0/0.0	2	45.9	28,800	49.6	80.0	72	30.13	2.09	10.82	NM
10/9/2019 12:32	0.6/0.5	2	45.7	27,710	52.4	78.0	73	29.72	2.30	10.50	NM
10/15/2019 11:19	0.0/0.0	2	47.7	28,190	69.9	66.3	64	30.03	5.34	9.80	NM
10/22/2019 10:23	0.0/0.0	2	46.1	26,110	52.4	60.0	50	30.23	12.98	6.26	NM
10/31/2019 10:18	0.0/0.0	2	46.2	22,060	62.0	32.5	32	30.47	16.74	4.04	NM
11/5/2019 10:14	0.0/0.0	2	47.8	27,590	63.4	57.9	53	30.19	17.31	2.96	NM
1/6/2020 9:27	-0.7	2	-48.3	24,800	35.6	56.5	36	30.51	19.57	1.42	NM
1/7/2020 8:45	-0.5	2	-38.7	22,980	41.9	45.6	24	30.52	19.17	1.36	NM
1/8/2020 8:53	0.4	2	-47.5	24,580	44.5	44.9	27	30.15	19.13	1.46	NM
1/9/2020 8:35	0.1	2	-43.0	24,640	60.9	42.7	35	30.02	18.95	1.62	NM
1/10/2020 9:03	0.0	2	-42.9	22,610	66.6	36.1	34	29.95	18.82	1.76	NM
1/13/2020 10:42	0.0/0.0	2	44.8	23,520	59.7	44.5	43	30.09	19.02	1.16	NM

°F = degrees Fahrenheit

 $CH_4$  = methane

 $CO_2$  = carbon dioxide

in-Hg = inches of mercury

in-WC = inches of water column

NM = not measured

 $O_2$  = oxygen

ppmv = part per million by volume

scfm = standard cubic feet per minute

Table 1-12 KAFB-106V2-117 Respiration Monitoring

Date and Time	Well Head Pressure Pre/Post Purge (in-WC)	Flow Rate (scfm)	Vacuum (in-WC)	VOC (ppmv)	Relative Humidity (%)	Vapor Temperature (°F)	Ambient Temperature (°F)	Barometric Pressure (in-Hg)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	CH₄ (%)
Date and Time	(111-440)	(SCIIII)	(III- <b>VV</b> C)		Term Biove		(1)	[ (III-119 <i>)</i>	( /0)	( /0)	( /0)
10/7/2019 13:33	0.0/0.0	2	42.5	29,440	58.4	74.8	66	30.35	1.97	10.54	NM
10/8/2019 13:05	0.5/0.5	2	49.1	31,350	48.4	80.1	72	30.13	1.49	10.74	NM
10/9/2019 12:37	0.0/0.0	2	47.2	30,530	50.0	78.9	73	29.72	5.58	8.64	NM
10/15/2019 11:45	0.0/0.0	2	49.4	31,250	66.0	67.5	64	30.03	4.01	9.90	NM
10/22/2019 10:37	0.0/0.0	2	48.5	27,990	55.3	59.0	50	30.23	11.01	7.32	NM
10/31/2019 10:35	0.0/0.0	2	47.4	23,500	58.2	33.0	32	30.47	15.05	5.52	NM
11/5/2019 10:29	0.0/0.0	2	48.3	29,640	65.1	59.1	53	30.19	14.21	5.16	NM
1/6/2020 9:29	-0.8	2	-44.4	26,440	41.3	57.5	36	30.51	18.59	2.54	NM
1/7/2020 8:47	-0.6	2	-45.8	24,670	45.9	42.0	24	30.52	18.19	2.36	NM
1/8/2020 8:56	0.4	2	-44.5	26,770	49.6	42.8	27	30.15	14.55	4.90	NM
1/9/2020 8:38	0.1	2	-45.3	26,160	59.4	42.7	35	30.02	14.70	5.10	NM
1/10/2020 9:08	0	2	-41.1	23,680	65.7	35.6	34	29.95	13.81	5.80	NM
1/13/2020 10:59	0.0/0.0	2	46.1	26,200	56.7	45.3	43	30.09	13.00	6.74	NM

°F = degrees Fahrenheit

 $CH_4$  = methane

 $CO_2$  = carbon dioxide

in-Hg = inches of mercury

in-WC = inches of water column

NM = not measured

 $O_2$  = oxygen

ppmv = part per million by volume

scfm = standard cubic feet per minute

Table 1-13 KAFB-106V2-160 Respiration Monitoring

	Well Head Pressure Pre/Post Purge	Flow Rate	Vacuum	VOC	Relative Humidity	Vapor Temperature	Ambient Temperature	Barometric Pressure	O <sub>2</sub>	CO <sub>2</sub>	CH₄
Date and Time	(in-WC)	(scfm)	(in-WC)	(ppmv)	(%)	(°F)	(°F)	(in-Hg)	(%)	(%)	(%)
Long-Term Bioventing											
10/7/2019 13:37	-1.6/-1.8	2	43.4	11,120	59.0	74.3	66	30.35	13.97	8.40	NM
10/8/2019 13:08	1.1/1.1	2	46.3	11,080	49.2	80.3	72	30.13	19.23	2.32	NM
10/9/2019 12:44	2.6/2.6	2	42.8	9,390	48.7	79.9	73	29.72	19.94	0.48	NM
10/15/2019 12:08	-0.5/-0.5	2	47.2	4,990	65.0	69.4	67	30.04	20.12	0.04	NM
10/22/2019 10:55	-2.0/-1.9	2	46.9	3,470	57.0	59.6	55	30.21	20.40	0.08	NM
10/31/2019 11:00	-2.4/-2.4	2	48.9	2,340	58.2	34.0	35	30.44	20.56	0.16	NM
11/5/2019 10:50	0.0/0.0	2	47.1	2,400	64.4	59.9	57	30.14	20.33	0.10	NM
1/6/2020 9:33	-2.7	2	-44.0	960	47.3	47.7	36	30.51	20.84	0.12	NM
1/7/2020 8:51	-2.7	2	-41.2	1,050	57.1	40.2	24	30.52	20.51	0.26	NM
1/8/2020 8:59	1.3	2	-45.0	1,136	51.8	42.0	27	30.15	20.80	0.26	NM
1/9/2020 8:41	1.9	2	-42.5	1,313	61.2	42.9	35	30.02	20.80	0.26	NM
1/10/2020 9:11	1.9	2	-42.7	1,448	66.3	35.0	34	29.95	20.31	0.26	NM
1/13/2020 11:20	0.5/0.5	2	43.4	1,600	63.1	46.8	43	30.09	19.73	0.52	NM

°F = degrees Fahrenheit

 $CH_4$  = methane

CO<sub>2</sub> = carbon dioxide

in-Hg = inches of mercury

in-WC = inches of water column

NM = not measured

 $O_2$  = oxygen

ppmv = part per million by volume

scfm = standard cubic feet per minute

Table 1-14
KAFB-106V2-217 Respiration Monitoring

Date and Time	Well Head Pressure Pre/Post Purge (in-WC)	Flow Rate (scfm)	Vacuum (in-WC)	VOC (ppmv)	Relative Humidity (%)	Vapor Temperature (°F)	Ambient Temperature (°F)	Barometric Pressure (in-Hg)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	CH₄ (%)
				Long-1	Term Biove	nting					
10/7/2019 13:41	-1.3/-1.4	2	44.5	22,860	62.2	73.6	66	30.35	0.45	12.46	NM
10/8/2019 13:12	0.9/0.9	2	45.7	23,610	55.6	80.2	72	30.13	0.43	12.56	NM
10/9/2019 12:47	2.3/2.3	2	42.1	22,730	55.1	80.7	73	29.72	0.71	12.20	NM
10/15/2019 12:22	-0.8/-0.8	2	48.0	23,450	64.4	71.2	67	30.04	7.00	10.12	NM
10/22/2019 11:08	-2.2/-2.2	2	47.7	21,890	60.4	59.1	55	30.21	12.17	6.80	NM
10/31/2019 11:13	-3.3/-3.4	2	49.6	19,600	64.0	35.0	35	30.44	16.11	4.18	NM
11/5/2019 11:03	-0.5/-0.5	2	48.8	22,840	66.3	60.5	57	30.14	17.33	2.42	NM
1/6/2020 9:37	-3	2	-48.3	20,910	52.9	43.8	36	30.51	19.31	0.96	NM
1/7/2020 8:54	-2.8	2	-45.0	20,170	57.0	38.3	24	30.52	18.89	1.15	NM
1/8/2020 9:02	1.3	2	-40.9	20,960	56.0	41.5	27	30.15	19.11	1.18	NM
1/9/2020 8:44	1.7	2	-40.6	21,010	65.7	43.6	35	30.02	19.19	1.08	NM
1/10/2020 9:14	1.8	2	-45.7	19,270	68.5	34.6	34	29.95	18.75	1.10	NM
1/13/2020 11:30	0.0/0.0	2	46.9	20,640	65.4	48.5	46	30.08	18.47	0.98	NM

°F = degrees Fahrenheit

 $CH_4$  = methane

 $CO_2$  = carbon dioxide

in-Hg = inches of mercury

in-WC = inches of water column

NM = not measured

 $O_2$  = oxygen

ppmv = part per million by volume

scfm = standard cubic feet per minute

Table 1-15
KAFB-106V2-252 Respiration Monitoring

Date and Time	Well Head Pressure Pre/Post Purge (in-WC)	Flow Rate (scfm)	Vacuum (in-WC)	VOC (ppmv)	Relative Humidity (%)	Vapor Temperature (°F)	Ambient Temperature (°F)	Barometric Pressure (in-Hg)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	CH₄ (%)
				Long-	Γerm Biove	nting					
10/7/2019 13:44	-1.0/-1.3	2	44.6	15,100	63.4	73.4	66	30.35	2.00	10.38	NM
10/8/2019 13:15	1.1/1.1	2	46.2	15,590	54.0	79.6	72	30.13	16.15	5.02	NM
10/9/2019 12:51	2.6/2.7	2	41.0	15,190	53.4	81.3	74	29.71	19.50	0.92	NM
10/15/2019 12:35	0.0/0.0	2	48.3	15,360	62.8	72.2	70	30.00	19.90	0.00	NM
10/22/2019 11:22	-1.7/-1.8	2	49.2	14,680	67.0	58.1	55	30.24	20.19	0.00	NM
10/31/2019 11:28	-3.0/-3.1	2	49.2	12,730	66.4	36.2	36	30.41	20.46	0.00	NM
11/5/2019 11:14	0.0/0.0	2	46.7	14,490	67.2	60.9	59	30.16	20.13	0.00	NM
1/6/2020 9:40	-2.8	2	-43.3	10,990	60.2	42.1	36	30.51	20.95	-0.01	NM
1/7/2020 8:57	-2.7	2	-42.9	9,900	60.4	37.7	24	30.52	20.58	0.06	NM
1/8/2020 9:06	1.4	2	-43.2	10,740	53.7	42.5	27	30.15	20.87	0.08	NM
1/9/2020 8:47	2	2	-42.7	11,320	63.2	45.1	35	30.02	20.86	0.10	NM
1/10/2020 9:17	1.9	2	-44.6	10,200	71.3	34.6	34	29.95	20.30	0.10	NM
1/13/2020 11:42	0.0/0.0	2	46.0	11,150	60.5	50.1	46	30.08	20.07	0.04	NM

°F = degrees Fahrenheit

 $CH_4$  = methane

 $CO_2$  = carbon dioxide

in-Hg = inches of mercury

in-WC = inches of water column

NM = not measured

 $O_2$  = oxygen

ppmv = part per million by volume

scfm = standard cubic feet per minute

Table 1-16
KAFB-106V2-270 Respiration Monitoring

	Well Head Pressure Pre/Post Purge	Flow Rate	Vacuum	voc	Relative Humidity	Vapor Temperature	Ambient Temperature	Barometric Pressure	O <sub>2</sub>	CO <sub>2</sub>	CH₄
Date and Time	(in-WC)	(scfm)	(in-WC)	(ppmv)	(%)	(°F)	(°F)	(in-Hg)	(%)	(%)	(%)
Long-Term Bioventing											
10/7/2019 13:48	-1.2/-1.3	2	45.4	19,600	63.4	73.5	66	30.35	2.18	9.72	NM
10/8/2019 13:19	1.0/1.0	2	45.3	19,680	52.3	78.5	72	30.13	9.99	8.82	NM
10/9/2019 12:55	2.6/2.6	2	44.1	18,890	46.2	81.7	74	29.71	18.58	2.08	NM
10/15/2019 12:46	0.0/0.0	2	48.8	18,950	60.7	73.0	70	30.00	19.64	0.08	NM
10/22/2019 11:35	-1.7/-1.7	2	49.8	17,420	67.8	58.7	55	30.24	19.99	0.00	NM
10/31/2019 11:36	-3.0/-3.0	2	50.5	14,470	65.1	37.0	36	30.41	20.22	0.00	NM
11/5/2019 11:25	0.0/0.0	2	49.8	17,560	67.5	61.5	59	30.16	19.98	0.00	NM
1/6/2020 9:44	-2.8	2	-46.8	11,340	62.6	41.2	36	30.50	20.88	0.02	NM
1/7/2020 9:00	-2.8	2	-43.2	10,960	61.4	37.5	24	30.52	20.49	0.08	NM
1/8/2020 9:08	1.3	2	-57.8	11,680	53.5	42.3	27	30.15	20.75	0.14	NM
1/9/2020 8:57	2	2	-42.6	12,410	64.0	45.7	35	30.02	20.45	0.44	NM
1/10/2020 9:20	2	2	-45.0	11,050	71.8	34.6	34	29.95	19.71	0.58	NM
1/13/2020 11:57	0.0/0.0	2	46.8	12,390	62.1	51.6	46	30.08	19.73	0.26	NM

<sup>% =</sup> percent

°F = degrees Fahrenheit

 $CH_4$  = methane

 $CO_2$  = carbon dioxide

in-Hg = inches of mercury

in-WC = inches of water column

NM = not measured

 $O_2$  = oxygen

ppmv = part per million by volume

scfm = standard cubic feet per minute

VOC = volatile organic compound

Table 1-17
Bioventing Respiration Pilot Test Analytical Requirements and Frequency

Parameter	Method	Media	Number of Samples Per Event <sup>a</sup>	Sample Container	Data Use	Respiration Test Frequency	Long-Term Test Frequency
BTEX/TPH-GRO	EPA TO-3	Soil Vapor	12	1-liter Summa canister		Baseline and end of test	Weekly for first month; quarterly to end of test
VOCs	EPA TO-15 SIM	Soil Vapor	12	1-liter Summa canister	Evaluate soil vapor EDB concentrations	Baseline and end of test	Weekly for first month; quarterly to end of test
Fixed Gases <sup>b</sup>	ASTM D1945	Soil Vapor	12	1-liter Summa canister	Verify field instrument reading	Baseline and end of test	Weekly for first month; quarterly to end of test
C1-C5 Hydrocarbon Compounds <sup>c</sup>	ASTM D1945	Soil Vapor	12	1-liter Summa canister	Evaluate degradation of EDB	Baseline and end of test	Weekly for first month; quarterly to end of test

<sup>&</sup>lt;sup>a</sup> Soil vapor samples collected from each of the six nested wells in both KAFB-106V1 and KAFB-106V2 (does not include quality control samples).

ASTM = ASTM International

BTEX = benzene, toluene, ethylbenzene, and total xylenes

EDB = ethylene dibromide (1,2-dibromoethane)

EPA = U.S. Environmental Protection Agency

GRO = gasoline range organics

SIM = selective ion monitoring

TPH = total petroleum hydrocarbons

VOC = volatile organic compound

<sup>&</sup>lt;sup>b</sup> Fixed gases: nitrogen, oxygen, hydrogen, carbon monoxide, and carbon dioxide.

<sup>&</sup>lt;sup>c</sup> C1-C5 hydrocarbon compounds: methane, ethane, propane, butane, and pentane.

Table 2-1
Respirometry Parameter Summary

	Injection Parameters								
	Oxygen Demand	Oxygen Radius of	Intrinsic Permeability	Operational Flow Rate					
Well ID	Flow Rate (scfm)	Influence (ft)	(Darcy)	(scfm)					
SVMW-10-100	0.29	207	NC	2.5					
SVMW-10-150	0.35	169	NC	2.0					
SVMW-10-250	0.37	192	NC	2.8					
SVMW-11-100	0.30	233	NC	3.3					
SVMW-11-250	0.27	215	NC	2.5					
SVMW-11-260	0.82	134	NC	3.0					
SVEW-01-260	0.94	250	52	12					
SVEW-02/03-160	1.05	264	46	15					
SVEW-04/05-313	0.91	232	51	10					

Respirometry Parameters								
	Oxygen Utilization Rate	Biodegradation Rate						
Well ID	(% per day)	(mg/kg/day)						
106V1-102	0.03	0.020						
106V1-113	0.13	0.077						
106V1-160	0.15	0.089						
106V1-217	0.18	0.107						
106V1-252	0.09	0.053						
106V1-263	0.12	0.071						
106V2-102	0.07	0.041						
106V2-117	0.81	0.480						
106V2-160	0.15	0.089						
106V2-217	0.10	0.059						
106V2-252	0.12	0.071						
106V2-270	0.17	0.101						
Average	0.18	0.105						

Injection parameters were calculated using the average oxygen utilization rate from 106V1 and 106V2

cm = centimeter

Darcy =  $1.062 \times 10-8 \text{ cm}^2$ 

ft = foot/feet

ID = identification

NC = not calculated

scfm = standard cubic feet per minute

Table 2-2
Summary of Hydrocarbon Analytical Results

								Anal	lyte					
			1,2-Dibron	noethane	Benz	ene	Ethylbe	enzene	Tolu	ene	Xylenes	s, Total	TPH-GRO	(C6-C10)
			μg/	m³	μ <b>g/</b> ι	m³	<u>μ</u> g/ι	m³	μg/	m³	μ <b>g/</b> ι	m³	μg/	m <sup>3</sup>
Well ID	Sample Event	Sample Date	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
KAFB-106V1-102	Baseline	4/10/2019	3,800	J	2,100,000		170,000		1,900,000		350,000		120,000,000	
	Post-Dry Respirometry	5/9/2019	3,500	J	2,300,000		280,000		2,100,000		610,000		120,000,000	
	Post-Wet Respirometry	7/5/2019	3,100	J	2,000,000		190,000	J	1,800,000		400,000	J	110,000,000	
	Long-Term Bioventing	10/15/2019	< 19000	U	2,300,000		180,000		1,900,000		370,000		130,000,000	
		10/31/2019	3,100	J	2,200,000		120,000		1,600,000		200,000		120,000,000	
		11/5/2019	4,500	J	2,300,000	J	230,000	J	2,100,000	J	450,000	J	130,000,000	
		1/13/2020	3,600	J	2,300,000	J	160,000	J	1,800,000	J	320,000	J	130,000,000	
KAFB-106V1-113	Baseline	4/10/2019	3,800	J	1,600,000		190,000		1,700,000		410,000		120,000,000	
	Post-Dry Respirometry	5/9/2019	2,800	J	1,400,000		200,000		1,500,000		420,000		74,000,000	
	Post-Wet Respirometry	7/5/2019	5,000	J	1,500,000		220,000	J	2,200,000		460,000	J	110,000,000	
	Long-Term Bioventing	10/15/2019	5,800	J	2,900,000	J	270,000	J	3,100,000	J	560,000	J	140,000,000	
		10/31/2019	4,600	J	2,300,000		120,000		1,900,000		200,000		120,000,000	
		11/5/2019	6,900		2,500,000		250,000		2,700,000		480,000		130,000,000	
		1/13/2020	4,300	J	1,900,000		160,000		1,800,000		320,000		150,000,000	
KAFB-106V1-160	Baseline	4/10/2019	2,800	J	1,300,000		280,000		2,200,000		790,000		110,000,000	
	Post-Dry Respirometry	5/9/2019	2,600	J	1,600,000		390,000		2,800,000		1,200,000		130,000,000	
	Post-Wet Respirometry	7/5/2019	2,700	J	1,600,000	J	330,000	J	1,800,000	J	920,000	J	130,000,000	
	Long-Term Bioventing	10/15/2019	3,400	J	2,100,000		430,000		3,500,000		1,300,000		120,000,000	
		10/31/2019	1,800	J	1,200,000		190,000		2,000,000		460,000		70,000,000	
	[	11/5/2019	2,600	J	1,500,000	J	360,000	J	3,000,000	J	960,000	J	110,000,000	
	[	1/13/2020	1,700	J	1,100,000	J	280,000	J	2,200,000	J	780,000	J	92,000,000	
KAFB-106V1-217	Baseline	4/10/2019	4,500		1,700,000		460,000		4,200,000		1,800,000		160,000,000	
	Post-Dry Respirometry	5/9/2019	3,000	J	1,600,000		360,000		3,400,000	J	1,400,000		170,000,000	
	Post-Wet Respirometry	7/5/2019	4,400	J	1,600,000		470,000	J	3,200,000	J	1,800,000	J	170,000,000	
	Long-Term Bioventing	10/15/2019	4,400	J	2,400,000	J	590,000	J	5,600,000	J	2,300,000	J	160,000,000	
		10/31/2019	330	J	180,000		46,000		420,000		170,000		20,000,000	
	l	11/5/2019	2,000	J	770,000		170,000		2,000,000		590,000		57,000,000	
		1/13/2020	ND	U	1,200,000		350,000		2,800,000		1,400,000		140,000,000	
KAFB-106V1-252	Baseline	4/10/2019	18,000		870,000		400,000		5,400,000		1,500,000		140,000,000	
	Post-Dry Respirometry	5/9/2019	12,000		810,000		360,000		4,200,000	J	1,400,000		150,000,000	
	Post-Wet Respirometry	7/5/2019	18,000	J	800,000		470,000	J	4,200,000	J	1,800,000	J	150,000,000	
	Long-Term Bioventing	10/15/2019	22,000		1,400,000		600,000		7,500,000		2,400,000		150,000,000	
		10/22/2019	21,000		1,300,000		450,000		6,900,000		1,700,000		160,000,000	
		10/31/2019	10,000		880,000		160,000		3,400,000		500,000		96,000,000	
		11/5/2019	24,000		1,300,000		440,000		6,500,000		1,500,000		140,000,000	
		1/13/2020	18,000		1,200,000		330,000		5,300,000		1,100,000		100,000,000	

Table 2-2
Summary of Hydrocarbon Analytical Results

								Ana	vte					
			1,2-Dibror	noethane	Benz	ene	Ethylbe	enzene	Tolu	ene	Xylenes	s, Total	TPH-GRO	(C6-C10)
			μg/	m³	μg/i	m³	μg/	m <sup>3</sup>	μg/	m³	μg/i	m <sup>3</sup>	μg/	m <sup>3</sup>
Well ID	Sample Event	Sample Date	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
KAFB-106V1-263	Baseline	4/10/2019	23,000		920,000		410,000		6,400,000		1,400,000		160,000,000	
	Post-Dry Respirometry	5/9/2019	15,000		840,000		320,000		4,700,000	J	1,100,000		160,000,000	
	Post-Wet Respirometry	7/5/2019	24,000	J	780,000	J	460,000	J	5,500,000	J	1,500,000	J	150,000,000	
	Long-Term Bioventing	10/15/2019	25,000		1,100,000		470,000		6,700,000		1,600,000		150,000,000	
		10/22/2019	39,000		2,000,000		690,000		12,000,000		2,200,000		150,000,000	
		10/31/2019	7,900		630,000		91,000		2,500,000		260,000		110,000,000	
		11/5/2019	32,000		1,400,000		480,000		7,800,000		1,500,000		160,000,000	
		1/13/2020	20,000		1,100,000		350,000		5,600,000		1,100,000		110,000,000	
KAFB-106V2-102	Baseline	4/11/2019	20,000	J	2,100,000	J	280,000	J	5,100,000		890,000	J	370,000,000	
	Post-Dry Respirometry	5/9/2019	15,000		1,800,000		330,000		4,400,000	J	1,000,000		210,000,000	
	Post-Wet Respirometry	7/5/2019	24,000	J	1,800,000		440,000	J	4,500,000	J	1,400,000	J	200,000,000	
	Long-Term Bioventing	10/15/2019	37,000	J	3,200,000	J	630,000	J	8,700,000	J	2,000,000	J	170,000,000	
		10/22/2019	25,000	J	2,900,000	J	420,000	J	7,500,000	J	1,300,000	J	210,000,000	
		10/31/2019	12,000	J	2,200,000		120,000		3,700,000		340,000		140,000,000	
		11/5/2019	32,000		3,200,000		520,000		7,800,000		1,600,000		220,000,000	
		1/13/2020	17,000	J	2,000,000		230,000		4,100,000		660,000		200,000,000	
KAFB-106V2-117	Baseline	4/11/2019	9,700		1,800,000		390,000		3,300,000		1,200,000		180,000,000	
	Post-Dry Respirometry	5/9/2019	9,900	J	2,100,000		350,000		3,900,000	J	1,600,000		210,000,000	
	Post-Wet Respirometry	7/5/2019	17,000	J	2,300,000	J	430,000	J	5,200,000	J	1,600,000	J	220,000,000	
	Long-Term Bioventing	10/15/2019	19,000	J	3,600,000	J	540,000	J	7,000,000	J	1,900,000	J	240,000,000	
		10/22/2019	21,000		3,900,000		450,000		7,500,000		1,500,000		230,000,000	
		10/31/2019	9,000	J	2,700,000		150,000		3,400,000		460,000		150,000,000	
		11/5/2019	21,000		4,200,000		510,000		7,500,000		1,700,000		250,000,000	
		1/13/2020	9,800	J	2,400,000	J	220,000	J	3,700,000	J	650,000	J	240,000,000	
KAFB-106V2-160	Baseline	4/11/2019	2,500	J	550,000		150,000		1,200,000		500,000		43,000,000	
	Post-Dry Respirometry	5/9/2019	1,900	J	630,000		170,000		1,300,000		720,000		52,000,000	
	Post-Wet Respirometry	7/5/2019	1,600	J	660,000	J	120,000	J	990,000	J	500,000	J	76,000,000	
	Long-Term Bioventing	10/15/2019	1,000	J	290,000		95,000		730,000		400,000		54,000,000	
		10/22/2019	890		110,000		82,000		610,000		360,000		19,000,000	
		10/31/2019	800	J	57,000	J	66,000	J	380,000	J	290,000	J	22,000,000	
		11/5/2019	880		34,000		71,000		340,000		310,000		20,000,000	
		1/13/2020	300	J	31,000		38,000		140,000		160,000		14,000,000	
KAFB-106V2-217	Baseline	4/11/2019	6,000		1,500,000		230,000		2,800,000		690,000		140,000,000	
	Post-Dry Respirometry	5/9/2019	4,800	J	1,600,000		300,000		3,000,000	J	900,000		140,000,000	
	Post-Wet Respirometry	7/5/2019	7,300	J	1,400,000		340,000	J	2,600,000	J	1,000,000	J	140,000,000	
	Long-Term Bioventing	10/15/2019	8,700	J	2,200,000		430,000		4,200,000		1,300,000		160,000,000	
		10/22/2019	7,200	J	2,400,000	J	360,000	J	4,400,000	J	1,000,000	J	150,000,000	
		10/31/2019	5,600	J	2,200,000		190,000		3,300,000		490,000		120,000,000	
		11/5/2019	7,700	J	1,900,000	J	390,000	J	3,900,000	J	1,200,000	J	150,000,000	
		1/13/2020	5,400	J	1,600,000	J	230,000	J	2,700,000	J	670,000	J	130,000,000	

Table 2-2
Summary of Hydrocarbon Analytical Results

			Analyte											
			1,2-Dibror	noethane	Benz	ene	Ethylbenzene		Toluene		Xylenes, Total		TPH-GRO (C6-C10)	
			μg/	m³	μ <b>g/</b> ι	m³	μ <b>g/</b> ι	m³	μg/	m³	μg/	m³	μg/	m <sup>3</sup>
Well ID	Sample Event	Sample Date	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
KAFB-106V2-252	Baseline	4/11/2019	12,000		650,000		230,000		3,400,000		680,000		90,000,000	
	Post-Dry Respirometry	5/9/2019	11,000		770,000		310,000		3,500,000		980,000		89,000,000	
	Post-Wet Respirometry	7/5/2019	13,000	J	950,000	J	300,000	J	2,800,000	J	930,000	J	87,000,000	
	Long-Term Bioventing	10/15/2019	13,000	J	980,000		320,000		4,000,000		1,000,000		98,000,000	
		10/22/2019	15,000		1,100,000		320,000		4,400,000		990,000		88,000,000	
		10/31/2019	10,000	J	760,000	J	140,000	J	2,900,000	J	400,000	J	74,000,000	
		11/5/2019	18,000	J	940,000	J	390,000	J	4,200,000	J	1,200,000	J	94,000,000	
		1/13/2020	8,400	J	330,000	J	150,000	J	2,600,000	J	440,000	J	66,000,000	
KAFB-106V2-270	Baseline	4/11/2019	9,200		440,000		190,000		3,000,000		540,000		94,000,000	
	Post-Dry Respirometry	5/9/2019	7,500		590,000		180,000		3,900,000	J	550,000		120,000,000	
	Post-Wet Respirometry	7/5/2019	14,000	J	1,200,000	J	320,000	J	4,400,000	J	1,000,000	J	140,000,000	
	Long-Term Bioventing	10/15/2019	14,000	J	980,000		290,000		4,700,000		960,000		130,000,000	
		10/22/2019	20,000	J	1,500,000	J	390,000	J	7,200,000	J	1,200,000	J	110,000,000	
		10/31/2019	12,000		1,200,000		210,000		4,500,000		600,000		86,000,000	
		11/5/2019	14,000		980,000		280,000		4,400,000		870,000		110,000,000	
		1/13/2020	16,000	J	260,000	J	310,000	J	5,600,000	J	990,000	J	75,000,000	

Analytical data from wells 106V1-102, 106V1-113, 106V1-160, and 106V1-217 on 10-22-2019 was rejected based on a data usability assessment and evaluation of data comparability to previous and subsequent data collected for the same well and intervals and is not incued in this table.

 $\mu g/m^3 = microgram per cubic meter$ 

EDB = ethylene dibromide (1,2-dibromoethane)

GRO = gasoline range organics

ID = identification

TPH = total petroleum hydrocarbons

Val Qual = validation qualifiers

Val Quals based on independent data validation:

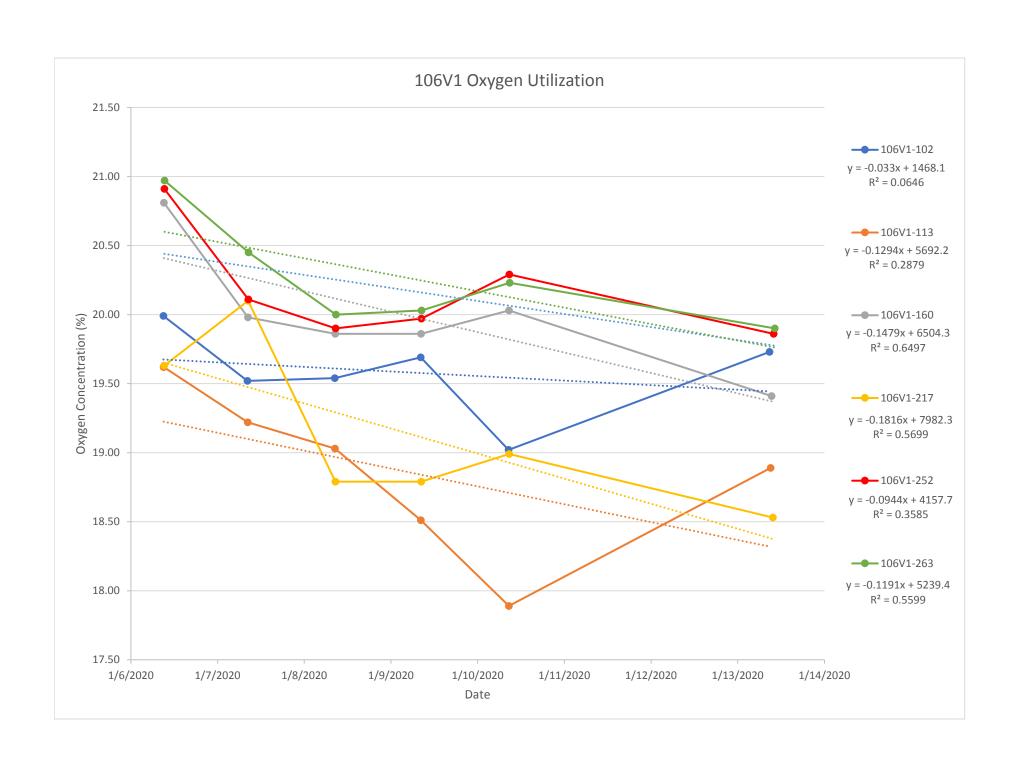
- J = Qualifier denotes the analyte was positively identified, but the associated numerical value is estimated.
- U = Qualifier denotes the analyte was analyzed but not detected above the detection limit. The value associated with the U-qualifier is the limit of detection.
- -- = Validation qualifier not assigned.

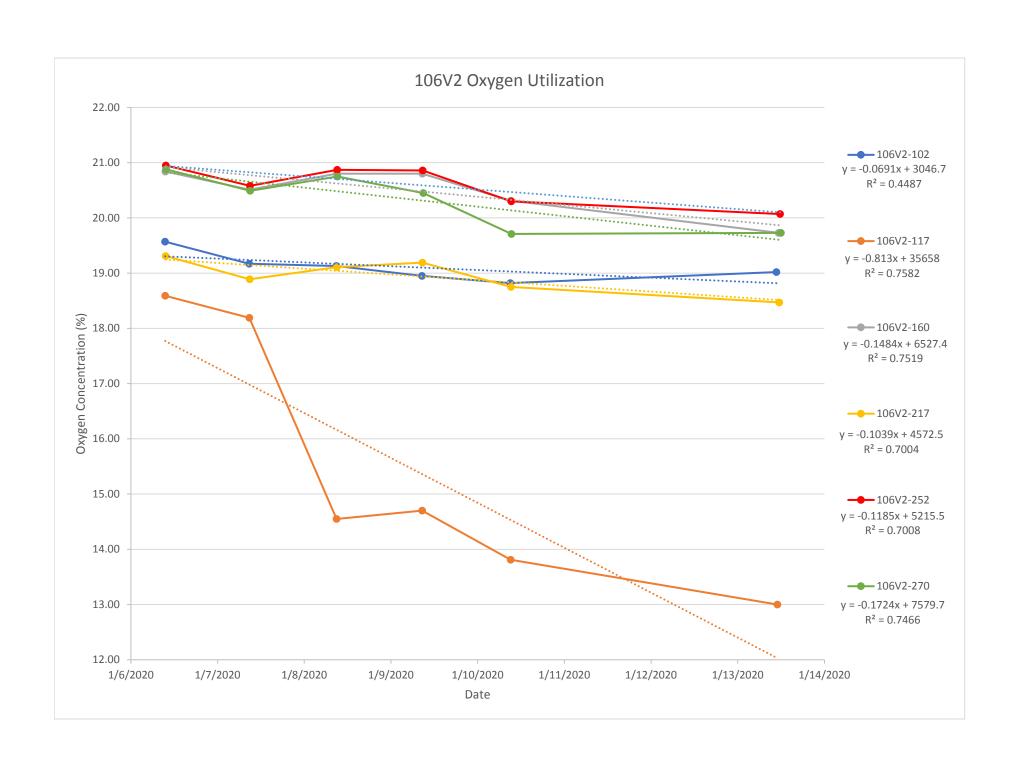
# **APPENDICES**

# LIST OF APPENDICES (Provided on CD)

- A Oxygen Utilization
- B Calculations
  - B-1 Biodegradation, Oxygen Demand Flow Rate, and Radius of Influence Calculations
  - B-2 Intrinsic Permeability Calculations
- C Laboratory Analytical Data

# APPENDIX A OXYGEN UTILIZATION





# APPENDIX B CALCULATIONS

# **APPENDIX B-1**

BIODEGRADATION, OXYGEN DEMAND FLOW RATE, AND RADIUS OF INFLUENCE CALCULATIONS

# Calculation of Biodegradation Rate, Oxygen Demand Flowrate, and Oxygen Radius of Influence - 106V1-102

#### Reference:

Leeson, Andrea and Robert Hinchee, 1996. Principal and Practices of Bioventing Volume II: Bioventing Design. Battelle Memorial Institute. September 29.

# Calculation of Biodegradation Rate, Air Flow Rate, and Oxygen Radius of Influence:

Test Well	106V1-102	
k <sub>B</sub> =	biodegradation rate (mg/kg-day)	
k <sub>B</sub> =	$[-k_0\theta_{air}\rho_{O2}C(0.01)]/\rho_k$	Eq. 1
$Q_T =$	Total oxygen demand air flow rate (ft <sup>3</sup> /min)	
$Q_T =$	$(k_0 \cdot V \cdot \theta_{air})/[(20.9\% - 5\%)60 \text{ min/hr}]$	Eq.2
R <sub>1</sub> =	Oxygen radius of influence (ft)	
R <sub>I</sub> =	$[(Q_d^*(20.9\%-5\%))/(\pi^*h^*k_0\theta_{air})]^{1/2}$	Eq. 3

#### Input Data:

$k_0 =$	Oxygen utilization rate (% per day)	0.033	
$k_0 =$	Oxygen utilization rate (% per hour)	0.0014	
$\theta_{air} =$	Air-filled porosity (fractional)	0.3	
$\rho_{O2}$ =	Density of oxygen in air (mg/L <sub>air</sub> )	1,104	20°C ABQ
$\rho_k =$	Soil bulk density (g/cm³)	1.6	
C =	Mass ratio hydrocarbons to oxygen	0.286	
	for mineralization (1:3.5)		_
V =	Volume impacted soil (ft <sup>3</sup> )	NA	
$Q_d =$	Design Flow Rate (ft <sup>3</sup> /min) (per well)	NA	
$Q_d =$	Design Flow Rate (ft <sup>3</sup> /day) (per well)	NA	1
h =	Aerated thickness (ft)	NA	1
	· ·		

#### Calculations:

$k_B =$		<b>0.020</b> mg/kg-day	Eq. 1
Q <sub>T</sub> =	NA	ft³/min	Eq.2
R <sub>I</sub> =	NA	ft	Eq. 3

k<sub>0</sub> was derived respiration testing.

# Calculation of Biodegradation Rate, Oxygen Demand Flowrate, and Oxygen Radius of Influence -106V1-113

#### Reference:

Leeson, Andrea and Robert Hinchee, 1996. Principal and Practices of Bioventing Volume II: Bioventing Design. Battelle Memorial Institute. September 29.

### Calculation of Biodegradation Rate, Air Flow Rate, and Oxygen Radius of Influence:

Test Well	106V1-113	
5	biodegradation rate (mg/kg-day) $[-k_0\theta_{air}\rho_{O2}C(0.01)]/\rho_k$	Eq. 1
	Total oxygen demand air flow rate (ft $^3$ /min) ( $k_0$ -V- $\theta_{air}$ /[(20.9% - 5%)60 min/hr]	Eq.2
	Oxygen radius of influence (ft) $[(Q_d^*(20.9\%-5\%))/(\pi^*h^*k_0\theta_{air})]^{1/2}$	Eq. 3

#### Input Data:

$k_0 = k_0 =$	Oxygen utilization rate (% per day)	0.13	]
$\theta_{air} =$	Oxygen utilization rate (% per hour)	0.0054	1
<del>-</del>	Air-filled porosity (fractional)	0.3	
$\rho_{O2} =$	Density of oxygen in air (mg/L <sub>air</sub> )	1,104	20°C ABQ
$\rho_k =$	Soil bulk density (g/cm <sup>3</sup> )	1.6	
C =	Mass ratio hydrocarbons to oxygen	0.286	
	for mineralization (1:3.5)		_
V =	Volume impacted soil (ft <sup>3</sup> )	NA	
$Q_d =$	Design Flow Rate (ft <sup>3</sup> /min) (per well)	NA	
$Q_d =$	Design Flow Rate (ft <sup>3</sup> /day) (per well)	NA	
h =	Aerated thickness (ft)	NA	

#### Calculations:

$k_B =$		<b>0.077</b> mg/kg-day	Eq. 1
$Q_T =$	NA	ft <sup>3</sup> /min	Eq.2
R <sub>i</sub> =	NA	ft	Ea. 3

k<sub>0</sub> was derived respiration testing.

# Calculation of Biodegradation Rate, Oxygen Demand Flowrate, and Oxygen Radius of Influence - 106V1-160

#### Reference:

Leeson, Andrea and Robert Hinchee, 1996. Principal and Practices of Bioventing Volume II: Bioventing Design. Battelle Memorial Institute. September 29.

# Calculation of Biodegradation Rate, Air Flow Rate, and Oxygen Radius of Influence:

Test Well	106V1-160	
_	biodegradation rate (mg/kg-day) $ [-k_0\theta_{air}\rho_{O2}C(0.01)]/\rho_k $	Page &[Page] of &[Pages] Eq. 1
	Total oxygen demand air flow rate (ft³/min) (k <sub>0</sub> -V-θ <sub>air</sub> /[(20.9% - 5%)60 min/hr]	Eq.2
	Oxygen radius of influence (ft) $ [(Q_d^*(20.9\%-5\%))/(\pi^*h^*k_0\theta_{air})]^{1/2} $	Eq. 3
Input Data:	ko= Oxygen utilization rate (% ner day)	0.15

$k_0=$	Oxygen utilization rate (% per day)	0.15	
$k_0 =$	Oxygen utilization rate (% per hour)	0.0063	_
$\theta_{air} =$	Air-filled porosity (fractional)	0.3	
$\rho_{O2}$ =	Density of oxygen in air (mg/L <sub>air</sub> )	1,104	20°C ABQ
$\rho_k =$	Soil bulk density (g/cm <sup>3</sup> )	1.6	
C =	Mass ratio hydrocarbons to oxygen for mineralization (1:3.5)	0.286	
V =	Volume impacted soil (ft <sup>3</sup> )	NA	
$Q_d =$	Design Flow Rate (ft <sup>3</sup> /min) (per well)	NA	
$Q_d =$	Design Flow Rate (ft <sup>3</sup> /day) (per well)	NA	
h =	Aerated thickness (ft)	NA	

#### Calculations:

$k_B =$		<b>0.089</b> mg/kg-day	Eq. 1
$Q_T =$	NA	ft <sup>3</sup> /min	Eq.2
R <sub>I</sub> =	NA	ft	Eq. 3

k<sub>0</sub> was derived respiration testing.

# Calculation of Biodegradation Rate, Oxygen Demand Flowrate, and Oxygen Radius of Influence - 106V1-217

#### Reference:

Leeson, Andrea and Robert Hinchee, 1996. Principal and Practices of Bioventing Volume II: Bioventing Design. Battelle Memorial Institute. September 29.

### Calculation of Biodegradation Rate, Air Flow Rate, and Oxygen Radius of Influence:

Test Well	106V1-217	
5	biodegradation rate (mg/kg-day) $[-k_0\theta_{air}\rho_{O2}C(0.01)]/\rho_k$	Eq. 1
	Total oxygen demand air flow rate (ft $^3$ /min) ( $k_0$ -V- $\theta_{air}$ /[(20.9% - 5%)60 min/hr]	Eq.2
	Oxygen radius of influence (ft) $\left[(Q_d^*(20.9\%-5\%))/(\pi^*h^*k_0\theta_{air})\right]^{1/2}$	Eq. 3

#### Input Data:

$k_0 = k_0 =$	Oxygen utilization rate (% per day)	<b>0.18</b> 0.0075	]
$\theta_{air} =$	Oxygen utilization rate (% per hour) Air-filled porosity (fractional)	0.0073	1
$\rho_{O2}$ =	Density of oxygen in air (mg/L <sub>air</sub> )	1,104	20°C ABQ
$\rho_k =$	Soil bulk density (g/cm <sup>3</sup> )	1.6	
C =	Mass ratio hydrocarbons to oxygen for mineralization (1:3.5)	0.286	_
V =	Volume impacted soil (ft <sup>3</sup> )	NA	
$Q_d =$	Design Flow Rate (ft <sup>3</sup> /min) (per well)	NA	
$Q_d =$	Design Flow Rate (ft <sup>3</sup> /day) (per well)	NA	
h =	Aerated thickness (ft)	NA	

#### Calculations:

K <sub>B</sub> =		0.107 mg/kg-day	Eq. 1
Q <sub>T</sub> =	NA	ft <sup>3</sup> /min	Eq.2
R <sub>I</sub> =	NA	ft	Eq. 3

k<sub>0</sub> was derived respiration testing.

# Calculation of Biodegradation Rate, Oxygen Demand Flowrate, and Oxygen Radius of Influence - 106V1-252

#### Reference:

Leeson, Andrea and Robert Hinchee, 1996. Principal and Practices of Bioventing Volume II: Bioventing Design. Battelle Memorial Institute. September 29.

### Calculation of Biodegradation Rate, Air Flow Rate, and Oxygen Radius of Influence:

Test Well	106V1-252	
5	biodegradation rate (mg/kg-day) $ [-k_0\theta_{air}\rho_{O2}C(0.01)]/\rho_k $	Eq. 1
•	Total oxygen demand air flow rate (ft³/min) (k₀-V-θ <sub>air)</sub> /[(20.9% - 5%)60 min/hr]	Eq.2
· ·	Oxygen radius of influence (ft) $[(Q_d^*(20.9\%-5\%))/(\pi^*h^*k_0\theta_{air})]^{1/2}$	Eq. 3

#### Input Data:

$k_0=$	Oxygen utilization rate (% per day)	0.09	
$k_0 =$	Oxygen utilization rate (% per hour)	0.0038	_
$\theta_{air} =$	Air-filled porosity (fractional)	0.3	
$\rho_{O2}$ =	Density of oxygen in air (mg/L <sub>air</sub> )	1,104	20°C ABQ
$\rho_k =$	Soil bulk density (g/cm <sup>3</sup> )	1.6	
C =	Mass ratio hydrocarbons to oxygen for mineralization (1:3.5)	0.286	•
V =	Volume impacted soil (ft <sup>3</sup> )	NA	
$Q_d =$	Design Flow Rate (ft <sup>3</sup> /min) (per well)	NA	
$Q_d =$	Design Flow Rate (ft <sup>3</sup> /day) (per well)	NA	
h =	Aerated thickness (ft)	NA	

#### Calculations:

$K_B =$		<b>0.053</b> mg/kg-day	Eq. 1
Q <sub>T</sub> =	NA	ft <sup>3</sup> /min	Eq.2
R <sub>I</sub> =	NA	ft	Eq. 3

k<sub>0</sub> was derived respiration testing.

# Calculation of Biodegradation Rate, Oxygen Demand Flowrate, and Oxygen Radius of Influence - 106V1-263

#### Reference:

Leeson, Andrea and Robert Hinchee, 1996. Principal and Practices of Bioventing Volume II: Bioventing Design. Battelle Memorial Institute. September 29.

# Calculation of Biodegradation Rate, Air Flow Rate, and Oxygen Radius of Influence:

Test Well 106V1-263	
$k_B$ = biodegradation rate (mg/kg-day) $k_B$ = [-k <sub>0</sub> $\theta_{air}\rho_{O2}C(0.01)]/\rho_k$	Eq. 1
$Q_T$ = Total oxygen demand air flow rate (ft <sup>3</sup> /min) $Q_T$ = ( $k_0$ -V- $\theta_{air}$ /[(20.9% - 5%)60 min/hr]	Eq.2
$R_I = Oxygen radius of influence (ft)$ $R_I = [(Q_d^*(20.9\%-5\%))/(\pi^*h^*k_0\theta_{air})]^{1/2}$	Eq. 3

#### Input Data:

$k_0=$	Oxygen utilization rate (% per day)	0.12	
$k_0=$	Oxygen utilization rate (% per hour)	0.0050	_
$\theta_{air} =$	Air-filled porosity (fractional)	0.3	
$\rho_{O2}$ =	Density of oxygen in air (mg/L <sub>air</sub> )	1,104	20°C ABQ
$\rho_k =$	Soil bulk density (g/cm <sup>3</sup> )	1.6	
C =	Mass ratio hydrocarbons to oxygen for mineralization (1:3.5)	0.286	•
V =	Volume impacted soil (ft <sup>3</sup> )	NA	
$Q_d =$	Design Flow Rate (ft <sup>3</sup> /min) (per well)	NA	
$Q_d =$	Design Flow Rate (ft <sup>3</sup> /day) (per well)	NA	
h =	Aerated thickness (ft)	NA	

#### Calculations:

$k_B =$		<b>0.071</b> mg/kg-day	Eq. 1
$Q_T =$	NA	ft <sup>3</sup> /min	Eq.2
R <sub>I</sub> =	NA	ft	Eq. 3

k<sub>0</sub> was derived respiration testing.

# Calculation of Biodegradation Rate, Oxygen Demand Flowrate, and Oxygen Radius of Influence - 106V2-102

#### Reference:

Leeson, Andrea and Robert Hinchee, 1996. Principal and Practices of Bioventing Volume II: Bioventing Design. Battelle Memorial Institute. September 29.

### Calculation of Biodegradation Rate, Air Flow Rate, and Oxygen Radius of Influence:

Test Well	106V2-102	
	= biodegradation rate (mg/kg-day)	
<b>k</b> <sub>B</sub>	$= [-k_0\theta_{air}\rho_{O2}C(0.01)]/\rho_k$	Eq. 1
$Q_T$	= Total oxygen demand air flow rate (	it <sup>3</sup> /min)
$Q_T$	= $(k_{0*}V_*\theta_{air})/[(20.9\% - 5\%)60 \text{ min/hr}]$	Eq.2
$R_{l}$	= Oxygen radius of influence (ft)	
$R_{l}$	= $[(Q_d^*(20.9\%-5\%))/(\pi^*h^*k_0\theta_{air})]^{1/2}$	Eq. 3

### Input Data:

$k_0=$	Oxygen utilization rate (% per day)		0.07	
$k_0 =$	Oxygen utilization rate (% per hour)	_	0.0029	<b>=</b>
$\theta_{air} =$	Air-filled porosity (fractional)		0.3	
$\rho_{O2}$ =	Density of oxygen in air (mg/L <sub>air</sub> )		1,104	20°C ABQ
$\rho_k =$	Soil bulk density (g/cm <sup>3</sup> )		1.6	
C =	Mass ratio hydrocarbons to oxygen for mineralization (1:3.5)	_	0.286	
V =	Volume impacted soil (ft <sup>3</sup> )		NA	
$Q_d =$	Design Flow Rate (ft <sup>3</sup> /min) (per well)		NA	
$Q_d =$	Design Flow Rate (ft <sup>3</sup> /day) (per well)		NA	
h =	Aerated thickness (ft)		NA	
			•	<del>_</del>

#### Calculations:

$k_B =$		<b>0.041</b> mg/kg-day	Eq. 1
Q <sub>T</sub> =	NA	ft <sup>3</sup> /min	Eq.2
R <sub>I</sub> =	NA	ft	Eq. 3

k<sub>0</sub> was derived respiration testing.

# Calculation of Biodegradation Rate, Oxygen Demand Flowrate, and Oxygen Radius of Influence - 106V2-117

#### Reference:

Leeson, Andrea and Robert Hinchee, 1996. Principal and Practices of Bioventing Volume II: Bioventing Design. Battelle Memorial Institute. September 29.

### Calculation of Biodegradation Rate, Air Flow Rate, and Oxygen Radius of Influence:

Test Well	106V2-117	
5	= biodegradation rate (mg/kg-day)	<b>-</b> 4
K <sub>B</sub> =	$= [-k_0 \theta_{air} \rho_{O2} C(0.01)]/\rho_k$	Eq. 1
Q <sub>T</sub> =	Total oxygen demand air flow rate (ft³/min)	
Q <sub>T</sub> =	= (k <sub>0*</sub> V <sub>*</sub> θ <sub>air)</sub> /[(20.9% - 5%)60 min/hr]	Eq.2
•	Oxygen radius of influence (ft)	
R <sub>I</sub> =	= $[(Q_d^*(20.9\%-5\%))/(\pi^*h^*k_0\theta_{air})]^{1/2}$	Eq. 3

#### Input Data:

k <sub>0</sub> =	Oxygen utilization rate (% per day)	0.81	
$k_0 =$	Oxygen utilization rate (% per hour)	0.0338	-
$\theta_{air} =$	Air-filled porosity (fractional)	0.3	
$\rho_{O2}$ =	Density of oxygen in air (mg/L <sub>air</sub> )	1,104	20°C ABQ
$\rho_k =$	Soil bulk density (g/cm <sup>3</sup> )	1.6	
C =	Mass ratio hydrocarbons to oxygen for mineralization (1:3.5)	0.286	
V =	Volume impacted soil (ft <sup>3</sup> )	NA	
$Q_d =$	Design Flow Rate (ft <sup>3</sup> /min) (per well)	NA	
$Q_d =$	Design Flow Rate (ft <sup>3</sup> /day) (per well)	NA	
h =	Aerated thickness (ft)	NA	

#### Calculations:

$k_B =$		<b>0.480</b> mg/kg-day	Eq. 1
Q <sub>T</sub> =	NA	ft <sup>3</sup> /min	Eq.2
R <sub>I</sub> =	NA	ft	Eq. 3

k<sub>0</sub> was derived respiration testing.

# Calculation of Biodegradation Rate, Oxygen Demand Flowrate, and Oxygen Radius of Influence - 106V2-160

#### Reference:

Leeson, Andrea and Robert Hinchee, 1996. Principal and Practices of Bioventing Volume II: Bioventing Design. Battelle Memorial Institute. September 29.

#### Calculation of Biodegradation Rate, Air Flow Rate, and Oxygen Radius of Influence:

Test Well	106V2-160	
5	biodegradation rate (mg/kg-day) $[-k_0\theta_{air}\rho_{O2}C(0.01)]/\rho_k$	Eq. 1
	Total oxygen demand air flow rate (ft³/min) (k <sub>0</sub> -V-θ <sub>air</sub> /[(20.9% - 5%)60 min/hr]	Eq.2
•	Oxygen radius of influence (ft) $[(Q_d^*(20.9\%-5\%))/(\pi^*h^*k_0\theta_{air})]^{1/2}$	Eq. 3

#### Input Data:

Oxygen utilization rate (% per day)	0.15	
Oxygen utilization rate (% per hour)	0.0063	•
Air-filled porosity (fractional)	0.3	
Density of oxygen in air (mg/L <sub>air</sub> )	1,104	20°C ABQ
Soil bulk density (g/cm <sup>3</sup> )	1.6	
Mass ratio hydrocarbons to oxygen for mineralization (1:3.5)	0.286	
Volume impacted soil (ft <sup>3</sup> )	NA	
Design Flow Rate (ft <sup>3</sup> /min) (per well)	NA	
Design Flow Rate (ft <sup>3</sup> /day) (per well)	NA	1
Aerated thickness (ft)	NA	1
	Oxygen utilization rate (% per hour) Air-filled porosity (fractional) Density of oxygen in air (mg/L <sub>air</sub> ) Soil bulk density (g/cm³) Mass ratio hydrocarbons to oxygen for mineralization (1:3.5) Volume impacted soil (ft³) Design Flow Rate (ft³/min) (per well) Design Flow Rate (ft³/day) (per well)	Oxygen utilization rate (% per hour)  Air-filled porosity (fractional)  Density of oxygen in air (mg/L <sub>air</sub> )  Soil bulk density (g/cm³)  Mass ratio hydrocarbons to oxygen for mineralization (1:3.5)  Volume impacted soil (ft³)  Design Flow Rate (ft³/min) (per well)  NA  0.0063  1,104  1,104  0.286

#### Calculations:

$k_B =$		<b>0.089</b> mg/kg-day	Eq. 1
$Q_T =$	NA	ft³/min	Eq.2
R <sub>I</sub> =	NA	ft	Eq. 3

k<sub>0</sub> was derived respiration testing.

# Calculation of Biodegradation Rate, Oxygen Demand Flowrate, and Oxygen Radius of Influence - 106V2-217

#### Reference:

Leeson, Andrea and Robert Hinchee, 1996. Principal and Practices of Bioventing Volume II: Bioventing Design. Battelle Memorial Institute. September 29.

### Calculation of Biodegradation Rate, Air Flow Rate, and Oxygen Radius of Influence:

Test Well	106V2-217	
2	biodegradation rate (mg/kg-day)	Fa. 4
	: [-k <sub>0</sub> θ <sub>air</sub> ρ <sub>O2</sub> C(0.01)]/ρ <sub>k</sub>	Eq. 1
•	Total oxygen demand air flow rate (f	
Q <sub>T</sub> =	: (k <sub>0*</sub> V <sub>*</sub> θ <sub>air)</sub> /[(20.9% - 5%)60 min/hr]	Eq.2
•	Oxygen radius of influence (ft)	
R <sub>I</sub> =	$= [(Q_d^*(20.9\%-5\%))/(\pi^*h^*k_0\theta_{air})]^{1/2}$	Eq. 3

### Input Data:

$k_0=$	Oxygen utilization rate (% per day)	0.1
$k_0 =$	Oxygen utilization rate (% per hour)	0.0042
$\theta_{air} =$	Air-filled porosity (fractional)	0.3
$\rho_{O2} =$	Density of oxygen in air (mg/L <sub>air</sub> )	<b>1,104</b> 20°C ABQ
$\rho_k =$	Soil bulk density (g/cm <sup>3</sup> )	1.6
C =	Mass ratio hydrocarbons to oxygen for mineralization (1:3.5)	0.286
V =	Volume impacted soil (ft <sup>3</sup> )	NA
$Q_d =$	Design Flow Rate (ft <sup>3</sup> /min) (per well)	NA
$Q_d =$	Design Flow Rate (ft <sup>3</sup> /day) (per well)	NA
h =	Aerated thickness (ft)	NA

#### Calculations:

$k_B =$		<b>0.059</b> mg/kg-day	Eq. 1
Q <sub>T</sub> =	NA	ft <sup>3</sup> /min	Eq.2
R <sub>I</sub> =	NA	ft	Eq. 3

k<sub>0</sub> was derived respiration testing.

# Calculation of Biodegradation Rate, Oxygen Demand Flowrate, and Oxygen Radius of Influence - 106V2-252

#### Reference:

Leeson, Andrea and Robert Hinchee, 1996. Principal and Practices of Bioventing Volume II: Bioventing Design. Battelle Memorial Institute. September 29.

# Calculation of Biodegradation Rate, Air Flow Rate, and Oxygen Radius of Influence:

Test Well	106V2-252	
_	3 = biodegradation rate (mg/kg-day)	F 4
K <sub>B</sub>	$_{3} = [-k_{0}\theta_{air}\rho_{O2}C(0.01)]/\rho_{k}$	Eq. 1
$Q_{T}$	<sub>r</sub> = Total oxygen demand air flow rate (ft <sup>3</sup> /min)	
$Q_{T}$	$r = (k_0 \cdot V \cdot \theta_{air})/[(20.9\% - 5\%)60 \text{ min/hr}]$	Eq.2
R	<sub>I</sub> = Oxygen radius of influence (ft)	
R	$_{\rm I} = [(Q_{\rm d}^*(20.9\%-5\%))/(\pi^*h^*k_0\theta_{\rm air})]^{1/2}$	Eq. 3

#### Input Data:

$k_0=$	Oxygen utilization rate (% per day)	0.12	
$k_0 =$	Oxygen utilization rate (% per hour)	0.0050	_
$\theta_{air} =$	Air-filled porosity (fractional)	0.3	
$\rho_{O2}$ =	Density of oxygen in air (mg/L <sub>air</sub> )	1,104	20°C ABQ
$\rho_k =$	Soil bulk density (g/cm <sup>3</sup> )	1.6	
C =	Mass ratio hydrocarbons to oxygen for mineralization (1:3.5)	0.286	_
V =	Volume impacted soil (ft <sup>3</sup> )	NA	
$Q_d =$	Design Flow Rate (ft <sup>3</sup> /min) (per well)	NA	
$Q_d =$	Design Flow Rate (ft <sup>3</sup> /day) (per well)	NA	
h =	Aerated thickness (ft)	NA	

#### Calculations:

$k_B =$		<b>0.071</b> mg/kg-day	Eq. 1
Q <sub>T</sub> =	NA	ft <sup>3</sup> /min	Eq.2
R <sub>I</sub> =	NA	ft	Eq. 3

k<sub>0</sub> was derived respiration testing.

# Calculation of Biodegradation Rate, Oxygen Demand Flowrate, and Oxygen Radius of Influence - 106V2-270

#### Reference:

Leeson, Andrea and Robert Hinchee, 1996. Principal and Practices of Bioventing Volume II: Bioventing Design. Battelle Memorial Institute. September 29.

### Calculation of Biodegradation Rate, Air Flow Rate, and Oxygen Radius of Influence:

Test Well	106V2-270	
	biodegradation rate (mg/kg-day) [- $k_0\theta_{air}\rho_{O2}C(0.01)$ ]/ $\rho_k$	Eg. 1
_	Total oxygen demand air flow rate (ft³/min)	Lq. I
•	$(k_{0} \cdot V \cdot \theta_{air})$ [(20.9% - 5%)60 min/hr]	Eq.2
	Oxygen radius of influence (ft)	
$R_{l} =$	$[(Q_d^*(20.9\%-5\%))/(\pi^*h^*k_0\theta_{air})]^{1/2}$	Eq. 3

### Input Data:

$k_0 = k_0 =$	Oxygen utilization rate (% per day) Oxygen utilization rate (% per hour)	<b>0.17</b> 0.0071	]
$\theta_{air} =$	Air-filled porosity (fractional)	0.3	
$\rho_{O2}$ =	Density of oxygen in air (mg/L <sub>air</sub> )	1,104	20°C ABQ
$\rho_k =$	Soil bulk density (g/cm <sup>3</sup> )	1.6	
C =	Mass ratio hydrocarbons to oxygen for mineralization (1:3.5)	0.286	_
V =	Volume impacted soil (ft <sup>3</sup> )	NA	
$Q_d =$	Design Flow Rate (ft <sup>3</sup> /min) (per well)	NA	
$Q_d =$	Design Flow Rate (ft³/day) (per well)	NA	
h =	Aerated thickness (ft)	NA	1

#### Calculations:

$k_B =$		<b>0.101</b> mg/kg-day	Eq. 1
$Q_T =$	NA	ft <sup>3</sup> /min	Eq.2
R <sub>I</sub> =	NA	ft	Eq. 3

k<sub>0</sub> was derived respiration testing.

# Calculation of Oxygen Demand Flowrate and Oxygen Radius of Influence for Air Injection Wells

#### Reference:

Leeson, Andrea and Robert Hinchee, 1996. Principal and Practices of Bioventing Volume II: Bioventing Design. Battelle Memorial Institute. September 29.

#### Calculation of Air Flow Rate, and Oxygen Radius of Influence:

 $Q_T$  = Total oxygen demand air flow rate (ft<sup>3</sup>/min)

 $Q_T = (k_{0*}V_*\theta_{air})/[(20.9\% - 5\%)60 \text{ min/hr}]$  Eq.2

R<sub>I</sub> = Oxygen radius of influence (ft)

 $R_{I} = [(Q_{d}^{*}(20.9\%-5\%))/(\pi^{*}h^{*}k_{0}\theta_{air})]^{1/2}$  Eq. 3

Input Data:

 $k_0$ = Oxygen utilization rate (% per day)  $k_0$ = Oxygen utilization rate (% per hour)

 $\theta_{air} = Air-filled porosity (fractional)$ 

C = Mass ratio hydrocarbons to oxygen

for mineralization (1:3.5) Volume impacted soil (ft<sup>3</sup>)

V = V Volume impacted soil (ft<sup>3</sup>)  $Q_d = D$  Design Flow Rate (ft<sup>3</sup>/min) (per well)

 $Q_{d} = Design Flow Rate (ft^{3}/day) (per well)$ 

h = Aerated thickness (ft)

0.18 average of 106V1 and 106V2

0.0075 **0.3** 

0.286

#### Calculations:

Injectio	on Well ID	SVMW-10-100	SVMW-10-150	SVMW-10-250	SVMW-11-100	SVMW-11-250	SVMW-11-260	SVEW-01-260	SVEW-02/03-160	SVEW-04/05-313
	V =	121,660	146,300	158,620	126,280	112,420	346,500	400,400	446,600	385,000
	$Q_d =$	2.5	2	2.8	3.3	2.5	3	12	15	10
	$Q_d =$	3,600	2,880	4,032	4,752	3,600	4,320	17,280	21,600	14,400
	h =	7.9	9.5	10.3	8.2	7.3	22.5	26	29	25
Eq.2	Q <sub>T</sub> (ft <sup>3</sup> /min)	0.287	0.345	0.374	0.298	0.265	0.817	0.944	1.053	0.908
Fa 3	R. (FT) =	207	7 169	192	233	215	i 134	250	) 264	232

k<sub>0</sub> was derived respiration testing.

# APPENDIX B-2 INTRINSIC PERMEABILITY CALCULATIONS

# Calculation B-2-1 Calculation of Intrinsic Permeability - SVEW-01-260 Dry Respiration Test

#### Reference:

Johnson, et. al., 1990, A Practical Approach to the Design, Operation, and Monitoring of Insitu Venting Systems, Groundwater Monitoring Review, Spring, 1990.

# **Calculation of Intrinsic Permeability:**

Test Well	SVEW-01	-260	1/13/2020	11:10	Data	
	•	ermeability (cm²) 14P <sub>w</sub> * [{1 - (P <sub>atm</sub> /P <sub>w</sub>	$^{2}$ }/In(R <sub>w</sub> /R <sub>i</sub> )] <sup>-</sup>	1		Eq. 1
Input Data	:					
	Q =	Discharge rate (cf	m)		12.00	
	H =	Length of exposed	d screen (ft)		15	
	$P_w =$	Well Pressure (inc	ches W.C.)		1.4	
	==	Well Radius (ft)			0.333	
	$R_i =$	Radius of Influence	ce (ft)		250	
	$P_{atm} =$	Ambient atmosph	eric pressure	(atm)	0.825	KAFB
						5,350 ft msl
Calculation	ns:					
	Q/H =	0.8000 ft <sup>2</sup> /m	nin =	12.39	cm <sup>2</sup> /sec	
	_	0.005 -t	* 4 040 40	0 /2	l=+	
	P <sub>atm</sub> =		* 1.013 x 10-	-6 gm/cm-s /	atm	
OI	r P <sub>atm</sub> =	8.36E+05 gm/	cm-s <sup>-</sup>			
	P <sub>w</sub> =	$P_{atm} + [-P_w(in H_2C)]$	))/(P <sub>otm</sub> * 407.	.5 in H₂O/atr	n)]	
OI	r P <sub>w</sub> =	0.821 atm	7 Caun	2	/1	
	r P <sub>w</sub> =		* 1.013 x 10-	-6 am/cm-s <sup>2</sup> /	atm	
	r P <sub>w</sub> =	8.32E+05 gm/		g	= well vacu	ıım
O,	ı w –	0.02E100 g	0		- Woll Vaoa	diii
	u =	1.80E-04 gm/	cm-s at 15 C		= dynamic	viscosity of air
Solutions:						
	k =	5.6E-07 cm <sup>2</sup>	Eq. ′	1		
OI	r k =	5.2E+01 Dar	<b>cy's</b> (Dar	cy = 1.062 x	$10^{-8}  \text{cm}^2$ )	

# Calculation of Intrinsic Permeability - SVEW-02/03-160 Dry Respiration Test

#### Reference:

Johnson, et. al., 1990, A Practical Approach to the Design, Operation, and Monitoring of Insitu Venting Systems, Groundwater Monitoring Review, Spring, 1990.

# **Calculation of Intrinsic Permeability:**

Test Well	SVEW-01-	260	1/13/2	2020 11:10	Data	
	•	ermeability (cm²) I4P <sub>w</sub> * [{1 - (P <sub>atm</sub> /P <sub>w</sub> )	<sup>2</sup> 1/lp/D	/D.\1 <sup>-1</sup>		F- 4
κ =	Q/H U/3.1	14P <sub>w</sub> [{I - (P <sub>atm</sub> /P <sub>w</sub> )		Eq. 1		
Input Data	:					
	Q =	Discharge rate (cfr	m)		15.00	
	H =	Length of exposed	screen	(ft)	15	
	$P_w =$	Well Pressure (inc	hes W.	C.)	2.2	
	$R_w =$	Well Radius (ft)			0.167	
	$R_i =$	Radius of Influence	e (ft)		264	
	$P_{atm} =$	Ambient atmosphe	eric pres	sure (atm)	0.825	KAFB
						5,350 ft msl
Calculation	ns:	0			2	
	Q/H =	1.0000 ft <sup>2</sup> /m	in =	15.48	3 cm <sup>2</sup> /sec	
	Б	0.005 otm	* 1 012	x 10-6 gm/cm-s	2/otm	
	P <sub>atm</sub> =			x 10-6 gm/cm-s	/allII	
or	P <sub>atm</sub> =	8.36E+05 gm/c	m-s			
	P <sub>w</sub> =	$P_{atm} + [-P_w(in H_2O)]$	)/(P <sub>atm</sub> *	407.5 in H <sub>2</sub> O/at	m)]	
or	P <sub>w</sub> =	0.818 atm				
or	P <sub>w</sub> =	0.818 atm	* 1.013	x 10-6 gm/cm-s	<sup>2</sup> /atm	
or	P <sub>w</sub> =	8.29E+05 gm/c	:m-s <sup>2</sup>		= well vacu	ıum
	u =	1.80E-04 gm/c	m-s at	15 C	= dynamic	viscosity of air
Solutions:						
	k =	4.9E-07 cm <sup>2</sup>		Eq. 1		
or	· k =	4.6E+01 Darc	y's	(Darcy = 1.062)	x 10 <sup>-8</sup> cm <sup>2</sup> )	

# Calculation of Intrinsic Permeability - SVEW-04/05-313 Dry Respiration Test

#### Reference:

Johnson, et. al., 1990, A Practical Approach to the Design, Operation, and Monitoring of Insitu Venting Systems, Groundwater Monitoring Review, Spring, 1990.

# **Calculation of Intrinsic Permeability:**

Test Well	SVEW-01-	260	1/13/	2020 11:10	Data	
	•	ermeability (cm²) I4P <sub>w</sub> * [{1 - (P <sub>atm</sub> /P <sub>w</sub> )	) <sup>2</sup> }/In(R,	"/R <sub>i</sub> )] <sup>-1</sup>		Eq. 1
		w Et ( dan w)		,,,		1
Input Data	:					
	Q =	Discharge rate (cf	m)		10.00	
	H =	Length of exposed	l screer	n (ft)	15	
	$P_w =$	Well Pressure (inc	hes W.	.C.)	1.3	
	$R_w =$	Well Radius (ft)			0.167	
	$R_i =$	Radius of Influence	e (ft)		232	
	$P_{atm} =$	Ambient atmosphe	eric pre	ssure (atm)	0.825	KAFB
						5,350 ft msl
Calculation	ns:					
	Q/H =	0.6667 ft <sup>2</sup> /m	in =	10.32	2 cm <sup>2</sup> /sec	
					2.	
	$P_{atm} =$			x 10-6 gm/cm-s	s²/atm	
or	P <sub>atm</sub> =	8.36E+05 gm/d	cm-s²			
	_					
	$P_w =$	$P_{atm} + [-P_w(in H_2O)]$	)/(P <sub>atm</sub>	* 407.5 in H <sub>2</sub> O/at	tm)]	
	$P_w =$	0.821 atm			2.	
	$P_w =$			x 10-6 gm/cm-s	s²/atm	
or	$P_w =$	8.32E+05 gm/d	cm-s²		= well vacu	ium
	u =	1.80E-04 gm/d	cm-s at	15 C	= dynamic	viscosity of air
Solutions:						
	k =	5.5E-07 cm <sup>2</sup>		Eq. 1	0 6	
or	k =	5.1E+01 Dard	cy's	(Darcy = 1.062)	$\times 10^{-8}  \text{cm}^2$ )	

# APPENDIX C LABORATORY ANALYTICAL DATA

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	KAFE	3-106V1-10	2	KAFE	3-106V1-10	)2	KAFB	-106V1-10	)2	KA	FB-106V1-1	02
		Field Sample ID:		-106V1 102	P.1	KAFB-106V1 102.1 5/9/2019			KAFB-	106V1 102	2.1		B-106V1 10	
		Sample Date:		/10/2019						/5/2019		10/15/2019		
-	Sample Type:			REG			REG		7/5/2019 REG			10/13/2019 REG		
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
VOCs	-	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	U	3,100	ND	U	2,600	ND	U	3,800	ND	Vai Quai	19,000
VOCS		1.1-Dichloroethane	ND	U	1,600	ND	U	1,400	ND ND	U	2,000	ND ND	U	10,000
1		1,2,4-Trichlorobenzene	ND	U	9,900	ND	U	8,500	ND	U	12,000	ND ND	U	93,000
1	-	1,2,4-Trimethylbenzene	54,000		2,000	170,000		1,700	110,000	J	2,400	66,000		12,000
1	•	1,2-Dibromoethane	3,800	J	3,100	3,500		2,600	3,100	ı	3,800	ND	U	19,000
1	-	1.2-Dishorhoethane	3,800 ND	U	2,400	3,300 ND	U	2,000	3,100 ND	U	2,900	ND ND	U	15,000
1	-	1,3,5-Trimethylbenzene	19,000		2,000	48,000		1,700	34,000	ı	2,400	25,000		12,000
1	-	1,3-Butadiene	ND	U	890	ND	U	760	ND	U	1,100	23,000 ND	U	5,600
1	-	1,4-Dioxane	ND	U	4,800	ND	U	4,100	ND	U	5,900	ND ND	U	45,000
1	-	2-Butanone	780,000	J	4,000	770,000	1	3,400	710,000	ı	4,800	250,000		37,000
1		2-Butarione 2-Hexanone	760,000 ND	U	5,500	4,800	1	4,700	7 10,000 ND	U	6,700	250,000 ND	 U	51,000
1		4-Methyl-2-Pentanone	ND	U	1,600	7,600		1,400	ND ND	U	2,000	ND ND	U	10,000
1		Acetone	4,400,000	J	3,200	5,000,000		2,700	5,100,000	J	3,900	2,800,000		30,000
1	•	Benzene	2,100,000		1,300	2,300,000		1,100	2,000,000		1,000	2,300,000		8,000
1	•	Bromodichloromethane	ND	U	2,700	ND	U	2,300	ND	U	3,300	2,300,000 ND	U	17,000
1		Bromoform	ND	U	4,200	ND	U	3,500	ND	U	5,100	ND	U	26,000
1		Carbon Disulfide	ND	U	4,200	ND	U	3,600	ND	U	5,100	ND ND	U	39,000
1	l l	Carbon Tetrachloride	ND	U	2,500	ND	U	2,200	ND	U	3,100	ND ND	U	16,000
1		Chloroethane	ND	U	3,500	ND	U	3,000	ND	U	4,300	ND	U	33,000
1	l l	Chloroform	ND	U	2,000	ND	U	1,700	ND	U	2,400	ND	U	12,000
1		Chloromethane	ND	U	2,800	ND	U	2,400	ND	U	3,400	ND	U	26,000
1		Cyclohexane	5,300,000	J	1,400	5,400,000	J	1,200	4,400,000	.l	1,700	5,500,000		8,600
1		Dibromochloromethane	ND	Ü	3,400	ND	Ü	2,900	ND	Ü	4,200	ND	U	21,000
1	l l	Dichlorodifluoromethane	ND	U	2,000	ND	U	1,700	ND	U	2,400	ND	U	12,000
1		Ethanol	160,000		2,500	160,000		2,100	180,000	J	3,100	17,000	J	24,000
1	l l	Ethyl Acetate	ND	U	9,600	ND	U	8,200	ND	U	7,800	ND	U	60,000
1		Ethylbenzene	170,000		1,700	280,000		1,500	190,000	J	2,100	180,000		11,000
1		Hexane	8,500,000	J	1,400	8,800,000	J	1,200	5,400,000	J	1,700	8,700,000		8,900
1		Isopropyl Alcohol	270,000		3,300	330,000		2,800	280,000	J	4,000	27,000	J	31,000
1		m- & p-Xylenes	270,000		1,700	450,000		1,500	300,000	J	2,100	280,000		11,000
	l l	Methylene Chloride	ND	U	4,600	ND	U	4,000	ND	Ü	5,700	9,400	J	44,000
		Naphthalene	ND	UJ	7,000	1,600	J	6,000	ND	U	5,700	ND	Ü	8,800
1		n-Heptane	3,100,000		1,600	3,000,000		1,400	2,200,000	J	2,000	3,000,000		10,000
1	l	o-Xylene	82,000		1,700	160,000		1,500	100,000	J	2,100	92,000		11,000
1	l l	Propylene (Propene)	42,000		2,300	35,000		2,000	26,000	J	2,800	ND	U	22,000
1		Styrene	ND	U	1,700	ND	U	1,400	ND	U	2,100	ND	Ü	11,000
1	l l	Tetrachloroethene	ND	U	2,700	ND	U	2,300	ND	U	3,300	180,000		17,000
1		Tetrahydrofuran	ND	U	1,200	ND	U	1,000	ND	U	1,400	ND	U	7,400
1		Toluene	1,900,000		1,500	2,100,000		1,300	1,800,000		1,200	1,900,000		9,500
		Trichloroethene	ND	U	2,200	ND	U	1,800	ND	U	2,600	ND	U	14,000
1		Trichlorofluoromethane	ND	U	2,200	ND	U	1,900	ND	U	2,800	ND	U	14,000
1 1		Vinyl Chloride	ND	U	1,000	ND	U	870	ND	U	1,200	ND	U	6,400
												i		,

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	KAFB-106V1 102.1			KAFB-106V1-102 KAFB-106V1 102.1 5/9/2019			KAFB-106V1-102 KAFB-106V1 102.1 7/5/2019			KAFB-106V1-102 KAFB-106V1 102.1 10/15/2019		
		Field Sample ID:												
		Sample Date:												
		REG			REG			REG			REG			
Parameter	Analytical Method	Method Analyte		Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
TPH	Method TO-03 (µg/m³)	TPH-GRO (C6-C10)	120,000,000		440,000	120,000,000		190,000	110,000,000		180,000	130,000,000		160,000
Fixed Gases	` '	Butane	0.0089		0.00029	0.0056		0.00025	0.0042		2,400	0.0037		0.00022
		Carbon Dioxide	12		0.013	9.5		0.011	7.1		0.01	7.2		0.0096
		Carbon Monoxide	ND	U	0.013	ND	U	0.011	ND	U	0.01	ND	U	0.0096
		Ethane	0.0039		0.00029	0.0031		0.00025	0.0022		2,400	0.0018	J	0.00022
		Hydrogen	ND	U	0.017	ND	U	0.014	ND	U	0.013	ND	U	0.012
		Methane	0.025		0.00013	0.02		0.00011	0.013		0.00011	0.0081		0.0001
		Nitrogen (Ammonia As N)	85		0.18	80		0.15	79		0.15	79		0.14
		Oxygen	1.4		0.048	8.8		0.042	12	-	0.04	12		0.037
		Pentane	0.18		0.00029	0.12		0.00025	0.1		0.00024	0.1		0.00022
		Propane	0.0017	J	0.00029	0.0015	J	0.00025	0.0012	J	0.00024	0.00097	J	0.00022

Table C-1 Summary of Soil Gas Analytical Results

[	Location ID:			AFB-106V1-1	02	KAI	FB-106V1-10	2	KAFB-	-106V1-102		KAFB-106V1-102			
ļ	Field Sample ID:			KAFB-106V1 102.1			B-106V1 102			-106V1 102		KAFB-106V1-102			
			10/22/2019			10/31/2019	· ·		/5/2019		1/13/2020				
ľ		Sample Date: Sample Type:	REG			REG				REG			REG		
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	
VOCs	Method TO-15 (µg/m³)	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	R	47	ND	U	9,900	ND	U	2,300	ND	U	6,300	
		1,1-Dichloroethane	ND	R	25	ND	U	5,200	ND	U	1,200	ND	U	3,300	
		1,2,4-Trichlorobenzene	ND	R	230	ND	U	48,000	ND	U	11,000	ND	U	23,000	
		1,2,4-Trimethylbenzene	9,800	R	30	14,000		6,300	77,000	J	1,500	32,000	J	4,000	
		1,2-Dibromoethane	43	R	47	3,100	J	9,900	4,500	J	2,300	3,600	J	6,300	
		1,2-Dichlorobenzene	ND	R	37	ND	U	7,800	ND	U	1,800	ND	U	5,000	
		1,3,5-Trimethylbenzene	2,400	R	30	6,500	J	6,300	25,000	J	1,500	13,000	J	4,000	
		1,3-Butadiene	ND	R	14	ND	U	2,800	ND	U	670	ND	U	1,800	
		1,4-Dioxane	ND	R	110	ND	U	23,000	ND	U	5,400	ND	U	11,000	
		2-Butanone	5,000	R	91	600,000		19,000	700,000	J	4,500	550,000	J	9,100	
		2-Hexanone	ND	R	130	ND	U	26,000	ND	U	6,200	ND	U	13,000	
		4-Methyl-2-Pentanone	ND	R	25	ND	U	5,300	ND	U	1,200	ND	U	3,400	
		Acetone	27,000	R	73	4,700,000		15,000	4,600,000	J	3,600	4,900,000	J	7,300	
		Benzene	12,000	R	20	2,200,000		4,100	2,300,000	J	970	2,300,000	J	2,600	
		Bromodichloromethane	ND	R	41	ND	U	8,600	ND	U	2,000	ND	U	5,500	
		Bromoform	ND	R	64	ND	U	13,000	ND	U	3,100	ND	U	8,500	
		Carbon Disulfide	ND	R	96	ND	U	20,000	ND	U	4,700	ND	U	9,600	
		Carbon Tetrachloride	ND	R	39	ND	U	8,100	ND	U	1,900	ND	U	5,200	
		Chloroethane	ND	R	82	ND	U	17,000	ND	U	4,000	ND	U	8,200	
		Chloroform	ND	R	30	ND	U	6,300	ND	U	1,500	ND	U	4,000	
		Chloromethane	ND	R	64	ND	U	13,000	ND	U	3,100	ND	U	6,400	
		Cyclohexane	28,000	R	21	5,400,000		4,400	5,700,000	J	1,000	5,300,000	J	2,800	
		Dibromochloromethane	ND	R	53	ND	U	11,000	ND	U	2,600	ND	U	7,000	
		Dichlorodifluoromethane	ND	R	30	ND	U	6,400	ND	U	1,500	ND	U	4,100	
		Ethanol	2,600	R	58	20,000		12,000	120,000	J	2,800	70,000	J	5,800	
		Ethyl Acetate	ND	R	150	ND	U	31,000	ND	U	7,300	ND	U	15,000	
		Ethylbenzene	3,500	R	27	120,000		5,600	230,000	J	1,300	160,000	J	3,600	
		Hexane	30,000	R	22	10,000,000		4,500	10,000,000	J	1,100	9,700,000	J	2,900	
		Isopropyl Alcohol	4,100	R	76	36,000		16,000	240,000	J	3,700	160,000	J	7,600	
		m- & p-Xylenes	6,500	R	27	160,000		5,600	340,000	J	1,300	250,000	J	3,600	
		Methylene Chloride	ND	R	110	ND	U	22,000	ND	U	5,300	ND	U	11,000	
		Naphthalene	720	R	22	ND	U	4,500	ND	U	1,000	ND	U	2,200	
		n-Heptane	23,000	R	25	2,600,000		5,300	3,100,000	J	1,200	2,700,000	J	3,400	
		o-Xylene	2,600	R	27	50,000		5,600	110,000	J	1,300	74,000	J	3,600	
		Propylene (Propene)	ND	R	53	ND	U	11,000	9,100	J	2,600	ND	U	5,300	
		Styrene	ND	R	26	ND	U	5,500	ND	U	1,300	ND	U	3,500	
		Tetrachloroethene	ND	R	42	ND	U	8,800	ND	U	2,000	ND	U	5,600	
		Tetrahydrofuran	ND	R	18	ND	U	3,800	ND	U	890	ND	U	2,400	
	ļ	Toluene	21,000	R	23	1,600,000		4,900	2,100,000	J	1,100	1,800,000	J	3,100	
		Trichloroethene	ND	R	33	ND	U	6,900	ND	U	1,600	ND	U	4,400	
	l l	Trichlorofluoromethane	ND	R	35	ND	U	7,200	ND	U	1,700	ND	U	4,600	
		Vinyl Chloride	ND	R	16	ND	U	3,300	ND	U	770	ND	U	2,100	
		Xylenes, Total	9,100	R	45	200,000		9,300	450,000	J	2,200	320,000	J	8,900	

Table C-1 Summary of Soil Gas Analytical Results

		KAFB-106V1-102			KAFB-106V1-102			KAFB-106V1-102			KAFB-106V1-102				
	Field Sample I			KAFB-106V1 102.1			KAFB-106V1 102.1			KAFB-106V1 102			KAFB-106V1-102		
		Sample Date:	10/22/2019			10/31/2019			11/5/2019						
	Sample Type:			REG			REG			REG			REG		
Parameter	Analytical Method Analyte		Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	
TPH	Method TO-03 (μg/m <sup>3</sup> )	TPH-GRO (C6-C10)	1,100,000	R	2,100	120,000,000		180,000	130,000,000		160,000	130,000,000		340,000	
Fixed Gases	Method D1945 (%)	Butane	ND	R	0.00023	0.0035		0.00024	0.0035		0.00022	0.00081	J	0.00018	
		Carbon Dioxide	0.046	R	0.0099	2.4		0.01	2		0.0097	0.71		0.0099	
		Carbon Monoxide	ND	R	0.0099	ND	U	0.01	ND	U	0.0097	ND	U	0.0099	
		Ethane	ND	R	0.00023	0.00054	J	0.00024	0.00043	J	0.00022	ND	U	0.00018	
		Hydrogen	ND	R	0.013	ND	U	0.013	ND	U	0.012	ND	U	0.013	
		Methane	0.00019	R	0.0001	0.0019		0.00011	0.0014		0.0001	0.001		0.0001	
		Nitrogen (Ammonia As N)	80	R	0.14	78		0.14	77		0.14	79		0.14	
		Oxygen	20	R	0.038	18		0.04	19		0.037	19		0.038	
		Pentane	0.00013	R	0.00023	0.099		0.00024	0.1		0.00022	0.091		0.00018	
i		Propane	ND	R	0.00023	0.0005	J	0.00024	0.00039	J	0.00022	ND	U	0.00018	

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	KAFE	3-106V1-11	3	KAFE	B-106V1-11	13	KAFE	3-106V1-11	3	KAFB-106V1-113			
	Field Sample ID: Sample Date:			KAFB-106V1 112.6			KAFB-106V1 112.6			-106V1 112	2.6	KAFB-106V1 112.6			
				/10/2019	-	5/9/2019				7/5/2019	-	10/15/2019			
		Sample Type:	REG			REG			•	REG			REG		
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	
VOCs	Method TO-15 (µg/m³)	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	U	2,600	ND	U	2,300	ND	U	3,400	ND	U. Gaai	9,200	
, , , ,	wethod 10-13 (µg/iii )	1.1-Dichloroethane	ND	U	1,400	ND	Ü	1,200	ND	Ü	1,800	ND	U	4,900	
		1,2,4-Trichlorobenzene	ND	U	8,300	ND	Ü	7,600	ND	Ü	11,000	ND	IJ	45,000	
		1,2,4-Trimethylbenzene	58,000		1,600	94,000		1,500	110,000	J	2,200	86,000	J	5,900	
		1.2-Dibromoethane	3,800	J	2,600	2,800	J	2,400	5,000	J	3,400	5,800	J	9,300	
		1.2-Dichlorobenzene	ND	U	2,000	ND	Ü	1,800	ND	Ü	2,700	ND	Ü	7,200	
		1,3,5-Trimethylbenzene	19,000		1,600	27,000		1,500	33,000	J	2,200	32,000	J	5,900	
		1,3-Butadiene	ND	U	740	ND	U	680	ND	U	1,000	ND	U	2,700	
		1,4-Dioxane	ND	U	4,000	ND	U	3,700	ND	U	5,400	ND	U	22,000	
		2-Butanone	370,000	J	3,300	270,000		3,000	560,000	J	4,400	670,000	J	18,000	
		2-Hexanone	ND	U	4,600	ND	U	4,200	ND	U	6,100	ND	U	25,000	
		4-Methyl-2-Pentanone	ND	U	1,400	5,700		1,200	ND	Ü	1,800	ND	U	4,900	
		Acetone	2,500,000		2,700	2,200,000		2,400	4,100,000	J	3,600	4,300,000	J	14,000	
		Benzene	1,600,000		1,100	1,400,000		980	1,500,000		960	2,900,000	J	3,800	
		Bromodichloromethane	ND	U	2,200	ND	U	2,000	ND	U	3,000	ND	U	8,100	
		Bromoform	ND	U	3,500	ND	U	3,200	ND	U	4,600	ND	U	12,000	
		Carbon Disulfide	ND	U	3,500	ND	U	3,200	1,200	J	4,700	ND	U	19,000	
		Carbon Tetrachloride	ND	U	2,100	ND	U	1,900	ND	U	2,800	ND	U	7,600	
		Chloroethane	ND	U	3,000	ND	U	2,700	ND	U	4,000	ND	U	16,000	
		Chloroform	ND	U	1,600	ND	U	1,500	ND	U	2,200	ND	U	5,900	
		Chloromethane	ND	U	2,300	ND	U	2,100	ND	U	3,100	ND	U	12,000	
		Cyclohexane	4,300,000	J	1,200	3,300,000		1,000	4,600,000	J	1,500	7,200,000	J	4,200	
		Dibromochloromethane	ND	U	2,900	ND	U	2,600	ND	U	3,800	ND	U	10,000	
		Dichlorodifluoromethane	ND	U	1,700	ND	U	1,500	ND	U	2,200	ND	U	6,000	
		Ethanol	140,000		2,100	80,000		1,900	160,000	J	2,800	77,000	J	11,000	
		Ethyl Acetate	ND	U	8,100	ND	U	7,400	ND	U	7,200	ND	U	29,000	
		Ethylbenzene	190,000		1,400	200,000		1,300	220,000	J	2,000	270,000	J	5,200	
		Hexane	6,900,000	J	1,200	5,300,000	J	1,100	5,100,000	J	1,600	11,000,000	J	4,200	
		Isopropyl Alcohol	120,000		2,800	100,000		2,500	190,000	J	3,700	140,000	J	15,000	
		m- & p-Xylenes	320,000		1,400	310,000		1,300	340,000	J	2,000	430,000	J	5,200	
		Methylene Chloride	ND	U	3,900	ND	U	3,500	ND	U	5,200	ND	U	21,000	
		Naphthalene	980	J	5,900	3,100	J	5,300	ND	U	5,200	ND	U	4,200	
		n-Heptane	2,900,000		1,400	2,200,000		1,200	2,700,000	J	1,800	4,300,000	J	4,900	
		o-Xylene	95,000		1,400	100,000		1,300	120,000	J	2,000	130,000	J	5,200	
		Propylene (Propene)	37,000		1,900	29,000		1,800	30,000	J	2,600	32,000	J	10,000	
		Styrene	ND	U	1,400	ND	U	1,300	ND	U	1,900	ND	U	5,100	
		Tetrachloroethene	ND	U	2,300	ND	U	2,100	ND	U	3,000	330,000	J	8,200	
		Tetrahydrofuran	ND	U	990	ND 4 500 000	U	900	ND	U	1,300	ND	U	3,600	
		Toluene	1,700,000		1,300	1,500,000		1,200	2,200,000		1,100	3,100,000	J	4,500	
		Trichloroethene	ND	U	1,800	ND	U	1,600	ND	U	2,400	13,000	J	6,500	
		Trichlorofluoromethane	ND	U	1,900	ND	U	1,700	ND	U	2,500	ND	U	6,800	
		Vinyl Chloride	ND	U	860	ND	U	780	ND	U	1,200	ND	U	3,100	
		Xylenes, Total	410,000		2,400	420,000		2,200	460,000	J	2,200	560,000	J	8,700	

