



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 377TH AIR BASE WING (AFMC)



OCT 31 2013

Colonel Tom D. Miller
377 ABW/CC
2000 Wyoming Blvd SE
Kirtland AFB NM 87117-5600

RECEIVED

NOV 1 2013

Mr. John Hall
Groundwater Bureau (GWB)
New Mexico Environment Department (NMED)
1190 St Francis Drive
Santa Fe, New Mexico 87502

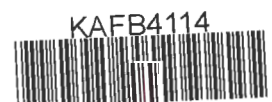
NMED
Hazardous Waste Bureau

Dear Mr. Hall

This letter is to request temporary permission for Kirtland Air Force Base (AFB) to discharge water from the constant rate aquifer test into the Kirtland AFB retention pond located in the northeast corner of San Mateo Blvd SE and Randolph Ave SE and the area known as Zia Park for land use applications. (See Attachment 1 for Discharge Location Map). The treated discharge wastewater will be routed to the retention pond or Zia Park at an estimated maximum of 150 gallons per minute (gpm). The depth to groundwater is approximately 500 ft bgs at the location of discharge. The following paragraphs describe the type of operation and source of discharge in detail. A sample Notice of Intent to discharge letter is included as Attachment 2.

The groundwater from the constant rate aquifer test is expected to contain EDB and possibly BTEX at levels that will exceed regulatory limits. Refer to Attachment 3 for the post development analytical data for KAFB-106157. In order to treat the discharged water, it will be run through three carbon beds. The carbon beds are sized to provide roughly 8 minutes of contact time in the primary absorbers. This contact time is needed to assure removal of EDB to levels below 0.05 micrograms per liter ($\mu\text{g/L}$), which is the regulatory limit. During the constant rate test, daily influent samples will be collected. Additionally, samples will be collected daily at the outlet of all three carbon beds. The samples will be submitted for analysis of the same suite of analytes as the untreated groundwater (Attachment 4) with a same-day turnaround time (TAT) for VOCs, EDB, TPH, and general chemistry and a 48-hr TAT for SVOCs and metals. These samples will be analyzed by Hall Environmental Laboratory in Albuquerque, New Mexico. Samples will be collected in the morning, and preliminary data will be available by the close of business the same day.

These samples will monitor for contaminant breakthrough of the carbon beds, allowing the treatment system to be shutdown in a timely manner if breakthrough does occur. Although a lower sampling frequency would ensure adequate monitoring for breakthrough, collecting EDB samples after each of the three GAC units provides data that will inform the design of any future groundwater treatment systems. If breakthrough is detected after the third GAC unit, the constant rate test will be stopped, and the treatment



system will be evaluated to determine where treatment has been insufficient and how it can be optimized. Refer to Section 3 of the *Groundwater Extraction Well KAFB-106157 Aquifer Testing Work Plan, Bulk Fuels Facility Spill, Solid Waste Management Units SS-106 and SS-11* for more details of the carbon bed treatment system.

The treated water from the constant rate pumping test will be discharged through PVC or HDPE piping into the retention pond located at San Mateo Blvd SE and Randolph Ave SE or an area known as Zia Park where the water will be sprayed through irrigation sprinklers for land use applications. The pipe from the treatment system will have two valves for switching between the retention pond and Zia Park. In this way, the retention pond, which has a maximum capacity of 2 million gallons, will not exceed the ideal limit of 800,000 gallons of treated wastewater. The retention pond will be plugged to prevent discharge into the KAFB stormwater system.

All sampling and analysis of groundwater samples will be conducted as outlined in Section 3.1.1.2 of the NMED accepted *Quality Assurance Project Plan* (August 2011).

Please contact Mr. L. Wayne Bitner at 505.853.3484 or at ludie.bitner@kirtland.af.mil or Mr. Scott C. Clark at 505.846.9017 or at scott.clark@kirtland.af.mil if you have any questions.