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	KAFE	3-106V1-11	13	KAFE	3-106V1-11	13	KAFE	3-106V1-11	3	KA	FB-106V1-11	3
		Field Sample ID:	KAFB	-106V1 112	2.6	KAFB	-106V1 112	2.6	KAFB-	·106V1 112	6	KAF	B-106V1 112	2.6
		Sample Date:	4.	/10/2019		Ę	5/9/2019		7	7/5/2019			10/15/2019	
		Sample Type:		REG			REG			REG			REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
TPH	Method TO-03 (µg/m³)	TPH-GRO (C6-C10)	120,000,000		360,000	74,000,000		170,000	110,000,000		160,000	140,000,000		160,000
Fixed Gases	Method D1945 (%)	Butane	0.011		0.00024	0.0067		0.00022	0.0064		2,200	0.005		0.00022
		Carbon Dioxide	12		0.011	8.7		0.0098	8.6		0.0096	7.8		0.0096
		Carbon Monoxide	ND	U	0.011	ND	U	0.0098	ND	U	0.0096	ND	U	0.0096
		Ethane	0.004		0.00024	0.0027		0.00022	0.0026		2,200	0.0019	J	0.00022
		Hydrogen	ND	U	0.014	ND	U	0.013	ND	U	0.012	ND	U	0.012
		Methane	0.025		0.00011	0.017		0.0001	0.013		0.0001	0.0081		0.0001
		Nitrogen (Ammonia As N)	85		0.15	81		0.14	80		0.14	78		0.14
		Oxygen	1.2		0.04	8.9		0.038	9.3		0.037	12		0.037
		Pentane	0.24		0.00024	0.15		0.00022	0.16		0.00022	0.14		0.00022
		Propane	0.0018	J	0.00024	0.0012	J	0.00022	0.0013	J	0.00022	0.001	J	0.00022

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	KA	AFB-106V1-1	13	KA	FB-106V1-11	3	KAF	B-106V1-11	13	KA	FB-106V1-11	3
ľ		Field Sample ID:		FB-106V1 11			B-106V1 112			B-106V1-11		KA	FB-106V1 11	3
		Sample Date:		10/22/2019			10/31/2019			1/13/2020			11/5/2019	-
		Sample Type:		REG			REG			REG			REG	-
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
VOCs	Method TO-15 (µg/m³)	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	R	51	ND	U	8,400	ND	U	16,000	ND	U	2,500
	(1.9,)	1,1-Dichloroethane	ND	R	27	ND	U	4,400	ND	U	8,300	ND	U	1,300
		1,2,4-Trichlorobenzene	ND	R	250	ND	U	41,000	ND	U	57,000	ND	U	12,000
		1,2,4-Trimethylbenzene	1,900	R	33	16,000		5,400	42,000		10,000	72,000		1,600
		1,2-Dibromoethane	16	R	51	4,600	J	8,500	4,300	J	16,000	6,900		2,500
		1,2-Dichlorobenzene	ND	R	40	ND	U	6,600	ND	U	12,000	ND	U	1,900
		1,3,5-Trimethylbenzene	520	R	33	5,800	J	5,400	16,000		10,000	23,000		1,600
		1,3-Butadiene	ND	R	15	ND	U	2,400	ND	U	4,600	ND	U	720
		1,4-Dioxane	ND	R	120	ND	U	20,000	ND	U	28,000	ND	U	5,800
		2-Butanone	430	R	99	580,000		16,000	520,000		23,000	680,000	J	4,800
		2-Hexanone	ND	R	140	ND	U	22,000	ND	U	32,000	ND	U	6,600
		4-Methyl-2-Pentanone	ND	R	27	ND	U	4,500	ND	U	8,400	ND	U	1,300
		Acetone	1,600	R	79	4,100,000		13,000	3,600,000		18,000	4,000,000	J	3,800
		Benzene	1,900	R	21	2,300,000	-	3,500	1,900,000		6,600	2,500,000		1,000
		Bromodichloromethane	ND	R	45	ND	U	7,400	ND	U	14,000	ND	U	2,200
		Bromoform	ND	R	69	ND	U	11,000	ND	U	21,000	ND	U	3,300
		Carbon Disulfide	ND	R	100	ND	U	17,000	ND	U	24,000	ND	U	5,000
		Carbon Tetrachloride	ND	R	42	ND	U	6,900	ND	U	13,000	ND	U	2,000
		Chloroethane	ND	R	88	ND	U	14,000	ND	U	20,000	ND	U	4,300
		Chloroform	ND	R	33	ND	U	5,400	ND	U	10,000	ND	U	1,600
		Chloromethane	ND	R	69	ND	U	11,000	ND	U	16,000	ND	U	3,300
		Cyclohexane	5,100	R	23	5,400,000		3,800	4,500,000		7,100	6,000,000	J	1,100
		Dibromochloromethane	ND	R	57	ND	U	9,400	ND	U	18,000	ND	U	2,800
		Dichlorodifluoromethane	ND	R	33	ND	U	5,400	ND	U	10,000	ND	U	1,600
		Ethanol	140	R	63	51,000		10,000	120,000		14,000	150,000		3,000
		Ethyl Acetate	ND	R	160	ND	U	26,000	ND	U	37,000	ND	U	7,800
		Ethylbenzene	1,300	R	29	120,000		4,800	160,000		8,900	250,000		1,400
		Hexane	4,900	R	24	10,000,000		3,900	7,900,000		7,300	10,000,000	J	1,100
		Isopropyl Alcohol	150	R	82	97,000		14,000	180,000		19,000	230,000		4,000
		m- & p-Xylenes	2,300	R	29	160,000		4,800	250,000		8,900	370,000		1,400
		Methylene Chloride	ND	R	120	ND	U	19,000	ND	U	27,000	ND	U	5,600
		Naphthalene	180	R	23	ND	U	3,800	ND	U	5,400	ND	U	1,100
		n-Heptane	5,300	R	27	3,000,000		4,500	2,500,000		8,400	3,800,000		1,300
		o-Xylene	870	R	29	43,000		4,800	74,000		8,900	110,000		1,400
		Propylene (Propene)	ND	R	58	ND	U	9,500	ND	U	13,000	9,700		2,800
		Styrene	ND	R	28	ND	U	4,700	ND	U	8,800	ND	U	1,400
		Tetrachloroethene	ND	R	45	ND	U	7,500	ND	U	14,000	ND	U	2,200
		Tetrahydrofuran	ND	R	20	ND	U	3,200	ND	U	6,100	ND	U	960
		Toluene	5,400	R	25	1,900,000		4,100	1,800,000		7,800	2,700,000		1,200
		Trichloroethene	ND	R	36	ND	U	5,900	ND	U	11,000	ND	U	1,700
		Trichlorofluoromethane	ND	R	38	ND	U	6,200	ND	U	12,000	ND	U	1,800
		Vinyl Chloride	ND	R	17	ND	U	2,800	ND	U	5,300	ND	U	830
		Xylenes, Total	3,200	R	48	200,000		8,000	320,000		22,000	480,000		2,300

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	K	AFB-106V1-1	13	KA	FB-106V1-11	13	KAF	B-106V1-11	3	KA	FB-106V1-11	13
		Field Sample ID:	KA	FB-106V1 11	2.6	KAF	B-106V1 112	2.6	KAF	B-106V1-11	3	KA	FB-106V1 11	3
		Sample Date:		10/22/2019			10/31/2019			1/13/2020			11/5/2019	
		Sample Type:		REG			REG			REG			REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
TPH	Method TO-03 (µg/m³)	TPH-GRO (C6-C10)	270,000	R	360	120,000,000		200,000	150,000,000		340,000	130,000,000		180,000
Fixed Gases	Method D1945 (%)	Butane	ND	R	0.00024	0.0048		0.0002	0.0014	J	0.00018	0.0042		0.00024
		Carbon Dioxide	0.044	R	0.011	3.5		0.0088	1.3		0.0099	3		0.01
		Carbon Monoxide	ND	R	0.011	ND	U	0.0088	ND	U	0.0099	ND	U	0.01
		Ethane	ND	R	0.00024	0.00068	J	0.0002	0.00019	J	0.00018	0.00059	J	0.00024
		Hydrogen	ND	R	0.014	ND	U	0.011	ND	U	0.013	ND	U	0.013
		Methane	0.00019	R	0.00011	0.0022		0.000092	0.00097		0.0001	0.0015		0.00011
		Nitrogen (Ammonia As N)	80	R	0.15	77		0.12	78		0.14	77		0.14
		Oxygen	20	R	0.041	18		0.034	19		0.038	18		0.04
		Pentane	ND	R	0.00024	0.14		0.0002	0.12		0.00018	0.13		0.00024
1		Propane	ND	R	0.00024	0.00053	J	0.0002	0.000085	J	0.00018	0.00046	J	0.00024

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	KAFE	3-106V1-16	0	KAFE	3-106V1-16	60	KAFE	3-106V1-16	30	KAFE	B-106V1-16	0
		Field Sample ID:		-106V1 159			-106V1 159			6V1 159.6			-106V1 159	
		Sample Date:		/10/2019			5/9/2019	<del>,</del>		5/9/2019	50.		7/5/2019	
		Sample Type:	7/	REG		`	REG			d Duplicate	<u> </u>		REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
VOCs	-	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	U	2,400	ND	U	2,400	ND	U	2,500	ND	U	3,600
VOCS		1,1-Dichloroethane	ND	U	1,200	ND	U	1,300	ND ND	U	1,300	ND	U	1,900
		1,2,4-Trichlorobenzene	ND	U	7,600	ND	U	7,900	ND ND	U	8,000	ND	U	11,000
		1,2,4-Trichlorobenzene	78,000		1,500	180,000		1,600	200,000		1,600	150,000	i	2,300
		1,2-Dibromoethane	2,800		2,400	2,600		2,400	2,700		2,500	2,700	1	3,600
		1,2-Dishorhocthand	ND	U	1,800	ND	U	1,900	ND	U	1,900	ND	U	2,800
		1,3,5-Trimethylbenzene	28,000		1,500	53,000		1,600	60,000		1,600	51,000	J	2,300
		1,3-Butadiene	ND	U	680	ND	U	700	ND	U	720	ND	U	1,000
		1,4-Dioxane	ND	U	3,700	ND	U	3,800	ND	U	3,900	ND	U	5,600
		2-Butanone	170,000		3,000	150,000		3,100	160,000		3,200	140,000		4,600
		2-Hexanone	ND	U	4,200	5,700	.I	4,300	7,300	J	4,400	ND	Ü	6,300
		4-Methyl-2-Pentanone	ND	U	1,300	6,400		1,300	5,600		1,300	ND	U	1,900
		Acetone	2,600,000	J	2,400	2,900,000	J	2,500	3,000,000	J	2,600	3,100,000	J	3,700
		Benzene	1,300,000		990	1,600,000		1,000	1,700,000		1,000	1,600,000	J	1,500
		Bromodichloromethane	ND	U	2,100	ND	U	2,100	ND	U	2,200	ND	U	3,100
		Bromoform	ND	Ü	3,200	ND	Ü	3,300	ND	U	3,300	ND	Ü	4,800
		Carbon Disulfide	ND	U	3,200	ND	U	3,300	ND	U	3,400	1,000	J	4,800
		Carbon Tetrachloride	ND	U	1,900	ND	U	2,000	ND	U	2,000	ND	U	2,900
		Chloroethane	ND	U	2,700	ND	U	2,800	ND	U	2,800	ND	U	4,100
		Chloroform	ND	U	1,500	ND	U	1,600	ND	U	1,600	ND	U	2,300
		Chloromethane	ND	U	2,100	ND	U	2,200	ND	U	2,200	ND	U	3,200
		Cyclohexane	3,800,000	J	1,100	4,400,000	J	1,100	4,600,000	J	1,100	4,200,000	J	1,600
		Dibromochloromethane	ND	U	2,600	ND	U	2,700	ND	U	2,800	ND	U	3,900
		Dichlorodifluoromethane	ND	U	1,500	ND	U	1,600	ND	U	1,600	ND	U	2,300
		Ethanol	110,000		1,900	93,000		2,000	98,000		2,000	97,000	J	2,900
		Ethyl Acetate	ND	U	7,400	ND	U	7,600	ND	U	7,800	ND	U	7,400
		Ethylbenzene	280,000		1,300	390,000		1,400	430,000		1,400	330,000	J	2,000
		Hexane	5,300,000	J	1,100	5,900,000	J	1,100	6,300,000	J	1,100	4,800,000	J	1,600
		Isopropyl Alcohol	390,000		2,500	400,000		2,600	420,000		2,600	350,000	J	3,800
		m- & p-Xylenes	620,000		1,300	880,000		1,400	960,000		1,400	690,000	J	2,000
		Methylene Chloride	ND	U	3,600	ND	U	3,700	ND	U	3,800	ND	U	5,400
		Naphthalene	ND	UJ	5,400	ND	UJ	5,600	ND	UJ	5,700	ND	U	5,400
		n-Heptane	3,600,000		1,300	4,300,000		1,300	4,700,000	J	1,300	3,500,000	J	1,900
		o-Xylene	180,000		1,300	280,000		1,400	320,000		1,400	230,000	Į J	2,000
		Propylene (Propene)	32,000		1,800	29,000		1,800	31,000		1,800	20,000	J	2,600
		Styrene	ND	U	1,300	ND	U	1,400	ND	U	1,400	ND	U	2,000
		Tetrachloroethene	ND	U	2,100	ND	U	2,200	ND	U	2,200	ND	U	3,100
		Tetrahydrofuran	ND	U	910	ND	U	940	ND	U	960	ND	U	1,400
		Toluene	2,200,000		1,200	2,800,000		1,200	3,100,000		1,200	1,800,000	J	1,700
		Trichloroethene	ND	U	1,700	ND	U	1,700	ND	U	1,700	ND	U	2,500
		Trichlorofluoromethane	ND	U	1,700	ND	U	1,800	ND	U	1,800	ND	U	2,600
		Vinyl Chloride	ND 700,000	U	790	ND	U	810	ND	U	830	ND 000,000	U	1,200
		Xylenes, Total	790,000		2,200	1,200,000		2,300	1,200,000		2,300	920,000	L J	2,200

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	\ \^E	3-106V1-16	:n	KVEE	3-106V1-16	20	٧٨E	3-106V1-16	20	KVE	3-106V1-16	<u> </u>
			1			1								
		Field Sample ID:	KAFB	-106V1 159	9.6	KAFB-	-106V1 159	9.6	KAFB-10	6V1 159.6	DUP	KAFB	-106V1 159	<del>}</del> .6
		Sample Date:	4.	/10/2019		5	5/9/2019		5	5/9/2019		7	7/5/2019	
		Sample Type:		REG			REG		Fiel	d Duplicate			REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
TPH	Method TO-03 (µg/m³)	TPH-GRO (C6-C10)	110,000,000		340,000	130,000,000		170,000	130,000,000		180,000	130,000,000		210,000
Fixed Gases	Method D1945 (%)	Butane	0.0069		0.00023	0.0068		0.00023	0.0068		0.00024	0.0064		2,300
		Carbon Dioxide	12		0.0099	7.7		0.01	7.8		0.01	6.8		0.0099
		Carbon Monoxide	ND	U	0.0099	ND	U	0.01	ND	U	0.01	ND	U	0.0099
		Ethane	0.0029		0.00023	0.0015	J	0.00023	0.0015	J	0.00024	0.00093	J	2,300
		Hydrogen	ND	U	0.013	ND	U	0.013	ND	U	0.013	ND	U	0.013
		Methane	0.013		0.0001	0.0052		0.00011	0.0053		0.00011	0.0032		0.0001
		Nitrogen (Ammonia As N)	85		0.14	78		0.14	78		0.15	79		0.14
		Oxygen	1.2		0.037	12		0.039	12		0.04	12		0.038
		Pentane	0.18		0.00023	0.18		0.00023	0.18		0.00024	0.18		0.00023
		Propane	0.0014	J	0.00023	0.0011	J	0.00023	0.0011	J	0.00024	0.00073	J	0.00023

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	KAFE	B-106V1-16	 30	KAI	FB-106V1-160	 )	KA	FB-106V1-16	<u> </u>	K	AFB-106V1-1	<del></del>
		Field Sample ID:		6V1 159.6			B-106V1 159			-106V1 159.6			FB-106V1 15	
		Sample Date:		7/5/2019	20.		10/15/2019			10/15/2019	20.	10	10/22/2019	5.0
		Sample Type:		d Duplicate	<u> </u>		REG			ield Duplicate	<u> </u>		REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
VOCs	Method TO-15 (µg/m³)	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	U	3,600	ND	U	10,000	ND	II	10,000	ND	R	49
	Wethod 10-13 (μg/III )	1,1-Dichloroethane	ND	U	1,900	ND	U	5,400	ND	IJ	5,600	ND	R	26
		1,2,4-Trichlorobenzene	ND	Ü	12,000	ND	Ü	50,000	ND	U	51,000	ND	R	240
		1,2,4-Trimethylbenzene	160,000	J	2,300	170,000		6,600	130,000		6,800	3,900	R	31
		1,2-Dibromoethane	2,700	J	3,700	3,400	J	10,000	ND	U	11,000	ND	R	49
		1,2-Dichlorobenzene	ND	U	2,900	ND	U	8,000	ND	U	8,300	ND	R	38
		1,3,5-Trimethylbenzene	53,000	J	2,300	64,000		6,600	51,000		6,800	1,200	R	31
		1,3-Butadiene	ND	U	1,000	ND	U	3,000	ND	U	3,000	ND	R	14
		1,4-Dioxane	ND	U	5,700	ND	U	24,000	ND	U	25,000	ND	R	110
		2-Butanone	140,000	J	4,700	160,000		20,000	130,000		20,000	150	R	94
		2-Hexanone	ND	U	6,500	ND	U	27,000	ND	U	28,000	ND	R	130
		4-Methyl-2-Pentanone	ND	U	2,000	ND	U	5,500	ND	U	5,600	ND	R	26
		Acetone	3,100,000	J	3,800	3,100,000		16,000	2,900,000		16,000	1,600	R	76
		Benzene	1,600,000	J	1,500	2,100,000		4,300	2,000,000		4,400	1,900	R	20
		Bromodichloromethane	ND	U	3,200	ND	U	9,000	ND	U	9,200	ND	R	43
		Bromoform	ND	U	4,900	ND	U	14,000	ND	U	14,000	ND	R	66
		Carbon Disulfide	980	J	5,000	ND	U	21,000	ND	U	21,000	ND	R	99
		Carbon Tetrachloride	ND	U	3,000	ND	U	8,400	ND	U	8,700	ND	R	40
		Chloroethane	ND	U	4,200	ND	U	18,000	ND	U	18,000	ND	R	84
		Chloroform	ND	U	2,300	ND	U	6,500	ND	U	6,700	ND	R	31
		Chloromethane	ND	U	3,300	ND	U	14,000	ND	U	14,000	ND	R	66
		Cyclohexane	4,200,000	J	1,600	5,600,000		4,600	5,500,000		4,800	5,900	R	22
		Dibromochloromethane	ND	U	4,100	ND	U	11,000	ND	U	12,000	ND	R	54
		Dichlorodifluoromethane	ND	U	2,400	ND	U	6,600	ND	U	6,800	ND	R	31
		Ethanol	98,000	J	3,000	65,000		13,000	50,000		13,000	100	R	60
		Ethyl Acetate	ND	U	7,600	ND	U	32,000	ND	U	33,000	ND	R	150
		Ethylbenzene	330,000	J	2,100	430,000		5,800	420,000		6,000	3,000	R	28
		Hexane	4,800,000	J	1,700	7,300,000		4,700	7,200,000		4,900	4,600	R	22
		Isopropyl Alcohol	350,000	J	3,900	280,000		16,000	220,000		17,000	290	R	78
		m- & p-Xylenes	740,000	J	2,100	1,000,000		5,800	950,000		6,000	7,800	R	28
		Methylene Chloride	ND	U	5,500	ND	U	23,000	ND	U	24,000	ND	R	110
		Naphthalene	ND	U	5,600	ND	U	4,700	ND	U	4,800	180	R	22
		n-Heptane	3,500,000	J	2,000	5,600,000		5,500	5,400,000		5,600	9,600	R	26
		o-Xylene	240,000	J	2,100	320,000		5,800	280,000		6,000	2,800	R	28
		Propylene (Propene)	20,000	J	2,700	ND	U	12,000	ND	U	12,000	ND	R	55
		Styrene	ND	U	2,000	ND	U	5,700	ND	U	5,900	ND	R	27
		Tetrachloroethene	ND	U	3,200	99,000		9,100	97,000		9,400	ND	R	43
		Tetrahydrofuran	ND	U	1,400	ND	U	3,900	ND	U	4,100	ND	R	19
		Toluene	1,800,000	J	1,800	3,500,000		5,000	3,400,000		5,200	9,600	R	24
		Trichloroethene	ND	U	2,600	3,700	J	7,200	4,200	J	7,400	ND	R	34
		Trichlorofluoromethane	ND	U	2,700	ND	U	7,500	ND	U	7,800	ND	R	36
		Vinyl Chloride	ND	U	1,200	ND	U	3,400	ND	U	3,500	ND	R	16
		Xylenes, Total	980,000	J	2,300	1,300,000		9,700	1,200,000		10,000	11,000	R	46

Table C-1 Summary of Soil Gas Analytical Results

		1	144.55	100)/4 40	10	1// 1	-D 400\/4 40	`	17.0	ED 400) /4 40	10	17	A ED 400) /4 4	00
		Location ID:	KAFE	3-106V1-16	0	KAI	-B-106V1-160	)	KA	FB-106V1-16	0	K.A	AFB-106V1-1	00
		Field Sample ID:	KAFB-10	6V1 159.6	DUP	KAF	B-106V1 159	.6	KAFB-	106V1 159.6	DUP	KA	FB-106V1 15	9.6
		Sample Date:	7	7/5/2019			10/15/2019			10/15/2019			10/22/2019	
		Sample Type:	Field	d Duplicate	!		REG		Fi	eld Duplicate	}		REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
TPH	Method TO-03 (µg/m <sup>3</sup> )	TPH-GRO (C6-C10)	130,000,000		170,000	120,000,000		240,000	130,000,000		190,000	520,000	R	690
Fixed Gases	Method D1945 (%)	Butane	0.0064		2,300	0.0035		0.00024	0.0036		0.00025	ND	R	0.00023
		Carbon Dioxide	6.9		0.01	1.9		0.011	1.9		0.011	0.043	R	0.01
		Carbon Monoxide	ND	U	0.01	ND	U	0.011	ND	U	0.011	ND	R	0.01
		Ethane	0.00092	J	2,300	ND	U	0.00024	ND	U	0.00025	ND	R	0.00023
		Hydrogen	ND	U	0.013	ND	U	0.014	ND	U	0.014	ND	R	0.013
		Methane	0.0033		0.00011	0.00017	J	0.00011	0.00013	J	0.00012	0.00016	R	0.00011
		Nitrogen (Ammonia As N)	79		0.14	77		0.15	77		0.16	80	R	0.14
		Oxygen	12		0.039	19		0.041	19		0.043	20	R	0.039
		Pentane	0.18		0.00023	0.16		0.00024	0.17		0.00025	0.00006	R	0.00023
		Propane	0.00076	J	0.00023	0.00016	J	0.00024	0.00016	J	0.00025	ND	R	0.00023

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	K	AFB-106V1-1	60	KA	\FB-106V1-16	60	K/	AFB-106V1-1	60	KAI	FB-106V1-160	0
		Field Sample ID:		3-106V1 159.6		•	FB-106V1 15		•	-106V1 159.6			FB-106V1 160	
		Sample Date:	10 11 2	10/22/2019	, , , ,	10.	10/31/2019	0.0	10 11 2	10/31/2019	, 501		11/5/2019	
		Sample Type:	F	Field Duplicat	e		REG		F	ield Duplicate	<u> </u>		REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
VOCs	Method TO-15 (μg/m³)	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	R	47	ND	U	2,100	ND	U	2,100	ND	U	2,200
	woulde to to (pg/m )	1,1-Dichloroethane	ND	R	25	ND	U	1,100	ND	U	1,100	ND	U	1,100
		1,2,4-Trichlorobenzene	ND	R	230	ND	U	10,000	ND	U	10,000	ND	U	10,000
		1,2,4-Trimethylbenzene	190	R	30	19,000		1,400	25,000		1,300	78,000	J	1,400
		1,2-Dibromoethane	ND	R	47	1,800	J	2,100	1,900	J	2,100	2,600	J	2,200
		1,2-Dichlorobenzene	ND	R	37	ND	U	1,600	ND	U	1,600	ND	U	1,700
		1,3,5-Trimethylbenzene	56	R	30	7,500		1,400	8,800		1,300	26,000	J	1,400
		1,3-Butadiene	ND	R	14	ND	U	610	ND	U	600	ND	U	630
		1,4-Dioxane	ND	R	110	ND	U	5,000	ND	U	4,900	ND	U	5,100
		2-Butanone	ND	R	91	91,000		4,100	99,000		4,000	120,000	J	4,200
		2-Hexanone	ND	R	130	4,400	J	5,600	3,900	J	5,600	ND	U	5,800
		4-Methyl-2-Pentanone	ND	R	25	3,700		1,100	5,000		1,100	ND	U	1,200
		Acetone	120	R	73	2,300,000	J	3,300	2,400,000	J	3,200	2,900,000	J	3,400
		Benzene	140	R	20	1,200,000		880	1,300,000		870	1,500,000	J	900
		Bromodichloromethane	ND	R	41	ND	U	1,800	ND	U	1,800	ND	U	1,900
		Bromoform	ND	R	64	ND	U	2,800	ND	U	2,800	ND	U	2,900
		Carbon Disulfide	ND	R	96	ND	U	4,300	ND	U	4,200	ND	U	4,400
		Carbon Tetrachloride	ND	R	39	ND	U	1,700	ND	U	1,700	ND	U	1,800
		Chloroethane	ND	R	82	ND	U	3,600	ND	U	3,600	ND	U	3,700
		Chloroform	ND	R	30	ND	U	1,300	ND	U	1,300	ND	U	1,400
		Chloromethane	ND 420	R	64	ND	U	2,800	ND	U	2,800	ND	U	2,900
		Cyclohexane Dibromochloromethane	430	R	21	3,400,000	J	950	3,600,000	J	940	4,300,000	J	980
		Dichlorodifluoromethane	ND ND	R R	53 30	ND ND	U	2,400 1,400	ND ND	U	2,300 1,400	ND ND	U	2,400 1,400
		Ethanol	ND ND	R	58	33,000		2,600	35,000		2,600	88,000	U	2,700
		Ethyl Acetate	ND ND	R	150	ND	U	6,600	35,000 ND	U	6,600	ND	U	6,800
		Ethylbenzene Ethylbenzene	160	R	27	190,000	U	1,200	200,000	0	1,200	360,000	J	1,200
		Hexane	240	R	22	4,700,000	J	970	5,000,000	J	960	5,800,000		1,000
		Isopropyl Alcohol	25	R	76	120,000		3,400	140,000		3,400	340,000	.l	3,500
		m- & p-Xylenes	330	R	27	360,000		1,200	400,000		1,200	740,000	J	1,200
		Methylene Chloride	ND	R	110	ND	U	4,800	ND	U	4,700	ND	Ü	4,900
		Naphthalene	38	R	22	ND	U	960	750	J	950	1,200	J	990
		n-Heptane	800	R	25	3,000,000		1,100	3,300,000		1,100	4,400,000	J	1,200
		o-Xylene	120	R	27	96,000		1,200	110,000		1,200	220,000	J	1,200
		Propylene (Propene)	ND	R	53	ND	U	2,400	ND	U	2,300	ND	U	2,400
		Styrene	ND	R	26	ND	U	1,200	ND	U	1,200	ND	U	1,200
		Tetrachloroethene	ND	R	42	ND	U	1,900	ND	U	1,800	ND	U	1,900
		Tetrahydrofuran	ND	R	18	ND	U	810	ND	U	800	ND	U	840
		Toluene	820	R	23	2,000,000		1,000	2,200,000		1,000	3,000,000	J	1,100
		Trichloroethene	ND	R	33	ND	U	1,500	ND	U	1,500	ND	U	1,500
		Trichlorofluoromethane	ND	R	35	ND	U	1,600	ND	U	1,500	ND	U	1,600
		Vinyl Chloride	ND	R	16	ND	U	700	ND	U	700	ND	U	720
		Xylenes, Total	450	R	45	460,000		2,000	510,000		2,000	960,000	J	2,000

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	K	AFB-106V1-1	60	K	AFB-106V1-1	60	KA	FB-106V1-1	60	KAF	B-106V1-16	0
		Field Sample ID:	KAFE	3-106V1 159.6	DUP	KA	FB-106V1 15	9.6	KAFB	-106V1 159.6	DUP	KAI	-B-106V1 16	0
		Sample Date:		10/22/2019			10/31/2019			10/31/2019			11/5/2019	
		Sample Type:	Ī	Field Duplicate	е		REG		F	ield Duplicat	e		REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
TPH	Method TO-03 (µg/m³)	TPH-GRO (C6-C10)	29,000	R	170	70,000,000		150,000	76,000,000		150,000	110,000,000		190,000
Fixed Gases	Method D1945 (%)	Butane	ND	R	0.00023	0.00054	J	0.0002	0.00056	J	0.0002	0.00048	J	0.00021
		Carbon Dioxide	0.042	R	0.0099	0.48		0.0088	0.48		0.0087	0.44		0.0091
		Carbon Monoxide	ND	R	0.0099	ND	U	0.0088	ND	U	0.0087	ND	U	0.0091
		Ethane	ND	R	0.00023	ND	U	0.0002	ND	U	0.0002	ND	U	0.00021
		Hydrogen	ND	R	0.013	ND	U	0.011	ND	U	0.011	ND	U	0.012
		Methane	0.00022	R	0.0001	0.00014	J	0.000092	0.00015	J	0.000091	0.00014	J	0.000094
		Nitrogen (Ammonia As N)	80	R	0.14	78		0.12	78		0.12	78		0.13
		Oxygen	20	R	0.038	20		0.034	20		0.034	20		0.035
		Pentane	ND	R	0.00023	0.11		0.0002	0.1		0.0002	0.11		0.00021
1		Propane	ND	R	0.00023	ND	U	0.0002	ND	U	0.0002	ND	IJ	0.00021

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	KA	FB-106V1-16	50	KAF	B-106V1-16	60	KAF	B-106V1-16	 30	KAFF	3-106V1-2	 17
		Field Sample ID:		3-106V1 160 I			B-106V1-16			106V1-160-			-106V1 21	
		Sample Date:	IVALL	11/5/2019	JOI		1/13/2020	<del>,</del>		1/13/2020	DOI		/10/2019	7.1
		Sample Type:	F	ield Duplicate			REG			eld Duplicate	7		REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
VOCs	Method TO-15 (µg/m³)	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	U	2,100	ND	U	3,900	ND	U	7,200	ND	U	2,200
	Motrica 10 10 (µg/m )	1,1-Dichloroethane	ND	U	1,100	ND	U	2,000	ND	U	3,800	ND	U	1,200
		1,2,4-Trichlorobenzene	ND	U	10,000	ND	U	14,000	ND	U	26,000	ND	U	7,300
		1,2,4-Trimethylbenzene	74,000	J	1,300	46,000	J	2,500	40,000		4,600	98,000		1,400
		1,2-Dibromoethane	3,100	J	2,100	1,700	J	3,900	2,100	J	7,200	4,500		2,200
		1,2-Dichlorobenzene	ND	U	1,600	ND	U	3,000	ND	U	5,700	ND	U	1,800
		1,3,5-Trimethylbenzene	25,000	J	1,300	18,000	J	2,500	16,000		4,600	41,000		1,400
		1,3-Butadiene	ND	U	610	ND	U	1,100	ND	U	2,100	ND	U	650
		1,4-Dioxane	ND	U	4,900	ND	U	6,800	ND	U	13,000	ND	U	3,500
		2-Butanone	130,000	J	4,000	87,000	J	5,600	95,000		10,000	500,000	J	2,900
		2-Hexanone	ND	U	5,600	ND	U	7,700	ND	U	14,000	ND	U	4,000
		4-Methyl-2-Pentanone	ND	U	1,100	ND	U	2,100	ND	U	3,900	ND	U	1,200
		Acetone	2,900,000	J	3,300	2,500,000	J	4,500	2,800,000		8,400	4,900,000	J	2,300
		Benzene	1,500,000	J	880	1,100,000	J	1,600	1,100,000		3,000	1,700,000		940
		Bromodichloromethane	ND	U	1,800	ND	U	3,400	ND	U	6,300	ND	U	2,000
		Bromoform	ND	U	2,800	ND	U	5,200	ND	U	9,800	ND	U	3,00
		Carbon Disulfide	ND	U	4,300	ND	U	5,900	ND	U	11,000	ND	U	3,00
		Carbon Tetrachloride	ND	U	1,700	ND	U	3,200	ND	U	5,900	ND	U	1,80
		Chloroethane	ND	U	3,600	ND	U	5,000	ND	U	9,300	ND	U	2,60
		Chloroform	ND	U	1,300	ND	U	2,500	ND	U	4,600	ND	U	1,40
		Chloromethane	ND	U	2,800	ND	U	3,900	ND	U	7,300	ND	U	2,00
		Cyclohexane	4,300,000	J	940	3,000,000	J	1,700	3,300,000		3,200	5,800,000	J	1,00
		Dibromochloromethane	ND	U	2,300	ND	U	4,300	ND	U	8,000	ND	U	2,50
		Dichlorodifluoromethane	ND	U	1,400	ND	U	2,500	ND	U	4,700	ND	U	1,40
		Ethanol	87,000	J	2,600	69,000	J	3,600	58,000		6,700	ND	U	1,80
		Ethyl Acetate	ND	U	6,600	ND	U	9,100	ND	U	17,000	ND	U	7,10
		Ethylbenzene	380,000	J	1,200	280,000	J	2,200	240,000		4,100	460,000		1,30
		Hexane	5,700,000	J	970	3,700,000	J	1,800	4,100,000		3,300	7,200,000	J	1,00
		Isopropyl Alcohol	340,000	J	3,400	290,000	J	4,600	280,000		8,700	58,000		2,40
		m- & p-Xylenes	770,000	J	1,200	610,000	J	2,200	480,000		4,100	1,400,000		1,30
		Methylene Chloride	ND	U	4,800	ND	U	6,600	ND	U	12,000	ND	U	3,40
		Naphthalene	ND	U	960	ND	U	1,300	ND	U	2,500	ND	UJ	5,10
		n-Heptane	4,300,000	J	1,100	2,900,000	J	2,100	3,000,000		3,900	6,600,000	J	1,20
		o-Xylene	220,000	J	1,200	170,000	J	2,200	140,000		4,100	400,000		1,30
		Propylene (Propene)	ND	U	2,400	ND	U	3,200	ND	U	6,100	62,000		1,700
		Styrene	ND	U	1,200	ND	U	2,100	ND	U	4,000	ND	U	1,200
		Tetrachloroethene	ND	U	1,900	ND	U	3,400	ND	U	6,400	ND	U	2,000
		Tetrahydrofuran	ND	U	810	ND	U	1,500	ND	U	2,800	ND	U	870
		Toluene	2,900,000	J	1,000	2,200,000	J	1,900	2,100,000		3,600	4,200,000		2,20
		Trichloroethene	ND	U	1,500	ND	U	2,700	ND	U	5,100	ND	U	1,600
		Trichlorofluoromethane	ND	U	1,500	ND	U	2,800	ND	U	5,300	ND	U	1,600
		Vinyl Chloride	ND	U	700	ND	U	1,300	ND	U	2,400	ND	U	750
		Xylenes, Total	990,000	J	2,000	780,000	J	5,500	620,000		10,000	1,800,000		2,100

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	KA	FB-106V1-16	60	KAF	FB-106V1-16	30	KAF	B-106V1-16	60	KAFE	3-106V1-2	17
		Field Sample ID:	KAFE	3-106V1 160	DUP	KAF	-B-106V1-16	30	KAFB-	106V1-160-l	DUP	KAFB	-106V1 21	7.1
		Sample Date:		11/5/2019			1/13/2020			1/13/2020		4	/10/2019	
		Sample Type:	F	ield Duplicate	Э		REG		Fie	eld Duplicate	,		REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
TPH	Method TO-03 (µg/m <sup>3</sup> )	TPH-GRO (C6-C10)	110,000,000		190,000	92,000,000		290,000	100,000,000		150,000	160,000,000		400,000
ixed Gases	Method D1945 (%)	Butane	0.00046	J	0.0002	ND	U	0.00022	ND	U	0.0002	0.0025		0.00022
		Carbon Dioxide	0.44		0.0088	0.52		0.012	0.51		0.011	12		0.0094
		Carbon Monoxide	ND	U	0.0088	ND	U	0.012	ND	U	0.011	0.0054	J	0.0094
		Ethane	ND	U	0.0002	ND	U	0.00022	ND	U	0.0002	0.0029		0.00022
		Hydrogen	ND	U	0.011	ND	U	0.016	ND	U	0.015	ND	U	0.012
		Methane	0.00013	J	0.000092	ND	U	0.00012	ND	U	0.00012	0.0056		9.8E-05
		Nitrogen (Ammonia As N)	78		0.12	78		0.17	80		0.16	85		0.13
		Oxygen	20		0.034	20		0.046	19		0.044	1.3		0.035
		Pentane	0.11		0.0002	0.022		0.00022	0.023		0.0002	0.081		0.0002
		Propane	ND	U	0.0002	ND	U	0.00022	ND	U	0.0002	0.0019	J	0.00022

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	KAFI	3-106V1-21	7	KAFI	B-106V1-21	7	KA	FB-106V1-21	7	К	AFB-106V1-21	 17
		Field Sample ID:		-106V1 217			-106V1 217			B-106V1 217			FB-106V1 217	
		Sample Date:		5/9/2019	•		7/5/2019	••		10/15/2019			10/22/2019	<del></del>
		Sample Type:		REG			REG			REG			REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
VOCs	Method TO-15 (µg/m³)	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	U	4,900	ND	U	3,400	ND	U	9,200	ND	R	51
1000	Method 10-13 (µg/m )	1,1-Dichloroethane	ND	U	2,600	ND	Ü	1,800	ND	U	4,900	ND	R	27
		1,2,4-Trichlorobenzene	ND	U	16,000	ND	Ü	11,000	ND	Ü	45,000	ND	R	250
		1,2,4-Trimethylbenzene	77,000		3,100	160,000	J	2,200	140,000	J	5,900	420	R	33
		1,2-Dibromoethane	3,000	J	4,900	4,400	J	3,400	4,400	J	9,300	ND	R	51
		1,2-Dichlorobenzene	ND	Ü	3,800	ND	U	2,600	ND	Ü	7,200	ND	R	40
		1,3,5-Trimethylbenzene	33,000		3,100	64,000	J	2,200	66,000	J	5,900	140	R	33
		1,3-Butadiene	ND	U	1,400	ND	U	980	ND	U	2,700	ND	R	15
		1,4-Dioxane	ND	U	7,600	ND	U	5,300	ND	U	22,000	ND	R	120
		2-Butanone	400,000		6,200	500,000	J	4,300	490,000	J	18,000	ND	R	99
		2-Hexanone	9,500	J	8,700	ND	U	6,000	ND	U	25,000	ND	R	140
		4-Methyl-2-Pentanone	9,800		2,600	ND	Ü	1,800	9,100	J	4,900	ND	R	27
		Acetone	5,000,000		5,000	6,000,000	J	3,500	4,600,000	J	14,000	150	R	79
		Benzene	1,600,000		2,000	1,600,000		1,900	2,400,000	J	3,800	92	R	21
		Bromodichloromethane	ND	U	4,300	ND	U	3,000	ND	U	8,100	ND	R	45
		Bromoform	ND	U	6,600	ND	U	4,600	ND	U	12,000	ND	R	69
		Carbon Disulfide	ND	U	6,600	ND	U	4,600	ND	U	19,000	ND	R	100
		Carbon Tetrachloride	ND	U	4,000	ND	U	2,800	ND	U	7,600	ND	R	42
		Chloroethane	ND	U	5,600	ND	U	3,900	ND	U	16,000	ND	R	88
		Chloroform	ND	U	3,100	ND	U	2,200	ND	U	5,900	ND	R	33
		Chloromethane	ND	U	4,400	ND	U	3,000	ND	U	12,000	ND	R	69
		Cyclohexane	5,000,000		2,200	5,100,000	J	1,500	8,000,000	J	4,200	320	R	23
		Dibromochloromethane	ND	U	5,400	ND	U	3,800	ND	U	10,000	ND	R	57
		Dichlorodifluoromethane	ND	U	3,100	ND	U	2,200	ND	U	6,000	ND	R	33
		Ethanol	ND	U	4,000	ND	U	2,800	ND	U	11,000	ND	R	63
		Ethyl Acetate	ND	U	15,000	ND	U	7,100	ND	U	29,000	ND	R	160
		Ethylbenzene	360,000		2,800	470,000	J	1,900	590,000	J	5,200	170	R	29
		Hexane	6,400,000		2,200	5,000,000	J	1,600	9,700,000	J	4,200	210	R	24
		Isopropyl Alcohol	41,000		5,200	40,000	J	3,600	45,000	J	15,000	ND	R	82
		m- & p-Xylenes	1,100,000		2,800	1,400,000	J	1,900	1,800,000	J	5,200	610	R	29
		Methylene Chloride	ND	U	7,400	ND	U	5,100	ND	U	21,000	ND	R	120
		Naphthalene	ND	UJ	5,600	ND	U	5,100	ND	U	4,200	ND	R	23
		n-Heptane	5,600,000		2,600	5,200,000	J	1,800	8,600,000	J	4,900	460	R	27
		o-Xylene	320,000		2,800	430,000	J	1,900	520,000	J	5,200	230	R	29
		Propylene (Propene)	57,000		3,600	68,000	J	2,500	38,000	J	10,000	ND	R	58
		Styrene	ND	U	2,700	ND	U	1,900	ND	U	5,100	ND	R	28
		Tetrachloroethene	ND	U	4,300	ND	U	3,000	110,000	J	8,200	ND	R	45
		Tetrahydrofuran	ND	U	1,900	ND	U	1,300	ND	U	3,600	ND	R	20
		Toluene	3,400,000	J	2,400	3,200,000	J	2,200	5,600,000	J	4,500	510	R	25
		Trichloroethene	ND	U	3,400	ND	U	2,400	ND	U	6,500	ND	R	36
		Trichlorofluoromethane	ND	U	3,600	ND	U	2,500	ND	U	6,800	ND	R	38
		Vinyl Chloride	ND	U	1,600	ND	U	1,100	ND	U	3,100	ND	R	17
		Xylenes, Total	1,400,000		4,600	1,800,000	J	2,100	2,300,000	J	8,700	840	R	48

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	KAFE	3-106V1-21	17	KAFE	3-106V1-21	7	KA	FB-106V1-21	17	K	AFB-106V1-2	:17
		Field Sample ID:	KAFB	-106V1 217	7.1	KAFB	-106V1 217	7.1	KAF	B-106V1 217	7.1	KA	FB-106V1 21	7.1
		Sample Date:	5	5/9/2019		7	7/5/2019			10/15/2019			10/22/2019	
		Sample Type:		REG			REG			REG			REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
TPH	Method TO-03 (µg/m³)	TPH-GRO (C6-C10)	170,000,000		170,000	170,000,000		160,000	160,000,000		220,000	30,000	R	180
Fixed Gases	Method D1945 (%)	Butane	0.0026		0.00023	0.0026		2,200	0.0023		0.00022	ND	R	0.00024
		Carbon Dioxide	12		0.01	12		0.0094	5.3		0.0096	0.039	R	0.011
		Carbon Monoxide	0.012	J	0.01	ND	U	0.0094	ND	U	0.0096	ND	R	0.011
		Ethane	0.0032	-	0.00023	0.0028		2,200	0.00068	J	0.00022	ND	R	0.00024
		Hydrogen	ND	U	0.013	ND	U	0.012	ND	U	0.012	ND	R	0.014
		Methane	0.0054	-	0.00011	0.0046		9.8E-05	0.0015		0.0001	0.0002	R	0.00011
		Nitrogen (Ammonia As N)	85	-	0.14	85		0.13	80		0.14	80	R	0.15
		Oxygen	1.2	-	0.039	1.4		0.036	13		0.037	20	R	0.041
		Pentane	0.087		0.00023	0.086		0.00022	0.072	-	0.00022	ND	R	0.00024
		Propane	0.0022		0.00023	0.0022		0.00022	0.001	J	0.00022	ND	R	0.00024

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	K	AFB-106V1-2	17	l K	AFB-106V1-2	17	KAF	B-106V1-2	17	KAFE	B-106V1-25	 52
		Field Sample ID:		FB-106V1 21			AFB-106V1 2			B-106V1-2			-106V1 25	
		Sample Date:		10/31/2019	7	10	11/5/2019	• • • • • • • • • • • • • • • • • • • •		1/13/2020	.,		/10/2019	
		Sample Type:		REG			REG			REG		<u> </u>	REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
VOCs	Method TO-15 (μg/m³)	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	U	830	ND	U	2,400	ND	U	17,000	ND	U	2,600
		1,1-Dichloroethane	ND	U	440	ND	U	1,200	ND	Ü	8,800	ND	Ü	1,400
		1,2,4-Trichlorobenzene	ND	Ü	4,000	ND	U	11,000	ND	U	60,000	ND	Ū	8,300
		1,2,4-Trimethylbenzene	13,000		540	38,000		1,500	8,600	J	11,000	50,000		1,600
		1,2-Dibromoethane	330	J	840	2,000	J	2,400	ND	U	17,000	18,000		2,600
		1,2-Dichlorobenzene	ND	U	650	ND	U	1,800	ND	U	13,000	ND	U	2,000
		1,3,5-Trimethylbenzene	4,700		540	12,000		1,500	2,900	J	11,000	22,000		1,600
		1,3-Butadiene	ND	U	240	ND	U	680	ND	U	4,800	ND	U	740
		1,4-Dioxane	ND	U	2,000	ND	U	5,600	ND	U	29,000	ND	U	4,000
		2-Butanone	27,000		1,600	150,000		4,600	290,000		24,000	280,000		3,300
		2-Hexanone	ND	U	2,200	ND	U	6,300	ND	U	33,000	ND	U	4,600
		4-Methyl-2-Pentanone	ND	U	450	ND	U	1,300	ND	U	8,900	ND	U	1,400
		Acetone	420,000		1,300	1,600,000		3,700	3,900,000		19,000	1,100,000		2,700
		Benzene	180,000		350	770,000		990	1,200,000		6,900	870,000		1,100
		Bromodichloromethane	ND	U	730	ND	U	2,100	ND	U	14,000	ND	U	2,200
		Bromoform	ND	U	1,100	ND	U	3,200	ND	U	22,000	ND	U	3,500
		Carbon Disulfide	ND	U	1,700	ND	U	4,800	ND	U	25,000	ND	U	3,500
		Carbon Tetrachloride	ND	U	680	ND	U	1,900	ND	U	14,000	ND	U	2,100
		Chloroethane	ND	U	1,400	ND	U	4,100	ND	U	21,000	ND	U	3,000
		Chloroform	ND	U	530	ND	U	1,500	ND	U	10,000	ND	U	1,600
		Chloromethane	ND	U	1,100	ND	U	3,200	ND	U	17,000	ND	U	2,300
		Cyclohexane	530,000		370	2,400,000		1,100	4,200,000		7,500	3,500,000		1,200
		Dibromochloromethane	ND	U	930	ND	U	2,600	ND	U	18,000	ND	U	2,900
		Dichlorodifluoromethane	ND	U	540	ND	U	1,500	ND	U	11,000	ND	U	1,700
		Ethanol	3,200		1,000	6,000		2,900	ND	U	15,000	2,400	J	2,100
		Ethyl Acetate	ND	U	2,600	ND	U	7,400	ND	U	39,000	ND	U	8,100
		Ethylbenzene	46,000		470	170,000		1,300	350,000		9,400	400,000		1,400
		Hexane	610,000		380	2,900,000	<del></del>	1,100	5,200,000		7,600	3,700,000		1,200
		Isopropyl Alcohol	11,000		1,300	ND	U	3,800	54,000		20,000	27,000		2,800
		m- & p-Xylenes	130,000		470	480,000		1,300	1,100,000		9,400	1,200,000		1,400
		Methylene Chloride	ND 400	U	1,900	ND	U	5,400	ND	U	28,000	ND	U	3,900
		Naphthalene	460	J	380	2,200	J	1,100	ND	U	5,700	ND 7 200 000	UJ	5,900
		n-Heptane	530,000		450	2,800,000		1,300	4,200,000		8,900	7,200,000	J	1,400
		o-Xylene	37,000		470	110,000		1,300	310,000	 U	9,400 14,000	320,000 100,000		1,400
		Propylene (Propene)	ND	U	940	ND	U	2,600	ND ND	U		100,000 ND	 U	1,900
		Styrene Tetrachloroethene	ND ND	U	460 740	ND ND	U	1,300 2,100	ND ND	U	9,200 15,000	ND ND	U	1,400 2,300
		Tetrachioroethene Tetrahydrofuran	ND ND	U	320	ND ND	U	910	ND ND	U	6,400	ND ND	U	990
		Toluene	420,000		410	2,000,000		1,200	2,800,000		8,200	5,400,000		2,500
		Trichloroethene	420,000 ND	 U	580	2,000,000 ND	 U	1,700	2,600,000 ND	 U	12,000	5,400,000 ND	U	1,800
		Trichlorofluoromethane	ND ND	U	610	ND	U	1,700	ND ND	U	12,000	ND ND	U	1,900
		Vinyl Chloride	ND ND	U	280	ND ND	U	790	ND	U	5,500	ND	U	860
		Xylenes, Total	170,000		790	590,000		2,200	1,400,000		24,000	1,500,000		2,400
		Aylenes, Total	170,000		790	390,000		2,200	1,400,000		24,000	1,500,000		<u>∠,400</u>

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	K	AFB-106V1-2	17	KA	AFB-106V1-2	17	KAF	B-106V1-2	17	KAFE	3-106V1-25	52
		Field Sample ID:	KA	FB-106V1 21	7.1	KA	AFB-106V1 2	17	KAF	B-106V1-2	17	KAFB	-106V1 252	2.1
		Sample Date:		10/31/2019			11/5/2019			1/13/2020		4	/10/2019	
		Sample Type:		REG			REG			REG			REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
TPH	Method TO-03 (µg/m <sup>3</sup> )	TPH-GRO (C6-C10)	20,000,000		24,000	57,000,000		130,000	140,000,000		360,000	140,000,000		360,000
Fixed Gases	Method D1945 (%)	Butane	0.000083	J	0.00024	0.00027	J	0.00023	0.00049	J	0.00019	0.0039		0.00024
		Carbon Dioxide	0.37		0.01	0.88		0.0099	1.3		0.01	12		0.011
		Carbon Monoxide	ND	U	0.01	ND	U	0.0099	ND	U	0.01	0.0081	J	0.011
		Ethane	ND	U	0.00024	ND	U	0.00023	ND	U	0.00019	0.0058		0.00024
		Hydrogen	ND	U	0.014	ND	U	0.013	ND	U	0.013	ND	U	0.014
		Methane	0.00021	J	0.00011	0.00021		0.0001	0.00025		0.00011	0.007		0.00011
		Nitrogen (Ammonia As N)	79		0.15	78		0.14	79		0.15	86		0.15
		Oxygen	20		0.04	20		0.038	18		0.04	1.2		0.04
		Pentane	0.0053		0.00024	0.022		0.00023	0.033		0.00019	0.051		0.00024
1		Propane	ND	IJ	0.00024	0.000091	J	0.00023	0.000068	J	0.00019	0.006		0.00024

Table C-1 Summary of Soil Gas Analytical Results

[		Location ID:	KAFE	3-106V1-25	52	KAFE	3-106V1-25	2	KA	FB-106V1-25	52	KA	FB-106V1-25	 52
ľ		Field Sample ID:		-106V1 252			-106V1 252			FB-106V1 252			B-106V1 252	
		Sample Date:		5/9/2019	'		7/5/2019		101	10/15/2019		10.0	10/22/2019	···
		Sample Type:		REG		<u>'</u>	REG			REG			REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
VOCs	Method TO-15 (µg/m³)	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	U	5,200	ND	U	3,600	ND	U	9,500	ND	U	9,500
	(д	1,1-Dichloroethane	ND	U	2,800	ND	U	1,900	ND	U	5,000	ND	U	5,000
		1,2,4-Trichlorobenzene	ND	U	17,000	ND	U	11,000	ND	U	46,000	ND	U	46,000
		1,2,4-Trimethylbenzene	58,000		3,400	120,000	J	2,300	110,000		6,100	43,000		6,100
		1,2-Dibromoethane	12,000		5,200	18,000	J	3,600	22,000		9,500	21,000		9,500
		1,2-Dichlorobenzene	ND	U	4,100	ND	U	2,800	ND	U	7,400	ND	U	7,400
		1,3,5-Trimethylbenzene	26,000		3,400	51,000	J	2,300	50,000		6,100	22,000		6,100
		1,3-Butadiene	ND	U	1,500	ND	U	1,000	ND	U	2,700	ND	U	2,700
		1,4-Dioxane	ND	U	8,200	ND	U	5,600	ND	U	22,000	ND	U	22,000
		2-Butanone	230,000		6,700	280,000	J	4,600	300,000		18,000	280,000		18,000
		2-Hexanone	28,000		9,300	ND	U	6,300	ND	U	25,000	ND	U	25,000
		4-Methyl-2-Pentanone	17,000		2,800	ND	U	1,900	ND	U	5,100	ND	U	5,100
		Acetone	1,000,000		5,400	1,300,000	J	3,700	1,400,000		15,000	1,200,000		15,000
		Benzene	810,000		2,200	800,000		2,000	1,400,000		3,900	1,300,000		3,900
		Bromodichloromethane	ND	U	4,600	ND	U	3,100	ND	U	8,300	ND	U	8,300
		Bromoform	ND	U	7,100	ND	U	4,800	ND	U	13,000	ND	U	13,000
		Carbon Disulfide	ND	U	7,100	ND	U	4,800	ND	U	19,000	ND	U	19,000
		Carbon Tetrachloride	ND	U	4,300	ND	U	2,900	ND	U	7,800	ND	U	7,800
		Chloroethane	ND	U	6,000	ND	U	4,100	ND	U	16,000	ND	UJ	16,000
		Chloroform	ND	U	3,300	ND	U	2,300	ND	U	6,000	ND	U	6,000
		Chloromethane	ND	U	4,700	ND	U	3,200	ND	U	13,000	ND	U	13,000
		Cyclohexane	3,000,000		2,400	3,400,000	J	1,600	4,900,000		4,200	4,600,000		4,200
		Dibromochloromethane	ND	U	5,800	ND	U	3,900	ND	U	10,000	ND	U	10,000
		Dichlorodifluoromethane	ND	U	3,400	ND	U	2,300	ND	U	6,100	ND	U	6,100
		Ethanol	3,900	J	4,300	4,600	J	2,900	5,100	J	12,000	ND	U	12,000
		Ethyl Acetate	ND	U	16,000	ND	U	7,400	ND	U	30,000	ND	U	30,000
		Ethylbenzene	360,000		3,000	470,000	J	2,000	600,000		5,400	450,000		5,400
		Hexane	3,300,000		2,400	3,800,000	J	1,600	5,000,000		4,400	4,600,000		4,400
		Isopropyl Alcohol	22,000		5,600	20,000	J	3,800	25,000		15,000	13,000	J	15,000
		m- & p-Xylenes	1,100,000		3,000	1,400,000	J	2,000	1,900,000		5,400	1,300,000		5,400
		Methylene Chloride	ND	U	7,900	ND	U	5,400	ND	U	21,000	ND	U	21,000
		Naphthalene	ND	UJ	6,000	ND	U	5,400	ND	U	4,300	ND	U	4,300
		n-Heptane	6,300,000		2,800	5,700,000	J	1,900	10,000,000		5,100	9,600,000		5,100
		o-Xylene	300,000		3,000	410,000	J	2,000	500,000		5,400	340,000		5,400
		Propylene (Propene)	85,000		3,900	69,000	J	2,600	ND	U	11,000	ND	U	11,000
		Styrene	ND	U	2,900	ND	U	2,000	ND	U	5,300	ND	U	5,300
		Tetrachloroethene	ND	U	4,600	ND	U	3,100	120,000		8,400	ND	U	8,400
		Tetrahydrofuran	ND	U	2,000	ND	U	1,400	ND	U	3,600	ND	UJ	3,600
		Toluene	4,200,000	J	2,600	4,200,000	J	2,300	7,500,000		4,600	6,900,000		4,600
		Trichloroethene	ND	U	3,700	ND	U	2,500	3,700	J	6,600	ND	U	6,600
		Trichlorofluoromethane	ND	U	3,800	ND	U	2,600	ND	U	6,900	ND	U	6,900
		Vinyl Chloride	ND 1 100 000	U	1,700	ND	U	1,200	ND	U	3,200	ND 1 700 000	U	3,200
		Xylenes, Total	1,400,000		5,000	1,800,000	J	2,200	2,400,000		8,900	1,700,000		8,900

Table C-1 Summary of Soil Gas Analytical Results

		Lasation ID.	1/ 4 55	100\/100	-0	LAFE	1001/4 05	0	IZ A	ED 400\/4 0E	-0	1//	ED 400\/4 05	
		Location ID:	KAFE	3-106V1-25	02	KAFE	3-106V1-25	2	KA	FB-106V1-25	02	KA	FB-106V1-25	12
		Field Sample ID:	KAFB-	-106V1 252	2.1	KAFB	-106V1 252	2.1	KAF	B-106V1 252	2.1	KAF	FB-106V1 252	2.1
		Sample Date:	5	5/9/2019		7	7/5/2019			10/15/2019			10/22/2019	
		Sample Type:		REG			REG			REG			REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
TPH	Method TO-03 (µg/m <sup>3</sup> )	TPH-GRO (C6-C10)	150,000,000		190,000	150,000,000		170,000	150,000,000		220,000	160,000,000		270,000
Fixed Gases	Method D1945 (%)	Butane	0.004		0.00025	0.0038		2,300	0.0028		0.00023	0.0011	J	0.00023
		Carbon Dioxide	8.2		0.011	5.5		0.0099	0.43	-	0.0099	0.19		0.0099
		Carbon Monoxide	ND	U	0.011	ND	U	0.0099	ND	U	0.0099	ND	U	0.0099
		Ethane	0.0039		0.00025	0.0021		2,300	ND	U	0.00023	ND	U	0.00023
		Hydrogen	ND	U	0.014	ND	U	0.013	ND	U	0.013	ND	U	0.013
		Methane	0.0037		0.00011	0.0022		0.0001	0.0002	J	0.0001	0.00018	J	0.0001
		Nitrogen (Ammonia As N)	80		0.15	80		0.14	79	-	0.14	78		0.14
		Oxygen	10		0.042	13		0.038	19	-	0.038	20		0.038
		Pentane	0.052		0.00025	0.053		0.00023	0.052		0.00023	0.052		0.00023
		Propane	0.0056		0.00025	0.0038		0.00023	0.00035	J	0.00023	ND	U	0.00023

Table C-1 Summary of Soil Gas Analytical Results

Ī		Location ID:	K	AFB-106V1-2	 52	KΔ	FB-106V1-25	52	KAF	B-106V1-2	52	KAFI	B-106V1-26	 63
		Field Sample ID:		FB-106V1 25			FB-106V1 25			B-106V1-2			-106V1 262	
		Sample Date:	IVA	10/31/2019	2.1	IV-	11/5/2019	12		1/13/2020	<u> </u>		/10/2019	2.0
		Sample Date.		REG			REG			REG		-	REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
VOCs	Method TO-15 (µg/m³)	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	U	4,500	ND	U	5,100	ND	U	6,000	ND	U	2,400
	Wethod 10-10 (μg/m )	1,1-Dichloroethane	ND	U	2,400	ND	U	2,700	ND	U	3,200	ND	Ü	1,300
		1,2,4-Trichlorobenzene	ND	U	22,000	ND	U	25,000	ND	U	22,000	ND	U	7,900
		1,2,4-Trimethylbenzene	6,100		2,900	41,000		3,300	13,000		3,800	68,000		1,600
		1,2-Dibromoethane	10,000		4,500	24,000		5,100	18,000		6,000	23,000		2,400
		1,2-Dichlorobenzene	ND	U	3,500	ND	U	4,000	ND	U	4,700	ND	U	1,900
		1,3,5-Trimethylbenzene	3,400	J	2,900	19,000		3,300	7,800		3,800	27,000		1,600
		1,3-Butadiene	ND	U	1,300	ND	U	1,500	ND	U	1,700	ND	U	700
		1,4-Dioxane	ND	U	10,000	ND	U	12,000	ND	U	10,000	ND	U	3,800
		2-Butanone	230,000		8,600	400,000		9,800	320,000		8,700	510,000	J	3,100
		2-Hexanone	10,000	J	12,000	ND	U	14,000	ND	U	12,000	ND	U	4,300
		4-Methyl-2-Pentanone	13,000		2,400	ND	U	2,700	ND	U	3,200	ND	U	1,300
		Acetone	1,100,000		6,900	1,800,000		7,900	1,500,000		7,000	1,800,000		2,500
		Benzene	880,000		1,800	1,300,000		2,100	1,200,000		2,500	920,000		1,000
		Bromodichloromethane	ND	U	3,900	ND	U	4,500	ND	U	5,200	ND	U	2,100
		Bromoform	ND	U	6,000	ND	U	6,900	ND	U	8,100	ND	U	3,300
		Carbon Disulfide	ND	U	9,100	ND	U	10,000	ND	U	9,200	ND	U	3,300
		Carbon Tetrachloride	ND	U	3,700	ND	U	4,200	ND	U	4,900	ND	U	2,000
		Chloroethane	ND	U	7,700	ND	U	8,800	ND	U	7,800	ND	U	2,800
		Chloroform	ND	U	2,800	ND	U	3,200	ND	U	3,800	ND	U	1,600
		Chloromethane	ND	U	6,000	ND	U	6,900	ND	U	6,100	ND	U	2,200
		Cyclohexane	3,100,000		2,000	4,800,000		2,300	4,200,000		2,700	3,300,000		1,100
		Dibromochloromethane	ND	U	5,000	ND	U	5,700	ND	U	6,700	ND	U	2,700
		Dichlorodifluoromethane	ND	U	2,900	ND	U	3,300	ND	U	3,900	ND	U	1,600
		Ethanol	3,700	J	5,500	14,000		6,300	6,600	J	5,500	12,000		2,000
		Ethyl Acetate	ND	U	14,000	ND	U	16,000	ND	U	14,000	ND	U	7,600
		Ethylbenzene	160,000		2,500	440,000		2,900	330,000		3,400	410,000		1,400
		Hexane	3,900,000		2,000	5,600,000		2,300	4,000,000		2,800	3,100,000		1,100
		Isopropyl Alcohol	17,000		7,200	42,000		8,200	22,000		7,200	50,000		2,600
		m- & p-Xylenes	410,000		2,500	1,200,000		2,900	910,000		3,400	1,100,000		1,400
		Methylene Chloride	ND	U	10,000	ND	U	12,000	ND	U	10,000	ND	U	3,700
		Naphthalene	ND	U	2,000	ND	U	2,300	ND	U	2,000	ND	UJ	5,600
		n-Heptane	5,400,000		2,400	9,600,000	J	2,700	7,600,000		3,200	8,100,000	J	1,300
		o-Xylene	96,000		2,500	310,000		2,900	230,000		3,400	280,000		1,400
		Propylene (Propene)	ND	U	5,000	ND	U	5,700	ND	U	5,000	110,000	L	1,800
		Styrene	ND	U	2,500	ND	U	2,800	ND	U	3,300	ND	U	1,400
		Tetrachloroethene	ND	U	3,900	ND	U	4,500	ND	U	5,300	ND	U	2,200
		Tetrahydrofuran	ND	U	1,700	ND	U	2,000	ND	U	2,300	ND	U	940
		Toluene	3,400,000		2,200	6,500,000		2,500	5,300,000		3,000	6,400,000		4,000
		Trichloroethene	ND	U	3,100	ND	U	3,600	ND	U	4,200	ND	U	1,700
		Trichlorofluoromethane	ND	U	3,300	ND	U	3,700	ND	U	4,400	ND	U	1,800
		Vinyl Chloride	ND	U	1,500	ND	U	1,700	ND	U	2,000	ND	U	810
		Xylenes, Total	500,000		4,200	1,500,000		4,800	1,100,000		8,500	1,400,000		2,300

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	KA	AFB-106V1-2	:52	KA	FB-106V1-25	52	KAF	B-106V1-25	52	KAFE	3-106V1-26	33
		Field Sample ID:	KA	FB-106V1 25	52.1	KA	FB-106V1 25	52	KAF	B-106V1-25	52	KAFB	-106V1 262	2.6
		Sample Date:		10/31/2019			11/5/2019			1/13/2020		4.	/10/2019	
		Sample Type:		REG			REG			REG			REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
TPH	Method TO-03 (µg/m <sup>3</sup> )	TPH-GRO (C6-C10)	96,000,000		200,000	140,000,000		180,000	100,000,000		320,000	160,000,000		350,000
Fixed Gases	Method D1945 (%)	Butane	0.00017	J	0.00021	0.000062	J	0.00024	ND	U	0.00017	0.0054		0.00023
		Carbon Dioxide	0.2		0.0093	0.17		0.011	0.41		0.0094	11		0.01
		Carbon Monoxide	ND	U	0.0093	ND	U	0.011	ND	U	0.0094	0.013	J	0.01
		Ethane	ND	U	0.00021	ND	U	0.00024	ND	U	0.00017	0.0065		0.00023
		Hydrogen	ND	U	0.012	ND	U	0.014	ND	U	0.012	ND	U	0.013
		Methane	0.00018	J	0.000097	0.000094	J	0.00011	0.00034		0.000098	0.007		0.00011
		Nitrogen (Ammonia As N)	79		0.13	78		0.15	78		0.13	88		0.14
		Oxygen	20	-	0.036	20		0.041	20		0.036	1.4		0.038
		Pentane	0.044		0.00021	0.038		0.00024	0.0017	J	0.00017	0.059		0.00023
		Propane	ND	Ü	0.00021	ND	Ü	0.00024	ND	Ü	0.00017	0.0071		0.00023

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	KAFE	3-106V1-26	3	KAFE	3-106V1-26	3	KA	FB-106V1-26	3	KA	FB-106V1-26	 i3
		Field Sample ID:		-106V1 262			-106V1 262			FB-106V1 262			B-106V1 262	
		Sample Date:		5/9/2019			7/5/2019			10/15/2019			10/22/2019	<u></u>
		Sample Type:		REG		<u> </u>	REG			REG			REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
VOCs	Method TO-15 (µg/m³)	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	U	5,000	ND	U	3,400	ND	U	9,200	ND	U	10,000
	(1-9,)	1,1-Dichloroethane	ND	U	2,600	ND	U	1,800	ND	U	4,900	ND	U	5,600
		1,2,4-Trichlorobenzene	ND	U	16,000	ND	U	11,000	ND	U	45,000	ND	U	51,000
		1,2,4-Trimethylbenzene	52,000		3,200	110,000	J	2,200	110,000		5,900	80,000		6,800
		1,2-Dibromoethane	15,000		5,000	24,000	J	3,400	25,000		9,300	39,000		11,000
		1,2-Dichlorobenzene	ND	U	3,900	ND	U	2,700	ND	U	7,200	ND	U	8,300
		1,3,5-Trimethylbenzene	20,000		3,200	42,000	J	2,200	45,000		5,900	36,000		6,800
		1,3-Butadiene	ND	U	1,400	ND	U	1,000	ND	U	2,700	ND	U	3,000
		1,4-Dioxane	ND	U	7,800	ND	U	5,400	ND	U	22,000	ND	U	25,000
		2-Butanone	430,000		6,400	540,000	J	4,400	580,000		18,000	890,000		20,000
		2-Hexanone	31,000		8,900	ND	U	6,100	39,000		25,000	37,000	J	28,000
		4-Methyl-2-Pentanone	21,000		2,700	ND	U	1,800	ND	U	4,900	ND	U	5,600
		Acetone	1,800,000		5,200	2,200,000	J	3,600	2,100,000		14,000	3,200,000		16,000
		Benzene	840,000		2,100	780,000	J	1,900	1,100,000		3,800	2,000,000		4,400
		Bromodichloromethane	ND	U	4,400	ND	U	3,000	ND	U	8,100	ND	U	9,200
		Bromoform	ND	U	6,800	ND	U	4,600	ND	U	12,000	ND	U	14,000
		Carbon Disulfide	ND	U	6,800	ND	U	4,700	ND	U	19,000	ND	U	21,000
		Carbon Tetrachloride	ND	U	4,100	ND	U	2,800	ND	U	7,600	ND	U	8,700
		Chloroethane	ND	U	5,800	ND	U	4,000	ND	U	16,000	ND	UJ	18,000
		Chloroform	ND	U	3,200	ND	U	2,200	ND	U	5,900	ND	U	6,700
		Chloromethane	ND	U	4,500	ND	U	3,100	ND	U	12,000	ND	U	14,000
		Cyclohexane	2,900,000		2,200	3,400,000	J	1,500	4,100,000		4,200	6,600,000		4,800
		Dibromochloromethane	ND	U	5,600	ND	U	3,800	ND	U	10,000	ND	U	12,000
		Dichlorodifluoromethane	ND	U	3,200	ND	U	2,200	ND	U	6,000	ND	U	6,800
		Ethanol	12,000		4,100	16,000	J	2,800	20,000		11,000	14,000	J	13,000
		Ethyl Acetate	ND	U	16,000	ND	U	7,200	ND	U	29,000	ND	U	33,000
		Ethylbenzene	320,000		2,800	460,000	J	2,000	470,000		5,200	690,000		6,000
		Hexane	2,800,000		2,300	3,300,000	J	1,600	3,700,000		4,200	6,000,000		4,900
		Isopropyl Alcohol	48,000		5,400	51,000	J	3,700	56,000		15,000	55,000		17,000
		m- & p-Xylenes	860,000		2,800	1,200,000	J	2,000	1,300,000		5,200	1,800,000		6,000
		Methylene Chloride	ND	U	7,600	ND	U	5,200	8,300	J	21,000	ND	U	24,000
		Naphthalene	ND	UJ	5,700	ND	U	5,200	ND	U	4,200	ND	U	4,800
		n-Heptane	7,000,000		2,700	6,100,000	J	1,800	9,000,000		4,900	15,000,000		5,600
		o-Xylene	220,000		2,800	330,000	J	2,000	330,000		5,200	430,000		6,000
		Propylene (Propene)	88,000		3,800	72,000	J	2,600	22,000		10,000	ND	U	12,000
		Styrene	ND	U	2,800	ND	U	1,900	ND	U	5,100	ND	U	5,900
		Tetrachloroethene	ND	U	4,400	ND	U	3,000	34,000		8,200	ND	U	9,400
		Tetrahydrofuran	ND 1700.000	U	1,900	ND	U	1,300	ND	U	3,600	ND	UJ	4,100
		Toluene	4,700,000	J	2,500	5,500,000	J 	2,300	6,700,000	<del></del>	4,500	12,000,000		5,200
		Trichloroethene	ND	U	3,500	ND	U	2,400	ND	U	6,500	ND	U	7,400
		Trichlorofluoromethane	ND	U	3,700	ND	U	2,500	ND	U	6,800	ND	U	7,800
		Vinyl Chloride	ND 1 100 000	U	1,700	ND 4 500 000	U	1,200	ND 4 222 222	U	3,100	ND	U	3,500
		Xylenes, Total	1,100,000		4,700	1,500,000	J	2,200	1,600,000		8,700	2,200,000		10,000

Table C-1
Summary of Soil Gas Analytical Results

		Location ID:	LAFE	3-106V1-26	20	KAFE	3-106V1-26	2	IZΛ	FB-106V1-26	20	IZ A	FB-106V1-26	
						1								
		Field Sample ID:	KAFB	-106V1 262	2.6	KAFB	-106V1 262	2.6	KAF	B-106V1 262	2.6	KAF	FB-106V1 262	2.6
		Sample Date:	5	5/9/2019		7	7/5/2019			10/15/2019			10/22/2019	
		Sample Type:		REG			REG			REG			REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
TPH	Method TO-03 (µg/m <sup>3</sup> )	TPH-GRO (C6-C10)	160,000,000		180,000	150,000,000		160,000	150,000,000		160,000	150,000,000		240,000
Fixed Gases	Method D1945 (%)	Butane	0.0058		0.00024	0.0046		2,200	0.0036		0.00022	0.0022	J	0.00025
		Carbon Dioxide	8		0.01	5.4		0.0096	1.4		0.0096	0.39		0.011
		Carbon Monoxide	0.011	J	0.01	ND	U	0.0096	ND	U	0.0096	ND	U	0.011
		Ethane	0.0046		0.00024	0.0023		2,200	0.0002	J	0.00022	ND	U	0.00025
		Hydrogen	ND	U	0.014	ND	U	0.012	ND	U	0.012	ND	U	0.014
		Methane	0.0039		0.00011	0.0021		0.0001	0.0003		0.0001	0.00013	J	0.00012
		Nitrogen (Ammonia As N)	80		0.15	80		0.14	79		0.14	78		0.16
		Oxygen	10		0.04	13		0.037	18		0.037	20		0.043
		Pentane	0.064		0.00024	0.059		0.00022	0.056		0.00022	0.06		0.00025
		Propane	0.0066		0.00024	0.0042		0.00022	0.0011	J	0.00022	0.00015	J	0.00025

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	KA	FB-106V1-26	3	KA	AFB-106V1-26	3	KAF	B-106V1-26	63	KAFE	B-106V2-10	 02
		Field Sample ID:		-B-106V1 262			AFB-106V1 26			B-106V1-2		KAFB	3-106V2 10	2.2
		Sample Date:	10.0	10/31/2019			11/5/2019			1/13/2020			11/2019	
		Sample Type:		REG			REG			REG		<del> </del>	REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
VOCs	Method TO-15 (µg/m³)	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	U	3,900	ND	U	4,900	ND	U	10,000	ND	U	2,200
	Mounda 10 10 (µg/m )	1,1-Dichloroethane	ND	U	2,100	ND	U	2,600	ND	U	5,400	ND	U	1,200
		1,2,4-Trichlorobenzene	ND	U	19,000	ND	U	24,000	ND	U	37,000	ND	U	7,200
		1,2,4-Trimethylbenzene	5,700		2,500	57,000		3,100	34,000		6,600	23,000	J	1,400
		1,2-Dibromoethane	7,900		3,900	32,000		4,900	20,000		10,000	20,000	J	2,200
		1,2-Dichlorobenzene	ND	U	3,100	ND	U	3,800	ND	U	8,000	ND	U	1,700
		1,3,5-Trimethylbenzene	2,800	J	2,500	25,000		3,100	16,000		6,600	12,000	J	1,400
		1,3-Butadiene	ND	U	1,100	ND	U	1,400	ND	U	3,000	ND	U	640
		1,4-Dioxane	ND	U	9,200	ND	U	12,000	ND	U	18,000	ND	U	3,500
		2-Butanone	340,000		7,500	680,000	J	9,400	540,000		15,000	610,000	J	2,900
		2-Hexanone	14,000		10,000	ND	U	13,000	ND	U	20,000	ND	U	4,000
		4-Methyl-2-Pentanone	12,000		2,100	ND	U	2,600	ND	U	5,500	ND	U	1,200
		Acetone	1,400,000		6,000	2,800,000		7,600	2,400,000		12,000	3,500,000	J	2,300
		Benzene	630,000		1,600	1,400,000		2,000	1,100,000		4,300	2,100,000	J	930
		Bromodichloromethane	ND	U	3,400	ND	U	4,300	ND	U	9,000	ND	U	1,900
		Bromoform	ND	U	5,300	ND	U	6,600	ND	U	14,000	ND	U	3,00
		Carbon Disulfide	ND	U	7,900	ND	U	9,900	ND	U	16,000	ND	U	3,00
		Carbon Tetrachloride	ND	U	3,200	ND	U	4,000	ND	U	8,400	ND	U	1,800
		Chloroethane	ND	U	6,700	ND	U	8,400	ND	U	13,000	ND	U	2,600
		Chloroform	ND	U	2,500	ND	U	3,100	ND	U	6,500	ND	U	1,400
		Chloromethane	ND	U	5,300	ND	U	6,600	ND	U	10,000	ND	U	2,000
		Cyclohexane	2,200,000		1,800	4,900,000		2,200	3,800,000		4,600	7,000,000	J	1,000
		Dibromochloromethane	ND	U	4,300	ND	U	5,400	ND	U	11,000	ND	U	2,500
		Dichlorodifluoromethane	ND	U	2,500	ND	U	3,200	ND	U	6,600	ND	U	1,40
		Ethanol	7,400		4,800	15,000		6,000	19,000		9,500	41,000	J	1,80
		Ethyl Acetate	ND	U	12,000	ND	U	15,000	ND	U	24,000	ND	U	7,00
		Ethylbenzene	91,000		2,200	480,000		2,800	350,000		5,800	280,000	J	1,300
		Hexane	2,400,000		1,800	5,200,000		2,200	3,800,000		4,700	8,300,000	J	1,00
		Isopropyl Alcohol	28,000		6,300	ND	U	7,800	50,000		12,000	260,000	J	2,400
		m- & p-Xylenes	210,000		2,200	1,200,000		2,800	910,000		5,800	710,000	J	1,30
		Methylene Chloride	ND	U	8,800	ND	U	11,000	ND	U	17,000	ND	U	3,400
		Naphthalene	ND	U	1,800	ND	U	2,200	ND	U	3,500	ND	UJ	5,100
		n-Heptane	3,900,000		2,100	11,000,000	J	2,600	7,300,000		5,500	7,200,000	J	1,200
		o-Xylene	48,000		2,200	300,000		2,800	230,000		5,800	180,000	J	1,300
		Propylene (Propene)	ND	U	4,400	ND	U	5,500	ND	U	8,600	33,000	J	1,700
		Styrene	ND	U	2,200	ND	U	2,700	ND	U	5,700	ND	U	1,200
		Tetrachloroethene	ND	U	3,400	ND	U	4,300	ND	U	9,100	ND	U	2,000
		Tetrahydrofuran	ND	U	1,500	ND	U	1,900	ND	U	4,000	ND	U	860
		Toluene	2,500,000		1,900	7,800,000		2,400	5,600,000		5,000	5,100,000		2,200
		Trichloroethene	ND	U	2,700	ND	U	3,400	ND	U	7,200	ND	U	1,600
		Trichlorofluoromethane	ND	U	2,900	ND	U	3,600	ND	U	7,500	ND	U	1,600
		Vinyl Chloride	ND	U	1,300	ND	U	1,600	ND	U	3,400	ND	U	740
		Xylenes, Total	260,000		3,700	1,500,000		4,600	1,100,000		14,000	890,000	J	2,100

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	LΑ	FB-106V1-26	22	KA	FB-106V1-26	22	VΛE	B-106V1-26	22	KVE	B-106V2-10	72
						1						1		
		Field Sample ID:	KAF	-B-106V1 262	2.6	KA	FB-106V1 26	3	KAF	B-106V1-26	3	KAFB	-106V2 102	2.2
		Sample Date:		10/31/2019			11/5/2019			1/13/2020		4	/11/2019	
		Sample Type:		REG			REG			REG			REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
TPH	Method TO-03 (μg/m <sup>3</sup> )	TPH-GRO (C6-C10)	110,000,000		220,000	160,000,000		170,000	110,000,000		330,000	370,000,000		320,000
Fixed Gases		Butane	0.00064	J	0.00037	0.00031	J	0.00023	0.00053	J	0.00017	0.0095		0.00021
		Carbon Dioxide	0.24		0.016	0.2		0.01	0.34		0.0096	13		0.0093
		Carbon Monoxide	ND	U	0.016	ND	U	0.01	ND	U	0.0096	ND	U	0.0093
		Ethane	ND	U	0.00037	ND	U	0.00023	0.0002	J	0.00017	0.0029		0.00021
		Hydrogen	ND	U	0.021	ND	U	0.013	ND	U	0.012	ND	U	0.012
		Methane	ND	U	0.00017	0.00012	J	0.00011	0.00028		0.0001	0.021		9.7E-05
		Nitrogen (Ammonia As N)	78	-	0.23	78	1	0.14	79		0.14	84		0.13
		Oxygen	20		0.063	20	-	0.039	20		0.037	1.2		0.036
		Pentane	0.052		0.00037	0.05	-	0.00023	0.0058		0.00017	0.21		0.00021
		Propane	ND	Ü	0.00037	ND	Ü	0.00023	0.0003	J	0.00017	0.0015	I J	0.00021

Table C-1 Summary of Soil Gas Analytical Results

ſ		Location ID:	KAFE	3-106V2-10	)2	KAFE	3-106V2-10	12	KA	FB-106V2-10	)2	KA	FB-106V2-10	)2
ľ		Field Sample ID:		-106V2 102		KAFB	-106V2 102	2.2	KAF	B-106V2 102	2.2		FB-106V2 102	
		Sample Date:		5/9/2019			7/5/2019	<u>-</u>		10/15/2019			10/22/2019	<u></u>
		Sample Type:		REG			REG			REG			REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
VOCs	Method TO-15 (µg/m³)	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	U	4,900	ND	U	3,800	ND	U	12,000	ND	U	7,000
	тошов то то (µg/т )	1,1-Dichloroethane	ND	U	2,600	ND	U	2,000	ND	U	6,100	ND	U	3,700
		1,2,4-Trichlorobenzene	ND	U	16,000	ND	U	12,000	ND	U	56,000	ND	U	34,000
		1,2,4-Trimethylbenzene	64,000		3,200	150,000	J	2,400	170,000	J	7,400	54,000	J	4,500
		1,2-Dibromoethane	15,000		5,000	24,000	J	3,800	37,000	J	12,000	25,000	J	7,000
		1,2-Dichlorobenzene	ND	U	3,900	ND	U	2,900	ND	U	9,000	ND	U	5,500
		1,3,5-Trimethylbenzene	29,000		3,200	57,000	J	2,400	68,000	J	7,400	27,000	J	4,500
		1,3-Butadiene	ND	U	1,400	ND	U	1,100	ND	U	3,300	ND	U	2,000
		1,4-Dioxane	ND	U	7,700	ND	U	5,900	ND	U	27,000	ND	U	16,000
		2-Butanone	630,000		6,300	880,000	J	4,800	1,200,000	J	22,000	930,000	J	13,000
		2-Hexanone	16,000	J	8,800	ND	U	6,700	ND	U	31,000	ND	U	19,000
		4-Methyl-2-Pentanone	26,000		2,600	ND	U	2,000	32,000	J	6,200	ND	U	3,700
		Acetone	4,200,000		5,100	5,900,000	J	3,900	6,400,000	J	18,000	5,400,000	J	11,000
		Benzene	1,800,000		2,100	1,800,000		2,100	3,200,000	J	4,800	2,900,000	J	2,900
		Bromodichloromethane	ND	U	4,300	ND	U	3,300	ND	U	10,000	ND	U	6,100
		Bromoform	ND	U	6,700	ND	U	5,100	ND	U	16,000	ND	U	9,400
		Carbon Disulfide	ND	U	6,700	ND	U	5,100	ND	U	23,000	ND	U	14,000
		Carbon Tetrachloride	ND	U	4,000	ND	U	3,100	ND	U	9,500	ND	U	5,800
		Chloroethane	ND	U	5,700	ND	U	4,300	ND	U	20,000	ND	UJ	12,000
		Chloroform	ND	U	3,100	ND	U	2,400	ND	U	7,400	ND	U	4,500
		Chloromethane	ND	U	4,400	ND	U	3,400	ND	U	16,000	ND	U	9,400
		Cyclohexane	6,000,000		2,200	6,100,000	J	1,700	10,000,000	J	5,200	8,800,000	J	3,100
		Dibromochloromethane	ND	U	5,500	ND	U	4,200	ND	U	13,000	ND	U	7,800
		Dichlorodifluoromethane	ND	U	3,200	ND	U	2,400	ND	U	7,400	ND	U	4,500
		Ethanol	49,000		4,000	67,000	J	3,100	62,000	J	14,000	27,000	J	8,600
		Ethyl Acetate	ND	U	15,000	ND	U	7,800	ND	U	36,000	ND	U	22,000
		Ethylbenzene	330,000		2,800	440,000	J	2,100	630,000	J	6,500	420,000	J	4,000
		Hexane	6,700,000		2,300	5,600,000	J	1,700	10,000,000	J	5,300	9,300,000	J	3,200
		Isopropyl Alcohol	300,000		5,300	340,000	J	4,000	400,000	J	18,000	240,000	J	11,000
		m- & p-Xylenes	820,000		2,800	1,100,000	J	2,100	1,600,000	J	6,500	1,000,000	J	4,000
		Methylene Chloride	ND	U	7,500	ND	U	5,700	ND	U	26,000	ND	U	16,000
		Naphthalene	ND	UJ	5,700		U	5,700	ND	U	5,300	ND	U	3,200
		n-Heptane	6,600,000		2,600	6,200,000	J	2,000	12,000,000	J	6,200	9,900,000	J	3,700
		o-Xylene	230,000		2,800	330,000	J	2,100	450,000	J	6,500	270,000	J	4,000
		Propylene (Propene)	20,000		3,700	27,000	J	2,800	30,000	J	13,000	26,000	J	7,900
		Styrene	ND	U	2,700	ND	U	2,100	ND	U	6,400	ND	U	3,900
		Tetrachloroethene	ND	U	4,400	ND	U	3,300	83,000	J	10,000	ND	U	6,200
		Tetrahydrofuran	ND	U	1,900	ND	U	1,400	ND	U	4,400	ND	UJ	2,700
		Toluene	4,400,000	J	2,400	4,500,000	J	2,400	8,700,000	J	5,700	7,500,000	J	3,400
		Trichloroethene	ND	U	3,500	ND	U	2,600	4,300	J	8,100	ND	U	4,900
		Trichlorofluoromethane	ND	U	3,600	ND	U	2,800	ND	U	8,500	ND	U	5,100
		Vinyl Chloride	ND	U	1,600	ND	U	1,200	ND	U	3,800	ND	U	2,300
		Xylenes, Total	1,000,000		4,700	1,400,000	J	2,400	2,000,000	J	11,000	1,300,000	J	6,600

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	KAFE	3-106V2-10	)2	KAFE	3-106V2-10	)2	KA	FB-106V2-10	)2	KA	FB-106V2-10	)2
		Field Sample ID:	KAFB	-106V2 102	2.2	KAFB	-106V2 102	2.2	KAF	B-106V2 102	2.2	KAF	B-106V2 10	2.2
		Sample Date:	Ę	5/9/2019		7	7/5/2019			10/15/2019			10/22/2019	
		Sample Type:		REG			REG			REG			REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
TPH	Method TO-03 (µg/m <sup>3</sup> )	TPH-GRO (C6-C10)	210,000,000		180,000	200,000,000		180,000	170,000,000		200,000	210,000,000		400,000
Fixed Gases	Method D1945 (%)	Butane	0.0056		0.00024	0.004		2,400	0.0035		0.00028	0.0034		0.00027
		Carbon Dioxide	11		0.01	11		0.01	10		0.012	6.5		0.012
		Carbon Monoxide	ND	U	0.01	ND	U	0.01	ND	U	0.012	ND	U	0.012
		Ethane	0.0022		0.00024	0.0024		2,400	0.0021	J	0.00028	0.0013	J	0.00027
		Hydrogen	ND	U	0.013	ND	U	0.013	ND	U	0.016	ND	U	0.015
		Methane	0.018		0.00011	0.021		0.00011	0.015		0.00012	0.007		0.00012
		Nitrogen (Ammonia As N)	82		0.14	82		0.15	81		0.17	78		0.16
		Oxygen	4.3		0.04	4.6		0.04	5.9		0.046	13		0.045
		Pentane	0.15		0.00024	0.096		0.00024	0.099		0.00028	0.082		0.00027
		Propane	0.0012	J	0.00024	0.0014	J	0.00024	0.0011	J	0.00028	0.001	J	0.00027

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	KΑ	FB-106V2-10	12	KA	FB-106V2-10	2	KAF	B-106V2-10	02	KAFI	3-106V2-1	17
		Field Sample ID:	KAI	-B-106V2 102	2.2	KA	AFB-106V2 10	2	KAF	B-106V2-10	02	KAFB	-106V2 11	7.1
		Sample Date:		10/31/2019			11/5/2019			1/13/2020	-		/11/2019	
		Sample Type:		REG			REG			REG			REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
VOCs		1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	U	8,900	ND	U	9,600	ND	U	15,000	ND	U	2,200
	Mictiliaa 10-10 (µg/iii )	1,1-Dichloroethane	ND	U	4,700	ND	Ü	5,100	ND	Ü	7,900	ND	Ü	1,200
		1,2,4-Trichlorobenzene	ND	U	43,000	ND	U	47,000	ND	Ü	54,000	ND	Ü	7,200
		1,2,4-Trimethylbenzene	6,900	J	5,700	79,000		6,200	25,000		9,600	6,500		1,400
		1,2-Dibromoethane	12,000	J	8,900	32,000		9,700	17,000	J	15,000	9,700		2,200
		1,2-Dichlorobenzene	ND	U	7,000	ND	U	7,600	ND	U	12,000	ND	U	1,700
		1,3,5-Trimethylbenzene	3,300	J	5,700	36,000		6,200	ND	U	9,600	3,900		1,400
		1,3-Butadiene	ND	U	2,600	ND	U	2,800	ND	U	4,300	ND	U	640
		1,4-Dioxane	ND	U	21,000	ND	U	23,000	ND	U	26,000	ND	U	3,500
		2-Butanone	810,000		17,000	1,200,000	J	18,000	790,000		22,000	270,000		2,800
		2-Hexanone	ND	U	24,000	ND	U	26,000	ND	U	30,000	ND	U	4,000
		4-Methyl-2-Pentanone	18,000		4,700	ND	Ü	5,200	ND	Ü	8,000	ND	Ü	1,200
		Acetone	5,400,000		14,000	8,100,000		15,000	5,400,000		17,000	1,500,000		2,300
		Benzene	2,200,000		3,700	3,200,000		4,000	2,000,000		6,300	1,800,000		920
		Bromodichloromethane	ND	U	7,800	ND	U	8,400	ND	U	13,000	ND	U	1,900
		Bromoform	ND	Ü	12,000	ND	Ü	13,000	ND	Ü	20,000	ND	Ü	3,000
		Carbon Disulfide	ND	U	18,000	ND	Ü	20,000	ND	Ü	23,000	ND	Ü	3,000
		Carbon Tetrachloride	ND	Ü	7,300	ND	Ü	7,900	ND	U	12,000	ND	Ü	1,800
		Chloroethane	ND	Ü	15,000	ND	Ü	17,000	ND	U	19,000	ND	Ü	2,500
		Chloroform	ND	U	5,600	ND	Ü	6,200	ND	Ü	9,600	ND	Ü	1,400
		Chloromethane	ND	U	12,000	ND	U	13,000	ND	Ü	15,000	ND	Ü	2,000
		Cyclohexane	6,600,000		4,000	10,000,000		4,300	6,100,000		6,700	5,600,000	J	1,000
		Dibromochloromethane	ND	U	9,900	ND	U	11,000	ND	U	17,000	ND	Ü	2,500
		Dichlorodifluoromethane	ND	U	5,700	ND	U	6,200	ND	U	9,700	ND	U	1,400
		Ethanol	24,000		11,000	80,000		12,000	55,000		14,000	11,000		1,800
		Ethyl Acetate	ND	U	28,000	ND	U	30,000	ND	U	35,000	ND	U	7,000
		Ethylbenzene	120,000		5,000	520,000		5,500	230,000		8,500	390,000		1,200
		Hexane	8,600,000		4,100	13,000,000		4,400	7,600,000		6,900	7,100,000	J	1,000
		Isopropyl Alcohol	220,000		14,000	510,000		15,000	320,000		18,000	65,000		2,400
		m- & p-Xylenes	270,000		5,000	1,300,000		5,500	520,000		8,500	970,000		1,200
		Methylene Chloride	ND	U	20,000	ND	U	22,000	ND	U	26,000	ND	U	3,400
		Naphthalene	ND	U	4,000	ND	U	4,400	ND	Ü	5,100	ND	UJ	5,000
		n-Heptane	5,800,000		4,700	11,000,000		5,200	5,500,000		8,000	5,100,000	J	1,200
		o-Xylene	65,000		5,000	340,000		5,500	130,000		8,500	230,000		1,200
		Propylene (Propene)	20,000		10,000	18,000		11,000	ND	U	13,000	30,000		1,700
		Styrene	ND	U	4,900	ND	U	5,400	ND	U	8,300	ND	U	1,200
		Tetrachloroethene	ND	Ü	7,800	ND	Ü	8,500	ND	Ü	13,000	ND	Ü	2,000
		Tetrahydrofuran	ND	U	3,400	ND	U	3,700	ND	Ü	5,800	ND	Ü	850
		Toluene	3,700,000		4,400	7,800,000		4,700	4,100,000		7,400	3,300,000		1,100
		Trichloroethene	ND	U	6,200	ND	U	6,800	ND	U	10,000	ND	U	1,600
		Trichlorofluoromethane	ND	U	6,500	ND	U	7,100	ND	Ü	11,000	ND	Ü	1,600
		Vinyl Chloride	ND	U	3,000	ND	U	3,200	ND	Ü	5,000	ND	U	740
		Xylenes, Total	340,000		8,400	1,600,000		9,100	660,000		21,000	1,200,000		2,100

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	KA	FB-106V2-10	)2	KA	FB-106V2-10	2	KAF	B-106V2-10	)2	KAFE	3-106V2-1	17
		Field Sample ID:	KAF	B-106V2 102	2.2	KA	FB-106V2 10	2	KAF	B-106V2-10	)2	KAFB	-106V2 11	7.1
		Sample Date:		10/31/2019			11/5/2019			1/13/2020		4	/11/2019	
		Sample Type:		REG			REG			REG			REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
TPH	Method TO-03 (µg/m <sup>3</sup> )	TPH-GRO (C6-C10)	140,000,000		250,000	220,000,000		170,000	200,000,000		320,000	180,000,000		320,000
ixed Gases	Method D1945 (%)	Butane	0.0034		0.00021	0.0035		0.00023	0.0022		0.00017	0.0093		0.0002
		Carbon Dioxide	4		0.0093	3.4		0.01	1.5		0.0094	13		0.0093
		Carbon Monoxide	ND	U	0.0093	ND	U	0.01	ND	U	0.0094	ND	U	0.0093
		Ethane	0.00074	J	0.00021	0.00059	J	0.00023	0.00018	J	0.00017	0.0028		0.0002
		Hydrogen	ND	U	0.012	ND	U	0.013	ND	U	0.012	ND	U	0.012
		Methane	0.0039		0.000096	0.0036		0.0001	0.0012		0.000098	0.02		9.6E-0
		Nitrogen (Ammonia As N)	77		0.13	77		0.14	78		0.13	84		0.13
		Oxygen	17		0.036	17		0.039	19		0.036	1.3		0.036
		Pentane	0.083		0.00021	0.088		0.00023	0.094		0.00017	0.21		0.0002
		Propane	0.00085	J	0.00021	0.00077	J	0.00023	0.00021	J	0.00017	0.0014	J	0.0002

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	KAFE	3-106V2-11	7	KAFE	B-106V2-11	17	KAFE	B-106V2-11	17	KAFE	3-106V2-11	7
		Field Sample ID:	KAFB-10	6V2 117.1	DUP	KAFB	-106V2 117	7.1	KAFB-10	06V2 117.1	DUP	KAFB	-106V2 117	7.1
		Sample Date:		/11/2019			5/9/2019			5/9/2019			7/5/2019	
		Sample Type:		d Duplicate		`	REG			d Duplicate			REG	
Davamatan	Analytical Method	Analyte		Val Qual		Decult	Val Qual	LOD		Val Qual		Desuit	Val Qual	1.00
Parameter	-				LOD	Result		LOD	Result		LOD	Result		LOD
VOCs	Method TO-15 (μg/m <sup>3</sup> )	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	U	2,200	ND	U	9,200	ND	U	8,200	ND	U	3,600
		1,1-Dichloroethane	ND	U	1,200	ND	U	4,800	ND	U	4,300	ND	U	1,900
		1,2,4-Trichlorobenzene	ND 5.000	U	7,200	ND	U	30,000	ND	U	26,000	ND	U	11,000
		1,2,4-Trimethylbenzene	5,600		1,400	140,000		5,900	130,000		5,300	240,000	J	2,300
		1,2-Dibromoethane	8,800		2,200	9,900	J	9,200	8,900	J	8,200	17,000	J	3,600
		1,2-Dichlorobenzene	ND 2.400	U	1,800	ND co.ooo	U	7,200	ND C1.000	U	6,400	ND 00,000	U	2,800
		1,3,5-Trimethylbenzene	3,400		1,400	60,000		5,900	61,000		5,300	90,000	J	2,300
		1,3-Butadiene	ND	U	650	ND	U	2,600	ND	U	2,400	ND	U	1,000
		1,4-Dioxane 2-Butanone	ND 260,000	U	3,500	ND	U	14,000	ND	U	13,000	ND	U	5,600
			•		2,900	350,000 ND		12,000	340,000		10,000	710,000	IJ	4,600
		2-Hexanone 4-Methyl-2-Pentanone	ND ND	U	4,000 1,200	14,000	U	16,000 4,900	ND 15,000	U 	15,000	ND ND	U	6,300 1,900
		,	1,400,000			2,200,000			2,100,000		4,400	4,000,000	U	3,700
		Acetone	1,700,000		2,300 930	2,200,000		9,500 3,800	2,000,000		8,500	2,300,000	J	2,000
		Bromodichloromethane	1,700,000 ND	 U	2,000	2,100,000 ND	 U	8,000	2,000,000 ND	 U	3,400 7,200	2,300,000 ND	U	3,100
		Bromoform	ND ND	U	3,000	ND ND	U	12,000	ND ND	U	11,000	ND ND	U	4,800
		Carbon Disulfide	ND ND	U	3,000	ND	U	12,000	ND	U	11,000	1,700	1	4,800
		Carbon Tetrachloride	ND ND	U	1,800	ND	U	7,600	ND	U	6,700	ND	IJ	2,900
			ND ND	U	2,600	ND ND	U	10,000	ND ND	U	9,400	ND ND	U	4,100
		Chloroethane Chloroform	ND ND	U	1,400	ND	U	5,800	ND	U	5,200	ND	U	2,300
		Chloromethane	ND ND	U	2,000	ND	U	8,300	ND	U	7,400	ND	U	3,200
		Cyclohexane	5,400,000	J	1,000	6,100,000		4,100	6,100,000		3,700	6,000,000	Ī	1,600
		Dibromochloromethane	ND	U	2,500	ND	U	10,000	ND	U	9,100	ND	U	3,900
		Dichlorodifluoromethane	ND	U	1,400	ND ND	U	5,900	ND	Ü	5,300	ND	U	2,300
		Ethanol	9,600		1,800	11,000	ı	7,500	11,000	J	6,700	8,200	i	2,900
		Ethyl Acetate	9,000 ND	U	7,000	ND	U	29,000	ND	U	26,000	ND	U	7,400
		Ethylbenzene	330,000		1,300	350,000		5,200	320,000		4,600	430,000	J	2,000
		Hexane	7,000,000	J	1,000	7,700,000		4,200	7,700,000		3,800	5,500,000	J	1,600
		Isopropyl Alcohol	62,000		2,400	75,000		9,800	70,000		8,800	90,000	J	3,800
		m- & p-Xylenes	870,000		1,300	1,200,000		5,200	1,000,000		4,600	1,200,000	J	2,000
		Methylene Chloride	ND	U	3,400	ND	U	14,000	ND	U	12,000	ND	Ü	5,400
		Naphthalene	ND	UJ	5,100	ND	UJ	6,300	ND	UJ	5,600	ND	U	5,400
		n-Heptane	4,900,000	J	1,200	5,900,000		4,900	5,700,000		4,400	6,000,000	J	1,900
		o-Xylene	210,000		1,300	390,000		5,200	340,000		4,600	380,000	J	2,000
		Propylene (Propene)	32,000		1,700	21,000		6,900	20,000		6,100	29,000	J	2,600
		Styrene	ND	U	1,200	ND	U	5,100	ND	U	4,600	ND	U	2,000
		Tetrachloroethene	ND	U	2,000	ND	Ü	8,100	ND	Ü	7,300	ND	U	3,100
		Tetrahydrofuran	ND	U	860	ND	Ü	3,500	ND	Ü	3,200	ND	U	1,400
		Toluene	3,000,000		1,100	3,900,000	J	4,500	3,800,000	J	4,000	5,200,000	J	2,300
		Trichloroethene	ND	U	1,600	ND	Ü	6,400	ND	Ü	5,800	ND	U	2,500
		Trichlorofluoromethane	ND	U	1,600	ND	Ü	6,700	ND	Ü	6,000	ND	U	2,600
		Vinyl Chloride	ND	Ü	750	ND	Ü	3,100	ND	Ü	2,700	ND	U	1,200
		Xylenes, Total	1,100,000		2,100	1,600,000		8,700	1,400,000		7,800	1,600,000	J	2,200
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Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	KAFE	3-106V2-11	7	KAFE	3-106V2-11	17	KAFE	3-106V2-11	7	KAFE	3-106V2-11	7
		Field Sample ID:	KAFB-10	6V2 117.1	DUP	KAFB-	106V2 11	7.1	KAFB-10	6V2 117.1	DUP	KAFB-	·106V2 117	7.1
		Sample Date:	4,	/11/2019		5	/9/2019		5	/9/2019		7	/5/2019	
		Sample Type:	Field	d Duplicate	)		REG		Field	d Duplicate	!		REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
TPH	Method TO-03 (µg/m³)	TPH-GRO (C6-C10)	170,000,000		320,000	210,000,000		200,000	210,000,000		180,000	220,000,000		280,000
Fixed Gases	Method D1945 (%)	Butane	0.0091		0.00021	0.0069		0.00026	0.0067		0.00024	0.0062		2,300
		Carbon Dioxide	13		0.0094	9.7		0.012	9.6		0.01	11		0.0099
		Carbon Monoxide	ND	U	0.0094	ND	U	0.012	ND	U	0.01	ND	U	0.0099
		Ethane	0.0028		0.00021	0.0021	J	0.00026	0.002	J	0.00024	0.0026		2,300
		Hydrogen	ND	U	0.012	ND	J	0.015	ND	U	0.013	ND	J	0.013
		Methane	0.02		9.8E-05	0.017		0.00012	0.016		0.00011	0.021		0.0001
		Nitrogen (Ammonia As N)	83		0.13	83		0.16	83		0.14	82		0.14
		Oxygen	1.2		0.036	5.1		0.044	5.1		0.04	4.2		0.038
		Pentane	0.22		0.00021	0.21		0.00026	0.2		0.00024	0.2		0.00023
		Propane	0.0014	J	0.00021	0.0011	J	0.00026	0.0011	J	0.00024	0.0016	J	0.00023

Table C-1 Summary of Soil Gas Analytical Results

[		Location ID:	KAFE	3-106V2-11	17	KA	FB-106V2-11	7	KA	FB-106V2-11	7	KA	FB-106V2-11	7
ļ		Field Sample ID:		6V2 117.1			B-106V2 117			106V2 117.1			B-106V2 11	
•		Sample Date:		7/5/2019	20.	10.0	10/15/2019	• •	10.1.5	10/15/2019			10/22/2019	··-
		Sample Type:		d Duplicate	<u> </u>		REG		F	ield Duplicate	<u> </u>		REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
VOCs	Method TO-15 (µg/m³)	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	U	3,600	ND	U	8,800	ND	U	9,000	ND	U	11,000
	woulde to to (pg/m)	1,1-Dichloroethane	ND	U	1,900	ND	U	4,600	ND	U	4,800	ND	U	5,600
		1,2,4-Trichlorobenzene	ND	U	11,000	ND	U	42,000	ND	U	44,000	ND	U	51,000
		1,2,4-Trimethylbenzene	240,000	J	2,300	150,000	J	5,600	160,000	J	5,800	69,000		6,800
		1,2-Dibromoethane	16,000	J	3,600	19,000	J	8,800	19,000	J	9,000	21,000		11,000
		1,2-Dichlorobenzene	ND	U	2,800	ND	U	6,900	ND	U	7,100	ND	U	8,300
		1,3,5-Trimethylbenzene	86,000	J	2,300	60,000	J	5,600	66,000	J	5,800	33,000		6,800
		1,3-Butadiene	ND	U	1,000	ND	U	2,500	ND	U	2,600	ND	U	3,100
		1,4-Dioxane	ND	U	5,600	ND	U	21,000	ND	U	21,000	ND	U	25,000
		2-Butanone	730,000	J	4,600	800,000	J	17,000	780,000	J	17,000	880,000		20,000
		2-Hexanone	ND	U	6,300	ND	U	23,000	ND	U	24,000	ND	U	28,000
		4-Methyl-2-Pentanone	ND	U	1,900	10,000	J	4,700	18,000	J	4,800	ND	U	5,700
		Acetone	4,100,000	J	3,700	3,800,000	J	14,000	3,700,000	J	14,000	4,200,000		16,000
		Benzene	2,200,000		2,000	3,600,000	J	3,700	3,700,000	J	3,800	3,900,000		4,400
		Bromodichloromethane	ND	U	3,100	ND	U	7,700	ND	U	7,900	ND	U	9,300
		Bromoform	ND	U	4,800	ND	U	12,000	ND	U	12,000	ND	U	14,000
		Carbon Disulfide	1,700	J	4,800	ND	U	18,000	ND	U	18,000	ND	U	22,000
		Carbon Tetrachloride	ND	U	2,900	ND	U	7,200	ND	U	7,400	ND	U	8,700
		Chloroethane	ND	U	4,100	ND	U	15,000	ND	U	16,000	ND	UJ	18,000
		Chloroform	ND	U	2,300	ND	U	5,600	ND	U	5,700	ND	U	6,800
		Chloromethane	ND	U	3,200	ND	U	12,000	ND	U	12,000	ND	U	14,000
		Cyclohexane	6,000,000	J	1,600	9,900,000	J	3,900	10,000,000	J	4,000	11,000,000		4,800
		Dibromochloromethane	ND	U	3,900	ND	U	9,800	ND	U	10,000	ND	U	12,000
		Dichlorodifluoromethane	ND	U	2,300	ND	U	5,700	ND	U	5,800	ND	U	6,800
		Ethanol	8,900	J	2,900	3,400	J	11,000	ND	U	11,000	ND	U	13,000
		Ethyl Acetate	ND	U	7,400	ND	U	28,000	ND	U	28,000	ND	U	33,000
		Ethylbenzene	440,000	J	2,000	540,000	J	5,000	530,000	J	5,100	450,000		6,000
		Hexane	5,900,000	J	1,600	12,000,000	J	4,000	12,000,000	J	4,100	12,000,000		4,900
		Isopropyl Alcohol	95,000	J	3,800	61,000	J	14,000	51,000	J	14,000	72,000		17,000
		m- & p-Xylenes	1,200,000	J	2,000	1,500,000	J	5,000	1,400,000	J	5,100	1,200,000		6,000
		Methylene Chloride	ND	U	5,400	ND	U	20,000	ND	U	20,000	ND	U	24,000
		Naphthalene	ND	U	5,400	ND	U	4,000	ND	U	4,100	ND	U	4,800
		n-Heptane	6,200,000	J	1,900	9,800,000	J	4,700	9,900,000	J	4,800	11,000,000		5,700
		o-Xylene	370,000	J	2,000	410,000	J	5,000	400,000	J	5,100	320,000		6,000
		Propylene (Propene)	29,000	J	2,600	29,000	J	9,900	26,000	J	10,000	30,000		12,000
		Styrene	ND	U	2,000	ND	U	4,900	ND	U	5,000	ND	U	5,900
		Tetrachloroethene	ND	U	3,100	64,000	J	7,800	38,000	J	8,000	ND	U	9,400
		Tetrahydrofuran	ND	U	1,400	ND	U	3,400	ND	U	3,500	ND	UJ	4,100
		Toluene	4,200,000	J	2,300	7,000,000	J	4,300	7,100,000	J	4,400	7,500,000		5,200
		Trichloroethene	ND	U	2,500	ND	U	6,200	ND	U	6,300	ND	U	7,400
		Trichlorofluoromethane	ND	U	2,600	ND	U	6,400	ND	U	6,600	ND	U	7,800
		Vinyl Chloride	ND	U	1,200	ND	U	2,900	ND	U	3,000	ND	U	3,500
		Xylenes, Total	1,500,000	J	2,200	1,900,000	J	8,300	1,800,000	J	8,500	1,500,000		10,000

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	KAFE	3-106V2-11	7	KA	FB-106V2-11	17	KA	FB-106V2-11	7	KA	FB-106V2-11	17
		Field Sample ID:	KAFB-10	06V2 117.1	DUP	KAF	B-106V2 11	7.1	KAFB-	106V2 117.1	DUP	KAF	B-106V2 117	7.1
		Sample Date:	7	7/5/2019			10/15/2019			10/15/2019			10/22/2019	
		Sample Type:	Fiel	d Duplicate			REG		Fi	eld Duplicate	,		REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
TPH	Method TO-03 (µg/m <sup>3</sup> )	TPH-GRO (C6-C10)	210,000,000		28,000	240,000,000		310,000	260,000,000		320,000	230,000,000		450,000
Fixed Gases	Method D1945 (%)	Butane	0.006		2,300	0.006		0.00021	0.0062		0.00022	0.0046		0.0003
		Carbon Dioxide	11		0.0099	11		0.0092	11		0.0094	7.9		0.013
		Carbon Monoxide	ND	U	0.0099	ND	U	0.0092	ND	U	0.0094	ND	U	0.013
		Ethane	0.0025		2,300	0.0024		0.00021	0.0025		0.00022	0.0016	J	0.0003
		Hydrogen	ND	U	0.013	ND	U	0.012	ND	U	0.012	ND	U	0.017
		Methane	0.02		0.0001	0.017		0.000096	0.018		0.000098	0.0087		0.00014
		Nitrogen (Ammonia As N)	82		0.14	81		0.13	81		0.13	78		0.19
		Oxygen	4.3		0.038	4.8		0.035	4.9		0.036	11		0.051
		Pentane	0.18		0.00023	0.2		0.00021	0.23		0.00022	0.15		0.0003
		Propane	0.0015	J	0.00023	0.0015	J	0.00021	0.0015	J	0.00022	0.0012	J	0.0003

Table C-1 Summary of Soil Gas Analytical Results

ſ		Location ID:	KA	FB-106V2-11	7	KA	FB-106V2-11	 17	KA	FB-106V2-11	7	KA	FB-106V2-11	
		Field Sample ID:		106V2 117.1			B-106V2 117		1	106V2 117.1			FB-106V2 11	
		Sample Date:	1011 B	10/22/2019	<i>D</i> 01		10/31/2019			10/31/2019	<u> </u>	10	11/5/2019	<del>'</del>
		Sample Type:	F	ield Duplicate			REG			eld Duplicate	<u> </u>		REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
VOCs	Method TO-15 (µg/m³)	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	U	11,000	ND	U	8,700	ND	U	8,800	ND	U	11,000
	Welliod 10-10 (µg/iii )	1,1-Dichloroethane	ND	U	5,600	ND	U	4,600	ND	U	4,600	ND	U	5,700
		1,2,4-Trichlorobenzene	ND	U	51,000	ND	U	42,000	ND	U	42,000	ND	U	52,000
		1,2,4-Trimethylbenzene	59,000		6,800	12,000		5,600	12,000		5,600	72,000		6,900
		1,2-Dibromoethane	19,000		11,000	9,000	J	8,800	11,000	J	8,800	21,000		11,000
		1,2-Dichlorobenzene	ND	U	8,300	ND	U	6,800	ND	U	6,900	ND	U	8,500
		1,3,5-Trimethylbenzene	29,000		6,800	6,400	J	5,600	7,000	J	5,600	36,000		6,900
		1,3-Butadiene	ND	U	3,100	ND	U	2,500	ND	U	2,500	ND	U	3,100
		1,4-Dioxane	ND	U	25,000	ND	U	20,000	ND	U	21,000	ND	U	25,000
		2-Butanone	820,000		20,000	720,000		17,000	960,000		17,000	780,000		21,000
		2-Hexanone	ND	U	28,000	ND	U	23,000	ND	U	23,000	ND	U	29,000
		4-Methyl-2-Pentanone	ND	U	5,700	13,000	-	4,700	16,000		4,700	ND	U	5,800
		Acetone	4,200,000		16,000	4,200,000	-	14,000	5,800,000	-	14,000	5,000,000		17,000
		Benzene	3,900,000		4,400	2,700,000		3,600	3,400,000		3,700	4,200,000		4,500
		Bromodichloromethane	ND	U	9,300	ND	U	7,600	ND	U	7,700	ND	U	9,400
		Bromoform	ND	U	14,000	ND	U	12,000	ND	U	12,000	ND	U	14,000
		Carbon Disulfide	ND	U	22,000	ND	U	18,000	ND	U	18,000	ND	U	22,000
		Carbon Tetrachloride	ND	U	8,700	ND	U	7,200	ND	U	7,200	ND	U	8,900
		Chloroethane	ND	UJ	18,000	ND	U	15,000	ND	U	15,000	ND	U	19,000
		Chloroform	ND	U	6,800	ND	U	5,600	ND	U	5,600	ND	U	6,900
		Chloromethane	ND	U	14,000	ND	U	12,000	ND	U	12,000	ND	U	14,000
		Cyclohexane	11,000,000		4,800	7,600,000		3,900	9,500,000		3,900	12,000,000		4,800
		Dibromochloromethane	ND	U	12,000	ND	U	9,700	ND	U	9,800	ND	U	12,000
		Dichlorodifluoromethane	ND	U	6,800	ND	U	5,600	ND	U	5,700	ND	U	7,000
		Ethanol	ND	U	13,000	6,100	J	11,000	8,900	J	11,000	ND	U	13,000
		Ethyl Acetate	ND	U	33,000	ND	U	27,000	ND	U	28,000	ND	U	34,000
		Ethylbenzene	450,000		6,000	150,000		4,900	170,000		5,000	510,000		6,100
		Hexane	13,000,000		4,900	11,000,000	-	4,000	14,000,000	J	4,000	17,000,000	J	5,000
		Isopropyl Alcohol	49,000		17,000	77,000		14,000	100,000		14,000	ND	U	17,000
		m- & p-Xylenes	1,200,000		6,000	360,000		5,000	410,000		5,000	1,300,000		6,100
		Methylene Chloride	ND	U	24,000	ND	U	20,000	ND	U	20,000	ND	U	24,000
		Naphthalene	ND	U	4,800	ND	U	4,000	ND	U	4,000	ND	U	4,900
		n-Heptane	11,000,000		5,700	5,500,000		4,700	6,700,000		4,700	12,000,000		5,800
		o-Xylene	310,000		6,000	91,000		5,000	100,000		5,000	360,000		6,100
		Propylene (Propene)	30,000		12,000	25,000		9,800	32,000		9,900	26,000		12,000
		Styrene	ND	U	5,900	ND	U	4,800	ND	U	4,900	ND	U	6,000
		Tetrachloroethene	ND	U	9,400	ND	U	7,700	ND	U	7,800	ND	U	9,600
		Tetrahydrofuran	ND	UJ	4,100	ND	U	3,400	ND	U	3,400	ND	U	4,200
		Toluene	7,600,000	<del></del>	5,200	3,400,000		4,300	4,200,000		4,300	7,500,000		5,300
		Trichloroethene	ND	U	7,400	ND	U	6,100	ND	U	6,200	ND	U	7,600
		Trichlorofluoromethane	ND	U	7,800	ND	U	6,400	ND	U	6,400	ND	U	7,900
		Vinyl Chloride	ND	U	3,500	ND	U	2,900	ND	U	2,900	ND	U	3,600
		Xylenes, Total	1,500,000		10,000	460,000		8,200	510,000		8,300	1,700,000		10,000

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	KA	FB-106V2-11	17	KA	FB-106V2-11	7	KA	FB-106V2-11	7	KA	FB-106V2-11	7
		Field Sample ID:	KAFB-	106V2 117.1	DUP	KAF	B-106V2 117	7.1	KAFB-	106V2 117.1	DUP	KA	FB-106V2 11	7
		Sample Date:		10/22/2019			10/31/2019			10/31/2019			11/5/2019	
		Sample Type:	Fi	ield Duplicate	)		REG		Fi	eld Duplicate			REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
TPH	Method TO-03 (µg/m³)	TPH-GRO (C6-C10)	220,000,000		300,000	150,000,000		310,000	150,000,000		310,000	250,000,000		240,000
Fixed Gases	Method D1945 (%)	Butane	0.0047		0.0003	0.0045		0.00021	0.0046	-	0.00021	0.005		0.00026
		Carbon Dioxide	7.8		0.013	5.4		0.0091	5.3		0.0092	5.3		0.011
		Carbon Monoxide	ND	U	0.013	ND	U	0.0091	ND	U	0.0092	ND	U	0.011
		Ethane	0.0017	J	0.0003	0.00099	J	0.00021	0.001	J	0.00021	0.00095	J	0.00026
		Hydrogen	ND	U	0.017	ND	U	0.012	ND	U	0.012	ND	U	0.014
		Methane	0.009		0.00014	0.0052		0.000095	0.0052		0.000096	0.0052		0.00012
		Nitrogen (Ammonia As N)	78		0.19	77		0.13	78		0.13	77		0.16
		Oxygen	11		0.051	15		0.035	15		0.035	15		0.044
		Pentane	0.16	-	0.0003	0.14	-	0.00021	0.14	-	0.00021	0.16		0.00026
		Propane	0.0012	J	0.0003	0.0011	J	0.00021	0.0011	J	0.00021	0.0011	J	0.00026

Table C-1 Summary of Soil Gas Analytical Results

Г		l a atian IB.	1//	ED 400\/0.44	7	LAF	TD 400\/0.4	4.7	LAF	'D 400\/0 44	17	I/A F	2 400 /0 40	20
-		Location ID:		FB-106V2-11			B-106V2-1			B-106V2-11			B-106V2-16	
_		Field Sample ID:	KAFE	3-106V2 117 [	OUP		B-106V2-1	17		106V2-117-	DUP		-106V2 159	<u>}.9</u>
-		Sample Date:		11/5/2019			1/13/2020			1/13/2020		4	/11/2019	
		Sample Type:		ield Duplicate			REG		Fie	ld Duplicate			REG	<u> </u>
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
VOCs	Method TO-15 (µg/m <sup>3</sup> )	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	U	11,000	ND	U	5,400	ND	U	17,000	ND	U	2,400
		1,1-Dichloroethane	ND	U	5,900	ND	U	2,900	ND	U	8,800	ND	U	1,300
		1,2,4-Trichlorobenzene	ND	U	54,000	ND	U	20,000	ND	U	60,000	ND	U	7,700
		1,2,4-Trimethylbenzene	95,000		7,200	14,000	J	3,500	22,000		11,000	74,000		1,500
		1,2-Dibromoethane	24,000		11,000	9,800	J	5,400	12,000	J	17,000	2,500	J	2,400
		1,2-Dichlorobenzene	ND	U	8,800	ND	U	4,200	ND	U	13,000	ND	U	1,900
		1,3,5-Trimethylbenzene	44,000		7,200	6,500	J	3,500	8,900	J	11,000	26,000		1,500
		1,3-Butadiene	ND	U	3,200	ND	U	1,600	ND	U	4,800	ND	U	690
		1,4-Dioxane	ND	U	26,000	ND	U	9,600	ND	U	29,000	ND	U	3,700
		2-Butanone	1,000,000		22,000	440,000	J	7,800	480,000		24,000	44,000		3,100
		2-Hexanone	ND	U	30,000	ND	U	11,000	ND	U	33,000	ND	U	4,300
		4-Methyl-2-Pentanone	ND	U	6,000	ND	U	2,900	ND	U	8,900	ND	U	1,300
		Acetone	6,000,000		17,000	3,400,000	J	6,300	3,800,000		19,000	650,000		2,500
		Benzene	4,400,000		4,700	2,400,000	J	2,300	2,500,000		6,900	550,000		1,000
		Bromodichloromethane	ND	U	9,800	ND	U	4,700	ND	U	14,000	ND	U	2,100
		Bromoform	ND	U	15,000	ND	U	7,300	ND	U	22,000	ND	U	3,200
		Carbon Disulfide	ND	U	23,000	1,800	J	8,300	ND	U	25,000	ND	U	3,200
		Carbon Tetrachloride	ND	U	9,200	ND	U	4,400	ND	U	14,000	ND	U	2,000
		Chloroethane	ND	U	19,000	ND	U	7,000	ND	U	21,000	ND	U	2,700
		Chloroform	ND	U	7,100	ND	U	3,400	ND	U	10,000	ND	U	1,500
		Chloromethane	ND	U	15,000	ND	U	5,500	ND	U	17,000	ND	U	2,100
		Cyclohexane	13,000,000		5,000	6,600,000	J	2,400	6,800,000		7,500	1,600,000		1,100
		Dibromochloromethane	ND	U	12,000	ND	U	6,000	ND	U	18,000	ND	U	2,600
		Dichlorodifluoromethane	ND	U	7,200	ND	U	3,500	ND	U	11,000	ND 2.000	U	1,500
		Ethanol	ND ND	U	14,000	ND ND	U	5,000 13,000	ND ND	U	15,000 39,000	2,900 ND	J U	2,000
		Ethyl Acetate			35,000	220,000	U .		270,000	_		150,000	_	7,500
		Ethylbenzene Hexane	560,000 18,000,000	 .l	6,400 5,200	10,000,000	J	3,100	•		9,400 7,600			1,400
			, ,	U	·	, ,	J	2,500	10,000,000			2,100,000		1,100
		Isopropyl Alcohol m- & p-Xylenes	ND		18,000 6,400	46,000 520,000	J I	6,500 3,100	50,000 690,000		20,000 9,400	10,000 380,000		2,600 1,400
		Methylene Chloride	1,500,000 ND	 U	25,000	520,000 ND	U	9,200	ND	 U	28,000	ND	 U	3,600
				U		ND ND	U	1,800	ND ND	U		1,300	1	5,400
		Naphthalene n-Heptane	ND 12,000,000		5,100 6,000	5,200,000	1	2,900	5,300,000		5,700 8,900	1,800,000		1,300
		o-Xylene	400,000		6,400	120,000	1	3,100	170,000		9,400	120,000		1,400
		Propylene (Propene)	29,000		12,000	24,000	1	4,600	24,000		14,000	29,000		1,800
		Styrene	29,000 ND	U	6,200	ND	U	3,000	ND	 U	9,200	ND	U	1,300
		Tetrachloroethene	ND	U	9,900	ND	U	4,800	ND	U	15,000	ND	U	2,100
		Tetrahydrofuran	ND	U	4,300	ND	U	2,100	ND	U	6,400	ND	U	920
		Toluene	7,900,000		5,500	3,700,000	1	2,700	4,000,000		8,200	1,200,000		1,200
		Trichloroethene	7,900,000 ND	U	7,900	ND	U	3,800	ND	U	12,000	ND	U	1,700
		Trichlorofluoromethane	ND	U	8,200	ND	U	4,000	ND	U	12,000	ND	U	1,800
		Vinyl Chloride	ND	U	3,700	ND	U	1,800	ND	U	5,500	ND	U	800
		Xylenes, Total	1,900,000		10,000	650,000	1 .	7,700	870,000		24,000	500,000		2,200
		7.7101100, 10tal	1,000,000		10,000	000,000		7,700	070,000	_ <del>_</del>	27,000	000,000		2,200

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	KA	FB-106V2-11	7	KAF	B-106V2-1	17	KAF	B-106V2-11	7	KAFE	3-106V2-16	0
		Field Sample ID:	KAFB	-106V2 117 [	DUP	KAF	B-106V2-1	17	KAFB-	106V2-117-I	DUP	KAFB	-106V2 159	<del>)</del> .9
		Sample Date:		11/5/2019			1/13/2020			1/13/2020		4	/11/2019	
		Sample Type:	Fi	ield Duplicate			REG		Fie	ld Duplicate			REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
TPH	Method TO-03 (µg/m³)	TPH-GRO (C6-C10)	260,000,000		250,000	240,000,000		350,000	220,000,000		360,000	43,000,000		220,000
Fixed Gases	Method D1945 (%)	Butane	0.0051		0.00027	0.0078		0.00018	0.008		0.00019	0.0035		0.00023
		Carbon Dioxide	5.3		0.012	6.8		0.01	6.4		0.01	12		0.0099
		Carbon Monoxide	ND	U	0.012	ND	U	0.01	ND	U	0.01	ND	U	0.0099
		Ethane	0.00095	J	0.00027	0.0013	J	0.00018	0.0012	J	0.00019	0.0023		0.00023
		Hydrogen	ND	U	0.015	0.003	J	0.013	0.0042	J	0.013	ND	U	0.013
		Methane	0.0053	-	0.00012	0.0048		0.00011	0.0046		0.00011	0.0088		0.0001
		Nitrogen (Ammonia As N)	76	-	0.16	77		0.14	77		0.15	86		0.14
		Oxygen	16		0.045	14		0.039	14		0.04	1.6		0.038
		Pentane	0.17		0.00027	0.23		0.00018	0.24		0.00019	0.085		0.00023
		Propane	0.0011	J	0.00027	0.0014	J	0.00018	0.0013	J	0.00019	0.00096	J	0.00023

Table C-1 Summary of Soil Gas Analytical Results

Ī		Location ID:	KAFE	3-106V2-16	<del></del>	KAFI	B-106V2-16	60	K	AFB-106V2-1	60	K	AFB-106V2-1	60
		Field Sample ID:	KAFB-	-106V2 159	9.9	KAFB	-106V2 159	9.9	KA	FB-106V2 15	9.9	KA	FB-106V2 15	9.9
		Sample Date:		5/9/2019			7/5/2019			10/15/2019			10/22/2019	
		Sample Type:		REG			REG			REG			REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
VOCs	Method TO-15 (µg/m³)	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	U	2,500	ND	U	3,600	ND	U	920	ND	U.	450
	Method 10-13 (µg/m)	1.1-Dichloroethane	ND	U	1,300	ND	Ü	1,900	ND	U	490	ND	U	240
		1,2,4-Trichlorobenzene	ND	U	8,000	ND	Ü	12,000	ND	U	4,500	ND	U	2,200
		1,2,4-Trimethylbenzene	210,000		1,600	150,000	J	2,300	150,000		590	140,000		290
		1,2-Dibromoethane	1,900	J	2,500	1,600	J	3,700	1,000	J	930	890		450
		1,2-Dichlorobenzene	ND	Ü	1,900	ND	Ü	2,900	ND	Ü	720	ND	U	350
		1,3,5-Trimethylbenzene	61,000		1,600	54,000	J	2,300	49,000		590	44,000		290
		1,3-Butadiene	ND	U	720	ND	U	1,000	ND	U	270	ND	U	130
		1,4-Dioxane	ND	U	3,900	ND	U	5,700	ND	U	2,200	ND	U	1,000
		2-Butanone	14,000		3,200	5,200	J	4,700	3,900		1,800	810	J	870
		2-Hexanone	ND	U	4,400	ND	U	6,500	ND	U	2,500	ND	U	1,200
		4-Methyl-2-Pentanone	3,800		1,300	ND	U	2,000	2,200		490	ND	U	240
		Acetone	420,000		2,600	180,000	J	3,800	220,000		1,400	170,000		700
		Benzene	630,000		1,000	660,000	J	1,500	290,000		380	110,000		190
		Bromodichloromethane	ND	U	2,200	ND	U	3,200	ND	U	810	ND	U	390
		Bromoform	ND	U	3,300	ND	U	4,900	ND	U	1,200	ND	U	610
		Carbon Disulfide	ND	U	3,400	ND	U	5,000	ND	U	1,900	ND	U	920
		Carbon Tetrachloride	ND	U	2,000	ND	U	3,000	ND	U	760	ND	U	370
		Chloroethane	ND	U	2,800	ND	U	4,200	ND	U	1,600	ND	U	780
		Chloroform	ND	U	1,600	ND	U	2,300	ND	U	590	ND	U	290
		Chloromethane	ND	U	2,200	ND	U	3,300	ND	U	1,200	ND	U	610
		Cyclohexane	1,700,000		1,100	1,700,000	J	1,600	890,000		420	390,000		200
		Dibromochloromethane	ND	U	2,800	ND	U	4,100	ND	U	1,000	ND	U	500
		Dichlorodifluoromethane	ND	U	1,600	ND	U	2,400	ND	U	600	ND	U	290
		Ethanol	ND	U	2,000	ND	U	3,000	520	J	1,100	ND	U	550
		Ethyl Acetate	ND	U	7,800	ND	U	7,600	ND	U	2,900	ND	U	1,400
		Ethylbenzene	170,000		1,400	120,000	J	2,100	95,000		520	82,000		260
		Hexane	2,300,000		1,100	2,500,000	J	1,700	540,000		420	170,000		210
		Isopropyl Alcohol	5,700		2,600	2,100	J	3,900	3,800		1,500	780	J	720
		m- & p-Xylenes	520,000		1,400	360,000	J	2,100	290,000		520	260,000		260
		Methylene Chloride	ND	U	3,800	ND	U	5,500	510	J	2,100	ND	U	1,000
		Naphthalene	ND	UJ	5,700	ND	U	5,600	3,200	J	420	2,900		200
		n-Heptane	1,800,000		1,300	1,400,000	J	2,000	1,100,000		490	590,000		240
		o-Xylene	190,000		1,400	130,000	J	2,100	110,000		520	98,000		260
		Propylene (Propene)	8,300		1,800	5,400	J	2,700	ND	U	1,000	ND	U	500
		Styrene	ND	U	1,400	ND	U	2,000	ND	U	510	ND	U	250
		Tetrachloroethene	ND	U	2,200	ND	U	3,200	ND	U	820	ND	U	400
		Tetrahydrofuran	ND	U	960	ND	U	1,400	1,100		360	ND	U	170
		Toluene	1,300,000		1,200	990,000	J	1,800	730,000		450	610,000		220
		Trichloroethene	ND	U	1,700	ND	U	2,600	ND	U	650	ND	U	320
		Trichlorofluoromethane	ND	U	1,800	ND	U	2,700	ND	U	680	ND	U	330
		Vinyl Chloride	ND	U	830	ND	U	1,200	ND	U	310	ND	U	150
		Xylenes, Total	720,000		2,300	500,000	J	2,300	400,000		870	360,000		420

Table C-1 Summary of Soil Gas Analytical Results

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		Location ID:	KAFE	3-106V2-16	50	KAFE	3-106V2-16	80	K/	AFB-106V2-1	60	K/	AFB-106V2-1	60
		Field Sample ID:	KAFB-	·106V2 159	9.9	KAFB	-106V2 159	9.9	KAI	FB-106V2 15	9.9	KA	FB-106V2 15	9.9
		Sample Date:	5	/9/2019		7	7/5/2019			10/15/2019			10/22/2019	
		Sample Type:		REG			REG			REG			REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
TPH	Method TO-03 (µg/m <sup>3</sup> )	TPH-GRO (C6-C10)	52,000,000		180,000	76,000,000		69,000	54,000,000		66,000	19,000,000		32,000
Fixed Gases	Method D1945 (%)	D1945 (%) Butane			0.00024	0.0014	J	2,300	ND	U	0.00022	ND	U	0.00022
		Carbon Dioxide			0.01	4.1		0.01	0.16		0.0096	0.13		0.0094
		` '		U	0.01	ND	U	0.01	ND	U	0.0096	ND	U	0.0094
		Ethane	0.00046	J	0.00024	0.00039	J	2,300	ND	U	0.00022	ND	U	0.00022
		Hydrogen	ND	U	0.013	ND	U	0.013	ND	U	0.012	ND	U	0.012
		Methane	0.002		0.00011	0.0025		0.00011	0.000069	J	0.0001	ND	U	0.000098
		Nitrogen (Ammonia As N)	81		0.14	82		0.14	79		0.14	79		0.13
		Oxygen	14		0.04	13		0.039	20		0.037	20		0.036
		Pentane	0.083		0.00024	0.064		0.00023	0.0025		0.00022	0.00046	J	0.00022
		Propane	0.00029	J	0.00024	0.0002	J	0.00023	ND	C	0.00022	ND	U	0.00022

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	K	AFB-106V2-1	60	K	AFB-106V2-10	60	KΔF	B-106V2-16	30	KΔEF	3-106V2-2 <sup>-</sup>	7
		Field Sample ID:		FB-106V2-15			AFB-106V2-10			B-106V2-16			-106V2-2	
		•	NA.		9.9			50			50			<u>.                                    </u>
}		Sample Date:		10/31/2019			11/5/2019			1/13/2020		4	/11/2019	
	Analytical Mathed	Sample Type:		REG			REG		- "	REG			REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	_
VOCs	Method TO-15 (µg/m <sup>3</sup> )	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	U	420	ND	U	470	ND	U	600	ND	U	2,500
		1,1-Dichloroethane	ND	U	220	ND	U	250	ND	U	320	ND	U	1,300
		1,2,4-Trichlorobenzene	ND 70.000	U J	2,000	ND 400,000	U	2,300	ND	U	2,200	ND 45,000	U	8,000
		1,2,4-Trimethylbenzene 1,2-Dibromoethane	73,000	ı	270	160,000		300	78,000 300		380	•	<u> </u>	1,600
		,	800 ND	J U	420	880 ND		470	ND	J	600	6,000 ND		2,500
		1,2-Dichlorobenzene			330		U	370		_	470		U	1,900
		1,3,5-Trimethylbenzene	26,000	J	270	46,000		300	24,000		380	17,000		1,600
		1,3-Butadiene	ND	U	120	ND	U	140	ND	U	170	ND	U	720
		1,4-Dioxane	ND 2.000	U	990	ND 1.000	U	1,100	ND 950	U	1,000 870	ND	U	3,900
		2-Butanone 2-Hexanone	3,900	J	810	1,000	J	900	950 ND	J		360,000 ND	J	3,200
			ND	U	1,100	ND ND	U	1,200	ND ND	U	1,200	ND ND	U	4,400
		4-Methyl-2-Pentanone	1,200	J	220	72,000	U	250 730	21,000	U	320 700	4,400,000	U	1,300
		Acetone	150,000	J	650	,							J	2,600
		Benzene	57,000	J U	180 370	34,000		200 410	31,000		250	1,500,000		1,000
		Bromodichloromethane Bromoform	ND	U		ND	U		ND ND	U	520 810	ND ND	U	2,200
		Carbon Disulfide	ND 190	J	570	ND	U	630	ND ND	U	920	ND ND	U	3,300
		-	190 ND	U	850 340	ND ND	U	950 380		U	490			3,400
		Carbon Tetrachloride		_	720		U		ND ND	U	780	ND	U	2,000
		Chloroethane Chloroform	ND ND	U	270	ND ND	U U	810 300	ND ND	U	380	ND ND	U	2,800 1,600
		Chloromethane	ND ND	U	570	ND ND	U	630	ND	U	610	ND	U	2,200
		Cyclohexane	200,000	J	190	140,000		210	100,000	_	270	4,800,000	J	1,100
		Dibromochloromethane	ND	U	470	ND	 U	520	ND	 U	670	4,800,000 ND	U	2,800
		Dichlorodifluoromethane	ND ND	U	270	ND ND	U	300	ND ND	U	390	ND	U	1,600
		Ethanol	1,600	J	520	490	J	580	560	J	550	7,200		2,000
		Ethyl Acetate	ND	U	1,300	ND	U	1,500	ND	U	1,400	ND	U	7,800
		Ethylbenzene	66,000	1	240	71,000		260	38,000		340	230,000		1,400
		Hexane	100,000	J	190	74,000		220	73,000		280	6,300,000		1,100
		Isopropyl Alcohol	9,400	J	670	2,000		750	1,700		720	400,000		2,600
		m- & p-Xylenes	210,000	J	240	220,000		260	120,000		340	550,000	<del></del>	1,400
		Methylene Chloride	ND	U	950	ND	U	1,100	ND	U	1,000	ND	U	3,800
		Naphthalene	ND	U	190	4,100		210	1,200	J	200	ND	UJ	5,700
		n-Heptane	360,000	<u> </u>	220	290,000		250	140,000		320	4,700,000	.1	1,300
		o-Xylene	82,000	J	240	90,000		260	48,000		340	140,000		1,400
		Propylene (Propene)	ND	U	470	90,000 ND	U	530	ND	U	500	42,000		1,800
		Styrene	ND ND	U	230	ND	U	260	ND	U	330	ND	U	1,400
		Tetrachloroethene	ND ND	U	370	ND	U	420	ND	U	530	ND	U	2,200
		Tetrahydrofuran	ND ND	U	160	ND	U	180	ND	U	230	ND	U	960
		Toluene	380,000	J	210	340,000		230	140,000		300	2,800,000		1,200
		Trichloroethene	ND	U	300	ND	U	330	ND	U	420	ND	U	1,700
		Trichlorofluoromethane	ND ND	U	310	ND	U	340	ND	Ü	440	ND	U	1,800
		Vinyl Chloride	ND ND	U	140	ND	U	160	ND	U	200	ND	U	830
		Xylenes, Total	290,000	J	400	310,000		440	160,000		850	690,000		2,300
		Aylonos, rotai	230,000	ı J	700	310,000		++∪	100,000		000	030,000		2,300

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	KA	AFB-106V2-1	60	KA	AFB-106V2-1	60	KAF	B-106V2-16	60	KAFE	3-106V2-21	7
		Field Sample ID:	KA	FB-106V2 15	59.9	K	AFB-106V2 1	60	KAF	B-106V2-16	60	KAFB	-106V2 217	7.1
		Sample Date:		10/31/2019			11/5/2019			1/13/2020		4	/11/2019	
		Sample Type:		REG			REG			REG			REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
TPH	Method TO-03 (µg/m <sup>3</sup> )	15 (%) Butane			30,000	20,000,000		33,000	14,000,000		13,000	140,000,000		230,000
Fixed Gases	Method D1945 (%)	Butane	ND	U	0.0002	ND	U	0.00022	ND	U	0.00017	0.0018	J	0.00024
		Carbon Dioxide	0.17		0.0088	0.15		0.0098	0.51		0.0094	12		0.01
		Carbon Monoxide	ND	U	0.0088	ND	U	0.0098	ND	U	0.0094	ND	U	0.01
		Ethane	ND	U	0.0002	ND	U	0.00022	ND	U	0.00017	0.0021	J	0.00024
		Hydrogen	ND	U	0.011	ND	U	0.013	ND	U	0.012	ND	U	0.013
		Methane	0.00013	J	0.000092	ND	U	0.0001	ND	U	0.000098	0.005		0.00011
		Nitrogen (Ammonia As N)	80		0.12	80		0.14	79		0.13	85		0.14
		Oxygen	20		0.034	20		0.038	20		0.036	1.4		0.04
		Pentane	0.0004	J	0.0002	0.00025	J	0.00022	0.00024	J	0.00017	0.063		0.00024
1		Propane	ND	Ü	0.0002	ND	IJ	0.00022	ND	U	0.00017	0.0014	J	0.00024

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	KAFE	3-106V2-21	7	KAFE	3-106V2-21	7	KA	FB-106V2-21	7	KA	FB-106V2-21	7
ľ		Field Sample ID:	KAFB	-106V2 217	7.1		-106V2 217			FB-106V2 217			B-106V2 217	
		Sample Date:		5/9/2019			7/5/2019			10/15/2019			10/22/2019	
		Sample Type:		REG		<u> </u>	REG			REG			REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
VOCs	Method TO-15 (µg/m³)	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	U	4,800	ND	U	3,800	ND	U	9,500	ND	U	3,600
		1,1-Dichloroethane	ND	U	2,500	ND	U	2,000	ND	U	5,000	ND	U	1,900
		1,2,4-Trichlorobenzene	ND	U	15,000	ND	U	12,000	ND	U	46,000	ND	U	18,000
		1,2,4-Trimethylbenzene	120,000		3,100	160,000	J	2,400	160,000		6,100	68,000	J	2,300
		1,2-Dibromoethane	4,800	J	4,800	7,300	J	3,800	8,700	J	9,500	7,200	J	3,700
		1,2-Dichlorobenzene	ND	U	3,800	ND	U	2,900	ND	U	7,400	ND	U	2,900
		1,3,5-Trimethylbenzene	39,000		3,100	57,000	J	2,400	63,000		6,100	31,000	J	2,300
		1,3-Butadiene	ND	U	1,400	ND	U	1,100	ND	U	2,700	ND	U	1,000
		1,4-Dioxane	ND	U	7,500	ND	U	5,900	ND	U	22,000	ND	U	8,600
		2-Butanone	320,000		6,100	370,000	J	4,800	280,000		18,000	190,000	J	7,000
		2-Hexanone	9,400	J	8,500	ND	U	6,700	ND	U	25,000	ND	U	9,800
		4-Methyl-2-Pentanone	7,400		2,600	ND	U	2,000	ND	U	5,100	ND	U	2,000
		Acetone	4,700,000		4,900	5,900,000	J	3,900	4,800,000		15,000	4,500,000	J	5,700
		Benzene	1,600,000		2,000	1,400,000		1,700	2,200,000		3,900	2,400,000	J	1,500
		Bromodichloromethane	ND	U	4,200	ND	U	3,300	ND	U	8,300	ND	U	3,200
		Bromoform	ND	U	6,400	ND	U	5,100	ND	U	13,000	ND	U	4,900
		Carbon Disulfide	ND	U	6,500	ND	U	5,100	ND	U	19,000	ND	U	7,400
		Carbon Tetrachloride	ND	U	3,900	ND	U	3,100	ND	U	7,800	ND	U	3,000
		Chloroethane	ND	U	5,500	ND	U	4,300	ND	U	16,000	ND	UJ	6,300
		Chloroform	ND	U	3,000	ND	U	2,400	ND	U	6,000	ND	U	2,300
		Chloromethane	ND	U	4,300	ND	U	3,400	ND	U	13,000	ND	U	4,900
		Cyclohexane	4,500,000		2,100	4,900,000	J	1,700	6,200,000		4,200	6,800,000	J	1,600
		Dibromochloromethane	ND	U	5,300	ND	U	4,200	ND	U	10,000	ND	U	4,100
		Dichlorodifluoromethane	ND	U	3,100	ND	U	2,400	ND	U	6,100	ND	U	2,400
		Ethanol	4,900	J	3,900	ND	U	3,100	ND	U	12,000	ND	U	4,500
		Ethyl Acetate	ND	U	15,000	ND	U	7,800	ND	U	30,000	ND	U	11,000
		Ethylbenzene	300,000		2,700	340,000	J	2,100	430,000		5,400	360,000	J	2,100
		Hexane	5,800,000		2,200	5,100,000	J	1,700	7,600,000		4,400	8,200,000	J	1,700
		Isopropyl Alcohol	400,000		5,100	300,000	J	4,000	110,000		15,000	32,000	J	5,900
		m- & p-Xylenes	690,000		2,700	800,000	J	2,100	1,000,000		5,400	840,000	J	2,100
		Methylene Chloride	ND	U	7,200	ND	U	5,700	ND	U	21,000	ND	U	8,300
		Naphthalene	1,000	J	5,400	ND	U	5,700	ND	U	4,300	ND	U	1,700
		n-Heptane	4,700,000		2,600	4,500,000	J	2,000	6,400,000		5,100	6,800,000	J	2,000
		o-Xylene	200,000		2,700	240,000	J	2,100	300,000		5,400	230,000	J	2,100
		Propylene (Propene)	39,000		3,600	42,000	J	2,800	44,000		11,000	37,000	J	4,100
		Styrene	ND	U	2,600	ND	U	2,100	ND	U	5,300	ND	U	2,000
		Tetrachloroethene	ND	U	4,200	ND	U	3,300	63,000		8,400	ND	U	3,200
		Tetrahydrofuran	ND	U	1,800	ND	U	1,400	ND	U	3,600	ND	UJ	1,400
		Toluene	3,000,000	J	2,400	2,600,000	J	2,000	4,200,000		4,600	4,400,000	J	1,800
		Trichloroethene	ND	U	3,400	ND	U	2,600	ND	U	6,600	ND	U	2,600
		Trichlorofluoromethane	ND	U	3,500	ND	U	2,800	ND	U	6,900	ND	U	2,700
		Vinyl Chloride	ND	U	1,600	ND	U	1,200	ND	U	3,200	ND	U	1,200
		Xylenes, Total	900,000		4,500	1,000,000	J	2,400	1,300,000		8,900	1,000,000	J	3,400

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	KAFE	3-106V2-21	17	KAFE	3-106V2-21	7	KA	FB-106V2-21	7	KA	FB-106V2-21	17
		Field Sample ID:	KAFB	-106V2 217	7.1	KAFB-	-106V2 217	7.1	KAF	B-106V2 217	7.1	KAF	-B-106V2 217	7.1
		Sample Date:	Ę	5/9/2019		7	7/5/2019			10/15/2019			10/22/2019	
		Sample Type:		REG			REG			REG			REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
TPH	Method TO-03 (µg/m³)	TPH-GRO (C6-C10)	140,000,000		170,000	140,000,000		220,000	160,000,000	-	220,000	150,000,000		310,000
Fixed Gases	Method D1945 (%)	Butane	0.0019	J	0.00023	0.0021	J	2,400	0.002	J	0.00023	0.0018	J	0.00021
		Carbon Dioxide	12		0.01	12		0.01	10		0.0099	6.5		0.0092
		Carbon Monoxide	ND	U	0.01	ND	U	0.01	ND	U	0.0099	ND	U	0.0092
		Ethane	0.0021		0.00023	0.002	J	2,400	0.0014	J	0.00023	0.00077	J	0.00021
		Hydrogen	ND	U	0.013	ND	U	0.013	ND	U	0.013	ND	U	0.012
		Methane	0.0046		0.0001	0.0044		0.00011	0.0026		0.0001	0.0014		0.000096
		Nitrogen (Ammonia As N)	84		0.14	84		0.15	80		0.14	79		0.13
		Oxygen	2.5		0.038	2.4		0.04	7.6		0.038	13		0.035
		Pentane	0.06		0.00023	0.066		0.00024	0.065		0.00023	0.064		0.00021
		Propane	0.0014	J	0.00023	0.0015	J	0.00024	0.0014	J	0.00023	0.0011	J	0.00021

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	KA	FB-106V2-21	7	KA	AFB-106V2-21	7	KAF	B-106V2-2	 17	KAFI	B-106V2-25	 52
		Field Sample ID:		B-106V2 217			AFB-106V2 21			B-106V2-2			3-106V2 25	
		Sample Date:	10.1	10/31/2019	• •		11/5/2019	•		1/13/2020			1/11/2019	
		Sample Type:		REG			REG			REG			REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
VOCs	Method TO-15 (µg/m³)	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	U	8,700	ND	U	2,900	ND	U	3,200	ND	U	2,300
		1,1-Dichloroethane	ND	U	4,600	ND	U	1,500	ND	U	1,700	ND	U	1,200
		1,2,4-Trichlorobenzene	ND	U	42,000	ND	U	14,000	ND	U	11,000	ND	U	7,500
		1,2,4-Trimethylbenzene	27,000		5,600	130,000	J	1,800	41,000	J	2,000	65,000		1,500
		1,2-Dibromoethane	5,600	J	8,800	7,700	J	2,900	5,400	J	3,200	12,000		2,300
		1,2-Dichlorobenzene	ND	U	6,800	ND	U	2,300	ND	U	2,500	ND	U	1,800
		1,3,5-Trimethylbenzene	12,000		5,600	44,000	J	1,800	17,000	J	2,000	21,000		1,500
		1,3-Butadiene	ND	U	2,500	ND	U	840	ND	U	910	ND	U	670
		1,4-Dioxane	ND	U	20,000	ND	U	6,800	ND	U	5,600	ND	U	3,600
		2-Butanone	240,000		17,000	250,000	J	5,600	140,000	J	4,600	340,000	J	3,000
		2-Hexanone	ND	U	23,000	ND	U	7,700	ND	U	6,300	ND	U	4,100
		4-Methyl-2-Pentanone	ND	U	4,700	ND	U	1,500	ND	U	1,700	ND	U	1,200
		Acetone	5,900,000		14,000	5,200,000	J	4,500	4,400,000	J	3,700	2,300,000		2,400
		Benzene	2,200,000		3,600	1,900,000	J	1,200	1,600,000	J	1,300	650,000		970
		Bromodichloromethane	ND	U	7,600	ND	U	2,500	ND	U	2,800	ND	U	2,000
		Bromoform	ND	U	12,000	ND	U	3,900	ND	U	4,200	ND	U	3,10
		Carbon Disulfide	ND	U	18,000	ND	U	5,900	ND	U	4,800	ND	U	3,10
		Carbon Tetrachloride	ND	U	7,200	ND	U	2,400	ND	U	2,600	ND	U	1,90
		Chloroethane	ND	U	15,000	ND	U	5,000	ND	U	4,100	ND	U	2,70
		Chloroform	ND	U	5,600	ND	U	1,800	ND	U	2,000	ND	U	1,50
		Chloromethane	ND	U	12,000	ND	U	3,900	ND	U	3,200	ND	U	2,10
		Cyclohexane	6,600,000		3,900	5,900,000	J	1,300	4,600,000	J	1,400	2,600,000		1,00
		Dibromochloromethane	ND	U	9,700	ND	U	3,200	ND	U	3,500	ND	U	2,600
		Dichlorodifluoromethane	ND	U	5,600	ND	U	1,900	ND	U	2,000	ND	U	1,50
		Ethanol	ND	U	11,000	ND	U	3,600	ND	U	2,900	13,000		1,90
		Ethyl Acetate	ND	U	27,000	ND	U	9,100	ND	U	7,400	ND	U	7,300
		Ethylbenzene	190,000		4,900	390,000	J	1,600	230,000	J	1,800	230,000		1,300
		Hexane	10,000,000		4,000	8,300,000	J	1,300	6,600,000	J	1,400	1,700,000		1,10
		Isopropyl Alcohol	52,000		14,000	150,000	J	4,600	110,000	J	3,800	130,000		2,50
		m- & p-Xylenes	390,000		5,000	930,000	J	1,600	520,000	J	1,800	540,000		1,300
		Methylene Chloride	ND	U	20,000	ND	U	6,600	ND	U	5,400	ND	U	3,500
		Naphthalene	ND	U	4,000	1,800	J	1,300	ND	U	1,100	890	J	5,300
		n-Heptane	5,700,000		4,700	5,800,000	J	1,500	4,100,000	J	1,700	4,700,000	J	1,200
		o-Xylene	96,000		5,000	270,000	J	1,600	150,000	J	1,800	140,000		1,300
		Propylene (Propene)	31,000		9,800	15,000	J	3,200	ND	U	2,600	37,000		1,700
		Styrene	ND	U	4,800	ND	U	1,600	ND	U	1,800	ND	U	1,300
		Tetrachloroethene	ND	U	7,700	ND	U	2,600	ND	U	2,800	ND	U	2,000
		Tetrahydrofuran	ND	U	3,400	ND	U	1,100	ND	U	1,200	ND	U	890
		Toluene	3,300,000		4,300	3,900,000	J	1,400	2,700,000	J	1,600	3,400,000		1,100
		Trichloroethene	ND	U	6,100	ND	U	2,000	ND	U	2,200	ND	U	1,600
		Trichlorofluoromethane	ND	U	6,400	ND	U	2,100	ND	U	2,300	ND	U	1,700
		Vinyl Chloride	ND	U	2,900	ND	U	970	ND	U	1,000	ND	U	770
		Xylenes, Total	490,000		8,200	1,200,000	J	2,700	670,000	J	4,500	680,000		2,200

Table C-1 Summary of Soil Gas Analytical Results

			ı									T		
		Location ID:	KA	FB-106V2-21	17	KA	FB-106V2-21	7	KAF	B-106V2-21	17	KAFI	B-106V2-25	52
		Field Sample ID:	KAI	B-106V2 21	7.1	KA	FB-106V2 21	7	KAF	B-106V2-21	17	KAFB	3-106V2 252	2.2
		Sample Date:		10/31/2019			11/5/2019			1/13/2020		4	1/11/2019	
		Sample Type:		REG			REG			REG			REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
TPH	Method TO-03 (µg/m³)	TPH-GRO (C6-C10)	120,000,000		250,000	150,000,000		200,000	130,000,000		340,000	90,000,000		330,000
Fixed Gases	Method D1945 (%)	Butane	0.0017	J	0.00021	0.0015	J	0.00028	0.00045	J	0.00018	0.0018	J	0.00022
		Carbon Dioxide	3.8		0.0091	2.6		0.012	1.2		0.0099	7.6		0.0097
		Carbon Monoxide	ND	U	0.0091	ND	U	0.012	ND	U	0.0099	ND	U	0.0097
		Ethane	0.00037	J	0.00021	0.0002	J	0.00028	ND	U	0.00018	0.0021		0.00022
		Hydrogen	ND	U	0.012	ND	U	0.016	ND	U	0.013	ND	U	0.012
		Methane	0.0007		0.000095	0.00036		0.00012	0.00011	J	0.0001	0.0032		0.0001
		Nitrogen (Ammonia As N)	78		0.13	78		0.17	79		0.14	84		0.14
		Oxygen	16		0.035	18	-	0.046	18		0.038	7.9		0.037
		Pentane	0.063		0.00021	0.064		0.00028	0.054		0.00018	0.027		0.00022
		Propane	0.0007	J	0.00021	0.00046	J	0.00028	ND	Ü	0.00018	0.002	J	0.00022

Table C-1 Summary of Soil Gas Analytical Results

ļ		Location ID:	KAFE	3-106V2-25	52	KAFE	B-106V2-25	2	KAFE	3-106V2-25	2	l KA	AFB-106V2-2	 52
		Field Sample ID:		6V2 252.2			-106V2 252			-106V2 252			FB-106V2 25	
		Sample Date:		/11/2019	DOI		5/9/2019			7/5/2019		101	10/15/2019	
		Sample Date:		d Duplicate			REG			REG			REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
VOCs	Method TO-15 (µg/m³)	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	U	2,300	ND	U	2,400	ND	U	5,500	ND	U	9,700
		1,1-Dichloroethane	ND	U	1,200	ND	U	1,300	ND	Ü	2,900	ND	U	5,100
		1,2,4-Trichlorobenzene	ND	Ü	7,400	ND	U	7,900	ND	Ü	18,000	ND	U	47,000
		1,2,4-Trimethylbenzene	73,000		1,500	170,000		1,600	150,000	J	3,500	130,000		6,200
		1,2-Dibromoethane	14,000		2,300	11,000		2,400	13,000	J	5,500	13,000	J	9,800
		1,2-Dichlorobenzene	ND	U	1,800	ND	U	1,900	ND	U	4,300	ND	U	7,600
		1,3,5-Trimethylbenzene	24,000		1,500	47,000		1,600	54,000	J	3,500	48,000		6,200
		1,3-Butadiene	ND	U	660	ND	U	700	ND	U	1,600	ND	U	2,800
		1,4-Dioxane	ND	U	3,600	ND	U	3,800	ND	U	8,600	ND	U	23,000
		2-Butanone	340,000	J	2,900	290,000		3,100	320,000	J	7,100	290,000		19,000
		2-Hexanone	ND	U	4,100	12,000		4,300	ND	U	9,800	ND	U	26,000
		4-Methyl-2-Pentanone	ND	U	1,200	11,000		1,300	ND	U	2,900	ND	U	5,200
		Acetone	2,300,000		2,400	2,500,000		2,500	3,100,000	J	5,700	2,500,000		15,000
		Benzene	660,000		960	770,000		1,000	950,000	J	2,300	980,000		4,100
		Bromodichloromethane	ND	U	2,000	ND	U	2,100	ND	U	4,800	ND	U	8,500
		Bromoform	ND	U	3,100	ND	U	3,300	ND	U	7,400	ND	U	13,000
		Carbon Disulfide	ND	U	3,100	ND	U	3,300	ND	U	7,500	ND	U	20,000
		Carbon Tetrachloride	ND	U	1,900	ND	U	2,000	ND	U	4,500	ND	U	8,000
		Chloroethane	ND	U	2,600	ND	U	2,800	ND	U	6,300	ND	U	17,000
		Chloroform	ND	U	1,500	ND	U	1,600	ND	U	3,500	ND	U	6,200
		Chloromethane	ND	U	2,100	ND	U	2,200	ND	U	5,000	ND	U	13,000
		Cyclohexane	2,500,000		1,000	2,500,000		1,100	2,900,000	J	2,500	3,100,000		4,400
		Dibromochloromethane	ND	U	2,600	ND	U	2,700	ND	U	6,100	ND	U	11,000
		Dichlorodifluoromethane	ND	U	1,500	ND	U	1,600	ND	U	3,600	ND	U	6,300
		Ethanol	12,000		1,900	6,100		2,000	5,700	J	4,500	ND	U	12,000
		Ethyl Acetate	ND	U	7,200	ND	U	7,600	ND	U	12,000	ND	U	30,000
		Ethylbenzene	270,000		1,300	310,000		1,400	300,000	J	3,100	320,000		5,500
		Hexane	1,600,000		1,000	2,100,000		1,100	2,800,000	J	2,500	2,800,000		4,500
		Isopropyl Alcohol	130,000		2,400	130,000		2,600	120,000	J	5,900	59,000		16,000
		m- & p-Xylenes	640,000		1,300	750,000		1,400	710,000	J	3,100	770,000		5,500
		Methylene Chloride	ND	U	3,500	ND	U	3,700	ND	U	8,300	7,000	J	22,000
		Naphthalene	1,300	J	5,200	ND	UJ	5,600	ND	U	8,400	ND	U	4,400
		n-Heptane	4,900,000	J	1,200	3,900,000		1,300	4,100,000	J	3,000	4,600,000		5,200
		o-Xylene	170,000		1,300	230,000		1,400	210,000	J	3,100	210,000		5,500
		Propylene (Propene)	37,000		1,700	40,000		1,800	29,000	J	4,100	ND	U	11,000
		Styrene	ND	U	1,300	ND	U	1,400	ND	U	3,100	ND	U	5,400
		Tetrachloroethene	ND	U	2,000	ND	U	2,200	ND	U	4,900	77,000		8,600
		Tetrahydrofuran	ND	U	880	ND	U	940	ND	U	2,100	ND	U	3,800
		Toluene	3,600,000		1,100	3,500,000		1,200	2,800,000	J	2,700	4,000,000		4,800
		Trichloroethene	ND	U	1,600	ND	U	1,700	ND	U	3,900	ND	U	6,800
		Trichlorofluoromethane	ND	U	1,700	ND	U	1,800	ND	U	4,000	ND	U	7,100
		Vinyl Chloride	ND	U	770	ND	U	810	ND	U	1,800	ND	U	3,200
		Xylenes, Total	810,000		2,200	980,000		2,300	930,000	J	3,500	1,000,000		9,200

Table C-1 Summary of Soil Gas Analytical Results

			144.55			144.55			1/455			1.7	. ED 4001/0 0	
		Location ID:	KAFI	3-106V2-25	02	KAFE	3-106V2-25	2	KAFE	3-106V2-25	2	K/	AFB-106V2-2	52
		Field Sample ID:	KAFB-10	06V2 252.2	DUP	KAFB	-106V2 252	2.2	KAFB-	-106V2 252	2.2	KA	FB-106V2 25	2.2
		Sample Date:	4	/11/2019		Ę	5/9/2019		7	7/5/2019			10/15/2019	
		Sample Type:	Fiel	d Duplicate	)		REG			REG			REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
TPH	Method TO-03 (µg/m³)	TPH-GRO (C6-C10)	90,000,000		330,000	89,000,000		170,000	87,000,000		180,000	98,000,000		140,000
Fixed Gases	Method D1945 (%)	Butane	0.0018	J	0.00022	0.0021		0.00023	0.0018	J	2,400	0.00057	J	0.00023
		Carbon Dioxide	7.5		0.0096	5		0.01	2.9		0.011	0.11		0.01
		Carbon Monoxide	ND	U	0.0096	ND	U	0.01	ND	U	0.011	ND	U	0.01
		Ethane	0.002		0.00022	0.0015	J	0.00023	0.00072	J	2,400	ND	U	0.00023
		Hydrogen	ND	U	0.012	ND	U	0.013	ND	U	0.014	ND	U	0.013
		Methane	0.0032		0.0001	0.0021		0.00011	0.0012		0.00011	ND	U	0.00011
		Nitrogen (Ammonia As N)	84		0.14	81		0.14	81		0.15	79	-	0.14
		Oxygen	8		0.037	13		0.039	15		0.041	20		0.039
		Pentane	0.028		0.00022	0.037		0.00023	0.04		0.00024	0.037		0.00023
		Propane	0.002	J	0.00022	0.0022		0.00023	0.0013	J	0.00024	ND	U	0.00023

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	KA	AFB-106V2-2	52	K/	AFB-106V2-2	52	K/	AFB-106V2-2	52	KAF	B-106V2-25	 52
ļ		Field Sample ID:		FB-106V2 25			FB-106V2 25			AFB-106V2 2		KAF	B-106V2-25	52
		Sample Date:		10/22/2019			10/31/2019			11/5/2019	<del>-</del>		1/13/2020	·
		Sample Type:		REG			REG			REG			REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
VOCs	Method TO-15 (µg/m³)	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	U	4,400	ND	U	3,100	ND	U	2,600	ND	U	3,000
		1,1-Dichloroethane	ND	U	2,300	ND	U	1,700	ND	U	1,400	ND	U	1,600
		1,2,4-Trichlorobenzene	ND	U	21,000	ND	U	15,000	ND	U	13,000	ND	U	11,000
		1,2,4-Trimethylbenzene	110,000		2,800	25,000	J	2,000	150,000	J	1,700	34,000	J	2,000
		1,2-Dibromoethane	15,000		4,400	10,000	J	3,200	18,000	J	2,600	8,400	J	3,100
		1,2-Dichlorobenzene	ND	U	3,400	ND	U	2,500	ND	U	2,000	ND	U	2,400
		1,3,5-Trimethylbenzene	39,000		2,800	10,000	J	2,000	49,000	J	1,700	13,000	J	2,000
		1,3-Butadiene	ND	U	1,300	ND	U	910	ND	U	760	ND	U	880
		1,4-Dioxane	ND	U	10,000	ND	U	7,400	ND	U	6,200	ND	U	5,400
		2-Butanone	350,000		8,400	290,000	J	6,100	370,000	J	5,000	180,000	J	4,400
	ļ	2-Hexanone	ND	U	12,000	8,600	J	8,400	ND	U	7,000	ND	U	6,100
		4-Methyl-2-Pentanone	ND	U	2,300	13,000	J	1,700	ND	U	1,400	ND	U	1,600
	ļ	Acetone	2,800,000		6,800	2,400,000	J	4,900	3,000,000	J	4,100	2,000,000	J	3,500
		Benzene	1,100,000		1,800	760,000	J	1,300	940,000	J	1,100	330,000	J	1,300
		Bromodichloromethane	ND	U	3,800	ND	U	2,800	ND	U	2,300	ND	U	2,700
		Bromoform	ND	U	5,900	ND	U	4,200	ND	U	3,500	ND	U	4,100
		Carbon Disulfide	ND	U	8,900	ND	U	6,400	ND	U	5,300	ND	U	4,600
		Carbon Tetrachloride	ND	U	3,600	ND	U	2,600	ND	U	2,200	ND	U	2,500
		Chloroethane	ND	UJ	7,600	ND	U	5,400	ND	U	4,500	ND	U	3,900
		Chloroform	ND	U	2,800	ND	U	2,000	ND	U	1,700	ND	U	1,900
		Chloromethane	ND	U	5,900	ND	U	4,200	ND	U	3,500	ND	U	3,100
		Cyclohexane	3,500,000		2,000	2,600,000	J	1,400	3,100,000	J	1,200	1,500,000	J	1,400
		Dibromochloromethane	ND	U	4,900	ND	U	3,500	ND	U	2,900	ND	U	3,400
		Dichlorodifluoromethane	ND	U	2,800	ND	U	2,000	ND	U	1,700	ND	U	2,000
		Ethanol	ND	U	5,400	1,600	J	3,900	2,900	J	3,200	1,600	J	2,800
		Ethyl Acetate	ND	U	14,000	ND	U	9,900	ND	U	8,200	ND	U	7,200
		Ethylbenzene	320,000		2,500	140,000	J	1,800	390,000	J	1,500	150,000	J	1,700
		Hexane	3,100,000		2,000	2,600,000	J	1,400	3,000,000	J	1,200	570,000	J	1,400
		Isopropyl Alcohol	67,000		7,000	64,000	J	5,000	120,000	J	4,200	110,000	J	3,700
		m- & p-Xylenes	780,000		2,500	320,000	J	1,800	930,000	J	1,500	350,000	J	1,700
		Methylene Chloride	ND	U	10,000	ND	U	7,100	ND	U	5,900	ND	U	5,200
		Naphthalene	ND	U	2,000	ND	U	1,400	4,200	J	1,200	ND	U	1,000
		n-Heptane	5,100,000		2,300	3,500,000	J	1,700	4,700,000	J	1,400	3,000,000	J	1,600
		o-Xylene	210,000		2,500	78,000	J	1,800	270,000	J	1,500	91,000	J	1,700
		Propylene (Propene)	ND	U	4,900	ND	U	3,500	ND	U	2,900	ND	U	2,600
		Styrene	ND	U	2,400	ND	U	1,800	ND	U	1,400	ND	U	1,700
		Tetrachloroethene	ND	U	3,900	ND	U	2,800	ND	U	2,300	ND	U	2,700
		Tetrahydrofuran	ND	UJ	1,700	ND	U	1,200	ND	U	1,000	ND	U	1,200
		Toluene	4,400,000		2,200	2,900,000	J	1,500	4,200,000	J	1,300	2,600,000	J	1,500
		Trichloroethene	ND	U	3,100	ND	U	2,200	ND	U	1,800	ND	U	2,100
		Trichlorofluoromethane	ND	U	3,200	ND	U	2,300	ND	U	1,900	ND	U	2,200
		Vinyl Chloride	ND	U	1,500	ND	U	1,000	ND	U	870	ND	U	1,000
		Xylenes, Total	990,000		4,100	400,000	J	3,000	1,200,000	J	2,500	440,000	J	4,300

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	KA	FB-106V2-2	52	K/	AFB-106V2-2	52	K.A	FB-106V2-2	52	KAF	B-106V2-25	52
		Field Sample ID:	KAI	FB-106V2 25	52.2	KA	FB-106V2 25	2.2	K/	AFB-106V2 2	52	KAF	B-106V2-25	52
		Sample Date:		10/22/2019			10/31/2019			11/5/2019			1/13/2020	
		Sample Type:		REG			REG			REG			REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
TPH	Method TO-03 (µg/m³)	TPH-GRO (C6-C10)	88,000,000		210,000	74,000,000		150,000	94,000,000		120,000	66,000,000		230,000
Fixed Gases	Method D1945 (%)	od D1945 (%) Butane		J	0.00021	ND	U	0.0003	ND	U	0.00025	ND	U	0.00017
		Carbon Dioxide			0.0092	0.099		0.013	0.1		0.011	0.21		0.0096
		Carbon Monoxide	ND	U	0.0092	ND	U	0.013	ND	U	0.011	ND	U	0.0096
		Ethane	ND	U	0.00021	ND	U	0.0003	ND	U	0.00025	ND	U	0.00017
		Hydrogen	ND	U	0.012	ND	U	0.017	ND	U	0.014	ND	U	0.012
		Methane	ND	U	0.000096	0.000098	J	0.00014	ND	U	0.00011	ND	U	0.0001
		Nitrogen (Ammonia As N)	79		0.13	79		0.18	79		0.16	79		0.13
		Oxygen	20		0.035	20		0.051	20		0.042	20		0.037
		Pentane	0.025		0.00021	0.012		0.0003	0.0061		0.00025	ND	U	0.00017
		Propane	ND	U	0.00021	ND	U	0.0003	ND	U	0.00025	ND	U	0.00017

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	KAFE	3-106V2-27	0	KAFE	3-106V2-27	0	KAFE	3-106V2-27	0
		Field Sample ID:	KAFB	-106V2 269	).5	KAFB.	-106V2 269	9.5	KAFB	-106V2 269	.5
		Sample Date:	4	/11/2019		5	5/9/2019		7	7/5/2019	
		Sample Type:		REG			REG			REG	
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD
VOCs	Method TO-15 (µg/m³)	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	U	2,300	ND	U	4,500	ND	U	8,900
	mounou io io (µg/m )	1,1-Dichloroethane	ND	U	1,200	ND	U	2,400	4,200	J	4,700
		1,2,4-Trichlorobenzene	ND	U	7,600	ND	U	14,000	ND	U	29,000
		1,2,4-Trimethylbenzene	48,000		1,500	100,000		2,900	240,000	J	5,700
		1,2-Dibromoethane	9,200		2,400	7,500	U	4,500	14,000	J	8,900
		1,2-Dichlorobenzene	ND	U	1,800	ND	U	3,500	ND	U	7,000
		1,3,5-Trimethylbenzene	17,000		1,500	33,000		2,900	86,000	J	5,700
		1,3-Butadiene	ND	U	680	ND	U	1,300	ND	U	2,600
		1,4-Dioxane	ND	U	3,700	ND	U	7,100	ND	U	14,000
		2-Butanone	340,000	J	3,000	390,000		5,800	630,000	J	11,000
		2-Hexanone	ND	U	4,200	11,000	J	8,000	ND	U	16,000
		4-Methyl-2-Pentanone	ND	U	1,200	17,000		2,400	ND	U	4,800
		Acetone	1,800,000		2,400	2,400,000		4,600	4,300,000	J	9,200
		Benzene	440,000		980	590,000		1,900	1,200,000	J	3,700
		Bromodichloromethane	ND	U	2,000	ND	U	3,900	ND	U	7,800
		Bromoform	ND	U	3,200	ND	U	6,100	ND	U	12,000
		Carbon Disulfide	ND	U	3,200	ND	U	6,100	ND	U	12,000
		Carbon Tetrachloride	ND	U	1,900	ND	U	3,700	1,100	J	7,300
		Chloroethane	ND	U	2,700	ND	U	5,200	ND	U	10,000
		Chloroform	ND	U	1,500	ND	U	2,900	ND	U	5,700
		Chloromethane	ND	U	2,100	ND	U	4,000	ND	U	8,000
		Cyclohexane	2,000,000		1,000	2,500,000		2,000	4,000,000	J	4,000
		Dibromochloromethane	ND	U	2,600	ND	U	5,000	ND	U	9,900
		Dichlorodifluoromethane	ND	U	1,500	ND	U	2,900	ND	U	5,700
		Ethanol	10,000		1,900	11,000		3,700	11,000	J	7,300
		Ethyl Acetate	ND	U	7,400	ND	U	14,000	ND	U	18,000
		Ethylbenzene	190,000		1,300	180,000		2,600	320,000	J	5,000
		Hexane	1,200,000		1,100	1,200,000		2,100	2,600,000	J	4,100
		Isopropyl Alcohol	78,000		2,500	100,000		4,800	120,000	J	9,500
		m- & p-Xylenes	440,000		1,300	430,000		2,600	810,000	J	5,000
		Methylene Chloride	ND	U	3,500	ND	U	6,800	ND	U	13,000
		Naphthalene	ND	UJ	5,300	970	J	5,100	ND	U	14,000
		n-Heptane	4,200,000		1,200	5,800,000		2,400	7,500,000	J	4,800
		o-Xylene	100,000		1,300	120,000		2,600	250,000	J	5,000
		Propylene (Propene)	33,000		1,800	30,000		3,400	43,000	J	6,700
		Styrene	ND	U	1,300	ND	U	2,500	ND	U	4,900
		Tetrachloroethene	ND	U	2,100	ND	U	4,000	20,000	J	7,900
		Tetrahydrofuran	ND	U	900	ND	U	1,700	ND	U	3,400
		Toluene	3,000,000		1,200	3,900,000	J	2,200	4,400,000	J	4,400
		Trichloroethene	ND	U	1,600	ND	U	3,200	800,000	J	6,200
		Trichlorofluoromethane	ND	U	1,700	ND	U	3,300	ND	U	6,500
		Vinyl Chloride	ND 540,000	U	780	ND 550,000	U	1,500	ND	U	3,000
		Xylenes, Total	540,000		2,200	550,000		4,200	1,000,000	J	5,600

Table C-1 Summary of Soil Gas Analytical Results

		Location ID:	KAFE	3-106V2-27	0	KAFB	3-106V2-27	0	KAFE	3-106V2-27	0	
	Field Sample ID: Sample Date: Sample Type:		KAFB-106V2 269.5 4/11/2019 REG		KAFB-106V2 269.5 5/9/2019 REG		KAFB-106V2 269.5		9.5			
							7/5/2019					
							REG					
Parameter	Analytical Method	Analyte	Result	Val Qual	LOD	Result	Val Qual	LOD	Result	Val Qual	LOD	
TPH	Method TO-03 (µg/m³)	TPH-GRO (C6-C10)	94,000,000		220,000	120,000,000		160,000	140,000,000		170,000	
Fixed Gases	Method D1945 (%)	Butane	0.0017	J	0.00022	0.002		0.00022	0.0028		2,300	
		Carbon Dioxide	6.8		0.0098	5.8		0.0094	4.7		0.0099	
		Carbon Monoxide	ND	U	0.0098	ND	U	0.0094	ND	U	0.0099	
		Ethane	0.0017	J	0.00022	0.0017	J	0.00022	0.0011	J	2,300	
		Hydrogen	ND	U	0.013	ND	U	0.012	ND	U	0.013	
			Methane	0.0026		0.0001	0.0023		9.8E-05	0.0014		0.0001
		Nitrogen (Ammonia As N)	83		0.14	81		0.13	80		0.14	
		Oxygen	9.6		0.038	12		0.036	14		0.038	
		Pentane	0.024		0.00022	0.029		0.00022	0.046		0.00023	
		Propane	0.0018	J	0.00022	0.0021		0.00022	0.0021		0.00023	

### Table C-1 Summary of Soil Gas Analytical Results

% = percentage

 $\mu$ g/m<sup>3</sup> = microgram per cubic meter

mg/m<sup>3</sup> = milligram per cubic meter

GRO = gasoline range organics

ID = identification

KAFB = Kirtland Air Force Base

LOD = limit of detection

ND = not detected

REG = normal field sample

TPH = total petroleum hydrocarbon

Val Qual = validation qualifier

VOC = volatile organic compound

Shading = detected concentrations above the detection limit

Val Quals based on independent data validation

- J = Qualifier denotes the analyte was positively identified, but the associated numerical value is estimated.
- R = Qualifier denotes the data was rejected based on a data usability assessment and evaluation of data comparability to previous and subsequent data collected for the same well and interva
- U = Qualifier denotes the analyte was analyzed but not detected above the detection limit. The value associated with the U-qualifier is the limit of detection.
- -- = Validation qualifier not assigned.