Sincerely

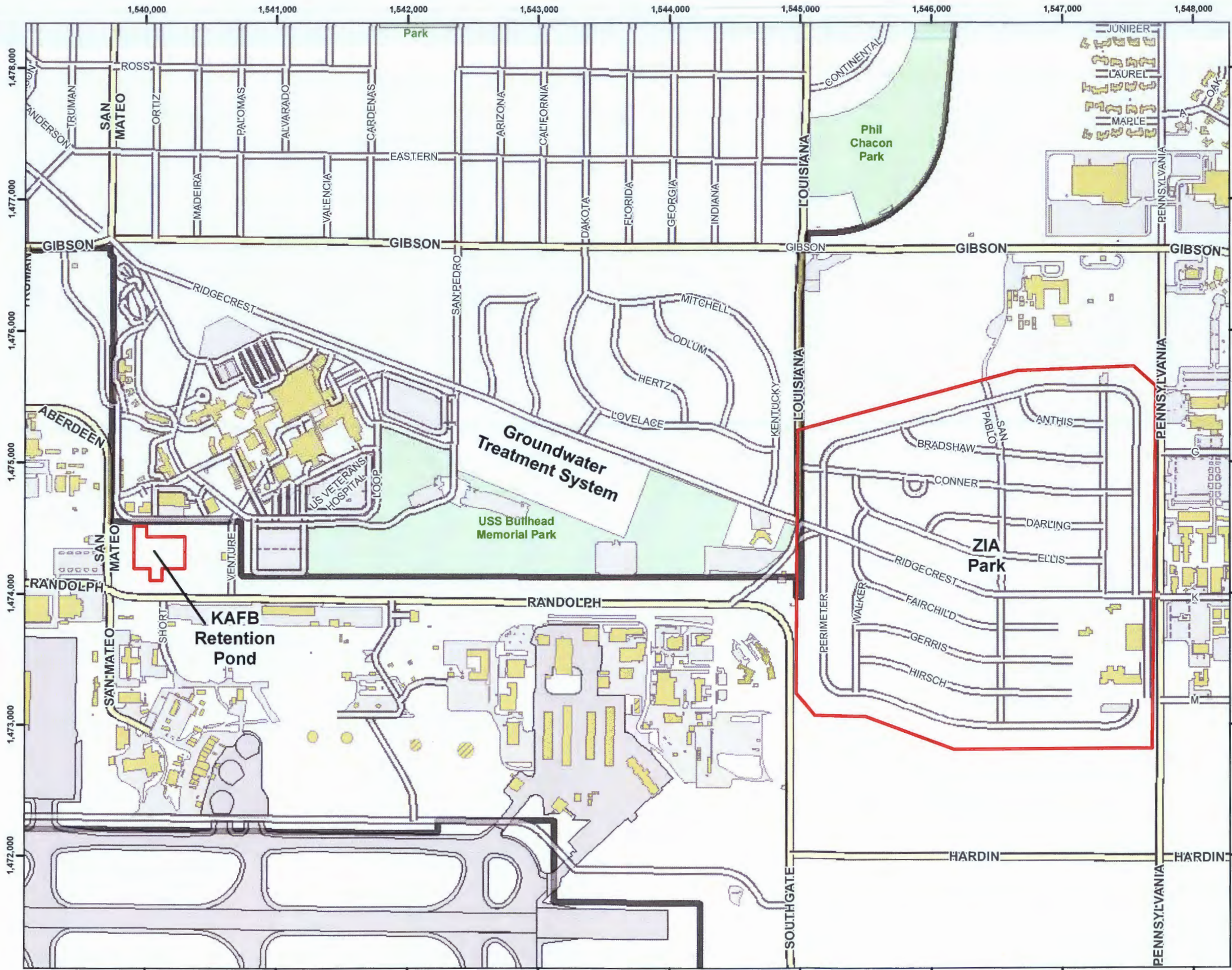


TOM D. MILLER, Colonel USAF
Commander

cc:

NMED-EHD (Blaine) w/o atch
NMED-HWB (Cobrain, Moats, McDonald, Brandwein) w/atth
NMED-GWQB (J. Schoepner) w/atth
NMED-PSTB (Reuter) w/atth
NMED-OGC (deSaillan) w/o atch
EPA Region 6 (King) w/o atch
AFCEE/CMSE (Oyelowo) w/o atch
Public Info Repository (Central New Mexico) w/atth
Administrative Record/Information Repository (AR/IR) w/atth
File, w/atth

ATTACHMENT 1



Legend

- Existing Structure
- Previously Existing Structure
- Park
- Paved Area
- Installation Boundary
- Major Road
- Road

bing
SITE LOCATION

Service Layer Credits: © Harris Corp, Earthstar Geographics LLC State of Michigan

Revision Date: 10/17/13

0 400 800 1,600
Feet
1 inch = 800 feet

Projection : NAD83 State Plane New Mexico Central FIPS3002 Feet

**BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO**

FIGURE 1

**GROUNDWATER TREATMENT SYSTEM,
ZIA PARK, AND RETENTION POND**

ATTACHMENT 2



1. Name and mailing address of person proposing to discharge:

Scott C. Clark

Work Phone: 505 846-9017

2050 WYOMING BLVD SE
KIRTLAND AFB, NM 87117

Cell/Home Phone: N/A
Fax: 505 853-1647

Email: SCOTT.CLARK@KIRTLAND.AF.MIL

2. Name of facility:

KIRTLAND AFB, New Mexico

3. Physical location of discharge (if applicable, give street address, township, range, section, distance from closest town or landmark, directions to facility, location map):

Retention pond located at the northeast corner of San Mateo Blvd SE and Randolph Ave SE, the area known as Zia Park (Both locations shown in attachment 1)

4. Type of operation generating the discharge (e.g., truck wash, food processing plant, restaurant, etc.):

Constant rate aquifer test

5. Source(s) of the discharge. Describe how the wastewater, sludge, or other discharges processed and/or disposed at your facility are generated. Identify all sources. Attach additional pages if needed:

Water generated from the constant rate aquifer pump test will be treated through activated carbon and then pumped through PVC piping into the retention pond or the sprinkler system at Zia Park.

6. Expected contaminants in the discharge (e.g., nitrate-nitrogen, metals, organic compounds, salts, etc.) Include estimated concentration if known, and copies of results of laboratory analyses, if available:

Water will be treated through granulated activated carbon to drinking water standards before being discharged into the retention pond. The source water is expected to contain BTEX and EDB above regulatory limits, however these contaminants will be treated during the carbon remediation phase.

7. Describe all components of wastewater processing, treatment, storage, and disposal system (e.g., grease interceptor, lagoon, septic tank/leachfield, etc.) Include sizes, site layout map, plans and specifications, etc. if available:

Three granular activated carbon beds will be used to treat water to below regulatory limits.

8. Estimated maximum daily discharge volume in gallons per day (or other units):

150 gallons per minute, approximately 1,600,000 gallons total

9. Estimated depth to ground water (ft):

Depth to groundwater is approximately 500 fbg at BFF site.

Signature: _____ Date: _____

Printed name: _____ Title: _____

Please return this form to:
NMED Ground Water Quality Bureau
P.O. Box 5469
Santa Fe, New Mexico 87502-5469