ROLE: Team #1 - Deployment DATE: 12-9-19					
	DAIL.				
WEATHER: 50 °F; partly cloudy  1. ONSITE PERSONNEL (including subcontractors	s and government employees)				
Name	Organization				
Carlos Montoga	EA - Site Manager/Supervisor				
Pete Ferrari	EA - Site Health and Safetly Office				
J. Nesserger B. Colveston	EA - Team #1				
0 0/					
	Λ				
A A					
2. OPERATING EQUIPMENT					
Team #1  YSI Professional Plus 15K101398	Team #2 Spare				
Wh0003 Wh0001	sional Plus 15K101396 YSI Professional Plus 15L100541				
11119001	Wh0002				
Wh0005	Wh0006				
Hach 2100Q 15100C045034 Hach 2100Q Wh0008 Wh0009	Q 15100C044633 Hach 2100Q 15100C045025				
1 177110000	er Level Meter 253053 Solinst Water Level Meter 253056				
3. DAILY SUMMARY (include QC samples collected, deviations from planning documents, converstations with the					
the public and governmental employees, and prob	lems encountered and remedies applied)				
- Met & field office.	WHOO'S IM WHOOLZ WI probe used 5m				
- Deployed DMS samples	Deployed DMS sampless @ wells: KAFB-106230;				
KAFB-106235-439 : KAFB-	100235-472; KAFB-106235-501; KAFB-106029				
KAFB-106030. KAFB-10603	1. KATB-106231; KATB-106232; KATB-106236-436				
KAFB-106242; KAFB-1062	36-470; KAFB-106236-499)				
- Geotech SN# 0001 WL					
KAFB-106032, KAFB-106	033 KAFB-106034				
	Oan .				
	AU (				
<ol><li>WORK PERFORMED (Indicate location, time, and</li></ol>	description of work performed by prime and/or subcontractors)				
- met w/ security + 60	refled them on operations (Joseph Hoyes)				
0825 deployed @ KAFB-106230	- 0828 left LAFB-106 230				
0829 (Assised @ KAFB-106235	- 0855 deployed @ KAFB-106235-438				
0910 Beployed @ KAFB - 106235	-472 - 0930 deployed @ KATB 106235-501				
	· V				
	DQCR Page 1 of 2				

Reviewed by: 1 Montour Initials: \_\_\_\_CM

Reviewed date: 12-16-[9

4. WORK	PERFORMED (Continued)  DATE: 12-9-18	
	1ef KAFB-106235 - 0938 Arrived @ KAFB =126236 106231 pa	]
1005	deployed @ KAFB - 166231 - 1030 deployed @ KAFB - 106232	
1037	Let KAFB-106231 pair - 1041 Acid Q ALT 1/2	
1100	Left KATB-106231 pair - 1046 Arrived @ ACE Hardware for left ACE - 1108 Arrived @ KATB-106032 cluster	zip ties
1125	deployed @ KAFB-106032 - 1135 habe 10 1150	
1150	deployed @ KAFB-106032 - 1135 deployed @ KAFB-106033 - 1145 deployed @ KAFB-106033 - 1145 deployed @ WAFB-106033 - 1145 deployed @ WAFB-106029 cluster	red KATB-106034
1210	Deployed @ KAFB-106029 cluste	
1250	Left KAFB-106029 cluster - 1252 arrived & KAFB-106030 - 1245 deployed @	KAFB-106029
1320	deployable KAFB-106242 - 1321 left KAFB-106242	1
1326	arrived @ KAFB - 106236 nest -	
1350	deployed @ KAFB - 106-236 - 436	
1400	deployed @ KAFB - 106236 - 470	
1415	deployed @ KAFB-186236-499	-
1420	LIT KAFB - 106236 nest	
1425	anived & field office	
	- cleaned out truck - ED	
	A A A A	
		•
E CONTRACT	TORIO	Entil
equipment use	TOR'S VERIFICATION: I certify that to the best of my knowledge the above report is complete and correct. All ed, and work performed during this reporting period is in compliance with the contract plans and specifications	5065
above	A /	5066
Name	ssenger I ha M	
EA Engineerii	ng, Science and Technology Inc., PBC	
Reviewed has	DQCR Page 2 of 2	
Heviewen by: _	Initials: Reviewed date:	

ROLE: Je	am #1 - deploy	ment			DATE: 12-10-19	
	48-50°F; clear					
1. ONSITE PER	RSONNEL (including sul	contractors	and government amo	Jamaa		
Name			Organization	loyees	)	
C	arlos Nontoga		EA - Site Manager/Sup	ervisor		
	e te Ferrari		EA - Site Health and Sa	afetly O	ffice	
	ger / G. Begaye	7	EA - Team #1			
0	)-/-				· · ·	
	·	^				-
		b	N	And the same of th		
		-11				
2. OPERATING						
	Team #1		Team #2		Spare	
Wh0003	al Plus 15K101398	Wh0001	ional Plus 15K101396		YSI Professional Plus 15L100541 Wh0002	
MiniRAE 3000 5 Wh0005	X /	Wh0004	00 592-915790		MiniRAE 3000 592-915579 Wh0006	X
Hach 2100Q 15 Wh0008		Wh0009	Q 15100C044633		Hach 2100Q 15100C045025 Wh0007	
Solinst Water Level Meter 253054 Solinst Water Level Meter 253053 Solinst Water Level Meter 253056  3. DAILY SUMMARY (include QC samples collected, deviations from planning documents, converstations with the						
the public and	governmental employee	es collected s, and probl	l, deviations from plan ems encountered and	ining de remed	ocuments, converstations with lies applied)	the
	Met & field	office				,
- h	IL probe Geo	Tech (s	N : 0001) used	d		
- [	Deployed @ u	vells:	KAFB-106201	; KA	F3 -106202; KAFB-	106203
K	4FB-106245, - KA	7FB-1062	40; KAFB-106	243	; FAFB-106224 6241; FAFB-106216	
1/2	AKB-106723	: KAFB.	-106222 , FAFT	3-10-	6241; KAFB-106216	
- k	LAFB-10621	7 KA	FB-186218		/	
			1/)			
		- XX	11	The state of the s		
		7/2				
4. WORK PERF	ORMED (Indicate location	in time and	description of work	A = = = = = = = = = = = = = = = = = = =	ed by prime and/or subcontrac	
0734 2	A field other -	- 075E	B actived @	VAXI	3 - 106 201 claste	tors)
0820 do	Litt field office - 0758 Arrived @ KAFB-106201 Juster deployed @ KAFB-106202 - 0840 deployed @ KAFB-106203					
1900 de	deployed & KAFB-106201 - 0903 le & KAFB-106201 chister					
0908 20	Assived & KAFB-106245 - 0935 degloyed @ KAFB-106245					
0939 4	H KAFB-106245	- 0950	Acrivad to v	AFB.	106240	
U	/	×	(	***************************************		

DQCR Page 1 of 2

Reviewed by: C. Montry/ Initials: CM Reviewed date: 12-16-19

4. WORK	PERFORMED (Continued)	DATE:	12-10-19
	deployed @ KARB-106 240 - 1030 left x	1150-1017	11/2
1034	Arived @ KAFB 706243 - 1100 deploye	10 110-0	90
1102	left KAFB-106243-1107 arrived @ KAFB-1	LE FATE	-106243
1145	deployed @ KAGG - 106241 - 11511 16 1	06271	. /
1155	deployed @ KAFB - 106241 - 1154 lef XX arised @ KAFB - 106222 - 1225 deployed deployed @ KAFB - 106222 - 1225 deployed	150 - 10624	0 100
1245	deployed @ KAFB-106223 - 1300 Depo	( I ) W	106224
1309	Left KATB-106222 cluster - 1312 doctored @ VATA 106222 cluster - 1312	oyed & F	HFB-126222
1335	deployed @ KAFB-106218 - 1350 @	D. S. J. D.	KATB-106216 duste
1403	Replayed @ KATB-106216 - 1413	replayed ex	A+13-106217
1416	arrived @ McDonald's - 1425 left N	1. To pr	18-106216 cluster
1431	anived @ Act Hardware - 1437 /ex	of ALE	
	Cillivea C field office on units	1.11	1 11
1952	NOT DOLL OF THE PROPERTY OF TH	/	71
1502	Left gas station - 1507 Africal @	field Il	11/60
	cleaned out for	ch . at	E0D
	$\Lambda \Lambda \Lambda$		
	(N)		
		-	
		2	
. CONTRAC	TOR'S VERIFICATION: I certify that to the best of my knowledge the ab	ove report is com	inlete and correct All
oted bove.	ed, and work performed during this reporting period is in compliance with	the contract plan	is and specifications
	Nessenger III	2	
ame	Signature		
A Engineeri	ng, Science and Technology Inc., PBC		
	DQCR Page 2 of 2		

Reviewed date: 12-16-11

ROLE:	Team # 1 - deployment		DAT	E:	
WEATHER	8: 50°F: clear sky				
1. ONSITE	PERSONNEL (including subcontractor	s and government emn	lovees)		
Name		Organization	109003/		
( 111		EA - Site Manager/Supervisor			
	Pete Ferrar.	EA - Site Health and Safetly Office			
J. Me	ssenger / G. Begaye	EA - Team #1			
	Ann		Active who, the mile had been produced and active with the active with the control of the contro		
	•				
			and the second s		
2. OPERAT	TING EQUIPMENT				
	Team #1	Team #2		Spare	
	sional Plus 15K101398 YSI Profess	sional Plus 15K101396	YSIP	Professional Plus 15L100541	
Wh0003		AND THE PROPERTY OF THE PROPER	Wh00		
Wh0005	Wh0004	000 592-915790	MiniR Wh00	RAE 3000 592-915579	X
Whoods   Whoods		Q 15100C044633 Hach 2100Q 15100C045025 Wh0007			
Solinst Water Level Meter 253054 Solinst Water Level Meter 253053			Solins	st Water Level Meter 253056	1 11
3. DAILY SUMMARY (include QC samples collected, deviations from planning documents, converstations with the the public and governmental employees, and problems encountered and remedies applied)				the	
* Company	Met @ field office	·	remedies a	pplied)	
*	WL neter bester	h - 0001 v	rsed		
e parameter de la constante de	deployed @ wells: K KAFB-106050, KAFB-106 KAFB-106206, KAFB-1 KAFB-106005, KAFB-	AFB = 10624.7	KATE .	-106049 VAFB - 100	051
	KAFB - 106050 , KAFB-106	207 KAFB-106	208	VAFB-106209	,,,,
	KAFB-106206, KAFB-1	06205 KAFE	3-1062	204 KAFR-10624	K
	KAFB-106005 KAFB-	1060001	-		
	GM_		and with the following of the artistic copy of the analysis		
. WORK P	ERFORMED (Indicate location, time, and	description of work a	orformed b.	v nrimo andles subsection	
0721		27 Airived @			ors)
0755	de played @ KAFB - 10624			B-106247	
0806	arrived @ KAFB-106049	The second secon	16 40	1 700	
0825	deployed @ KOTERS-106049 -	- 0840 lest.	widle V	OFB-186 DEI	
0850	deployed @ KATA3 - 106050			106049 cluster	
	1000	VV/I LEU		TOUT CIUSTEL	

DQCR Page 1 of 2

Reviewed by: \_\_\_\_\_ Initials

Initials:

Reviewed date: 42-19-10-1

4. WORK PERFORMED (Continued)	DATE: 12-//-/9
0859 arrived @ KAIFB-106207chiste	- 0918 Reployed @ KAHB-106207
0930 deployed @ KHFB-106208 -	942 deployed & KHFB-106204
0946 left FAFB-10620+ cluster =	- 0950 Urived & KAFB-106204 cluster
1005 deployed @ KAFB-106206 -	- 1020 deployed @ KAFB-106204 cluster
1035 deployed @ VATR 1213 211	1028 Apployed @ KAFB-106205
1045 Arived @ KAFB - 116244-	- 1038 Gft KAFB - 106204 clusto, 1105 de ployed @ KAFB-106244
1107 Left KAFB-106244 - 1123	Cia de Mars 106244
150 deployed @ KAFB-106009 - 11	155 1 14 40 TO 106009
1157 arrived @ KATB- 106005-1	215 deployed @ KAFB-106005
1216 Lft KAFB-106005-1218	3 Arial of O Car Alb - 106005
cleaned out to	
·	nck - EOD
<u></u>	
5. CONTRACTOR'S VERIFICATION	
5. CONTRACTOR'S VERIFICATION: I certify that to the best of equipment used, and work performed during this reporting period above.  Messenge	of my knowledge the above report is complete and correct. All od is in compliance with the contract plans and specifications
Name Signatu EA Engineering, Science and Technology Inc., PBC	re / V
DQCR P	age 2 of 2
Reviewed by: Initials:	Reviewed date: 12-16-16

ROLE: Team #1 - deployment	DATE:				
WEATHER: 50°F; clear sky					
1. ONSITE PERSONNEL (including subcontractors	s and government employees)				
Name	Organization				
Carlos Montoya	EA - Site Manager/Supervisor				
lete terrari	EA - Site Health and Safetly Office				
J. Messenger / G. Begaye	EA-Team HI				
9rv					
2. OPERATING EQUIPMENT					
Team #1	Team #2 Spare				
	ional Plus 15K101396 YSI Professional Plus 15L100541				
[VVIIOO1]	00 592-915790				
Wh0005	00 592-915790 MiniRAE 3000 592-915579 Wh0006				
Hach 2100Q 15100C045034					
Solinst Water Level Meter 253054 Solinst Water Level Meter 253053 Solinst Water Level Meter 253056					
3. DAILY SUMMARY (include QC samples collected, deviations from planning documents, converstations with the public and governmental employees, and problems encountered and remedies applied)					
- M+ @ field office					
GeoTech - SN 0001	WL reel used				
- Deployed @ wells:	KAFB-106041 KAFB-10683				
KAFB-10657, KAFB-106	KAFB-106041, KAFB-10683 65, KAFB-10651, KAFB-106/53				
KATB-10659, KAFB-101	6151, KAFB-106152				
	11				
A L					
4. WORK PERFORMED (Indicate location, time, and	description of work performed by prime and/or subcontractors)				
0734 Coft field office					
0743 arived @ KATB-106041 - 0815 Sofbud@ KATB-106541					
818 Let KATB-106041 - 0827 arrived & field office					
0840 left field office - 0843	9743 Parised & KAFB-106041 - 0815 defleged & KAFB-106541  818 Left KAFB-106041 - 0827 arrived & Field office  840 Left Field office - 0843 arrived & KAFB-10653  910 deployed & KAFB-10653 - 0913 Left KAFB-10653				
0910 deployed @ KAFB-10653	- 0913 LOF KATB-10653				

DQCR Page 1 of 2

Reviewed by: \_\_\_\_\_\_ Initials: \_\_\_\_\_\_\_\_\_

Reviewed date: 12-16-19

4. WORK PERFORMED (Continued)	DATE: 12-12-(9
57 (At KARB-10657 - 09	45 deployed @ NAFR-MISZ
Carl MID 10057 - 150 Carved	(a) KATA -10655
1010 deployed @ KAFB-16655-1020	6A+ KAFB-10655
1090 Urrived @ 14AFB-106SI -	1105 declared @ 1493-10651
110 T Kept P-1176-10651 - 1108 C	Proved @ KATR-INLING
deployed ( KAPB-106149 - Ju	1122 /eft KATR - 1061119
11-2 Ourived & HAFB-106153-11	40 destrued@ VATA - 106153
117 GAT FARES -106153 - 1147	Urrived @ KAFB-D659
1213 deployed @ KAFB-10659-12	18 loft KATR-106.89
1218 (Rivived @ FARB-106151 - 1	240 declared @ KAFB-INGSI
1243 deft PATB-106151 - 1294 (	1 crived @ KATB-106152
1305 Replayed @ KAPB-106152 - 13	
1309 Arrived & field office —	Cleaned out truck - EOD
·	
	1
1	
5. CONTRACTOR'S VERIFICATION: I certify that to the best of my kn equipment used, and work performed during this reporting period is in a noted above.	compliance with the contract plans and specifications
Name Signature	
EA Engineering, Science and Technology Inc., PBC	8
DQCR Page 2 o	f2
Reviewed by: Initials:	Reviewed date:

ROLE: Team #1 - deployment	DATE:		
WEATHER: 52-54°F; clear 5	ky		
1. ONSITE PERSONNEL (including subcontractors	s and government employees)		
Name	Organization		
Carlos Montoya	EA - Site Manager/Supervisor		
Pete Ferrari	EA - Site Health and Safetly Office		
. Messenger / G. Begaye	EA - Team#1		
A.V			
4/1			
V			
2. OPERATING EQUIPMENT Team #1			
	Team #2 Spare sional Plus 15K101396 YSI Professional Plus 15L100541		
Wh0003	Wh0002		
Wh0005	MiniRAE 3000 592-915579 Wh0006		
Wh0008 // Wh0009	Q 15100C044633 Hach 2100Q 15100C045025 Wh0007		
	er Level Meter 253053 Solinst Water Level Meter 253056		
3. DAILY SUMMARY (include QC samples collected, deviations from planning documents, converstations with the the public and governmental employees, and problems encountered and remedies applied)			
the public and governmental employees, and prob	lems encountered and remedies applied)		
- met @ field office - bailed + deployed @ KA	ER-101-149		
The state of the s	FB 706177		
JM			
A			
<u> </u>			
4. WORK PERFORMED (Indicate location, time, and	description of work performed by prime and/or subcontractors)		
0722 left field office - 0734	arised & tome Depot for twine		
0740 GAT HOME DEPOT - 0	1803 arrived @ KAFB-106149		
0840 bailed KAFB-106149 - 1	no visible NAPL: deployed WI_ moter		
Measured 0.03 NAPL	To visible NAPL; deployed WL Meter  Religioused builes		
1000 deployed @ KAFB-106149	NAPL to = 0.61 A		
7	51		

DQCR Page 1 of 2

Reviewed by: \_\_\_\_\_ Initials: \_\_\_\_\_

Reviewed date: 12-16-19

4. WORK PERFORMED (Continued)	DATE: 12-13-19
1007 Left KAFB - 106,149	
1012 arrived @ field office	0
cleaned me	t tout
waste man	t truck ragement Soft
Mur	E OD
	M. T.
7	
/	
ONTRACTOR'S VERIFICATION: I certify that to	the best of my knowledge the above report is complete and correct. All porting period is in compliance with the contract of th
ed ve.	to the best of my knowledge the above report is complete and correct. All porting period is in compliance with the contract plans and specifications
Macadage	
of thesserger	Signature
Engineering, Science and Technology Inc., PE	
and a Astronomical	DQCR Page 2 of 2
ewed by: C. Monto VA Initia	als: Reviewed date:

ROLE: Jean # 1 - deployment	DATE: 12-16-19		
WEATHER: Mid 40s y dear sky  1. ONSITE PERSONNEL (including subcontractors	and government employees)		
ivarne	Organization		
Carlos Montoga Pete Ferrari	EA - Site Manager/Supervisor		
Pete Ferrari	EA - Site Health and Safetly Office		
J. Messenger / G. Begage	EA - Team #1		
	y M		
V			
2. OPERATING EQUIPMENT			
Team #1  YSI Professional Plus 15K101398  YSI Profess	Team #2 Spare ional Plus 15K101396 YSI Professional Plus 15I 100541		
Wh0003 Wh0001	ional Plus 15K101396 YSI Professional Plus 15L100541 Wh0002		
MiniRAE 3000 592-915778   MiniRAE 30	90 592-915790 MiniRAE 3000 592-915579		
Wh0005 Wh0004 Hach 2100Q 15100C045034 Hach 2100Q	Wh0006		
Wh0008 Wh0009	Q 15100C044633 Hach 2100Q 15100C045025 Wh0007		
Solinst Water Level Meter 253054 Solinst Water Level Meter 253053 Solinst Water Level Meter 253056			
3. DAILY SUMMARY (include QC samples collected the public and governmental employees, and problem.)	, deviations from planning documents, converstations with the		
- met & field office	ems encountered and remedies applied)		
- deployed a wells: It	AFR-106.84		
- deployed @ wells: It	HFB - 106 52		
	HFB -106 S8		
	165 10030		
M			
fr -			
V			
4. WORK PERFORMED (Indicate location, time, and	description of work performed by prime and/or subcontractors)		
0745 left field office			
0747 Arrived @ KAFB-10654			
0810 deployed @ KATB-10654			
0813 left 4AFB-10654			
0815 anived @ 14AFB-10652			

DQCR Page 1 of 2

Reviewed by: C. Mantay) Initials:

Reviewed date: 12 - 16-16

4. WORK PERFORMED (Continued	1)		DATE: 12-16-19
0835 deployed @ Ke	FB-1452		
0830 left KAT-B-106	52	-	
0843 anived (a KAFB	1-106S8		
0905 deployed @ KAR			
0908 left 14AFB-106.	S8		
0914 Orived @ 4A	FB m field office	10	
I manufacture the same of the	FB m field office cleaned out truck	The second secon	603
			/
	1		
	11		
	11	· · · · · · · · · · · · · · · · · · ·	
	/ /		
		•	
CONTRACTOR'S VERIFICATION: 1 culture of the contract of the co	certify that to the best of my k	nowledge the shows	
uipment used, and work performed dul ted ove.	ring this reporting period is in	compliance with the con	tract plans and specifications
Messager		De 1	
ame /	Signature	V/VI	
Engineering, Science and Technology	ogy Inc., PBC	(	J
	DQCR Page 2	of 2	
viewed by: C. Montoy)	Initials:		Ovinued date: 17-11.10

Reviewed date: 12-16-15

ROLE: Fram 1	DATE:
WEATHER: High in the 40°F's so	MAN INSTALL
1. UNSITE PERSONNEL (Including subcontractors	and government employees)
Name	Organization
Carlos Montoya	EA - Site Manager/Supervisor
Pete Ferrari	EA - Site Health and Safetly Office
Nicole Peterson	EA
Dylan Schmelk	EA
2. OPERATING EQUIPMENT	
Team #1	Team #2 Spare
	ional Plus 15K101396 YSI Professional Plus 15L100541
MiniRAE 3000 592-915778 MiniRAE 30	Wh0002
Wh0005 Wh0004 Hach 2100Q 15100C045034 Hach 2100Q	Wh0006
Wh0008 Wh0009	Wh0007
	er Level Meter 253053 Solinst Water Level Meter 253056
3. DAILY SUMMARY (include QC samples collected	, deviations from planning documents, converstations with the
the public and governmental employees, and prob	ems encountered and remedies applied)
Sampled Wells: ICAFR-10674	7, KAFB-10654, KAFB-1065Z
KAFB-10656, KAFB-1063;	2, KAFB-106033 KAFB-106034 CM
I of	
All	
4. WORK PERFORMED (Indicate location, time, and	description of work performed by prime and/or subcontractors)
0806 Leave BTNB GWTS field	trailer for KAFB-106247
0812 Arrive at KAFB-106	747
0854 Took Samples at KAF	
0918 Leaving KAFB-1010247	for KAFB-10654
0924   Arrivel at KAFB-10651	1

DQCR Page 1 of 2

Reviewed by:

Initials: \_\_\_\_\_CM

Reviewed date: 1-8-2020

. WORK	PERFORMED (Continued)  DATE: 1-6-202	20
945		
005	Leaving KAFB-10654 for GWTS trailer	
607	Arrived at GIVTS trailer	
031	Leaving GWTS trailer for KAFB-10652	
034	Arrived at KAFB-10652	
)58	Sampled JEAFB-10652	
12	Leaving KAFB-10652 for KAFB-10658	
24	Arrived at KAFB-10658	
106	Sampled KHFB-10658	
131	Leaving KAFB-106S8 For KAFB-10634 cluster NP106	00211
38	Arrived at KAFB-10634 cluster NP 106034 cluster	0034 0105+
05	Sampled KAFB-100032	
27	Sampled KAFB-106034	
148	Sampled KAFB-106033	
359	Leaving KAFB-1010034 cluster for GINTS trailer	
107	Arrived at GWTS trailer	
-	AR	
		-
		2 .
ONTRACT	TOR'S VERIFICATION: I certify that to the heet of soul-	
1	TOR'S VERIFICATION: I certify that to the best of my knowledge the above report is complete and correct. sed, and work performed during this reporting period is in compliance with the contract plans and specification	All
e.	$O_{\perp}$	
<u>core</u>	Peterson Allule Peters	

DQCR Page 2 of 2

Reviewed date: \_\_\_\_

Initials:

ROLE: Team #1				
WEATHER: SUNNIN and ~ 30	OF with light brooze			
1. ONSITE PERSONNEL (including subcontracto	rs and government employees)			
Name	Organization			
Carlos Monterya	EA - Site Manager/Supervisor			
Pete Feranni	EA - Site Health and Safetly Office			
Dylan Schmeelk	Geologist			
Joshua Livingston	Engineer			
. ~	J			
,				
2. OPERATING EQUIPMENT Team #1	T			
	Team #2 Spare ssional Plus 15K101396 YSI Professional Plus 15L100541			
Wh0003 Wh0001	Wh0002			
	3000 592-915790   MiniRAE 3000 592-915579			
Wh0005 Wh0004 Hach 2100Q 15100C045034 Hach 210	Wh0006			
Wh0008 Wh0009	0Q 15100C044633 Hach 2100Q 15100C045025 Wh0007			
	ater Level Meter 253053 Solinst Water Level Meter 253056			
the public and governmental employees, and pro	ed, deviations from planning documents, converstations with the			
governmental employees, and pre	bienis encountered and remedies applied)			
4	,			
Surpled Wells: KAFB-106	216 KAFR-106217, KAFR-106218 FR-106224 CM			
6AFB-1062B, and KA	FB-106224CM			
· ·				
4. WORK PERFORMED (Indicate location, time, a	nd description of work performed by prime and/or subcontractors)			
0740 Leave field trai				
0750 Arrive at KAFB-106				
0812 KAFB-106217 Sa				
0835 Sampled KAFB.	-106218			
0903 Sampled KAFB-11	06216			
1	Saguer and the saguer			

DQCR Page 1 of 2

Reviewed by: C. Montoya Initials: CM

Reviewed date: 1-8-2020

4. WORK P	ERFORMED (Continued) DATE: 1-7-2020
0917	Leave KAFB-106218 cluster for LAFR-106222 11
0919	Arrive at KAFB-106223 cluster
0938	Sampled KAFB-106223
1002	Sampled KAFB-106224
1021	Leave KAFB-106223 cluster for field trailer
1032	Arrive at field trailer
-	
/.	
CONTRACT quipment used oted oove.	OR'S VERIFICATION: I certify that to the best of my knowledge the above report is complete and correct. All d, and work performed during this reporting period is in compliance with the contract plans and specifications
Dylan :	Schmeelk ()
ante A Engineeri-	Signature
~ mymeerin	g, Science and Technology Inc., PBC
	DQCR Page 2 of 2
viewed by: _	Montoya Initials: (M) Decimal 1 (C-2)2

Initials:

Reviewed date: 1-8-

ROLE: Team #1	DATE: 1-8-2020
WEATHER: Clear, light breeze	as vota as 40°F
WEATHER: Clear, light breeze  1. ONSITE PERSONNEL (including subcontractors) Name	and government employees)
Carlos Montoga	Organization  EA - Site Manager/Supervisor
Pete Feranci	EA - Site Health and Safetly Office
Dylan Schneelk	
Called and D	Geologist En Tech
Galveston Begage	En Tech
·	
2. OPERATING EQUIPMENT	
Team #1	QV II A
YSI Professional Plus 15K101398 T YSI Professi	Team #2 Spare onal Plus 15K101396 System YSI Professional Plus 15I 100544 System Syste
Wh0003 Wh0001	onal Plus 15K101396 YSI Professional Plus 15L100541 Wh0002
MiniRAE 3000 592-915778 MiniRAE 300	00 592-915790   MiniRAE 3000 592-915579
Wh0004	Whone
Hach 2100Q 15100C045034 Hach 2100Q Wh0008 Hach 2000Q	15100C044633   Hach 2100Q 15100C045025
144110009	Wh0007  Level Meter 253053  Solinst Water Level Meter 253056
	deviations from planning documents, converstations with the
the public and governmental employees, and proble	ems encountered and remedies applied
	ensured and remedies applied)
< 11 1 11 11 11 11 11 11 11 11 11 11 11	
Simpled Wells: CATB-106009	KAFB-106049 KAFB-106050 CM
ICATB-106051"	
WORK PERFORMED (Indicate location time and	
0744 Lea ve l'indicate location, time, and	description of work performed by prime and/or subcontractors)
Drug Teld Maile)	for KAFB-106009 clustery
0747 Arrive at KAFB-1060	09 cluster
0811 Sampled KAFB-10600	9
0845 Leave KAFB-10600	19 for KAFB-106051 cluster
1852 Arrive at KAFB-1060	51 cluster

DQCR Page 1 of 2

Reviewed by: \_\_\_\_\_\_ Initials: \_\_\_

Reviewed date: 1-9-220

4. WORK	PERFORMED (Continued)	DATE:	-8-2020
0911	Sampled KAFB-106049		
0935	Sumpled KAFB-106051		
0955	Sampled KAFB-106050		
1015	Leave KAFB-106051 cluster for	VAFI	2-10/245 6
1025	collect samples from team \$	+2	
-	prod in the leave		I tield office
	·	/	
		The state of the s	
-			
1.			
oted	TOR'S VERIFICATION: I certify that to the best of my knowledge the above ed, and work performed during this reporting period is in compliance with the	report is co contract pla	implete and correct. All ans and specifications
bove.	Schneelk	QNA-AARRASTERIJA (SELEKTOR)	
	ng, Science and Technology Inc., PBC		
eviewed by:	DQCR Page 2 of 2  Initials:		
7.	minals:	Reviewe	d date: 1-9-2020

ROLE:	ean L		DATE: 1-9-2020
WEATHER	: Overcast breezy	with high of	
1. ONSITE	PERSONNEL (including subcontractor	s and government employ	ees)
Name		Organization	
Casla	os Montoga	EA - Site Manager/Superv	isor
Pete	Feransa	EA - Site Health and Safet	ly Office
Dyla	n Schmeelk	Geologist	
Galv	eston Begaye	Tech	
	. ,		
2. OPERAT	TOTAL	7 110	
YSI Profess		Team #2 sional Plus 15K101396	Spare 7   YSI Professional Plus 15L100541
Wh0003	Wh0001		Wh0002
Wh0005	000 592-915778 MiniRAE 30 Wh0004	000 592-915790	MiniRAE 3000 592-915579
		Q 15100C044633	Wh0006
Wh0008	Wh0009		Wh0007
		ter Level Meter 253053	Solinst Water Level Meter 253056
3. DAILY S	UMMARY (include QC samples collecte and governmental employees, and prob	d, deviations from planning	ng documents, converstations with the
0846	Take ER201-0		medies applied)
120,43	Sampled KAFB-1	06010	
1417	Sampled KAFB-1	06076	
· · · · · · · · · · · · · · · · · · ·	Commissions and the commission of the commission		
	VST #18L100379	· · · · · · · · · · · · · · · · · · ·	
		~ /	
4. WORK P	ERFORMED (Indicate location, time, an	d description of work per	formed by prime and/or subcontractors)
1002	heave field traite		
1015	Arrive at KAFB-		
1251	Leave KAFB-1060		B-106076
1305	Arrive at KAFB-	106076	
1515	Leave KAFB-1060	076 for fie	eld trailer

DQCR Page 1 of 2

eviewed by: \_\_\_\_\_\_ Initials: \_\_\_\_\_\_

Reviewed date: 1-10-2020

WORK P	ERFORMED (Continued)		DATE: 1-7-20
520	Arrive at field	trailer -	
	·		
			/ / /
Politica representation de la constitución de la co			
		1	
	. /		
· · · · · · · · · · · · · · · · · · ·			
		;	
1			
./	ANA VENEZA		
ment use	OR'S VERIFICATION: I certify that to the digital digit	best of my knowledge the abo	ove report is complete and correct. All
l 9.		-a Portog is it compliance with	me contract plans and specifications
Jan	Schneelk		
Jan		gnature	
ngineerin	g, Science and Technology Inc., PBC		
J 04161	or a second of the second of t		
	D	QCR Page 2 of 2	

Initials: \_\_\_\_\_

Reviewed date: 1-12-2020

ROLE: / Cam / Hay P	Ortuble DATE: 1-13-2020
WEATHER: 43°+ Clean	
1. ONSITE PERSONNEL (including subcontractors	and government employees)
	Organization
Contos Montoga	EA - Site Manager/Supervisor
Pete Ferrani	EA - Site Health and Safetly Office
Dylan Schneak	beo I
Kyhan Robinson	Geo I
	4
2. OPERATING EQUIPMENT	
YSI Professional Plus 15K101398 YSI Professi	Team #2 Spare onal Plus 15K101396 YSI Professional Plus 15I 100544
Wh0003 Wh0001	WP0003
	00 592-915790 MiniRAE 3000 592-915579
144110004	Wh0006 U 15100C046035 U Hach 2100C 15100C046035
Wh0009	Wh0007
	r Level Meter 253053 Solinst Water Level Meter 253056
3. DAILY SUMMARY (include QC samples collected	deviations from planning documents, converstations with the
the public and governmental employees, and proble	ems encountered and remedies applied)
INCO B. DOWN	
1100	LNAPL Gram KAT-B-106059
1126 Concluded Barlin	4
	<b>S</b>
1240 Sampled KAFB-	106059 Cn CSIA
	<b>—————————————————————————————————————</b>
	,
. WORK PERFORMED (Indicate location, time, and	description of work performed by prime and/or subcontractors)
000 (eft Yaza)	or work performed by prime and/or subcontractors)
1015 Arrived KAT-B-106	1
	() \ \ \ \ \
1240 Sampled KAFB-106	059
1240 Sampled KAFB-106	059
240 Sampled KAFB-106	059

DQCR Page 1 of 2

viewed by:

Reviewed date: 1-13-2020

4. WORK PERFORMED (Continued)	DATE: 1-13-2020
1354 Arrived 90 Day Yand to	Drop Dw-
FAFR-106050-701	Drop IDW-
1407 left 90 Day Yand	
1410 Arrived Yard	
5. CONTRACTOR'S VERIFICATION: I contife that to the	
5. CONTRACTOR'S VERIFICATION: I certify that to the best of my knowledge the abore equipment used, and work performed during this reporting period is in compliance with above	ove report is complete and correct. All the contract plans and specifications
above.	
Name Signature	
EA Engineering, Science and Technology Inc., PBC	

DQCR Page 2 of 2

Reviewed date:

	ROLE: Team #1	DATE: 1-14-2020		
	WEATHER: High of 59°F, mostly surry light SE breeze			
	1. ONSITE PERSONNEL (including subcontractors and government employees)			
	NGILIA	Organization		
	Carlos Montoya	EA - Site Manager/Supervisor		
	Pete Ferani	EA - Site Health and Safetly Office		
	Dylan Schweelk	Geologist		
	Kylian Robinson	Geologist -		
	3			
	2. OPERATING EQUIPMENT			
	Team #1	Team #2 Snare		
	YSI Professional Plus 15K101398 YSI Profes	sional Plus 15K101396 YSI Professional Plus 15L100541		
	Wh0003 Wh0001 Wh0001 MiniRAE 3000 592-915778	Wh0002		
	Wh0005	000 592-915790 MiniRAE 3000 592-915579 Wh0006		
		Q 15100C044633 Hach 2100Q 15100C045025		
	14410003	Wh0007		
		National Port March 200000		
	the public and governmental employees, and prob	d, deviations from planning documents, converstations with the		
	Equisment; 75I S	N#:18L100378		
	0911 Sampled ER20	1-03 Using DUND SN: 1807B-699		
	1150 Sampled KAFB	-106012R		
	1435 Sampled KAFB	- 106060 for Microbials		
		(1000)(201)		
	4. WORK PERFORMED (Indicate location, time, and	description of work performed by prime and/or subcontractors)		
	0938 Leave field trails	er to refuel off bace		
	0942 Arrive at offbau	e refueling area ; ust outside		
X	0958 Truman gate.	- Terrett d'avea just oursiac		
0946-	boys Drive to KAFB-10	06060		
	1004 Arrive at KAFB-10			
1				

DQCR Page 1 of 2

// Initials: / //

Reviewed date: 1-15-2020

	PERFORMED (Continued)  DATE: 1-14-2020
	PERFORMED (Continued)
1008	Leave KAFB-106060 for KAFB-106012R
1009	Arrive at KAFB-106012R
1318	Leave KAFB-106012R for KAFB-106060
1318	Arrive at KAFB-106060
THE RESIDENCE OF THE PARTY OF T	Les a KATO 100000
1500	Leave KAFB-106060 for field traiter
7300	Arrive at KAFB 106x field trailer
-	
CONTRAC quipment use oted bove.	TOR'S VERIFICATION: I certify that to the best of my knowledge the above report is complete and correct. All ed, and work performed during this reporting period is in compliance with the contract plans and specifications
Dylan	Schneelk Start
ame	Signature

DQCR Page 2 of 2

Initials:

EA Engineering, Science and Technology Inc., PBC

ROLE: Team #1						
WEATHER: High of 57°P, mostly synty with co						
1. ONSITE PERSO	NNEL (including s	ubcontractors	and government employed	oloyee	s)	
Carlos M	ontoga	Photos colonia (Pri Paramon Luce - Phur Sunghi pang unashinus dan	EA - Site Manager/Sur	perviso	OF.	
Pete Fe	rarri		EA - Site Health and S	afetly	Office	
	Schneell	<u></u>	Geologist	4		
Kylian F	Cobinson		Geologist			
		0/		NAMES AND DESCRIPTION OF THE PERSON OF		
		1				
2. OPERATING EQ	HORECALL					
VCI Destantian ( D)	m #1		Team #2		Spare	
YSI Professional Plu	s 15K101398	YSI Profess	ional Plus 15K101396	П	YSI Professional Plus 15L100541	
Wh0003	L	Wh0001			Wh0002	
MiniRAE 3000 592-9 Wh0005		MiniRAE 30 Wh0004	00 592-915790	П	MiniRAE 3000 592-915579 Wh0006	
Hach 2100Q 151000 Wh0008	045034		15100C044633	X	Hach 2100Q 15100C045025	
Solinst Water Level		Solinst Water	er Level Meter 253053	X	Wh0007 Solinst Water Level Meter 253056	
3. DAILY SUMMARY	(include QC sam	ples collected	, deviations from plan	ning o	documents, converstations with the	
	Triniterior employe	es, and propr	eilis ericountered and	reme	dies applied)	
Equipore	nt YSI	-SN:	18L-10037	78		
	upled KA	FB-10	6013			
	upled k	AFB-10	06098			
1330 Sa	upled K	AFB-1	06097 -			
					·	
					7	
4. WORK PERFORM	ED (Indicate locat	inn time and	docarintian of			
0752 Lea	Je Sield	+ '(	description of work p	errorn	ned by prime and/or subcontractors)	
and	station	rall	to Tor K	AL	B-106013 cluster	
0803 Arri	10 at a	et 41.		-		
0812 100	ve al ga	> 1 1	LAFT	2 1	10(012 11 11 1	
0822 4	2 leave gas station for KAFB-106013 cluster 2 Arrive at KAFB-106013 cluster					
, 11/cu	e ankar	D-1060	15 cluster			

DQCR Page 1 of 2

Reviewed by:

Initials:

Reviewed date: 1-20-2020

4. WORK	PERFORMED (Continued		DATE: 15-2020
1416	Leave KAFT	3-106013 cluster f. field trailer	1 11 + 100
1428	Arrive at	field to let	of red really
		THE TRAILES	
			/
		,	
•			
		/	
	/		
/.			
CONTRAC uipment us ed	TOR'S VERIFICATION: I ed, and work performed do	certify that to the best of my knowledge the uring this reporting period is in compliance v	above report is complete and correct. All with the contract plans and specifications
ove.			
) ulan me	Schneelk	- Who	
	ng, Science and Techno	Signature	
riewed by:	P. M.L. N	DQCR Page 2 of 2	
rewed by:	Le Montry 14	Initials:	Reviewed date: 123-2220

WEATHER: Windy 10-31 mph from East, High of 38°F and overcast/snow.			
WEATHER: Windy 10-31 mph from	in East High of 38°F and plescast (		
1. ONSITE PERSONNEL (including subcontractor	s and government employees)		
Carlos Montaga	Organization  EA - Site Manager/Supervisor		
Pete Feranci			
	EA - Site Health and Safetly Office		
Dylan Schneelk	Geologist Geologist		
Kylian Robinson	Geologist		
2. OPERATING EQUIPMENT Team #1	Team #2 Snare		
YSI Professional Plus 15K101398 YSI Profess	sional Plus 15K101396 YSI Professional Plus 15L100541		
MiniPAE 3000 502 015779	Wh0002		
Wh0005 Wh0004	Wh0006		
Wh0008 Wh0009	2 15100C044633 Hach 2100Q 15100C045025 Wh0007		
	er Level Meter 253053 Solinst Water Level Meter 253056		
3. DAILY SUMMARY (include QC samples collected the public and governmental employees, and prob	d, deviations from planning documents, converstations with the		
governmental employees, and prop	ISL100378		
001-10			
1070 (	-106100		
1250 Sampled KAFB-	106099		
1350			
	,		
4. WORK PERFORMED (Indicate location, time, and	description of work performed by prime and/or subcontractors)		
0800 Leave field trailer	for KAFB-106100 cluster		
0812 Arrive at KAFB-100	Arrive at KAFB-106100 cluster		
1350 Leave KAFR- IDGOD	Leave KAFB-10600 cluster for field trailer		
1406 Arrive at field to	riles		
4 168	alles		

4. WORK F	ERFORMED (Continued)		DATE: 1-16-2020
		\	
		- H	
ONITO			
oment used.	R'S VERIFICATION: I certify	hat to the best of my knowledge	the above report is complete and correct. All
d	the state of the s	s reporting period is in compliance	the above report is complete and correct. All se with the contract plans and specifications
	Schneelk	(1)	$\swarrow$
y an	Somelik	Thelle	
	0-1	Signature	
ngmeering.	Science and Technology Inc	-, PBC	
	4	DQCR Page 2 of 2	
wed by:	Montage		
	- I Olowood	Initials:	Reviewed date: 1 - 20 - 207

ROLE: Team # 1	DATE: 1-17-2020		
WEATHER: Mostly Cloudy and	ticald with high fuser		
1. ONSITE PERSONNEL (including subcontractors	s and government employees)		
Ivalite	Organization		
Carlos Montoya	EA - Site Manager/Supervisor		
Kylian R Pete Feranci	EA - Site Health and Safetly Office		
Dylan Schulelk	Geologist		
Kylian Robinson	Geologist		
2. OPERATING EQUIPMENT			
Team #1 YSI Professional Plus 15K101398 YSI Profess	Team #2 Spare		
Wh0003 YSI Profess	Sional Plus 15K101396 YSI Professional Plus 15L100541		
MiniRAE 3000 592-915778 MiniRAE 300	Wh0002 U		
Wh0005	00 592-915790   MiniRAE 3000 592-915579   Wh0006		
Hach 2100Q 15100C045034 Hach 2100Q	2 15100C044633   Hach 2100Q 15100C045025		
Wh0008 Wh0009 Solinst Water Level Meter 253054 Solinst Water Level Meter 253054	Wh0007		
Solinst Water Level Meter 253054 Solinst Water	er Level Meter 253053 Solinst Water Level Meter 253056		
3. DAILY SUMMARY (include QC samples collected deviations from the			
government of the control of the con			
Equipment: 451 SN: 18L100378  Pump SN: 1807R-699			
0915 5 1 1 605	: 1807B-699		
UTIS Sampled KAI-B-106101			
1111 Sampled KAFB-106102			
1250 Sampled KAFB+06003			
4. WORK PERFORMED (Indicate location, time, and	description of work performed by prime and/or subcontractors)		
0738 Leave field trailer.	to go off base and refuel equip		
0748 Arrive at refueling area offbase			
0137 Leave retreling ou	0137 Leave retueling area for KAFR-106003 clicter		
1806 Arrive at KAFB-106+01 cluster \$ 003 cluster			
191438 Leave KAFB - 10610			
	TIEN MAIN		

DQCR Page 1 of 2

Reviewed by: C. Montay

Initials:

Reviewed date: 122020

4. WORK	PERFORMED (Continued)		DATE: 1-17-2020
1441	A \		
1///	Arrive at +	'eld traiter	
			/
	,		
		//	
		<b>A</b>	
		1	
	. /	/	
	-		
			-
_			
	/		
/			
CONTRAC	TOR'S VERIFICATION: 10	certify that to the best of my knowledge the	above report is complete and correct All
apment us ted	ed, and work performed du	ærtily that to the best of my knowledge the ring this reporting period is in compliance w	ith the contract plans and specifications
ove.			
).// 01	n Schuee	IK While	
me	- Mule	Signature	r
Engineeri	na. Science and Tasks		
3	ng, Science and Technolo	ogy inc., PBC	
		DQCR Page 2 of 2	
ewed hv-	C. Montoya	<b>A</b>	
-7.		Initials: CM	Reviewed date: 1-71-73

ROLE: Team #1				
WEATHER: Clear and warm, with highs in the low 50 1. ONSITE PERSONNEL (including subcontractors and government employees)				
Name	s and government employées) Organization			
Carlos Montoga	EA - Site Manager/Supervisor			
Pete Ferani	EA - Site Health and Safetty Office			
Lylan Schmeelk	Geologist :			
Kyllan Kobilison	Geologist			
2. OPERATING EQUIPMENT Team #1				
	Team #2 Spare sional Plus 15K101396 T   YSI Professional Plus 15I 100541			
Wh0003 Wh0001	Wh0002			
Wh0005   Wh0004	000 592-915790 MiniRAE 3000 592-915579 Wh0006			
Whona 8000nv	Q 15100C044633			
Solinst Water Level Meter 253054 Solinst Wa	ter Level Meter 253053   Solinst Water Level Meter 253056			
3. DAILY SUMMARY (include QC samples collecte	d, deviations from planning documents, converstations with the			
and process, and proc	neitis encountered and remedies applied)			
Gauged GWM Nets	work com			
	·			
WORK PERFORMED (Indicate location, time, and	description of work performed by prime and/or subcontractors)			
0128 Leave field tra	iler for KAFR-106044 cluster			
0/36 MININE OF KATB-10	o Mirine at KAFB-106044 Cluster			
0756 Leave KAFB-1060	ELeave KAFB-106044 electer - St. July			
Starbucks on Gibs	on-Arrival			
Basis Leave starbooks.	for KAFR-20 & cluster			
,	DOCE Page 1 of \$4 cm			

Reviewed date:

4. WORK PERFORMED (Continued)	DATE: 1-20-2020
0820 Arrive at KAFB-106207	((
0843 Leave KAFB-106207 (	closter
0845 Arrive at KAFB-106207 clus	iter for KATB-106236
0907 1 8 KATB-106236	
0907 Leave KAPB-106236 fo	r KAFB-106235
D931	
	AFB-106 Family Dollar
0933 Arnve at Family Dollar +	buy 9V battery.
Time at das station (Ve	encia 3 (- ha boy
Aguar a sarion for	KAFB-106207 Water
106 201	
1004 Leave KAFB-106207 cluster + 1007 Arrive at KAFB-106224 C	or KAFB-106224 cluster
1029 Leave KAFB 106224 (	ster
1029 Leave KAFB-106224 duster 1030 Arrive at KAFB-106204 duster	tor KAFB-106204 claster
1052 Leave KAFB-106204 cluster for	15178 195 00 8
1057 Amire at KAFB-106227	KARB-106227 cluster
H17 Leave KAFB-106227 duster	Chara Chara
1118 Amire at KAFB-106043 clust	ter KAFB=043
1141 Leeve KAFB-1060 43 cluster f	LAED IN DOS
110 17 110E at KAF13-1060 ) X	E KAFB-106023
1198 Leave KAFB-106028 ton St	arbucks
1154 Arrive at Starbucks	33 3021/3
1157 Leave Starbroks for 226	- KAFB-106220 cluster
1202 Arrive at KAFB-106220 clus	310
1214 Leave KAFB-106220 duster	0 1000
1235 Acque of KAER MICORI (	1 0 100201 cluster
equipment used, and work performed during this reporting period is in complianted	ge the above report is complete and correct. All ance with the contract plans and specifications
	Q
Jame Schnellk Signature	
A Engineering, Science and Technology Inc., PBC	
DQCR Page 2 of 23°	

Reviewed date: \_\_\_

4. WORK P	ERFORMED (Continued)	DATE: 1-20-202
1238	Leave KAFB	field trailer
1250	Acche	Of the field trailer
	MITTUR OUT	tield trailed
or and an analysis of the same		
district spin spin spin spin spin spin spin spin		
	/	
/		
ONTRACTO	R'S VERIFICATION: I cert	tify that to the best of my knowledge the above report is complete and correct. All
,	and work performed during	tify that to the best of my knowledge the above report is complete and correct. All g this reporting period is in compliance with the contract plans and specifications
plant_	Schneelk	- Hille
	•	Signature
ugineering,	Science and Technology	
		DQCR Page 2 of 2 3
wed by:	Montan	
	3.000	Initials: Reviewed date:

ROLE: Team # 1	DATE: 1-21-2026		
WEATHER: Raw in with a h	LL FY1°F		
1. ONSITE PERSONNEL (including subcontractors Name	alld government employees) Organization		
Carlos Montoga	EA - Site Manager/Supervisor		
Pete Ferarri	EA - Site Health and Safetly Office		
Dylan Schneelk.	Geologist		
Kylian Robinson	Geologist -		
3			
¥			
2. OPERATING EQUIPMENT			
Team #1 YSI Professional Plus 15K101398	Team #2 Spare		
Wh0003 Wh0001	Onal Plus 15K101396 YSI Professional Plus 15L100541 Whoons		
Wh0005	00 592-915790 MiniRAE 3000 592-915579 Wh0006		
Hach 2100Q 15100C045034 Hach 2100Q Wh0008	15100C044633   Hach 2100Q 15100C045025		
Solinst Water Level Meter 253054   Solinst Water	er Level Meter 253053 Solinst Water Level Meter 253056		
3. DAILY SUMMARY (include QC samples collected	, deviations from planning documents, converstations with the		
12 2 / Line of the original original of the original origin	ems encountered and remedies applied)		
Server Skir	ped because of puddle caresine		
Vault lide	- J		
Gauged GIVM Nethork			
	,		
. WORK PERFORMED (Indicate location, time, and	description of work performed by prime and/or subcontractors)		
0733 Leave field trailer	For Punkin Don't		
1738 Arrive at Dunkin	Down to		
1750 Leure Dunkin De	Lenve Donkin Donots for KAFB-106201 cluster		
800 Arrive at KAFB-106:	Arrive at KAFB-106201 cluster		
823 LEAVE KATB-10620	I cluster for field trailer		
	OCP Page 1 -5/2 CM		

DQCR Page 1 of 23 Cm

Reviewed by: ( . / / / / /

Initials: \_\_\_\_\_\_

Reviewed date: 1-11 DV

4. WORK PERFORMED (Continued)	DATE: 1-21-2020
0831 Arrive at Sight to it	
1852 Leavetied trailor for KAE	2 -106105
	3 eluster
0910 Leave KAFB-106105 duster &	C KAER 100
0919 Arrive at KAFB-106031 cluste	105 KAFD-106031 clustes
013/1 Leave NA(1/2-1/2603/ 1/14-	LAES 106 - 20 11
10942 Arrive at KAFB-106072 cluster	or NAFD-106032 dister
1009 Leave KAFB-106037 (1.150)	er lei En la con
1013 Arrive at KAFB-106242 cluste	TOT NATB-106242
1000 Leave KAFR-106242 Ci	5
Thrive at Starbucks	
Leave Starbucks for KAFB-10()	30 (1)
THE CAT KATIVE INC.	
1103 Leave KAFB-106230 Juster Colo	1 FR -10/ D==
THUE AT KATE TUBOCO	
1130 Leave RATB-106057 -11-10-	LATE INLOUGH
1133 Leave KAFB-106049 Water I	or KAFB-1(160)=
3CT KAT 15-10600	
1210 Leave KAFB-106025 For KAFB-1	0.6 230 duster
1233 Leave KAFB-106230 cluster for 1238 Arrive at KAFB-106058	KAFB-106058 / 100
1306 Leave KAFB-106058 de	ster
1309 1 000 00 cluster for	KAFB-106091 cluster
1339 Leave KAFB-106091 cluster	
1340 Accident live for	KAFB-106022
5. CONTRACTOR'S VERVEICATION	
equipment used, and work performed during this reporting period is in compliance with above.	ove report is complete and correct. All the contract plans and specifications
Pylan Schul III	
Name Signature	
EA Engineering, Science and Technology Inc., PBC	
DQCR Page 2 of 23	

Initials: \_

Reviewed date: \_\_\_

コナーつ	ERFORMED (Continued)	DATE: 1-21-202
1353	Leave KAFB-106022 for fie Arrive at field trailer -	11/1
1402	And 10 + Pill 1	10 trailer
	privile at field trailer -	
		/
	/	
İ		
		-
		-
	<del>/</del>	
/		
/		
ONTRACTO	R'S VERIFICATION: I certify that to the best of my knowledge the a and work performed during this reporting period is in compliance wi	
oment used. d	and work performed during this reporting period is in compliance with	bove report is complete and correct. All
e.	- Simpliance Wil	or the contract plans and specifications
Man	Schweck (4)	
eJ	Signature	
ngineering	Science and Technology Inc., PBC	

Reviewed date: 1-22-2020

ROLE: Team #1		• 2		1-27-2020	
WEATHER: W'IND NOW 13  1. ONSITE PERSONNEL (including su	5-26	ah - 41	(	DATE: A LO LO	
1. ONSITE PERSONNEL (including su	bcontractor	s and government em	clo	and with high of 47 F	
Name		Organization	121010		
Carlos Montoya		EA - Site Manager/Su	pervis	or	
Pete Ferarri		EA - Site Health and S	Safetly	Office	
Dylan Schneelk		Geologis	4		
Kylian Robinson		Geelouis	1		
		000.04.5	1		
	£				
			-		
- formation of the state of the			admiran, ordered		
2. OPERATING EQUIPMENT					
Team #4	T	Team #2			
YSI Professional Plus 15K101398 Wh0003	YSI Professi	ional Plus 15K101396		YSI Professional Plus 15L100541	
MiniRAE 3000 592-915778	Wh0001	00 592-915790		Wh0002	
Wh0005 Hach 2100Q 15100C045034	Wh0004	15100C044633		MiniRAE 3000 592-915579 Wh0006	
Wh0008 Solinst Water Level Meter 253054	Wh0009			Hach 2100Q 15100C045025 Wh0007	
		r Level Meter 253053	Z	Solinst Water Level Meter 253056	
DAILY SUMMARY (include QC samples the public and governmental employee	es collected	, deviations from plan	ning	documents, converstations with the	
	- ALM RIGHT	ans enconness and	reme	dies applied)	
0 0 8			-		
Gaused Wells					
	1		_		
	H				
	The same of the sa		of the last of the		
			***************************************		
A WORK REPRODUCE					
4. WORK PERFORMED (Indicate location, time, and description of work performed by prime and/or subcontractors)					
ried Trailer toc KAI-B-106015					
Mrrive at KAFB-106015					
0751 Leave KAFB-106015 for teat Starbucks					
1735 Arrive at Star bucks					
0805 Leave Starbucks for KAFB-106213 cluster					
NII B-106-213 cluster					
	DO	QCR Page 1 of 2/3 CA			
Reviewed by: [. Matsy)	Initiale-	CM		1 20 000	

Reviewed date: \_

4. WORK PERFORMED (Continued)	DATE: 1-22-2010
0808 Arrive at KAFB-106013	List
J Leave KATR-INGTIZ	
0834 Arrive at KAFB-106037	tol RAFB-106037 cluster
0911 Leave KAFB-106037 duster	cluster
0912 Arrive at KAFB-106229	FOR KAFB-106229
129 Leave KAFB-106229	CAEB-101 CORD
11111VE 01 K/18-106190	-( 1
1000 Leave MAF15-106090 (1)	ctoo Con Islan
12 care 10-10-10-10-10-10-10-10-10-10-10-10-10-1	C LAFD 100 and
	Luster Who 10 cluster
Leave KAFB-106070 de	istor I - MAER MOCORE
The second of th	15 + 5 5
1120 Leave KAFB-106085 elus	ter for field trailer
THE PART OF THE PA	
1203 Leave KAFR 106 & field	I trailer for KAFB-106076
101111111111111111111111111111111111111	OF KAFB-106150
TALL INCLUSE OCI - KAPB-100130	
1227 144 DEE GO 0051	KAFB-106 - &
1227 let BFF for PPE Contridge - 1 1233 Arrive at field trailer	one broke (field trailer)
1233 1 Chiles Trailes	
1339 A LIARD TO KAT	B-106150
1331 1 0 CALED 100.00	122
1333 13=	AFB-106154
1346 Leave KAFB 10615	
c. CONTRACTOR'S VERIFICATION: I certify that to the best of my knowled during this reporting period is in completed.	×ATB-106076
equipment used, and work performed during this reporting period is in completed.	pliance with the contract plans and specifications
Julan Schneelt St	
Signature Signature	
A Engineering, Science and Technology Inc., PBC	

4. WORK PERFORMED (Continued)	DATE: 1-22-2020
134 × Arrive at KAFB-106076	
1405 Leave KAFB-106076 for	Collins
1409 Arrive at field traile	tield traver
1426 Las a fall lete traile	2.1
1426 Leave field trailer for	
1928 Arrive at 90-day ya	do 33.00
1438 Leave 90 - day yard for	tield trailer
1440 Arrive at field trailer	
-	
CONTRACTOR'S VERIFICATION: I certify that to the best of my know suipment used, and work performed during this reporting period is in conted	viedge the above report is complete
suipment used, and work performed during this reporting period is in conted	npliance with the contract plans and specifications
Dylan Schupelle	2
Signature	
Engineering, Science and Technology Inc., PBC	
DQCR Page 2 of 2	CON
Jipwod hu / WIDALarA	3
Initials:	Reviewed date: 1-18 2000

ROLE: 1 earn 2			DATE:	1-6-202	0
WEATHER: 340 + Clear; Wind NY MPH A)					
I. ONSITE PERSONNEL (Including subcontractors and government employees)					
1		Organization  EA - Site Manager/Super	winer		
Carlos Mont	oya				
Pete Ferray	i,	EA - Site Health and Safe	etly Office	Tech.	
Kylian Rob	nson	beologist	I		
3		J			
2. OPERATING EQUIPMENT Team #1		Team #2			
YSI Professional Plus 15K1013	98 YSI Profess	ional Plus 15K101396	YSI Prof	Spare fessional Plus 15L100541	
Wh0003 MiniRAE 3000 592-915778	Wh0001	00 592-915790 F	─ Wh0002	2	
Wh0005	Wh0004		MiniRAE   Wh0006	3000 592-915579	X
Hach 2100Q 15100C045034 Wh0008	└─ Wh0009	Q 15100C044633	15100C044633 Hach 2100Q 15100C045025 Wh0007		П
Solinst Water Level Meter 2530		er Level Meter 253053		Water Level Meter 253056	一
3. DAILY SUMMARY (include the public and governmental	QC samples collected	l, deviations from planni	ng documer	nts, converstations with	the
the public and governmental	employees, and prop	lems encountered and re	emedies app	lied)	
0835- Sampled	ATB-10623	5-501, 1062	-35-47	-2, 106235-43	38
0915 (last 80	uple at ch	vster 235)			
1055 Found Ch	ister KAFB	-106029,030	031	inadequately US for adjust	
Sectioned.	off Gom +	raffic call	ed Si	US Cor adjust	-ment
- Sample.	KAFB-	106231,2	32		
- Sampled	KAFB -	106242			
- Sampled	-Surplied KAFB- 106029,030,031				
- Sarpled	- Sarpled KAFB- 106243				
	1-3				
4. WORK PERFORMED (Indica	ite location, time, and	description of work per	formed by n	rime and/or subcontract	orel
0758 left Ya			· · · · · · · · · · · · · · · · · · ·	and did of Subcontract	UIS)
		C. 1/10.	+ 1816	)	
2.5					
	Sampled KAFB-106235-501				
0900 Sampled	CHFB-1062	35-472		•	

DQCR Page 1 of 2

Reviewed by: C. Monday Initials: CM Reviewed date: 1-8-2020

4. WORK	PERFORMED (Continued)  DATE: 1-6-2020
0915	Sarpled KAFB-106235-438
0935	left KAFB-106235 clister
0940	Amind KAFB-106231, 232
1005	Sarplul KATEB-106231
1035	Sampled KAFB-106232
1050	left cluster KAFB-106231,232
1100	Arrived KAFB-106242
1170	Sampled KAFB-106Z4Z
1135	left KAFB-1060-106242
1140	Arrived Cluster KAFB-106029 030 031
1200	-inpled PATB-106029
1220	Sarpled KAFB-106030
1250	Sarpled KATB-106031
1305	Left XAFB- 106029, 030, 031
1310	Arrived KAFB-106243
1325	Sampled FAFB-106243
1350	left KAFB-106243
1530	Arrived Yard
-	1
CONTRACT quipment use oted bove	FOR'S VERIFICATION: I certify that to the best of my knowledge the above report is complete and correct. All ed, and work performed during this reporting period is in compliance with the contract plans and specifications
Kilia	ha Roberton ha To I -
ame	Signature
A Engineerin	ng, Science and Technology Inc., PBC

DQCR Page 2 of 2

Reviewed date: 1-8-2020

	Team 2	DATE: 1-7-2020		
WEATHE	R: 29° t Clear no EPERSONNEL (including subcontractor	wind @ ct.ct		
1. ONSITI	E PERSONNEL (including subcontractor	's and government employees)		
. 101110		Organization		
<u>C</u> ,	P. Terrar J. EA - Site Manager/Supervisor  EA - Site Health and Safetly Office / Tech			
1		EA - Site Health and Safetly Office / Tech		
IC,	Ribnson	Geologist T		
2. OPERA	TING EQUIPMENT			
	Team #1	Team #2 Spare		
		sional Plus 15K101396 YSI Professional Plus 15L100541		
Wh0003	Uh0001 000 592-915778	Wh0002		
Wh0005	Whood	000 592-915790 Mindae 3000 592-915579		
	Q 15100C045034 Hach 21000	Wh0006 Q 15100C044633		
Wh0008 Solinst Wa	ter Level Meter 253054   Wh0009	Wh0007		
the public	and governmental amployees and prob	d, deviations from planning documents, converstations with the lems encountered and remedies applied)		
0755	C and property and prop	terns encountered and remedies applied)		
	Sofety Briefing V	Dith Its Officer Beachem		
0845		1 2 1		
	Thanked S/O Be	achem + let him know we		
Held mills of the first work was not been strongly being to	A CONTRACTOR OF THE CONTRACTOR	06230, KAKB-106236, KAFB-106222,		
	KAFB-106224 KAFB-10624	0 KAFB-106201, KAFB-10602, KAFB-106203		
		7		
A WORK P	FREORMED (Indicate legation time			
174A		description of work performed by prime and/or subcontractors)		
6740 0750	Left Yand			
0815	Arrived KAFB-	06130		
0845	Sampled KAFB-1 left KAFB-106230	06,250		
0885				
007	Reformed Yand / left	0900		

DQCR Page 1 of 2

Reviewed by: ( Montoy)

Initials: CM

Reviewed date: 1-8-2020

4. WORK	PERFORMED (Continued)  DATE: 1-7-2020
0910	
0925	Sampled KAFB-106236-436
0940	Sarpled KAFB-106236-470
6955	Sarpled KAFB 106236-499
1007	left YAFB-106736 cluster
1010	Arrived KAFB-106222
1030	Sampled KAFB-106222
1040	left KAFB-106244
1050	Arrived KAFB-106244
1100	Sampled FAFB-106244
1115	left KAFB-10624H
1120	Arrived KAFB-106240
1150	Sampled KAFB-106Z40
1205	Ceft KAFB-106240
1220	Arrival Clusta KHFB -106201, 202703
1240	Sample 1 KAFB-106202
1300	Soupled KAFB-106Z01
1325	Sampled KAFB-106703
340	lef+ KATB-106203
350	Bought ice at -X-change.
355	Arried Yard
CONTRAC	TOD'S VEDICION TO VEDICIONI TO VEDICIONI TO VEDICIONI TO VEDICIONI TO VEDICIONI TO VEDICIONI TO VEDICIONI TO VEDIC
uipment us	TOR'S VERIFICATION: I certify that to the best of my knowledge the above report is complete and correct. All sed, and work performed during this reporting period is in compliance with the contract plans and specifications
ove.	Specifications

Name

EA Engineering, Science and Technology Inc., PBC

DQCR Page 2 of 2

Reviewed by: \_\_\_\_\_ Reviewed date: \_\_\_\_\_ Reviewed date: \_\_\_\_\_ | -8 202

ROLE: 1eum L	DATE: 1-8-2020	
WEATHER: 330 + Clean	no wind	
1. ONSITE PERSONNEL (including subcontractors	and government employees)	
Name	Organization	
Carlos Montoya	EA - Site Manager/Supervisor	
Carlos Montaya Pete ferrari Kylian Robinson	EA - Site Health and Safetly Office / Jach Tech	
Kylian Robinson	Geologist I	
2. OPERATING EQUIPMENT		
Team #1	Team #2 Spare	
Wh0003   Wh0001	ional Plus 15K101396 YSI Professional Plus 15L100541 Wh0002	
Wh0005	00 592-915790   MiniRAE 3000 592-915579   Wh0006	
Wh0008	Q 15100C044633 Hach 2100Q 15100C045025	
Solinst Water Level Meter 253054 Solinst Water Level Meter 253053 Solinst Water Level Me		
3. DAILY SUMMARY (include QC samples collected the public and governmental employees, and prob	d, deviations from planning documents, converstations with the	
Sand VAFR-	LPC-2 (LL K AFP : 0 ( 0 ( )	
1× 1= 2-10/000	106241 KAFB-106245,	
17A TO 10600	5, KAFB-106204	
P11-10-106-205	KAFB-106206	
XA-ED 10020	FAFB-106708	
FATB-10620	·	
1		
4 WORK		
4. WORK PERFORMED (Indicate location, time, and	description of work performed by prime and/or subcontractors)	
0745 Left Yard		
1755 Ad-loc at K	AFB-106241	
U905 Leave KAFB-	106 24/	
0915 Arrive at Field	& office yand	
0920 Head to KAPV	3-106245	

DQCR Page 1 of 2

Reviewed by: C. Mondays Initials: \_\_\_\_\_\_\_ Initials: \_\_\_\_\_\_\_

815

Reviewed date: 1-9-2020

4. WORK	PERFORMED (Continued)	DATE: 1 - 8 - 202
0930	Arrive at KAFB-106	245
1020		
1030	Arive of KAFB-1060	05 / Sampled P. 1050
1123	Depart KAFB-10600	5 / surpling 10 30
1140	Buy ice at EXCHI	ANGE on Gibsor
1155	Arrive at KAFB-106 8	207
5 1240	Depart KAFB-106207	
1230	Set up on KAFB-106 20	98
1240	Depart KAFB-10620	8
1245	Set up on MAFR-106.	209
13/0	Defant V.AFB-106209	1
1315	Arvive at KA+B-1062	06
1370	1 A 186206	
1345	Des y francisco de la la la la la la la la la la la la la	OF MAFR-106205
1408	Acrice + KATA	205
1428	Depart from KAFB-1062	284
1440	Arrive at field coffice	204
	in a war a office	
	00	
-		
	CTOR'S VERIFICATION: I certify that to the best of my knowledge the sed, and work performed during this reporting period is in compliance w	

EA Engineering, Science and Technology Inc., PBC

above.

DQCR Page 2 of 2

Δ Δ	30 - 01 -	
Reviewed by: C. Mary	Initials:CM	Reviewed date: 1-9-2020

ROLE: Team 2	DATE: 1-9-2020
WEATHER: 460 + Clear Wi	J 4 MPI
1. ONSITE PERSONNEL (including subcontractor Name	s and government employees)
Carlos Montario	Organization  EA - Site Manager/Supervisor
Conlos Montoya Pete Ferrari	
	EA - Site Health and Safetly Office
Kylian Robinson	Geologist I
	<u> </u>
2. OPERATING EQUIPMENT	
Team #1 YSI Professional Plus 15K101398 YSI Profess	Team #2 Spare
Wh0003 Wh0001	ional Plus 15K101396 YSI Professional Plus 15L100541 Wh0002
	00 592-915790 MiniRAE 3000 592-915579
Hach 2100Q 15100C045034 Hach 21000	Wh0006   Wh0006   Hach 2100Q 15100C045025   Hach 2100Q 15100C045025
Wh0008 Wh0009	Wn0007
	20.01 110.02 200000
The state of the s	d, deviations from planning documents, converstations with the
0850 Reading 300-350	on 4' off anyel directly the
KAFB-106149, 100	opm 4' off ground directly above opm slightly to the Side FFM
PPE indicated.	ppm stigity to the Side IPM
The manager.	
Carolel - 64 50	
Sampled: EAFB-1061	49 KATB-106153 KATB-106151
PATO 106/52 KATI	5-10659 KAFB-10651 KAFB-
10653 KAFB-1100	57, KAT-B-10655, KAT-B-106041
. WORK PERFORMED (Indicate location, time, and	description of work performed by prime and/or subcontractors)
0835 left Field Office/	Grate Removal & GWTS
0850 Arrived KAFB106149	10900 Return to Yand for PPE
2915 Arrived KAFB 106149'	WIPPE EFM
5950 Sangled KAFB-106149	
1025 left KAFB-106149	
PAT 15-106 149	·

DQCR Page 1 of 2

Reviewed by: Montoys

Initials:

Reviewed date: 1-15-2020

4. WORK PERFORMED (Continued)	DATE: 1-9-2020
1035 Arrived at KAFB-106153	
1045 Sampled KAFB-106153	
1105 left KAFB-106153	
1110 Arrae KAFB-106 151	
1125 Sample KAFB-106151	
1148 left KAFB-106151	
1155 Arrive KAFB-10615Z	
1210 left xa Sarpled KAFB-10615Z	
1625 Left KAFB-106157	
1227 Arrived KAFB-10659	
1240 Sampled KAFB-10659	
1305 left KAFB-10659	
1310 Arrived KAFB-10651	
1320 Sarpled KAFB-10651	
1340 Left KAFB-10651	
1345 Arrived KAFB-10653	
1411370693	
1400 left KAFB-10653	
1410 Arrived field office to Drop Sample	
1165 ATTILL KAFB-10657	
1458 Left KAFB-10657 1500 Arrived KAFB-10655	
3.7 0	
1 10 10 00	
1640	
111 rea 1 1 1 5 - 10 60 7 1	
1595 1545 Sarpled KAFB-106041  CONTRACTOR'S VERIFICATION: I certify that to the best of my knowledge the above equipment used, and work performed during this reporting period in in a series.	e report is complete and correct All

5. CONTRACTOR'S VERIFICATION: I certify that to the best of my knowledge the above report is complete and correct. All equipment used, and work performed during this reporting period is in compliance with the contract plans and specifications above.

K. Robinson	16100
Name	Signature
EA Engineering, Science and Technology Inc., PBG	c

DQCR Page 2 of 2

0 4	- 40.1. 490 2 01 2	
Reviewed by: C. Monkoyx	Initials: CM	Reviewed date: 1-19-2-22

. WORK P	ERFORMED (Continued)				DATE:	1-9-2020
1999	left KAFB-	10604				
1605	Arrhed fa	1				
1009	Allived Ja	u -				
				:		
and the same of th			•			
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and supplied to the supplied t						
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					Reduction of the State of the S	
- Second			And the second s		-	
	. /					
-						
ONTRACT	OR'S VERIFICATION: 1 ce	rtify that to the	host of mulina	-111		
ipment used ed ve.	d, and work performed during	ng this reporting	period is in com	edge the above in pliance with the	eport is cor contract pla	nplete and correct. All ns and specifications
K. Roh.	1901		km	1		
ne	(C-) (OV)	Sic	mature		H-03-0mp/QCD-eulestone	
Engineerin	g, Science and Technolog	-	,,			
3	an anience and recunolog	y Inc., PBC				
		DQ	CR Page 2 of 2			
ewed by:	Monton					date: 1-15-2
Jy.	11101110717	_ initials:	CM		Reviewed	date:  -15-7

ROLE: Jean 2 O+M	DATE: 01-13-2020
WEATHER: 45°F clear	DATE: 01-13 2020
1. ONSITE PERSONNEL (including subcontractor)	s and government employees)
Maille	Organization
Carlos Montoga	EA - Site Manager/Supervisor
Pete Ferrari	EA - Site Health and Safetty Office
Galveston Begane	TECH III
	196
2. OPERATING EQUIPMENT	
Team #1	Team #2 Spare
	ional Plus 15K101396 YSI Professional Plus 15L100541
[111004]	Wh0002
Wh0005 Wh0004	Wh0006
Wh0008 Wh0009	Q 15100C044633 Hach 2100Q 15100C045025 Wh0007
	er Level Meter 253053 Solinst Water Level Meter 253056
3. DAILY SUMMARY (include QC samples collected	, deviations from planning documents, converstations with the
the public and governmental employees, and prob	ems encountered and remedies applied)
	O+M
MAFB-106006, HAFB	-106247-50, WAFB-108007, WAFB-10600)
4A FB-106027, MAFB.	-106044 MAPB-106045 KACB-106016
MAPB-3411, MAPB-10	6059, KAPB-106008 KAFB-106063
MAY 35-106061, MAY 35-	106003, 4AFB-166101 KAFB-166102
MAKB-106002, WASB	-1060DR 61CR-10 CMS
1/4/15-100001, MAYS	-100079, KAFB-106080, KAFR-106092
KASB-106019, KASA	B-106011,
. WORK PERFORMED (Indicate location, time, and	description of work performed by prime and/or subcontractors)
1928 lest traffer yans	to MAFB-106 006
1935 Annel at KAPB	
	to KAFB-106247-50
946 Armed at KAFB-10	66247-50
1951 JEST KAPB-10624	7-50 to KAFB-106007
t	The state of the s

DQCR Page 1 of 2

eviewed by: CM

Reviewed date: 1-15-270

4. WORK PERFORMED (Continued)	DATE: 01-13-202
0952 Armel at MAFB-106007	
0958 1057 KAFB-106007 to KAFB-10	60.79
1001 Horned at KAFB-106078	60 78
1002 [181 KAFR-166078 ]	0.02
1007 Acrised 1 166078 to KAFB-	(06.00)
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
12 12 106 001 to 201 15-	106027 truiler
1026 fromed at trailer for bailer & re	cel for team #1
1031 left truster to fear #1 at	RSF EA Laile
103 Morey at team AT at BFF FA trailer	
1030 184 team #1 to KAFB-10607-	cluster
mored at 6SEB- 106022 chile	
1016 18+ 1/13-106027 to LAFR-106	074
more at KATS-106049	
1001 lest KASB-106 DAY to KASB-106	:045
morel at WAPB-106045	
1056 left MAFB- 106 045 to KAFB.	-106016
1058 Arrored at 4AFB-106016	
1108 lest KASB-106016 to KASB-	63 3411
III Arrived at KAFB - 34/1	
1122 left KAFB -3411 to KAFB-10609	39
1130 Horard at KASB-106059	
1138 lest KAFB-106059 to KASB-10	6008
1140 Armed at KAPB-106008	
4175 LEST WAFB- 106,008 to trailer	6.1/
1148 Armed at trailer for lunch	for lunch
1216 lest track to got Staton	
1223 Arrived at 0 = Ata 11/2	
5. CONTRACTOR'S VERIFICATION: I certify that to the best of my knowledge the above requipment used, and work performed during this reporting period is in compliance with the	enort is complete and compet an
equipment used, and work performed during this reporting period is in compliance with the content of the period is in the period in the period is in the period in the period in the period in the period is in the period i	ontract plans and specifications
above.	

EA Engineering, Science and Technology Inc., PBC

4	1.1	DQCR Page 2 of 2		
Reviewed by:	10ntoxx	Initials:CM	Reviewed o	date: 1-15-202

4. WORK	PERFORMED (Continued)  DATE: 01-13-20 20
1231	loft gas station valen to KAFB-106063
1244	Arried at UAFB-106063
1256	lest KASB-1060B3 to fearuth at BFF trailer
1300	Arrored at Bff trailer team #1.
1323	lest KASB BRF touther from HI to KASB-10506
1326	1060 64 MATE- 1060 64
1331	WET KAFB-106064 to KAPB-106003
1337	Anold at KASK-106003
1343	187 KAB-106003 to KAPR-10(1)
1344	Armvey at 1913-106/01
1346	Wfe KASB-166101 to KASB-106102
1347	Horney at 4/7-106107
1352	lest KAFB-106/02 to KAFB-106002
1354	Arrived at KAFB-106002
1358	LUST KAFB-106002 to KAFB-106012R
1401	thinky at 11A+B-106012R
1404	Lest KASB-106012R to KASB-106005  Arrived at KASB-106005
M08	Howed at KASB-106005
1412	WA KASB-106005 to KASB-106081
1416	Arrived at KASB-106081
1420	Lest KAPB-106081 to KAFB-106079
1425	Armed at KAPB-106079  LEST MASB-106079 to KAFB-106080
Ung	Manager 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
129	formed at MAPB-106080
1433	1000 + 1000 1000 FO KAFB-106062
438	Horney at MAFB-106062
CONTRACT	TOR'S VERIFICATION: LOOKING MEAN IN THE TORING TORI
quipment use oted	ed, and work performed during this reporting period is in compliance with the contract plans and specifications

EA Engineering, Science and Technology Inc., PBC

DQCR Page 2 of 2 Reviewed by: Initials: Reviewed date:

4. WORK PERFORMED (Continued)	DATE: 01-13-2020
1446 Armed at KASB-106014	
1449 Lest KASB-106014 to KA	Ca
1451 Armed at KASB-106011	13-106011
	1.
1458 Annell at traffer end	E dan
at Trailer and	of day
CAIN	1 F
	) 0)
	/
NAY	
PH	
5. CONTRACTOR'S VERIFICATION: I certify that to the best of my knowledge the above equipment used, and work performed during this reporting period is in compliance with the noted	report is complete and correct. All
above.	contract plans and specifications
Name Signature Signature	

EA Engineering, Science and Technology Inc., PBC

DQCR Page 2 of 2

Reviewed date: 1-15-2020

ROLE: _	leam 2 OtM	DATE: 01-14-2020
WEATHE	iR:	
1. ONSIT	E PERSONNEL (including subcontractor	s and government employees)
Haine		Organization
į.	arlos Montoya	EA - Site Manager/Supervisor
	te Fevrani	EA - Site Health and Safetly Office
Gal	verton Begage	TECH TIL
		R
2. OPERA	TING EQUIPMENT Team #1	
YSI Profes		Team #2 Spare
Wh0003	Wh0001	ional Plus 15K101396 YSI Professional Plus 15L100541
		Wh0002
Wh0005	Wh0004	Who 006
Hach 2100 Wh0008		Q 15100C044633
	iter Level Meter 253054   Solinst Wah	Wh0007
		- Taloi 2010/ Mickel 200000
3. DAILY S	SUMMARY (include QC samples collected	, deviations from planning documents, converstations with the
the public	and governmental employees, and prob	ems encountered and remedies applied)
	O+M insperted:	
	KAPB-106015, KAFB	-106010, KASB-106028.
	KAFB-106201, GAFB-1	06202, KAFB-106203, KAFB-106009
	MAY13-10654 MAFB-1	06245 KACR - INCOUR WACR INCOURT
	KAFB- 1060 48, KAFB-101	652, KAFB-106060, KAFB-106061, 106024, KAFB-106076, KAFB-106077,
	KAFB-106156, KAFB-	106024, KAPB-106076, KAFB-106077,
	MATE 1000 10 101115-	106190, KAPB-106150, KAPB-106159,
	KAPB-106155, KAFB.	-10658,
		A.
		CV2
4. WORK P	<b>ERFORMED</b> (Indicate location, time, and	description of work performed by prime and/or subcontractors)
0830	lest trailer to	WASE-106015
0837	Armed at MAP	B-106015
0842	LEFT KAPB-106	015 to KAFB-106010
0850	Armed at MASB-	106010
357	WH KAFB-1060	10 to KAFB-106023

DQCR Page 1 of 2

Reviewed date: 1-15-2025

	y dealing of the port - North-Construction
4. WORK	PERFORMED (Continued)  DATE: 01-14- Zo Z
0900	Arried at HASB-106028
0909	Lest MASB-106028 to trailer
222	Arrived at trailer
1005	18st trailer to 4ASB-106201 cluster.
1015	Armed at KAFB-10620, cluster
1028	Lest hASB-106201 to KASB-106202
1029	Arrival at KAFB -106202
1032	WF HAFB-106202 to HASB-106203
033	Arrived at KASB-106203
038	LEST KAFB-106203 to KAFB-106009
047	Arrived get KAFB-106009
056	JOST 418B-106009 to KAFB-10654
57	Armed at KAFB-106SY
105	1854 KAFB-106SY to KAFB-106245
107	Amired 4t KAFB-106245
112	1887 KAFB 106 245 to KAFB-106046 chafer
116	morely at MAB-106016 cluster
27	lest KASB-106046 duter to KASB-106047
28	Annel 9t KAFB-106047
34	1est KASB-106047 to 4ASB-106048
35	Arravel at KAFR-1050 48
150	1854 KASB-105048 to HASB-905 trailer
212	formed at trailer
223	left trasfer to MASB-10652
28	Arrard at MAGB-10652
230	Aroral at 106.52 to 11AFB-106060
CONTRAC	TOR'S VERIFICATION: I certify that to the best of my knowledge the above report is complete and correct. All

5. CONTRACTOR'S VERIFICATION: I certify that to the best of my knowledge the above report is complete and correct. All equipment used, and work performed during this reporting period is in compliance with the contract plans and specifications above.

Name Begage Signature

EA Engineering, Science and Technology Inc., PBC

DQCR Page 2 of 2

Reviewed by: C. Montoy Initials: \_\_\_\_\_\_ Reviewed date: \_\_\_\_\_\_\_\_\_ |

4. WORK	PERFORMED (Continued)  DATE: 0 - 9-20-2
1236	lest HAPB-106060 to HARB-106061
1237	Arrived at MADR-106061
1244	LIST KASB-+06/56BB 106067 to KASB-106/56
1247	Arned at KASB-106/56
1255	1854 KAFB-106156 to KAFB-106024
1303	Arraved at KAFB- 106024
13/0	Lest KA SB-106024 to KA FB-106076
1314	Annel at MATE-106076
1321	LEFT KAPB-106 076 to LATE-106077
1322	181 VEST GT RATES -106077
1326	1884 KAPB-106077 to WAPB-106078
1327	Arrived at KAFB-106078
1334	Lest KAFB-106078 to KAFB-106148
1336	April 9+ 12-106 148
1350	lest KAFB-106/48 to KAPB-106/50
1353	Arrived at NAFB-106150
1404	LEST KASB-106050 to KASB-106154
1407	Arrived at KA-106/54
14/3	188 HASB-106 154 to GASB-106155
1415	Arrived of KAFB-106155
423	Armed of KAFB-106155 1est KAFB-106155 to KAFB-10658
425	HONONES at 10658
M29	fest KAPB-10658 to trailer Armel at trailer END OF DAY
	formed at trailer END OF DAY
×.	
	A A
CONTRAC	TOR'S VERIFICATION: I certify that to the best of mules and it is

5. CONTRACTOR'S VERIFICATION: I certify that to the best of my knowledge the above report is complete and correct. All equipment used, and work performed during this reporting period is in compliance with the contract plans and specifications above.