Telephone: 505-827-2900
Fax: 505-827-2965

ATTACHMENT 3

Attachment 3
Post Well Development Data for KAFB-106157

| | | | |
|-------------------------------|------------------------------------|-----------------------------|----------------------------|
| Well: | KAFB106157 (POST WELL DEVELOPMENT) | | |
| Sample ID: | 106157-D-1 | | |
| Sample Date: | 9/30/2013 | | |
| Parameter | Method | Sample Result (mg/L) | Permit Limit (mg/L) |
| Flow | | Totalizing flow meter | +/-10% |
| TRC | EPA330.5 | 0.1 | NA |
| pH | SM4500HB | 7.87 | 6 to 9 |
| CBOD5 | SM5210B | 3.48 | 15 |
| Total coliform (TC) | SM9223B | 1 | 23 orgs/100ml |
| Total Dissolved Solids (TDS) | SM2540C | 445 | 1000.0 |
| Nitrate (NO3-N) | EPA300 | <0.2 | see total N |
| Total Kjeldahl Nitrogen (TKN) | EPA351.2 | <1.5 | see total N |
| Total Nitrogen (TKN + NO3-N) | Calculation | ND | 10.0 |
| Turbidity | | | 5 NTU |
| Chloride (Cl ⁻) | EPA300 | 51.9 | 250.0 |
| Fluoride (F ⁻) | EPA300 | 0.212 | 1.6 |
| Sulfate (SO4 ⁻²) | EPA300 | 66 | 600.0 |
| Cyanide (CN) | EPA335.4 | <0.01 | 0.2 |
| Metals | | | |
| Aluminum | EPA200.8 | 0.3 | 5.0 |
| Arsenic | EPA200.8 | <0.01 | 0.1 |
| Barium | EPA200.8 | 0.27 | 1.0 |
| Boron | EPA200.8 | 0.061 | 0.75 |
| Cadmium | EPA200.8 | 0.00029 | 0.01 |
| Chromium | EPA200.8 | <0.01 | 0.05 |
| Cobalt | EPA200.8 | 0.0023 | 0.05 |
| Copper | EPA200.8 | 0.0031 | 1.0 |
| Iron | EPA200.8 | 1.1 | 1.0 |
| Lead | EPA200.8 | 0.00065 | 0.05 |
| Manganese | EPA200.8 | 1.3 | 0.2 |
| Total Mercury | EPA245.1 | <0.0002 | 0.002 |
| Molybdenum | EPA200.8 | 0.007 | 1.0 |
| Nickel | EPA200.8 | 0.024 | 0.2 |
| Selenium | EPA200.8 | <0.005 | 0.1 |
| Silver | EPA200.8 | <0.002 | 0.05 |
| Uranium | EPA200.8 | 0.0026 | 0.03 |
| Zinc | EPA200.8 | 0.23 | 10.0 |
| Radioactivity | | | |
| Radium 226 | | NA | |
| Radium 228 | | NA | 30 pC/L |
| Organics - Volatiles | | | |
| Benzene | SW8260B | 0.0113 | 0.01 |
| Carbon tetrachloride | SW8260B | <0.002 | 0.01 |

Attachment 3

Post Well Development Data for KAFB-106157

| Well: | KAFB106157 (POST WELL DEVELOPMENT) | | |
|-------------------------------------|------------------------------------|-----------------------------|----------------------------|
| Sample ID: | 106157-D-1 | | |
| Sample Date: | 9/30/2013 | | |
| Parameter | Method | Sample Result (mg/L) | Permit Limit (mg/L) |
| Chloroform | SW8260B | <0.002 | 0.10 |
| 1,1-Dichloroethane | SW8260B | <0.002 | 0.025 |
| 1,2-Dichloroethane | SW8260B | 0.00254 | 0.01 |
| 1-1-Dichloroethylene | SW8260B | <0.002 | 0.005 |
| Ethylbenzene | SW8260B | 0.0504 | 0.75 |
| Ethylene dibromide (EDB) | SW8011 | 0.000463 | 0.0001 |
| Methylene chloride | SW8260B | 0.00114 | 0.10 |
| 1,1,2,2-tetrachloroethane | SW8260B | <0.002 | 0.02 |
| Tolulene | SW8260B | 0.00118 | 0.75 |
| 1,1,1-Trichloroethane | SW8260B | <0.002 | 0.06 |
| 1,1,2-Trichloroethane | SW8260B | <0.002 | 0.01 |
| Trichloroethylene | SW8260B | <0.002 | 0.005 |
| Vinyl chloride | SW8260B | <0.001 | 0.001 |
| Xylenes | SW8260B | <0.006 | 0.62 |
| Organics - Semivolatiles | | | |
| Benzo(a)pyrene | SW8270D | <0.000192 | 0.0007 |
| Napthalene + monomethylnaphthalenes | SW8270D | 0.00819 | 0.03 |
| Phenols | SW8270D | ND | 0.005 |
| Organics - Pesticides/PCBs | | | |
| Polychlorinated biphenyls | SW8082 | <0.000463 | 0.001 |

Note

Metals data pending, dilution is needed.

Napthalene and monomethylnaphthalenes include naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene

Phenol compounds consist of following

| | | | |
|-------------------------------|----------|-----|-------------------------|
| 4-chloro-3-methylphenol | <0.00481 | LOQ | |
| 2-Chlorophenol | <0.00481 | LOQ | |
| 2,4-Dimethylphenol | <0.00481 | DL | positive results down t |
| 2,4-Dinitrophenol | <0.00801 | DL | positive results down t |
| 3-methylphenol/4-methylphenol | <0.00481 | LOQ | |
| pentachlorophenol | <0.00481 | DL | positive results down t |
| Phenol | <0.00481 | LOQ | |

ATTACHMENT 4

**Attachment 4
Sampling Plan for Aquifer Testing**

| Aquifer Test Stage | Location | Frequency | Analytical Parameters | Laboratory | Turn-Around Time | Total No. of Samples (depending on duration of constant rate test) |
|---|--------------------------------|--|---|------------------------------|---|---|
| During step-drawdown test | Influent-prior to treatment | once (within 30 minutes of effluent samples) | EDB by SW8011, Metals by SW6010B, SVOCs, by SW8270D, TPH-DRO and TPH-GRO by SW8015B, VOCs by SW8260B, general chemistry parameters (See Appendix E) | Empirical Laboratories | 72 hr | 1 |
| During 150 gpm pumping rate of step-drawdown test | Effluent of primary GAC unit | once | EDB by SW8011, Metals by SW6010B, SVOCs, by SW8270D, TPH-DRO and TPH-GRO by SW8015B, VOCs by SW8260B, general chemistry parameters (See Appendix E) | Empirical Laboratories | 72 hr | 1 |
| During 150 gpm pumping rate of step-drawdown test | Effluent of secondary GAC unit | once | EDB by SW8011, Metals by SW6010B, SVOCs, by SW8270D, TPH-DRO and TPH-GRO by SW8015B, VOCs by SW8260B, general chemistry parameters (See Appendix E) | Empirical Laboratories | 72 hr | 1 |
| During 150 gpm pumping rate of step-drawdown test | Effluent of tertiary GAC unit | once | EDB by SW8011, Metals by SW6010B, SVOCs, by SW8270D, TPH-DRO and TPH-GRO by SW8015B, VOCs by SW8260B, general chemistry parameters (See Appendix E) | Empirical Laboratories | 72 hr | 1 |
| Full duration of constant rate test | Influent-prior to treatment | once per day | EDB by SW8011 Metals by SW6010B, SVOCs, by SW8270D, TPH-DRO and TPH-GRO by SW8015B, VOCs by SW8260B, general chemistry parameters (See Appendix E) | Hall Analytical Laboratories | 6 hr TAT for VOCs, TPH, EDB, dissolved Fe and Mn, anions, ammonia and alkalinity, 48 hr TAT for SVOCs, total metals, and sulfide. | 3-7 |
| Full duration of constant rate test | Effluent of primary GAC unit | once per day | EDB by SW8011 Metals by SW6010B, SVOCs, by SW8270D, TPH-DRO and TPH-GRO by SW8015B, VOCs by SW8260B, general chemistry parameters (See Appendix E) | Hall Analytical Laboratories | 6 hr TAT for VOCs, TPH, EDB, dissolved Fe and Mn, anions, ammonia and alkalinity, 48 hr TAT for SVOCs, total metals, and sulfide | 3-7 |
| Full duration of constant rate test | Effluent of secondary GAC unit | once per day | EDB by SW8011 Metals by SW6010B, SVOCs, by SW8270D, TPH-DRO and TPH-GRO by SW8015B, VOCs by SW8260B, general chemistry parameters (See Appendix E) | Hall Analytical Laboratories | 6 hr TAT for VOCs, TPH, EDB, dissolved Fe and Mn, anions, ammonia and alkalinity, 48 hr TAT for SVOCs, total metals, and sulfide | 3-7 |
| Full duration of constant rate test | Effluent of tertiary GAC unit | once per day | EDB by SW8011 Metals by SW6010B, SVOCs, by SW8270D, TPH-DRO and TPH-GRO by SW8015B, VOCs by SW8260B, general chemistry parameters (See Appendix E) | Hall Analytical Laboratories | 6 hr TAT for VOCs, TPH, EDB, dissolved Fe and Mn, anions, ammonia and alkalinity, 48 hr TAT for SVOCs, total metals, and sulfide | 3-7 |