Salveston Begine Signature

EA Engineering, Science and Technology Inc., PBC

ROLE: Trant2 - O+M	DATE:						
WEATHER: Mid 505 (F) : mostly else	A. DATE:						
WEATHER: Mid 50's (°F); mostly clean  1. ONSITE PERSONNEL (including subcontractors and government employees)							
Name Organization							
Carlos Montoga	EA - Site Manager/Supervisor						
Pete terrari	EA - Site Health and Safetly Office						
J. Messenger / G. Begaye	EA - Team #2						
	M						
2 OPERATING COUNTY							
2. OPERATING EQUIPMENT Team #1							
To don't me	Team #2 Spare sional Plus 15K101396 T YSI Professional Plus 15I 100641						
Wh0003 Wh0001	1 1 10 10 10 10 10 10 10 10 10 10 10 10						
MiniRAE 3000 592-915778   MiniRAE 30	000-592-915790   MiniRAE 3000 592-915579						
VVN0005 Wh0004	Whone						
Wh0008   Wh0009	Q 15100C044633 Hach 2100Q 15100C045025						
	er Level Meter 253053 Solinst Water Level Meter 253056						
3. DAILY SUMMARY (include QC samples collected the public and governmental amplemental amp	d, deviations from planning documents, converstations with the						
O O o d	ienis ericountered and remedies applied)						
- Net & field office - Oak Performed on (35							
Call Little med on S	by wells						
	And						
WORK PERFORMED (Indicate location time and	deanies -						
0744 4 field office - 0753	description of work performed by prime and/or subcontractors)						
0809 Left KAFB-106013 chistor-	4+ field office - 0753 Arived @ KAFB-106013 cluster						
10007 -1071	Lift KAKB-106013 cluster - 0812 Arred @ KAFB-10657						
0818 left KAFB-10657-0819 6	THE PROPERTY OF THE PROPERTY O						
0835 arrived & RAFB-106019 -	arrived @ KAFB-106019 - 0837 lef KAFB-106019 - 0839 Arrived@ KAFB-10601						
0844 left HATB 106017 - 0846 a	1 mived & KARB-100038 cluster - 0850 left 19AFB-1060 38 clust						

DQCR Page 1 of 2

Reviewed by: C. Markey 1

Initials: \_\_\_\_\_

Reviewed date: 1-12-12-16

4. WORK F	PERFORMED (Continued)  DATE: 1-15-2020	7		
0856	arrived @ FATB-106032 cluster - 0932 left KATB-106032 cluster	-		
0938	arrived @ KATB-106231 cluster - 1006 Gf KATB-106231 cluster	1		
1010	THE -106231 cluster	-		
1057	1000 1000 1000 1000 1000 1000 10000 10000 100000 1000000	-		
1151	arrived @ KAFB-106021 - 1148 LAT KAFB - 106021  Arrived @ KAFB-106236 rest - 1203 Left KAFB-106236 elusters	+		
1204	agriced @ KAFB-106235 nest - 1221 Get KAFB-106235 nest			
	arrived @ XAFB-106025-1228 left KAFB-106025	and the second		
1235	arrived @ KAFB-106084 - 1241 11 KAFB-166084	-		
1245	arrived @ KAFB-loboof duster - 1254 left KAFB-106004 cluster			
1255	arrived @ KAFB +260240 m - 106240 -			
1300	Coft KAFB-106240 - 1304 arrived @ KAFB-106022			
1313	Ceft KAFB-106022 - 1322 arrived @ fild office			
0	cleaned out truck + pupped for shipping	EOD		
.				
	$\Lambda$			
CONTRAC	TOR'S VERIFICATION: I certify that to the best of my knowledge the above report is complete and correct. All			
oted	ed, and work performed during this reporting period is in compliance with the contract plans and specifications			
oove.	Messongon III			
ame	Signature			
EA Engineering, Science and Technology Inc., PBC				
	DQCR Page 2 of 2			

Reviewed date: 1-10-0020

Initials:

-	leam +2- 01NI	DATE: 1-16-2020					
WEATHE	R: 38-40°F. 80% chance	L'Existence and la					
TOTAL PERSONNEL (Including Subcontractors and government employees)							
Name Organization							
	Carlos Montoya Pete Ferrari	EA - Site Manager/Supervisor					
	Pete Ferrari	EA - Site Health and Safetly Office					
J. Me	ssenger / G. Begaye	EA - Team #Z					
	·						
	AV						
2. OPERAT	TING EQUIPMENT						
YSI Profes	Team #1 sional Plus 15K101398  YSI Profess	Team #2 Spare					
Wh0003		ional Plus 15K101396 YSI Professional Plus 15L100541					
	000 592-915778 Wh0001	Wh0002 U					
Wh0005	W/h0004	1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2					
		Wh0006 Wh0006 Hach 2100Q 15100C045025					
Wh0008		Wh0007					
Solinst Wat	er Level Meter 253054 Solinst Water	er Level Meter 253053 Solinst Water Level Meter 253056					
3. DAILY S	UMMARY (include OC samples collected						
the public	and governmental employees, and probl	, deviations from planning documents, converstations with the ems encountered and remedies applied)					
	met e field thise - discuss	us weather and time of the desired					
	04M m 22 ml	is weather conditions for the day					
<del></del>	O TO THE WEST						
	and the second process of the second process						
WORKE	DEODMED /Indicate						
0727	1 4 C Of 14	description of work performed by prime and/or subcontractors)					
0737	+3+ left field office - 0744 Arrived @ VA property to do 0 & M on all wells						
1815	15 lett VA property; wells checked - 0818 arrived @ KAFB-106065, Let						
828	17 left field office - 0744 Arrived @ VA property to do 04 M on all wells  18 left VA property; wells checked - 0818 Arrived @ KAFB-106065 chester  18 left KAFB-106065 cluster - 0829 Arrived @ KAFB-106069 cluster  19 left KAFB-106069 cluster - 0847 Arrived @ Ehvrch property  10 left Church property - 0921 Arrived @ KAFB-106088 cluster						
1842	Jet KARB-106069 cluster - 0847 arrived @ church oromatu						
0920	left church os operty -	092 ( Drived @ KAFB-INLOSS aluston					
		THE TOWN ON THE					

DQCR Page 1 of 2

Reviewed by: C. Manay

Initials: LM

Reviewed date: 1-72-2020

WORK PERFORMED (Continued) 0946 Let KAFB-106088 duster 0956 Arrived & field office EDD	20
CONTRACTOR'S VERIFICATION: I certify that to the best of my knowledge the above report is complete and correct uipment used, and work performed during this reporting period is in compliance with the	
uipment used, and work performed during this reporting period is in compliance with the contract plans and specificati	t. All ons
ove.	
Messenger Signature	
Gignature	
Engineering, Science and Technology Inc., PBC	
DQCR Page 2 of 2	
viewed by: C. Montry Initials: Reviewed date: /-Za-	-7417

ROLE: Team #Z - D&M	DATE: 1-17-2020
WEATHER: 48-50°F: 15-25 mp	h wind: avoicast
1. ONSITE PERSONNEL (including subcontractor	's and government employees)
	Organization
Carlos Montoya Pete Ferrari	EA - Site Manager/Supervisor
	EA - Site Health and Safetly Office
Messenger / G. Begaye	EA-Team#2
V	
OPERATING EQUIPMENT	
Team #1	Team #2 Spare
	sional Plus 15K101396 YSI Professional Plus 15L100541
	Wh0002
h0005 Wh0004	000 592-915790   MiniRAE 3000 592-915579   Wh0006   Hach 21000 151000045035
h0008 Wh0009	Wh0007
	Committed Level Meter 253036
te public and governmental employees, and prob	d, deviations from planning documents, converstations with the
government chiproyees, and prop	iems encountered and remedies applied)
- Met @ field office - O&M conducted on 33	2 10
UTIVE conjuncted on 33	2 wells
A	
	A
- At	
V	9 .
WORK PERFORMED (Indicate location, time, and	description of work performed by prime and/or subcontractors)
730 left field office - 07	B Arrived & KAFB-106103 cluster
100 lett KAFB-106/03 cluste	- 0802 Arrived @ KABB-106071 huston
18/10 1 Let KATIS-106071 11.060	- 08/7 REGIND B. 1120 101005 110
85 + 1et MMB-106885 clust	PC = 1901 Arrived @ NATE - 12/2941 of the
1913 left KARB-106094 cluster	- 0916 Arrived @ 1/AFB-106244 -tuster
	300m m

DQCR Page 1 of 2

Reviewed by:

Initials:

Reviewed date: 1-2024 WW

4. WORK P	ERFORMED (Continued)	DA	TE: 1-17-	2020
0427	left KAFD-106244-	- 0932 Accord 6	VACO IN	01/1
0948	left KAFB-106041 . lycho	TO ACTOR CON	CAHB-1060	941 cluster
1000	left KAFB-106041 clister left KAFB-106054 clister	- 1904 ALTIVE	LE KATB-	-106054 cluster
1018	Left KAFB-106054 cluster	1007 Unived Q LA	B-106057	cluster
1037	- Cluster	10/1 (150, 184) (1)	11	
1051	10001	uster 1040 11.11	1 0 1/1-1	
1114	LIKSHI	1033 1100 11	IN VATA IRI	-0.
7	left KAFB-106091 cluster	- 1125 dirived	@ field off	ice - 501
			00	
			/	
		/	/	
	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			
	/			-
ONTRACTO	R'S VERIFICATION: I contifu thanks if			
pment used,	R'S VERIFICATION: I certify that to the best and work performed during this reporting per	of my knowledge the above report ideas in compliance with the contract.	s complete and corr	rect. All
ve.	1		r highs gud specific	ations
1 - 1/le4	rengel	In Many		
V	Signatu	Ire		
gureetiig,	Science and Technology Inc., PBC			
	DQCR	Page 2 of 2		
wed by:	///	2 dr		

Reviewed date: 1-20-00

Initials:

ROLE: Jean 2 - Galging	DATE: 1-20-2020
WEATHER: 48-50°F; thin high cloud.  1. ONSITE PERSONNEL (including subcontractor.)  Name	ids - mostly sunny
1. ONSITE PERSONNEL (including subcontractor	s and government employees)
	Organization
Carlos Montoga Pete Ferrari	EA - Site Manager/Supervisor
	EA - Site Health and Safetly Office
J. Messenger G. Bergy	EA - Team# 2
AY.	
2. OPERATING EQUIPMENT	
Team #1	Team #2 Spare
YSI Professional Plus 15K101398 YSI Profess Wh0003	ional Plus 15K101396 YSI Professional Plus 15L100541
[441000]	Wh0002
Wh0005	
Hach 2100Q 15100C045034	Wh0006   Hach 2100Q 15100C045025   Hach 2100Q 15100C045025
Wh0009	Wh0007
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
the public and governmental employees, and probl	deviations from planning documents, converstations with the
- met @ field office	ems encountered and remedies applied)
- Wood 6 + 1	1 t
Used Geotech WLN	10kg 510+ 000
- Gauged GWM wells of	30) om (31 wells)
J.	
. WORK PERFORMED (Indicate location, time, and	
2710 16 0016	description of work performed by prime and/or subcontractors)
	Usived & KAFB-106045 cluster to calibrate
6-76	827 let KAFB-106045 cluster
0828 arrived @ KAFB-3411 ch	Stel - 0856 left KAFB - 1063411 chister
1900 Minved @ PATB-10659 cluster	- 1945 LA WAFB-101 SQ 1
1948 arrival Chilloffice - 0950	Left field office
W	

DQCR Page 1 of 2

Reviewed by: \_\_\_\_\_\_ Initials: \_\_\_

Initials:

Reviewed date: 1-28-220

	K PERFORMED (Continued)  DATE: 1-20-202
0954	To muse all colle in the
1049	Externed APTIM yard - 1100 left APTIM yard
1100	
Jm 8 1127	arrived & KAFB-106048 cluster - 1125 left KAFB-106048 cluster
1212	Orived & field office - 1154 left field office.
53 8530	Arrived @ FAFB-106004 cluster - 1250 left KAFB-106004 clust Arrived @ KAFB-106082 chapter = 1321
1333	arrived @ VAWEST Some Darking It I
1406	
1415	
	arrived @ field office EOD
-	
E 660N	
equipment used	OR'S VERIFICATION: I certify that to the best of my knowledge the above report is complete and correct. All
noted above,	d, and work performed during this reporting period is in compliance with the contract plans and specifications
A- Me	essenger 1 1 1
Name	Signature  G. Science and Technology Inc., PBC
m	

Reviewed date: 1-28 -20 20

ROLE: 18am 2 Gangin	DATE: 01-21-2020
WEATHER:	Jan Los Company
1. ONSITE PERSONNEL (including subcon	itractors and government employees)
	Organization Organization
Carlos Montoya	EA - Site Manager/Supervisor
Pete Ferrari	EA - Site Health and Safetly Office
Galvofon Begane	Tech III
$\sim$	
0013	
2. OPERATING EQUIPMENT	
YSI Professional Plus 15K101398 YSI	Team #2 Spare
Wh0003	Professional Plus 15K101396 YSI Professional Plus 15L100541
WINIRAE 3000 592-915778 Mini	RAE 3000 592-915790
Who	1004
Wh0008	12100Q 15100C044633   Hach 2100Q 15100C045025
Solinist vy ater Level Meter 253054   Solin	st Water Level Meter 253053 Solinst Water evel Meter 253055
3. DAILY SUMMARY (include QC samples on	
Water level Met	er SN# 000
Wells ganged = A	(AFB-106002, KAFB-106003,
1775-10001, KAF	B-10601, KAPB-106012R.
11473-106013 1	18B-106014 6100 1000
106 011, XM	B-106061 MAPA-100068 WARD 106060 1
11AP15-106017, WA	13-106078, KARL-12CARI KARL 12CARY
KAM3-106 095, KA	106096, KAFK-106097
MAPS-106098, M	[AFB-106101, KAFB-106102, KAFB-10621]
KAFB-106240,-	
WORK PERCONNER (I. A.	000
CALLO LA COMED (Indicate location, time	e, and description of work performed by prime and/or subcontractors)
840 left trailer to	MASB - 10600 3 RKAFB-106003
855 leave KAFB-	106 003 to 002
85/ Arrive at	KAFB-106002
Too Leave KAF	B-106002
	KAFB-106012R

DQCR Page 1 of 2 4 cm

Initials:

Reviewed date: 1800

4. WORK PERFORMED (Continued)	DATE: 01-21-2020
0921 Leave KAFB-106012R	
0923 Arrive at KAFB-106009	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	·
0136 Arrive of 1000 - 12/20	31
TATE-10 (18)	
OPTI Arrive at KAER-106 OUL	
OBS Leave KAFR-1010	
Arcive KAFB-106 OIL	
Toll Leave KAFR - INCOLL	
1013 Arrive at KAFB-106121	
1024 Finish KAFB-106 101	
1036 Began KAFB-106/02'	
1035 Ac 14 FB -106 102	
1011/ FILL AT RAFB-106	
1048 Beein WAFB-106077	
10561.	
1100011E A ATT 5-106078	
1115 109 trailer	
1125	
1141 Frish KAFB-106094	
172 Beel XAFR-101 291	
1149 FIRSH KARR-106021	
1150 Began KAFB-106095	
1157 Find CG KAFB-106035	
1158 Arrive at KAFB-106067	
5. CONTRACTOR'S VERIFICATION 1	
5. CONTRACTOR'S VERIFICATION: I certify that to the best of my knowledge the above re- equipment used, and work performed during this reporting period is in compliance with the co- above.	port is complete and correct All
above.	ontract plans and specifications
Name Name	
EA Engineering, Science and Technology Inc., PBC	

DQCR Page 2 of 2 4 Cm

Reviewed date: 1-18/2010

Initials:

4. WORK PERFORMED (Continued)	
12.11 12 ( 1 2	onit.
1211 Begin KAFB-106068	
16/8/7	
10013-100060	
NA EIST XC OGG	
1226 Fin Sh KAFB-11/1000	
1233 And A 160067	/
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
10 K F 13 - 600 2 11	
1306 Steint KAFB - 106 017	
13/4 E 2 36 16/10 10	
- 1 KA+15-106017	Headon
120 To Valend for fue	
325 Finish as Ah.	
3.38 Arred of Care	
341 RA SI 47 106013	
247 B KAFB-106013	
371 Begin 6AFB-106097	The second secon
357 17035 KAFB-11/097	
359 Beech WAFE- INCO	
402 FIRE 106098	
404 Bass 1-150 106098	40
1 Degin KAFB-106247	
415 Findsh RAFR 100 2/12	
417 Andre KAFB-106240	
420 El 106019	
128 Tines KAFB-106019	
110 Arrive at KAFB-106	120
176 1 1 - 1	058
447 Bes 6 1/1 ER -106 038	
0. 11 CATON 100 037	
153 Finsh KAFB-106030	
54 Begd KAPB-10B040	
500 F. 975 VATO 116010	
10 Ar 5 706040	V .
	6 475.71
CONTRACTOR'S VERIFICATION: I certify that to the best of my knowledge the above industrial design of the properties of t	report is complete and
pment used, and work performed during this reporting period is in compliance with the	contract plans and specificatione

EA Engineering, Science and Technology Inc., PBC

0.4.	DQCR Page 2 of 24 Cm	
Reviewed by: CIMMAN	Initials:	Reviewed date:

1525	Arrived of deal Continued DATE: 01-21-20
1362	Armed at trader (EA) END OF DAY
-	prop of PA
/	
ONTRACTOR	S VERIFICATION. Lawrence
oment used, a	P'S VERIFICATION: I certify that to the best of my knowledge the above report is complete and correct. All and work performed during this reporting period is in compliance with the contract plans and specifications
e /	A compliance with the contract plans and specifications
2alles	ton Beause Gills
е	Signature
ngineering, (	Science and Technology Inc., PBC
wed by:	DQCR Page 2 of 2 4 Cm
mod has	Initials: Initials: M

ROLE: _	Team #2 - ganging		DATE.	1-77-2020	>
WEATHE	R: mid-high 405 (F)	nostly cloudy +	0	Language and the second	HATCH CONTRACTOR
1. ONSIT	E PERSONNEL (including subcontractors	- wire Acaelinial Gillbio	/ees)		
	A	Organization			
-	01-00	EA - Site Manager/Super			
1	lete terran	EA - Site Health and Safe	tly Office		
J-Ne	ssenger / G. Begaye	EA - Team 7	#2		***************************************
					-
		m -			Michael Polyconne
	A				
2. OPERA	TING EQUIPMENT				
	Team #1	Team #2			
Wh0003	ssional Plus 15K101398 YSI Professi	onal Plus 15K101396	7 YSI Profession	Spare al Plus 15L100541	=
	000 592-915778 Wh0001	00 592-915790	-  Wh0002	L	_
Wh0005	Mark con	00 592-915/90	MiniRAE 3000 Wh0006	592-915579	
Mach 2100 Wh0008	Q 15100C045034 Hach 2100C	15100C044633	Hach 2100Q 1	5100C045025	7
Solinst Wa	ter Level Meter 253054 Solinst Water	r Level Meter 253053	- Wh0007		_
			Solinst Water L	evel Meter 253056	X
the public	SUMMARY (include QC samples collected and governmental employees, and proble	, deviations from plannin	g documents, co	nverstations with the	2
	and governmental employees, and problement & Feld office	ams encountered and ren	nedies applied)		_
*	The state of the s				
	GeoTech SN#0001			· ·	
-	Ganged 22 wells				
	0				
	$\bigcap$				$\dashv$
	L W			•	-
	Al				-
					_
WORK P	ERECOMED II-dia.			¥	age of the same of
1779	ERFORMED (Indicate location, time, and	description of work perfo	rmed by prime ar	dor subcontractors)	$\dashv$
0729	teld office - 073	1 Chrised (2)	AFB - 106	745	
0738	left KAFB-106245 - 0742	arrived & KAGS	-11654		$\dashv$
7750			AFB - 10600	25	$\dashv$
0805		1 2 1 1			-
1839	67+ KAFB - 106065 duster -	1	PARB-106065	cluster	_
	CW FU	unived 6	FMPB- 10	655 cluster	an parties

DQCR Page 1 of 2

Reviewed by: \_\_\_\_\_\_\_ Initials: \_\_\_\_\_\_\_

Reviewed date: 1-28-22

4. WORK	PERFORMED (Continued)  DATE: /- ZZ- ZOZO
0856	left KAFB-KBS5 14 - Agns a
0918	1 1 1000 10157 CHISTER - 10653
0934	
	left KAFB - 106008 cluster - 0935 Entered BFF
1048	left BFF - Arrived @ KAPB-106152 - 1058. Left KAFB-10615.  arrived @ KAFB-106081 chuster - 1144
1059	aired @ KAFB-10/08/1 1
1117	
	Usined a field office - EOD
	M
1	
NI KACTO nent used.	R'S VERIFICATION: I certify that to the best of my knowledge the above report is complete and correct. All and work performed during this reporting period is in compliance with the contract plans and specification.
	and work performed during this reporting period is in compliance with the contract plans and specifications
1:11	
7 71	essengier - Jan M
gineering,	Science and Technology Inc., PBC
	Comology Inc., PBC
	DQCR Page 2 of 2
ed by:(	Montoya Initiala CAD

Initials:

Reviewed date: \_\_\_

Project: Sithmed AFB BEF ST-1088S-111	*		Well Gauging Form Team 2 Total Wells 85								2020
No.   No.   Pide   Pi		£				Project: <u>K</u>	irtland AFB BFF ST-	-106/SS-111	E		Quarter : 1
NAPE   100653		(	2019 Q4 (f		Date	PID (ppm)	F 1675		Initials	Contact	Reference Point
NA   NA   NA   NA   NA   NA   NA   NA	ν			DTW			(ILWINE)	(IT WRP)		2.05 (4.000a) (4.000a) (5.000a) 1.00	
KAFB-10076 253056	KAFB-106063	-	NA	NA	Marine and April 2015					APTIM Yard	TOPC
TOPE	KAFB-106064		NA	NA	•		-			APTIM Yard	TOPC
KAFB-106100 253056	KAFB-106076	253056	469.51	469.52	i-22-2020	¥0,03.1	467.84	467,88	DS		TWV
KAFB-106100 253056	KAFB-106079	253056	_	474.28	1-22-2020	6.0	_	472.55	Jm/68		TOPC
KAFB-10618-484 253056	KAFB-106080	253056	_	472.90		0.0					TOPC
KAFB-106151-484 253056 468.85 468.89 1-22-2020 2.1,9 467.36 467.47 DS TWV  KAFB-106151-484 253056 - 470.47 1-20-2020 0.0 - 4/69.03 dm/6B TWV  KAFB-106152-484 253056 - 473.68 1-22-2020 0.0 - 470.63 m/6B TWV  KAFB-106153-484 253056 - 473.68 1-22-2020 35.6 47 470.27 m/6B TWV  KAFB-106154-484 253056 - 472.22 1-212-020 0.0 - 470.27 DS TWV  KAFB-106154-484 253056 - 472.22 1-212-020 0.0 - 474.93 dm/6B TWV  KAFB-106154-484 253056 - 476.26 1-20-2020 0.0 - 474.93 dm/6B TOPC  KAFB-10634-49 253056 - 468.56 1-20-2020 0.0 - 474.93 dm/6B TWV  KAFB-10635-447 253056 - 468.56 1-20-2020 0.0 - 474.93 dm/6B TWV  KAFB-10635-449 253056 - 468.56 1-20-2020 0.0 - 474.93 dm/6B TWV  KAFB-10634-49 253056 - 468.56 1-20-2020 0.0 - 474.93 dm/6B TWV  KAFB-10634-49 253056 - 468.60 1-22-2020 0.0 - 474.93 dm/6B TOPC  KAFB-10653-449 253056 - 476.00 1-212020 dv 475.12 dm/6B TOPC  KAFB-10653-449 253056 - 476.00 1-212020 dv 475.12 dm/6B TOPC  KAFB-10653-449 253056 - 476.00 1-212020 dv 475.12 dm/6B TOPC  KAFB-10653-440 253056 - 476.00 1-212020 dv 475.12 dm/6B TOPC  KAFB-10653-440 253056 - 476.00 1-212020 dv 475.12 dm/6B TOPC  KAFB-10653-440 253056 - 476.00 1-212020 dv 475.12 dm/6B TOPC  KAFB-10653-440 253056 - 476.00 1-212020 dv 475.12 dm/6B TOPC  KAFB-10653-440 253056 - 476.00 1-212020 dv 475.12 dm/6B TOPC	KAFB-106148-484	253056		468.62	1-22-2020	0.0	_	467.11	5 1		TWV
KAFB-106150-484   253056   - 470.47   -20-2020   21,9   467.36   467.47   7 DS   TWV	KAFB-106149-484	253056	_	470.60	1-22-2020	17-7		469.08	Jm/6B		TWV
KAFB-106152-484 253056 — 472.26 1-22-2020 0.0 — 470.63 Jm/6B TWV  KAFB-106153-484 253056 — 473.68 1-22-2020 Y.I — Y72.07 Jm/6B TWV  KAFB-106153-484 253056 — 471.80 471.80 1-22-2020 35.6 HT 470.27 DS TWV  KAFB-106155-484 253056 — 472.22 1-21-2020 0.0 — 470.64 Jm/6B TOPC  KAFB-106156-484 253056 — 465.56 1-20-2020 0.0 — 474.93 Jm/6B TOPC  KAFB-106156-484 253056 — 465.56 1-20-2020 0.0 — 464.193 468 TOPC  KAFB-106156-484 253056 — 466.56 1-20-2020 0.0 — 464.193 468 TOPC  KAFB-10631-447 253056 — 466.56 1-22-2020 0.0 — 475.22 Jm/6B TOPC  KAFB-10683-449 253056 — 476.00 1-22-2020 0.0 — 475.22 Jm/6B TOPC  KAFB-10683-449 253056 — 476.00 1-22-2020 0.0 — 475.31 Jm/6B TOPC  KAFB-10685-446 253056 — 476.00 1-22-2020 0.0 — 475.31 Jm/6B TOPC  KAFB-10685-446 253056 — 476.00 1-22-2020 0.0 — 475.31 Jm/6B TOPC  KAFB-10685-446 253056 — 476.00 1-22-2020 0.0 — 475.31 Jm/6B TOPC  KAFB-10685-446 253056 — 476.00 1-22-2020 0.0 — 475.31 Jm/6B TWV	KAFB-106150-484	253056	468.85	468.89	1-22-2020	21,9	467.36	467.47	DS	nd.	TWV
KAFB-106152-484 253056 - 473.68 1-22-2020 0.0 - 470.63 Jm/6B TWV  KAFB-106153-484 253056 - 473.68 1-22-2020 Y. I - Y72.07 Jm/6B TWV  KAFB-106155-484 253056 - 472.22 1-22-2020 35.6 HT W70.27 DS TWV  KAFB-106155-484 253056 - 472.22 1-22-2020 0.0 - 470.64 Jm/6B TWV  KAFB-106247-450 3NF0001	KAFB-106151-484	253056		470.47	1-20-2020	0.0		469.03	Im/GB	1	TWV
KAFB-10615-484 253056	KAFB-106152-484	253056		472.26	1-22-2020	0.0	-		Jm/6B		TWV
KAFB-106154-484 253056 — 471.80 471.80 1-22-2020 35.6 HT 470.27 DS TWV  KAFB-106155-484 253056 — 472.22 1-22-2020 0.0 — 470.64 Am/6B TWV  KAFB-106247-450 Claim — 476.26 1-20-2020 0.0 — 474.93 Am/6B TOPC  KAFB-106156-484 253056 — 465.56 1-20-2020 0.0 — 4644.195m 464.19 Am/6B  KAFB-106156-484 253056 — 469.56 1-20-2020 0.0 — 4644.195m 464.19 Am/6B  KAFB-10681-447 263056 — 469.56 1-22-2020 0.0 — 468.01 Am/6B TOPC  KAFB-10682-451 253056 — 476.86 1-22-2020 0.0 — 475.22 Om/6B TOPC  KAFB-10683-449 253056 — 476.00 1-22-2020 0.0 — 4774.31 Am/6B TOPC  KAFB-10685-446 263056 — 468.10 1-22-2020 0.0 — 4774.31 Am/6B TOPC  KAFB-10685-446 253056 — 478.50 1-22-2020 0.0 — 4774.31 Am/6B TWV  KAFB-10687-451 253056 — 478.50 1-22-2020 0.0 — 4774.31 Am/6B TWV	KAFB-106153-484	253056		473.68	1-22 - 2020	4-1	_		Im/6B		TWV
KAFB-106155-484 253056	KAFB-106154-484	253056	471.80	471.96	1-22-2020	35.6 .	47-2		DS.		TWV
KAFB-106247-450 Clean — 476.26 1-20-2020 0.0 — 474.93 Im/GB TOPC  KAFB-106156-484 253056 — 465.56 1-20-2020 0.0 — 464.193  464.19 om/GB  KAFB-10681-447 263056 — 469.56 1-22-2020 0.0 — 468.01 Im/GB TOPC  KAFB-10682-451 253056 — 476.86 1-22-2020 0.0 — 475.22 om/GB TOPC  KAFB-10683-449 253056 — 476.00 1-22-2020 0.0 — 477.31 om/GB TOPC  KAFB-10685-446 253056 — 468.10 1-22-2020 0.0 — 466.30 om/GB TOPC  KAFB-10685-446 253056 — 473.53 1-22-2020 0.0 — 471.78 om/GB TWV		253056	_	472.22	1-22-2020	0,0	, )	470,64	Jm /6B		TWV
KAFB-10651-447 253056 — 465.56 I-20-2020 0.0 464.195# 464.19 0m 66  KAFB-106S1-447 253056 — 469.56 I-22-2020 0.0 464.195# 468.01 tm/66  KAFB-106S2-451 253056 — 476.86 I-22-2020 0.0 475.22 0m/66  KAFB-106S3-449 253056 — 476.00 I-22-2020 0.0 4774.31 0m/66  KAFB-106S5-446 253056 — 468.10 I-22-2020 0.0 — 476.30 0m/66  KAFB-106S7-451 253056 — 473.53 I-22-2020 0.0 — 471.78 0m/66  TWV	KAFB-106247-450		1	476.26	1-20-2020	0,0	_				TOPC
KAFB-106S1-447 253056 - 469.56   -22-2020 0.0	KAFB-106156-484	253056		465.56	1-20-2020	0.0	464 1954	464.19	A .		
KAFB-106S2-451 253056 - 476.86   -22 - 2020 0.0	KAFB-106S1-447	263056	_	469.56	1-22-2020	0,0			An/63	-	TWV
KAFB-106S3-449 253056 - 476.00 j-22-2020 mg-04/8 - 474-31 m/6B TOPC  KAFB-106S5-446 253056 - 468.10 1-22-2020 0.0 - 466.30 m/6B TWV  KAFB-106S7-451 253056 - 473.53 1-22-2020 0.0 - 471.78 m/6B TWV	KAFB-106S2-451	253056	· <del>-</del> -	476.86	1-22-20:20	0.0	_				TOPC
KAFB-106S5-446 253056 — 468.10 1-22-2020 0.0 — 466.30 AM/6B TWV  KAFB-106S7-451 253056 — 473.53 1-22-2020 0.0 — 471.78 AM/6B TWV	KAFB-106S3-449	253056	-	476.00	1-22-2020		<u> </u>	18 73	has /		TOPC
KAFB-10687-451 253056 - 473.53 \ -22-2020 0.0 - 47.78 \mathred{m/6B}	KAFB-106S5-446	253056	_	468.10	1-22-2020	0.0	_	466.30	1	(I	TWV
VAED 40000 454 25 20 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2	KAFB-106S7-451	253056	_				Times.	1 - 1 - 2	1		TWV
TOPC	KAFB-106S8-451	253056	=	475.88	1-22-2020	0.0	_	474.30	0 /10		TOPC

	Well Gauging Form Team 2 Total Wells 85								2020
				Project: K	irtland AFB BFF ST-	106/SS-111			Quarter : 1
Well ID	Previous 2019 Q4 (ft		Date	PID (ppm)	Depth to NAPL	DTW	Initials	Contact	Reference Point
	Depth to NAPL	DTW			(ft MRP)	(ft MRP)		Communication	Therefore to the
KAFB-106001 5N#CCC↓		469.17	1-20-2020	0.0		468.06	Jm/68		TWV
KAFB-106002 5N # 0001	_	466.22	1-21-2020	0.0	_	464.745	GB/ PF	1,2	ΤŴΛ
KAFB-106003 5N # 0001	_	464.14	1-21-2020	0.0		462.89	GB/PF		TWV
KAFB-106004 5N # 000	_	469.71	1-20-2020	0.0	-	468.49	Jm/68	EA Barricade	TOPC
KAFB-106007 SN # 0001	_	474.04	1-20-2020	0.0	_	472.94	DM/6B		TOPC
KAFB-106009 SN # 0001	_	472.91	1-21-2020	0.0	~ "	471.32	GB/PF-		TWV
KAFB-106011 SN # 0001	-	477.64	1-21-2020	6.0	-	476-13	PBI PPF		TOPC
KAFB-106012R SN#0001	=	469.43	1-21-2020	0-0	_	467.91	6B/PF		TOPC
KAFB-106013 SN # 0001	_	474.96	1-21-2020	0,0		473.31	OB/PF	Call VA Police	TOPC
KAFB-106014 3N#0001	_	474.62	1-21 - 2020	0.3	473.17	473.17	GB/PF		TOPC
KAFB-106016 SN# 0001	-	466.57	1-20-2020	0.0	-	465.60	In/08		TOPC
KAFB-106017 SN #0001		467.53	1-21-2020	0.0		465-69	GB/PF		TOPC
KAFB-106018 SN #0001	_	460.99	1-20-2020	0.0	-	459.51	Jm/6B		TOPC
KAFB-106019 5N#0001	-	479.50	1-21-2020	0.0	_	377 47	7,73 GB/N	2	TOPC
KAFB-106020 SN # 0001	_	465.30	1-20-2020	8.0	-	463.89	In/GB	Call VA Police	TWV
KAFB-106024 SN # 0001	-	467.87	1-20-2020	0.0		466.73	Jm/6B		TWV
KAFB-106027 SN# 0001	_	472.87	1-20-2020	0.0	_	471.89	In/63		TOPC
KAFB-106038 5N ♣ 000 l	_	476.50	1-21-2020	0.0	_	474.60	CB/PF		TOPC
KAFB-106039 5N#0001	_	476.29	1-21-2020	0.0		474.38	GB/PT		TOPC
KAFB-106040 SN#0001	_	475.20	1-21-2020	0.0	_	473.28	GB/PF		TOPC
KAFB-106044 SN # 000	_	473.01	1-20-20 20	0.0		472.04			TOPC

***				Well Gau	uging Form Team 2	*	Total Wells	85	2020
				Project: <u>Ki</u>	rtland AFB BFF ST-	106/SS-111			Quarter : 1
Well ID	Previous 2019 Q4 (f	Service and referen	Date	PID (ppm)	Depth to NAPL	DTW	Initials	Contact	Reference Point
ω •	Depth to NAPL	DTW		1004 21 35V	(ft MRP)	(ft MRP)	consignation of production (20)	(2000)	200,000,000,000,000,000,000,000
KAFB-106045 5N #0001	_	472.72	1-20-2020	0.0		471.73	Im/68		TOPC
KAFB-106046 + 0475.71	=	477.41	1-20-2020	0.0		467.138	In/613	EA Barricade	TWV
KAFB-106047 SN # 000	_	477.51	1-20-2020	0-0		476,22	In/6B	EA Barricade	TWV
KAFB-106048 SN# 0001	_	477.23	1-20-2020	0.0		475,96	Am/68	EA Barricade	TWV
KAFB-106060 SN# 000	_	469.82	1-20-2020	0.0	_	468.62	Jm/6B		TWV
KAFB-106061 SN# 0001	_	469.78	1-20-2020	0.0	_	468.60	Im /63		TWV
KAFB-106062 5N#0001		475.67	1-20-2020	0.0	_	474.39	Jm/6B	APTIM Yard	TOPC
KAFB-106065 5N#0001		473.34	1-22-2020	0.0		471.70	In/6B	USS Bullhead	TWV
KAFB-106066 SN#CCOI	1	473.56	1-22-2020	0.0	_	471.83	8m/6B	USS Bullhead	TWV
KAFB-106067 SN# 0001	_	472.31	1-21-2020	0.0		470,68	GB/PJF		TWV
KAFB-106068 SN#0001	1	472.12	1-21-2020	0.0	·	470,38	6B/pr		TWV
KAFB-106069 5N # 0001	V <u></u> 5	471.92	1-21-2020	0.0	-	470.28	65/PK		TWV
KAFB-106073 SN # 0001		464.22	1-20-2020	0.0		462.76	Im/68	Call VA Police	TWV
KAFB-106074 SN#2001	J	464.97	1-20-2020	0 - 0	_	463.48	Jm/6B	Call VA Police	TWV
KAFB-106075 SN#COOL	· —	464.91	1-20-2020	0.0	0	463,48	Ju/6B	Call VA Police	TWV
KAFB-106077 5N#0001	I	470.60	1-21-2020	0.0	~	469.16	B/A		TWV
KAFB-106078 SN \$ 0001	L	469.76	1-21-2020	0.0	)	468.30	UB/PF		TWV
KAFB-106081 SN#0001	Т	474.05	1-21-2020	0.0	Contraction (Contraction)	472.45	GB/PF	Ü	TOPC
KAFB-106082 5N#0001		460.14	1-20-2020	0.0	_		Im/6B	Call VA Police	TWV
KAFB-106083 5N#0001	_	459.83	1-20-2020	0.0	)	458,36	m/6B	Call VA Police	TWV
KAFB-106084 5N#0001	_	462.60	1-20-2020	0.0	_	461.07	JM/6B	Call VA Police	TWV
1			1 20 2023		<u> </u>	101:01	0.70		

***				Well Gau	ıging Form Team 2		Total Wells	85	2020
				Project: <u>Ki</u>	rtland AFB BFF ST-	106/SS-111			Quarter : 1
Well ID	Previous 2019 Q4 (f		Date	PID (ppm)	Depth to NAPL	DTW	Initials	Contact	Reference Point
v	Depth to NAPL	DTW			(ft MRP)	(ft MRP)			
KAFB-106094 SN # 0001	_	469.50	1-21-2020	0.6	_	467.89	BY PF		TWV
KAFB-106095 SN#0001	_	469.07	1-21-2020	000		467,44	GB/pp		TWV
KAFB-106096 SN#COOL	- <del></del> 7	469.67	1-21-2020	0.0		468.08	GB/AF		TWV
KAFB-106097 SN#0001	<del></del>	471.92	1-21-2020	60		470.24	08/PR	Call VA Police	TWV
KAFB-106098 SN#0001	<del></del> 0	472.01	1-21-2020	0.0	<i>-</i>	470,32	GB/PF	Call VA Police	TWV
KAFB-106099 SN#0001	<u></u> :	466.68	1-20-2020	0.0	_	465.46	In/6B	EA Barricade	TWV
KAFB-106100 SN #0001	_	466.69	1-20-2020	0.0	_	465.48	Im/6B	EA Barricade	TWV
KAFB-106101 SN#0001	_	464.31	1-21-2020	0.0	-	462.97	GB/PF		TOPC
KAFB-106102 SN#0001	_ :	464.42	1-21-2020	0.0	35	463.11	6B/PF	2	TOPC
KAFB-106211 3N # 0001	NA	NA	1-21-2020	0.0		465.57	CB/PF		TOPC
KAFB-106240 SN#0001	1	471.99	-21-2020	0,0	Oliver State of the State of th	470.29	B/PF		TWV
KAFB-106244 SN #0001	Ι	467.65	1-20-2020	0.0	_	466.22	m/6B		TWV
KAFB-106245 5N#0001	-	485.83	1-22-2020	0.0		484,19	Im/68		TOPC
KAFB-3411 SN#COOL	1	467.75	1-20-2020	0.0	.—	466.67	Im/6B	£	TOPC
KAFB-106S4-446 SN# COO	1	470.88	1-22-2020	0.0		469.21	m/6B	4	TOPC
KAFB-106005 25305b	I	471.20	i-22-2020	0.0	_	469.40	Jm/6B		TOPC
KAFB-106006 253056	_	475.89	1-22-2020	0.0	· · · · · · · · · · · · · · · · · · ·	474.28	8m/6B		TOPC
KAFB-106008 253056	_	476.20	1-72-2020	0.0		474.50	In/6B	***	TOPC
KAFB-106010 253 056	_	467.85	1-22-2020	0-0	,	466.02	Jn/6B		TWV
KAFB-106028 Z53056	_	473.46	1-22-2020	0.0	_	471.68	In/60	USS Bullhead	TWV
KAFB-106059 253056	_	472.18	1-20-2020	0.0	470,94	471.10	m/6B		TWV

Name of the last	- A			Well Gauging Form Team 2 Total Wells 85								
				Project: Kirtland AFB BFF ST-106/SS-111								
	Well ID		Previous 2019 Q4 (f	Management of the second	Date	PID (ppm)	Depth to NAPL	DTW	Initials	Contact	Reference Point	
			Depth to NAPL	DTW		(pp)	(ft MRP)	(ft MRP)	minus	Contact	Reference Form	
	KAFB-106S9-447	253056	ı	470.57	1-20-2020	0.0	******	469.30	In/63		TWV	



Well Gauging Form Team 1

Total Wells 82

**2020** Quarter : 1

Project: Kirtland AFB BFF ST-106/SS-111 All wells gauged with 253053.

**Previous DTW** 2019 Q4 (ft MRP) Depth to NAPL DTW Reference Well ID PID (ppm) Date Initials Contact (ft MRP) (ft MRP) Depth to Point DTW NAPL 465.04 0.0 1-22-2020 KAFB-106015 TOPC 467.48 1-21-2020 KAFB-106021 0.0 436.96 Barricades by SWSS TWV 439.09 1-21-2000 0.0 KAFB-106022 DS TWV 443.26 0,0 1-22-2020 KAFB-106023 TWV 453.71 0.0 KAFB-106025 TWV 441.84 711-2020 0-0 KAFB-106026 TWV 446.95 0.0 433,10 1-21-2020 KAFB-106029 **Barricades by SWSS** TWV 435.28 0.0 -21-2020 433.20 KAFB-106030 Barricades by SWSS TWV 435.40 0.0 1-21-2020 DS KAFB-108031 Barricades by SWSS TWV 435.44 0.0/0.1 1-21-2020 439.88 KAFB-106032 Gibson Med. Ctr. TWV 441.58 1-21-2010 0.0 440,03 KAFB-106033 Gibson Med. Ctr. TWV 441.72 1-21-2020 0.0 DS KAFB-106034 Gibson Med. Ctr. TWV 442.57 1-22-3000 0.0 KAFB-106035 Church **TWV** 447.18 0.0 1-22-2020 KAFB-106036 Church TWV 447.63 0,0 445.87 1-22-2020 DS KAFB-106037 Church TWV 448.26 446.85 m KAFB-106041 TWV -20-2020 448.80 -20-2020 446,61 DS KAFB-106042 TWV 448.55 0.0 1-20-2020 446,84 05 KAFB-106043 \_ TWV 448.78 1-21-2020 438.08 M 0-1 KAFB-106049 > TWV 440.23 05 43750 KAFB-106050 TWV 439.61



36			-	436.99 3 A		iging Form Team 1		Total Wells 82	2020
	Project: Kirtla	and AFB BFF	ST-106/SS-111	A	Il wells qu	avaed w	ith s	253053	Quarter : 1
12 608/00 (600)	Previou 2019 Q4	us DTW			Depth to NAPL	DTW			
Well ID	Depth to	DTW	Date	PID (ppm)	(ft MRP)	(ft MRP)	Initials	Contact	Reference Point
	NAPL		100						
KAFB-106051		439.92	1-21-2020	0.0		437.80	DS		TWV
KAFB-106052	_	443.32	1-21-2020	0.0	-	441.15	DS	2	TWV
KAFB-106053	_	443.25	1-21-2020	0.0		441,06	KN		TWV
KAFB-106054	. <u> </u>	442.83	1-21-2020	0.0		440.66	DS		TWV
KAFB-106055	_	449.88	1-21-2020	0.0		447,53	DS		TWV
KAFB-106057	_	450.26	1-21-2020	0,0		447.69	DS		TWV
KAFB-106058	_	450.79	1-21-2020	0.0		448.44	D5		TWV
KAFB-106070	_	443.60	1-22-2020	0.0	4.5	441,44	DS	e	TWV
KAFB-106071	_	445.82	1-22-2020	0.0	_	443.68	kr		TWV .
KAFB-106072	_	444.12	1-22-2020	0.0		441.98	DS		TWV
KAFB-106085	_	441.95	1-22-2020	0.0		439.86	DS	-71	TWV
KAFB-106086	_	442.34	1-22-2020	0.0		440.25	DS		TW∨
KAFB-106087	_	441.53	1-22-2020	0.0		439.42	DS		TWV
KAFB-106088	_	449.37	1-22-2020	0.0		447.18	DS		TWV
KAFB-106089	_	449.05	1-22-2020	0.0	1	446.89	DS		TWV
KAFB-106090	_	447.89	1-22-2020	0.0		445.68	DS	a.	TWV
KAFB-106091	_	439.95	1-21-2020	0.0	-	436,79	DS	R Is	TWV
KAFB-106092	_	440.33	1-21-2000	0-0	-	436.90	WE	-	TWV
KAFB-106093	_	439.70	1-21-2020	0.0	)	436.99	DS	***	TWV

Project: Kirtland AFB BFF ST-106/SS-111

All wells gauged with 253053

Quarter: 1

Well ID	Previou 2019 Q4	us DTW (ft MRP)	Date	PID (ppm)	Depth to NAPL	DTW			Reference
	Depth to NAPL	DTW	Date	PID (ppm)	(ft MRP)	(ft MRP)	Initials	Contact	Point
KAFB-106103		453.96	1-22-2020	0.0		951,74	DS		TWV
KAFB-106104	_	453.39	1-22-2020	0.0	0	451.21	DS	2 2	TWV
KAFB-106105	_	446.59	1-21-2020	0,0		444.41	DS		TWV
KAFB-106106	_	446.46	1-21-2020	0.0	1	444.28	D5		TWV
KAFB-106107	s <del></del> s	446.71	1-21-2020	0.0	-	444.52	DS	-	TWV
KAFB-106201	_	482.33	1-21-2020	0.0	ν.	479.31	DS	a <sup>h</sup> vi	TOPC
KAFB-106202	_	482.88	1-21-2020	0.0		480.37	DS		TOPC
KAFB-106203	_	482.69	1-21-2020	000	7	480.77	FR		TOPC
KAFB-106204	_	457.12	1-20-2020	0.0		454.85	DS		TWV
KAFB-106205	-	457.49	1-20-2020	0,0	)	455.21	KN		TWV
KAFB-106206	_	457.64	1-20-2020	0.0	-	455.33	KR		TWV
KAFB-106207	_	468.23	1.20 -4 2000	0.0	_	465,41	KR	8.6	TWV
KAFB-106208	-	467.92	1-20-2020	0.0	-	465.11	マラ	XI	TWV
KAFB-106209	_	467.28	1-20-2020	0.0	-	464.47	in		TWV
KAFB-106212	_	447.81	1-22-2020	0.0	-	445.43	D5	Church	TWV
KAFB-106213	_	450.56	1-22-2020	0.0	<b>~</b>	448,24	DS	Church	TWV
KAFB-106214	_	450.68	1-22-2020	0,0	~	448,28	DS	Church	TWV
KAFB-106215	_	450.89	1-22-2020	0.0		448.51	DS	Church	TWV
KAFB-106216	_	458.91	1-20-2020	0.0		456.91	D5		TWV

	Project: Kirtla	and AFB BFF	ST-106/SS-111	AII	Well Gar	uging Form Team 1		Total Wells 82 53.05.3	<b>2020</b> Quarter : 1
Well ID	1	(ft MRP)	- Date	PID (ppm)	Depth to NAPL (ft MRP)	DTW (ft MRP)	Initials	Contact	Reference Point
	NAPL	DTW						P	
KAFB-106217	-	458.81	1-26-2020	0.0	-	456.81	KR		TWV
KAFB-106218	_	458.94	1-20-2020	6.0	~	456.95	KR		TWV
KAFB-106219	aryansa	465.30	1-20-2020	0.0		462.77	DS	Barricades by SWSS	TWV
KAFB-106220	_	465.24	1-20-2020	0.0	_	462.74	KR	Barricades by SWSS	TWV
KAFB-106221		465.01	1-20-2020	0-0		462.53	DS	Barricades by SWSS	TWV
KAFB-106222		457.94	1-20-2020	0.0		455.74	KR		TWV
KAFB-106223	_	458.62	1-20-2020	0.0	_	456.46	DS		TWV
KAFB-106224	_	459.76	1-20-2020	6.0	_	457.60	Kn		TWV
KAFB-106225	money	451.33	1-25-2020	0.0		449.32	DS		TWV
KAFB-106226	_	451.96	1-20-2020	0.0	-	449.94	DS		TWV
KAFB-106227	_	452.71	19-20-2020	0.0	, P. Congress	450.69	Ds		TWV
KAFB-106229	-	440.17	1-22-2020	0.0		436.71	per		TWV
186 230 KAFB-1060230 AF	<b>8</b> –	443.03	1-21-2020	0.0		446,76	DS		TWV
KAFB-106231	_	451.80	1-21-2020	0.0	_	449.17	Kn	Barricades by SWSS	TWV
KAFB-106232		451.33	1-21-2020	0,8/0,0		448.69	D5	Barricades by SWSS	TWV
KAFB-106235-438		440.33	1-20-2020	6.0	~	438,44	KR		TWV
KAFB-106235-472	_	440.31	(-20-2020	0,0		438.44	TD5		TWV
KAFB-106235-501	_	440.35	1-20-2020	0.0	_	438.46	KIR		TWV
KAFB-106236-436		440.09	1-20-2020	0.0		438.15	M		TWV
KAFB-106236-472	_	440.06	1-20-2020	0.0		438.13	DS		TWV



Well Gauging Form Team 1

Total Wells 82

2020

	Project: Kirtla	and AFB BFF	ST-106/SS-111	All wells.	garged u	ith 253	953		Quarter : 1
Well ID		us DTW (ft MRP)	Date	PID (ppm)	Depth to NAPL	DTW		2.1.1	Reference
Well ID	Depth to NAPL	DTW	Date	Pib (ppiii)	(ft MRP)	(ft MRP)	Initials	Contact	Point
KAFB-106236-499	_	440.10	1-20-2020	6.0	N==	438.185	KR		TWV
KAFB-106241	_	449.50	1-21-2020	0.0	(Allen and and and and and and and and and an	447.15	D5		TWV
KAFB-106242	_	440.96	1-21-2020	0.0	(	438.88	DS		TWV
KAFB-106243		445.63	1-22-2020	0.0	~	443.46	DS	-	TWV

	ln <sup>.</sup>	terface Pro	be	Difference Between:					
				253053 and	253053 and	253056			
Well ID	253053	253056	0001	253056	0001	and 0001			
KAFB-106027	471.84	471.8	471.89	0.04	-0.05	-0.09			
KAFB-106044	471.97	471.95	472.04	0.02	-0.07	-0.09			
KAFB-106045	471.63	471.66	471.73	-0.03	-0.1	-0.07			
		Average	Difference	0.01	-0.07	-0.08			

### Table E-2-1 Gauging Calibration Corrections, Q1 2020

Well Location ID KAFB-106001 <sup>a</sup>	Reference Elevation Interval (ft AMSL) 4857/4838	Date of Measurement	Depth to LNAPL (ft MRP)	Depth to Water (ft MRP)	Water Level Interface Probe Used (Serial Number)	Correction Applied (ft) 0.08	Corrected Depth to LNAPL (ft MRP)	Corrected Depth to Water (ft MRP) 467.98
KAFB-106002	4857	1/21/2020	_	464.75	0001	0.08	_	464.67
KAFB-106003	4857	1/21/2020	_	462.89	0001	0.08	_	462.81
KAFB-106004	4857	1/20/2020	_	468.49	0001	0.08	_	468.41
KAFB-106005	4857	1/22/2020		469.4	253056	0.00	_	469.40
KAFB-106006	4857	1/22/2020	_	474.28	253056	0.00	_	474.28
KAFB-106007 KAFB-106008	4857 4857	1/20/2020 1/22/2020	_	472.94 474.5	0001 253056	0.08	<u> </u>	472.86 474.50
KAFB-106009	4857	1/21/2020		474.3	0001	0.00	<u> </u>	474.30
KAFB-106010	4857	1/22/2020	_	466.02	253056	0.00	_	466.02
KAFB-106011	4857	1/21/2020	_	476.13	0001	0.08		476.05
KAFB-106012R	4857	1/21/2020		467.91	0001	0.08	_	467.83
KAFB-106013	4857	1/21/2020	_	473.31	0001	0.08	_	473.23
KAFB-106014	4857	1/21/2020		473.17	0001	0.08		473.09
KAFB-106015 <sup>a</sup>	4857/4838	1/22/2020		465.04	253053	0.00	_	465.04
KAFB-106016	4857 4857/4838	1/20/2020 1/21/2020	_	465.6	0001	0.08	_	465.52 465.61
KAFB-106017 <sup>a</sup>	4857/4838	1/21/2020		465.69 459.51	0001 0001	0.08	_	459.43
KAFB-106018 <sup>a</sup>	4857/4838	1/21/2020	<u> </u>	459.51	0001	0.08	<u> </u>	459.43 477.65
KAFB-106019 <sup>a</sup> KAFB-106020	4857	1/20/2020		463.89	0001	0.08		463.81
KAFB-106020	4857/4838	1/21/2020		436.96	253053	0.00		436.96
KAFB-106021	4857/4838	1/21/2020	_	440.79	253053	0.00	_	440.79
KAFB-106022	4857	1/22/2020	_	451.51	253053	0.00	_	451.51
KAFB-106024	4857	1/20/2020	_	466.73	0001	0.08	_	466.65
KAFB-106025 <sup>a</sup>	4857/4838	1/21/2020	_	439.56	253053	0.00	_	439.56
KAFB-106026	4857	1/21/2020	_	444.66	253053	0.00	_	444.66
KAFB-106027	4857	1/20/2020	_	471.89	0001	0.08	_	471.81
KAFB-106028	4857	1/22/2020 1/21/2020	_	471.68	253056	0.00	_	471.68
KAFB-106029 KAFB-106030	4857 4838	1/21/2020		433.1 433.2	253053 253053	0.00	<u> </u>	433.10 433.20
KAFB-106031	4814	1/21/2020		433.24	253053	0.00	_	433.24
KAFB-106032	4857	1/21/2020	_	439.88	253053	0.00	_	439.88
KAFB-106033	4838	1/21/2020	_	440.03	253053	0.00	_	440.03
KAFB-106034	4814	1/21/2020	_	440.88	253053	0.00	_	440.88
KAFB-106035	4857	1/22/2020	_	444.77	253053	0.00	_	444.77
KAFB-106036	4838	1/22/2020	_	445.22	253053	0.00	_	445.22
KAFB-106037 KAFB-106038	4838 4857	1/22/2020 1/21/2020		445.87 474.6	253053 0001	0.00		445.87 474.52
KAFB-106039	4838	1/21/2020		474.38	0001	0.08		474.30
KAFB-106040	4814	1/21/2020	_	473.28	0001	0.08	_	473.20
KAFB-106041	4857	1/20/2020	_	446.85	253053	0.00	_	446.85
KAFB-106042	4857	1/20/2020	_	446.61	253053	0.00	_	446.61
KAFB-106043	4814	1/20/2020	_	446.84	253053	0.00	_	446.84
KAFB-106044	4838	1/20/2020	_	472.04	0001	0.08		471.96
KAFB-106045 KAFB-106046	4814 4857	1/20/2020 1/20/2020	_	471.73 475.71	0001 0001	0.08		471.65 475.63
KAFB-106046	4838	1/20/2020		476.22	0001	0.08		476.14
KAFB-106048	4814	1/20/2020		475.96	0001	0.08	_	475.88
KAFB-106049	4857	1/21/2020	_	438.08	253053	0.00		438.08
KAFB-106050	4838	1/21/2020	_	437.5	253053	0.00	_	437.50
KAFB-106051	4814	1/21/2020	_	437.8	253053	0.00	_	437.80
KAFB-106052	4857	1/21/2020	_	441.15	253053	0.00	_	441.15
KAFB-106053	4838	1/21/2020	_	441.06	253053	0.00	_	441.06
KAFB-106054 KAFB-106055	4814 4857	1/21/2020 1/21/2020		440.66 447.53	253053 253053	0.00	<u> </u>	440.66 447.53
KAFB-106055	4838	1/21/2020		447.89	253053	0.00	<u> </u>	447.89
KAFB-106058	4814	1/21/2020	_	448.44	253053	0.00	_	448.44
KAFB-106059	4857	1/20/2020	470.94	471.1	253056	0.00	470.94	471.10
KAFB-106060	4838	1/20/2020	_	468.62	0001	0.08		468.54
KAFB-106061	4814	1/20/2020		468.6	0001	0.08		468.52
KAFB-106062	4814	1/20/2020	— N/A	474.39	0001	0.08		474.31
KAFB-106063 <sup>b</sup>	4838	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA
KAFB-106064 <sup>b</sup>	4857	NA 1/22/2020	NA	NA 471.83	NA 0001	NA 0.08	NA	NA 471.75
KAFB-106065 KAFB-106066	4838 4814	1/22/2020 1/22/2020	<u> </u>	471.83 471.83	0001 0001	0.08		471.75 471.75
KAFB-106067	4857	1/21/2020		471.68	0001	0.08	<u>_</u>	470.60
KAFB-106068	4814	1/21/2020	_	470.38	0001	0.08	_	470.30
KAFB-106069	4838	1/21/2020	_	470.28	0001	0.08	_	470.20
KAFB-106070	4857	1/22/2020	_	441.44	253053	0.00	_	441.44
KAFB-106071	4814	1/22/2020	_	443.68	253053	0.00	_	443.68
KAFB-106072	4838	1/22/2020	_	441.98	253053	0.00		441.98
KAFB-106073	4838	1/20/2020		462.76	0001	0.08	<u> </u>	462.68
KAFB-106074 KAFB-106075	4814 4857	1/20/2020 1/20/2020	<u> </u>	463.48 463.48	0001 0001	0.08		463.40 463.40
KAFB-106075	4857	1/20/2020	— 467.84	467.88	253056	0.08	467.84	463.40
KAFB-106077	4838	1/21/2020	—	469.16	0001	0.08	—	469.08
KAFB-106077	4814	1/21/2020	_	468.3	0001	0.08	_	468.22
KAFB-106079	4857	1/22/2020		472.55	253056	0.00		472.55
KAFD-1000/9	-							
KAFB-106079	4838	1/22/2020	—	471.14	253056	0.00	<u> </u>	471.14

Table E-2-1
Gauging Calibration Corrections, Q1 2020

	Reference		9		Water Level Interface		Corrected	Corrected
Well Location ID	Elevation Interval (ft AMSL)	Date of Measurement	Depth to LNAPL (ft MRP)	Depth to Water (ft MRP)	Probe Used (Serial Number)	Correction Applied (ft)	Depth to LNAPL (ft MRP)	Depth to Water (ft MRP)
KAFB-106083	4838	1/20/2020	— (ICIMICI )	458.36	0001	0.08	— (IC IMICI )	458.28
KAFB-106084	4814	1/20/2020		461.07	0001	0.08		460.99
KAFB-106085	4857	1/22/2020	_	439.86	253053	0.00	_	439.86
KAFB-106086	4838	1/22/2020	_	440.25	253053	0.00	_	440.25
KAFB-106087	4814	1/22/2020		439.42	253053	0.00	_	439.42
KAFB-106088 KAFB-106089	4857 4838	1/22/2020 1/22/2020	<u> </u>	447.18 446.89	253053 253053	0.00	<u> </u>	447.18 446.89
KAFB-106099	4814	1/22/2020		445.68	253053	0.00	<u> </u>	445.68
KAFB-106091	4857	1/21/2020	_	436.79	253053	0.00	_	436.79
KAFB-106092	4838	1/21/2020		436.9	253053	0.00		436.90
KAFB-106093	4814	1/21/2020	_	436.99	253053	0.00	_	436.99
KAFB-106094	4857	1/21/2020	_	467.89	0001	0.08	_	467.81
KAFB-106095 KAFB-106096	4838 4814	1/21/2020 1/21/2020	_	467.44 468.08	0001 0001	0.08	_	467.36 468.00
KAFB-106090	4838	1/21/2020		470.24	0001	0.08		470.16
KAFB-106098	4814	1/21/2020	_	470.32	0001	0.08	_	470.24
KAFB-106099	4838	1/20/2020		465.46	0001	0.08	_	465.38
KAFB-106100	4814	1/20/2020	_	465.48	0001	0.08	_	465.40
KAFB-106101	4838	1/21/2020	_	462.97	0001	0.08	_	462.89
KAFB-106102	4814	1/21/2020	_	463.11	0001	0.08	_	463.03
KAFB-106103	4838	1/22/2020	_	451.74	253053	0.00		451.74
KAFB-106104	4814	1/22/2020		451.21	253053	0.00	_	451.21
KAFB-106105 KAFB-106106	4838 4857	1/21/2020 1/21/2020		444.41 444.28	253053 253053	0.00		444.41 444.28
KAFB-106106 KAFB-106107	4857	1/21/2020		444.28	253053	0.00	<u> </u>	444.28 444.52
KAFB-106148-484°	4857	1/22/2020		467.11	253056	0.00		467.11
KAFB-106149-484°	4857	1/22/2020	_	469.08	253056	0.00	_	469.08
KAFB-106150-484°	4857	1/22/2020	467.36	467.47	253056	0.00	467.36	467.47
KAFB-106151-484°	4857	1/20/2020	_	469.03	253056	0.00	_	469.03
KAFB-106152-484 <sup>c</sup>	4857	1/22/2020	_	470.63	253056	0.00	_	470.63
KAFB-106153-484 <sup>c</sup>	4857	1/22/2020	_	472.07	253056	0.00	_	472.07
KAFB-106154-484 <sup>c</sup>	4857	1/22/2020	_	470.27	253056	0.00	_	470.27
KAFB-106155-484 <sup>c</sup>	4857	1/22/2020	_	470.64	253056	0.00	_	470.64
KAFB-106156-484 <sup>c</sup>	4857	1/20/2020		464.19	253056	0.00		464.19
KAFB-106201	4857	1/21/2020	_	479.31	253053	0.00	_	479.31
KAFB-106202	4838	1/21/2020	_	480.37	253053	0.00	_	480.37
KAFB-106203	4814	1/21/2020		480.77	253053	0.00		480.77
KAFB-106204 KAFB-106205	4857 4838	1/20/2020 1/20/2020		454.85 455.21	253053 253053	0.00		454.85 455.21
KAFB-106205	4814	1/20/2020		455.21	253053	0.00		455.33
KAFB-106207	4857	1/20/2020		465.41	253053	0.00	_	465.41
KAFB-106208	4838	1/20/2020		465.11	253053	0.00	_	465.11
KAFB-106209	4814	1/20/2020	_	464.47	253053	0.00	_	464.47
KAFB-106211 <sup>c</sup>	4857	1/21/2020		465.57	0001	0.08		465.49
KAFB-106212	4814	1/22/2020	_	445.43	253053	0.00	_	445.43
KAFB-106213	4857	1/22/2020	_	448.24	253053	0.00	_	448.24
KAFB-106214 KAFB-106215	4838 4814	1/22/2020 1/22/2020	_	448.28 448.51	253053	0.00	_	448.28
KAFB-106215 KAFB-106216	4814	1/20/2020		448.51	253053 253053	0.00		448.51 456.91
KAFB-106217	4838	1/20/2020	_	456.81	253053	0.00	_	456.81
KAFB-106218	4814	1/20/2020	_	456.95	253053	0.00	_	456.95
KAFB-106219	4857	1/20/2020		462.77	253053	0.00		462.77
KAFB-106220	4838	1/20/2020	_	462.74	253053	0.00	_	462.74
KAFB-106221	4814	1/20/2020		462.53	253053	0.00	_	462.53
KAFB-106222	4857	1/20/2020		455.74 456.46	253053	0.00	_	455.74 456.46
KAFB-106223 KAFB-106224	4838 4814	1/20/2020 1/20/2020		456.46 457.6	253053 253053	0.00		456.46 457.60
KAFB-106225	4857	1/20/2020		449.32	253053	0.00		449.32
KAFB-106226	4838	1/20/2020	_	449.94	253053	0.00	_	449.94
KAFB-106227	4814	1/20/2020	_	450.69	253053	0.00	_	450.69
KAFB-106229 <sup>a,c</sup>	4857/4838	1/22/2020	_	436.71	253053	0.00		436.71
KAFB-106230	4814	1/21/2020	_	446.76	253053	0.00		446.76
KAFB-106231	4857	1/21/2020	_	449.17	253053	0.00	_	449.17
KAFB-106232	4814	1/21/2020	_	448.69	253053	0.00	_	448.69
KAFB-106235-438 KAFB-106235-472	4857 4838	1/20/2020 1/20/2020	_	438.48 438.44	253053 253053	0.00	<del></del>	438.48 438.44
KAFB-106235-472 KAFB-106235-501	4838 4814	1/20/2020		438.44	253053	0.00		438.44
KAFB-106236-436	4857	1/20/2020	<u> </u>	438.15	253053	0.00		438.15
KAFB-106236-470	4838	1/20/2020	_	438.13	253053	0.00	_	438.13
KAFB-106236-499	4814	1/20/2020	_	438.15	253053	0.00	_	438.15
KAFB-106240-449	4857	1/21/2020	_	470.29	0001	0.08		470.21
KAFB-106241-428	4857	1/21/2020	_	447.15	253053	0.00	_	447.15
KAFB-106242-418	4857	1/21/2020	_	438.88	253053	0.00		438.88
KAFB-106243-425	4857	1/22/2020	_	443.46	253053	0.00	_	443.46
KAFB-106244-445	4857	1/20/2020		466.22	0001	0.08	<del></del>	466.14
KAFB-106245-460 KAFB-106247-450	4857 4857	1/22/2020 1/20/2020		484.19 474.93	0001 0001	0.08		484.11 474.85
KAFB-106247-450 KAFB-106S1-447	4857	1/20/2020		474.93	253056	0.08		468.01
KAFB-106S1-447	4857	1/22/2020		475.22	253056	0.00		475.22
KAFB-106S3-449	4857	1/22/2020	_	474.31	253056	0.00	<del></del>	474.31
KAFB-106S4-446	4857	1/22/2020	_	469.21	0001	0.08	<u> </u>	469.13
KAFB-106S5-446								

Kirtland AFB BFF Quarterly Report – January-March 2020 SWMUs ST-106/SS-111

Table E-2-1
Gauging Calibration Corrections, Q1 2020

Well Location ID	Reference Elevation Interval (ft AMSL)	Date of Measurement	Depth to LNAPL (ft MRP)	Depth to Water (ft MRP)	Water Level Interface Probe Used (Serial Number)	Correction Applied (ft)	Corrected Depth to LNAPL (ft MRP)	Corrected Depth to Water (ft MRP)
KAFB-106S7-451	4857	1/22/2020	_	471.78	253056	0.00	_	471.78
KAFB-106S8-451	4857	1/22/2020	_	474.3	253056	0.00	_	474.30
KAFB-106S9-447	4857	1/20/2020	_	469.3	253056	0.00	_	469.30
KAFB-3411	4857	1/20/2020	_	466.67	0001	0.08	_	466.59

<sup>&</sup>lt;sup>a</sup> Well used in analyses for both REI 4857 and 4838.

AMSL = above mean sea level

ft = foot/feet

ID = identification

LNAPL = light non-aqueous phase liquid MRP = measurement reference point REI = reference elevation interval

— = LNAPL not detected

<sup>&</sup>lt;sup>b</sup> Well was not gauged due to presence of monitoring equipment.

<sup>&</sup>lt;sup>c</sup> Well not permanently designated in REI listed.



Well Information

#### **Passive Diffusion Water Sampling Data Sheet**

Well Location ID:

KAFB-106S1-447

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GWS1-447-201

489.99

weii information			Well Depth:	489.99 ft MRP
Screen Interval Length (ft): 40			Top of Screen:	447.00 ft MRP
Previous Depth to Water (MRP): 469.56 (Gauged	on 10/1/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen:	487.00 ft MRP
Length of Screen not submerged (ft): 22.56 ***	★ (Water level <5ft above top of screen or	screen not submerged)		
Deployment Team:	B		Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed: 12-12-19 Time	e Deployed:		1	447.70
DID.	WHOOOL		2	450.30
PID: MiniRAE 3000 Serial No:	WH0006		3	452.90
Water Level Meter: Solinst 500 ft Serial No:	wHool2		4	455.50
	QC sample notes.	Analyte(s):	5	458.10
PID Reading: ppm	(If blank, no QC samples required):	- Alkalinity	6	460.70
Depth to Water: 468.80		- BTEX	7	463.30
		- Anions	8	465.90
Measure Water Level		- Dissolved Metals	_9	468.50
DMS Tether and Reel ID match Well ID?		- EDB - NO3/NO2-N	10	471.10
Initial to confirm that ID		- Total Metals	11)	473.70
check was completed			12	476.30
Notes:	×	I	13	478.90
			14	481.50
Reviewed by: C. Mo North	Review Date: \\\2 -\b-\9			e represent submerged previous water level



#### **Passive Diffusion Water Sampling Data Sheet**

Well Location ID: KAFB-106S1-447

Year: 2020

Quarter: 1

					BEOCCHICAGO BANK		Sampl	e ID: GWS1-4	47-20°	1	
Date Sampled:	1-9+20	2 <u>0</u> Tim	ne Sampled	1320	Sampling Tea	m:#	AND THE PROPERTY OF THE PROPER				
PID Reading:	0,7	DM	S Tether and	Reel ID match Well II	D? 91-	Initial to confirm that was completed	ID check				
Sampler Num (shallow to deep		. ^		Type of Analysis	(circle approp	oriate)			Docum	ent in notes MS/MSD?	
			e only one								
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		*	
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			6mm
								W			
PID:	Mi	niRAE 3000	Seria	al No: WHOOG							
IDW will be taken	to: <b>90-</b> da	v Hazardoi	ıs Waste Are	a				Sample ID:	GW	S1-447-201	
Notes:		, iluzuidot	- Trusto Ale					Duplicate ID: (if applicable)	GW	S1-447-601	
				5				COC#:	CO	C-S1-447-20	1



Well Information

#### **Passive Diffusion Water Sampling Data Sheet**

Well Location ID:

KAFB-106S2-451

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GWS2-451-201

Well Denth

496.90

ft MDD

				Won Boptin.	ILIVITYE
Screen Interval Len				Top of Screen:	454.23 ft MRP
Previous Depth to V	Water (MRP): 476.86 (Gauged	on 10/1/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen:	494.23 ft MRP
Length of Screen no	ot submerged (ft): 22.63 ****	(Water level <5ft above top of screen or	_	Detterm of Golden.	- ICIVITAL
Deployment Team:	Em G	3	,	Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed:	12-16-19 Time	Deployed: 0835		1	454.93
DID		111-01		2	457.53
PID:	MiniRAE 3000 Serial No:	W 17000		3	460.13
Water Level Meter:	Solinst 500 ft Serial No:	WH0012		4	462.73
	11	QC sample notes.	Analyte(s):	5	465.33
PID Reading:	ppm	(If blank, no QC samples required):	- Alkalinity	6	467.93
Depth to Water:	475.93		- BTEX	7	470.53
Depth to water:	Measure Water Level		- Anions	8	473.13
	wedsure water Level		- Dissolved Metals	9	475.73
DMS Tether and Ree	I ID match Well ID?		- EDB - NO3/NO2-N	(10)	478.33
	Initial to confirm that ID check was completed		- Total Metals	11	480.93
	check was completed			(12)	483.53
Notes:				13	486.13
				14	488.73
Reviewed by:	mays	Review Date:			e represent submerged

	®

#### **Passive Diffusion Water Sampling Data Sheet**

KAFR-106S2-451 Sampling

Year: 2020

Quarter: 1

		ven Lo	cation ib:	1005	2-401	amping	Sample ID: GWS2-4			51-201			
Date Sampled:	01/06/202	CTii	me Sampled:	1058	Sampling Tea	m: D. Schm	eelk, N	Petersor	\				
PID Reading:	0.0	DN	/IS Tether and I	Reel ID match Well I	D?	Initial to confirm tha was completed	t ID check						
Sampler Num				Type of Analysis	(circle appro	priate)			Docume	ent in notes			
•		Choo	se only one			*							
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite					
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite					
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite					
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite					
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite					
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			6mm		
PID:	MiniF	RAE 3000	Serial	No: WHO005							*		
IDW will be taker	n to: <b>90-dav</b>	Hazardo	ous Waste Area				,	Sample ID:	GW	S2-451-20°	1		
Notes:	Tito. Jo-day		THE THESE AIGA				*	Duplicate ID: (if applicable)	GW	S2-451-60	1		
								COC#·	COC	C-S2-451-2	<i>γ</i> 01		



Well Information

#### **Passive Diffusion Water Sampling Data Sheet**

Well Location ID:

KAFB-106S3-449

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GWS3-449-201

494.42

Well Information			Well Depth:	494.42 ft MRP
Screen Interval Length (ft): 40			Top of Screen:	452.18 ft MRP
Previous Depth to Water (MRP): 476.00 (Gauged	on 10/1/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen:	492.18 ft MRP
Length of Screen not submerged (ft): 23.82	(Water level <5ft above top of screen or	screen not submerged)		
Deployment Team:	GB		Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed: 12-12-19 Time	Deployed: 0910		1	452.88
· ·	-		2	455.48
PID: MiniRAE 3000 Serial No:	wttoook		3	458.08
Water Level Meter: Solinst 500 ft Serial No:	N-67-001 25305	6 WHOOIZ	4	460.68
	QC sample notes.	Analyte(s):	5	463.28
PID Reading: ppm	(If blank, no QC samples required):	- Alkalinity	6	465.88
Depth to Water: 475 22		- BTEX	7	468.48
Doptil to Water		- Anions	8	471.08
Measure Water Level		- Dissolved Metals	9	473.68 V
DMS Tether and Reel ID match Well ID?		- EDB - NO3/NO2-N	10	476.28
Initial to confirm that ID		- Total Metals	17	478.88
check was completed			12)	481.48
Notes:		I	13	484.08
			14	486.68
Reviewed by: \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Review Date: 11,/6/19			ue represent submerged



#### **Passive Diffusion Water Sampling Data Sheet**

Well Location ID:

KAFB-106S3-449

**Sampling** 

Year: 2020

Quarter: 1

Sample ID: GWS3-449-201

				<u> </u>			Sampi	e ID. GVV33-4	49-20	1
ate Sampled:	1-9-2	020 Tim	ne Sampled:	1355	Sampling Tea	nm: # 2	ecolor -			=
D Reading:	45	DMS	S Tether and	Reel ID match Well I	D?	Initial to confirm the was completed	at ID check			
ampler Num (shallow to deep		- 4Δ.		Type of Analysis	s (circle appro	priate)			Docum	ent in notes MS/MSD?
1	EDB	yocs vocs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		6mr
								•		
PID:	Mi	niRAE 3000	Serial	INO: WHOOG			,			
W will be taken	to: 90-da	v Hazardou	ıs Waste Area	3	a			Sample ID:	GW	S3-449-201
Notes:		.,				, in the second		Duplicate ID: (if applicable)	-	S3-449-601



Well Information

#### **Passive Diffusion Water Sampling Data Sheet**

**Well Location ID:** 

KAFB-106S4-446

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GWS4-446-201

Well Depth:

Screen Interval Leng	th (ft): 40				Top of Screen:	449.23 ft MR
Previous Depth to W	ater (MRP): 470.88 (G	auged (	on 10/1/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen:	489.23 ft MR
Length of Screen no	t submerged (ft): 21.65	****	(Water level <5ft above top of screen or	screen not submerged)		
Deployment Team:	Su	66			Sampler Number:	Top of Samp Depth (MRP)
Date Deployed:	12-16-19	Time	Deployed:		1	449.93
			wthoolo	,	2	452.53
PID:	MiniRAE 3000 Seria	l No:	W (10000		3	455.13
Water Level Meter:	Solinst 500 ft Seria	l No:	WHOO 12		4	457.73
	(A ()	_	QC sample notes.	Analyte(s):	5	460.33
PID Reading:	0.0	ppm	(If blank, no QC samples required):	- Alkalinity	6	462.93
	41991			- BTEX	7	465.53
Depth to Water:	901.11			- Anions	8	468.13
	Measure Water Level			- Dissolved Metals	9	470.73
DMS Tether and Reel	ID match Well ID?	(		- EDB - NO3/NO2-N	(10)	473.33
	Initial to confirm to			- Total Metals	(11)	475.93
	check was con	прієтеа			12	478.53
Notes:				,	13	481.13
					14	483.73
Reviewed by:, Mon	John		Review Date: (2/16/[4		Depths highlighted blu samplers based or	ue represent submerg n previous water level

Sampler Number:	Top of Sampler Depth (MRP)
1	449.93
2	452.53
3	455.13
4	457.73
5	460.33
6	462.93
7	465.53
8	468.13
9	470.73
(10)	473.33
(11)	475.93
12	478.53
13	481.13
14	483.73
Depths highlighted b	lue represent submerged

491.73

ft MRP

ft MRP

ft MRP



Reviewed by: C. MontoyA

#### **Passive Diffusion Water Sampling Data Sheet**

Well Location ID: KAFB-106S4-446

Sampling

Year: 2020

Quarter: 1

Review Date: 1-8-2020

							Sample	e ID: GWS4-4	46-201		
Date Sampled:	01/06/203	ZO_Tin	ne Sampled:	6945	Sampling Tear	n: D. Schm	eelk, N	Peterson			
PID Reading:	0.0	DM	IS Tether and	Reel ID match Well I	D? <u>W</u>	Initial to confirm th was completed	at ID check				
Sampler Num				Type of Analysis	(circle approp	riate)				ent in notes MS/MSD?	
		Choos	e only one	· ·							
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
2 2	EDB '	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			6mm
PID:	MiniF	RAE 3000	Seria	I No: WHOOG		,					
IDW will be taken	to: GWTS/F	Pending	Disposal Area	a				Sample ID:	GWS	64-446-201	
Notes:		chang	Dioposai Ale			,		Duplicate ID: (if applicable)	GWS	64-446-601	
								COC#:	COC	-S4-446-20	)1



Well Information

#### **Passive Diffusion Water Sampling Data Sheet**

**Well Location ID:** 

KAFB-106S5-446

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GWS5-446-201

Well Depth:

488.32

ft MRP

Top of Sampler Depth (MRP) 446.78

Screen Interval Length (ft): 40			Top of Screen:	446.08 ft MRP
Previous Depth to Water (MRP): 468.10 (Gauged	on 10/1/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen:	486.08 ft MRP
Length of Screen not submerged (ft): 22.02 ****	(Water level <5ft above top of screen or	screen not submerged)		
Deployment Team:	3		Sampler Number:	Top of Sample Depth (MRP)
Date Deployed: 12-12-19 Time	Deployed:		1	446.78
	1 March		2	449.38
PID: MiniRAE 3000 Serial No:	wHool6		3	451.98
Water Level Meter: Solinst 500 ft Serial No:	WH0012		4	454.58
	QC sample notes.		5	457.18
PID Reading: ppm	(If blank, no QC samples required):	Analyte(s):  - Alkalinity	6	459.78
417 21		- BTEX	7	462.38
Depth to Water:		- Anions	8	464.98
Measure Water Level		- Dissolved Metals	9	467.58
DMO Tother and Book ID match Well ID2		- EDB	10	470.18
DMS Tether and Reel ID match Well ID?  Initial to confirm that ID		- NO3/NO2-N - Total Metals	11	472.78
check was completed			(12)	475.38
Notes:			13	477.98
			14	480.58
Reviewed by:	Review Date: 12-16-19			ne represent submerged n previous water level



#### **Passive Diffusion Water Sampling Data Sheet**

Well Location ID: KAFB-106S5-446 Sampling

Year: 2020

Quarter: 1

		VOII LO	cation ib.	10.00	national		Sampl	e ID: GWS5-4	46-201	
Date Sampled	: 1-9-2	02 O Tir	ne Sampled:	1510	Sampling Tea	m: #2				
PID Reading:	75.5	DN	IS Tether and	Reel ID match Well I	D? PF	Initial to confirm that was completed	t ID check			
Sampler Nur (shallow to de				Type of Analysis	s (circle appro	oriate)			Document in notes  Dup? MS/MSD?	
			se only one							
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		6mm
PID:	MiniF	RAE 3000	Serial	INO: WHOOG				* 0		
IDW will be take	en to: <b>90-dav</b>	Hazardo	us Waste Area	<b>a</b>				Sample ID:	GWS5-446-201	l
Du							Duplicate ID: (if applicable)	GWS5-446-601		
								COC#:	COC-S5-446-2	01



#### **Passive Diffusion Water Sampling Data Sheet**

Well Location ID:

KAFB-106S7-451

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GWS7-451-201

Well Information	Well Depth: 492.60 ft MRP				
Screen Interval Leng	Top of Screen:	451.00 ft MRP			
Previous Depth to W	Bottom of Screen:	491.00 ft MRP			
Length of Screen no	ot submerged (ft): 22.53 ****	(Water level <5ft above top of screen or	screen not submerged)		
Deployment Team:	Am GB	Sampler Number:	Top of Sampler Depth (MRP)		
Date Deployed:	[2-12-19] Time		1	451.70	
	2	454.30			
PID:	MiniRAE 3000 Serial No:	3	456.90		
Water Level Meter:	Solinst 500 ft Serial No:	w 40012	4	459.50	
		QC sample notes. (If blank, no QC samples required):	Analyte(s): - Alkalinity - BTEX	5	462.10
PID Reading:	ppm			6	464.70
	1177 70			7	467.30
Depth to Water:	Measure Water Level		- Anions	8	469.90
	9	472.50			
DMS Tether and Reel	10	475.10			
Sino remer and reco	Initial to confirm that ID		- NO3/NO2-N - Total Metals	(11)	477.70
	check was/completed			(12)	480.30
Notes:	13	482.90			
				14	485.50
Reviewed by:	toN	Review Date: 12-16-19	· .		lue represent submerged on previous water level



Well Location ID:

KAFB-106S7-451

**Sampling** 

Year: 2020

Quarter: 1

Sample ID: GWS7-451-201

								Jamp	C ID. 01101-4	01-20	•
Date Sam	pled:	1-9-2	020 Tim	ne Sampled	: 1440	Sampling Tea	nm: # 2				
PID Read	ing:	67.	5 DM	S Tether and	Reel ID match Well ID	PF	Initial to confirm tha _ was completed	at ID check			
Sampler	Num	ber:			Type of Analysis (	circle appro	priate)			Docum	ent in notes
(shallow										Dup?	MS/MSD?
,		- 7	Choose	e only one							
1		EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
DW S					The second secon						
1	2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
failures		EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Allraliaita	A	Nitarra / Nitaria		
no		LDD	VOCS	BILX (N)	Wetais (Dissolved)	Metais (Total)	Alkalinity	Anions	Nitrate / Nitrite		
water 4		EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
recovery			,			, ,					
from 5	5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
1+3											
6	5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		6mm
PID:		Mini	iRAE 3000	Corio	al No: WHOOG						
			INAE 3000		ar No.		4 25 S				
IDW will be	a taken	to: 90-day	Hazardou	ıs Waste Are	12				Sample ID:	GW	S7-451-201
Notes:	Canon	to. Jo-day	Hazardot	13 Waste Ale	ea .				Duplicate ID: (if applicable)	GW	S7-451-601
Motes:						2		2	COC#:	COO	C-S7-451-201



Well Location ID:

KAFB-106S8-451

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GWS8-451-201

vven miorination			5	Well Depth:	491.97 ft MRP
Screen Interval Len	gth (ft): 40			Top of Screen:	
Previous Depth to V		ged on 10/1/2019) LNAPL NOT detected *** (Water level <5ft above top of screen or	d during prior gauging  screen not submerged)	Bottom of Screen:	
Deployment Team:	m 68	7		Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed:	12-16-19	Fime Deployed:		1	454.92
PID:	_MiniRAE 3000 Serial N	10: WHONTS		2	457.52
, ib.	MIIIIRAE 3000 Seriai N	1		3	460.12
Water Level Meter:	Solinst 500 ft Serial N	o:wtronz		4	462.72
DID D	$\mathcal{O} \cdot \mathcal{O}$	QC sample notes.	Analyte(s):	5	465.32
PID Reading: ———	pp	m (If blank, no QC samples required):	- Alkalinity	6	467.92
Depth to Water:	475.02		- BTEX	7	470.52
	Measure Water Level		- Anions	8	473.12
	^		- Dissolved Metals	9	475.72
DMS Tether and Ree	I ID match Well ID?		- NO3/NO2-N	10)	478.32
	Initial to confirm that check was comple		- Total Metals	(11)	480.92
				12	483.52
Notes:			1	13	486.12
				14	488.72
Reviewed by:	KoyA	Review Date: 12-16-19		Depths highlighted blu samplers based or	e represent submerged previous water level



Well Location ID: KAFB-106S8-451

**Sampling** 

Year: 2020

Quarter: 1

Sample ID: CMC9 454 204

							•	U: GW36-4			
Date Sampled	1: 01/06/202	_O Tin	ne Sampled:	1206	Sampling Tea	m: D. Schn	reelk,	V. Peter	SON		
PID Reading:	0.0	DM	S Tether and	Reel ID match Well II	D? DS	Initial to confirm that was completed	nt ID check				
Sampler Nu (shallow to do				Type of Analysis	(circle approp	oriate)			Docum	ent in notes	
(01101111111111111111111111111111111111		Choos	e only one				\$	•			
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			6mm
PID:	_ Minil	RAE 3000	Seria	INO: WHOOOS			`				×

	Official No.		
DW will be taken to:	90-day Hazardous Waste Area	Sample ID:	GWS8-451-201
Notes:		Duplicate ID: (if applicable)	GWS8-451-601
140103.		COC#:	COC-S8-451-201
eviewed by: ( Monto	SYA	Review Date:	8-2020



Well Information

#### **Passive Diffusion Water Sampling Data Sheet**

Well Location ID:

KAFB-106S9-447

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GWS9-447-201

489.49

Well Information				Well Depth:	489.49 ft MRP
Screen Interval Leng	gth (ft): 40			Top of Screen:	447.12 ft MRP
Previous Depth to W	later (MRP): 470.57 (Gauged	on 10/1/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen:	487.12 ft MRP
Length of Screen no	ot submerged (ft): 23.45 ****	(Water level <5ft above top of screen or	screen not submerged)		
Deployment Team:	m 68			Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed:	12-12-19 Time	Deployed: 1215		1	447.82
				2	450.42
PID:	MiniRAE 3000 Serial No:	WHOVOL		3	453.02
Nater Level Meter:	Solinst 500 ft Serial No:	WHOO12		4	455.62
		QC sample notes.	Analyte(s):	5	458.22
PID Reading:	ppm	(If blank, no QC samples required):	- Alkalinity	6	460.82
	1169 24		- BTEX	7	463.42
Depth to Water:	96111		- Anions	8	466.02
	Measure Water Level		- Dissolved Metals	9	468.62
DMS Tether and Reel	ID match Well ID2		- EDB - NO3/NO2-N	10	471.22
owo retirer and rece	Initial to confirm that ID		- Total Metals	(11)	473.82
	check was completed		,	12	476.42
Notes:				13	479.02
				14	481.62
Reviewed by:	Nohr	Review Date: 12-16-19			ue represent submerged n previous water level



Well Location ID:

KAFB-106S9-447

**Sampling** 

Year: 2020

Quarter: 1

Sample ID: GWS9-447-201

Date Sampled	: 1-9-202	7 Tim	ne Sampled	:1240	Sampling Te	am:_# 2				
PID Reading:	0.7	DM:	S Tether and	Reel ID match Well ID	? Pg	Initial to confirm the was completed	at ID check			
Sampler Nur (shallow to de		CAL		Type of Analysis (	circle appro	ppriate)			Docum	ent in notes MS/MSD?
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		CSIA
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		6mm
PID:	MiniF	RAE 3000	Seria	al No: WHOOOL			~			
المالا	on to: 00 days		\\\					Sample ID:	GW	'S9-447-201

Notes:

IDW will be taken to: 90-day Hazardous Waste Area

Review Date:

Duplicate ID:

(if applicable)

COC#:

GWS9-447-601

COC-S9-447-201



#### **Groundwater Purge** and Sampling Log

Year: 2020 Quarter: 1 (Jan-Mar)

Project:	Kirtland A	FB BFF ST-106/SS-11	<u>1</u> v	Well ID:		KAFE	3-106003	
Project No:	62599DN	101		Samplers:	D. Sal	meelk	K. Ro	bingo
Date:	1-17-	2020		Crew Signature:	2/	mS	for .	
Well Inform	nation			/				
Well was NOT	HAZARDO	US .				Well De	pth:506.0	00ft MRP
SCREEN SUB	MERGED o	on 9/30/2019 (previou	s gauging da	ate)		Top of Scre	een:479.0	00 ft MRP
Barricade/Noti	fication:					Bottom of Scre	een:504.0	00 ft MRP
Measurement	Reference I	Point (MRP): Top of Pr	otective Casir	ng	Refe	rence Elevatior	ı Interval:	4857
IDW will be ta	aken to: G	WTS/Pending Dispo	sal Area	IDV	V Label:	Green Non-h	azardous	
Protective Casi	ng/Vault:	Intact Damaged	Well L	.ocked/Secu	•	esent: Well I	D Marked:	Yes No
		6		Yes	No			
Photoionization	Measurem	ents at Wellhead: 🧘	).()	ppm	1			
LNAPL Present	t (circle one	)? Yes No	LNAPL	Thickness:	462.	ft ft	LNAPL No during last event: 9/30	
Previous Depth	to water:	464.14	_ft MRP	Depth	to Water (	ртw): <u>462</u>	.85	ft MRP
Pump Inform	mation							
Non-Dedicated	d Pump							
Bennett Pump S	Serial No.:	1807	3-699	1		9		
Non-Dedicated	Pump Dept	h: 481,0		_ ft MRP				
* - if screen is s	ubmerged,	place pump 2 ft below	top of screen	; if not subm	nerged, plac	ce pump 2 ft ab	ove bottom o	f screen.
Field Instrui	mentatio	า						
pH, Conductivity		YSI Professional Plu	s Serial N	No: 181	100=	378		
PID:		MiniRAE 3000	Serial N	No: WH	0005			
Water Level Me	eter:	Solinst 500 ft	Serial N	No: Wf	1001	2		
Turbidity Meter:		Hach 2100Q	Serial N	No: W	400	9		
Sample Info	rmation							
Sample ID:	GW00	3-201	Sampling M	Method: Lo	w-flow			*
Duplicate ID: (if applicable)	GW00	3-601	Sampling M	ledium: Wa	ater			
COC#:	COC-0	003-201						
Reviewed by:	2 Montos	Initia	ls: ON	Revie	ew Date: _	1-12-2020		Page 1 of



#### **Groundwater Purge** and Sampling Log

Year: 2020

Quarter: 1 (Jan-Mar) KAFB-106003 Kirtland AFB BFF ST-106/SS-111 Project: Well ID: 1-17-2020 Date: Purge Information and Field Parameter Purge Start Time: 1214 Purge Rate: 0.800 L/min X 0.265 = 0.212 lear Description of first water purged: 14.86 Drawdown Limit: (based on previous water level) **DTW Turbidity** Temp. Saturated DO Specific рΗ **ORP** Time (NTU) DO (ft) (°C) Conductance (mg/L) (mV) (%) (µS/cm) Stabilization Requirements -----If >10,±10% ±10% ±10% ±10% ±0.5 Historical 464.14 0.96 17.1 6.5 867 7.85 159.8 Data: 462.83 1220 1.09 13.3 14.59 8.13 1079 462.87 1225 1,63 15.7 7,94 10,16 628 0.26 462.87 1230 7.05 72.7 390,8 1235 67.3 393,1 462.81 240 62.7 462.87 0.18 400.4 1245 16.7 62.3 6.03 250 1-17-2020 Sample Time: Sample Date: 6mm Purge End Time: Bubbles in the vials?: Where? Amount Size Sampled by: Sampler Signature: IDW Management Estimated volume per Drum No. IDW drum (gal) 1 IDW will be taken to: IDW Label: 2 **GWTS/Pending** Green Non-Disposal Area hazardous Total

Comments:

Reviewed by: Initials:

Review Date: .



## **Groundwater Purge** and Sampling Log

Year:	2020
Quarter:	1 (Jan-Mar)

		ana	Jampi	iiig Lo	9	Quar	ter: 🦳	1 (Jan-l	Mar)
Project:	Kirtland AF	B BFF ST-106/SS-111	_	Well ID:		KA	AFB-106	3004	
Project No:	62599DM	01		Samplers:	Disch	meelk	Ki	Robinso	pn
Date:	1-16-2	020	_	Crew Signature:	X	R.	M	ni	-
Well Informa	ation						7	,	
Well was NOT H	HAZARDOL	JS				Wel	l Depth:	512.74	_ ft MRF
SCREEN SUBM	IERGED o	n 10/1/2019 (previous	gauging o	date)		Top of	Screen:	486.74	_ ft MRF
Barricade/Notific	cation: X					Bottom of	Screen:	511.74	_ ft MRF
Measurement Re	eference P	oint (MRP): Top of Pro	tective Cas	sing	Refe	rence Eleva	ation Inter	rval:48	57
IDW will be tak	cen to: GV	VTS/Pending Dispos	al Area	IDV	V Label:	Green No	n-hazaro	dous	
Protective Casing	g/Vault: C	Intact Damaged		Locked/Secu Yes	urity Bolt Pre	esent: W	ell ID Ma	arked: Yes	) No
Photoionization M	/leasureme	nts at Wellhead:	.0	ppn	n		1.6	IAPL NOT of	neoryod
LNAPL Present (d	circle one)	? Yes No	LNAP	L Thickness:		The second secon	du	ring last gau ent: 10/1/20 <sup>2</sup>	ging
Previous Depth to	o water:	469.71 f	ft MRP	Depth	ı to Water (	DTW):	68.5	9	_ft MRP
Pump Informa	ation								
Non-Dedicated P	oump	Patra	100						
Bennett Pump Se	erial No.:	1807B	-699						_
Non-Dedicated Pเ	ump Depth	488.75		ft MRP					
* - if screen is sub	omerged, p	lace pump 2 ft below to	op of scree	n; if not subm	nerged, plac	e pump 2 f	above b	ottom of scre	een.
Field Instrum	entation								
pH, Conductivity, DO, Temperature		YSI Professional Plus	Serial	No: 131	1003	578			_
PID:	_	MiniRAE 3000		No: Wt					_
Water Level Mete	r: _	Solinst 500 ft	_ Serial	No: W!	40012	~			_
Turbidity Meter:	-	Hach 2100Q	Serial	No:	48000	(			
Sample Inforn	nation								
Sample ID:	GW004	-201	Sampling	Method: _Lo	w-flow				
Duplicate ID: (if applicable)	GW004	-601	Sampling	Medium: W	ater				
COC#:	COC-00	04-201							



## Groundwater Purge and Sampling Log

Year: 2020
Quarter: 1 (Jan-Mar)

KAFB-106004 Kirtland AFB BFF ST-106/SS-111 Project: Well ID: Date: 1-16-2020 Purge Information and Field Parameter Purge Start Time: 08 48 \_\_\_\_\_ Purge Rate: 0840 L/min  $\times$  0.265 = 0.2226Description of first water purged: Clear and odorless 17.03 Drawdown Limit: ft (based on previous water level) DTW **Turbidity** Temp. Saturated DO Specific pН **ORP** Time (NTU) (°C) DO (ft) (mg/L) Conductance (mV) (%) (µS/cm) Stabilization Requirements -----If >10,±10% ±10% ±10% ±10% ±0.5 Historical 469.71 2.72 19.7 7.62 548.2 7.78 -7.5 Data: 94.9 468.57 0.57 0855 11.7 10.20 431.2 7.89 412.1 12.5 82.3 0900 468.57 0,22 8.69 432,3 7.92 406.6 468.57 7.59 0905 432.3 0.23 13.2 72.6 7.93 404.2 0910 468,55 7.35 4.38 70.6 13.4 430.3 404.6 7.94 7,93 468.55 428.4 2.42 13.4 69.0 7.17 to3.8 A N 1-16-2020 0920 Sample Time: Sample Date: 0924 6mm Purge End Time: Where? One RIEX VOA Amount < 1 mn Bubbles in the vials?: Size Sampled by: Sampler Signature: IDW Management Estimated volume per Drum No. IDW drum (gal) 1 IDW will be taken to: IDW Label: 2 **GWTS/Pending** Green Non-**Disposal Area** hazardous

Comments:

Reviewed by:

Total

Initials:

CA\

Review Date: \_

1-20-2020

Page 2 of 2



Well Location ID:

KAFB-106005

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW005-201

Well Information			Well Depth: _	508.87 ft MRP
Screen Interval Length (ft): 25			Top of Screen: _	481.87 ft MRP
Previous Depth to Water (MRP): 471.20 (Gauged	on 9/30/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen: _	506.87 ft MRP
Length of Screen not submerged (ft): -10.67	· ·			
Deployment Team:			Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed:  2 -    -      Time	Deployed:			482.57
PID: MiniRAE 3000 Serial No:	WHOODE		2	485.17 487.77
Water Level Meter: Solinst 500 ft Serial No:	NA		4	490.37
PID Reading: ppm	QC sample notes. (If blank, no QC samples required):	Analyte(s):	5	492.97 495.57
		- Alkalinity - BTEX	7	498.17
Depth to Water:	Duplicate sample required. Please deploy extra DMS as needed	- Anions	8	500.77
DMS Tether and Reel ID match Well ID?		<ul><li>- Dissolved Metals</li><li>- EDB</li><li>- NO3/NO2-N</li></ul>	9	503.37
Initial to confirm that ID check was completed		- Total Metals	, .	
Notes:				
Reviewed by: 1. Mandaya	Review Date: 12-14-19			e represent submerged previous water level



Well Location ID:

KAFB-106005

**Sampling** 

Year: 2020

Quarter: 1

							Sampi	e ID: GW005-	201	
Date Sample			e Sampled:	1050	Sampling Tea	m: K. Ro	binson,	P. Ferrar	1	
PID Reading:	0.0	DMS	Tether and	Reel ID match Well II	D? KR	Initial to confirm the was completed	,			
Sampler Nu (shallow to de				Type of Analysis	(circle approp	oriate)			Document in notes	
,		Choose	only one						Dup? MS/MSD?	6
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		7
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		6mm
								Duplica	ate sample require	∍d.
PID: 0.0	MiniF	RAE 3000	Serial	No: NH 00 6	<u> </u>					

Notes:

IDW will be taken to: GWTS/Pending Disposal Area

Duplicate ID: (if applicable)

Sample ID:

GW005-201 GW005-601

COC#:

COC-005-201

Review Date:



Well Location ID:

KAFB-106009

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW009-201

Well Information			Well Depth:	511.19 ft MRP
Screen Interval Length (ft): 25			Top of Screen:	483.69 ft MRP
Previous Depth to Water (MRP): 472.91 (Gauged	on 9/30/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen:	508.69 ft MRP
Length of Screen not submerged (ft): -10.78				
Deployment Team:			Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed: 12-11-19 Time	Deployed: 1150			484.39
PID: MiniRAE 3000 Serial No:	W HOTOL		2	486.99
- Million Source Strain No.	1		3	489.59
Water Level Meter: Solinst 500 ft Serial No:	N/A		4	492.19
	QC sample notes.	A	5	494.79
PID Reading: ppm	(If blank, no QC samples required):	Analyte(s):	6	497.39
		- Alkalinity - BTEX	7	499.99
Depth to Water:	Duplicate sample required. Please	- Anions	8	502.59
	deploy extra DMS as needed	- Dissolved Metals		302.39
		- EDB		
DMS Tether and Reel ID match Well ID?		- NO3/NO2-N		
Initial to confirm that ID check was completed		- Total Metals		
	,			
Notes:				
Reviewed by:	Review Date: 12-16-19			e represent submerged previous water level



Well Location ID:

KAFB-106009

Sampling

Year: 2020

Review Date: 1-9-1070

Quarter: 1

	Well Location ID:			Sampling			Sample ID: GW009-201						
Date Sampled:	1-8-200	Tir	ne Sampled	: 0311	Sampling Tea	m: D. Schn		Begane					
PID Reading:	00	DN	IS Tether and	Reel ID match Well I		Initial to confirm that was completed		3 1					
Sampler Num				Type of Analysis	s (circle approp	oriate)			Docum	nent in notes			
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite					
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite					
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite					
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite					
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite					
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			6mm		
								Duplica	ate sam	nple requi	red.		
PID:	Min	iRAE 3000	Seria	al No: W40005					3				
IDW will be taken	to: <b>GWTS</b>	/Pending	Disposal Area	a				Sample ID:	GW	/009-201			
Notes:			-					Duplicate ID: (if applicable)	GW	009-601			
								COC#:	COC	C-009-201			



Reviewed by:

## Groundwater Purge and Sampling Log

Year: 2020

		9	3	Quarter:	1 (Jan-Mar)
Project: Ki	irtland AFB BFF ST-106/SS-11	1 Well I	):	KAFB-1	06012R
Project No: 6	2599DM01	Sampl	ers:	). Schneelk, K	Robinson
Date:	-14-2020	Crew Signat	ure:	Dhe ,	yni
Well Informati	ion			l	7
Well was NOT HA	ZARDOUS			Well Dep	th: <u>502.91</u> ft MRF
SCREEN NOT SU	JBMERGED on 9/30/2019 (pre	evious gauging da	te)	Top of Scree	en: <u>468.49</u> ft MRF
Barricade/Notifica	tion:			Bottom of Scree	en: <u>497.74</u> ft MRF
Measurement Ref	ference Point (MRP): Top of Pro	otective Casing		Reference Elevation I	Interval: 4857
IDW will be take	n to: GWTS/Pending Dispo	sal Area	IDW La	abel: Green Non-ha	zardous
Protective Casing/	Vault: Intact Damaged		d/Security es N		Marked: Yes No
Photoionization Me	easurements at Wellhead:	g, O	ppm		I NADI NOT abase ad
LNAPL Present (cir	rcle one)? Yes No	LNAPL Thick	iness:	ft	LNAPL NOT observed during last gauging event: 9/30/2019
Previous Depth to	water: 469.43	_ft MRP	Depth to	Water (DTW): 468	ft MRP
Pump Informati	tion				
Non-Dedicated Pu	ımp				
Bennett Pump Seri	al No.: 5N 180	7B-699 -KR			
Non-Dedicated Pur	mp Depth: 495.75	- KR ft N	IRP 4	170,5	
* - if screen is subm	nerged, place pump 2 ft below	top of screen; if not	submerg	jed, place pump 2 ft abov	e bottom of screen.
Field Instrume	ntation				
pH, Conductivity, O DO, Temperature	YSI Professional Plu	s Serial No:	8110	0378	
PID:	MiniRAE 3000	Serial No: _	WHOO	05	
Water Level Meter:	Solinst 500 ft	Serial No: _	WHO	80 WHO012	
Turbidity Meter:	Hach 2100Q	Serial No: _	WHOC	209	
Sample Inform	ation				
Sample ID:	GW012R-201	Sampling Method	d: Low-fl	low	
Duplicate ID: (if applicable)	GW012R-601	Sampling Mediun	n:Water	• ,	
COC#:	COC-012R-201				

\_ Initials:\_\_\_

\_\_\_\_\_ Review Date: \_



## **Groundwater Purge** and Sampling Log

Year: 2020

Quarter: 1 (Jan-Mar)

				_			Quarter: 1 (our mar)				
Project: Kirtland A	AFB BFF ST-10	06/SS-111	V	Vell ID:	KAFB-106012R						
Purge Information a	and Field Pa	rameter		* - )	Date:	1-14-2	020				
Purge Start Time: 105		A			in X 0.26	5 = 0,201	<u>Ч</u> д	al/min			
Description of first water p	ourged:	lear 3	odor	less							
Drawdown Limit:	7.08	,	on previou	is water level)		,					
Time	(ft)	Turbidity (NTU)			DO (mg/L)	Specific Conductance (µS/cm)	pН	ORP (mV)			
Stabilization Requirements		If >10,±10%	±10%		±10%	±10%	±0.5				
Historical Data:	469.43	10.1	20.4		8.16	1974	7.36	146			
1105	468.05	31.4	16.7	72.0	7.00	1368	7.33	315-6			
1110	468.05	24.4	16.7	71.0	6.88	1437	7.37	319.0			
1115	768.05	15.5	16-6	70.0	6.76	1517	7.35	324.8			
1120	468.04	15.3	16-7	70.2	6-84	1542	7-37	326.7			
1125	468.05	13.4	17.0	70.0	6.73	1564	7.39	328.4			
1130	468.03	11.2	17.1	70.5	6.76	1580	7.36	330.0			
1135	468.64	8.71	17.0	69.5	6.66	1591	7.35	332.5			
1140	468.03	7.47	17.0	69.3	6.65	1590	7.34	333,5			
(145	468.04	7.14	17.0	67.9	6.60	1586	7.34	334,5			
	Minus and Australia Control of the C			The state of the s							
			D								
Sample Time: 1151			Samı	ole Date:	1-14-2	2020					
Purge End Time: 120	8							6mm			
Bubbles in the vials?:	Yes /	No Whe	re?	ALCENTARY (ALCENTRATE OF A SHARE TO PROSPER AND A SHARE THE ARCENTARY	Amount		Size	The state of the s			
Sampled by:	n Schn	reelk	Samp	ler Signature: _	Life	8					
IDW Management				9							
•	ated volume pe	er									
Drum No. ID	W drum (gal)										
1 IDW will be taken to: IDW Label:											
2	r		Pending all Area		reen Non- azardous						
Total						2					
Comments:											

Reviewed by: C. Markout Initials: Com Review Date: 1-15-2020 Page 2 of 2



Reviewed by: CManby

# Groundwater Purge and Sampling Log

Year: 2020
Quarter: 1 (Jan-Mar)

ACCUSED OF THE PARTY.				G	tuarter.	i (Jaii-	iviai j
Project: K	Cirtland AFB BFF ST-106/SS-111	Well	ID:		KAFB-	106013	
Project No:	62599DM01	Sam	plers:	Dylan So	harelk	K. Robi	uson
Date:	-15-2020	Crew Signa	<i>i</i> ature:	y no	1/1	22	
Well Informa	tion						
Well was NOT H.	AZARDOUS				Well Dept	h: <u>519.65</u>	ft MRP
SCREEN SUBM	ERGED on 10/1/2019 (previous g	gauging date)		То	p of Scree	n: <u>489.65</u>	ft MRP
Barricade/Notifica	ation: X			Bottor	n of Scree	n: <u>514.65</u>	ft MRP
Measurement Re	ference Point (MRP): Top of Prote	ective Casing		Reference E	Elevation Ir	nterval:48	357
IDW will be take	en to: GWTS/Pending Disposa	al Area	IDV	V Label: Greer	n Non-haz	zardous	×
Protective Casing			ed/Secu Yes	rity Bolt Present: No	Well ID	Marked: Ye	s No
Photoionization M	easurements at Wellhead:		ppm	1		LNAPL NOT o	beariod
LNAPL Present (c	rircle one)? Yes No	LNAPL Thic	ckness:	Commission of the Commission o	ft	during last gau event: 10/1/20	uging
Previous Depth to	water: 474.96 ft	MRP	Depth	to Water (DTW):	473	,58	_ft MRP
Pump Informa	ation						
Non-Dedicated P		-		3			
Bennett Pump Sei	rial No.: 1807	B-690	7				
Non-Dedicated Pu	Imp Depth: 491.6	ft	MRP				
* - if screen is sub	merged, place pump 2 ft below to	p of screen; if n	ot subm	nerged, place pum	p 2 ft abov	e bottom of sci	reen.
Field Instrume	entation						
oH, Conductivity, 0 DO, Temperature	ORP, YSI Professional Plus	Serial No:	181	-100378	9		
PID:	MiniRAE 3000	Serial No:	$\omega$	H0005			_
Water Level Meter	Solinst 500 ft	Serial No:	lr	H0012			_
Turbidity Meter:	Hach 2100Q	Serial No:	W	H0009			
Sample Inforn	nation						
Sample ID:	GW013-201	Sampling Metho	od: <u>Lo</u>	w-flow	A		
Duplicate ID: (if applicable)	GW013-601	Sampling Medio	um:W	ater			
COC#:	COC-013-201						

\_ Initials: \_\_\_\_\_ Review Date: \_\_\_\_\_\_ Review Date: \_\_\_\_\_\_



#### **Groundwater Purge** and Sampling Log

2020 Year:

1 (Jan-Mar) Quarter: KAFB-106013 Kirtland AFB BFF ST-106/SS-111 Project: Well ID: 1-15-2021 Purge Information and Field Parameter Date: L/min X 0.265 = 0.233Purge Start Time: 2854 Purge Rate: U lear and Description of first water purged: \_ 14.69 Drawdown Limit: (based on previous water level) DTW **Turbidity** Temp. Saturated DO Specific ORP pН Time (NTU) (ft) (°C) DO (mg/L) Conductance (mV) (%) (µS/cm) Stabilization Requirements If >10,±10% ±10% ±10% ±0.5 -----±10% Historical 474.96 2.64 19.8 1.08 419.1 7.19 65.7 Data: 108 473.57 11.7 7.19 445.1 400.0 10.46 473,55 21.7 70.5 7,13 14.3 7.75 384.9 478.4 473.56 33.6 3,22 16.7 1005 0905 161 480.5 7.84 24.0 1010 0910 473.55 16.6 2.33 482.2 7.82 370.5 2.09 473.35 21.5 7.80 7.10 16.7 482,9 368.4 0920 473,54 5.35 16.7 20:1 1095 483.4 7.83 365,0 0925 16.8 1.87 19.2 473.55 399 483.3 7.84 362.0 0930 2,72 16.7 1.82 19,0 473.53 483, 2 7.82 360.2 0935 1-15-2020 Sample Time: Sample Date: 6mm Purge End Time: Bubbles in the vials?: Yes No Where? Amount Size Sampled by: Sampler Signature: IDW Management Estimated volume per Drum No. IDW drum (gal) 1 IDW will be taken to: IDW Label: 2 GWTS/Pending Green Non-Disposal Area hazardous Total

Comments:

Reviewed by: Initials: 10-0W Review Date: . Page 2 of 2



Well Location ID:

KAFB-106029

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW029-201

Well Information			Well Depth:	475.80 ft MRP
Screen Interval Length (ft): 20			Top of Screen:	450.80 ft MRP
Previous Depth to Water (MRP): 435.28 (Gauged of	on 10/2/2019) LNAPL NOT detected of	during prior gauging	Bottom of Screen:	470.80 ft MRP
Length of Screen not submerged (ft): -15.52				
Deployment Team: GB			Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed: 12-9-[9 Time	Deployed: 1745			451.50 454.10
PID: MiniRAE 3000 Serial No:	WHOOD6		3 -7m	456.70
Water Level Meter: Solinst 500 ft Serial No:	NA		4 JM	459.30
PID Reading: ppm	QC sample notes. (If blank, no QC samples required):	Analyte(s): - EDB	6 7	461.90 464.50 467.10
Depth to Water:	Duplicate sample required. Please deploy extra DMS as needed		7	407.10
DMS Tether and Reel ID match Well ID?  Initial to confirm that ID check was completed				
Notes:				
Reviewed by: C. Mowoyf	Review Date: [2-13-1]			e represent submerged previous water level



Well Location ID:

KAFB-106029

**Sampling** 

Year: 2020

Quarter: 1

Sample ID: CW020 201

							Samp	e ib. Gyvuzs	201
Date Sampled:	1-6-20	20 Tin	ne Sampled:	1200	Sampling Tea	m: K. Rob	inson, P	· Ferrari	· .
PID Reading:	0.0	DM	S Tether and	Reel ID match Well II	D? 19R	Initial to confirm th was completed	at ID check		
Sampler Numl	ber:			Type of Analysis	(circle approp	oriate)			Document in notes
(shallow to deep									Dup? MS/MSD?
		Choos	e only one						
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	X
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	6mm
								Duplic	cate sample required.
PID:	Mini	RAE 3000	Seria	1 No: _W H0006					
IDW will be taken	to: <b>GWTS</b> /	Pending	Disposal Area	a			,	Sample ID:	GW029-201
Notes:	uplicate							Duplicate ID: (if applicable)	GW029-601
Notes	pricare	Jamp	C 1-51-0					COC#:	COC-029-201



Well Location ID:

KAFB-106030

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW030-201

Well Information					Well Depth:	489.90 ft MRP
Screen Interval Leng	th (ft): 15				Top of Screen:	469.50 ft MRP
Previous Depth to W	ater (MRP): 435.4	0 (Gauged	on 10/2/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen:	484.50 ft MRP
Length of Screen not	t submerged (ft): -3	34.10				
Deployment Team:		6B			Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed:	12-9-19	Time	Deployed: 1235		1	470.20
PID:	MiniRAE 3000	Serial No:	wtoook		3	472.80 475.40
Water Level Meter:	Solinst 500 ft	Serial No:	NA		4	478.00
PID Reading:	0,0	ррт	QC sample notes. (If blank, no QC samples required):	Analyte(s):	5	480.60
Depth to Water:						
DMS Tether and Reel	Initial to	o confirm that ID	MS/MSD required. Please deploy extra DMS as needed			
Notes:						
Reviewed by:	fort		Review Date: 12-13-19			ue represent submerged n previous water level



Date Sampled: 1-6-7070 Time Sampled: 1770 Sampling Team: K. Robinson, P. Ferrari

Well Location ID:

KAFB-106030

**Sampling** 

Year: 2020

Quarter: 1

**Sample ID: GW030-201** 

PID Reading:	<u>O</u> , O	DM	S Tether and	Reel ID match Well II	0? KR	Initial to confirm th was completed	at ID check			
Sampler Num				Type of Analysis	(circle approp	oriate)			Document in note Dup? MS/MSD?	
		Choos	e only one							
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		6mm
								M	S/MSD required.	
PID:	Minil	RAE 3000	Serial	No: WHOOG						,
DW will be taken	to: GWTS/	Pending	Disposal Area					Sample ID:	GW030-201	
Notes:		renamy	Disposal Alea	ı				Duplicate ID: (if applicable)	GW030-601	
							,	COC#:	COC-030-201	
Reviewed by: CN	bontoyA	*1		wi .				Review Date:	8-2020	



Quarter: 1

Year: 2020

Well Location ID:

KAFB-106031

**Deployment** 

Sample ID: GW031-201

Well Information			Well Depth: _	514.90 ft MRP
Screen Interval Length (ft): 14			Top of Screen: _	495.80 ft MRP
Previous Depth to Water (MRP): 435.44 (Gauged of	on 10/2/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen:	509.50 ft MRP
Length of Screen not submerged (ft): -60.36				
Deployment Team: GB		<del></del> .	Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed: 12 - 9 - 19 Time	Deployed: 1710			496.50
PID: MiniRAE 3000 Serial No:	W+0006		(2)	499.10
PID: <u>MiniRAE 3000</u> Serial No:	-		3	501.70
Water Level Meter: Solinst 500 ft Serial No:	NA		4	504.30
PID Reading: ppm	QC sample notes. (If blank, no QC samples required):	Analyte(s):	5	506.90
Depth to Water:				
DMS Tether and Reel ID match Well ID?  Initial to confirm that ID check was completed				
Notes:				
Reviewed by:	Review Date: 12-23-19			ue represent submerged n previous water level



Well Location ID:

KAFB-106031

**Sampling** 

Year: 2020

Quarter: 1

Sample ID: GW031-201

Review Date: 1-8-2-20

							Sampi	e ID. GVV031-	201
Date Sampled:	1-6-202	O Tin	ne Sampled:	1250	Sampling Tear	m: K-Rol	onson ,	P. Ferrar	1
PID Reading:		DM	S Tether and	Reel ID match Well II	D? KR	Initial to confirm th was completed	at ID check		
Sampler Num				Type of Analysis	(circle approp	riate)			Document in notes  Dup? MS/MSD?
		Choos	e only one						
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	6mm
PID:	MiniF	RAE 3000	Seria	INo: WHOOO6					
IDW will be taken	to: GWTS/	Pending	Disposal Area	a	,			Sample ID:	GW031-201
Notes:	311101	onanig	Diopodai Ai Ce					Duplicate ID: (if applicable)	GW031-601
								COC#:	COC-031-201



Well Location ID:

KAFB-106032

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW032-201

		Well Depth:	
		Top of Screen:	456.00 ft MRP
1 10/1/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen:	476.00 ft MRP
		Sampler Number:	Top of Sampler Depth (MRP)
peployed:		1	456.70
100		2	459.30
WH7006		3	461.90
NA		4	464.50
OC sample notes	A = = [ ( - ) .	5	467.10
(If blank, no QC samples required):		6	469.70
		7	472.30
	1		
Review Date: 12/23/15			lue represent submerged on previous water level
	eployed:	eployed:	Top of Screen: Bottom of Screen: Bottom of Screen:  Sampler Number:  Peployed:  Analyte(s): - EDB  Depths highlighted b



Well Location ID:

KAFB-106032

**Sampling** 

Year: 2020

Quarter: 1

COC#:

COC-032-201

						Sampi	pie iD: GW032-201					
Date Sampled	: 01/06/200	20 Tin	ne Sampled:	1305	Sampling Tea	m: D. Schwa	eelk, 1	1. Peterso	2			
PID Reading:	0.0	DM	S Tether and	Reel ID match Well II	0?	Initial to confirm the was completed	at ID check					
Sampler Nur				Type of Analysis	(circle approp	oriate)			Docume	ent in notes MS/MSD?		
	and the definition of the residence way.	Choose	e only one									
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite				
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite				
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite				
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite				
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite				
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			6mm	
PID:	Minil	RAE 3000	Seria	INO: WHOOOS						,		
IDW will be take	en to: GWTS/	Pending	Disposal Area	1				Sample ID:	GW	032-201		
Notes:	3.1.to. <b>31110</b> 1	· chang	Dioposai Alec	A				Duplicate ID: (if applicable)	GW	032-601		



Well Location ID:

KAFB-106033

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW033-201

Well Information			Well Depth:	496.60 ft MRP
Screen Interval Length (ft): 15			Top of Screen:	477.00 ft MRP
Previous Depth to Water (MRP): 441.72 (Gauged	on 10/1/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen: _	492.00 ft MRP
Length of Screen not submerged (ft): -35.28				
Deployment Team:	86		Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed: 12-9-19 Time	e Deployed:1/35			477.70
PID: MiniRAE 3000 Serial No:	WHOZOG		3	480.30 482.90
Water Level Meter: Solinst 500 ft Serial No:	NA		4	485.50
PID Reading: ppm	QC sample notes. (If blank, no QC samples required):	Analyte(s): - EDB	5	488.10
Depth to Water:				
DMS Tether and Reel ID match Well ID?  Initial to confirm that ID check was completed		<u>-</u>		
Notes:				
Reviewed by: Att C. Manhay	Review Date: 12つより			e represent submerged previous water level



Reviewed by:\_

#### **Passive Diffusion Water Sampling Data Sheet**

Well Location ID:

KAFB-106033

**Sampling** 

Year: 2020

Quarter: 1

COC#:

Review Date:

COC-033-201

				_			Sampi	e ID: GW033-	201		
Date Sampled:	01/06/20	20_ Tin	ne Sampled:	1348	Sampling Tear	m: D. Schw	reelk, N	. Peterson			
PID Reading:	0.0	DM	S Tether and	Reel ID match Well II	0?	Initial to confirm the was completed	at ID check				
Sampler Num (shallow to deep		Chana		Type of Analysis	(circle approp	riate)			Docum	ent in notes	
1 1 .	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			6mm
PID:	MiniF	RAE 3000	Seria	INO: WHOOO5					· · · · · · · · · · · · · · · · · · ·	, a	
IDW will be taken	to: <b>GWTS</b> /	Pendina	Disposal Area	<b>3</b>	,		2	Sample ID:	GW	033-201	
Notos								Duplicate ID:	GW	033-601	



Well Location ID:

KAFB-106034

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW034-201

Well Information			Well Depth: _	522.00 ft MRP
Screen Interval Length (ft): 15			Top of Screen: _	502.00 ft MRP
Previous Depth to Water (MRP): 442.57 (Gauged	on 10/1/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen: _	517.00 ft MRP
Length of Screen not submerged (ft): -59.43				
Deployment Team:			Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed: 12-9-19 Time	Deployed: 1145		1	502.70
PID: MiniRAE 3000 Serial No:	WHOODE	· · · · · · · · · · · · · · · · · · ·	3	505.30 507.90
Water Level Meter: Solinst 500 ft Serial No:	WA		4	510.50
PID Reading: ppm	QC sample notes. (If blank, no QC samples required):	Analyte(s): - EDB	5	513.10
Depth to Water:				
DMS Tether and Reel ID match Well ID?  Initial to confirm that ID check was completed				
Notes:		I		
Reviewed by: ( ) Montage	Review Date: _\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			ne represent submerged n previous water level



Reviewed by: C. MontoyA

#### **Passive Diffusion Water Sampling Data Sheet**

KAFB-106034

Sampling

Year: 2020

Quarter: 1

					de tractación de la constantida del constantida del constantida de la constantida de la constantida de la constantida de la constantida del constantida del constantida del constantida del constantida del constantida del constantida del constantida del constantida del constantida del constantida del constantida del constantida del constantida del constantida del constantida del constantid		Sampl	e ID: GW034-	201		
Date Sampled:		O Tim	ne Sampled:	1327	Sampling Tea	m: D. Schm	celk, N	Peterson	)		
PID Reading:	0.0	DM	S Tether and	Reel ID match Well II	D? DS	Initial to confirm th was completed	at ID check				
Sampler Num				Type of Analysis	(circle approp	oriate)			Docum	ent in notes	
(		Choose	e only one							ы	
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			6mm
PID:	Mini	RAE 3000	Serial	No: WHOOOS							
IDW will be taker	n to: <b>GWTS</b> /	Pending I	Disposal Area	ı				Sample ID:	GW	034-201	
Notes:		<b>J</b>	•		÷			Duplicate ID: (if applicable)	GW	034-601	
								COC#·	COC	C-034-201	



Well Location ID:

KAFB-106041

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW041-201

Well Information		×	Well Depth:	473.80 ft MRP
Screen Interval Length (ft): 20			Top of Screen:	449.00 ft MRP
Previous Depth to Water (MRP): 448.80 (Gauged	on 10/1/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen:	469.00 ft MRP
Length of Screen not submerged (ft): -0.20 ****	(Water level <5ft above top of screen or	screen not submerged)		
Deployment Team:	,		Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed: 17-17-19 Time	Deployed:0815		7	449.70
PID: MiniRAE 3000 Serial No:			3	452.30 454.90
Water Level Meter: Solinst 500 ft Serial No:	6T-0001		4	457.50
ΛΛ.	QC sample notes.	Analyte(s):	5	460.10
PID Reading: ppm	(If blank, no QC samples required):	- Alkalinity	6	462.70
144 1.1.		- Anions	7	465.30
Depth to Water: 471, 90		- Dissolved Metals	***************************************	
Measure Water Level		- EDB		
DMO Tests on all Beet ID metals Well ID2		- NO3/NO2-N		
DMS Tether and Reel ID match Well ID?		- Total Metals		
check was completed				
Notes:				
Reviewed by:	Review Date: 17-16-17			e represent submerged previous water level



Well Location ID:

**KAFB-106041** 

**Sampling** 

Year: 2020

Quarter: 1

Sample ID: GW041-201

Date Sampled:	1-9-2	020 Tin	ne Sampled:	1545	Sampling Tear	m: #2	•				
PID Reading:	0.0	DM	S Tether and	Reel ID match Well I	D? / F	Initial to confirm that was completed	at ID check				
Sampler Num (shallow to dee)				Type of Analysis	s (circle approp	oriate)			Docum	ent in notes MS/MSD?	
(Shallow to dee)	p)	Choos	e only one						Бар.	MO/MOD:	
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		6mm	

PID:	MiniRAE 3000	Serial No: WHOOGE		
IDW will be taken to	C GWTS/Pending Dis	posal Area	Sample ID:	GW041-201
Notes:	211	,	Duplicate ID: (if applicable)	GW041-601
Notes.	¥		 COC#:	COC-041-201
Reviewed by: C.M	optorp		Review Date:	5-22



Well Location ID:

KAFB-106049

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW049-201

Well Information			Well Depth:	480.70 ft MRP
Screen Interval Length (ft): 20			Top of Screen:	456.80 ft MRP
Previous Depth to Water (MRP): 440.23 (Gauged	on 10/1/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen:	476.80 ft MRP
Length of Screen not submerged (ft): -16.57				
Deployment Team:			Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed: 12-11-19 Time	e Deployed: <u>(\$25</u>		1)	457.50
PID: MiniRAE 3000 Serial No:	WHOO6		(2)	460.10
PID: MiniRAE 3000 Serial No:	00110000		-(3)-JM	462.70
Water Level Meter: Solinst 500 ft Serial No:	N/A		4	465.30
	QC sample notes.	Analyta(a)	5	467.90
PID Reading: ppm	(If blank, no QC samples required):	Analyte(s): - EDB	6	470.50
An accompanion and the second and the second accompanion and the second accompanion and the second accompanion and the second accompanion and the second accompanion accompanion accompanion and the second accompanion accomp			7	473.10
Depth to Water:				
DMS Tether and Reel ID match Well ID?  Initial to confirm that ID check was completed				
Notes:				
Reviewed by: C. WowkyA	Review Date: 15-15		Depths highlighted blue samplers based on	e represent submerged previous water level



Well Location ID:

KAFB-106049

**Sampling** 

Year: 2020

Quarter: 1

								Sampi	e iD: GW049-	201		
Date S	ample	d: 1-8-20	$\frac{20}{20}$ Tin	ne Sampled:	0911	Sampling Tea	m: D. Schure	elk, G.	Begage			
PID Re	ading:	0.0	DM	S Tether and	Reel ID match Well II	0?	Initial to confirm the was completed	nat ID check	J . O			
	ler Nu	ımber:			Type of Analysis	(circle approp	oriate)			Docum	ent in notes MS/MSD?	
			Choos	e only one								
	1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
	2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
	3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
	4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
	5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
	6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		6	mm
PID:		_ Mini	RAE 3000	Serial	1No: WAOOO S					* ' *,		
IDW wil	l be tak	en to: <b>Pendin</b>	ıg Analysi	s Yard					Sample ID:	GW	049-201	
Note				,					Duplicate ID: (if applicable)	GW	049-601	
									COC#:	COC	C-049-201	



Well Location ID:

KAFB-106050

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW050-201

Well Information		Well Depth:	494.80 ft MRP
Screen Interval Length (ft): 15		Top of Screen:	474.40 ft MRP
Previous Depth to Water (MRP): 439.61 (Gauged	on 10/1/2019) LNAPL NOT detected during prior gauging	Bottom of Screen:	489.40 ft MRP
Length of Screen not submerged (ft): -34.79			
Deployment Team:		Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed: 2 -1  - [9 Time	Deployed:	1	475.10
NI : D.F. 0000	INHOUD 6	2	477.70
PID: MiniRAE 3000 Serial No:	Dilloco	3	480.30
Water Level Meter: Solinst 500 ft Serial No:	N/A	4	482.90
PID Reading: ppm	QC sample notes. (If blank, no QC samples required): - EDB	5	485.50
Depth to Water:			
DMS Tether and Reel ID match Well ID?  Initial to confirm that ID check was completed	MS/MSD required. Please deploy extra DMS as needed		
Notes:			
Reviewed by: O. Monkoya	Review Date: 12-16-(1)		e represent submerged previous water level



Well Location ID:

KAFB-106050

**Sampling** 

Year: 2020

Quarter: 1

				·			Samp	e id: Gwoso.	201		
Date Sample	-	20_ Tin	ne Sampled	0955	Sampling Tea	m: D. Schv	reelk,	5. Begaye			
PID Reading	: <u>0</u> ,0	DM	S Tether and	Reel ID match Well I	D?	Initial to confirm the was completed	at ID check	0 (1			
Sampler No				Type of Analysis	(circle approp	,				nt in notes	
(shallow to	deep)	Choos	e only one						Dup?	MS/MSD?	
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			6mm
PID:	Minil	RAE 3000	Seria	INO: WHOODS							
IDW will be ta	ken to: <b>GWTS</b> /	Pendina I	Disposal Area	a				Sample ID:	GW0	50-201	
Notes:	One VOA				n in dane	tes		Duplicate ID: (if applicable)	GW0	50-601	
								COC#:	COC-	-050-201	
Reviewed by:	Monday							Review Date:	9-102	Ö	



Well Location ID:

KAFB-106051

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW051-201

Well Information					Well Depth: _	521.20 ft MRP
Screen Interval Leng	th (ft): 15				Top of Screen: _	500.80 ft MRP
Previous Depth to W	ater (MRP): 439.92	2 (Gauged	on 10/1/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen: _	515.80 ft MRP
Length of Screen not	t submerged (ft): -6	0.88				
Deployment Team:	m	6B		,	Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed:	12-11-19	Time	Deployed: 0840		7	501.50
			WHOODE		2	504.10
PID:	MiniRAE 3000	Serial No:			3	506.70
Water Level Meter:	Solinst 500 ft	Serial No:	NA		4	509.30
PID Reading:	0.0	ppm	QC sample notes. (If blank, no QC samples required):	Analyte(s): - EDB	5	511.90
Depth to Water:						
DMS Tether and Reel	Initial to	o confirm that ID k was completed				
Notes:						
Reviewed by:	N/	_	Review Date: 12-16-19			e represent submerged previous water level



Well Location ID:

KAFB-106051

Sampling

Year: 2020

Quarter: 1

			ation id:	KAFD-100	051	amping	Sampl	e ID: GW051-	-201	
Date Sampled:	1-8-20	Tin	ne Sampled:	0935	Sampling Te	eam: D. Sch.	reelk C	5. Begarje		
PID Reading:	0.0	DM	S Tether and	Reel ID match Well II	D?	Initial to confirm th  was completed	at ID check			
Sampler Numl				Type of Analysis	(circle appro	opriate)			Document in notes  Dup? MS/MSD?	
	The second second	Choose	e only one						,	
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	6	6mm 
									v + 1	
PID:	MiniF	RAE 3000	Serial	No: WHO005						
IDW will be taken	to: <b>GWTS</b> /I	Pending [	Disposal Area					Sample ID:	GW051-201	
Notes:				,				Duplicate ID: (if applicable)	GW051-601	1
	\					3		COC#:	COC-051-201	



# **Groundwater Purge**

Year:	2020
Quarter:	1 (Jan-Mar)

		and S	amn	ling Log	CI.	rear.		2020
		and o	anip	iiig Lo	9	Quarter:	1 (	Jan-Mar)
Project:	Kirtland AF	B BFF ST-106/SS-111		Well ID:		KAFB	-106097	
Project No:	62599DM	01	_	Samplers:	Dylan	Schweelk,	Kylian	Robins
Date:	1-15-6	2020	-	Crew Signature:	3	les ?	Mu	'n'
Well Inform	ation							
Well was NOT	HAZARDO	JS				Well De	oth:526	5.04 ft MR
SCREEN SUB	MERGED o	n 10/1/2019 (previous ç	gauging	date)		Top of Scre	en: 506	6.04 ft MR
Barricade/Notif	ication: X					Bottom of Scre	en:521	.04 ft MR
Measurement Reference Point (MRP): Top of Well Vault  Reference Elevation Interval: 4838								
IDW will be ta	iken to: G\	WTS/Pending Disposa	al Area	IDV	V Label:	Green Non-ha	azardous	
Protective Casir	ng/Vault:	Intact Damaged	Wel	l Locked/Secu	urity Bolt Pres	sent: Well II	D Marked:	Yes No
				Yes	No			
Photoionization	Measureme	ents at Wellhead:	0.0	ppn	n			
LNAPL Present			LNAF	PL Thickness:		ft		IOT observed st gauging //1/2019
Previous Depth	to water:	471.92 ft	MRP	Depth	ı to Water (D	отw): <u>470</u>	.42	ft MRF
Pump Inform	nation							
Non-Dedicated	Pump							
Bennett Pump S	Serial No.:	18073-6	399	λ,				,
Non-Dedicated F	Oump Depth	1807B-6 508.0		ft MRP				
* - if screen is su	ıbmerged, p	lace pump 2 ft below top	of scree	en; if not subm	nerged, place	e pump 2 ft abo	ve bottom	of screen.
Field Instrun								
pH, Conductivity DO, Temperature		YSI Professional Plus	Seria	I No:	L1003"	78		
PID:		MiniRAE 3000	Seria	I No: W	40005			
Water Level Met	er:	Solinst 500 ft	Seria	INO: Wt	10012			
Turbidity Meter:	·	Hach 2100Q	Seria	INO: UH	10009	4		
Sample Infor	mation							
Sample ID:	GW097	7-201	Sampling	Method: Lo	w-flow			
Duplicate ID: (if applicable)	GW097			Medium: W		d		

Initials:\_ Page 1 of 2 Review Date: 1-12-1213

COC-097-201



Year: 2020 Quarter: 1 (Jan-Mar)

Project:

Kirtland AFB BFF ST-106/SS-111

Well ID:

KAFB-106097

Date:

1-15-2020

Purge Rate: 600 L/min X 0.265 = 0.159

Description of first water purged:

Drawdown Limit:	34.12	_ ft	(based on previous water level)
-----------------	-------	------	---------------------------------

Time	DTW (ft)	Turbidity (NTU)	Temp. (°C)	Saturated DO (%)	DO (mg/L)	Specific Conductance (µS/cm)	рН	ORP (mV)
Stabilization Requirements		If >10,±10%	±10%		±10%	±10%	±0.5	
Historical Data:	471.92	0.83	22.5		2.46	372	7.24	68.3
1255	470.42	1.12	16,9	119.2	11.96	429.9	7.89	3719
1300	470.40	2.44	17.4	64,0	6.10	448.2	7.85	369.5
1305	470.40	1.78	17.7	44.8	4,25	450.0	7.83	366.7
1310	470.41	0.24	17.7	39.0	3.70	451.5	7.83	364.6
1315	470.41	0.23	17.7	36.3	3.46	454.2	7.85	361.7
1320	470.40	0.37	17.7	35.2	3.35	454.5	7.86	359.5
1325	470.41	0.29	17.8	33.9	3,22	455.0	7.86	357.3
							and departs you are found as you provided the content of the conte	7
				/				
			V			-		-

Sample Time: 1330	Sample Date:		
Purge End Time: 1331			6mm
Bubbles in the vials?: Yes No Where?	Amount	Size	
Sampled by: D. Schweelk	Sampler Signature:		
IDW Management			

Estimated volume per Drum No. IDW drum (gal) 1 2 Total

IDW will be taken to:

IDW Label:

**GWTS/Pending** Green Non-Disposal Area hazardous

Comments:

Initials:

\_ Review Date:

Page 2 of 2



Duplicate ID: (if applicable)

COC#:

GW098-601

COC-098-201

# **Groundwater Purge**

2020 Year:

	and Sa	ampling Log		2020
			Quarter:	1 (Jan-Mar)
Project: Kirtland A	FB BFF ST-106/SS-111	Well ID:	KAFB-	106098
Project No: 62599DM	101	Samplers:	D.Schmeelk, K	Robinson
Date: 1-15	-2020	Crew Signature:	Dland for	2~
Well Information				
Well was NOT HAZARDO	US		Well Dep	th:551.12ft MRI
SCREEN SUBMERGED	on 10/1/2019 (previous ga	uging date)	Top of Scree	en: <u>531.02</u> ft MRI
Barricade/Notification: X			Bottom of Scree	en: <u>546.02</u> ft MRI
Measurement Reference F	Point (MRP): Top of Well V	ault	Reference Elevation	Interval:4814
IDW will be taken to: G	WTS/Pending Disposal	Area IDW	Label: Green Non-ha	zardous
Protective Casing/Vault:	Intact Damaged	Well Locked/Securi	ty Bolt Present: Well ID	Marked: Yes No
		Yes	No	
Photoionization Measurement	ents at Wellhead: 0.0	ppm		
				LNAPL NOT observed
LNAPL Present (circle one)	? Yes No	LNAPL Thickness: _	ft	during last gauging event: 10/1/2019
Previous Depth to water:	472.01ft M	RP Depth t	o Water (DTW): 470	2 / 59ft MRF
Pump Information				
Non-Dedicated Pump				
Bennett Pump Serial No.:	1807B-69	9		
bennett ump benarno				
Non-Dedicated Pump Depti	n: _533,0	ft MRP		
* - if screen is submerged, p	place pump 2 ft below top	of screen; if not subme	rged, place pump 2 ft abov	ve bottom of screen.
Field Instrumentation	1			
pH, Conductivity, ORP, DO, Temperature	YSI Professional Plus	Serial No: 18L1	00378	
PID:	MiniRAE 3000	Serial No: WHO	005	
Water Level Meter:	Solinst 500 ft	Serial No: WHO	2012	
Turbidity Meter:	Hach 2100Q	Serial No: WHO	2009	
Sample Information				
Sample ID: GW09	8-201 Sa	mpling Method: _Low	r-flow	

Initials: Page 1 of 2 Review Date:

Sampling Medium: Water



Year: 2020 Quarter: 1 (Jan-Mar)

Project:

Kirtland AFB BFF ST-106/SS-111

Well ID:

KAFB-106098

Purge Information and Fi	ield	Parameter
--------------------------	------	-----------

Date:

1-15-2020

Purge Start Time: 1056 L/min X 0.265 = 0.2385Purge Rate:

Description of first water purged:

59.01

Time	DTW (ft)	Turbidity (NTU)	Temp. (°C)	Saturated DO (%)	DO (mg/L)	Specific Conductance (µS/cm)	рН	ORP (mV)
Stabilization Requirements		If >10,±10%	±10%		±10%	±10%	±0.5	
Historical Data:	472.01	0.52	22.1		3.77	331	7.22	127.6
1105	470.61	1.73	17.8	39.2	3.72	383.7	7.87	3744
1110	470.59	0.97	18.1	35.6	3.35	382.0	7.89	370.
11.12	470.59	1.64	18.2	34,5	3,25	381.7	×9.7.90	367.1
1120	470.55	0.59	18.2	33.0	3.10	380.9	7.90	364.5
		Y	The state of the s					
							-	
							*	
				<i>y</i>				
			,					

Sample Time: 1125	Sample Date:	1-15-2020	-
Purge End Time:			6mm
Bubbles in the vials?: Yes No Where?		Amount Size	
Sampled by: D. Schneelk	Sampler Signature:	Types.	
IDW Management			

Estimated volume per Drum No. IDW drum (gal) 1 2

IDW will be taken to:

IDW Label:

**GWTS/Pending** Green Non-Disposal Area hazardous

Comments:

Reviewed by:

Total

Initials:

Review Date:

Page 2 of 2



Year:	2020
Quarter:	1 (Jan-Mar)

	and	Sampling Log	Quarter:	1 (Jan-Mar)
Project:	Kirtland AFB BFF ST-106/SS-1	11 Well ID:	KAFB-	106099
Project No:	62599DM01	Samplers:	D. Schweelk, K. F.	Robinson
Date:	1-16-2020	Crew Signature:	Willes, K	Man
Well Informa	ation			
Well was NOT H	HAZARDOUS		Well Dep	th: <u>521.00</u> ft MRP
SCREEN SUBM	IERGED on 10/1/2019 (previo	us gauging date)	Top of Scree	en: <u>501.00</u> ft MRP
Barricade/Notific	cation: X		Bottom of Scree	en: <u>516.00</u> ft MRP
Measurement R	eference Point (MRP): Top of V	Vell Vault	Reference Elevation	Interval:4838
IDW will be tak	en to: GWTS/Pending Disp	osal Area IDW	Label: Green Non-ha	zardous
Protective Casino	g/Vault: Intact Damage		ity Bolt Present: Well ID	Marked: Yes No
Photoionization N	neasurements at Wellhead:	ppm		
LNAPL Present (	circle one)? Yes No	LNAPL Thickness: _	ft	LNAPL NOT observed during last gauging event: 10/1/2019
Previous Depth to	o water:466.68	_ft MRP <b>Depth t</b>	to Water (DTW): 465.	49 ft MRP
Pump Inform	ation			
Non-Dedicated F				
Bennett Pump Se	erial No.: 180 7 B	1-699		
Non-Dedicated P	ump Depth: 503.0	ft MRP		
* - if screen is sub	omerged, place pump 2 ft below	top of screen; if not subme	erged, place pump 2 ft abov	ve bottom of screen.
Field Instrum	entation			
pH, Conductivity, DO, Temperature		us Serial No: 18L1	00378	
PID:	MiniRAE 3000	Serial No: WHO	0005	
Water Level Mete	r: Solinst 500 ft	Serial No: _ いい	0012	
Turbidity Meter:	Hach 2100Q	Serial No: WH	10009	
Sample Inform	mation			
Sample ID:	GW099-201	Sampling Method: Low	<i>y</i> -flow ○	
Duplicate ID: (if applicable)	GW099-601	Sampling Medium: Wat		
COC#:	COC-099-201			

\_ Initials:\_

\_\_ Review Date: \_



Year: 2020

Quarter: 1 (Jan-Mar)

1-16-2020

	and Sa	mpling Log	Quarter:	1 (
Project:	Kirtland AFB BFF ST-106/SS-111	Well ID:	KAFB-	106099

Purge Start Time: 1222 Purge Rate: 0,960 L/min X 0.265 = 0,2544 gal/min

Date:

Description of first water purged: Clear and odorless

Purge Information and Field Parameter

Drawdown Limit:	34.32 f	t	(based on previous water level)
-----------------	---------	---	---------------------------------

Drawdown Limit:	34.32	ft (based	on previou	ıs water level)				
Time	DTW (ft)	Turbidity (NTU)	Temp. (°C)	Saturated DO (%)	DO (mg/L)	Specific Conductance (µS/cm)	рН	ORP (mV)
Stabilization Requirements		If >10,±10%	±10%		±10%	±10%	±0.5	
Historical Data:	466.68	0.8	20.9		5.54	485.3	7.15	93.7
1230	465.44	0.45	15.4	96.9	9.49	407.5	7.85	361.5
1235	465.47	0.60	16.6	68.7	6,67	410.9	7.95	364.6
1240	465.44	0.63	16.9	63.1	6.11	411.4	7.97	368.2
1245	465.46	2.43		63.8	6.12	412.0	7.95	370.5
					And the American Control of th			
								*
				//				
			//					
	V							
							3	
	*							

Sample Time:	1250	Sample Date:	1-16-2020	,	
Purge End Time:	1255			6mr	n -
Bubbles in the vial		F-manufacture and the second	Amount	Size	Milmora a
Sampled by:	Dylan Schmeelk	Sampler Signature:	Das.		
IDW Managem	nent				

Estimated volume per Drum No. IDW drum (gal)

Drum No.	IDW drum (gal)
1	14
2	
Total	

IDW will be taken to:

GWTS/Pending

Disposal Area

IDW Label:

Green Nonhazardous

Comment	ts:
0011111011	LO.



# **Groundwater Purge**

Year: 2020

		and	Sama	lina I ac	~	rear.	20	020
		anu s	bamp	ling Log	9	Quarter:	1 (Ja	n-Mar)
Project:	Kirtland AF	B BFF ST-106/SS-111		Well ID:		KAFB-	106100	
Project No:	62599DM	01	_	Samplers:	DSchr	neelk, K.	Robin	501
Date:	1-16-	2020	_	Crew Signature:	Lin	2 /	10	
Well Inform	nation							
Well was NOT	HAZARDOL	JS				Well Dept	h:546.00	tt MRP
SCREEN SUB	MERGED o	n 10/1/2019 (previous	gauging	date)		Top of Scree	n:526.00	tt MRP
Barricade/Notif	fication: X				Е	Bottom of Scree	n:541.00	ft MRP
Measurement	Reference P	oint (MRP): Top of Wel	l Vault		Refere	nce Elevation I	nterval:	4814
IDW will be ta	aken to: GV	VTS/Pending Disposa	al Area	IDW	V Label: G	Green Non-haz	zardous	
Protective Casi	ng/Vault:	Intact Damaged	Well	Locked/Secu	rity Bolt Pres	ent: Well ID	Marked:	Yes No
				Yes	No			
Photoionization	Measureme	nts at Wellhead:	0.0	ppm	1			
							LNAPL NOT	
LNAPL Present	(circle one)	? Yes No	LNAF	L Thickness:	**************************************	ft	during last g event: 10/1/	
Previous Depth	to water:	466.69 ft	t MRP	Depth	to Water (D	rw): <u>465.</u>	58	ft MRP
Pump Inform	nation							
Non-Dedicated	l Pump							
Bennett Pump S	Serial No.:	1807B-6	99					
Non-Dedicated	Pump Depth	528.0		ft MRP				
* - if screen is su	ubmerged, p	lace pump 2 ft below to	p of scree	n; if not subm	erged, place	pump 2 ft abov	e bottom of	screen.
Field Instrum	nentation							
pH, Conductivity DO, Temperatur		YSI Professional Plus	Serial	No: 18L	10037	18		
PID:	-	MiniRAE 3000	Serial	No: Wt	10005			
Water Level Me	ter: _	Solinst 500 ft	Serial	No: WH	0012			
Turbidity Meter:	_	Hach 2100Q	Serial	No: WHO	0009			
Sample Info	rmation							
Sample ID:	GW100	-201	Sampling	Method: Lov	w-flow			
Duplicate ID: (if applicable)	GW100	-601	Sampling	Medium: Wa	ater			

COC-100-201

COC#:



# **Groundwater Purge**

Page 2 of 2

	¥	and Sampling Log				rear.	202	20
		anu S	ampii	ng Log		Quarter:	1 (Jan-	-Mar)
Project: Kirtland A	FB BFF ST-10	)6/SS-111	V	Vell ID:		KAFB-106	100	
Purge Information a	nd Field Pa	rameter			Date:	1-16-2	020	
Purge Start Time: 103  Description of first water p					in X 0.26	65 = <u>0.222</u> 6	g	gal/min
Drawdown Limit:	50.04			us water level)			e e	
Time	DTW (ft)	Turbidity (NTU)	Temp. (°C)	Saturated DO (%)	DO (mg/L)	Specific Conductance (µS/cm)	рН	ORP (mV)
Stabilization Requirements		If >10,±10%	±10%		±10%	±10%	±0.5	
Historical Data:	466.69	3.52	16.7		5.6	425.3	7.89	68.3
1040	465.55	0.85	12.9	89.4	8,50	375.3	7.95	300.8
10 45	465.54	0.77	14.0	32.8	3,37	378.1	8.01	297,7
1050	465.56	0.80	14.0	26.2	2.63	379.2	7.97	296.4
1055	465.55	0.78.	13,9	24.0	2.46	377.5	8.00	295.6
1100	465.55	0.67	14.3	23.3	2.36	378.5	8.01	292.7
1105	465.	0.82	14.4	22.6	2.31	378.7	8.01	192.3
						20100		
			6		,			
							<u>-</u>	
Sample Time: 1(1)			0	-l- D-t-	1-16-2	020		
1117			Sam	ole Date: _	. 100			6mm
Purge End Time:								

Purge End Time:	omm —
Bubbles in the vials?: Yes No Where?	Amount Size
Sampled by: D. Schweelk Sa	ampler Signature:

#### IDW Management

Drum No.	Estimated volume per IDW drum (gal)		
1	15	IDW will be taken to:	IDW Label:
2		GWTS/Pending	Green Non-
Total		Disposal Area	hazardous

Comments:

Reviewed by: C. Manay \_ Initials:\_\_\_\_\_\_



Year: 2020 1 (Jan-Mar) Quarter:

Project:	Kirtland A	FB BFF ST-106/SS-11	1_	Well ID:		KAFB-10610	1
Project No:	62599DM	101		Samplers:	D. Schme	elk K. R	lobinson
Date:	1-17-	2020		Crew Signature:	9/12	> /n ?	
Well Inform	ation						,
Well was NOT	HAZARDO	US				Well Depth:5	18.01 ft MRP
SCREEN SUBI	MERGED o	on 9/30/2019 (previous	s gauging d	late)	Тор	o of Screen: 4	98.81 ft MRP
Barricade/Notifi	cation:				Botton	of Screen:5	14.11 ft MRP
Measurement F	Reference F	Point (MRP): Top of Pro	otective Cas	ing	Reference E	Elevation Interval:	4838
IDW will be tal	ken to: G	WTS/Pending Dispos	sal Area	IDV	/ Label: Green	Non-hazardou	3
Protective Casin	g/Vault:	Intact Damaged	Well	Locked/Secu Yes	rity Bolt Present: No	Well ID Marked	d: Yes No
Photoionization	Measurem	ents at Wellhead:	0.0	ppm	1		
LNAPL Present	(circle one)	)? Yes No	LNAPI	L Thickness:		during	NOT observed last gauging 9/30/2019
Previous Depth t	to water:	464.31	ft MRP	Depth	to Water (DTW):	463.00	ft MRP
Pump Inform	ation						
Non-Dedicated	Pump						
Bennett Pump S	erial No.:	1807B -	699				
Non-Dedicated F	Pump Dept	501.0		ft MRP			
* - if screen is su	bmerged,	place pump 2 ft below t	top of scree	n; if not subm	erged, place pump	o 2 ft above botto	m of screen.
Field Instrum	nentatio	1					
pH, Conductivity, DO, Temperature		YSI Professional Plus	s Serial	No: 18L	100378	,	
PID:		MiniRAE 3000	Serial	No: Wt	10005		
Water Level Met	er:	Solinst 500 ft	Serial	No: Wt	10012		
Turbidity Meter:		Hach 2100Q	Serial	No: WE	10009		
Sample Infor	mation						
Sample ID:	GW10	1-201	Sampling	Method: Lo	w-flow		
Duplicate ID: (if applicable)	GW10	1-601	Sampling	Medium: Wa	ater		
COC#:	COC-1	01-201					
Reviewed by:	Mont	Initial	s: A	Revie	ew Date: 1-2	1-620	Page 1 of

Review Date: 1-11-1010



Year: 2020
Quarter: 1 (Jan-Mar)

		and S	ampli	ng Log		Quarter:	1 (Jan	-Mar)
Project: Kirtlan	d AFB BFF ST-10	06/SS-111		Well ID:		KAFB-106	3101	
Purge Information	and Field Pa	arameter			Date:	1-17-2	,070	
Purge Start Time:		-			in X 0.26	is = <u>0.2544</u>	<u>/</u> 9	gal/min
Description of first water		ear a	10 0	donless	*			
Drawdown Limit:		,		us water level)		T - :		
Time	DTW (ft)	Turbidity (NTU)	Temp. (°C)	Saturated DO (%)	DO (mg/L)	Specific Conductance (µS/cm)	рН	ORP (mV)
Stabilization Requiremen  Historical	ts	If >10,±10%	±10%	<del></del>	±10%	±10%	±0.5	
Data:	464.31	1.52	15.4	<del></del>	6.85	534.9	7.85	132.2
0850	462.99	1.26	15.4	107.1	9,77	484.4	7.82	389.7
0855	462.99	7.11	16.0	64.7	6.35	485.6	7.88	385.1
0900	462.98	0.91	16.0	56.1	5.55	488.8	7,92	384.9
0905	462.98	0.61	16.3	54.7	5.30	488.3	7.93	385.5
0910	462.98	0.81	16.3	53.3	5.17	488.8	7,93	386.5
		-	3					
			/	λ.	,			
		0	/					
				>				
	Lucia							1
							7	
Sample Time:	715		Sam	ple Date:	1-17-	2020		
•	916							6mm
Bubbles in the vials?:	Yes	No Whe	re?		Amount _	and the state of t	Size	sporter de la Constitución de la
Sampled by:		-	Samp	oler Signature: _				
IDW Management								
	imated volume pe IDW drum (gal)	er						
1 ,	~15a	Ì	DW will b	e taken to:	, 1	DW Label:		
2	)			Pending sal Area		ireen Non- nazardous		
Total			Dishos	oai Aled		iazaiuous		

Comments:

Reviewed by: C. Montoy Initials: CM Review Date: 1220 Page 2 of 2



Year:	2020
Quarter:	1 (Jan-Mar)

Project: Kirt	land AFB BFF ST-106/SS-111	Well ID:	KAFB-	106102
Project No: 62	599DM01	Samplers:	D. Schneetk,	K. Robinson
Date:	17-2020	Crew Signature:	GWD.	John Par
Well Information	on		1	
Well was NOT HAZ	ZARDOUS		Well Dept	h: <u>543.08</u> ft MRP
SCREEN SUBMER	RGED on 9/30/2019 (previous	gauging date)	Top of Scree	n: <u>523.98</u> ft MRP
Barricade/Notificati	on:		Bottom of Scree	n: <u>537.68</u> ft MRP
Measurement Refe	rence Point (MRP): Top of Prote	ective Casing	Reference Elevation I	nterval: 4814
IDW will be taken	to: Pending Analysis Yard	IDV	V Label: White Pending	Analysis
Protective Casing/V	ault: Intact Damaged	Well Locked/Secu	rity Bolt Present: Well ID	Marked: Yes No
Dhotoionization Mas	asurements at Wellhead:	Yes	No lock shackle	bent
Photoionization Mea	isurements at vveilnead:	ppm	1	LNAPL NOT observed
LNAPL Present (circ	cle one)? Yes No	LNAPL Thickness:	ft	during last gauging event: 9/30/2019
Previous Depth to w	ater: <u>464.42</u> ft	t MRP <b>Depth</b>	to Water (DTW): 463	. 13 ft MRP
Pump Informati	ion			,
Non-Dedicated Pur	np		,	
Bennett Pump Seria	INo.: 1807B-6	99		
Non-Dedicated Pum	p Depth: 526.0	ft MRP		
* - if screen is submo	erged, place pump 2 ft below to	p of screen; if not subm	nerged, place pump 2 ft abov	ve bottom of screen.
Field Instrumen	tation			
pH, Conductivity, OF DO, Temperature	RP, YSI Professional Plus	Serial No:	-100378	
	MiniRAE 3000	and the	10005	
PID:	WIIIII CAL 3000	Serial No:	1000	
Water Level Meter:	Solinst 500 ft	Serial No:	10012	
Turbidity Meter:	Hach 2100Q	Serial No: Wt	10009	
Sample Informa	ntion			
Sample ID:	GW102-201	Sampling Method: _Lo	w-flow	
Duplicate ID: (if applicable)	GW102-601	Sampling Medium: Wa	ater	
COC#:	COC-102-201			
Reviewed by:	Initials:	: Revie	ew Date: 1-11-170	Page 1 of



Year: 2020

Quarter: 1 (Jan-Mar) KAFB-106102 Kirtland AFB BFF ST-106/SS-111 Project: Well ID: 1-17-2020 Purge Information and Field Parameter Date: L/min  $\times 0.265 = 0.2438$ 0.920 Purge Start Time: 1021 Purge Rate: Description of first water purged: 59.56 Drawdown Limit: (based on previous water level) **DTW** Turbidity Saturated DO Temp. Specific **ORP** pH Time (NTU) DO (ft) (°C) (mg/L) Conductance (mV) (%) (µS/cm) Stabilization Requirements -----If >10,±10% ±10% ±10% ±10% ±0.5 -----Historical 464.42 0.92 19.3 4.51 355.3 7.88 142 Data: 463.13 0,94 13.6 110.2 10.55 382 7 432.2 1025 7,91 1030 463.10 51.0 0.46 16.5 5.00 427.4 7.97 392.5 463.10 0.45 16.6 3.85 1035 39.7 419,1 3937 1040 463.16 415.6 16.6 394.6 0.48 31.1 3.03 7,99 463.10 1045 417,4 0.40 395. S 7.99 16.9 27.2 2.67 2.43 395.4 1050 463,10 0.32 17,0 25.3 409.3 396.1 2.31 406.9 1055 463.10 0.34 24.0 17.7 2.19 397.1 404. > 1100 463.10 0.31 17.1 22.7 800 396:7 463.08 2.13 8.00 401,9 1105 0.38 17-1 27,0 1-17-2020 410-X Sample Time: Sample Date: 6mm 1112 Purge End Time: No. Bubbles in the vials?: Where? Amount Size Sampled by: Sampler Signature: IDW Management Estimated volume per Drum No. IDW drum (gal) IDW will be taken to: IDW Label: 2 **Pending Analysis** White Pending Yard **Analysis** Total

Comments:

Reviewed by: \_



Well Location ID:

KAFB-106149-484

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW149-484-201

Well Information			Well Depth:	484.00 ft MRP
Screen Interval Length (ft): 130			Top of Screen:	354.00 ft MRP
Previous Depth to Water (MRP): 470.60 (Gauged	on 10/1/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen:	484.00 ft MRP
Length of Screen not submerged (ft): 116.60 ****	(Water level <5ft above top of screen or	screen not submerged)		
Deployment Team:			Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed: 12-13-19 Time	Deployed: 1000		10	453.80
PID: MiniRAE 3000 Serial No:	Ca) HOOCE		11	456.40
Millital 3000 Selial No.	CO (100 Z		12	459.00
Water Level Meter: Solinst 500 ft Serial No:	WHOOR		13	461.60
3.4 à BZ	QC sample notes.	Analyte(s):	14	464.20
PID Reading: ppm	(If blank, no QC samples required):	- Alkalinity	15	466.80
Depth to Water: 469.72 - Water 469.86 water		- Anions	16	469.40
Measure Water Level		- Dissolved Metals	(17)	472.00
		- EDB - NO3/NO2-N	18)	474.60
DMS Tether and Reel ID match Well ID?		- Total Metals	19	477.20
Initial to confirm that ID check was completed		· ·	20	479.80
Notes:				
Surveyed by High Mesa January 2018				
Reviewed by:	Review Date: 12-14			ne represent submerged n previous water level



Year: 2020

Quarter: 1

Well Location ID:			Sampling Samp			Samp	ple ID: GW149-484-201				
Date Sampled:	1-9-20	20 Tin	ne Sampled	0950	Sampling Tean	n: K. Rob	inson	P. Ferrari			
PID Reading:	100	DM	S Tether and	Reel ID match Well II	D? ICR	Initial to confirm the was completed	nat ID check	· · · · · · · · · · · · · · · · · · ·			
Sampler Num				Type of Analysis	(circle approp	riate)			Docum	nent in notes MS/MSD?	
	,	Choos	e only one								
1	EGB PF	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		Failed	
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
_3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		Faile	
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		6mm	
PID:	MiniF	RAE 3000	Seria	al No: W4000 (	0	-					
IDW will be taken	to: 90-day	Hazardo	us Waste Are					Sample ID:	GW	V149-484-201	
Notes:	. 30-uay	Tazaruo	us waste Ale	eu.				Duplicate ID: (if applicable)	GV	V149-484-601	
140163,								COC#:	CO	C-149-484-201	
Reviewed by:	Ayohnow					,		Review Date:	-15-2	223	



Well Information

### **Passive Diffusion Water Sampling Data Sheet**

Well Location ID:

KAFB-106151-484

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW151-484-201

Well Denth:

484.19

ft MRP

Screen Interval Length (ft): 129			Top of Screen:	355.19 ft MRP
Previous Depth to Water (MRP): 470.47 (Gauged	on 10/1/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen:	484.19 ft MRP
Length of Screen not submerged (ft): 115.28 ****	(Water level <5ft above top of screen or	screen not submerged)		
Deployment Team:	В		Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed: 12-12-19 Time	e Deployed: 1240		10	453.99
	111-07		11	456.59
PID: MiniRAE 3000 Serial No:	WHOOOL		12	459.19
Water Level Meter: Solinst 500 ft Serial No:	WH0012		13	461.79
	QC sample notes.		14	464.39
PID Reading: ppm	(If blank, no QC samples required):	Analyte(s): - Alkalinity	15	466.99
Depth to Water: 469,67		- Anions	16	469.59
Depth to Water: 9000		- Dissolved Metals	(17)	472.19
Measure Water Level		- EDB	18	474.79
DMS Tether and Reel ID match Well ID?		- NO3/NO2-N - Total Metals	19	477.39
Initial to confirm that ID check was completed		- Total Wetais	20	479.99
check was completed		*		
Notes:	,			
Surveyed by High Mesa January 2018				
Reviewed by:	Review Date: 12 16 19			e represent submerged previous water level



Well Location ID:

KAFB-106151-484

Sampling

Year: 2020

Quarter: 1

Sample ID: GW151-484-201

Date Sampled: PID Reading:	1-9-20 4.3	20 Tim Breathir	ne Sampled	: // 25 Reel ID match Well	ID2 //	Initial to confirm that	t ID check			
Sampler Num				Type of Analysis		<u>,</u>			Docum	nent in notes MS/MSD?
		Choose	e only one	Comment of the Commen	and the state of t					
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		PF
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		- Sanda
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		6mm
										· 
PID:	Min	iRAE 3000	Seria	al No: WHOOOG	)					,
IDW will be taker	n to: <b>90-da</b> v	/ Hazardoı	ıs Waste Are	a				Sample ID:	GW	/151-484-201
Notes:			. Tradio Aire					Duplicate ID: (if applicable)	GW	/151-484-601
								COC#:	CO	C-151-484-201



Well Information

#### **Passive Diffusion Water Sampling Data Sheet**

Well Location ID:

KAFB-106152-484

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW152-484-201

Well Depth: \_\_484.28

ft MRP

Screen Interval Length (ft): 129			Top of Screen:	355.28 ft MRP
Previous Depth to Water (MRP): 472.26 (Gauged	on 10/1/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen:	484.28 ft MRP
Length of Screen not submerged (ft): 116.98 ****	(Water level <5ft above top of screen or	screen not submerged)		
Deployment Team:	6B		Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed: 12-12-19 Time	Deployed: 305		10	454.08
	() Honor		11	456.68
PID: MiniRAE 3000 Serial No:	WHOVO 6		12	459.28
Water Level Meter: Solinst 500 ft Serial No:	WH0012		13	461.88
	QC sample notes.	Analyte(s):	14	464.48
PID Reading: ppm	(If blank, no QC samples required):	- Alkalinity	15	467.08
Depth to Water: 471.36		- Anions	16	469.68
Dopin to Water.		- Dissolved Metals	17)	472.28
Measure Water Level		- EDB	18	474.88
DMS Tether and Reel ID match Well ID?	· .	- NO3/NO2-N - Total Metals	(19)	477.48
Initial to confirm that ID check was completed		- Total Metals	20	480.08
Notes:				
Surveyed by High Mesa January 2018				
Reviewed by:	Review Date: \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			ue represent submerged n previous water level



Notes:

#### **Passive Diffusion Water Sampling Data Sheet**

Well Location ID:

KAFB-106152-484

Sampling

Year: 2020

COC#:

Review Date: \_\_\_

COC-152-484-201

Quarter: 1

Sample ID: GW152-484-201

							- Cap			•	
Date Sampled:	1-9-202	O Tim	e Sampled:	1210	Sampling Tea	m:_#2_				,	
PID Reading:	29.3	DM	S Tether and	Reel ID match Well II	D? PH	Initial to confirm that was completed	nt ID check				
Sampler Nun				Type of Analysis	(circle approp	oriate)			Docum	ent in notes MS/MSD?	
	1	Choose	only one	The state of the s							
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		6	6mm
PID:	Mini	RAE 3000	Seria	INO: WHOOG							9
IDW will be take	n to: <b>90-dav</b>	Hazardou	s Waste Area	а				Sample ID:	GW	152-484-201	
Notes:	to: oo day	. Idzai dou	o Husto Ale	u				Duplicate ID: (if applicable)	GW	152-484-601	



Well Information

#### **Passive Diffusion Water Sampling Data Sheet**

Well Location ID:

KAFB-106153-484

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW153-484-201

Well Depth:

484.29

ft MRP

Screen Interval Leng	th (ft): 129				Top of Screen:	355.29 ft MRP
Previous Depth to W	ater (MRP): 473.68	(Gauged	on 10/1/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen:	484.29 ft MRP
Length of Screen not	t submerged (ft): 11	8.39 ****	(Water level <5ft above top of screen or a	screen not submerged)		
Deployment Team:	- In	GB			Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed:	12-12-19	Time	Deployed:	· · · · · · · · · · · · · · · · · · ·	10	454.09
PID:	MiniRAE 3000	Serial No:	1244006		11	456.69
Nater Level Meter:	Solinst 500 ft	Serial No:	W40012		12 13	459.29 461.89
PID Reading:	8.0	ppm	QC sample notes. (If blank, no QC samples required):	Analyte(s): - Alkalinity	14 15	464.49 467.09
Depth to Water:	472.80			- Anions - Dissolved Metals	16 	469.69 472.29
Measure Water Level  DMS Tether and Reel ID match Well ID?				- EDB - NO3/NO2-N - Total Metals	18	474.89 477.49
		confirm that ID was completed			20	480.09
Notes:						
Surveyed by High M	esa January 2018					
Reviewed by:	whi	-	Review Date: 12-16-19		Depths highlighted blu samplers based or	e represent submerged n previous water level



Reviewed by: C. Montoys

#### **Passive Diffusion Water Sampling Data Sheet**

Well Location ID:

KAFB-106153-484

Sampling

Year: 2020

Quarter: 1

Sample ID: GW153-484-201

Review Date: 1-15-1210

Date Sample	ed: /-9-28					m:_# 2	•			
PID Reading	g: $\frac{3.7}{9}$	DM	S Tether and	Reel ID match Well I	D? PF	Initial to confirm the was completed	at ID check			
Sampler N (shallow to				Type of Analysis	(circle appro	priate)			Docum	nent in notes MS/MSD?
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		6mm
								· · · · · · · · · · · · · · · · · · ·		
PID:	Mini	RAE 3000	Seria	al No: NH 000 6				, • · · · · · · · · · · · · · · · · · ·		
IDW will be to	aken to: 90-day	Hazardo	us Waste Are	a				Sample ID:	GW	/153-484-201
Notes:	and to. July	i iazai ao	15 Huste Ale	u				Duplicate ID: (if applicable)	GW	/153-484-601
								COC#·	CO	C-153-484-201



Well Location ID:

KAFB-106201

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW201-201

vveii information					Well Depth: _	524.65 ft MRP
Screen Interval Leng	th (ft): 30				Top of Screen: _	489.65 ft MRP
Previous Depth to W	ater (MRP): 482.3	3 (Gauged	on 9/30/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen: _	519.65 ft MRP
Length of Screen no	t submerged (ft): -7	7.32		,		
Deployment Team:	m	613			Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed:	12-10-9		1	490.35		
			1 Land		2	492.95
PID:	MiniRAE 3000	Serial No:	wtoo6		3	495.55
Water Level Meter:	Solinst 500 ft	Serial No:	N/A		4	498.15
	- 21		QC sample notes.	Analyte(s):	5	500.75
PID Reading:	0.0	ppm	(If blank, no QC samples required):	- EDB	6	503.35
					7	505.95
Depth to Water:	A second designation of the second se				8	508.55
					9	511.15
DMS Tether and Reel	ID match Well ID?	M			10	513.75
	Initial t	o confirm that ID	,			oranionario del marco de contra de c
	cned	ck was completed				•
Notes:			,	<u> </u>		
	-	-				
	*		·			
Reviewed by:	Hoya	_	Review Date: 12-16-19	·		e represent submerged previous water level
	\					



cation ID: KAFB-106203 Samplin

Year: 2020

Quarter: 1 6w-201-201

The state of the s	V	Well Loc	ation ID:	KAFB-106		mpiing	Sampl	e ID: GW203-	201
Date Sampled:	1-7-20	20_ Tim	ne Sampled:	1300	ZOV KR	m: K-Robi	ison, P	e ID: <u>GW203</u> . . Ferrani	
PID Reading:	0.0	DM	S Tether and	Reel ID match Well II	D? KR	Initial to confirm th was completed	at ID check		
Sampler Num (shallow to deep				Type of Analysis	(circle approp	oriate)			Document in notes Dup? MS/MSD?
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	-
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	6mm
PID:	Mini	RAE 3000	Seria	No: WHOOG					
IDW will be taken	to: GWTS	/Pending	Disposal Area	а				Sample ID:	GW203-201
Notes:	31110		56000171101					Duplicate ID: (if applicable)	GW203-601
								COC#:	COC-203-201



Well Information

#### **Passive Diffusion Water Sampling Data Sheet**

Well Location ID:

KAFB-106202

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW202-201

Well Information	Well Depth:	539.90 ft MRP
Screen Interval Length (ft): 15	Top of Screen:	519.90 ft MRP
Previous Depth to Water (MRP): 482.88 (Gauged on 9/30/2019) LNAPL NOT detected during prior gauging	Bottom of Screen:	534.90 ft MRP
Length of Screen not submerged (ft): -37.01		
Deployment Team:	Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed: 12-10-19 Time Deployed: 0820	(1)	520.60
PID: MiniRAE 3000 Serial No: WHOOL	2	523.20
PID: MiniRAE 3000 Serial No: WHOSE	3	525.80
Water Level Meter: Solinst 500 ft Serial No:	4	528.40
PID Reading:  ppm  QC sample notes. (If blank, no QC samples required): - EDB	5	531.00
Depth to Water:		
DMS Tether and Reel ID match Well ID?  Initial to confirm that ID check was completed		
Notes:		
Reviewed by: Review Date:	Depths highlighted blu samplers based or	e represent submerged n previous water level



Well Location ID:

KAFB-106202

Sampling

Year: 2020

Quarter: 1

Sample ID: GW202-201

Date Sampled:	1-7-202	Tim	e Sampled:	1240	Sampling Tear	m: K-Robni	501 P.	Ferrari	
PID Reading:	0.0	DM:	S Tether and	Reel ID match Well II	o? KR	Initial to confirm the was completed	at ID check		
Sampler Num				Type of Analysis	(circle approp	oriate)			Document in notes Dup? MS/MSD?
		Choose	e only one						
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	6mm
PID:	Minil	RAE 3000	Seria	INO: WHOOOG					
IDW will be taker	n to: GWTS/	Pendina l	Disposal Area					Sample ID:	GW202-201
Notes:			Dioposai Aice					Duplicate ID: (if applicable)	GW202-601
								COC#:	COC-202-201
Reviewed by:	Monteyor							Review Date:	8.202



Well Location ID:

KAFB-106203

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW203-201

Well Information			Well Depth:	643.08 ft MRP
Screen Interval Length (ft): 15			Top of Screen:	623.08 ft MRP
Previous Depth to Water (MRP): 482.69 (Gauged	on 9/30/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen:	638.08 ft MRP
Length of Screen not submerged (ft): -140.39				
Deployment Team:			Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed: 12-10-19 Time	e Deployed: 0840		1	623.78
PID: MiniRAE 3000 Serial No:	WHOOD G	· ·	2	626.38 628.98
Water Level Meter: Solinst 500 ft Serial No:	NA		4	631.58
PID Reading: ppm	QC sample notes. (If blank, no QC samples required):	Analyte(s): - EDB	5	634.18
Depth to Water:				
DMS Tether and Reel ID match Well ID?  Initial to confirm that ID check was completed				
Notes:				
Reviewed by: Manhouse	Review Date: 16-19			e represent submerged n previous water level



Reviewed by: ( Monton)

### **Passive Diffusion Water Sampling Data Sheet**

Well Location ID:

KAFB-106201 203 Sampling

Year: 2020

Quarter: 1

Review Date: 1-8-2020

	S. Jestine			.,	-201					
Date Sampled:	1-7-20	20 Tin	ne Sampled:	1325	Sampling Tear	m: K.Robi	rison, P	. Ferrari		
PID Reading:	0,0	DM	S Tether and	Reel ID match Well II	D? KR.	Initial to confirm th was completed	at ID check			
Sampler Num (shallow to deep				Type of Analysis	(circle approp	oriate)			Docum	nent in notes MS/MSD?
		Choos	e only one							
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		6m
		,								
PID:	MiniF	RAE 3000	Seria	I No: WHOOO	6					
IDW will be taken	to: GWTS/	Ponding	Dienosal Aros	•				Sample ID:	GW	/201-201
Notes:	io. <b>GW15</b> /1	renaing	Disposal Area	1				Duplicate ID: (if applicable)	GW	/201-601
								COC#:	CO	C-201-201



Well Information

#### **Passive Diffusion Water Sampling Data Sheet**

Well Location ID:

KAFB-106204

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW204-201

497.50

Well Information				,	Well Depth: _	497.50 ft MRP
Screen Interval Leng	th (ft): 30				Top of Screen:	462.50 ft MRP
Previous Depth to W	ater (MRP): 457.1	(Gauged	on 9/30/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen: _	492.50 ft MRP
Length of Screen no	t submerged (ft): -	5.38				
Deployment Team:		66	,		Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed:	12-11-19	Time	Deployed: 1035		1	463.20
PID:	MiniRAE 3000	Serial No:	WHOZOG	<u> </u>	2 3	465.80 468.40
Water Level Meter:	Solinst 500 ft	Serial No:	NA		4	471.00
PID Reading:	0.0	ppm	QC sample notes. (If blank, no QC samples required):	Analyte(s):	6	473.60 476.20
Depth to Water:					<i>7</i> <i>8</i>	478.80 481.40
DMS Tether and Reel	Initial i	to confirm that ID ck was completed			9	484.00 486.60
Notes:	,					
Reviewed by:	1/2		Review Date: 12-16-19			ne represent submerged n previous water level



Well Location ID:

KAFB-106204

**Sampling** 

Year: 2020

Quarter: 1

Sample ID: GW204-201

Date Sampled	: 1-8-20	ムO_ Tin	ne Sampled:	_171)	Sampling Tea	m:_#			
PID Reading:	0.0	DM	S Tether and	Reel ID match Well II	D?	Initial to confirm th was completed	at ID check		
Sampler Nui		Choos	e only one	Type of Analysis	(circle approp	oriate)			Document in notes  Dup? MS/MSD?
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	6mm
		,							
PID:	Min	RAE 3000	Serial	No: WH 0006			,		
IDW will be take	en to: <b>GWTS</b>	/Pending	Disposal Area					Sample ID:	GW204-201
Notes:								Duplicate ID: (if applicable)	GW204-601
								COC#:	COC-204-201
Reviewed by:	Montage							Review Date:	9-2020



Well Location ID:

KAFB-106205

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW205-201

Well Information			Well Depth: _	512.50 ft MRP
Screen Interval Length (ft): 15			Top of Screen: _	492.50 ft MRP
Previous Depth to Water (MRP): 457.49 (Gauged	on 9/30/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen: _	507.50 ft MRP
Length of Screen not submerged (ft): -35.01				
Deployment Team: & GB			Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed: 12-11-19 Time	e Deployed: /070			493.20
	WHOOVE		2	495.80
PID: MiniRAE 3000 Serial No:			3	498.40
Water Level Meter: Solinst 500 ft Serial No:	NA		4	501.00
PID Reading: ppm	QC sample notes. (If blank, no QC samples required):	Analyte(s): - EDB	5	503.60
Depth to Water:				
DMS Tether and Reel ID match Well ID?  Initial to confirm that ID check was completed				
Notes:	,	ar .		
Reviewed by:	Review Date: 12-16-19	_		e represent submerged previous water level



Well Location ID:

KAFB-106205

Sampling

Year: 2020

Quarter: 1

Sample ID: GW205-201

Date Sampled:	1-8-	2020 Tim	ne Sampled	1355	Sampling Tear	m: # 2	٠٠٠ - مندعوت				
PID Reading:	O. C	) DM	S Tether and	Reel ID match Well II	D? PF	Initial to confirm the	at ID check				
Sampler Num				Type of Analysis	(circle approp	riate)			Docum	nent in notes MS/MSD?	
		Choose	e only one								
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
. 2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		A.	
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			6mm
PID:	Min	iRAE 3000	Seria	No: WH00.0(	0						
IDW will be taken	to: <b>GWTS</b>	6/Pending I	Disposal Area	1				Sample ID:	GW	/205-201	,
Notes:	·	3						Duplicate ID: (if applicable)	GW	205-601	
								COC#:	CO	C-205-201	
Reviewed by:	Montays	c .						Review Date:	9-2	20	



Well Location ID:

KAFB-106206

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW206-201

Well Information						Well Depth:	613.20	ft MRP
Screen Interval Leng	gth (ft): 15					Top of Screen:	593.50	ft MRP
Previous Depth to W	/ater (MRP): 457.64	4 (Gauged	on 9/30/2019) LN	APL NOT detected	during prior gauging	Bottom of Screen:	608.20	ft MRP
Length of Screen no	ot submerged (ft): -1	35.86						
Deployment Team:	Jm.	6B				Sampler Number:	Top of S Depth (N	
Date Deployed:	12-11-19	Time	Deployed:	1005		1	594.2	
			WHOOZ	1/2		2	596.8	80
PID:	MiniRAE 3000	Serial No:	,			3	599.4	10
Water Level Meter:	Solinst 500 ft	Serial No:	NA	. "	·	4	602.0	00
PID Reading:	0.0	ppm	QC sample notes. (If blank, no QC sa	amples required):	Analyte(s): - EDB	5	604.6	0
Depth to Water:			Duplicate sample deploy extra DMS					
DMS Tether and Reel	Initial to	confirm that ID k was completed						
Notes:								
Reviewed by:	oAlx		Review Date: 1	-16-19		Depths highlighted blu samplers based or		



Year: 2020

Quarter: 1

	Well Location ID:			KAFB-106206 Sampling			Sample ID: GW206-201			
Date Sampled:	1-8-20	20_ Tin	ne Sampled:	1300	Sampling Tea	am:#	A STATE OF THE PARTY OF THE PAR			
PID Reading:	0.0	DM	S Tether and	Reel ID match Well I	D? PF	Initial to confirm the was completed	at ID check			
Sampler Num				Type of Analysis	(circle appro	priate)			Document in notes  Dup? MS/MSD?	
		Choos	e only one							
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
2.	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	6mi	
								Duplic	ate sample required.	
PID:	_ MiniF	RAE 3000	Seria	INO: W # 00 6	<u>.</u>					
IDW will be taker	n to: <b>GWTS</b> /I	Pending I	Disposal Area	a			180	Sample ID:	GW206-201	
Notes: Duplicate ID: (if applicable)							GW206-601			
								COC#:	COC-206-201	
Reviewed by:	Montoyx							Review Date:	9-2020	



Well Information

#### **Passive Diffusion Water Sampling Data Sheet**

Well Location ID:

KAFB-106207

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW207-201

Well Information	Well Depth:	508.00 ft MRP
Screen Interval Length (ft): 30	Top of Screen:	473.00 ft MRP
Previous Depth to Water (MRP): 468.23 (Gauged on 9/30/2019) LNAPL NOT detected during prior gauging	Bottom of Screen:	503.00 ft MRP
Length of Screen not submerged (ft): -4.77		
Deployment Team:	Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed: 12-11-19 Time Deployed: 0918		473.70
1 11 was	<b>(2</b> )	476.30
PID: MiniRAE 3000 Serial No: WITVUS	3	478.90
Water Level Meter: Solinst 500 ft Serial No:	4	481.50
QC sample notes. Analyte(s):	5	484.10
PID Reading:ppm (If blank, no QC samples required):	6	486.70
£	7	489.30
Depth to Water: 466, 33	8	491.90
Measure Water Level	9	494.50
DMS Tether and Reel ID match Well ID?  Initial to confirm that ID	10	497.10
check was completed		
Notes:		
Reviewed by: (1. Markoya Review Date: 12-16-19		ue represent submerged n previous water level



Well Location ID:

KAFB-106207

**Sampling** 

Year: 2020

Quarter: 1

Sample ID: GW207-201

Date Sampled:	1-8-2	2020 Tin	ne Sampled	: 1210	Sampling Tear	m:_ # 2				
PID Reading:	0.0	DM	S Tether and	Reel ID match Well I	D? /	Initial to confirm th was completed	at ID check			
Sampler Number: (shallow to deep)		Type of Analysis (circle appropriate)							Document in notes  Dup? MS/MSD?	
		Choos	e only one							
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	6mm	
PID: 0 0	Min	niRAE 3000	Seria	INO: WHOO6						
IDW will be taken to: GWTS/Pending Disposal Area								Sample ID:	GW207-201	
Notes:									GW207-601	
								COC#:	COC-207-201	
Reviewed by:	Montalx							Review Date:	9-2020	



Well Location ID:

KAFB-106208

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW208-201

Well Information			Well Depth:	523.00 ft MRP
Screen Interval Length (ft): 15	Top of Screen:			
Previous Depth to Water (MRP): 467.92 (Gauged	•			
Length of Screen not submerged (ft): -35.08	Bottom of Screen: _			
Deployment Team:	Sampler Number:	Top of Sampler Depth (MRP)		
Date Deployed: Time	1	503.70		
DID.	(2)	506.30		
PID: MiniRAE 3000 Serial No:	WHOOL		3	508.90
Water Level Meter: Solinst 500 ft Serial No:	NA		4	511.50
PID Reading: ppm	QC sample notes. (If blank, no QC samples required):	Analyte(s): - EDB	5	514.10
Depth to Water:				
OMS Tether and Reel ID match Well ID?  Initial to confirm that ID check was completed				
Notes:			4	
Reviewed by:	Review Date: 12-16-19			e represent submerged previous water level



Well Location ID:

KAFB-106208

**Sampling** 

Year: 2020

Quarter: 1

	Sample ID: Gw208-201										
Date Sampl	ed: 1-8-20.	21 Tim	e Sampled	1235	Sampling Tea	m:_#2_		· ·			
PID Reading	g: <u>00</u>	DMS	S Tether and	Reel ID match Well II	D? PF	Initial to confirm tha was completed	t ID check				
Sampler N	lumber:				Docum	ent in notes					
(shallow to deep)		Chaosa	anly and						Dup?	MS/MSD?	
1	EDB	VOCs	only one BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
. 4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		6mm	
,											
PID:	MiniF	RAE 3000	Seria	INO: <u>WH 006</u>		asi a				- /	
IDW will be ta	aken to: <b>GWTS</b> /	Pending D	isposal Area	a				Sample ID:	GW	208-201	
Notes:								Duplicate ID: (if applicable)	GW	208-601	
					* 1			COC#:	COC	C-208-201	
Reviewed by:	Sparkell !				*			Review Date:	9-200	w	



Well Location ID:

KAFB-106209

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW209-201

Well Information			Well Depth:	622.00 ft MRP
Screen Interval Length (ft): 14			Top of Screen:	603.00 ft MRP
Previous Depth to Water (MRP): 467.28 (Gauged	on 9/30/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen:	617.00 ft MRP
Length of Screen not submerged (ft): -135.72				
Deployment Team:			Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed: 17-11-19 Time	Deployed:	, 	2	603.70
PID: MiniRAE 3000 Serial No:	V Hordo		(2)	606.30
Willing Serial No.	1		3	608.90
Water Level Meter: Solinst 500 ft Serial No:	NIA		4	611.50
PID Reading: ppm	QC sample notes. (If blank, no QC samples required):	Analyte(s):	5	614.10
Depth to Water:				
DMS Tether and Reel ID match Well ID?  Initial to confirm that ID check was completed				
Notes:				
Reviewed by: 1. Monty	Review Date: 12-16-19			e represent submerged previous water level



Well Location ID:

KAFB-106209

**Sampling** 

Year: 2020

Quarter: 1

- Comment of the Comm							Samp	ne id: GW209-	201		
Date Sampled	1-8-20	20 Tin	ne Sampled	1300	Sampling Tear	m: # 2	ne .				
PID Reading:	0.0	DM	S Tether and	Reel ID match Well I	D? //-	Initial to confirm the	at ID check				
Sampler Nun	nber:			Type of Analysis	(circle approp	oriate)			Docum	ent in notes	
(shallow to de	ep)								Dup?	MS/MSD?	
			e only one								
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		6mm	
PID:	MiniF	AE 3000	Seria	INO: WHOOO	6_						
IDW will be taken	n to: <b>GWTS</b> /F	Pendina [	Disposal Area	3				Sample ID:	GW209-201		
Notes:								Duplicate ID: (if applicable)	GW209-601		
								COC#:	COC	C-209-201	
Reviewed by:	Menton							Review Date: \	920	w	



Well Location ID:

KAFB-106216

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW216-201

Well Information					Well Depth:	490.50 ft MRP
Screen Interval Leng	th (ft): 30				Top of Screen:	455.50 ft MRP
Previous Depth to W	ater (MRP): 458.9	1 (Gauged	on 9/30/2019) LNAPL NOT detected	l during prior gauging	Bottom of Screen:	485.50 ft MRP
Length of Screen no	submerged (ft): 3.	.41 ***	(Water level <5ft above top of screen or	screen not submerged)		
Deployment Team:	m	6B			Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed:	12-10-19	Time	Deployed: 1405	<i>4</i> 5	7.70	456.20
			WHOOVE	· P	2	458.80
PID:	MiniRAE 3000	Serial No:			3')	461.40
Water Level Meter:	Solinst 500 ft	Serial No:	GT-0001		4	464.00
	6.8		QC sample notes.	Analyte(s):	5	466.60
PID Reading:	0.0	ppm	(If blank, no QC samples required):	- EDB	6	469.20
	457.70			- 100	7	471.80
Depth to Water:					8	474.40
	Measure Water Lev	vel			9	477.00
DMS Tether and Reel	Initial to	o confirm that ID			10	479.60
Notes:	4		·			
Reviewed by: C. Mandre	ova		Review Date: 12-16-19			e represent submerged previous water level



Well	Location	ID:

**KAFB-106216** 

Sampling

Year: 2020

Quarter: 1

Well Loc		ocation ID: RAFB-1002		210		Sample ID: GW216-201					
Date Sampled:	1-7-2020	Tim	ne Sampled:	0903	Sampling Tea	m: D. Schu	The second secon	Livingston	,		_
PID Reading:	0.0	DM	S Tether and I	Reel ID match Well II	D? JRC	Initial to confirm the was completed	hat ID check	J			
Sampler Numb				Type of Analysis	(circle approp	oriate)				nt in notes MS/MSD?	
		Choose	e only one								
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	1		
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		6mm	
PID:	MiniF	RAE 3000	Serial	No: WHOOOS							
IDW will be taken	to: <b>GWTS</b> /	Pendina I	Disposal Area					Sample ID:	GW2	16-201	_
Notes:	3							Duplicate ID: (if applicable)	GW2	16-601	
1400031		· · · · · · · · · · · · · · · · · · ·			le le		-	COC#:	COC	-216-201	



Well Location ID:

KAFB-106217

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW217-201

Well Information			Well Depth: _	505.00 ft MRP
Screen Interval Length (ft): 15			Top of Screen:	485.00 ft MRP
Previous Depth to Water (MRP): 458.81 (Gauged	on 9/30/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen:	500.00 ft MRP
Length of Screen not submerged (ft): -26.19				
Deployment Team:			Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed: 12-10-19 Time	Deployed: 1350		CP.	485.70
PID: MiniRAE 3000 Serial No:	WHOVO 6		3	488.30 490.90
Nater Level Meter: Solinst 500 ft Serial No:	WA		4	493.50
PID Reading: ppm	QC sample notes. (If blank, no QC samples required):	Analyte(s): - EDB	5	496.10
Depth to Water:				
DMS Tether and Reel ID match Well ID?  Initial to confirm that ID checkwas completed				
Notes:				
Reviewed by: C. Mawto 4/12	Review Date: \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			e represent submerged previous water level



Well Location ID: KAFB-106217

Year: 2020

Quarter: 1

							Sample	PID: GW217-	201
Date Sampled:	1/7/20	Tim	ne Sampled:	0812	Sampling Tear	n: 50	have thy	J Link	Iston
PID Reading:	0,0	DM	S Tether and	Reel ID match Well II	o? WL	Initial to confirm the was completed	at ID check		
Sampler Numl	ber:			Type of Analysis	(circle approp	riate)			Document in notes
(shallow to deep									Dup? MS/MSD?
	,	Choose	e only one						4
1 (	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	6mm
							,		

PID:	MiniRAE 3000 Serial No: WHOUS		
DW will be taken to:	GWTS/Pending Disposal Area	Sample ID:	GW217-201
Notes:	GW15/Periding Disposal Area	Duplicate ID: (if applicable)	GW217-601
Notes.		COC#:	COC-217-201
Reviewed by: C.Mon	to yx	Review Date:	8-2020



Well Location ID:

KAFB-106218

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW218-201

Well Information		•	Well Depth:	572.45 ft MRP
Screen Interval Length (ft): 15			Top of Screen:	552.00 ft MRP
Previous Depth to Water (MRP): 458.94 (Ga	uged on 9/30/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen:	567.00 ft MRP
Length of Screen not submerged (ft): -93.06	,		a *	
Deployment Team:	B		Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed: 12-10-19	Time Deployed: 1335		1	552.70
	No: WHOWE		2	555.30
PID: MiniRAE 3000 Serial	No:		3	557.90
Water Level Meter: Solinst 500 ft Serial	No:		4	560.50
PID Reading:	QC sample notes. (If blank, no QC samples required):	Analyte(s):	5	563.10
Depth to Water:				
DMS Tether and Reel ID match Well ID?  Initial to confirm the check was con-				
Notes:				
Reviewed by:	Review Date: 12-16-19			ne represent submerged In previous water level



Well Location ID: KAFB-106218 Sampling

Year: 2020

Quarter: 1

							Sample	e ID: GW218-	201		
ate Sampled:	1-7-202	Tim	ne Sampled:	0835	Sampling Tear	n: D. Schn	reelk, ]	Ja Livings	iton		
PID Reading:	0,0	DM	S Tether and	Reel ID match Well II	D? JRL	Initial to confirm the was completed	nat ID check	7			
Sampler Num				Type of Analysis	(circle approp	riate)				nt in notes	
(shallow to deep	o)	Choose	e only one						Dup?	WS/MSD?	
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		e e	
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			6mm
PID:	_ Minil	RAE 3000	Seria	INO: WHOOOS		*					

IDW will be taken to: GWTS/Pending Disposal Area

6-bbles in both VUASI

Sample ID: GW218-201

Duplicate ID: GW218-601 (if applicable)

COC#: COC-218-201

Review Date:



Well Location ID:

KAFB-106222

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW222-201

Well Information	Well Depth: _	493.20 ft MRP
Screen Interval Length (ft): 30	Top of Screen: _	457.80 ft MRP
Previous Depth to Water (MRP): 457.94 (Gauged on 9/30/2019) LNAPL NOT detected during prior gauging	Bottom of Screen: _	487.80 ft MRP
Length of Screen not submerged (ft): 0.14		
Deployment Team:	Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed: 12-10-19 Time Deployed: 1300	9	458.50 \( \frac{1}{2} \)
PID: MiniRAE 3000 Serial No: WHOOOK	3)-5M	463.70
Water Level Meter: Solinst 500 ft Serial No: GT - 000 l	4	466.30
PID Reading: ppm QC sample notes. (If blank, no QC samples required): Analyte(s):EDB	5 6	468.90 471.50
Depth to Water:	<b>7</b>	474.10 476.70
Measure Water Level	9	479.30
DMS Tether and Reel ID match Well ID?  Initial to confirm that ID check was completed	10	481.90
Notes:		
Reviewed by:		e represent submerged previous water level



Well Location ID:

KAFB-106222

**Sampling** 

Year: 2020

Quarter: 1

Sample ID: GW222-201

Review Date: 1-8-202

	9						Janipi	CID. GVVZZZ	201	
ate Sampled:	1-7-202	ZO_Tim	ne Sampled:	1030	Sampling Team	1: K. Ruk	inson, F	· Ferrari		
PID Reading:	0.0	DM	S Tether and	Reel ID match Well II		Initial to confirm th was completed	at ID check			
Sampler Num (shallow to dee				Type of Analysis	(circle appropr	riate)				ent in notes MS/MSD?
			e only one							
· • 1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		6mm
PID:	Minil	RAE 3000	Seria	INO: WHOOOG						
DW will be taker	n to: <b>GWTS</b> /	Pendina	Disposal Area	a				Sample ID:	GW2	222-201
Notes:		- 3 <b>.</b> 9						Duplicate ID: (if applicable)	GW2	222-601
						-		COC#:	COC	2-222-201



Well Location ID:

KAFB-106223

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW223-201

Well Information			Well Depth:	508.00 ft MRP
Screen Interval Length (ft): 15			Top of Screen:	487.80 ft MRP
Previous Depth to Water (MRP): 458.62 (Gauged	on 9/30/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen:	502.80 ft MRP
Length of Screen not submerged (ft): -29.18				
Deployment Team:			Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed: 12-10-19 Time	Deployed: 1245	, , , , , , , , , , , , , , , , , , ,	1)	488.50
PID: MiniRAE 3000 Serial No:	cv Horolo		2	491.10
FID. WIIIIRAL 3000 Serial No.	f		3	493.70
Water Level Meter: Solinst 500 ft Serial No:	WA		4	496.30
PID Reading:ppm	QC sample notes. (If blank, no QC samples required):	Analyte(s):	5	498.90
Depth to Water:		- EDB		
DMS Tether and Reel ID match Well ID?  Initial to confirm that ID check was completed				'
Notes:				
Reviewed by:	Review Date: 17-16-19			ue represent submerged n previous water level

	A	®
Marie III		A
10		

Year: 2020 Quarter: 1

	M	Vell Loc	ation ID:	KAFB-106	223 <u>Sa</u>	ampling	Samp	le ID: GW223-	201
Date Sampled:	1-7-20	20 Tim	ne Sampled:	0938	Sampling Tea	ım: D.Sdy	weelk,:	J. Livings	ton
PID Reading:	0.0	DM	S Tether and	Reel ID match Well II	D? JRi	Initial to confirm the was completed	nat ID check		
Sampler Num		Chaos	o only one	Type of Analysis	(circle appro	priate)			Document in notes Dup? MS/MSD?
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	6mm
PID:	Minil	RAE 3000	Seria	II No: WHOOO5					
ID) M = 311 b = 4 = b = 2	CMTC	/D	Diamond Ave	_				Sample ID:	GW223-201
IDW will be take	n to: GW15/	Penaing	Disposal Area	a				Duplicate ID: (if applicable)	GW223-601
Notes:								COC#:	COC-223-201
Reviewed by:	Montage							Review Date:	-8-2020



Well Location ID:

KAFB-106224

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW224-201

Well Information			Well Depth: _	575.50 ft MRP
Screen Interval Length (ft): 15			Top of Screen: _	555.00 ft MRP
Previous Depth to Water (MRP): 459.76 (Gauged	on 9/30/2019) LNAPL NOT detected du	uring prior gauging	Bottom of Screen: _	570.00 ft MRP
Length of Screen not submerged (ft): -95.24			The second secon	
Deployment Team:			Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed: (2-10-19 Time	Deployed: (225		1	555.70
PID: MiniRAE 3000 Serial No:	WHOUD6		2	558.30 560.90
Water Level Meter: Solinst 500 ft Serial No:	GT - 000)		4	563.50
PID Reading: ppm	(If blank, no QC samples required):	Analyte(s):	5	566.10
Depth to Water: 458.49				
DMS Tether and Reel ID match Well ID?  Initial to confirm that ID check was completed				
Notes:		,		
Reviewed by: (Monky)	Review Date: \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		Depths highlighted blue samplers based on	represent submerged previous water level



Well Location ID:

KAFB-106224

Sampling

Year: 2020

Review Date: 1-8-2020

Quarter: 1

	•	VCII LOC	ation ib.	1011 2 100			Sampl	e ID: GW224-	201		
Date Sampled:	1-7-20	20 Tim	ne Sampled:	1002	Sampling Tear	m: D. Sch,	meell,	I. Livingst	0		
PID Reading:	0.0	DM	S Tether and	Reel ID match Well II	D? (R)	Initial to confirm th was completed	at ID check	<b>V</b>			
Sampler Num (shallow to deep				Type of Analysis	(circle approp	riate)			Docum	ent in notes MS/MSD?	
		Choose	e only one								
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		6mn	n -
PID:	Minif	RAE 3000	Serial	INO: WHOOG			- <i>3</i>				
IDW will be taken	to: <b>GWTS</b> /	Pendina I	Disposal Area					Sample ID:	GW	224-201	
Notes:				•				Duplicate ID: (if applicable)		224-601	
								COC#:	CO	C-224-201	



Well Location ID:

KAFB-106230

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW230-201

Well Information					Well Depth:	521.00 ft MRP
Screen Interval Leng	gth (ft): 15				Top of Screen:	501.00 ft MRP
Previous Depth to W	Vater (MRP): 443.0	3 (Gauged	on 10/8/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen:	516.00 ft MRP
Length of Screen no	ot submerged (ft): -5	57.97				
Deployment Team:		B6			Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed:	12-9-19	Time	Deployed: 0825		1	501.70
PID:	MiniRAE 3000	Serial No:	WHOOD 6		2	504.30 506.90
Water Level Meter:	Solinst 500 ft	Serial No:	N/A		4	509.50
PID Reading:	0.0	ppm	QC sample notes. (If blank, no QC samples required):	Analyte(s): - Alkalinity	5	512.10
Depth to Water:			Duplicate sample required. Please deploy extra DMS as needed	- Anions - Dissolved Metals - EDB		
DMS Tether and Reel	Initial to	o confirm that ID		- NO3/NO2-N - Total Metals		
Notes:						
* only 5	sample sites -	defloyed 5	DMS,			
Reviewed by: Mon	Noya	-	Review Date:		Depths highlighted blu samplers based or	ue represent submerged n previous water level



Well Location ID:

KAFB-106230

**Sampling** 

Year: 2020

Quarter: 1

Sample ID: GW230-201

Date Sampled:	1-7-10	20 Tin	ne Sampled	: 0315	Sampling Team	K. Robin	ison P.F	errari		
PID Reading:	0,0	DM	S Tether and	Reel ID match Well II		Initial to confirm tha was completed	at ID check			
Sampler Numl										ent in notes MS/MSD?
		Choose	e only one	and the second s	The state of the s					
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	×	
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	1	
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	X	
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	X	
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		6mm
								Duplica	ate sam	ple required.
PID:	Minil	RAE 3000	Seria	al No: WHOOOG						
IDW will be taken	to: <b>GWTS</b> /	Pendina I	Disposal Are	а				Sample ID:	GW2	230-201
Notes:				•				Duplicate ID: (if applicable)	GW2	230-601
								COC#:	COC	2-230-201
Reviewed by: C. Mo	entoy A							Review Date:	8-201	D



Well Information

## **Passive Diffusion Water Sampling Data Sheet**

Well Location ID:

KAFB-106231

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW231-201

Well Depth: \_

480.00

ft MRP

Screen Interval Length (ft): 35			Top of Screen: _	440.00 ft MRP
Previous Depth to Water (MRP): 451.80 (Gauged	on 10/2/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen:	475.00 ft MRP
Length of Screen not submerged (ft): 11.80 ****	(Water level <5ft above top of screen or s	screen not submerged)		
Deployment Team:			Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed: 12-9-19 Time	Deployed: /005		1	440.70
	14-14		2	443.30
PID: MiniRAE 3000 Serial No:	WH0006		3	445.90
Water Level Meter: Solinst 500 ft Serial No:	6T 0001		17 4 7	448.50
	QC sample notes.		5	451.10
PID Reading: ppm	(If blank, no QC samples required):	Analyte(s): - EDB	6	453.70
450 07			7	456.30
Depth to Water: 450.17	Duplicate sample required. Please		8	458.90
Measure Water Level	deploy extra DMS as needed		9	461.50
DMS Tether and Reel ID match Well ID?  Initial to confirm that ID check was completed			10	464.10
Notes:	•			
Reviewed by:	Review Date: 11-13-19			ue represent submerged n previous water level



Well Location ID: KAFB-106231

Year: 2020

Quarter: 1

							Samp	le ID: GW231-	201	
Date Sampled:	1-6-20	20 Tin	ne Sampled:	1005	Sampling Tear	m: KR F	F	,		
PID Reading:	0.1	DM	S Tether and	Reel ID match Well I	D? KR	Initial to confirm the was completed	at ID check			
Sampler Num				Type of Analysis	(circle approp	oriate)			Document in I	
(shallow to deep	D)	Choos	e only one						Dup? MS/M	150?
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	X	
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	9	6mm
								Duplic	ate sample re	equired.
PID:	Min	iRAE 3000	Seria	INO: WHOOO6	·				. ,	
IDW will be taken	to: GWTS	/Pending	Disposal Area	1				Sample ID:	GW231-20	)1
	uplicate		-	-				Duplicate ID: (if applicable)	GW231-60	01
NOCES.	Sept. Com	1 - 01-01						COC#:	COC-231-	201
Reviewed by:	Montoya				,			 Review Date:↓	8-2020	



Well Information

#### **Passive Diffusion Water Sampling Data Sheet**

Well Location ID:

KAFB-106232

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW232-201

Well Depth: \_\_\_523.00

ft MRP

Screen Interval Length (ft): 15			Top of Screen:	503.00 ft MRP
Previous Depth to Water (MRP): 451.33 (Gauged	I on 10/2/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen:	518.00 ft MRP
Length of Screen not submerged (ft): -51.67				
Deployment Team:			Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed: 17-9-19 Tim	e Deployed: /030			503.70
	WHOO6		2	506.30
PID: MiniRAE 3000 Serial No:	(01/000)		3	508.90
Water Level Meter: Solinst 500 ft Serial No:	NA	·	4	511.50
PID Reading: ppm  Depth to Water: N A  DMS Tether and Reel ID match Well ID?	QC sample notes. (If blank, no QC samples required):	Analyte(s): - EDB	5	514.10
Notes:  Reviewed by: (Montaya)	Review Date: 12-13-15			olue represent submerged on previous water level



Reviewed by: C. Montoy

#### **Passive Diffusion Water Sampling Data Sheet**

Well Location ID:

KAFB-106232

**Sampling** 

Year: 2020

Quarter: 1

Sample ID: GW232-201

				ER			Campi	JID. OVVEOL	201
ate Sampled:	1-6-202	O Tin	ne Sampled:	1040 1035	Sampling Tear	m: K.Robin	50n, P.1	Erravi	
PID Reading:	0.0	DM	S Tether and	Reel ID match Well II	D? KR	Initial to confirm th was completed	at ID check		
Sampler Nun				Type of Analysis	(circle approp	riate)			Document in notes
(shallow to dee	ep)	Choos	e only one						Dup? MS/MSD?
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
2 -	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	6mm
PID:	Minil	RAE 3000	Seria	11 No: W 40006					
	•						مگر		
DW will be taker	n to: <b>GWTS</b> /	Pending	Disposal Area	a				Sample ID:	GW232-201
Notes:			•					Duplicate ID: (if applicable)	GW232-601
								COC#:	COC-232-201



Well Location ID:

KAFB-106235-438

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW235-438-201

Well Information					Well Depth:	465.00 ft MRP
Screen Interval Leng	yth (ft): 25			,	Top of Screen:	438.00 ft MRP
Previous Depth to W	/ater (MRP): 440.3	3 (Gauged	on 9/30/2019) LNAPL NOT detected	l during prior gauging	Bottom of Screen:	463.00 ft MRP
Length of Screen no	t submerged (ft): 2.	33 ****	(Water level <5ft above top of screen or	screen not submerged)		
Deployment Team:		B6			Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed:	12-9-19	Time	Deployed:		439.03 1	438.70
PID:	MiniRAE 3000	Serial No:	WHOOG		3	441.30 443.90
Water Level Meter:	Solinst 500 ft	Serial No:	6T 0001		4	446.50
PID Reading:	Ó. Ú	ppm	QC sample notes. (If blank, no QC samples required):	Analyte(s):	5 6	449.10 451.70
Depth to Water:	439.03				7	454.30
	Measure Water Lev	/el				
DMS Tether and Reel	Initial to	o confirm that ID k was completed				
Notes:						
Reviewed by:	toys	_	Review Date: 12-23-49	,		e represent submerged n previous water level



Well Location ID:

KAFB-106235-438

**Sampling** 

Year: 2020

Quarter: 1

Sample ID: GW235-438-201

Review Date: 1-7-2020

							Sampi	e ib. Gvvzss-	430-201	
Date Sampled:	1-6-202	O Tin	ne Sampled:	0915	Sampling Tear	m: K. Robini	son , P. F	errari		
PID Reading:	0,0.	DM	S Tether and	Reel ID match Well II	D? KR	Initial to confirm the was completed	at ID check			
Sampler Num				Type of Analysis	(circle approp	riate)			Document in notes Dup? MS/MSD?	
		Choose	e only one							
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	61	mm
PID:	Mini	iRAE 3000	Seria	INO: WHOOOL						
IDW will be taken	to: GWTS	/Pending	Disposal Area	3				Sample ID:	GW235-438-201	
	. GW13	i enang	Disposai Alea					Duplicate ID: (if applicable)	GW235-438-601	
Notes:						. ,	·	COC#:	COC-235-438-201	



Well Location ID:

KAFB-106235-472

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW235-472-201

vveil information			Well Depth: _	494.00 ft MRP
Screen Interval Length (ft): 20			Top of Screen:	472.00 ft MRP
Previous Depth to Water (MRP): 440.31 (Gauge	d on 9/30/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen:	492.00 ft MRP
Length of Screen not submerged (ft): -31.69		-	_	
Deployment Team:			Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed: 12-9-19 Tim	e Deployed: 0910		1	472.70
PID: MiniRAE 3000 Serial No:	WHOOD6		2	475.30
	1		3	477.90
Nater Level Meter: Solinst 500 ft Serial No:	MA	· 	4	480.50
0.0	QC sample notes.	Analyte(s):	5	483.10
PID Reading: ppm	(If blank, no QC samples required):	- EDB	6	485.70
Depth to Water:NA			7	488.30
DMS Tether and Reel ID match Well ID?		*		
Initial to confirm that ID check was completed	,			
and was completed				
Notes:	,	1	]	
Reviewed by: C. Manko A	Review Date: 1-13-19		Depths highlighted blu samplers based or	e represent submerged previous water level
	F			The fraction to to f



Well Location ID:

KAFB-106235-472

**Sampling** 

Year: 2020

Quarter: 1

Sample ID: GW235-472-201

							Jampi	CID. GVVZ33-	71 Z-ZU I
Date Sampled:	1-6-202	O Tin	ne Sampled:	0900	Sampling Tear	m: KR PF	:		
PID Reading:	0.0	DM	S Tether and	Reel ID match Well II	0?	Initial to confirm the was completed	at ID check		
Sampler Num (shallow to dee				Type of Analysis	(circle approp	riate)			Document in notes Dup? MS/MSD?
		Choose	e only one						
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	6mm
PID:	Mini	RAE 3000	Seria	1 No: WHOOOL					
IDW will be taken	to: GWT9	Pending	Disposal Area			÷		Sample ID:	GW235-472-201
Notes:	I to. GVVIS	rending	Dispusai Alea	<b>a</b>				Duplicate ID: (if applicable)	GW235-472-601
110163.			-					COC#:	COC-235-472-201



Well Location ID:

KAFB-106235-501

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW235-501-201

Well Information					Well Depth:	ft MRP
Screen Interval Leng	gth (ft): 20				Top of Screen:	501.00 ft MRP
Previous Depth to W	Vater (MRP): 440.3	5 (Gauged	on 9/30/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen:	521.00 ft MRP
Length of Screen no	ot submerged (ft): -6	0.65				
Deployment Team:	AM	GB			Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed:	12-9-19	Time	Deployed: 0930		1	501.70
			WHOOG6		(2)	504.30
PID:	MiniRAE 3000	Serial No:	WILCOOD.		3	506.90
Water Level Meter:	Solinst 500 ft	Serial No:	NA		4	509.50
	λο		QC sample notes.	Analyte(s):	5	512.10
PID Reading:	0, 0	ppm	(If blank, no QC samples required):	- EDB	6	514.70
Danielo da Modani	NA				7	517.30
Depth to Water:	17 11					
DMS Tether and Ree	I ID match Well ID?					
		o confirm that ID k was completed		·		
		, = ===				
Notes:		· · · · · · · · · · · · · · · · · · ·		1		
			······································			
Reviewed by:	Note	_	Review Date: 12-73-19			ue represent submerged on previous water level



Well Location ID: KAFB-106235-501

Year: 2020

Quarter: 1

				1		,	Sampl	e ID: GW235-	-501-201
ate Sampled	: 1/6/202	🔼 Tin	ne Sampled:	0835 0835	Sampling Tear	m: KR P	F		
ID Reading:	0.0	DM	S Tether and	Reel ID match Well II	D? FR	Initial to confirm the was completed	at ID check		
Sampler Nur (shallow to de				Type of Analysis	(circle approp	oriate)			Document in notes  Dup? MS/MSD?
		Choos	e only one						
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	6mm
PID:	Minil	RAE 3000	Seria	INO: WHOOO6					
DW will be take	en to: GWTS/	Pending	Disposal Area					Sample ID:	GW235-501-201
Notes:	11 to. GVV 13/	renang	Dispusai Area	<b>a</b>				Duplicate ID: (if applicable)	GW235-501-601
						-		COC#:	COC-235-501-201



Well Location ID:

KAFB-106236-436

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW236-436-201

463.00

				100 00
Well Information			Well Depth: _	463.00 ft MRP
Screen Interval Length (ft): 25			Top of Screen: _	436.00 ft MRP
Previous Depth to Water (MRP): 440.09 (Gauged of	on 9/30/2019) LNAPL NOT detected of	during prior gauging	Bottom of Screen:	461.00 ft MRP
Length of Screen not submerged (ft): 4.09 ****	(Water level <5ft above top of screen or s	creen not submerged)		
Deployment Team:			Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed: [2-9-19 Time	Deployed:350			436.70
PID: MiniRAE 3000 Serial No:	WHOOL		3	441.90
Water Level Meter: Solinst 500 ft Serial No:	6T - 000		<b>4 5</b>	444.50 447.10
PID Reading: ppm	QC sample notes. (If blank, no QC samples required):	Analyte(s): - EDB	6	449.70
Depth to Water: 438, 74  Measure Water Level	•		7	452.30
DMS Tether and Reel ID match Well ID?  Initial to confirm that ID check was completed				
Notes:				
- Mankour	Review Date: 12-73-19		Depths highlighted by samplers based of	lue represent submerged on previous water level
Reviewed by: Works	10.30			



Reviewed by: C Marky

#### **Passive Diffusion Water Sampling Data Sheet**

Well Location ID:

KAFB-106236-436

**Sampling** 

Year: 2020

Quarter: 1

Sample ID: GW236-436-201

							30			•
Date Sampled	1: 1-7-20	20_ Tin	ne Sampled:	0925	Sampling Tea	m: K. Robin	nson, P.	Ferrari		
PID Reading:		DM	S Tether and	Reel ID match Well II	D? KR	Initial to confirm th was completed	at ID check			
Sampler Nu				Type of Analysis	(circle approp	oriate)			Docum	nent in notes MS/MSD?
(		Choos	e only one							
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		6mm
PID:	Min	iRAE 3000	Seria	INO: WHOOOG					r	
IDW will be take	en to: GWTS	/Pending	Disposal Area	a				Sample ID:	GW	/236-436-201
Notes:	OII (O. )	in enamy	Disposai Alea	<b>a</b>				Duplicate ID: (if applicable)	GW	/236-436-601
*								COC#:	CO	C-236-436-201



Well Location ID:

KAFB-106236-470

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW236-470-201

Well Information						Well Depth:	492.00 ft N	MRP
Screen Interval Leng	th (ft): 20					Top of Screen:	470.00 ft N	MRP
Previous Depth to W	ater (MRP): 440.06 (G	auged on 9/30/	/2019) LNAPL NOT det	ected during prior g	auging B	ottom of Screen:	490.00 ft N	MRP
Length of Screen no	t submerged (ft): -29.94							
Deployment Team:	m 68				,	Sampler Number:	Top of Sar Depth (MR	
Date Deployed:	12-9-19	Time Deploy	red:140)		4		470.70	
			WHOOD			(2)	473.30	
PID:	MiniRAE 3000 Seria	I No:	WILLOOK			3	475.90	
Water Level Meter:	Solinst 500 ft Seria	I No:	NA			4	478.50	
		QC sa	ample notes.	Analyte(s):		5	481.10	
PID Reading:	0.0		nk, no QC samples requir	ed):		6	483.70	
	_					7	486.30	
Depth to Water:		-						
DMS Tether and Reel	ID match Well ID?  Initial to confirm to check was confirmed.							
Notes:		σ.						
Reviewed by:	Ayer	Review	/ Date:[1[6-[9			Depths highlighted blu samplers based or		



Well Location ID:

KAFB-106236-470

Sampling

Year: 2020

Quarter: 1

Review Date: 18-120

							Sampi	e ID: GW236-	470-201
Date Sampled:	1-7-20	20 Tin	ne Sampled:	0940	Sampling Tea	m: K. 201	onson P	Ferran	
PID Reading:	6.0	DM	S Tether and	Reel ID match Well II	D? KR	Initial to confirm the was completed	at ID check		
Sampler Numb				Type of Analysis	(circle approp	oriate)			Document in notes Dup? MS/MSD?
		Choose	e only one						
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	6mm
PID:	Mini	RAE 3000	Seria	INO: WHOOG					
DW will be taken	to: GWTS	Donding	Disposal Area	,				Sample ID:	GW236-470-201
Notes:	io. GW15/	rending	Disposal Area	1				Duplicate ID: (if applicable)	GW236-470-601
.101001							-	COC#:	COC-236-470-201



Well Location ID:

KAFB-106236-499

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW236-499-201

Well Information		Well Depth: _	521.00 ft MRP
Screen Interval Length (ft): 20		Top of Screen: _	499.00 ft MRP
Previous Depth to Water (MRP): 440.10 (Gauged on 9/30/2019) LNAPL NOT dete	ected during prior gauging	Bottom of Screen: _	519.00 ft MRP
Length of Screen not submerged (ft): -58.90			. ,
Deployment Team:		Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed: 12-9-19 Time Deployed: 415		1	499.70
1.14400/		2	502.30
PID: MiniRAE 3000 Serial No: WHOO		3	504.90
Water Level Meter: Solinst 500 ft Serial No:		4	507.50
QC sample notes.	Analyte(s):	5	510.10
PID Reading: ppm (If blank, no QC samples require	ed): - EDB	6	512.70
Depth to Water:	LUD	7	515.30
DMS Tether and Reel ID match Well ID?  Initial to confirm that ID check was completed			
Notes:	<u> </u>		
Reviewed by: C. MontoyA Review Date: 12 / 2319			e represent submerged n previous water level



Well Location ID:

KAFB-106236-499

**Sampling** 

Year: 2020

Quarter: 1

Sample ID: GW236-499-201

Review Date: 1-9-2010

							o annipi	0 121 011200	100 201
Date Sampled:	1-7-20	20_ Tin	ne Sampled:	0955	Sampling Tea	m: K-Robi	ison P.	Ferrari	
PID Reading:	0.0	DM	S Tether and	Reel ID match Well I	D? KR	Initial to confirm the was completed	at ID check		
Sampler Nun				Type of Analysis	(circle approp	oriate)			Document in notes Dup? MS/MSD?
		Choos	e only one						
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	6mn
PID:	Mir	niRAE 3000	Seria	INO: WHOOC	)				
IDW will be taker	n to: <b>GWTS</b>	S/Pendina	Disposal Area	a				Sample ID:	GW236-499-201
Notes:		9						Duplicate ID: (if applicable)	GW236-499-601
							-	COC#:	COC-236-499-201



Well Location ID:

KAFB-106240-449

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW240-449-201

Well Information				Well Depth: _	491.04 ft MRP
Screen Interval Leng	Top of Screen: _	449.04 ft MRP			
Previous Depth to W	Bottom of Screen: _	489.04 ft MRP			
Length of Screen no	t submerged (ft): 22.95 ****	(Water level <5ft above top of screen or	screen not submerged)		
Deployment Team:	AM 15B			Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed:	12-10-19 Time	Deployed:		1	449.74
		11/20/		2	452.34
PID:	MiniRAE 3000 Serial No:	WTTO 006		3	454.94
Nater Level Meter:	Solinst 500 ft Serial No:			4	457.54
		QC sample notes.		5	460.14
PID Reading:	ppm	(If blank, no QC samples required):	Analyte(s): - Alkalinity	6	462.74
	12101		- BTEX	7	465.34
Depth to Water:	771,2		- Anions	8	467.94
Measure Water Level - Dissolved Metals				9	470.54
DMS Tether and Reel ID match Well ID?			- EDB - NO3/NO2-N	(10)	473.14
JWIS Tetrier and Reer	Initial to confirm that ID		- Total Metals	11)	475.74
	check was completed			12)	478.34
Notes:				13	480.94
· ·				14	483.54
Reviewed by:	401(X	Review Date: 12-16-19		Depths highlighted blue samplers based on	represent submerged previous water level



**Well Location ID:** 

KAFB-106240-449

Sampling

Year: 2020

Quarter: 1

Sample ID: GW240-449-201

							-				
Date Sampled	1: 1-7-20	20 Tir	ne Sampled	: 1156	Sampling Tean	1: K. Robi	rson P.	Ferrari			
PID Reading:	6.0	DM	IS Tether and	Reel ID match Well II		Initial to confirm th was completed	at ID check				
Sampler Nui				Type of Analysis	(circle approp	riate)			Docum	ent in notes MS/MSD?	
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			6mm
		ä									
PID:	Minil	RAE 3000	Seria	al No: W H0006	Metals (Total)  Alkalinity  Anions  Nitrate / Nitrite  Metals (Total)  Alkalinity  Anions  Nitrate / Nitrite  Metals (Total)  Alkalinity  Anions  Nitrate / Nitrite  Metals (Total)  Alkalinity  Anions  Nitrate / Nitrite  6mm						
IDW will be take	en to: <b>GWTS</b> /	Pending	Disposal Are	ea				Sample ID:	GW	240-449-20	1

Notes:

Duplicate ID:

GW240-449-601 (if applicable)

COC#: COC-240-449-201

Review Date:



Well Information

#### **Passive Diffusion Water Sampling Data Sheet**

Well Location ID:

KAFB-106241-428

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW241-428-201

Well Depth:

470.10

ft MRP

Screen Interval Leng	yth (ft): 40			Top of Screen:	428.10 ft MRP
Previous Depth to W	later (MRP): 449.50 (Gauged	on 9/30/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen:	468.10 ft MRP
Length of Screen no	ot submerged (ft): 21.40 ****	(Water level <5ft above top of screen or	screen not submerged)		
Deployment Team:	AM BB			Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed:	12-10-19 Time	Deployed: 1145		1	428.80
	· ·	11		2	431.40
PID:	MiniRAE 3000 Serial No:	WHOOK		3	434.00
Vater Level Meter:	Solinst 500 ft Serial No:	6-1-8001		4	436.60
vator Edvor Motor.		QC sample notes.		5	439.20
PID Reading:	ppm	(If blank, no QC samples required):	Analyte(s): - Alkalinity	6	441.80
	448.33		- Anions - Dissolved Metals - EDB - NO3/NO2-N - Total Metals	7	444.40
Depth to Water:	(CDi )			8	<b>447.00</b>
	Measure Water Level			9	449.60
MS Tether and Reel	LID match Well ID?			10	452.20
Initial to confirm that ID		MS/MSD required. Please deploy	Total Wetais	11	454.80
	check was completed	extra DMS as needed		(12)	457.40
Notes:				(13)	460.00
······				14	462.60
Reviewed by: C. Monto		Review Date: 12-16-17	· · · · · · · · · · · · · · · · · · ·		blue represent submerged on previous water level



Reviewed by: C Montoy

# **Passive Diffusion Water Sampling Data Sheet**

Well Location ID:

KAFB-106241-428

<u>Sampling</u>

Year: 2020

Quarter: 1

Sample ID: GW241-428-201

Date Sampl	ed: 1-3-202	O Tin	ne Sampled	. 0825	Sampling Tea	m: # 2	•			
PID Reading	g: <u>( )</u>	DM	S Tether and	Reel ID match Well II	D? PF	Initial to confirm that was completed	t ID check			
Sampler N				Type of Analysis	(circle approp	oriate)			Docum	ent in notes
(shallow to	deep)	Choose	e only one						Dup?	MS/MSD?
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		V
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		V
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		6mm
								MS	MSD I	equired.
PID:	Minif	RAE 3000	Seria	INO: 1/14 006						
IDW will be ta	aken to: <b>GWTS</b> /	Pending [	Disposal Area	a				Sample ID:	GW:	241-428-201
Notes:								Duplicate ID: (if applicable)	GW	241-428-601
								COC#:	COC	C-241-428-201



# Passive Diffusion Water Sampling Data Sheet

Well Location ID:

KAFB-106242-418

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW242-418-201

Well Depth: \_

460.14

					T (0	418.14 ft MRP
Screen Interval Leng	th (ft): 40				Top of Screen: _	
Previous Depth to W	ater (MRP): 440.9	, ,	on 10/2/2019) LNAPL NOT detected		Bottom of Screen: _	458.14 ft MRP
Length of Screen not	t submerged (ft): 22	2.82 ****	(Water level <5ft above top of screen or s	screen not submerged)	a .	
Deployment Team:	AM	6B			Sampler Number:	Top of Sampler Depth (MRP)
. ,			Deployed: 1320		1 ,	418.84
Date Deployed:	12-9-19	Time	Deployed:		2	421.44
PID:	MiniRAE 3000	Serial No:	w4006	· ·	3	424.04
		0 111	WHEETZ JM GT	- 000 \	4	426.64
Water Level Meter:	Solinst 500 ft	Serial No:			5	429.24
PID Reading:	0.0	ppm	QC sample notes. (If blank, no QC samples required):	Analyte(s):  - Alkatinity	6	431.84
T 12 Ttodamig				- Anions	7	434.44
Depth to Water:	439.65			- Dissolved Metals	8	437.04
	Measure Water Le	evel		- EDB	_9	439.64 ×
		1		- NO3/NO2-N - Total Metals	10	442.24
DMS Tether and Ree	Initial	to confirm that ID		- Total Wetais	11)	444.84
	che	eck was completed			(12)	447.44
Natari					13	450.04
Notes:					14	452.64
			Review Date: 12-23-19			lue represent submerged on previous water level
Reviewed by:	suff.		Review Date:		Sampler 5 Suseu C	on provious water level



Well Location ID:

KAFB-106242-418

**Sampling** 

Year: 2020

Quarter: 1

Sample ID: GW242-418-201

COC#:

Review Date:

COC-242-418-201

Date Sampled PID Reading:	: <u>1-6-200</u>		ne Sampled: S Tether and	Reel ID match Well I	Sampling Tea	m: K. Roby  Initial to confirm that was completed	/	P. Ferrari		
Sampler Nur				Type of Analysis		a constant and according to the according			Docum	nent in notes  MS/MSD?
,	-1-7	Choose	e only one	- Commission of the Commission						
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		6mm
PID:	Min	iRAE 3000	Seria	INo: <u>WHOOO</u> 6						
IDW will be take	en to: GWTS	/Pending I	Disposal Area					Sample ID:	GW	/242-418-201
Notes:		i Gilding I	zisposai Alec					Duplicate ID: (if applicable)	GW	242-418-601



Screen Interval Length (ft): 40

Previous Depth to Water (MRP):

#### **Passive Diffusion Water Sampling Data Sheet**

**Well Location ID:** 

445.63

KAFB-106243-425

**Deployment** 

LNAPL NOT detected during prior gauging

Year: 2020

Quarter: 1

Sample ID: GW243-425-201

Well Depth:

Top of Screen:

	on 10/1/2019) LNAPL NOT detected ← (Water level <5ft above top of screen or		Bottom of Screen
Deployment Team:			Sampler Number:
Date Deployed: 12-10-9 Time	e Deployed:	· · · · · · · · · · · · · · · · · · ·	1
PID: MiniRAE 3000 Serial No:	wHose 6		3
Water Level Meter: Solinst 500 ft Serial No:	6T: 0001		4
PID Reading: ppm	QC sample notes. (If blank, no QC samples required):	Analyte(s): - Alkalinity - Anions	5 6 7
Depth to Water: 444,56		- Dissolved Metals	8
DMS Tether and Reel ID match Well ID?  Initial to confirm that ID check was completed		- EDB - NO3/NO2-N - Total Metals	9 10 11 12
Notes:			13 14
Reviewed by:	Review Date: \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		Depths highlighted be samplers based

(Gauged on 10/1/2019)

10.	
Sampler Number:	Top of Sampler Depth (MRP)
1	425.74
2	428.34
3	430.94
4	433.54
5	436.14
6	438.74
7	441.34
. 8	443.94
9	446.54
(10)	449.14
(11)	451.74
12	454.34
13	456.94
14	459.54
Denths highlighted h	blue represent submerged
	on previous water level

467.54

425.04

465.04

ft MRP

ft MRP



KAFB-106243-425 Sampling

Year: 2020

Quarter: 1

V		WCII LOC	adon ib.	1002			Samp	le ID: GW243-	425-201
Date Sampled:	1-6-20	<u> 20</u> Tim	e Sampled:	1325	Sampling Team	1: K. Rob	nson P	· Ferrari	
PID Reading:	0,0	DM	S Tether and	Reel ID match Well I		Initial to confirm the was completed	at ID check		
Sampler Num (shallow to dee				Type of Analysis	s (circle appropi	riate)			Document in notes  Dup? MS/MSD?
		Choose	only one						
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	6mm
PID:	Mir	niRAE 3000	Seria	INO: WHOOOL					
IDW will be taken	to GWT9	S/Pending I	Disposal Area	a	*			Sample ID:	GW243-425-201
Notes:	O. GVVIS	m-ending i	vishosai Ate	a				Duplicate ID: (if applicable)	GW243-425-601
								COC#:	COC-243-425-201



### **Passive Diffusion Water Sampling Data Sheet**

Well Location ID:

KAFB-106244-445

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW244-445-201

Well Information			Well Depth:	487.09 ft MRP
Screen Interval Length (ft): 40			Top of Screen:	445.09 ft MRP
Previous Depth to Water (MRP): 467.65 (Gauged	on 10/1/2019) LNAPL NOT detected	l during prior gauging	Bottom of Screen:	485.09 ft MRP
Length of Screen not submerged (ft): 22.56 ****	(Water level <5ft above top of screen or	screen not submerged)		
Deployment Team:			Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed: 12-11-19 Time	Deployed:105		1	445.79
	Alman I		2	448.39
PID: MiniRAE 3000 Serial No:	Witorole		3	450.99
Vater Level Meter: Solinst 500 ft Serial No:	GT - 001		4	453.59
	QC sample notes.	Analyto(a):	5	456.19
PID Reading: ppm	(If blank, no QC samples required):	Analyte(s): - Alkalinity	6	458.79
111 91		- BTEX	7	461.39
Pepth to Water: 700.80		- Anions	8	463.99
Measure Water Level		- Dissolved Metals	9	466.59 🗸
MS Tether and Reel ID match Well ID?		- EDB - NO3/NO2-N	10	469.19
Initial to confirm that ID		- Total Metals	(11)	471.79
check was completed	*		12	474.39
Notes:		1	13	476.99
			14	479.59
Reviewed by: 1. Mondous	Review Date: 12-16-19			ue represent submerged n previous water level



Well Location ID:

KAFB-106244-445

**Sampling** 

Year: 2020

Quarter: 1

Sample ID: GW244-445-201

									110 20		
ate Sampled:	1-7-20	20 Tir	me Sampled:	1100	Sampling Team	: K. Rob	inson P	. Ferrai			
D Reading:	6.0	DMS Tether and Reel ID match Well ID?  Initial to confirm that ID check was completed									
ampler Nun				Type of Analysis	(circle appropr	iate)				ent in notes	
(shallow to dee	ep)	Choos	se only one						Dup?	MS/MSD?	
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	)		
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite			6mr
PID:	Minil	RAE 3000	Serial	No: WHOOO6							
W will be take	n to: GWTS/	Panding	Disposal Area					Sample ID:	GW	244-445-201	12
Notes:	11 to. GVV 13/	enung	Disposal Area					Duplicate ID: (if applicable)	GW	244-445-601	
								COC#·	COC	0-244-445-20	11



### **Passive Diffusion Water Sampling Data Sheet**

**Well Location ID:** 

KAFB-106245-460

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW245-460-201

Well Depth: \_

505.67

Screen Interval Leng	th (ft): 40				Top of Screen: _	463.67 ft MRP
Previous Depth to W	ater (MRP): 485.8	3 (Gauged	on 9/30/2019) LNAPL NOT detected	during prior gauging	Bottom of Screen:	503.67 ft MRP
Length of Screen no	t submerged (ft): 2	2.16 <b>***</b>	(Water level <5ft above top of screen or	screen not submerged)		
Deployment Team:		6B	·		Sampler Number:	Top of Sampler Depth (MRP)
Date Deployed:	12-10-19	Time	Deployed: 0935		1	464.37
. ,		•			2	466.97
PID:	MiniRAE 3000	Serial No:	WH0006		3	469.57
Water Level Meter:	Solinst 500 ft	Serial No:	GT-0001		4	472.17
			QC sample notes.	A 1 - 4 - ( - ) -	5	474.77
PID Reading:	0.0	ppm	(If blank, no QC samples required):	Analyte(s): - Alkalinity	6	477.37
	Maria 1			- BTEX	7	479.97
Depth to Water:	485.17			- Anions	8	482.57
	Measure Water Le	vel		- Dissolved Metals	9	485.17
DMS Tether and Reel	ID match Well ID2	Im		- EDB - NO3/NO2-N	10	487.77
DINIS Tettier and Reer	Initial	to confirm that ID	MS/MSD required. Please deploy	- Total Metals	(11)	490.37
	che	ck was completed	extra DMS as needed		12	492.97
Notes:			,	1	13	495.57
					14	498.17
Reviewed by:	4X		Review Date: 1/2/6/19	<u> </u>		ne represent submerged n previous water level



Well Location ID:

Date Sampled: 1-8-2020 Time Sampled: 0945 Sampling Team: # 2

DMS Tether and Reel ID match Well ID?

KAFB-106245-460

<u>Sampling</u>

Year: 2020

Quarter: 1

Sample ID: GW245-460-201

Sampler Num				Type of Analysis	Docum	Document in notes				
(shallow to dee	p)	Chaose	only one						Dup?	MS/MSD?
1	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
2	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
3	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
4	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
5	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		
6	EDB	VOCs	BTEX (N)	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite		6mm
								MS	S/MSD i	equired.
PID: <i>()</i> . <i>()</i>	MiniF	RAE 3000	Seria	al No: WHOO 6						
IDW will be taken	to: <b>GWTS/</b> I	Pendina D	isposal Are	a .				Sample ID:	GW	245-460-201
Notes:		onung D				-		Duplicate ID: (if applicable)	GW	245-460-601
								COC#:	COC	C-245-460-201
Reviewed by:	Montoys							Review Date:	9-20	20



Screen Interval Length (ft): 40

## **Passive Diffusion Water Sampling Data Sheet**

Well Location ID:

KAFB-106247-450

**Deployment** 

Year: 2020

Quarter: 1

Sample ID: GW247-450-201

Well Depth:

Top of Screen: \_

495.64

453.32

ft MRP

		1 2 3 4	454.02 456.62 459.22 461.82
Vater Level Meter: Solinst 500 ft Serial No: WHOOOG  QC sample notes.  Ana		3	459.22
Vater Level Meter: Solinst 500 ft Serial No: GT - CCO    QC sample notes. Ana			
QC sample notes.		4	464.92
(If blank no OC complex no nine d)			401.02
(If blank no OC complex no nine d)	alyte(s):	5	464.42
	Ikalinity	6	467.02
117 / 51 - BT		7	469.62
- Ar	nions	8	472.22
	issolved Metals	9 7	474.82
MS Tether and Reel ID match Well ID? - NO	O3/NO2-N	(10)	477.42
Initial to confirm that ID	otal Metals	11)	480.02
check was completed		12)	482.62
lotes:		13	485.22
		14	487.82



Well Location ID:

KAFB-106247-450

**Sampling** 

Year: 2020

Quarter: 1

Sample ID: GW247-450-201

					-	1	e ID. GVVZ47-	+30-201
Date Sampled:	01/06/	2020Time Sampl	ed: <i>0854</i>	_ Sampling Tea	m: D. Sch	meelk,	N. Peterso	$\cap$
PID Reading:	0.0	DMS Tether a	and Reel ID match Well	ID? NP	Initial to confirm th was completed	at ID check		
Sampler Num			Type of Analysi	s (circle approp	oriate)			Document in notes
(shallow to dee	p)	Choose only one						Dup? MS/MSD?
1	EDB	VOCs BTEX (N	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
2	EDB	VOCs BTEX (N	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
3	EDB	VOCs BTEX (N	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
4	EDB	VOCs BTEX (N	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
5	EDB	VOCs BTEX (N	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	
6	EDB	VOCs BTEX (N	Metals (Dissolved)	Metals (Total)	Alkalinity	Anions	Nitrate / Nitrite	6mm
PID:	MiniF	RAE 3000 S	erial No: WHOCO5	, <u>)</u>				
IDW will be taken	nto: <b>GWTS/</b>	Pending Disposal /	Area				Sample ID:	GW247-450-201
Notes:							Duplicate ID: (if applicable)	GW247-450-601
				,	9-		COC#:	COC-247-450-201

PROJECT NAME:	400 Hunt Valley MD Tel No: (410) 584-7000 Fax No. (410) 771-1825		(	CH	All	N-(	OF	-Cl	US	TO	DY	RI	ECC	RF	)			(	OC NUME	BER
Kirtland AFB Bulk Fuels	PROJECT NUMBER:	LABORATORY	NAME AND CONTA	CT.			***************************************											C	OC-003-	201
Facility	62599DM01	Eurofins La	caster Laborator		<b>A</b> 1760	1	1				rs/edd to	Amano	la Smith	lamond@ ismith@e				YEAR:	202	
PROJECT SITE AND PHASE: ST106/SS111						'		-AX AN	D MAIL F	REPORT	S/EDD TO	O: Pam 1	Moss: p	moss@e	eaest.con	n EA		QUARTER:	1 (Jan	-Marl
		Lab PO Numbe	r: 14800				L	AB CO	NTACT:	Kay Ho	wer I	KayHow	er@eurofins	JS.com	F	urofins 1 (7	17) 556_726	Q.	- (car	
				A	NALY	SIS RI	- 1				ber of b			7	_	oromis 1(7				
,				1	- 1	T	-0011	10 (	1	y numi		ottles)	T	-						
SAMPLE ID	ENTIFIER	DATE COLLECTED	TIME COLLECTED	Number of Bottles	VOCs	(8260C) BTEX	BTEXN	(8011) EDB	(6020A/6010C) Total (As,Pb,Ca,K,Na,Mg)	(6010C) Dissolved Fe, Mn	(300.0) Chloride, bromide, sulfate	(353.2) Nitrate-Nitrite	(SMZ3ZUB) Alkalinity (Total, Carbonate, and Bicarbonate)	(RSK-175) Carbon Dioxide	(RSK-175) Methane			COMMENT	s	
GW003-	201	-17 2000	10 =		-				g)		ate		<u>a</u> .							
		-17+2020	1250	5	~	3	-	2	-								And the second second second second second	CON ASSESSMENT OF THE PARTY OF		***************************************
																	- Andrewson Const.			
																The state of the s				
							7	5					and the second second second second	and the second second						
					+			AF 1000 - 100 - 100 00 00									***************************************			
ENTS:				-	-			_					-							-
ER(S): Dylan	Schneel	1807E	3-699																TB201-	39
Name and Signature:	ELINQUISHED BY:	K					COL	JRIER A	ND SHI	PPING I	NUMBER:	Fed	IFx Q	147	2 <	3205	- 2			
and dignature.		10	DAT	ΓE		TIME	-					F	RECEIVED E	BY:	, (	5205	2		DATE	TIME
lame and Signature:	reelk &	The state of the s	1-17-	202	0 16	600	Print	ed Nam	e and Si	gnature	:									THAIC
							Printe	ed Name	e and Si	gnature:										
ame and Signature:	~														***************************************		north of the name of the section of			
				-																
							Printe	d Name	and Sig	mature.										

	AND THE PROPERTY AND TH	225 Schiling Circle Suite				18.1	0		211	CT	OL	<b>\</b> \	DE		חכ					COC	NUMBE	₹
		400 Hunt Valley MD Tel No: (410) 584-7000		C	HA	VIIV	<b>-</b> U	<b> (</b>	JU	01	OL	JΥ	$\Gamma$	CO	\U					COC	-004-2	01
and the second s		Fax No. (410) 771-1625 PROJECT NUMBER:	LABORATORY N	AME AND CONTACT	1			FAX	X AND N	AIL RE	PORTS/	EDD TO:	: Tara L		_	eaest.co			YEAR:		2020	
PROJECT I	NAME: AFB Bulk Fuels	62599DM01	Eurofins Lanc	aster Laboratories	S								Amand	a Smith: as		est.com			QUART	ER:	4 / lon 1	10%
Facility			2425 New Holl	and Pike Lancaste	er PA 1	7601		FA	X AND N	AAIL KE	PURIS	EDD TO	. raiii i	vi055. pii	.0000						1 (Jan-N	iar)
DDO IFOT	SITE AND PHASE:		Lab PO Number:	14800				LAI	B CONT	ACT: K	ay Howe	r K	ayHowe	er@eurofinsU	S.com	Eu	irofins 1	(717) 556-7	258			
ST106/SS1	III AND FRASE.				ANI	ALVC	S DE	OUR	ED (Si	necify	numbe	er of bo	ottles)						Annual province of Advance in the consession	Maria Cara Cara Cara Cara Cara Cara Cara		
					AIN	ALIS	SIL	QOII	LD (O			_	1						COM	MENTS		
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		225 Schiling Circle Suite 400 Hunt Valley MD		C	:HA	III	I-O	F-	CL	IS-	$\Gamma$	ΠY	RF	ECO	RL	)			CC	OC NUMBER
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CHAIN-OF-CUSTODY RECORD  Table: (Hill 771-1625) FAX AND MAIL REPORTSIEDD TO: Tare Lamond: Itamond@easest.com EA YEAR: 20. FAX AND MAIL REPORTSIEDD TO: Pam Moss: pmoss@easest.com EA OUARTER: 1 (Jan PROJECT SITE AND PHASE: ST106/SS111)  TIEM SAMPLE IDENTIFIER  DATE COLLECTED TIME COLLECTED  DATE COLLECTED TIME COLLECTED  TIME COLLECTE		And the second s																		
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	16	225 Schiling Circle Suite 400 Hunt Valley MD		C	:HA	111	1-0	F-	CI	1.57		Y	RF	COI	RD	)			CO	C NUMB	ER
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ROJEC T106/S	T SITE AND PHASE: S111		Lab PO Number:	14800				LA	B CON	TACT: K	ay Howe	er K	ayHowe	r@eurofinsU	S.com	E	urofins 1 (717)	) 556-7258	- The transfer of the second o		
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ITEM	SAMPLE II	DENTIFIER	DATE COLLECTED	TIME COLLECTED	Total Number of Bottles	(8260C) VOCs	(8260C) BTEX	(8260C) BTEXN	(8011) EDB	(6020A/6010C) Total (As,Pb,Ca,K,Na,Mg)	(6010C) Dissolved Fe, Mn	(300.0) Chloride, bromide, sulfate	(353.2) Nitrate-Nitrite	(SM2320B) Alkalinity (Total, Carbonate, and Bicarbonate)	(RSK-175) Carbon Dioxide	(RSK-175) Methane			COMMENTS		
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		225 Schiling Circle Suite 400 Hunt Valley MD Tel No: (410) 584-7000			CH	AII	V-C	F-	Cl	JS.	TO	DY	R	ECC	)R	$\Box$				COC NU	MBER
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T106/SS	5111		Lab FO Number:	14800				LA	AB CON	TACT:	Kay Hov	ver	KayHow	ver@eurofii	sUS.cor	n	Eur	ofins 1 (717) 556-	7258		,
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ITEM	SAMPLE I	DENTIFIER	DATE COLLECTED	TIME COLLECTED	Total Number of Bottles	(8260C) VOCs	(8260C) BTEX	(8260C) BTEXN	(8011) EDB	(6020A/6010C) Total (As,Pb,Ca,K,Na,Mg)	(6010C) Dissolved Fe, Mn	(300.0) Chloride, bromide, sulfate	(353.2) Nitrate-Nitrite	Alkalinity (Total, Carbonate, and Bicarbonate)	(RSK-175) Carbon Dioxide	(RSK-175) Methane			СОММ	IENTS		
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		225 Schiling Circle Suite 400 Hunt Valley MD Tel No: (410) 584-7000		С	H/	111	I-C	)F-	CL	JS	ГО	DY	RE	ECOI	RD						C NUME	**************************************
		Fax No. (410) 771-1625				-														CO	C <mark>-</mark> 029-	201
PROJECT Kirtland	Г NAME: AFB Bulk Fuels	PROJECT NUMBER: 62599DM01	······································	NAME AND CONTACT				FA	X AND	MAILR	EPORTS	S/EDD TO			_	eaest.com			YEA	·R:	202	20
Facility				land Pike Lancast		17601		FA	X AND	MAIL R	EPORTS	S/EDD TO				aest.com			QU/	ARTER:	1 (Jan	
PROJECT	SITE AND PHASE:		Lab PO Number:	14800				LA	B CON	TACT:	Kay How	er K	ayHowe	r@eurofinsU	S.com	Eı	ırofins	1 (717) 556	-7258			
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					ΔΙ	NALVS	IS DE	- 1						er@eurofin	sUS.com	ı E	urofins 1 (717) 556-725	58	
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ITEM 1	SAMPLE II		DATE COLLECTED	TIME COLLECTED	lotal Number of Bottles	(8260C) VOCs	(8260C) BTEX	(8260C) BTEXN	(8011) EDB	(6020A/6010C) Total (As,Pb,Ca,K,Na,Mg)	(6010C) Dissolved Fe, Mn	(300.0) Chloride, bromide, sulfate	(353.2) Nitrate-Nitrite	Alkalinity (Total, Carbonate, and Bicarbonate)	Carbon Dioxide (SM23208)	(RSK-175) Methane		COMMENTS	
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	nd AFB Bulk Fuels	62599DM01	Eurofins Land	NAME AND CONTAC caster Laboratorie land Pike Lancasi	s	47604							Amand	a Smith: a	lamond@ smlth@e	eaest.cor	n EA	YEAR:	2020	22338
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ITEM	SAMPLE II	DENTIFIER .	DATE COLLECTED	TIME COLLECTED	Total Number of Bottles	(8260C) VOCs				Total (As	(6010C) Dissolved Fe, Mn	(300.0) Chloride, bromide, sulfate		(SMZ3ZUB) Alkalinity (Total, Carbonate, and Bicarbonate)	(RSK-175) Carbon Dioxide	(RSK-175) Methane		COMMENTS		
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BO IEC.	T NAME:	Tel No: (410) 584-7000 Fex No. (410) 771-1625 PROJECT NUMBER:	LADORATORYA			VII.	· ·				Wanda and Australia				'I \L						COC	C-032-	-201
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cinty			2425 New Hol	land Pike Lancast	er PA	17601		FA	X AND	MAIL RI	EPORTS	/EDD TO	:Pam N	∕loss: p	moss@e	aest.con	n E/	Δ,		QUART	TER:	1 (Jan	Mar)
OJECT 106/SS	SITE AND PHASE:		Lab P0 Number:	14800			***************************************	LA	B CON	TACT: I	Kay How	er K	ayHowe	r@eurofins	US.com	Ē	urofins	1 (717)	556-725	.8			
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ГЕМ	SAMPLE II	DENTIFIER	DATE COLLECTED	TIME COLLECTED	Total Number	(8260C) VOCs	(8260C) BTEX	(8260C) BTEXN	(8011) EDB	(6020A/6010C) Total (As,Pb,Ca,K,Na	(6010C) Dissolved Fe, Mn	(300.0) Chloride, bromid	(353 Nitrate-	Alkalinity (Total, Carbonate, a Bicarbonate)	(RSK-175) Carbon Dioxide	(RSK-175) Methane				COM	MENTS		
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PROJECTIN	JAME:	Fax No. (410) 771-1625 PROJECT NUMBER:	LABORATORY	NAME AND CONTAC	r.		****				***************************************	******				~	***************************************		CC	C-033-	-201
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PROJECTS ST106/SS11	SITE AND PHASE:		Lab PO Number:	14800	-			LA	B CON	TACT:	Kay How	er K	ayHowe	r@eurofinsl	JS.com	E	urofins 1 (717	7) 556-7258		***************************************	
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		225 Schiling Circle Suite 400 Hunt Valley MD Tel No: (410) 584-7000 Fax No. (410) 771-1625		C	H	11/	1-C	F-	Cl	JS <sup>-</sup>	ΓΟ	DY	RI	ECO	RE	)			The second second second	NUME	
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ITEM	SAMPLE I	DENTIFIER	DATE COLLECTED	TIME COLLECTED	Total Number of Bottles	(8260C) VOCs	(8260C) BTEX	(8260C) BTEXN	(8011) EDB	(6020A/6010C) Total (As,Pb,Ca,K,Na,Mg)	(6010C) Dissolved Fe, Mn	(300.0) Chloride, bromide, sulfate	(353.2) Nitrate-Nitrite	(SMZ320B) Alkalinity (Total, Carbonate, and Bicarbonate)	(RSK-175) Carbon Dioxide	(RSK-175) Methane				COMMENTS		
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ITEM	SAMPLE II	DENTIFIER	DATE COLLECTED	TIME COLLECTED	Total Number of Bottles	(8260C) VOCs	(8260C) BTEX	(8260C) BTEXN	(8011) EDB	(6020A/6010C) Total (As,Pb,Ca,K,Na,Mg)	(6010C) Dissolved Fe, Mn	(300.0) Chloride, bromide, sulfate	(353.2) Nitrate-Nitrite	(SM2320B) Alkalinity (Total, Carbonate, and Bicarbonate)	(RSK-175) Carbon Dioxide	(RSK-175) Methane		CC	OMMENTS		
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		Tel No: (410) 584-7000			ПА	111/	<b>-</b> U	Γ-(	JU	01	OL	1.1		_00		'		C	OC-051-2	201
PROJECT	NAME:	Fax No. (410) 771-1625 PROJECT NUMBER:	LABORATORY N	AME AND CONTACT	:			FAX	( AND N	MAIL RE	PORTS	EDD TO			amond@			YEAR:	2020	)
	AFB Bulk Fuels	62599DM01		aster Laboratories land Pike Lancast		7601		FAX	( AND N	MAIL RE	PORTS	/EDD TO			mith@ea noss@ea	***************************************		QUARTER:	1 (Jan-l	Mar)
DDO IEC	T SITE AND PHASE:		Lab PO Number:	14800				LAE	CONT	ACT: K	ay Howe	er K	ayHowe	er@eurofinsU	IS.com	E	urofins 1 (717) 556-72	258		
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ITEM	SAMPLE	DENTIFIER	DATE COLLECTED	TIME COLLECTED	Total Number of Bottles	(8260C) VOCs	(8260C) BTEX	(8260C) BTEXN	(8011) EDB	(6020A/6010C) Total (As,Pb,Ca,K,Na,Mg)	(6010C) Dissolved Fe, Mn	(300.0) Chloride, bromide, sulfate	(353.2) Nitrate-Nitrite	(SMZ3ZUB) Alkalinity (Total, Carbonate, and Bicarbonate)	(RSK-175) Carbon Dioxide	(RSK-175) Methane				
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		400 Hunt Valley MD Tel No: (410) 584-7000		C	HA	IIIV	-0	(		151	OL	JΥ	K C	COI	$\mathcal{L}$	ł.				COC	-097-2	01
PROJECT	NAME:	Fax No. (410) 771-1625 PROJECT NUMBER:	LABORATORY N	IAME AND CONTACT	Γ:			FA	X AND	MAIL RE	PORTS	EDD TO:			_	eaest.con			YEAR	₹:	2020	)
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	T SITE AND PHASE:		Lab PO Number:	14800				LA	B CON	TACT: K	Kay Howe	er K	ayHowe	r@eurofinsU	S.com	Eu	rofins 1	(717) 556-7	258			
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ITEM	SAMPLE I	DENTIFIER	DATE COLLECTED	TIME COLLECTED	Total Number of Bottles	(8260C) VOCs	(8260C) BTEX	(8260C) BTEXN	(8011) EDB	(6020A/6010C) Total (As,Pb,Ca,K,Na,Mg)	(6010C) Dissolved Fe, Mn	(300.0) Chloride, bromide, sulfate	(353.2) Nitrate-Nitrite	(SM2320B) Alkalinity (Total, Carbonate, and Bicarbonate)	(RSK-175) Carbon Dioxide	(RSK-175) Methane						·
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PROJECT Kirtland Facility	AFB Bulk Fuels	PROJECT NUMBER: 62599DM01	Eurofins Lanc	AME AND CONTACT aster Laboratories and Pike Lancaste	5	7601						/EDD TO:	Amanda	a Smith: a	amond@ smith@e moss@e	aest.con	n E	Α		YEAR: QUARTE	-5.	2020 I (Jan-l	)
PROJECT ST106/SS	T SITE AND PHASE: S111		Lab PO Number:	14800						TACT: K				r@eurofins	JS.com	E	urofins	1 (717)	556-725	8			
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ITEM	SAMPLE I	IDENTIFIER	DATE COLLECTED	TIME COLLECTED	Total Number of Bottles	(8260C) VOCs	(8260C) BTEX	(8260C) BTEXN	(8011) EDB	(6020A/6010C) Total (As,Pb,Ca,K,Na,Mg)	(6010C) Dissolved Fe, Mn	(300.0) Chloride, bromide, sulfate	(353.2) Nitrate-Nitrite	Alkalinity (Total, Carbonate, and Bicarbonate)	(RSK-175) Carbon Dioxide	(RSK-175) Methane				COMM	ILNI 3		
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		Tel No: (410) 584-7000 Fax No. (410) 771-1625			/	1111	1-0	-				<b>ノ</b> I	1/1	_00	ND	,		COC-C	99-2	:01
	CT NAME: Id AFB Bulk Fuels	PROJECT NUMBER: 62599DM01		NAME AND CONTACT				FA	AX AND	MAIL RI	EPORTS	EDD TO			amond@			YEAR:	2020	)
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ITEM	SAMPLE II	DENTIFIER	DATE COLLECTED	TIME COLLECTED	Total Number of Bottles	(8260C) VOCs	(8260C) BTEX	(8260C) BTEXN	(8011) EDB	(6020A/6010C) Total (As,Pb,Ca,K,Na,Mg)	(6010C) Dissolved Fe, Mn	(300.0) Chloride, bromide, sulfate	(353.2) Nitrate-Nitrite	(SMZ3ZUB) Alkalinity (Total, Carbonate, and Bicarbonate)	(RSK-175) Carbon Dioxide	(RSK-175) Methane		COMMENTS		
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ITEM	SAMPLE II	DENTIFIER	DATE COLLECTED	TIME COLLECTED	Total Number of Bottles	(8260C) VOCs	(8260C) BTEX	(8260C) BTEXN	(8011) EDB	(6020A/6010C) Total (As,Pb,Ca,K,Na,Mg)	(6010C) Dissolved Fe, Mn	(300.0) Chloride, bromide, sulfate	(353.2) Nitrate-Nitrite	(Total, Carbonate, and Bicarbonate)	(SM2320B)	(RSK-175) Carbon Dioxide	(RSK-175) Methane			C	OMMENTS			
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activity			2425 New Ho	lland Pike Lancas	ter PA	17601		FA	AX AND	MAIL R	EPORT	S/EDD TO	D: Pam		asmith@e omoss@e	-		QUAR		2020
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FAX AND MAIL REPORTS/EDD TO: Pam Moss: pmoss@eaest.com EA QUARTER		10	225 Schiling Circle Suite									Proposition and the second second			V411							
PROJECT NAME KITCHEN AND BUILD FURTHER  E2999DM01  Eurorifies Lancaster Laboratories PA 17601  Eurorifies Lancaster Laboratories PA 17601  Eurorifies Lancaster Laboratories PA 17601  Expression State And PHASE:  ITEM SAMPLE IDENTIFIER  DATE COLLECTED  TIME COLLECTED  TI			Tel No: (410) 584-7000		C	H	111	1-C	)F-	Cl	JS'	ΓΟ	DY	RI	ECO	RD	)			C	COC NUN	/IBER
Eurofine Lancaster Laboratories   22990M01   Eurofine Lancaster Laboratories   22990M01   Eurofine Lancaster Laboratories   2428 New Holland Piles Lancaster PA 17601   FXX.ADD.MUL.REPORTS(EDD TO Pan Mose)   FXX.	PROJEC	T NAME:		LABORATORY				***************************************												C	OC-102	2-201
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225 Schilling Circle Sulte 400 Hunt Valley MD Tel No: (410) 584-7000 Fax No. (410) 771-1025				CHAIN-OF-CUSTODY RECORD														COC NUMBER		
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PROJECT NAME: PROJECT NUMBER:												EDD TO:	YEAR:	2020						
Kirtland AFB Bulk Fuels 62599DM01 Facility				Eurofins Lancaster Laboratories 2425 New Holland Pike Lancaster PA 17601							PORTS	EDD TO:	QUARTER:	1 (Jan-Ma	ar)					
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PROJECT SITE AND PHASE: Leb PO Number: 14800 ST106/SS111											ay Howe			ir@euroiiisO	3.00m	E(	1 (7 17) 556-72			
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ITEM	SAMPLE I	DENTIFIER	DATE COLLECTED	TIME COLLECTED	Total Number of Bottles	(8260C) VOCs	(8260C) BTEX	(8260C) BTEXN	(8011) EDB	(6020A/6010C) Total (As,Pb,Ca,K,Na,Mg)	(6010C) Dissolved Fe, Mn	(300.0) Chloride, bromide, sulfate	(353.2) Nitrate-Nitrite	(SM2320B) Alkalinity (Total, Carbonate, and Bicarbonate)	(RSK-175) Carbon Dioxide	(RSK-175) Methane		GOMMENTO		
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	10	225 Schiling Circle Suite 400 Hunt Valley MD		CHAIN-OF-CUSTODY RECORD														COC NUMBER			
	Tel No: (410) 771-1625									51	Ol	ווע	COC-151-484-20								
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Kirtland Facility	till tid fu b bailt adio			Eurofins Lancaster Laboratories 2425 New Holland Pike Lancaster PA 17601						MAIL RE	PORTS	S/EDD TO: F	QUARTER: 1 (Jan-Mar)								
PROJECT SITE AND PHASE: Lab PO Number: 14800 ST106/SS111						LAB CONTACT: Kay Hower Kay Hower @eurofins US.com Eurofins 1 (717) 5										rofins 1 (717) 556-73	258				
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ITEM	SAMPLE	IDENTIFIER	DATE COLLECTED	TIME COLLECTED	Total Number of Bottles	(8260C) VOCs	(8260C) BTEX	(8260C) BTEXN	(8011) EDB	(6020A/6010C) Total (As,Pb,Ca,K,Na,Mg)	(6010C) Dissolved Fe, Mn	(300.0) Chloride, bromide, sulfate	(353.2) Nitrate-Nitrite	(SM2320B) Alkalinity (Total, Carbonate, and Bicarbonate)	(RSK-175) Carbon Dioxide	(RSK-175) Methane		COMMEN <sup>*</sup>	TS		
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Tel No: (410) 584-7000 Fax No. (410) 771-1625				O			O i		<i>)</i>	COC-152-484-201											
	PROJECT NAME: PROJECT NUMBER:  Kirtland AFB Bulk Fuels 62599DM01  Facility		a ton topological	LABORATORY NAME AND CONTACT:							PORTS/	EDD TO:	YEAR: 2020								
Kirtland Facility				Eurofins Lancaster Laboratories 2425 New Holland Pike Lancaster PA 17601						Amanda Smith: asmith@eaest.com EA  FAX AND MAIL REPORTS/EDD TO: Pam Moss: pmoss@eaest.com EA										1 (Jan-	
PROJECT SITE AND PHASE: Lab PO Number: 14800 ST106/SS111							LAB CONTACT: Kay Hower KayHower@eurofinsUS.com Eurofins 1 (717)										urofins 1 (717) 550	6-7258			
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,			2423 New 1101	iand Fike Lancasi	erPA	17601			AX AND	MAIL R	EPORTS	S/EDD TO	): Pam	Moss: p	moss@e	eaest.co	m EA	A	QI	UARTER:	1 (Jar	n-Mar)
PROJECT ST106/SS1	SITE AND PHASE:		Lab PO Number:	14800				LA	B CON	TACT: I	Kay How	er l	KayHow	er@eurofins	US.com	E	Eurofins	1 (717) 55	6-7258			,
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		Tel No: (410) 584-7000 Fex No. (410) 771-1625		C	,H/	411	1-C	) <del> </del>	CL		l Ol	IJΥ	R	ECO	KU	)			·	COC-202-	·
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PROJECT ST106/S	CT SITE AND PHASE: 8\$111		Lab PO Number:	: 14800				LA	B CON	TACT:	Kay How	er K	ayHow	er@eurofinsU	S.com	E	urofins 1 (7	17) 556-725	8		
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ITEM	SAMPLE	IDENTIFIER	DATE COLLECTED	TIME COLLECTED	Total Number of Bottles	(8260C) VOCs	(8260C) BTEX	(8260C) BTEXN	(8011) EDB	(6020A/6010C) II (As,Pb,Ca,K,Na,Mg)	(6010C) Dissolved Fe, Mn	(300.0) a, bromide, sulfate	(353.2) Nitrate-Nitrite	(SM2320B) Alkalinity (Total, Carbonate, a Bicarbonate)	(RSK-175) Carbon Dioxide	(RSK-175) Methane					
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		225 Schiling Circle Suite 400 Hunt Valley MD Tel No: (410) 584-7000 Fax No. (410) 771-1625		C	HA	IN	-0	<b>⊢-(</b>	JU	51	ΟL	JΥ	KE	COI			and the same of th		·	and the second second second	OC-2	03-20	)1
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lity	·		Lab PO Number:		erpa 1	7601				TACT: K				r@eurofinsU				1 (717) 5	56-7258		1	(Jan-M	ar) 
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Facility			2425 New Ho	lland Pike Lancas	ter PA	17601		FA	X AND	MAILRI	EPORTS	S/EDD TO: F			smith@e moss@e				QU	ARTER:		
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ST106/SS	S111										•			r@eurofins	JS.com	Е	urofins 1	1 (717) 55	6-7258			
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ITEM	SAMPLE II	DENTIFIER	DATE COLLECTED	TIME COLLECTED	Total Number of Bottles	(8260C) VOCs	(8260C) BTEX	(8260C) BTEXN	(8011) EDB	(6020A/6010C) Total (As,Pb,Ca,K,Na,Mg)	(6010C) Dissolved Fe, Mn	(300.0) Chloride, bromide,	(353.2 Nitrate-N	Alkalinity (Total, Carbonate, a Bicarbonate)	(RSK-175) . Carbon Dioxide	(RSK-175) Methane			C	OMMENTS		,
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		Tel No: (410) 584-7000 Fax No. (410) 771-1625		C	;H/	111	1-C	)   -	CL	JS	ГО	DY	RE	ECO	RC	)			COC	NUMBE	R
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PROJEC ST106/S	CT SITE AND PHASE: SS111		Lab PO Number	: 14800				LA	B CON	TACT: I	Kay How	ver K	ayHowe	r@eurofinsL	IS.com	E	urofins 1 (717) 556	6-7258			
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ITEM	SAMPLE IE	DENTIFIER	DATE COLLECTED	TIME COLLECTED	Total Number of Bottles	(8260C) VOCs	(8260C) BTEX	(8260C) BTEXN	(8011) EDB	(6020A/6010C) Total (As,Pb,Ca,K,Na,Mg)	(6010C) Dissolved Fe, Mn	(300.0) Chloride, bromide, sulfate	(353.2) Nitrate-Nitrite	(SM2320B) Alkalinity (Total, Carbonate, and Bicarbonate)	(RSK-175) Carbon Dioxide	(RSK-175) Methane		CC	DMMENTS		
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ST106/S	CT SITE AND PHASE: SS111		Lab PO Number	: 14800					LA	AB CON	TACT:	Kay How	ver l	KayHow	er@eurofinsL	JS.com	E	urofins 1	(717) 556-	-7258			,
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PROJEC	CT SITE AND PHASE:		Lab PO Number:	14800				LA	B CONT	TACT: K	Kay How	er h	(ayHow	er@eurofins	JS.com	E	urofins 1 (717) 5	556-7258	***********		
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ITEM	SAMPLE I	DENTIFIER	DATE COLLECTED	TIME COLLECTED	Total Number of Bottles	(8260C) VOCs	(8260C) BTEX	(8260C) BTEXN	(8011) EDB	(6020A/6010C) Total (As,Pb,Ca,K,Na,Mg)	(6010C) Dissolved Fe, Mn	(300.0) Chloride, bromide, sulfate	(353.2) Nitrate-Nitrite	Alkalinity (Total, Carbonate, and Bicarbonate)	(RSK-175) Carbon Dioxide	(RSK-175) Methane					
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		225 Schiling Circle Suite			***************************************				-						***************************************	-				-
		400 Hunt Valley MD Tel No: (410) 584-7000		C	HA	III	I-O	F-	CL	JS1	ΓΟΙ	DY	RE	ECOF	RD				C NUMBER	
		Fax No. (410) 771-1625										-						CO	C-209-201	
	CT NAME: d AFB Bulk Fuels	PROJECT NUMBER: 62599DM01		NAME AND CONTACT				FA	X AND	MAIL RE	EPORTS	S/EDD TO:				eaest.co		YEAR:	2020	
Facility		02399DIVIO1		land Pike Lancast		7601		FA	X AND	MAIL RE	EPORTS	S/EDD TO:				est.com		QUARTER:		***************************************
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PROJEC ST106/S	CT SITE AND PHASE: SS111		Lab PO Number	: 14800				LA	B CON	TACT: F	Kay How	er K	ayHowe	er@eurofinsUS	S.com	Eu	urofins 1 (717) 556-72	58		
					AN	ALYS	IS RE	QUIR	ED (S	specify	numb	er of bo	ottles)							-
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ITEM	SAMPLE II	DENITIEIED	DATE COLLECTED	TIME COLLECTED	lumb	(82	(82 B1	(82 BT	E (80	020A As,Pb	(60 solve		(3: itrate	(SM2 Alka , Car	(RSK	(RSk				
HEIVI	SAMPLE	DENTIFIER	DATE COLLECTED	TIME COLLECTED	er of	(8260C) VOCs	(8260C) BTEX	(8260C) BTEXN	(8011) EDB	(6020A/6010C) (As,Pb,Ca,K,Na	10C) d Fe	(300.0) bromide,	(353.2) Nitrate-Nitrite	(SM2320B) Alkalinity I, Carbonate Bicarbonate)	(RSK-175) Carbon Dioxide	(RSK-175) Methane				
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		225 Schiling Circle Suite 400 Hunt Valley MD Tel No: (410) 584-7000 Fax No. (410) 771-1825		C	HA	IN-	OF	C	:U	SI	OL	JΥ	KE	COI	<del>く</del> レ				C	OC-21	16-20	1
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ITEM	SAMPLE	IDENTIFIER	DATE COLLECTED	TIME COLLECTED	Total Number of Bottles	(8260C) VOCs	(8260C) BTEX	(8260C)	(8011)	(6020A/6010C) Total (As,Pb,Ca,K,Na,Mg)	(6010C) Dissolved Fe, Mn	(300.0) Chloride, bromide, sulfate	(353.2) Nitrate-Nitrite	(SM23208) Alkalinity (Total, Carbonate, and Bicarbonate)	(RSK-175) Carbon Dioxide	(RSK-175) Methane						
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		225 Schiling Circle Suite 400 Hunt Valley MD		(	CH/	ΔΙΝ	1-0	F_	CI	IST	$\Gamma$	DY	RF	ECC	RL	)			T	***************************************	COC NU	JMBE	R
l		Tel No: (410) 584-7000 Fax No. (410) 771-1625			J1 17	VII.	•					<u>ا</u> ر	1 / L		/ I \ L	,					COC-2	17-2	01
PROJECT		PROJECT NUMBER:	***************************************	NAME AND CONTA			*******************************	FA	X AND	MAIL R	EPORTS	S/EDD TO	: Tara L		tlamond@			1		YEAR:		AL ASSESSMENT OF	
Kirtland Facility	AFB Bulk Fuels	62599DM01		aster Laborator		17601		-	VAND	MAN D	-0007	S/EDD TO		la Smith:	asmith@e							2020	1
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PROJECT ST106/SS	SITE AND PHASE:		Lab PO Number:	14800	***************************************			LA	B CON	TACT: I	Kay How	er K	KayHowe	er@eurofins	US.com	E	urofins	1 (717) 5	556-7258				***************************************
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ITEM	SAMPLE	IDENTIFIER	DATE COLLECTED	TIME COLLECTE	Number of Bottles	(8260C) VOCs	(8260C) BTEX	(8260C) BTEXN	(8011) EDB	6020A/6010C) (As,Pb,Ca,K,Na,Mg)	(6010C) Dissolved Fe, Mn	(300.0) bromide,	(353.2) Nitrate-Nitrite	Alkalinity al, Carbonate, Bicarbonate)	(RSK-175) Carbon Dioxide (SM2320B)	(RSK-175) Methane							
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	T NAME:	PROJECT NUMBER:	LAROPATORY	NAME AND CONTAC											<b>∵</b> ।`	ヽリ				CO	7-235-	438-20°
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PROJECT ST106/SS1	SITE AND PHASE: 111		Lab PO Number	: 14800			*		AB CON	NTACT:	Kay Hov	ver	KayHow	/er@eurofins	US.com		Eurofins 1 (717	EEC 7050		1 (38	an-Mar)
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		400 Hunt Valley MD Tel No: (410) 584-7000 Fax No. (410) 771-1825		C		III	-0	Γ-(	JU	ا ت	Oi	JI	Ur-		<b>\</b> D				236-436-201
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	I AFB Bulk Fuels	62599DM01	Eurofins Lanc 2425 New Holl	aster Laboratories and Pike Lancaste	s er PA 1	7601		FA	K AND N	MAIL RE	PORTS	/EDD TO:			oss@ea		EA	QUARTER:	1 (Jan-Mar)
PROJEC ST106/S	T SITE AND PHASE: S111	;	Lab PO Number:	14800						ACT: K				r@eurofinsU	S.com	Eu	rofins 1 (717) 556-72	258	
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ITEM	SAMPLE	IDENTIFIER	DATE COLLECTED	TIME COLLECTED	Total Number of Bottles	(8260C) VOCs	(8260C) BTEX	(8260C) BTEXN	(8011) EDB	(6020A/6010C) Total (As,Pb,Ca,K,Na,Mg)	(6010C) Dissolved Fe, Mn	(300.0) Chloride, bromide, sulfate	(353.2) <sup>-</sup> Nitrate-Nitrite	(SM2320B) Alkalinity (Total, Carbonate, and Bicarbonate)	(RSK-175) Carbon Dioxide	(RSK-175) Methane			
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		Tel No: (410) 584-7000 Fax No. (410) 771-1625		Ç	ПР	VII N	-0	- \		O I	O.	ノ i	1 <b>\</b> L		\D				-236-470	-201
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tland A cility	FB Bulk Fuels	62599DM01		aster Laboratories and Pike Lancaste		7601		FAX	( AND I	MAIL RE	PORTS	EDD TO:			oss@ea	est.com	EA	QUARTER:	1 (Jan-N	∕lar)
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PROJEC ST106/S	CT SITE AND PHASE: SS111		Lab PO Number	: 14800	***********	· · · · · · · · · · · · · · · · · · ·		L.A	B CON	TACT: I	Kay How	er K	ayHow	er@euro	finsUS	S.com	E	Eurofins 1 (717) 5	56-7258		***	Marie Control of the
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		400 Hunt Valley MD Tel No: (410) 584-7000		C	ΠA	III	<b>-</b> U	r-(	U	01	UL	ノ「			/ I \ L	J			C	OC-24	41-428	3-201
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Plea	se run MS/MSD	I, EDB, Total As a	nd Pb, and dis	ssolved Mn a	nd Fe	<b>;</b>																
1	)3/D1 L/(() 1 L/(()																/					
Diag	se combine thes	e 2 sample	s into one SD	G and invoice	e SD	3 to 6	3259	9DM	01.10	017.4	1.14	1	. Sa	mple	6	of	6			٦	ГВ201-	21
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		225 Schiling Circle Suite 400 Hunt Valley MD Tel No: (410) 584-7000		C	H	AIN	J-C	)F_	CI	15	$\Gamma \cap$	ΠV	R	ECO	Dr	<b>)</b>			T	COC NU	MBER	
PRÓJEC	CT NAME:	Fax No. (410) 771-1625 PROJECT NUMBER:	LABORATO			***	• •				•				ı /L	,			CC	C-242-		ŊΊ
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PROJEC ST106/SS	T SITE AND PHASE:		Lab PO Number:	14800				1.4	R CON	TACTL	Kay How		d. 41		************				-	" 1 (J	an-Mai	)
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ITEM	SAMPLE ID	ENTIFIER	DATE COLLECTED	TIME COLLECTED	Total Number of Bottles	(8260C) VOCs	(8260C) BTEX	(8260C) BTEXN	(8011) EDB	(6020A/6010C) Total (As,Pb,Ca,K,Na,Mg)	(6010C) Dissolved Fe, Mn	(300.0) Chloride, bromide, sulfate	(353.2) Nitrate-Nitrite	(SM23208) Alkalinity (Total, Carbonate, and Bicarbonate)	(RSK-175) Carbon Dioxide	(RSK-175) Methane			COMME	NTS		eta/romanya
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PROJEC ST106/S	T SITE AND PHASE: S111		Lab PO Number	: 14800		***************************************		LA	B CON	ITACT:	Kay Hov	ver k	KayHow	er@eurofinsl	JS.com	Fur	ofins 1 (71)	7) 556-7250		(Jan-	viai)
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		Tel No: (410) 584-7000 Fax No. (410) 771-1625		C	,IT/	111	1-0	<b>/</b>	U	JS	I U	υY	K	ECO	RL	)				-244-4	
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PROJE ST106/	CT SITE AND PHASE: SS111		Lab PO Number	: 14800				LA	B CON	NTACT:	Kay How	er k	ayHow	er@eurofinsl	JS.com	E	rofins '	(717) 556-72	258		
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ITEM	SAMPLE II	DENTIFIER	DATE COLLECTED	TIME COLLECTED	Total Number of Bottles	(8260C) VOCs	(8260C) BTEX	(8260C) BTEXN	(8011) EDB	(6020A/6010C) Total (As,Pb,Ca,K,Na,Mg)	(6010C) Dissolved Fe, Mn	(300.0) Chloride, bromide, sulfate	(353.2) Nitrate-Nitrite	(SM2320B) Alkalinity (Total, Carbonate, and Bicarbonate)	(RSK-175) Carbon Dioxide	(RSK-175) Methane			COMMENT	S	
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		Tel No: (410) 584-7000 Fax No. (410) 771-1625				***				, ,		<u> </u>			<u> </u>	\ <b></b>					COC	-247-4	50-201
I .	CT NAME: nd AFB Bulk Fuels	PROJECT NUMBER: 62735DM02		NAME AND CONTAC caster Laboratorie				FA	AX AND	MAIL RI	EPORTS	S/EDD TO		_amond: da Smith		_	eaest.com			YE/	AR:	20	020
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		400 Hunt Valley MD Tel No: (410) 584-7000 Fax No. (410) 771-1625			CH	411	<b>1-C</b>	)F-	CL	JS <sup>-</sup>	ΓΟ	DY	R	ECO	RI	)			C	OC NUMBER
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		225 Schiling Circle Suite 400 Hunt Valley MD			, H V	INI	_OF	=_(	CUS.	TOI	DV	DE	$\sim$	DD	1				COC	NUMBE	R
		Tel No: (410) 584-7000 Fax No. (410) 771-1625			/1 1/-	111 A	-01	-(				1 11	_00		'			(	COC-S	7-451	-201
	CT NAME:	PROJECT NUMBER: 62735DM02	tenanum tenan	AME AND CONTACT				FAX	AND MAIL F	EPORTS				_	eaest.com	m EA EA		YEAR:		2020	)
Facility		02733DW02		land Pike Lancast		7601		FAX	AND MAIL F	EPORTS		***			est.com	EA		QUAR	TER:	1 (Jan-l	Mar)
PROJEC ST106/S	OT SITE AND PHASE:	-	New PO					LAB	CONTACT:	Kay How	er K	ayHowe	r@eurofinsU	S.com	Eu	rofins 1	(717) 556-7	258			
					AN	ALYSI	S REQ	UIRE	D (Specif	y numb	er of bo	ottles)									
ITEM	SAMPLE II	DENTIFIER	DATE COLLECTED	TIME COLLECTED	Total Number of	(8260C) VOCs	(8260C) BTEX	(8260C)	Total (As,Pb,Ca,K,Na (8011) EDB	(6010C) Dissolved Fe	(300.0) Chloride, bromide,	(353.2) Nitrate-Nitrite	(SM2320B) Alkalinity (Total, Carbonate, Bicarbonate)	(RSK-175) Carbon Dioxide	(RSK-175) Methane			СОМ	MENTS		
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	Pleters	o low Say	get ED	Band	BT	EX	fre	m	rea	lvce	ed	Ali	guot		·						
Pleas	se combine these	5 samples	into one SD0	3 and invoice	SDG	6 to 62	2735E	OMO	2.1017,	05	Sa	ample	7	of	9					B201-	32
SAMPLE	ER(S): Pet Fr	man to	yllan	Roblis	50			CO	URIER AND	SHIPPIN	G NUMBE	R: Fe	edEx	814	3	320	5 23	13			
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		Tel No: (410) 584-7000 Fax No. (410) 771-1625		C	/1 1/	/11 /	ı-O	1		,	O.	<i>)</i>	1 1	_00	1 \L	•				COC	S8-45	1-201
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Facility			2425 New Hol	land Pike Lancas	ter PA 1	17601		FAX	X AND I	MAIL RE	PORTS	/EDD TO	: Pam N	Aoss: pi	noss@e	aest.com	n EA		Q	JARTER:	1 (Jar	ı-Mar)
PROJEC ST106/S	T SITE AND PHASE: S111		New PO					LA	3 CONT	ract: K	ay Howe	er K	CayHowe	er@eurofinsl	JS.com	E	urofins	1 (717) 5	56-7258		the other manufacture and the public	
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		400 Hunt Valley MD Tel No: (410) 584-7000		C	HF	III	-0	<b> (</b>		51	OL	זע			\D			CO	C-S9-447	-201
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Kirtland Facility	d AFB Bulk Fuels	62735DM02		aster Laboratorie land Pike Lancast		17601		FAX	X AND N	MAIL RE	PORTS	EDD TO:			noss@ea	-		QUARTER	1 (Jan-	Mar)
	CT SITE AND PHASE:		New PO					LA	B CONT	ACT: K	ay Howe	er Ka	ayHower	r@eurofinsU	S.com	Е	urofins 1 (717) 556-72	258		
ST106/S	S111				AN	ALYS	IS RE	QUIR	ED(S	pecify	numb	er of bo	ttles)							,
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ITEM	SAMPLE I	DENTIFIER	DATE COLLECTED	TIME COLLECTED	Total Number of Bottles	(8260C) VOCs	(8260C) BTEX	(8260C) BTEXN	(8011) EDB	(6020A/6010C) Total (As,Pb,Ca,K,Na,Mg)	(6010C) Dissolved Fe, Mn	(300.0) Chloride, bromide, sulfate	(353.2) Nitrate-Nitrite	(SM2320B) Alkalinity (Total, Carbonate, and Bicarbonate)	(RSK-175) Carbon Dioxide	(RSK-175) Methane				
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	CT NAME:	PROJECT NUMBER:		NAME AND CONTACT		-		FAX	X AND I	MAIL RE	PORTS	EDD TO:	Tara La		mond@eaest.com EA mith@eaest.com EA	YEAR:	2020	
Kirtlan Facility	d AFB Bulk Fuels	62599DM01		aster Laboratories land Pike Lancast		7601		FAX	X AND	MAIL RE	PORTS	EDD TO:	-		noss@eaest.com EA	QUARTER:	1	
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PHASE	ST106/SS111		14800		AN	ALYS	IS RE	QUIR	ED (S	Specify	numb	er of bo	ottles)					
ITEM	SAMPLE I	DENTIFIER	DATE COLLECTED	TIME COLLECTED	Total Number of Bottles	(8260C) VOCs		(8260C) BTEXN	(8011) EDB	(60) Total As	(6010C) Dissolved Fe, Mn	(300.0) Chloride, bromide, sulfate	Z.	(SM2320B) Alkalinity (Total, Carbonate, and Bicarbonate)	со	MMENTS		
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PROJECT N	JAME:	Fax No. (410) 771-1625 PROJECT NUMBER:	LABORITORIA			***********												COC-TE	8201- AL
Kirtland A	FB Bulk Fuels	62599DM01	Eurofins Land	NAME AND CONTAC	s	-		F	AX ANI	D MAIL F	REPORT	S/EDD TO			lamond@eaest.cor			YEAR:	
Facility			2425 New Ho	lland Pike Lancas	ter PA	17601		F	AX ANI	MAIL F	EPORT	S/EDD TO	D: Pam I	laSmith: a ∕loss: p	smith@eaest.com moss@eaest.com	EA EA		202 QUARTER:	20
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ITEM	SAMPLE II	DENTIFIER	DATE COLLECTED	TIME COLLECTED	Total Number of Bottles	(8260C) VOCs	(8260C) BTEX	(8260C) BTEXN	EDB	(6020A/6010C) Total As,Pb,Ca,K,Na,Mg	(6010C) Dissolved Fe, Mn	(300.0) Chloride, bromide, sulfate	(353.2) Nitrate-Nitrite	(SMZ3Z0B) Alkalinity (Total, Carbonate, and Bicarbonate)	COLORODA		COMM	ENTS	
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PROJEC Kirtland Facility	I AFB Bulk Fuels	PROJECT NUMBER: 62599DM01	Eurofins Land	NAME AND CONTAC caster Laboratorie land Pike Lancas	es	17601	***************************************		-			S/EDD TO	Amand	la Smith: a	lamond@e smith@eae moss@eae	est.com E	EA EA		COC YEAR: QUARTER:	2020	1-02
PROJEC PHASE:	T SITE AND ST106/SS111		LAB PO NUMBE	R:		************		LA	B CON	TACT:	Kay Ho	wer	KayHov	ver@eurofin	sUS.com	Eurofin	ns 1 (71)	7) 556-7258		1	
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		Tel No: (410) 584-7000 Fax No. (410) 771-1625				***											COC-TB20	1-03
	NAME: AFB Bulk Fuels	PROJECT NUMBER: 62599DM01	Eurofins Land	NAME AND CONTAC caster Laboratorie	s			FA	X AND	MAIL RI	EPORTS	S/EDD TO			amond@eaest.com EA smith@eaest.com EA	YEA		
Facility			2425 New Hol	land Pike Lancasi	ter PA	17601		FA	X AND	MAIL RI	EPORTS	EDD TO			moss@eaest.com EA		ARTER:	,
PROJECT PHASE: S	SITE AND ST106/SS111		LAB PO NUMBE	R:		***************************************	***************************************	LA	B CON	TACT:	Kay Ho	wer	KayHov	ver@eurofins	sUS.com Eurofins	1 (717) 556-7258	<b></b>	The Print of the State of the S
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ITEM	SAMPLE I	DENTIFIER	DATE COLLECTED	TIME COLLECTED	Total Number of Bottles	(8260C) VOCs	(8260C) BTEX	(8260C) BTEXN	(8011) EDB	(6020A/6010C) Total As,Pb,Ca,K,Na,Mg	(6010C) Dissolved Fe, Mn	(300.0) Chloride, bromide, sulfate	(353.2) Nitrate-Nitrite	(SINIZSZOB) Alkalinity (Total, Carbonate, and Bicarbonate)	(Accepted)	COMMEN	TS	
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PPO IE	CT NAME:	Fax No. (410) 771-1625														COC-TB20	1-84
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Facility	У		2425 New Hol	land Pike Lancas	ter PA	17601		FA	X AND	MAIL R	EPORTS	S/EDD TO	Amand Pam I	la Smith; a Vloss; p	smith@eaest.com EA moss@eaest.com EA	QUARTER:	
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	T SITE AND ST106/SS111		LAB PO NUMBE	ER:				L/	AB CON	TACT:	Kay Ho	wer	KavHo	ver@eurofin	olic see	1	
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225 Schiling Circle Suite 400 Hunt Valley MD

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# United States Department of the Interior

U. S. GEOLOGICAL SURVEY New Mexico Water Science Center Albuquerque, New Mexico 87110

#### MEMORANDUM FOR RECORD

April 28, 2020

Attention: Cynthia Cash, AFCEC

Through: Kimberly Beisner, Water Quality Specialist, NMWSC

Stuart Norton, Supervisory Hydrologist, NMWSC

From: Kate Wilkins, Hydrologic Technician, NMWSC

Subject: Quarterly Organic Data Transmittal for Kirtland Air Force Base (KAFB) Bulk Fuels

Facility (BFF) Ethylene Dibromide (EDB) Plume Sentinel Wells for the January

2020 to March 2020 Quarter.

The USGS installed sentinel wells downgradient of the KAFB BFF EDB plume and upgradient from community water-supply wells, as a means of providing independent observation of water quality in the vicinity of community water-supply wells. Samples are collected from the sentinel wells on a quarterly basis in accordance with the USGS fundamental science practices. This memorandum provides a summary of organic data results for the USGS KAFB BFF EDB plume Sentinel Wells (Figure 1, Table 1). Laboratory analytical results for the quarter from January 2020 through March 2020 are presented in Table 2.

### Site Descriptions

All the sentinel well sites (Figure 1, Table 1) are located in urban areas. The Trumbull well nest is located in a parking lot at the intersection of Trumbull Avenue SE and Mesilla Street SE. The surrounding neighborhood has a lot of vehicle traffic. The Cesar Chavez well nest is located behind the Cesar E. Chavez Community Center, and the site is separated from vehicle traffic. The Southern well nest is located east of Phil Chacon Park, and the site is generally separated from vehicle traffic. The VA well nest is located next to Randolph Road SE, which has a lot of vehicle traffic.

## Sampling Period

Samplers were deployed between October 7, 2019 and October 10, 2019. Environmental samples were collected between January 6, 2020 and January 9, 2020.

## **Sampling Protocols**

Samples were collected using dual membrane diffusion samplers following USGS sampling protocols outlined in the National Field Manual for the collection of water-quality data (U.S. Geological Survey, variously dated). The quality assurance samples collected include a source solution blank, trip blank, field blanks, equipment blank, matrix spike and replicate.

## Sample Analysis

To improve data quality, ensure timely delivery of the data and improve quality assurance documentation, in November 2018, USGS began using the USGS National Water Quality Laboratory (NWQL) for organic compounds analyses. All samples collected quarterly at the USGS KAFB EDB sentinel wells are being analyzed by the NWQL. Organic compound analysis is completed by NWQL using method O-4127-96 (Connor and others, 1998). Effective October 1, 2019, laboratory reporting thresholds were modified to reflect detection limits of EPA Method SW8260C and EPA Method SW8011. The method is approved to be in conformance with the National Environmental Laboratory Accreditation Program (NELAP).

## **Data Review**

The data presented herein have been reviewed and approved by USGS staff, as outlined in the work plan (Travis, 2017). Results are reported in Table 2. No detections were found in the environmental samples. The data reviewed within this memorandum were in accordance with the quality assurance requirements outlined in the work plan.

The data are publicly available via NWIS at https://waterdata.usgs.gov/nwis/. If you have any questions regarding the data, please feel free to contact me at 505-830-7946 or klwilkins@usgs.gov.

Sincerely,



Kate Wilkins Project Chief Hydrologic Technician USGS New Mexico Water Science Center

cc: Sheen Kottkamp, AFCEC
Ben Moayyad, USACE
Bernard Bockisch, EA Engineering
Stuart Norton, USGS
Kimberly Beisner, USGS
Michael Johnson, USGS

### References:

Connor, B.F., Rose, D.L., Noriega, M.C., Murtagh, L.K., and Abney, S.R., 1998, Methods of analysis by the U.S. Geological Survey National Water Quality Laboratory--Determination of 86 volatile organic compounds in water by gas chromatography/mass spectrometry, including detections less than reporting limits: U.S. Geological Survey Open-File Report 97-829, 78 p.

Travis, R., 2017, Work Plan For The Quarterly Sampling of the Kirtland Air Force Base Bulk Fuels Facility Plume Sentinel Wells. 31 p.

U.S. Geological Survey, variously dated, National field manual for the collection of water-quality data: U.S. Geological Survey Techniques of Water-Resources Investigations, book 9, chaps. A1-A10, available online at http://pubs.water.usgs.gov/twri9A.

Figure 1: Location of Kirtland Air Force Base Bulk Fuels Facility, USGS sentinel wells, and community water supply wells, Albuquerque and Kirtland Air Force Base, New Mexico.

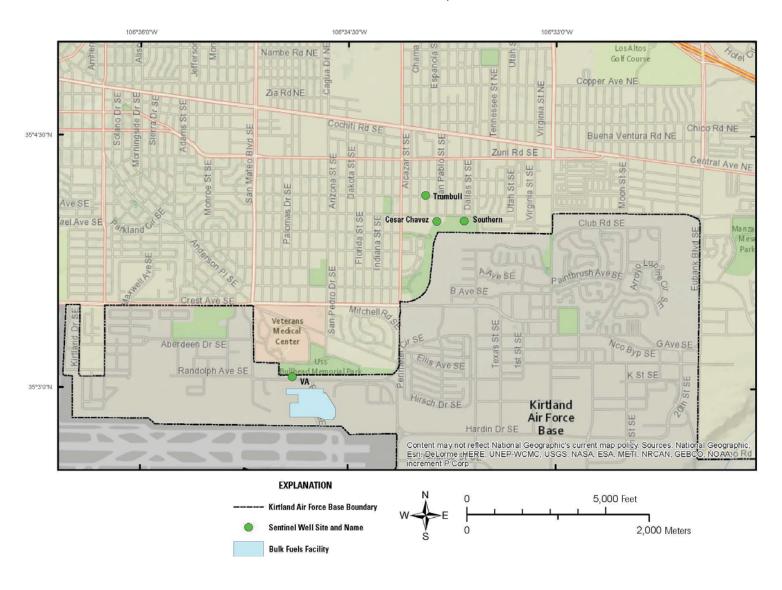


Table 1: Sentinel Well Site Information

Table 1. Schille	I Well Site information	1	1	1	T
Site Identification Number	Station Name	Construction Completion Date	Well Depth (feet below land surface (bls))	Well Diameter (inches)	Screened Interval (feet bls)
Cesar Chavez Sentir	nel Wells				
350359106335201	10N.04E.30.134A CESAR CHAVEZ SENTINEL WELL 1A	11/20/2014	519	2.5	459 - 509
350359106335202	10N.04E.30.134B CESAR CHAVEZ SENTINEL WELL 1B	10/28/2014	620	2.5	580 - 600
350359106335203	10N.04E.30.134C CESAR CHAVEZ SENTINEL WELL 1C	10/28/2014	1,040	2.5	1,000 - 1,020
350359106335204	10N.04E.30.134D CESAR CHAVEZ SENTINEL WELL 1D	10/28/2014	1,338	2.5	1,298 - 1,318
Southern Sentinel V	Vells .				
350359106333901	10N.04E.30.144A SOUTHERN SENTINEL WELL 1A	12/11/2014	538	2.5	468 - 518
350359106333902	10N.04E.30.144B SOUTHERN SENTINEL WELL 1B	3/22/2015	610	2.5	570 - 590
350359106333903	10N.04E.30.144C SOUTHERN SENTINEL WELL 1C	3/22/2015	1,090	2.5	1,050 - 1,070
350359106333904	10N.04E.30.144D SOUTHERN SENTINEL WELL 1D	3/22/2015	1,400	2.5	1,360 - 1,380
Trumbull Sentinel W	/ells				
350408106335601	10N.04E.30.1243A TRUMBULL- NEST-1A	4/18/2013	522	2.5	437 - 467; 467 - 517
350408106335602	10N.04E.30.1243B TRUMBULL- NEST-1B	4/18/2013	1,018	2.5	998 - 1,008
350408106335603	10N.04E.30.1243B TRUMBULL- NEST-1C	4/18/2013	1,432	2.5	1,412 - 1,422
VA Sentinel Wells			•		
350304106345401	10N.03E.36.1433A T10N.R03E.S36.1433A Shallow VA Sentinel Well	4/26/2016	660	3	620 -640
350304106345402	10N.03E.36.1433B T10N.R03E.S36.1433A Middle VA Sentinel Well	4/26/2016	860	3	820 - 840
350304106345403	10N.03E.36.1433C T10N.R03E.S36.1433A Deep VA Sentinel Well	4/26/2016	1,040	3	1,000 - 1,020

Table 2
Groundwater Analytical Results for Sentinel Wells, January - March 2020

			Gro	oundwater A	Analytical Re	sults for	Sentinel \	Wells, Ja	nuary - M	arch 2020							
					Site Name:	Cesar Chavez 1A Cesar Chavez 1B			Cesar Chavez 1C			Cesar Chavez 1D					
				Station Identification:		350359106335201 35035910633520		202	350359106335203		203	350359106335204					
				Sample Date:		0			01/07/2020 1200		00	01/07/2020 1300		600	01/07/2020 1100		
				Sample Type:			Environmenta	al		Environmenta	al	Environmental		al	Environmental		
				Sample [	Depth (ft bgs):		496			591			1002			1303	
			Site Elev	ation (ft abo	ove sea level):		5350.33			5350.23			5350.23			5350.23	
			NMAC		Project Screening												
Parameter	Analytical Method	Analyte	NMWQCC <sup>a</sup>	EPA MCLb	Level <sup>c</sup>	Result	Val Qual	MRL	Result	Val Qual	MRL	Result	Val Qual	MRL	Result	Val Qual	MRL
EDB	USGS Method	1,2-dibromoethane <sup>d</sup>	0.1	0.05	0.05	<0.028	U	0.028	<0.028	U	0.028	<0.028	U	0.028	<0.028	U	0.028
VOCs	O-4127-96 (µg/L)	Benzene	10	5	5	<0.6	U	0.60	<0.6	U	0.60	<0.6	U	0.60	<0.6	U	0.60
		Ethylbenzene	750	700	700	<0.6	U	0.60	<0.6	U	0.60	<0.6	U	0.60	<0.6	U	0.60
		Naphthalene	30	NS	30	<0.6	U	0.60	<0.6	U	0.60	<0.6	U	0.60	<0.6	U	0.60
		Toluene	750	1,000	750	<0.6	U	0.60	<0.6	U	0.60	<0.6	U	0.60	<0.6	U	0.60
		Total Xylenes	620	10,000	620	<1.8	U	1.8	<1.8	U	1.8	<1.8	U	1.8	<1.8	U	1.8
				04-41	Site Name:		Southern 1A		25	Southern 1E			Southern 10			Southern 1D	
				Statio	n Identification:	1	0359106333		+	0359106333		1	0359106333			0359106333	
					Sample Date:		1/08/2020 14 Environmenta			1/08/2020 13 Environmenta			1/08/2020 12 Environmenta		1	1/08/2020 11	
				Comple	Sample Type: Depth (ft bgs):		506	aı	<u> </u>	580	11		1062	aı	-	Environmenta 1370	<u>al</u>
			Sito F		bove sea level):	i e	5363.20			5363.10			5363.10			5363.10	
		T	Site L		Project		3303.20		+	3303.10			3303.10			3303.10	
Baramatar	Analytical Mathod	Analyta	NMAC NMWQCC <sup>a</sup>	EPA MCL <sup>b</sup>	Screening Level <sup>c</sup>	Popult	Val Qual	MRL	Result	Val Qual	MRL	Popult	Val Qual	MRL	Result	Val Qual	MRL
Parameter EDB	Analytical Method USGS Method	Analyte		+		Result	<del> </del>	0.028			0.028	Result	<del> </del>	0.028	ì	+	0.028
VOCs	O-4127-96 (µg/L)	1,2-dibromoethane <sup>d</sup> Benzene	0.1	0.05	0.05	<0.028	U	0.60	<0.028	U	0.028	<0.028	U	0.028	<0.028	U	0.60
VOCS	Ο 1127 00 (μg/L)	Ethylbenzene	750	5 700	5 700	<0.6 <0.6	U	0.60	<0.6 <0.6	U	0.60	<0.6 <0.6	U	0.60	<0.6 <0.6	U	0.60
		Naphthalene	30	NS	30	<0.6	U	0.60	<0.6	U	0.60	<0.6	U	0.60	<0.6	U	0.60
		Toluene	750	1,000	750	<0.6	U	0.60	<0.6	U	0.60	<0.6	U	0.60	<0.6	U	0.60
		Total Xylenes	620	10,000	620	<1.8	U	1.8	<1.8	U	1.8	<1.8	U	1.8	<1.8	U	1.8
		Trotal Ayloneo	020	10,000	Site Name:		Trumbull 1A	ı	11.0	Trumbull 1B		•	Trumbull 1C		]		
				Statio	n Identification:	35	0408106335	601	35	0408106335	602	35	0408106335	603			
					Sample Date:	0	1/06/2020 13	300	0.	1/06/2020 12	00	0.	1/06/2020 11	00	]		
					Sample Type:		Environmenta	al	I	Environmenta	al	I	Environment	al			
				Sample	Depth (ft bgs):		484			1000			1414		]		
			Site E	levation (ft al	bove sea level):		5337.76			5337.76			5337.76		]		
			NMAC		Project Screening												
Parameter	Analytical Method	Analyte	NMWQCC <sup>a</sup>	EPA MCL <sup>b</sup>	Level <sup>c</sup>	Result	Val Qual	MRL	Result	Val Qual	MRL	Result	Val Qual	MRL	1		
	LICCO Mathael	I	1	1	1	1		0.000	1	1	0 000	1	1	0.000	1		

USGS Method

O-4127-96 (µg/L)

1,2-dibromoethaned

Benzene

Toluene

Ethylbenzene

Naphthalene

Total Xylenes

0.1

10

750

30

750

620

0.05

5

700

NS

1,000

10,000

0.05

5

700

30

750

620

<0.028

<0.6

<0.6

<0.6

<0.6

<1.8

EDB

VOCs

0.028

0.60

0.60

0.60

0.60

1.8

<0.028

<0.6

<0.6

<0.6

<0.6

<1.8

U

U

U

U

U

U

USGS Sentinel Well Data, January 6-9, 2020

0.028

0.60

0.60

0.60

0.60

1.8

<0.028

<0.6

<0.6

< 0.6

<0.6

<1.8

U

U

U

U

U

0.028

0.60

0.60

0.60

0.60

1.8

U

U

U

U

U

Table 2
Groundwater Analytical Results for Sentinel Wells, January - March 2020

**VA Shallow** 

VA Middle

VA Deep

			Station Identification:		350304106345401		350304106345402		350304106345403		403			
			Sample Date:		01/09/2020 1300		01/09/2020 1200		00	01/09/2020 1100		00		
			Sample Type:		Environmental			Environmental			Environmental		al	
			Sample Depth (ft bgs):		622			820			1000			
			Site E	levation (ft ab	ove sea level):	5340.668		5340.668			5340.668			
			NMAC		Project Screening									
Parameter	<b>Analytical Method</b>	Analyte	NMWQCC <sup>a</sup>	EPA MCLb	Level <sup>c</sup>	Result	Val Qual	MRL	Result	Val Qual	MRL	Result	Val Qual	MRL
EDB	USGS Method	1,2-dibromoethane <sup>d</sup>	0.1	0.05	0.05	<0.028	U	0.028	<0.028	U	0.028	<0.028	U	0.028
VOCs	O-4127-96 (µg/L)	Benzene	10	5	5	<0.6	U	0.60	<0.6	U	0.60	<0.6	U	0.60
		Ethylbenzene	750	700	700	<0.6	U	0.60	<0.6	U	0.60	<0.6	U	0.60
		Naphthalene	30	NS	30	<0.6	U	0.60	<0.6	U	0.60	<0.6	U	0.60
		Toluene	750	1,000	750	<0.6	U	0.60	<0.6	U	0.60	<0.6	U	0.60
		Total Xylenes	620	10,000	620	<1.8	U	1.8	<1.8	U	1.8	<1.8	U	1.8

Site Name:

μg/L = microgram per liter

bgs = below-ground surface

CFR = Code of Federal Regulations

EDB = ethylene dibromide (1,2-dibromoethane)

EPA = U.S. Environmental Protection Agency

ft = foot/feet

MCL = maximum contaminant level

MRL = USGS National Water Quality Laboratory Method Reporting Level

MDL = USGS National Water Quality Laboratory Method Detection Limit

NMAC = New Mexico Administrative Code

NMWQCC = New Mexico Water Quality Control Commission

Val Qual = validation qualifier

VOC = volatile organic compound

#### Results:

< = less than the limit of quantification (numerical result)

### Qualifiers:

Val Quals based on criteria set by NWQL.

U = A result that is either not detected or below the Method Detection Level.

## References:

New Mexico Administrative Code. 2004. State of New Mexico, Title 20.6.2 Ground and Surface Water Protection.

<sup>&</sup>lt;sup>a</sup> NMWQCC numeric standards per the NMAC Title 20.6.2.3101A, Standards for Ground Water of 10,000 mg/L Total Dissolved Solids Concentration or Less (NMAC 2004).

<sup>&</sup>lt;sup>b</sup> EPA National Primary Drinking Water Regulations, MCLs and Secondary MCLs, Title 40CFR Part 141, 143 (May 2009).

<sup>&</sup>lt;sup>c</sup> The project screening level was selected to satisfy the requirements of the Kirtland AFB Hazardous Waste Permit Number NM9570024423 as the lowest of (1) NMWQCC numeric standard or (2) EPA MCL.

<sup>&</sup>lt;sup>d</sup> 1,2-dibromoethane is reported as a MDL based on NELAP certification. The MDL for 1,2-dibromoethane is 0.014 μg/L.

# **APPENDIX E-6**

**Explanations from Previous Reports** 

# LIST OF ACRONYMS AND ABBREVIATIONS

% percent

μg/L micrograms per liter

AFB Air Force Base

amsl above mean sea level

BFF Bulk Fuels Facility

BTEX benzene, toluene, ethylbenzene, and total xylenes

DMS dual-membrane sampler

DO dissolved oxygen

EDB ethylene dibromide

GWM groundwater monitoring GWTS groundwater treatment system

mg/L milligrams per liter

PSL project screening limit

Q1 first quarter of the year (January 1 through March 31)
Q2 second quarter of the year (April 1 through June 30)

Q4 fourth quarter of the year (September 1 through December 31)

REI reference elevation interval RPD relative percent different

SE southeast

VA Veteran's Affairs

# 1. EXPLANATION OF REFERENCE ELEVATION INTERVAL DESIGNATIONS

The following text was initially provided in the Fourth Quarter (Q4) 2016 Quarterly and Annual Report (Kirtland Air Force Base [AFB], 2017a):

In previous reports, the distribution of groundwater contamination had been described in terms of shallow, intermediate, and deep intervals within the ethylene dibromide (EDB) plume. These intervals were broadly defined by permeable zones in which EDB migration had been identified, and these intervals have been used to guide the vertical design of monitoring wells. However, with the implementation of the groundwater treatment system (GWTS) interim measure north of Ridgecrest Drive, Southeast (SE), combined with the anticipated continuing water table rebound of approximately 2 feet per year for the next decade, these definitions of shallow, intermediate, and deep become problematic. Not all contamination will move upward with the rising water table; therefore, the base of the deep zone is expected to remain somewhat fixed. In addition, as the water table rises, the plume is expected to increase in thickness over time and impact a shallower layer of the aquifer that is not present today. For these reasons, the continued use of shallow, intermediate, and deep nomenclature will be inadequate to accurately describe changing vertical plume concentrations and changes in the plume related to the GWTS operation.

To assess performance of the GWTS, particularly regarding plume capture and plume collapse, several methods of analysis that compare variations in groundwater flow paths and contaminant concentration trends will be employed both horizontally and vertically. Horizontally, visualizing how concentrations vary in map view, from upgradient to downgradient, around Bullhead Park and the Veteran's Affairs (VA) Medical Center, has not changed as these features are fixed. However, in the vertical dimension, shallow, intermediate, and deep are changing with time and are not fixed. Therefore, to fix these layers to accommodate consistent performance analysis in the vertical dimension, and to provide for future addition of new layers (i.e., a shallower zone) as the water table rises, the concept of reference elevation interval (REI) is introduced in this Report. In concept, what were once the deep, intermediate, or shallow zones will now be represented as layers in cake (e.g., with a bottom elevation and a top elevation). Because of the nature of the permeable zones, the bottom and top undulate somewhat rather than being perfectly flat; however, the plume can still be visualized in terms of these layers. As the water table rises, layers can be added to the top. Because these fixed layers are defined, vertical water levels and vertical contaminant concentrations can be compared over time and always to the same references. This will allow meaningful analysis of trends that demonstrate plume capture and collapse with consistent reference points. The three REIs are 4857, 4838, and 4814, corresponding to the historically identified shallow, intermediate, and deep zones, respectively. Table 3-4 includes the REI assignations for the groundwater monitoring (GWM) network.

The association of the former groundwater zones and REIs relative to the depth of well screen intervals within the GWM network is summarized below:

• *REI 4857* is currently the uppermost interval so named because the GWM wells comprising this dataset are screened across the elevation of 4,857 feet above mean sea level (amsl). Data collected or measured from these GWM wells are representative of the hydrogeologic conditions of this zone that is bounded on top by the water table surface and bounded on the bottom by a surface that intercepts the bottom of the REI 4857 well screens. The screen elevations for the GWM wells within this dataset range from 4,879 feet amsl down to 4,827 feet amsl, and include all wells formerly categorized as shallow, and two new GWM wells completed in December 2016 (KAFB-106235-463 and KAFB-106236-461). These two new wells were not sampled in Q4

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Quarterly and Annual Report – October-December 2019

March 2020

- 2016. A total of 62 wells comprise this dataset, eight of which are included in both the REI 4857 and REI 4838 datasets: KAFB-106001, KAFB-106015, KAFB-106017, KAFB-106018, KAFB-106019, KAFB-106021, KAFB-106022, and KAFB-106025. The reason for this double assignation is due to well screen construction lengths (25-30 feet) and, thus, overlapping screen intervals in REI 4838 by more than 5 feet. This means that samples collected from these eight wells are representative of REI 4857, and are also representative of at least a third of REI 4838. Of note, a majority of the REI 4857 wells were designed to be water table wells with partially submerged screens, having relatively long screen lengths ranging from 20 to 30 feet. However, due to rising groundwater elevations, only 14 GWM wells included in REI 4857 remained with partially submerged screens as of Q4 2016.
- **REI 4838** directly underlies REI 4857 and is so named because all but one of the screens of the GWM wells comprising this dataset are screened across the elevation of 4,838 feet amsl. Data collected or measured from these GWM wells are representative of the hydrogeologic conditions of this zone that is bounded on top by the bottom surface of REI 4857 and bounded on the bottom by a surface that intercepts the mid-point between the REI 4838 screens and the underlying REI 4814 screens. The screen elevations for the GWM wells within this dataset range from 4,848 feet amsl down to 4,800 feet amsl, and includes all but two of the wells previously categorized as intermediate; the exceptions are GWM wells KAFB-106230 and KAFB-106232, which are now included in the REI 4814 dataset due to the depth of their screens. Eight wells are included in both in REI 4857 and REI 4838 datasets, as discussed above. The REI 4838 GWM well dataset contains one anomalous well assignment (KAFB-106037). This well, having a screened elevation between 4,815 and 4,800 feet amsl, was previously assigned as a deep well. However, it is part of the only clustered well group having four wells (all other have either two or three). Having three REIs meant excluding one well from this system in the capture analyses. KAFB-106037 was chosen over KAFB-106036 because analysis of historical groundwater level measurements from this clustered well group showed that it was in better communication with the nearby interim measure extraction well KAFB-106228. KAFB-106037 was placed in REI 4838 because the deepest well in the clustered well group (KAFB-106212) is screened below extraction well KAFB-106228, which necessitated its inclusion in the underlying REI 4814. A total of 46 GWM wells are included in REI 4838.
- *REI 4814* directly underlies REI 4838 and currently represents the lowest elevation dataset. This dataset includes all but one well (KAFB-106037) previously designated as deep, as well as the two previously designated intermediate wells (KAFB-106230 and KAFB-106232), as described above. The screened intervals for GWM wells within this dataset cover a large vertical extent of the aquifer ranging from an elevation of 4,824 feet amsl down to an elevation of 4,720 feet amsl. Not all of the screened intervals overlap, prohibiting the assignment of a reference elevation common to all wells. There are 16 wells with screen elevations ranging from 4,824 to 4,798 feet amsl, while 20 well screens fall within the 4,781- TO 4,753 feet amsl range, and three well screens from 4,740- to 4,720 feet amsl. A reference elevation of 4,814 feet amsl was chosen as an identifier for this interval because it passes through the screens of the uppermost group of wells in the dataset allowing for the addition of a deeper REI if required in the future. Data collected or measured from these GWM wells are representative of the hydrogeologic conditions of this zone that is bounded on top by the bottom surface of REI 4838 and bounded on the bottom by a surface that intercepts the bottom of the REI 4814 well screens. There are 39 GWM wells installed in REI 4814.

# 2. DISCUSSION OF FIELD PARAMETERS FROM PASSIVE SAMPLING

# 2.1 COMPARISON OF FIELD PARAMETERS BETWEEN PASSIVE AND LOW-FLOW SAMPLING

The following text was initially provided in the Second Quarter (Q2) 2017 Quarterly Report (Kirtland AFB, 2017b):

Upon initiating the Q2 2017 passive sampling, field parameter measurements were notably skewed from historical measurements. Following the collection of field parameters from 13 GWM well locations with passive samplers, it was apparent that field parameter data collected from the passive samplers were not representative of the groundwater conditions due to the pore diameter of the passive sampling membranes, and continued collection of field parameters from passive samplers was terminated pending discussion with the New Mexico Environment Department. Therefore, field parameters were only collected from wells that utilized low-flow sampling techniques (all located south of Gibson Boulevard SE).

## 2.2 PASSIVE SAMPLER EVALUATION

The following text was initially provided in the Q4 2017 Quarterly and Annual Report (Kirtland AFB, 2018a):

A demonstration was performed in Q4 2017 to assess a proposed transition from collecting grab samples using a low-flow methodology (Bennett pump sampling systems) to a passive sampling technique (i.e., dual-membrane sampler [DMS]). This demonstration consisted of comparing low-flow sample analytical results and passive sample analytical results for EDB; benzene, toluene, ethylbenzene, and total xylenes (BTEX); and inorganic compounds from groundwater samples collected from five source area wells (Figure E-7-1). The results are reported in Table 3-14, and shown on Figure 3-23.

In addition, field parameters were compared between the low-flow purge water using a YSI Pro Plus multiparameter probe with a flow-through cell, and measurements taken *in situ* within the well using an Aqua TROLL® 600 multiparameter sonde deployed within the well screen depth (Table 3-15). If passive sampling is approved for source area wells, reliable field parameter measurements will not be achieved from the DMSs and, therefore, an *in situ* method may be proposed if continued field parameter collection is necessary.

The analytical results from this demonstration are summarized below. In accordance with the work plan (Kirtland AFB, 2017c), the low-flow sample data are used for reporting purposes. The sample results from the DMSs are only used for demonstration purposes, and a relative percent difference (RPD) was calculated for each analyte within each sample (Table 3-14). The approved Quality Assurance Project Plan acceptable RPD for duplicate groundwater samples is 35 percent (%) for analytical results and was, therefore, used herein to determine a comparable threshold value. The RPD acceptance threshold of 35% is relevant when comparing two samples utilizing the same sampling methodology. A comparison of results collected via two different sampling methods, one discrete (DMS) and one indiscrete (Bennett Pump), may result in widely varying RPDs. The 35% threshold has been selected to illustrate that the two methods provide results that are comparable to two samples obtained using the same sampling methodology. Analytical results and RPDs are summarized below:

- EDB was detected in all groundwater samples collected using both low-flow and passive technologies. The RPD for EDB from samples collected from KAFB-106005 was 10%. The EDB concentrations from the other four wells in the demonstration ranged from 0.85 to 5.9 micrograms per liter (μg/L), with RPDs ranging from 48 to 175%; above the acceptable 35% RPD.
- Benzene was detected in all groundwater samples (at concentrations above the project screening limit [PSL] of 5 μg/L) using both low-flow and passive technologies. The RPD for the benzene results was 0% for KAFB-106008 (both methods had a benzene concentration of 2,300 μg/L) and the RPD was relatively low for two other wells (KAFB-106005 and KAFB-106006) at 26 and 31%, respectively. The RPD for benzene from groundwater samples collected from KAFB-106014 and KAFB-106059 was 64 and 121%, respectively; above the acceptable 35% RPD.
- Toluene was detected or estimated in all groundwater samples collected using both low-flow and passive technologies. The RPD for toluene ranged from 16 to 195%, and was below the acceptable 35% RPD in two wells (KAFB-106005 and KAFB-106008).
- Ethylbenzene was detected in all groundwater samples collected using both low-flow and passive technologies. The RPD for ethylbenzene was 0% in KAFB-106006 (both methods had an ethylbenzene concentration of 3 µg/L) and the RPD was relatively low for KAFB-106005 (19%). The ethylbenzene concentrations from the other three wells in the demonstration ranged from 45 to 470 µg/L, with RPDs ranging from 39 to 164%; above the acceptable 35% RPD.
- Total xylenes were detected all groundwater samples collected using both low-flow and passive technologies, with the exception of the DMS sample from KAFB-106006, precluding the ability to calculate an RPD from that well. The RPD for total xylenes was 17% from KAFB-106005, within the 35% RPD. The RPD was above 35% in the remaining wells (KAFB-106008, KAFB-106014, and KAFB-106059).

It should be noted that while some RPD values for EDB and benzene exceeded the 35% threshold, no significant differences in analyte concentrations were observed between either sampling method or the respective analyte PSL. Both methods yielded comparable results that were either both below or above the PSL. The only exception to this was the EDB results from well KAFB-106006. At this well, the low-flow sampling method resulted in an estimated value below the PSL (0.014  $\mu$ g/L) while the passive sampling method resulted in a value above the PSL (0.21  $\mu$ g/L). When comparing plume maps utilizing either the passive sampling data or the low-flow sampling data, only minimal shifts of some internal isocontours occur between the two sample types (Figure 3-23); however, the overall contoured boundary (specified as the PSL concentration) generally remained unchanged.

- Inorganic concentrations observed in the groundwater samples collected using the two methods were generally in agreement, with only a few samples that exceeded the 35% RPD, as follows:
  - Dissolved manganese in KAFB-106005 (40% RPD) and KAFB-106014 (46% RPD)
  - Nitrate/nitrite nitrogen in KAFB-106005 (156% RPD) and KAFB-106006 (40% RPD)
  - Dissolved iron in KAFB-106006 (44% RPD)
  - Chloride in KAFB-106014 (80% RPD).

The results from the field parameter demonstration are summarized below. In accordance with the work plan (Kirtland AFB, 2017c), the low-flow purge water data are used for reporting purposes as measured using the YSI Pro Plus. The field parameters from the Aqua TROLL® 600 multiparameter sonde are used for demonstration purposes only, and an RPD was calculated for each parameter within each well (Table 3-15). An RPD of 50% was deemed acceptable for the field parameters, and is conservative given the variability and relatively low concentrations of dissolved oxygen (DO) and turbidity. In accordance with the work plan (Kirtland AFB, 2017c), field parameters were collected until stabilization of three consecutive readings within 10% of one another was achieved, or a maximum of 1 hour. The final, stabilized field parameters measurements are used for reporting and demonstration purposes.

- Turbidity had relatively high RPDs, with the exception of KAFB-106014 at 20%; the remaining four wells had an RPD for turbidity ranging from 60 to 198%.
- Temperature was consistent between the two methods, with a maximum RPD of 12% (KAFB-106008).
- DO had relatively high RPDs in three wells (KAFB-106005, KAFB-106006, and KAFB-106008). DO had relatively low RPDs in KAFB-106014 (46%) and KAFB-106059 (28%). Although DO had relatively high RPDs in three of the demonstration wells, the results were all <1 milligrams per liter (mg/L), with the exception of the low-flow result from KAFB-106006 (2.94 mg/L).
- Specific conductivity was consistent between the two methods, with a maximum RPD of 43% (KAFB-106005).
- pH was consistent between the two methods, with a maximum RPD of 7% (KAFB-106059).
- Oxidation-reduction potential had relatively high RPDs in wells KAFB-106005 and KAFB-106059 at 55 and 54%, respectively. The other wells demonstrated relatively low RPDs for oxidation reduction potential, ranging from 5 to 29%.

These results indicate that passive sampling techniques (i.e., DMSs) generally provide results that are comparable to low-flow techniques for inorganic parameters. For volatile parameters, including EDB and BTEX, the results indicate good agreement between the two methods for relatively lower concentrations (e.g., KAFB-106005 and KAFB-106006); however, the higher concentrations of EDB and BTEX did not provide as comparable results between the two methods (e.g., KAFB-106008, KAFB-106014, and KAFB-106059). Plume delineation in the source area at the PSL for both EDB and benzene was comparable between both methods. Significant differences in concentration contours were only observed at concentrations exceeding the PSL by approximately three orders of magnitude (Figure 3-23). The only exception to the plume boundary was for the EDB PSL contour extending further south around KAFB-106006 due to the higher passive sampler concentration.

Previous demonstrations have shown generally comparable results between the two methods, with no consistent bias identified (i.e., neither method has consistently resulted in higher or lower concentrations). Furthermore, vertical profiles were evaluated in Q4 2016 and first quarter (Q1) 2017 (Kirtland AFB, 2017d) that demonstrated most source area wells that were evaluated did not have significant vertical gradients and, therefore, matching the passive sample depths to the low-flow sample depth, as was done for this demonstration, should not result in a significant sample bias. The two field parameter methods (low-flow purge water versus *in situ* measurements) resulted in agreement between the methods, with turbidity being the parameter with the greatest discrepancies. Temperature, pH, and specific conductivity

all revealed consistent measurements between the two methods. Although DO resulted in RPDs greater than 50% in three wells, all results were <1 mg/L, with the exception of the low-flow result from KAFB-106006 (2.94 mg/L).

## 3. REGIONAL GROUNDWATER GRADIENT

The following text was initially provided in the Q2 2018 Quarterly Report (Kirtland AFB, 2018b):

The GWM well network for the Kirtland AFB Bulk Fuels Facility (BFF) jet fuel dissolved-phase contamination is screened near the top of the saturated interval of the Santa Fe Group aguifer system. Historically, this aguifer system was the sole water supply for the Albuquerque metropolitan area and the groundwater flow was from north-northeast to south-southwest toward the Rio Grande (Bexfield and Anderholm, 2000). As the population increased, water demand also increased and the Santa Fe aquifer system experienced significant stress resulting in water level declines in excess of 100 feet near Kirtland AFB (Powell and McKean, 2014). Furthermore, the groundwater flow changed direction from southsouthwest (toward the Rio Grande) to an easterly and northeasterly direction, away from the Rio Grande and toward the city and its drinking water supply wells (Powell and McKean, 2014). It is important to note the predominant groundwater flow direction, which the dissolved-phase constituents migrated along, was north-northeast. To reduce the use of groundwater while maintaining municipal water supply, in 2008, the Albuquerque Bernalillo County Water Utility Authority began diverting water from the San Juan-Chama Drinking Water Project. As a result, this surface water diversion has relieved the pumping stress of the Santa Fe aquifer system and groundwater levels have been rebounding approximately 3-4 ft per year, with rates varying depending upon the proximity to pumping wellfields or historical groundwater sinks (Beman, 2013). A more detailed discussion of the conceptual site model can be found in Section 7 of the RFI Report (Kirtland AFB, 2018c).

# 4. DESCRIPTION OF FORMER WELL DESIGNATIONS AND ASSOCIATED SAMPLING REGIMES

The following text was initially provided in the Q4 2018 Quarterly and Annual Report (Kirtland AFB, 2019):

In previous reports, GWM wells were assigned designations based either on their location related to the groundwater gradient and their spatial relationship to the dissolved-phase EDB or simply on their location (i.e., source area, etc.). However, due to the changing regional groundwater gradient (Section 3), these designations may no longer be appropriate or meaningful. In order to present analytical data and data summaries conveniently at the project scale, all GWM wells will hereafter be designated simply as "groundwater monitoring well," except for newly added wells (which includes any newly installed wells), and the presentation of analytical data will be centered on analytes as opposed to former well designation. The former well designations and monitoring well objective are provided in Table 3-1 along with the current sampling regime by quarter. A brief description of the former well designations and the frequency of samples collected by designation is provided below.

Newly Added Wells—Newly added wells include both existing wells that are added to the GWM network as well as newly installed wells that have not completed four quarters of baseline sampling. Newly added GWM wells require a minimum of four consecutive quarters of baseline full-suite analytical sampling before receiving a designation that determines the long-term sampling regime. These wells have been added to define the plume boundary and provide additional water table monitoring due to the rising groundwater elevation.

*Source Area Wells*—Primarily located in the BFF south of Randolph Road SE and proximal to the spill site on-Base. Sampled during Q2 and Q4. These wells monitor the higher concentrations of dissolved-phase contaminants on-Base.

**Downgradient Proximal Wells**—Located north of Ridgecrest Drive SE surrounding the historical low concentration dissolved-phase EDB to the west, north, and east into the distal portion of the GWM network. Analytical data for these wells have been historically below the maximum contaminant level for EDB. Sampled every quarter. These wells assist in plume boundary definition.

**Veterans Affairs (VA) Proximal Wells**—Three sets of nested wells located between the historical dissolved-phase EDB south of Ridgecrest Drive SE and the Raymond G. Murphy VA Medical Center as a means to detect any potential contaminant migration toward the VA medical campus. Sampled every quarter. These wells provide additional wellhead protection monitoring for the VA supply well.

*Signal Wells*—Three wells located along the south side of Ridgecrest Drive SE to monitor BTEX and provide early indication if theses dissolved-phase constituents are migrating from the source area into the interim measure Target Capture Zone. Sampled during Q2 and Q4.

**GWM Wells**—Primarily located north of Ridgecrest Drive SE within the historical footprint of the dissolved-phase EDB. Analytical data from these wells serve to define the volume and mass of the dissolved-phase EDB throughout the GWM network. Sampled in Q2 and Q4.

# 5. REFERENCES

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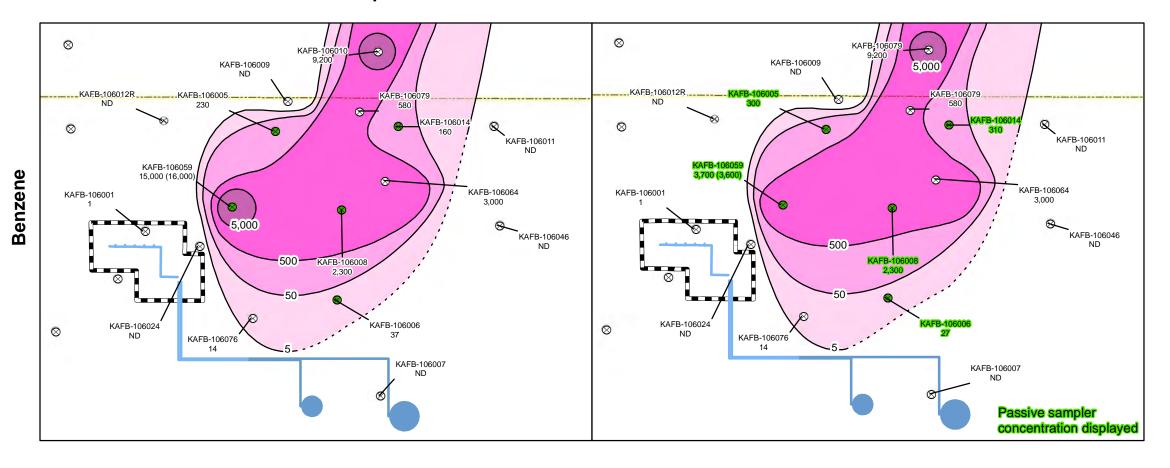
# **FIGURES**

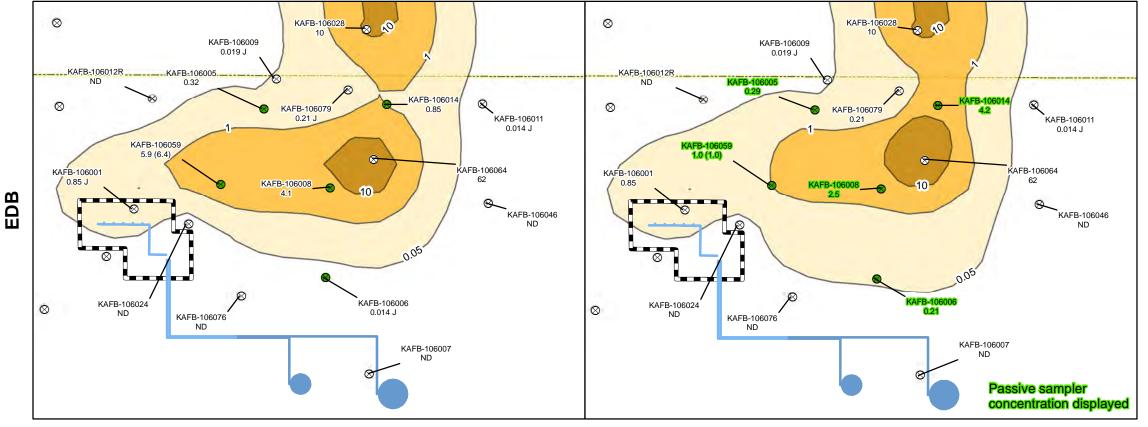
# **List of Appendix E-6 Figures**

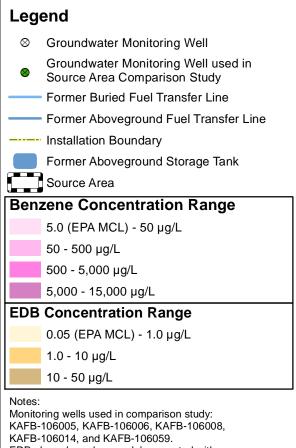
 Q4 2017 Figure 3-23 – Source Area Well Comparison between Low Flow Samples and Passive Samplers in REI 4857, Q4 2017

# **Low Flow Grab Samples**

# **Passive Samples**







EDB plume based on model generated with C-Tech MVS Premier Version 9.94.

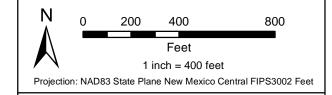
Values in parentheses are duplicate sample results. All units are measured in µg/L.

μg/L = micrograms per liter

EDB = ethylene dibromide ND = nondetect

Q4 = quarter 4 Qualifer(s):

J = denotes the analyte was positively identified, but the associated numerical value is estimated.



QUARTERLY AND ANNUAL REPORT OCTOBER - DECEMBER 2017 BULK FUELS FACILITY SOLID WASTE MANAGEMENT UNIT ST-106/SS-111 KIRTLAND AIR FORCE BASE, NEW MEXICO

**FIGURE 3-23** 

SOURCE AREA WELL COMPARISON BETWEEN LOW FLOW SAMPLES AND PASSIVE SAMPLERS IN REI 4857, Q4 2017

P:\gis\Projects\Kirtland\Figures\BFF Quarterly Report\2017\_Q4\Section 3\3-23 EDB Benzene Comparison Q4 2017.mxd 2/28/2018 EA sbusby

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- Q4 2017 Table 3-15 Comparison of Analytical Results between YSI and Aqua-Troll Parameter Readings for Source Area Wells, Q4 2017
- Q4 2018 Table 3-1 Groundwater Monitoring Program

Table 3-4
Groundwater Monitoring Wells Included in Q4 2016 Monitoring Activities

		1			1	1		T	1
Well Location ID	Reference Elevation Interval (ft AMSL)	Installation Date	Date Sampled	Screen Interval <sup>a</sup> (ft bgs)	Screen Interval <sup>a</sup> (AMSL)	Dedicated Sampling System (Yes/No)?	Screen Submerged (Yes/No)?	Estimated Pump Intake Depth (ft bags) <sup>b</sup>	Analytical Suite <sup>c</sup>
	· · · · · ·		•		vater Monitoring We	· ·	,	<u> </u>	·
KAFB-3411	4857	11/10/1999	11/16/2016	461-504	4879-4836	No	Yes	505.31	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106001	4857/4838	11/10/2000	11/10/2016	483-508	4859-4834	No	Yes	487.83	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106002	4857	3/26/2002	10/20/2016	479-504	4861-4836	Yes	Yes	503.99	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106007	4857	11/14/2007	10/31/2016	484-509	4860-4835	Yes	Yes	504.07	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106015	4857/4838	10/14/2008	10/25/2016	485-510	4855-4830	No	Yes	490.00	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106016	4857	10/17/2008	10/24/2016	475-500	4864-4839	Yes	Yes	494.73	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106019	4857/4838	12/9/2008	11/7/2016	493-518	4859-4834	No	Yes	497.95	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106020	4857	12/19/2008	10/25/2016	482-507	4859-4834	No	Yes	484.00	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106021	4857/4838	6/7/2009	10/5/2016	458-483	4856-4831	No	Yes	460.00	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106022	4857/4838	6/12/2009	10/13/2016	462-487	4856-4831	Yes	Yes	483.00	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106023	4857	6/27/2009	11/10/2016	473-498	4856-4831	No	Yes	475.00	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106024	4857	8/3/2009	11/2/2016	481-506	4862-4837	Yes	Yes	502.00	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106025	4857/4838	12/5/2010	10/5/2016	465-490	4852-4827	No	Yes	467.00	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106027	4857	5/1/2010	10/24/2016	481-501	4864-4844	Yes	Yes	490.59	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106035	4857	8/9/2011	10/27/2016	452-482	4869-4839	No	No	474.35	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106036	4838	8/5/2011	10/27/2016	481-496	4841-4826	No	Yes	483.80	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106037	4838	7/14/2011	11/8/2016	507-522	4815-4800	No	Yes	509.21	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106039	4838	7/26/2011	10/27/2016	508-523	4840-4825	No	Yes	513.50	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106040	4814	7/19/2011	10/29/2016	530-545	4817-4802	No	Yes	536.00	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106042	4857	5/31/2011	11/10/2016	469-484	4855-4840	No	Yes	471.06	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106043	4814	5/18/2011	10/10/2016	543-558	4781-4766	Yes	Yes	550.60	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106044	4838	1/7/2011	10/24/2016	504-519	4842-4827	Yes	Yes	511.70 <sup>d</sup>	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106045	4814	1/17/2011	11/14/2016	528-543	4817-4802	No	Yes	535.80 <sup>d</sup>	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106046	4857	4/8/2011	10/31/2016	490-510	4863-4843	Yes	Yes	504.95	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106047	4838	4/8/2011	10/31/2016	512-527	4841-4826	Yes	Yes	519.55	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106048	4814	4/8/2011	11/15/2016	535-550	4818-4803	No	Yes	537.50	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106052	4857	7/25/2011	10/12/2016	449-479	4870-4840	Yes	Yes	472.28	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106053	4838	7/11/2011	10/12/2016	478-493	4841-4826	Yes	Yes	486.10	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106054	4814	6/28/2011	10/12/2016	504-519	4814-4799	Yes	Yes	511.60	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106055	4857	6/24/2011	10/12/2016	465-485	4860-4840	Yes	Yes	479.90	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106057	4838	6/19/2011	10/12/2016	484-499	4841-4826	Yes	Yes	493.05	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106058	4814	6/14/2011	10/13/2016	511-526	4815-4800	Yes	Yes	518.07	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106070	4857	5/23/2011	10/17/2016	460-485	4858-4833	Yes	Yes	474.85	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106071	4814	5/13/2011	10/18/2016	548-563	4773-4758	Yes	Yes	555.43	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106072	4838	5/1/2011	11/3/2016	475-495	4844-4824	No	Yes	477.00	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106073	4838	5/5/2011	11/14/2016	499-514	4841-4826	No	Yes	501.74	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106074	4814	4/28/2011	11/14/2016	569-584	4772-4757	No	Yes	571.56	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106075	4857	4/17/2011	10/19/2016	480-500	4860-4840	Yes	Yes	494.90	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106082	4857	4/5/2011	11/1/2016	472-492	4863-4843	No	Yes	474.10	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106083	4838	4/15/2011	11/7/2016	495-510	4840-4825	No	Yes	497.62	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106084	4814	4/5/2011	11/1/2016	566-581	4768-4753	No	Yes	571.50	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106085	4857	7/8/2011	10/17/2016	446-476	4871-4841	Yes	No	468.96	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106086	4838	6/26/2011	11/8/2016	476-491	4842-4827	No	Yes	478.03	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106087	4814	6/19/2011	11/8/2016	546-561	4771-4756	No	Yes	548.01	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106088	4857	6/3/2011	10/17/2016	460-480	4864-4844	Yes	Yes	475.06	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106089	4838	5/23/2011	10/15/2016	481-496	4843-4828	Yes	Yes	488.99	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106090	4814	5/23/2011	10/18/2016	555-570	4768-4753	Yes	Yes	562.41	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106091 <sup>e</sup>	4857	6/4/2011	10/13/2016 / 12/15/16	454-474	4860-4840	Yes	Yes	468.98	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106092	4838	5/24/2011	10/17/2016	474-489	4840-4825	Yes	Yes	480.35	VOCs, EDB, metals, anions, alkalinity, FP
NAFD-100092	4030	3/2 <del>4</del> /2011	10/17/2010	414-409	4040-4020	res	1 62	400.33	voos, edd, metals, amons, alkalinity, Fr

Table 3-4
Groundwater Monitoring Wells Included in Q4 2016 Monitoring Activities

		<del>-</del>		T	T			1	
Well Location ID	Reference Elevation Interval (ft AMSL)	Installation Date	Date Sampled	Screen Interval <sup>a</sup> (ft bgs)	Screen Interval <sup>a</sup> (AMSL)	Dedicated Sampling System (Yes/No)?	Screen Submerged (Yes/No)?	Estimated Pump Intake Depth (ft bags) <sup>b</sup>	Analytical Suite <sup>c</sup>
KAFB-106093	4814	5/24/2011	10/13/2016	544-559	4770-4755	Yes	Yes	550.38	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106094	4857	6/26/2011	10/20/2016	484-504	4861-4841	Yes	Yes	499.11	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106095	4838	6/24/2011	10/19/2016	504-519	4841-4826	Yes	Yes	511.03	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106096	4814	6/7/2011	10/20/2016	576-591	4769-4754	Yes	Yes	583.75	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106103	4838	6/21/2011	10/18/2016	485-500	4844-4829	Yes	Yes	492.46	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106104	4814	6/15/2011	10/18/2016	510-525	4818-4803	Yes	Yes	517.41	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106105	4838	8/19/2011	11/2/2016	484-499	4838-4823	No	Yes	486.06	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106106	4857	8/10/2011	10/11/2016	454-484	4868-4838	Yes	Yes	476.17	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106107	4814	8/30/2011	11/10/2016	510-525	4812-4797	No	Yes	512.27	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106212	4814	2/17/2015	10/31/2016	543-558	4779-4764	No	Yes	453.97	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106213	4857	2/10/2015	10/13/2016	448-478	4877-4847	Yes	No	475.30	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106214	4838	3/9/2015	10/17/2016	478-493	4848-4833	Yes	Yes	490.08	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106215	4814	4/28/2015	11/7/2016	547-562	4779-4764	No	Yes	549.00	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106219	4857	3/12/2015	10/6/2016	463-493	4877-4847	Yes	No	475.00	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106220	4838	3/12/2015	10/6/2016	493-508	4847-4832	Yes	Yes	490.00	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106221	4814	6/5/2015	10/6/2016	561-576	4779-4764	Yes	Yes	554.40	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106225	4857	1/19/2015	10/11/2016	450-480	4876-4846	Yes	No	474.70	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106226	4838	2/3/2015	11/8/2016	480-495	4847-4832	No	Yes	482.14	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106227	4814	5/6/2015	10/11/2016	548-563	4780-4765	Yes	Yes	554.00	VOCs, EDB, metals, anions, alkalinity, FP
				Downgr	adient Proximal Wel	S			
KAFB-106029	4857	6/4/2011	10/4/2016	451-471	4860-4840	No	Yes	465.35	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106030	4838	5/25/2011	10/4/2016	469-484	4842-4827	Yes	Yes	476.97	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106031	4814	5/25/2011	10/4/2016	496-510	4815-4801	Yes	Yes	502.49	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106032	4857	6/24/2011	10/26/2016	456-476	4862-4842	No	Yes	470.74	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106033	4838	6/24/2011	10/26/2016	477-492	4841-4826	No	Yes	480.00	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106034	4814	6/24/2011	10/26/2016	502-517	4817-4802	Yes	Yes	509.33	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106049	4857	5/13/2011	10/11/2016	457-477	4859-4839	No	Yes	471.50	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106050	4838	5/2/2011	10/11/2016	474-489	4842-4827	Yes	Yes	482.57	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106051	4814	4/26/2011	10/11/2016	500-515	4816-4801	Yes	Yes	508.87	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106201	4857	10/4/2012	10/10/2016	487-517	4868-4838	No	Yes	502.00 <sup>d</sup>	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106202	4838	9/23/2012	10/10/2016	517-532	4838-4823	Yes	Yes	521.77	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106203	4814	9/9/2012	10/10/2016	620-635	4735-4720	Yes	Yes	627.50 <sup>d</sup>	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106204	4857	8/29/2012	10/10/2016	462-492	4871-4841	No	No	477.55 <sup>d</sup>	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106205	4838	8/21/2012	10/10/2016	492-507	4841-4826	Yes	Yes	500.00 <sup>d</sup>	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106206	4814	8/9/2012	10/10/2016	593-608	4741-4726	Yes	Yes	600.85 <sup>d</sup>	VOCs, EDB, metals, anions, alkalinity, FP
		1	10/25/2016					488.00 <sup>d</sup>	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106207	4857	8/22/2012		473-503	4872-4842	No	No	<del></del>	
KAFB-106208	4838	8/16/2012	10/10/2016	503-518	4841-4826	No	Yes	510.50 <sup>d</sup>	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106209	4814	8/7/2012	10/25/2016	603-617	4741-4727	No	Yes	610.00 <sup>d</sup>	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106216	4857	2/10/2015	10/13/2016	455-485	4879-4849	Yes	No	475.08	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106217	4838	2/17/2015	11/7/2016	485-500	4849-4834	No	Yes	487.06	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106218	4814	5/26/2015	10/13/2016	552-567	4781-4766	Yes	Yes	554.58	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106222	4857	1/15/2015	10/12/2016	458-488	4875-4845	Yes	No	475.00	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106223	4838	2/17/2015	10/12/2016	488-503	4846-4831	Yes	Yes	489.50	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106224	4814	5/15/2015	10/12/2016	555-570	4780-4765	Yes	Yes	554.58	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106231	4857	9/8/2015	10/3/2016	440-475	4887-4852	Yes	No	470.00	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106232	4814	9/1/2015	10/3/2016	503-518	4824-4809	No No	Yes	503.00	VOCs, EDB, metals, anions, alkalinity, FP
KAED 400000	1057	4/05/0000	40/04/0040		Affairs Proximal We			T 504 70	\(\(\text{OO}_{\text{c}}\) EDD ( )
KAFB-106003	4857	1/25/2003	10/24/2016	476-501	4861-4836	No	Yes	501.70	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106004	4857	1/4/2006	11/15/2016	484-509	4859-4834	No	Yes	488.77	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106013	4857	9/19/2008	11/9/2016	486-511	4862-4837	No	Yes	491.72	VOCs, EDB, metals, anions, alkalinity, FP

Table 3-4
Groundwater Monitoring Wells Included in Q4 2016 Monitoring Activities

		1		T	1	1		1	
Well Location ID	Reference Elevation Interval (ft AMSL)	Installation Date	Date Sampled	Screen Interval <sup>a</sup> (ft bgs)	Screen Interval <sup>a</sup> (AMSL)	Dedicated Sampling System (Yes/No)?	Screen Submerged (Yes/No)?	Estimated Pump Intake Depth (ft bags) <sup>b</sup>	Analytical Suite <sup>c</sup>
KAFB-106097	4838	4/27/2011	11/9/2016	506-521	4842-4827	No	Yes	508.14	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106098	4814	4/17/2011	11/9/2016	531-546	4817-4802	No	Yes	533.00	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106099	4838	5/12/2011	11/2/2016	501-516	4842-4827	No	Yes	503.11	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106100	4814	5/3/2011	10/19/2016	526-541	4817-4802	No	Yes	533.47	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106101	4838	2/21/2011	10/24/2016	496-511	4841-4826	No	Yes	503.22	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106102	4814	3/3/2011	11/1/2016	521-534	4816-4803	No	Yes	526.00	VOCs, EDB, metals, anions, alkalinity, FP
					urce Area Wells				•
KAFB-106005	4857	1/22/2007	11/15/2016	479-504	4865-4840	No	Yes	484.04	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106006	4857	10/31/2007	11/8/2016	483-508	4866-4841	No	Yes	484.60	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106008	4857	11/21/2007	11/17/2016	486-511	4863-4838	No	Yes	491.10	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106009	4857	11/28/2007	11/3/2016	480-505	4865-4840	No	Yes	485.70	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106010	4857	12/6/2007	11/16/2016	483-508	4860-4835	No	Yes	485.00	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106011	4857	9/23/2008	10/24/2016	486-511	4864-4839	Yes	Yes	505.83	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106012R	4857	4/23/2014	11/8/2016	465-495	4877-4847	No	No	495.52	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106014	4857	10/3/2008	11/16/2016	486-511	4861-4836	No	Yes	491.17	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106028	4857	3/19/2012	10/19/2016	486-510	4863-4839	Yes	Yes	506.80	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106059	4857	4/7/2011	11/14/2016	483-503	4862-4842	No	Yes	488.60	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106060	4838	4/16/2011	10/20/2016	503-518	4842-4827	Yes	Yes	510.29	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106061	4814	4/8/2011	10/20/2016	573-588	4772-4757	Yes	Yes	580.20	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106062	4814	3/19/2011	10/24/2016	575-590	4773-4758	Yes	Yes	582.70	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106063	4838	4/8/2011	11/2/2016	505-520	4844-4829	No	Yes	510.38	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106064	4857	3/24/2011	11/15/2016	485-505	4863-4843	No	Yes	490.18	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106065	4838	5/17/2011	10/19/2016	508-523	4841-4826	Yes	Yes	515.35	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106066	4814	5/16/2011	10/19/2016	575-590	4774-4759	Yes	Yes	583.06	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106067	4857	5/11/2011	10/19/2016	485-505	4863-4843	Yes	Yes	499.99	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106068	4814	5/2/2011	10/17/2016	580-595	4767-4752	Yes	Yes	587.41	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106069	4838	5/1/2011	11/1/2016	506-521	4841-4826	No	Yes	508.08	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106076	4857	4/8/2011	11/21/2016	480-500	4865-4845	No	Yes	482.14	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106077	4838	4/8/2011	11/16/2016	504-519	4841-4826	No	Yes	506.00	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106078	4814	4/8/2011	11/16/2016	573-588	4772-4757	Yes	Yes	581.01	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106079	4857	3/22/2011	10/20/2016	483-503	4864-4844	Yes	Yes	498.78	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106080	4838	4/17/2011	10/20/2016	503-518	4843-4828	Yes	Yes	511.77	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106081	4814	4/16/2011	10/20/2016	574-589	4772-4757	Yes	Yes	582.34	VOCs, EDB, metals, anions, alkalinity, FP
•		•			Signal Wells	:			
KAFB-106017	4857/4838	11/19/2008	10/18/2016	482-507	4857-4832	Yes	Yes	501.56	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106018	4857/4838	11/24/2008	10/18/2016	476-501	4857-4832	Yes	Yes	495.70	VOCs, EDB, metals, anions, alkalinity, FP
KAFB-106038	4857	8/5/2011	11/15/2016	478-508	4870-4840	No	No	509.27	VOCs, EDB, metals, anions, alkalinity, FP

March 2017

# Table 3-4 Groundwater Monitoring Wells Included in Q4 2016 Monitoring Activities

AMSL = above mean sea level

bgs = below ground surface EDB = ethylene dibromide

FP = field parameter

ft = foot/feet

ID = identification

Q = quarter

VOC = volatile organic compound

<sup>&</sup>lt;sup>a</sup> Screen interval is rounded to the nearest foot.

<sup>&</sup>lt;sup>b</sup> Portable equipment sampling depths are estimated to the nearest half foot due to slight inaccuracies with the mechanism measuring the pump setting in the field

<sup>&</sup>lt;sup>c</sup> The analytical methods for EDB and VOCs are 8011 and 8260C, respectively. Metals analyses consisted of select total metals (arsenic, calcium, lead, potassium, magnesium, and sodium by analytical method 6020A/6010C and select and dissolved metals (iron and manganese) (6010C). Anions analysis consisted of ammonia by method 4500NH3B/C, bromide by method 300.0A, chloride by method 300.0A, nitrate/nitrite nitrogen by method 300.0A, and sulfide by method 4500 S2CF. FP include pH, specific conductivity, dissolved oxygen, oxidation reduction potential, temperature, and turbidity.

<sup>&</sup>lt;sup>d</sup> Pump setting estimated as half-way between top and bottom of screen.

<sup>&</sup>lt;sup>e</sup> Due to fuel contamination at the location of well at KAFB-106091, the well was resampled for EDB, benzene, ethylbenzene, toluene, and total xylenes on December 15, 2016

Table 3-14
Comparison of Analytical Results between Bennett Pumps and Passive Samplers in Source Area Wells, Q4 2017

							1==			1==		
		V	/ell Location ID:		106005			106006		KAFB-		Í
			Sample Date:	10/23/2017	10/18/2017		10/19	/2017		10/20		ı
			Field Sample ID:	GW005-174	GW005-174D		GW006-174	GW006-174D		GW008-174	GW008-174D	ı
		Sample Co	lection Method:	Bennett Pump	DMS <sup>a</sup>		Bennett Pump	DMS <sup>a</sup>		Bennett Pump	DMS <sup>a</sup>	l
			Project Screening			Relative Percent			Relative Percent			Relative Percent
Parameter	Analytical Method	Analyte	Level <sup>d</sup>	Result <sup>b</sup>	Result <sup>b</sup>	Difference <sup>c</sup>	Result <sup>b</sup>	Result <sup>b</sup>	Difference <sup>c</sup>	Result <sup>b</sup>	Result <sup>b</sup>	Difference <sup>c</sup>
EDB	Method SW8011 (μg/L)	1,2-dibromoethane	0.05	0.32	0.29	10	0.014 J	0.21	175	4.1	2.5	48
VOCs	Method SW8260C (µg/L)	Benzene	5	230	300	26	37	27	31	2300	2300	0
		Ethylbenzene	700	29	35	19	3	3	0	120	190	45
		Toluene	750	4	3	29	7	0.6 J	168	1700	2000	16
		Xylenes, Total	620	63	75	17	2	< 1 U	NA	310	490	45
<b>Total Metals</b>	Method SW6010C (mg/L)	Calcium	NS	250	243	3	35.2	35.0	1	121	138	13
		Iron, dissolved	1.0	0.164 J	0.189 J	14	0.390 J	0.610	44	3.58	3.55 J	1
		Magnesium	NS	39.7	38.5	3	5.46	5.51	1	20.0	22.5	12
		Manganese, dissolved	0.2	0.136	0.0905	40	0.702	0.798	13	5.80	6.80	16
		Potassium	NS	5.42	5.22	4	2.08	2.01	3	3.31	3.54	7
		Sodium	NS	80.9	77.8	4	22.5	22.1	2	34.8	36.7	5
	Method SW6020A (mg/L)	Arsenic	0.01	< 0.0020 U	< 0.0020 U	NA	0.0010 J	< 0.0020 U	NA	0.00080 J	< 0.0020 U	NA
		Lead	0.015	0.00015 J	< 0.00025 U	NA	< 0.00025 U	< 0.00025 U	NA	< 0.00025 U	0.00030 J	NA
Anions	Method E300.0 (mg/L)	Bromide	NS	3.8	3.5	8	< 2.5 U	< 2.5 U	NA	1.9 J	2.0 J	5
		Chloride	250	211 J	217	3	9.7	9.3	4	16.0	16.8	5
		Sulfate	250	480	529	10	33.8	33.7	0	3.0 J	2.6 J	14
	Method E353.2 (mg/L)	Nitrate/Nitrite Nitrogen	10 <sup>e</sup>	0.50 J	0.062 J	156	0.10 J	0.15 J	40	< 0.10 U	< 0.10 U	NA
Alkalinity	Method SM2320B (mg/L)	Alkalinity, bicarbonate (as CaCO3)	NS	167 J	134	22	107	106	1	344	371	8
		Alkalinity, carbonate (as CaCO3)	NS	< 5.0 U	< 5.0 U	NA	< 5.0 U	< 5.0 U	NA	< 5.0 U	< 5.0 U	NA
		Alkalinity, total (as CaCO3)	NS	167 J	134	22	107	106	1	344	371	8

Table 3-14
Comparison of Analytical Results between Bennett Pumps and Passive Samplers in Source Area Wells, Q4 2017

		V	Vell Location ID:	KAFB-	106014				KAFB-106059			
			Sample Date:	10/20/2017	10/19/2017				10/19/2017			
		ı	Field Sample ID:		GW014-174D		GW059-174	GW059-174D		GW059-574	GW059-574D	
		Sample Co	lection Method:	Bennett Pump	DMS <sup>a</sup>		Bennett Pump	DMS <sup>a</sup>		Bennett Pump	DMS <sup>a</sup>	
			Project Screening			Relative Percent			Relative Percent			Relative Percent
Parameter	Analytical Method	Analyte	Level <sup>d</sup>	Result <sup>b</sup>	Result <sup>b</sup>	Difference <sup>c</sup>	Result <sup>b</sup>	Result <sup>b</sup>	Difference <sup>c</sup>	Result <sup>b</sup>	Result <sup>b</sup>	Difference <sup>c</sup>
	Method SW8011 (μg/L)	1,2-dibromoethane	0.05	0.85	4.2	133	5.9	1.0	142	6.4	1.0	146
VOCs	Method SW8260C (μg/L)	Benzene	5	160	310	64	15000	3700	121	16000	3600	127
		Ethylbenzene	700	67	45	39	870	86	164	890	86	165
		Toluene	750	170	2	195	18000	6600	93	18000	6300	96
		Xylenes, Total	620	140	2	194	3000	1700	55	3000	1600	61
Total Metals	Method SW6010C (mg/L)	Calcium	NS	67.2	54.8	20	138	113	20	137	138	1
		Iron, dissolved	1.0	< 0.200 U	< 0.200 U	NA	7.38	5.98	21	7.28	5.98	20
		Magnesium	NS	10.2	8.83	14	24.7	20.3	20	24.5	24.7	1
		Manganese, dissolved	0.2	1.19	1.91	46	4.07	3.45	16	4.08	3.49	16
		Potassium	NS	2.79	2.32	18	3.99	3.47	14	3.94	3.99	1
		Sodium	NS	30.4	25.6	17	41.1	34.8	17	40.6	42.1	4
	Method SW6020A (mg/L)	Arsenic	0.01	< 0.0020 U	< 0.0020 U	NA	0.0024 J	0.0020 J	18	0.0023 J	0.0017 J	30
		Lead	0.015	< 0.00025 U	< 0.00025 U	NA	< 0.00025 U	< 0.00025 U	NA	< 0.00025 U	< 0.00025 U	NA
Anions	Method E300.0 (mg/L)	Bromide	NS	1.8 J	1.6 J	12	2.3 J	2.2 J	4	2.3 J	2.0 J	14
		Chloride	250	55.0	23.7	80	61.4	52.6	15	61.0	47.4	25
		Sulfate	250	21.0	17.1	20	< 5.0 U	< 5.0 U	NA	< 5.0 U	3.0 J	NA
	Method E353.2 (mg/L)	Nitrate/Nitrite Nitrogen	10 <sup>e</sup>	< 0.10 U	0.79 J	NA	< 0.10 U	< 0.10 U	NA	< 0.10 U	< 0.10 U	NA
Alkalinity	Method SM2320B (mg/L)	Alkalinity, bicarbonate (as CaCO3)	NS	165	168	2	403	382	5	406	372	9
		Alkalinity, carbonate (as CaCO3)	NS	< 5.0 U	< 5.0 U	NA	< 5.0 U	< 5.0 U	NA	< 5.0 U	< 5.0 U	NA
		Alkalinity, total (as CaCO3)	NS	165	168	2	403	382	5	406	372	9

#### **Table 3-14**

### Comparison of Analytical Results between Bennett Pumps and Passive Samplers in Source Area Wells, Q4 2017

<sup>a</sup> Sample aliquots were collected using dual-membrane samplers.

<sup>b</sup> Nondetect results are reported less than the LOD.

<sup>c</sup> RPD is calculated as (A-B) / (A+B/2) X 100 where the Bennett pump result is A and the DMS result is B.

-- = sample not analyzed for this parameter

DMS = dual-membrane sampler

EDB = ethylene dibromide (1,2-dibromoethane)

LOD = limit of detection

LOQ = limit of quantitation

NA = RPD is not calculated if both results are nondetect or if one or both of the results are below the LOQ.

RPD = relative percent difference

VOC = volatile organic compound

Shaded = RPD value exceeds 35 percent field duplicate sample precision criteria (Kirtland AFB Quality Assurance Project Plan for Bulk Fuels Facility Expansion of the Dissolved-Phase Plume Groundwater Treatment System Design Solid Waste Management Unit ST-106/SS-111 (USAF 2016)

Qualifiers:

J = Qualifier denotes the analyte was positively identified, but the associated numerical value is estimated.

U = Qualifier denotes the analyte is not detected above the detection limit.

UJ = The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

Table 3-15
Comparison of Analytical Results between YSI and Aqua-Troll Parameter Readings for Source Area Wells, Q4 2017

			Well Location ID:	KAFB-	106005		KAFB-	106006		KAFB-	106008		KAFB-	106014	
			Sample Date:	10/23/2017	10/18/2017		10/19/2017	10/19/2017		10/20/2017	10/18/2017		10/20/2017	10/19/2017	
		Sam	ple Depth (ft bgs):	4	33		4	86		49	90		49	90	
		Reference	Elevation Interval	48	57		48	357		48	357		48	357	
						Relative			Relative			Relative			Relative
		NMAC	Project			Percent			Percent			Percent			Percent
Parameter	Analyte	NMWQCC <sup>a</sup>	Screening Level <sup>b</sup>	YSI	Aqua-troll	Difference	YSI	Aqua-troll	Difference	YSI	Aqua-troll	Difference	YSI	Aqua-troll	Difference
Field Parameters	Turbidity	NS	NS	10.9	3.63	100.1	2.65	1.43	59.8	9.07	1.5	143.2	3.66	3.00	19.8
	Temperature (°C)	NS	NS	18.3	19.77	7.7	19.9	20.43	2.6	17.50	19.82	12.4	18.80	19.68	4.6
	DO (mg/L)	NS	NS	0.6	0.07	156.9	2.94	.64	128.5	0.28	0.07	120.0	0.32	0.20	46.2
	DO (mg/L) Spec Cond (µS/cm)		NS NS	0.6 2463	0.07 1590.6	156.9 43.0	2.94 334.5			0.28 882.00	0.07 967.87	120.0 9.3	0.32 618.00	0.20 467.64	46.2 27.7
	. • ,						_	.64	128.5						

Table 3-15
Comparison of Analytical Results between YSI and Aqua-Troll Parameter Readings for Source Area Wells, Q4 2017

			Well Location ID:	KAFB-	106059		
			Sample Date:	10/19/2017	10/19/2017		
		Sam	ple Depth (ft bgs):	48	38		
		Reference	Reference Elevation Interval		4857		
_					_	Relative	
		NMAC	Project			Percent	
Parameter	Analyte	NMWQCC <sup>a</sup>	Screening Level <sup>b</sup>	YSI	Aqua-troll	Difference	
Field Parameters	Turbidity	NS	NS	1.66	273.15	197.6	
	Temperature (°C)	NS	NS	20.2	19.99	1.0	
	DO (mg/L)	NS	NS	0.58	.77	28.1	
	Spec Cond (µS/cm)	NS	NS	1016	896.17	12.5	
	pH (S.U.)	NS	NS	7.24	6.78	6.6	
	ORP (mV)	NS	NS	-134.8	-77.5	54.0	

#### **Table 3-15**

### Comparison of Analytical Results between YSI and Aqua-Troll Parameter Readings for Source Area Wells, Q4 2017

<sup>a</sup> NMWQCC numeric standards per the NMAC Title 20.6.2.3101A, Standards for Groundwater of 10,000 mg/L Total Dissolved Solids Concentration or Less (NMAC 2004). For metals,

μg/L = microgram per liter

μS/cm = microsiemens per centimeter

°C = degree Celsius

EPA = U.S. Environmental Protection Agency

ID = identification

NMAC = New Mexico Administrative Code

NMWQCC = New Mexico Water Quality Control Commission

REG = normal field sample

Spec Cond = Specific Conductivity

S.U. = standard unit

<sup>&</sup>lt;sup>b</sup> The project screening level was selected to satisfy the requirements of the Kirtland AFB Hazardous Waste Permit Number NM9570024423 as the lowest of (1) NMWQCC numeric standard or (2) EPA MCL. If no NMQWCC standard or MCL exists for any analyte, then the project screening level will be the EPA RSL.

Table 3-1
Groundwater Monitoring Program

	1st Quarter	2nd Quarter Semiannual	3rd Quarter	4th Quarter Annual	Former Well Designation and Monitoring Well
Location ID	(January-March)	(April-June)	(July-September)	(October-December)	Objective <sup>h,g</sup>
KAFB-106041 <sup>b,d</sup>	EDB, metals anions, alkalinity	Newly Adde EDB, metals anions, alkalinity	EDB, metals, anions, alkalinity	EDB, VOCs, metals, anions, alkalinity	NA NA
	EDB, metals anions, alkalinity	BTEX, EDB, metals anions, alkalinity	EDB, metals, anions, alkalinity	EDB, VOCs, metals, anions, alkalinity	NA NA
KAFB-106149-484 <sup>b,e</sup>	EDB, metals anions, alkalinity	BTEX, EDB, metals anions, alkalinity	EDB, metals, anions, alkalinity	EDB, VOCs, metals, anions, alkalinity	NA NA
KAFB-106151-484 <sup>b,e</sup>	EDB, metals anions, alkalinity	BTEX, EDB, metals anions, alkalinity	EDB, metals, anions, alkalinity	EDB, VOCs, metals, anions, alkalinity	NA NA
KAFB-106152-484 <sup>b,e</sup>	EDB, metals anions, alkalinity	BTEX, EDB, metals anions, alkalinity	EDB, metals, anions, alkalinity	EDB, VOCs, metals, anions, alkalinity	NA NA
KAFB-106153-484 <sup>b,e</sup>	EDB, metals anions, alkalinity	•	EDB, metals, anions, alkalinity		NA NA
KAFB-106235-463 <sup>b,f</sup>		EDB, metals anions, alkalinity		EDB, VOCs, metals, anions, alkalinity	
KAFB-106235-492 <sup>b,f</sup>	EDB, metals anions, alkalinity	EDB, metals anions, alkalinity	EDB, metals anions, alkalinity	EDB, VOCs, metals anions, alkalinity	NA NA
KAFB-106235-521 <sup>b,f</sup>	EDB, metals anions, alkalinity	EDB, metals anions, alkalinity	EDB, metals, anions, alkalinity	EDB, VOCs, metals, anions, alkalinity	NA
KAFB-106236-461 <sup>b,f</sup>	EDB, metals anions, alkalinity	EDB, metals anions, alkalinity	EDB, metals anions, alkalinity	EDB, VOCs, metals anions, alkalinity	NA
KAFB-106236-490 <sup>b,f</sup>	EDB, metals anions, alkalinity	EDB, metals anions, alkalinity	EDB, metals, anions, alkalinity	EDB, VOCs, metals, anions, alkalinity	NA
KAFB-106236-519 <sup>b,f</sup>	EDB, metals anions, alkalinity	EDB, metals anions, alkalinity	EDB, metals anions, alkalinity	EDB, VOCs, metals anions, alkalinity	NA
KAFB-106240-449 <sup>b,g</sup>	EDB, metals anions, alkalinity	EDB, metals anions, alkalinity	EDB, metals anions, alkalinity	EDB, VOCs, metals anions, alkalinity	NA
KAFB-106241-428 <sup>b,g</sup>	EDB, metals anions, alkalinity	EDB, metals anions, alkalinity	EDB, metals anions, alkalinity	EDB, VOCs, metals anions, alkalinity	NA
KAFB-106242-418 <sup>b,g</sup>	EDB, metals anions, alkalinity	EDB, metals anions, alkalinity	EDB, metals anions, alkalinity	EDB, VOCs, metals anions, alkalinity	NA
KAFB-106243-425 <sup>b,g</sup>	EDB, metals anions, alkalinity	EDB, metals anions, alkalinity	EDB, metals anions, alkalinity	EDB, VOCs, metals anions, alkalinity	NA
KAFB-106244-445 <sup>b,g</sup>	EDB, metals anions, alkalinity	EDB, metals anions, alkalinity	EDB, metals anions, alkalinity	EDB, VOCs, metals anions, alkalinity	NA
KAFB-106245-460 <sup>b,g</sup>	EDB, metals anions, alkalinity	EDB, metals anions, alkalinity	EDB, metals anions, alkalinity	EDB, VOCs, metals anions, alkalinity	NA
10A1 D-1002-40-400	,	Groundwater Mon		, ,	
KAFB-106001	None	EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Groundwater Monitoring
KAFB-106002	None	EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Groundwater Monitoring
KAFB-106003	BTEX, EDB, FP	BTEX, EDB, metals, anions, alkalinity, FP	BTEX, EDB, FP	EDB, VOCs, metals, anions, alkalinity, FP	VA Proximal
KAFB-106004	BTEX, EDB, FP	BTEX, EDB, metals, anions, alkalinity, FP	BTEX, EDB, FP	EDB, VOCs, metals, anions, alkalinity, FP	VA Proximal
KAFB-106005 <sup>b</sup>	BTEX, EDB, metals, anions, alkalinity	BTEX, EDB, metals, anions, alkalinity	BTEX, EDB, metals, anions, alkalinity	EDB, VOCs, metals, anions, alkalinity	Source Area
KAFB-106006	None	BTEX, EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Source Area
KAFB-106007	None	EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Groundwater Monitoring
KAFB-106008	None	BTEX, EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Source Area
KAFB-106009 <sup>b</sup>	BTEX, EDB, metals, anions, alkalinity	BTEX, EDB, metals, anions, alkalinity	BTEX, EDB, metals, anions, alkalinity	EDB, VOCs, metals, anions, alkalinity	Source Area
KAFB-106010	None	BTEX, EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Source Area
KAFB-106011	None	BTEX, EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Source Area
KAFB-106012R	BTEX, EDB, metals, anions, alkalinity, FP	BTEX, EDB, metals, anions, alkalinity, FP	BTEX, EDB, metals, anions, alkalinity, FP	EDB, VOCs, metals, anions, alkalinity, FP	Source Area
KAFB-106013	BTEX, EDB, FP	BTEX, EDB, metals, anions, alkalinity, FP	BTEX, EDB, FP	EDB, VOCs, metals, anions, alkalinity, FP	VA Proximal
KAFB-106014	None	BTEX, EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Source Area
KAFB-106015 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106016	None	EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Groundwater Monitoring
KAFB-106017	None	BTEX, Naphthalene, EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Signal
KAFB-106018	None	BTEX, Naphthalene, EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Signal Croundwater Menitoring
KAFB-106019 KAFB-106020	None None	EDB, metals, anions, alkalinity, FP EDB, metals, anions, alkalinity, FP	None None	EDB, VOCs, metals, anions, alkalinity, FP EDB, VOCs, metals, anions, alkalinity, FP	Groundwater Monitoring Groundwater Monitoring
	None	EDB, metals, anions, alkalinity  EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity, FP  EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring  Groundwater Monitoring
KAFB-106021 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106022 <sup>b</sup>		EDB, metals, anions, alkalinity  EDB, metals, anions, alkalinity		EDB, VOCs, metals, anions, alkalinity  EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring  Groundwater Monitoring
KAFB-106023 <sup>b</sup>	None	•	None	-	U
KAFB-106024	None None	EDB, metals, anions, alkalinity, FP	None None	EDB, VOCs, metals, anions, alkalinity, FP	Groundwater Monitoring
KAFB-106025 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106026 <sup>c</sup>					Groundwater Monitoring
KAFB-106027	None	EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Groundwater Monitoring
KAFB-106028	None	BTEX, EDB, metals, anions, alkalinity, FP	None EDB	EDB, VOCs, metals, anions, alkalinity, FP	Source Area
KAFB-106029 <sup>b</sup>	EDB	EDB, metals, anions, alkalinity		EDB, VOCs, metals, anions, alkalinity	Downgradient Proximal
KAFB-106030 <sup>b</sup>	EDB	EDB, metals, anions, alkalinity	EDB	EDB, VOCs, metals, anions, alkalinity	Downgradient Proximal

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Table 3-1
Groundwater Monitoring Program

Location ID	1st Quarter (January-March)	2nd Quarter Semiannual (April-June)	3rd Quarter (July-September)	4th Quarter Annual (October-December)	Former Well Designation and Monitoring Well Objective <sup>h,g</sup>
Location is	(January Maron)	Groundwater Monitori	· · · · · · · · · · · · · · · · · · ·	(October December)	Objective
KAFB-106031 <sup>b</sup>	EDB	EDB, metals, anions, alkalinity	EDB	EDB, VOCs, metals, anions, alkalinity	Downgradient Proximal
KAFB-106032 <sup>b</sup>	EDB	EDB, metals, anions, alkalinity	EDB	EDB, VOCs, metals, anions, alkalinity	Downgradient Proximal
KAFB-106033 <sup>b</sup>	EDB	EDB, metals, anions, alkalinity	EDB	EDB, VOCs, metals, anions, alkalinity	Downgradient Proximal
KAFB-106033 <sup>b</sup>	EDB	EDB, metals, anions, alkalinity	EDB	EDB, VOCs, metals, anions, alkalinity	Downgradient Proximal
KAFB-106035 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106035	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106030	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106037	None	BTEX, Naphthalene, EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Signal
KAFB-106039	None	EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Groundwater Monitoring
KAFB-106040	None	EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Groundwater Monitoring
KAFB-106042 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106043 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106044	None	EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Groundwater Monitoring
KAFB-106045	None	EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Groundwater Monitoring
KAFB-106046	None	EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Groundwater Monitoring
KAFB-106047	None	EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Groundwater Monitoring
KAFB-106048	None	EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Groundwater Monitoring
KAFB-106049 <sup>b</sup>	EDB	EDB, metals, anions, alkalinity	EDB	EDB, VOCs, metals, anions, alkalinity	Downgradient Proximal
KAFB-106050 <sup>b</sup>	EDB	EDB, metals, anions, alkalinity	EDB	EDB, VOCs, metals, anions, alkalinity	Downgradient Proximal
KAFB-106051 <sup>b</sup>	EDB	EDB, metals, anions, alkalinity	EDB	EDB, VOCs, metals, anions, alkalinity	Downgradient Proximal
KAFB-106052 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106053 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106054 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106055 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106055	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106058 <sup>b</sup> KAFB-106059	None	BTEX, EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity  EDB, VOCs, metals, anions, alkalinity, FP	Source Area
KAFB-106060	None	BTEX, EDB, metals, anions, alkalinity, FP  BTEX, EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Source Area
KAFB-106061	None	BTEX, EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Source Area
KAFB-106062	None	BTEX, EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Source Area
KAFB-106063	None	BTEX, EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Source Area
KAFB-106064	None	BTEX, EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Source Area
KAFB-106065	None	BTEX, EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Source Area
KAFB-106066	None	BTEX, EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Source Area
KAFB-106067	None	BTEX, EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Source Area
KAFB-106068	None	BTEX, EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Source Area
KAFB-106069	None	BTEX, EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Source Area
KAFB-106070 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106071 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106072 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106073	None	EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Groundwater Monitoring
KAFB-106074	None	EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Groundwater Monitoring
KAFB-106075	None	EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Groundwater Monitoring
KAFB-106076	None	BTEX, EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Source Area
KAFB-106077	None	BTEX, EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Source Area
KAFB-106078	None None	BTEX, EDB, metals, anions, alkalinity, FP BTEX, EDB, metals, anions, alkalinity	None None	EDB, VOCs, metals, anions, alkalinity, FP EDB, VOCs, metals, anions, alkalinity	Source Area Source Area
KAFB-106079 <sup>b</sup> KAFB-106080	None	BTEX, EDB, metals, anions, alkalinity  BTEX, EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity EDB, VOCs, metals, anions, alkalinity, FP	Source Area

Table 3-1
Groundwater Monitoring Program

Location ID	1st Quarter	2nd Quarter Semiannual	3rd Quarter	4th Quarter Annual	Former Well Designation and Monitoring Well Objective <sup>h,g</sup>
Location ID	(January-March)	(April-June)	(July-September)	(October-December)	Objective *
KAFB-106081	None	Groundwater Mon BTEX, EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Source Area
KAFB-106082	None	EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Groundwater Monitoring
KAFB-106083	None	EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Groundwater Monitoring
KAFB-106084	None	EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Groundwater Monitoring
KAFB-106085 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106086 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106087 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106088 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106089 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106090 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106091 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106092 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106093 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106094	None	EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Groundwater Monitoring
KAFB-106095 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106096	None	EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Groundwater Monitoring
KAFB-106097	BTEX, EDB, FP	BTEX, EDB, metals, anions, alkalinity, FP	BTEX, EDB, FP	EDB, VOCs, metals, anions, alkalinity, FP	VA Proximal
KAFB-106098	BTEX, EDB, FP	BTEX, EDB, metals, anions, alkalinity, FP	BTEX, EDB, FP	EDB, VOCs, metals, anions, alkalinity, FP	VA Proximal
KAFB-106099	BTEX, EDB, FP	BTEX, EDB, metals, anions, alkalinity, FP	BTEX, EDB, FP	EDB, VOCs, metals, anions, alkalinity, FP	VA Proximal
KAFB-106100	BTEX, EDB, FP	BTEX, EDB, metals, anions, alkalinity, FP	BTEX, EDB, FP	EDB, VOCs, metals, anions, alkalinity, FP	VA Proximal
KAFB-106101	BTEX, EDB, FP	BTEX, EDB, metals, anions, alkalinity, FP	BTEX, EDB, FP	EDB, VOCs, metals, anions, alkalinity, FP	VA Proximal
KAFB-106102	BTEX, EDB, FP	BTEX, EDB, metals, anions, alkalinity, FP	BTEX, EDB, FP	EDB, VOCs, metals, anions, alkalinity, FP	VA Proximal
KAFB-106103 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106104 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106105 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106106 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106107 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106201 <sup>b</sup>	EDB	EDB, metals, anions, alkalinity	EDB	EDB, VOCs, metals, anions, alkalinity	Downgradient Proximal
KAFB-106202 <sup>b</sup>	EDB	EDB, metals, anions, alkalinity	EDB	EDB, VOCs, metals, anions, alkalinity	Downgradient Proximal
KAFB-106203 <sup>b</sup>	EDB	EDB, metals, anions, alkalinity	EDB	EDB, VOCs, metals, anions, alkalinity	Downgradient Proximal
KAFB-106204 <sup>b</sup>	EDB	EDB, metals, anions, alkalinity	EDB	EDB, VOCs, metals, anions, alkalinity	Downgradient Proximal
KAFB-106205 <sup>b</sup>	EDB	EDB, metals, anions, alkalinity	EDB	EDB, VOCs, metals, anions, alkalinity	Downgradient Proximal
KAFB-106206 <sup>b</sup>	EDB	EDB, metals, anions, alkalinity	EDB	EDB, VOCs, metals, anions, alkalinity	Downgradient Proximal
KAFB-106207 <sup>b</sup>	EDB	EDB, metals, anions, alkalinity	EDB	EDB, VOCs, metals, anions, alkalinity	Downgradient Proximal
KAFB-106208 <sup>b</sup>	EDB	EDB, metals, anions, alkalinity	EDB	EDB, VOCs, metals, anions, alkalinity	Downgradient Proximal
KAFB-106209 <sup>b</sup>	EDB	EDB, metals, anions, alkalinity	EDB	EDB, VOCs, metals, anions, alkalinity	Downgradient Proximal
KAFB-106212 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106213 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106214 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106215 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106216 <sup>b</sup>	EDB	EDB, metals, anions, alkalinity	EDB	EDB, VOCs, metals, anions, alkalinity	Downgradient Proximal
KAFB-106217 <sup>b</sup>	EDB	EDB, metals, anions, alkalinity	EDB	EDB, VOCs, metals, anions, alkalinity	Downgradient Proximal
KAFB-106217 KAFB-106218 <sup>b</sup>	EDB	EDB, metals, anions, alkalinity	EDB	EDB, VOCs, metals, anions, alkalinity	Downgradient Proximal
	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106219 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity  EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106220 <sup>b</sup>		EDB, metals, anions, alkalimity  EDB, metals, anions, alkalimity		EDB, VOCs, metals, anions, alkalinity  EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring  Groundwater Monitoring
KAFB-106221 <sup>b</sup>	None		None		
KAFB-106222 <sup>b</sup>	EDB	EDB, metals, anions, alkalinity	EDB	EDB, VOCs, metals, anions, alkalinity	Downgradient Proximal

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Table 3-1
Groundwater Monitoring Program

		2nd Quarter		4th Quarter	Former Well Designation
	1st Quarter	Semiannual	3rd Quarter	Annual	and Monitoring Well
Location ID	(January-March)	(April-June)	(July-September)	(October-December)	Objective <sup>h,g</sup>
		Groundwater Mon	toring Wells <sup>a</sup>	•	
KAFB-106223 <sup>b</sup>	EDB	EDB, metals, anions, alkalinity	EDB	EDB, VOCs, metals, anions, alkalinity	Downgradient Proximal
KAFB-106224 <sup>b</sup>	EDB	EDB, metals, anions, alkalinity	EDB	EDB, VOCs, metals, anions, alkalinity	Downgradient Proximal
KAFB-106225 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106226 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106227 <sup>b</sup>	None	EDB, metals, anions, alkalinity	None	EDB, VOCs, metals, anions, alkalinity	Groundwater Monitoring
KAFB-106230 <sup>c</sup>					Groundwater Monitoring
KAFB-106231 <sup>b</sup>	EDB	EDB, metals, anions, alkalinity	EDB	EDB, VOCs, metals, anions, alkalinity	Downgradient Proximal
KAFB-106232 <sup>b</sup>	EDB	EDB, metals, anions, alkalinity	EDB	EDB, VOCs, metals, anions, alkalinity	Downgradient Proximal
KAFB-3411	None	EDB, metals, anions, alkalinity, FP	None	EDB, VOCs, metals, anions, alkalinity, FP	Groundwater Monitoring

# Table 3-1 Groundwater Monitoring Program

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Newly Added Wells—Newly added wells can include both existing wells that are added to the GWM network as well as newly installed wells. Newly added GWM wells require a minimum of four consecutive quarters of baseline full-suite analytical sampling before receiving a designation that determines the long-term sampling regime. These wells have been added to define the plume boundaries and provide additional water table monitoring due to the rising groundwater alevation.

Source Area Wells—Primarily located in the BFF south of Randolph Road SE and proximal to the spill site on-Base. Sampled during Q2 and Q4. These wells monitor the higher concentrations of dissolved-phase plumes on-Base. Downgradient Proximal Wells—Located north of Ridgecrest Drive SE surrounding the historical EDB plume to the west, north, and east into the distal portion of the GWM network. Analytical data for these wells have been historically below the maximum contaminant level (MCL) for EDB. Sampled every quarter. These wells assist in plume boundary definition.

Veterans Affairs (VA) Proximal Wells—Three sets of nested wells located between the historical EDB plume south of Ridgecrest Drive SE and the Raymond G. Murphy VA Medical Center as a means to detect any potential contaminant migration towards the VA medical campus. Sampled every quarter. These wells provide additional wellhead protection monitoring for the VA supply well.

Signal Wells—Three wells located along the south side of Ridgecrest Drive SE to monitor benzene, toluene, ethylbenzene, and total xylenes (BTEX) and provide early indication if the benzene plume is migrating from the source area into the interim measure target area capture zone created by the groundwater extraction wells. Sampled during Q2 and Q4.

Groundwater Monitoring Wells—Primarily location north of Ridgecrest Drive SE within the historical footprint of the EDB plume. Analytical data from these wells serve to define the volume and mass of the EDB plume throughout the GWM network. Sampled in Q2 and Q4.

BTEX = benzene, toluene, ethylbenzene, and total xylenes

EDB = ethylene dibromide

FP = field parameter

ID = identification

NA = not applicable

VOC = volatile organic compound

USACE, 2018. Quarterly Monitoring Report April-June 2018, Bulk Fuels Facility, SWMU ST-106/SS-111.

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<sup>&</sup>lt;sup>a</sup> The groundwater monitoring network consists of 149 wells that are currently sampled under Solid Waste Management Unit ST106/SS-111. Select wells are identified for additional or more frequent monitoring of risk-driving constituents. Metals analysis consists of select total metals (arsenic, calcium, lead, potassium, magnesium, and sodium) and select dissolved metals (iron and manganese). Anions analysis consists of bromide, chloride, nitrate/nitrite nitrogen, and sulfate. Field parameters include pH, specific conductivity, dissolved oxygen, oxidation reduction potential, temperature, and turbidity.

<sup>&</sup>lt;sup>b</sup> Well sampled with passive sampling methodology; field parameter measurements are not representative and therefore are not collected.

<sup>&</sup>lt;sup>c</sup>Well no longer sampled due to safety concerns.

<sup>&</sup>lt;sup>d</sup> Newly added to the groundwater monitoring network in fourth quarter 2017.

<sup>&</sup>lt;sup>e</sup> Newly added to the groundwater monitoring network in first quarter 2018.

f Newly installed groundwater monitoring well that was completed in fourth quarter 2016.

<sup>&</sup>lt;sup>9</sup> Newly installed groundwater monitoring well that was completed in third quarter 2018.

h In previous reports, groundwater monitoring wells were designated based on their location related to groundwater gradient and the EDB plume or on their location, i.e. "downgradient", "source area", etc. However, due to the changing regional groundwater gradient (see Quarter 2 2018 Quarterly Monitoring Report [USACE 2018]), these designations are not always appropriate. To simplify and more accurately represent dynamic hydrologic conditions, all groundwater monitorings wells will be designated simply as "groundwater monitoring well" after completing a baseline sampling of four quarters. Prior to the baseline sampling, the wells will be designated as "newly added".

<sup>&</sup>lt;sup>g</sup> Monitoring Well Objective: