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DEPARTMENT OF THE ARMY  
US ARMY INSTALLATION MANAGEMENT COMMAND  
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT BLISS  
1 PERSHING ROAD  
FORT BLISS, TEXAS 79916-3803



REPLY TO  
ATTENTION OF:

October 26, 2010

Environmental Division

Mr. David Cobrain  
New Mexico Environment Department  
Hazardous Waste Bureau  
2905 Rodeo Park Drive East, Building 1  
Santa Fe, New Mexico 87505-6303

Dear Mr. Cobrain:

In accordance with our Settlement Agreement, Fort Bliss is pleased to forward the following for you review:

1. Wastewater Sampling Results Report for March 2010, Semi-Annual Wastewater Compliance Sampling for Meyer and Dona Ana – New Mexico Range Outfalls at Fort Bliss, Texas, April 2010 by Tetrahedron, Inc. through the Tulsa District Corps of Engineers Contract Number W 912BV-07-D-2050.
2. Wastewater Flow Monitoring Reports for September 2010 – April 2010, by Tetrahedron, Inc. through the Tulsa District Corps of Engineers Contract Number W 912BV-07-D-2050.

It should be noted that our wastewater quality sampling submitted today and in the future is based on El Paso Water Utilities Regulation No. 9 with additions, as requested by your office.

Should you require additional information or clarification, please contact our Wastewater Program Manager, Mr. Isaac Trejo at 915-478-1153 or [Isaac.trejo@us.army.mil](mailto:Isaac.trejo@us.army.mil).

Handwritten signature of Sylvia A. Waggoner in cursive.  
Sylvia A. Waggoner  
Chief, Compliance Branch  
Environmental Division  
Directorate of Public Works

Enclosure

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- I. **Wastewater Sampling Results Report for April 2010, Semi-Annual Wastewater Compliance Sampling for Meyer and Dona Ana- New Mexico Range Outfalls at Fort Bliss, Texas, September 2010 by Tetrahedron, Inc. through the Tulsa District Corps of Engineers Contract Number W 912BV-07-D-2050**
  
- II. **Wastewater Flow Monitoring Reports for September 2010-April 2010 by Tetrahedron, Inc. through the Tulsa District Corps of Engineers Contract Number W 912BV-07-D-2050**
  - a. **Wastewater Flow Monitoring Reports for September 2010**
  - b. **Wastewater Flow Monitoring Reports for August 2010**
  - c. **Wastewater Flow Monitoring Reports for July 2010**
  - d. **Wastewater Flow Monitoring Reports for June 2010**
  - e. **Wastewater Flow Monitoring Reports for May 2010**
  - f. **Wastewater Flow Monitoring Reports for April 2010**



US Army Corps  
of Engineers  
TULSA DISTRICT



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**WASTEWATER SAMPLING RESULTS REPORT FOR  
SEPTEMBER 2010**

**SEMIANNUAL WASTEWATER COMPLIANCE SAMPLING  
FOR MEYER AND DOÑA ANA - NEW MEXICO RANGE OUTFALLS**

**AT**

**FORT BLISS, TEXAS**

**Prepared for:**

**Directorate of Public Works  
Environmental Division  
Bldg. 622 Taylor Road, IMWE-BLS-PWE  
Fort Bliss, Texas 79916-6812**

**and**

**U.S. Army Corps of Engineers-Tulsa District  
1645 South 101<sup>st</sup> East Avenue  
Tulsa, OK 74128-4629  
Contract No. W 912BV-07-D-2050  
Task Order No. 0003**

**Prepared by:**



**Tetrahedron, Inc.  
1414 Key Highway, Suite B  
Baltimore, Maryland 21230**

**October 2010**

**WASTEWATER SAMPLING RESULTS REPORT FOR  
SEPTEMBER 2010**

**SEMIANNUAL WASTEWATER COMPLIANCE SAMPLING  
FOR MEYER AND DOÑA ANA - NEW MEXICO RANGE OUTFALLS  
AT  
FORT BLISS, TEXAS**

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## ACRONYMS

B	indicates an estimated value for inorganics, between MDL and RL
BTEX	benzene, toluene, ethyl benzene, xylene
BOD	Biological Oxygen Demand
COC	Chain-of-Custody
COD	Chemical Oxygen Demand
DPW-E	Directorate of Public Works – Environmental Division
EPA	U.S. Environmental Protection Agency
EPWU	El Paso Water Utilities
J	indicates an estimated value for organics, between MDL and RL
MCAWW	Methods for Chemical Analysis of Water and Wastes
MDL	Method Detection Limit
µg/L	micrograms per liter
mg/L	milligrams per liter
MS	matrix spike
MSD	matrix spike duplicate
NMED	New Mexico Environment Department
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference
SM	Standard Methods, 21 <sup>st</sup> Edition
SVOC	Semi-Volatile Organic Compounds
TBL	Technically Based Local Limits
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
USACE	United States Army Corps of Engineers
VOC	Volatile Organic Compounds

## 1.0 INTRODUCTION

In accordance with the settlement agreement with the New Mexico Environment Department (NMED) and Fort Bliss, this semiannual report is prepared summarizing wastewater monitoring efforts at two oxidation ponds (Doña Ana and Meyer) conducted for the New Mexico Range Outfalls in September 2010.

Tetrahedron, Inc., in accordance with the *Work Plan for Wastewater Sampling, Fort Bliss – New Mexico Operations*, updated November 2009, mobilized and installed ISCO samplers, collected wastewater samples, sent them to the laboratory for analysis and prepared this report. Tetrahedron performed this task under contract with the US Army Corps of Engineers, Tulsa District.

### 1.1 BACKGROUND

The semiannual wastewater monitoring at two outfalls in New Mexico has been occurring regularly for more than seven years. These discharges have been analyzed in to requirements from the Settlement Agreement and in accordance with El Paso Water Utilities (EPWU) Rule #9's current parameter list and its Technically Based Local Limits (TBLL) requirements. Per Settlement Agreement with the New Mexico Environment Department (NMED), two oxidation ponds (Doña Ana and Meyer) are reported to NMED.

The Doña Ana Outfall monitoring site (32° 8.67'N, 106° 30.32' W) is located about ¼ mile south of the Doña Ana Range Camp and about ¼ mile west of War Road. The Doña Ana Outfall is located behind a locked gate that is located approximately 250 meters from the Doña Ana Base Camp. The outfall is 2' deep, 3' in diameter, with a 24" manhole cover. The input is an 8" in diameter pipe and the output consist of two 8" pipes that feed through a soil berm to the sewer pond.

The Meyer Base Camp monitoring site (32° 1.712'N, 106° 8.887' W) is located approximately 250 meters from a training / temporary prisoner confinement area. The outfall is 6' wide with a 24" manhole cover. This is a sewage lift station.

These sites are sampled semiannually, in March and September, and do not require confined space entry for sampling. Fort Bliss is responsible for the maintenance of the sites. Figure 1-1 shows their general locations in Fort Bliss, New Mexico Operations, relative to Fort Bliss, Texas.



Source: Google Earth, 2010

**Figure 1-1 Overview of Outfall Locations in New Mexico**

## **1.2 FIELD INVESTIGATION AND REPORTING**

Discharges to the New Mexico Range Camp treatment ponds are not regulated. In the absence of New Mexico regulatory standards, the sampling parameters and limits used are in accordance with EPWU's Rule #9 regulatory limits and the NMED Settlement Agreement. At the request of Fort Bliss Directorate of Public Works – Environmental Division (DPW-E), additional metals, Volatile Organic Compounds (VOCs) by Method 8260, and Semi-Volatile Organic Compounds (SVOCs) by Method 8270, were added to the list of analytes. The EPWU Rule #9 limits are used to compare data results with effluent quality parameters used elsewhere on the installation. Fort Bliss will continue semiannual wastewater sampling in accordance with the wastewater discharge agreement with EPWU and the Settlement Agreement.

As part of the Settlement Agreement, Fort Bliss conducts semiannual wastewater sampling analyses, at two sites in New Mexico. The samples are required to be taken in September and March. This report covers the September 2010 sampling results.



## 2.0 MONITORING LOCATIONS AND REQUIREMENTS

Table 2-1 lists the sampling locations.

**Table 2-1 Areas Designated for New Mexico Range Outfalls Wastewater Monitoring**

	<b>Site Name</b>	<b>Width of Manhole Cover</b>	<b>Depth to Flow</b>	<b>Base Flow Rate</b>	<b>Notes</b>
1	Meyer	Slab covered pit 1.5x2 ft	2 feet	Variable	Pipe empties to pit, ISCO has to be mounted outside of pit when sampling
2	Doña Ana	24 inches	2 feet	Low	8-inch pipe inlet, ISCO has to be mounted outside when sampling

### 2.1 SITE ACCESS

Monitoring sites are located at open ponds or beneath access covers. Copies of the field logbook documenting sampling activities conducted by the field sampling crew are found in Appendix A.

### 2.2 ISCO SAMPLER PREPARATION & INSTALLATION

ISCO samplers were cleaned and prepared prior to use. The samplers are disassembled, scrubbed to remove any solids or residue, washed with a phosphate-free detergent, and rinsed with tap water. The samplers were then rinsed again with deionized water and allowed to air-dry before being reassembled.

Once clean, each sampler was tested with deionized water to ensure all parts of the sampler were working properly. If necessary, additional parts such as hoses, gaskets, washers or replacement parts were ordered. After the ISCO samplers are air-dried, they were reassembled and stored.

### 2.3 WASTEWATER COLLECTION CRITERIA

Wastewater sampling was accomplished by deployment of automatic compositing samplers (ISCO Model 3710). The samplers were set to withdraw a sample every hour for 24 hours,

resulting in a single 24-hour composite wastewater sample per outfall. Deployment and sample collection procedures follow:

- 1) Each sampler was calibrated to withdraw approximately 500 ml of effluent an hour for 24 hours from the outfall for each sample. Program adjustments were made due to the varying lengths of sample tubing.
- 2) Each sampler was secured by locks and chains to prevent tampering or theft.
- 3) Samplers are checked after 24 hours to make sure that adequate sample volume had been collected and that the sampler had performed as desired.
- 4) Grab VOCs, cyanide, oil and grease, and pH samples are collected.
- 5) Field pH readings are taken within 15 minutes of collecting the grab sample from the waste stream.
- 6) All sample containers are labeled with the outfall designator, date, time collected, and analysis requested. Chains-of-custody (COC) forms with outfall designator, date, time collected, analysis requested and sampler's name for each sample are completed and all samples are placed into a cooler with sufficient wet ice to keep the samples at  $<6^{\circ}\text{C}$  and sent priority overnight to the analytical laboratory the day of collection.

Numeric effluent limitations for discharges of wastewater to inland waters of New Mexico follow EPWU's Rule #9 and NMED Settlement Agreement. They are presented in Table 2-2 and Table 2-3. Only the most current limits for each sampling event will be used. Additional parameters required by Fort Bliss for these sites are presented in Table 2-4.

**Table 2-2 Analytes with Numeric Effluent Limitations per El Paso Discharge of Wastewater by EPWUs Rule #9**

Pollutant	NEW_TBLL Daily Average (mg/L)	NEW Maximum Concentration (mg/L)	Analytical Method
Total Arsenic	0.11	0.22	SW846 6010
Total Cadmium	0.11	0.22	SW846 6010
Total Chromium	1.22	2.44	SW846 6010
Total Copper	1.75	3.50	SW846 6010
Total Iron	--	--	SW846 6010
Total Lead	0.66	1.32	SW846 6010
Total Mercury	0.0002	0.0002	SW846 7470A
Total Molybdenum	0.15	0.30	SW846 6010
Total Nickel	1.04	2.08	SW846 6010
Total Selenium	0.24	0.48	SW846 6010
Total Silver	0.83	1.66	SW846 6010
Total Zinc	3.73	7.46	SW846 6010
Cyanide	1.08	2.16	MCAWW 335.4
Total Oil and Grease	100	--	SW846 1664A
Total Dissolved Solids (TDS)	5,448	10,896	SM 2540C
Color	300	--	SM 2120B
Benzene	1.93	1.93	SW846 8260
Toluene	17.0	17.0	SW846 8260
Ethyl Benzene	16.0	16.0	SW846 8260
Xylene	17.0	17.0	SW846 8260
pH	5.5-10.5 pH units	5.5-10.5 pH units	SM 4500H

TBLL = Technically Based Local Limit concentration for each analyte tested

MCAWW = "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 = EPA 1986, etc., *Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846)*, Third Edition, Sept. 1986; Final Update I, July 1992; Final Update IIA, August 1993; Final Update II; Final Update IIB, January 1995; Final Update IIIA, December 1996 and IIIB; IVA; and IVB, January 2008.

SM = *Standard Methods for the Examination of Water and Wastewater*. 21st Edition, AWWA, APHA, WPCF; Water Pollution Control Federation, Washington, DC, 2005

**Table 2-3 Additional Analytes Required for NMED Settlement Agreement**

Pollutant	TBLL-Maximum Concentration (mg/l)	Analytical Method
Total Aluminum	--	SW846 6010
Total Antimony	--	SW846 6010
Total Barium	--	SW846 6010
Total Beryllium	--	SW846 6010
Total Calcium	--	SW846 6010
Total Cobalt	--	SW846 6010
Total Magnesium	--	SW846 6010
Total Manganese	--	SW846 6010
Total Potassium	--	SW846 6010
Total Sodium	--	SW846 6010
Total Thallium	--	SW846 6010
Total Vanadium	--	SW846 6010
Volatile Compounds (VOCs) *	See Table 2-2 for BTEX limits	SW846 8260
Semi-Volatile Compounds (SVOCs) *	--	SW846 8270

SW846 = EPA 1986, etc., *Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846)*, Third Edition, Sept. 1986; Final Update I, July 1992; Final Update IIA, August 1993; Final Update II; Final Update IIB, January 1995; Final Update IIIA, December 1996 and IIIB; IVA; and IVB, January 2008.

\* Compounds analyzed for can be found in Appendix B, Laboratory Data Reports

**Table 2-4 Additional Parameters Requested by Fort Bliss**

Pollutant	TBLL-Maximum Concentration (mg/l)	Analytical Method
Biological Oxygen Demand (BOD <sub>5</sub> )	--	SM 5210B
Chemical Oxygen Demand (COD)	--	SM 5220D
Total Suspended Solids (TSS)	--	SM 2540D

BOD<sub>5</sub> = 5 day BOD

SM = *Standard Methods for the Examination of Water and Wastewater*. 21st Edition, AWWA, APHA, WPCF; Water Pollution Control Federation, Washington, DC, 2005.

## 2.4 WASTE DISPOSAL

Wastes generated during field activities were classified as household waste and consisted of nitrile gloves, plastic wrappers, foam inserts and paper trash. Wastes were disposed of in Fort Bliss public trash receptacles.

### 3.0 WASTEWATER ANALYTICAL MONITORING

#### 3.1 ANALYTICAL SAMPLING

During the current reporting period, September 2010, Tetrahedron, Inc. collected samples from the designated outfalls (see Table 2-1 for locations) on 3, 8, and 9 September 2010. Sample handling, preservation, and analysis are conducted in accordance with the *Work Plan for Wastewater Sampling, Fort Bliss – New Mexico Operations*, prepared by Tetrahedron, Inc., November 2009. This is a semiannual monitoring requirement and must be conducted in March and September.

#### 3.2 WASTEWATER SAMPLING CHRONOLOGY

Actual sampling at the range camps was initiated on 3 September 2010. Table 3-1 shows the chronology for sampler set-up and collection. EPWU Rule #9 requires the use of flow or time-proportional sampling for wastewater discharge compliance monitoring (EPWU Rule #9, Section III, B.1). Appendix A contains copies of the calibration log, sign-in sheets, and field logbook notes documenting field activities.

**Table 3-1 Summary of Sample Start and Collection Dates/Times at Fort Bliss – New Mexico Range Outfalls**

<b>Outfall Designator</b>	<b>Start Date/Time</b>	<b>Sample Collection Date/Time</b>
Meyer	7 September // 11:25	8 September // 10:25
Doña Ana	8 September // 12:25	9 September // 12:45
Meyer Duplicate	7 September // 11:25	8 September // 10:25
Field Blank	--	3 September // 13:40

### 3.3 WASTEWATER SAMPLE COLLECTION

Tetrahedron, Inc. collected grab and composite samples from both monitored locations at Fort Bliss for semiannual pollutant monitoring. Analytical results from all designated wastewater outfalls were compared to the numeric effluent limitations set by EPWU's Rule #9 and NMED Settlement Agreement (effluent limitations found in Tables 2-2 through 2-4). Analytical Results for the monitoring sites at the Meyer Range Camp and Doña Ana Range Camp are located in Tables 3-2 through 3-5.

A grab wastewater sample was collected for volatiles (including benzene, toluene, ethylbenzene, xylenes (BTEX)), pH, cyanide, and oil & grease.

A 24-hour composite sample was also collected for: Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Total Suspended Solids (TSS), Total Dissolved Solids (TDS), Color, Semi-volatile Organic Compounds (SVOCs) and total metals: arsenic, cadmium, chromium, copper, iron, lead, mercury, molybdenum, nickel, selenium, silver and zinc. In addition, NMED requires the following additional total metals: aluminum, antimony, barium, beryllium, calcium, cobalt, magnesium, manganese, potassium, sodium, thallium, and vanadium.

During the current reporting period, samples were collected from both designated outfalls and prepared for shipment to Accutest Laboratories for analysis. Sample handling, preservation, and analysis were conducted in accordance with the *Work Plan for Wastewater Sampling, Fort Bliss – New Mexico Operations*, updated November 2009, prepared by Tetrahedron, Inc.

### 3.4 WASTEWATER MONITORING DATA RESULTS

A summary of wastewater monitoring data collected for grab and composite samples during this reporting period from the Doña Ana and Meyer outfalls at Fort Bliss – New Mexico Range outfalls is shown in Tables 3-2 through 3-4. These tables show the results by outfall and parameter. All analytical results are within normal and expected ranges for the respective parameter. Copies of the laboratory data reports from Accutest Laboratories can be found in Appendix B and the associated chain of custody forms for samples collected for analysis can be found in Appendix C. Analytical monitoring is a semiannual event and was completed and reported during this current reporting period.

Analytical monitoring data was compared to numeric limitations for the values established in the EPWU Rule #9 issued to Fort Bliss – New Mexico Ranges Outfalls. There are no Rule #9 exceedances for these outfalls.

**Table 3-2 Metals (SW 846 Method 6010/7470A for Mercury only)  
Analytical Results Summary  
(Regulatory Limits per EPWU Rule #9 where applicable)  
(units in mg/L)**

Parameter	CAS #	Outfall Designation					Relative Percent Difference (RPD) [Meyers-Meyers Duplicate]
		EPWU Regulatory Limits (TBLL)	Meyer	Doña Ana	Meyer Duplicate	Field Blank	
Aluminum	7429-90-5	NA	0.0757B	0.154B	0.0810B	0.0266 B	NA
Antimony	7440-36-0	NA	<0.001	0.001B	<0.001	<0.001	NA
Arsenic	7440-38-2	0.11	0.0043B	0.0035B	0.005	<0.001	15.1
Barium	7440-39-3	NA	0.114B	0.0751B	0.114B	<0.0034	NA
Beryllium	7440-41-7	NA	<0.00016	<0.00016	<0.00016	<0.00016	NA
Cadmium	7440-43-9	0.11	<0.00009	0.00027B	0.00028B	<0.00009	NC
Calcium	7440-70-2	NA	42.1	32.4	42	0.134B	NA
Chromium	7440-47-3	1.22	0.0032B	0.0027B	0.0029B	<0.00027	9.84
Cobalt	7440-48-4	NA	<0.00022	<0.00022	<0.00022	<0.00022	NA
Copper	7440-50-8	1.75	0.0109B	0.039	0.0118B	<0.0059	7.93
Iron	7439-89-6	NS	0.0848B	0.501	0.0837B	<0.023	1.31
Lead	7439-92-1	0.66	0.0021B	0.0028B	<0.0018	<0.0018	NC
Magnesium	7439-95-4	NA	9.87	9.35	9.79	<0.0079	NA
Manganese	7439-96-5	NA	0.0055B	0.0302	0.0056B	<0.0019	NA
Mercury	7439-97-6	0.0002	<0.00005	<0.00005	<0.00005	<0.00005	NC
Molybdenum	7439-98-7	0.15	0.0059B	0.0056B	0.0059B	<0.0002	0.0
Nickel	7440-02-0	1.04	<0.0014	<0.0014	<0.0014	<0.0014	NC
Potassium	9/7/7440	NA	13.7	15.4	13.6	0.199B	NA
Selenium	7482-49-2	0.24	<0.00098	<0.00098	0.0031B	<0.00098	21.4
Silver	7440-22-4	0.83	<0.00024	<0.00024	<0.00024	0.00029B	NC
Sodium	7440-23-5	NA	105	80.4	104	0.258B	NA
Thallium	7440-28-0	NA	<0.0012	<0.0012	<0.0012	<0.0012	NA
Vanadium	7440-62-2	NA	0.0078B	0.0042B	0.008B	<0.0003	NA
Zinc	7440-66-6	3.73	0.017B	0.0435	0.0176B	0.0043B	3.47

NA = Not applicable, this is not an EPWU analyte under Rule #9. There is no TBLL for this analyte.

NC = Not calculated due to one or both samples being < detection limit.

NS = Not Specified: there is no TBLL concentration for these analytes.

TBLL = Technically Based Local Limit based on EPWU Rule #9.

B = indicates value  $\geq$  Method Detection Limits (MDL) and < Reporting Limit (RL).

TBLL changed since last sampling event.

RPD =  $(S-D)/[(S+D)/2] \times 100$ , where S = first sample value (original), and D = second sample value (duplicate).

**Table 3-3 Detectable Volatile and Semi-volatile Organic Compounds  
Analytical Results Summary  
(units in mg/L)**

Analyte	CAS#	TBLL (mg/L)	Meyer	Dofa Ana	Meyer Duplicate	Field Blank	Relative Percent Difference (RPD) [Meyers-Meyers Duplicate]
<b>Detectable VOCs (Method 8260)</b>							
Acetone	67-64-1	NA	<0.0047	0.0241J	<0.0047	<0.0047	NA
Bromodichloro- methane <sup>a</sup>	75-27-4	NA	0.0016J	<0.00049	0.0017J	<0.00049	NA
Bromoform <sup>a</sup>	75-25-2	NA	0.0028	<0.0014	0.0023	<0.0014	NA
Chloroform <sup>a</sup>	67-66-3	NA	0.00069J	<0.0064	0.00086J	0.0057	NA
Chlorodibromo- methane <sup>a</sup>	124-48-1	NA	0.0035	<0.00061	0.0033	<0.00061	NA
Carbon disulfide	75-15-0	NA	<0.00053	0.00059J	<0.00053	<0.00053	NA
Methyl ethyl ketone (MEK)	78-93-3	NA	<0.0038	0.0082J	<0.0038	<0.0038	NA
Toluene	108-88-3	17	<0.00043	0.0018J	<0.00043	<0.00043	NC
<b>Detectable SVOCs (Method 8270)</b>							
3&4 Methylphenol	108-39-4 106-44-5	NA	<0.0016	0.0666	<0.0016	<0.0016	NA
Benzoic Acid	65-85-0	NA	<0.005	0.308 <sup>b</sup>	<0.005	<0.005	NA
Benzyl alcohol	100-51-6	NA	<0.0013	0.0086	<0.0013	<0.0013	NA
bis(2- Ethylhexyl) phthalate	117-81-7	NA	0.0113	0.0188	0.0119	<0.0018	NA
Butyl Benzyl phthalate	85-68-7	NA	<0.0016	0.0017J	<0.0016	<0.0016	NA
Diethylphthalate	84-66-2	NA	<0.0011	0.0029J	<0.0011	<0.0011	NA
Phenol	108-95-2	NA	<0.00076	0.0208	<0.00076	<0.00076	NA

TBLL = Technically Based Local Limit based on EPWU Rule #9.

NA = Not applicable, this is not an EPWU analyte under Rule #9. There is no TBLL for this analyte, no %RPD was calculated.

NC = Not calculated due to one or both sample and its duplicate being < detection limit.

J = Result value  $\geq$  Method Detection Limit (MDL) and < Reporting Limit (RL).

<sup>a</sup> = These are disinfectant by-products.

<sup>b</sup> = Analytical result is from second analytical run.

RPD =  $(S-D)/[(S+D)/2] \times 100$ , where S = first sample value (original), and D = second sample value (duplicate).



**Table 3-4 Other Parameters Required by Fort Bliss  
Analytical Results Summary  
(units in mg/L, except color)**

Analyte	CAS#	TBLL (mg/L)	Meyer	Doña Ana	Meyer Duplicate	Field Blank	Relative Percent Difference (RPD) [Meyers-Meyers Duplicate]
BOD	--	NS	18.0	142	15.1	<1.0	17.5
COD	--	NS	45.2	320	41.7	13.3B	8.06
TDS	--	5,448	445	472	533	12	18.0
TSS	--	NS	11.3	52.0	13.0	<1.0	14.0
Color (ADMI units)	--	300	30	45	45	0B	40.0*
Cyanide	74-90-8	1.08	<0.004	0.0045B	<0.004	<0.004	NC
Oil & Grease	--	100	2.0	9.4	4.1	< 2.0	68.9*
pH	--	5.5-10.5	7.94	8.50	7.97	5.87	0.38

TBLL = Technically Based Local Limit based on EPWU Rule #9.

TBLL changed since last sampling event.

NC = Not calculated due to one or both sample and its duplicate being < detection limit.

NS = Not Specified: there is no TBLL concentration for these analytes.

B = Result value is  $\geq$  than Method Detection Limit (MDL) and < Reporting Limit (RL)

-- = No CAS# for this parameter.

<sup>a</sup> = Analytical result is from second analytical run.

RPD =  $(S-D)/[(S+D)/2] \times 100$ , where S = first sample value (original), and D = second sample value (duplicate).

\* = Although all composite samples are mixed in an attempt to ensure sample uniformity prior to collection of the split sample, the method of sample capture can result in an unequal partitioning of suspended solids which effect other parameters.

### 3.5 DISCHARGE LIMIT EXCEEDANCES

There were no EPWU Rule #9 regulatory limits exceeded for these outfalls. These limits are not required to be reported to the EPWU or the NMED, these limits are used to compare data with effluent quality parameters used elsewhere on the installation.

### 3.6 DATA QUALITY ISSUES

Upon receipt of analytical results, Tetrahedron, Inc. conducted a thorough data review and quality check of the results. Two Quality Control (QC) samples were collected (one composite and one grab) from the Meyer outfall location, labeled as NM\_QC in the laboratory report and Meyer Duplicate in the tables. Comparison of the Relative Percent Difference (RPD) results can be found in the last column of Tables 3-2 and 3-4 (Analytical Summary Tables).

All MDLs are satisfied and all surrogate recoveries are within acceptable method criteria. All samples are free of laboratory contaminants as observed from method blanks that met all criteria.

VOCs - The percent recovery for the matrix spike (MS) was slightly high for the bromoform spike, and high for 2-hexanone and 4-methyl-2-pentanone in the matrix spike/matrix spike duplicate (MS/MSD), (this was probably due to matrix interference. The blank spike had all compounds for percent recovery within control limits. No samples were affected for these analytes.

SVOCs - The MS/MSD percent recovery for benzoic acid was high and did not meet acceptable method criteria. The sample for SVOCs for Doña Ana were diluted and reanalyzed for benzoic acid, but were not considered adversely affected by high spike recoveries for benzoic acid. The MS/MSD percent recovery was slightly high for other compounds possibly due to matrix interference and the samples being non-homogenous. There were no significant concentration levels of any SVOC compounds found in these samples that would be affected by these data quality issues. No sample results were affected for these analytes.

Metals – RPDs for duplicates and serial dilutions were outside of control limits for several metals; this was considered acceptable due to sample concentrations of the metals being low. No samples were affected for these analytes.

Chemical Oxygen Demand - matrix spike recoveries were outside of control limits, probably due to matrix interference. Chemical Oxygen Demand, Method SM19 5220C, was requested on the COC, the laboratory analyzed the samples by method SM19 5220D. Both are acceptable methods according to the current 40 CFR Part 136.3.

Oil and Grease – RPDs for duplicates were outside of control limits; this was considered acceptable due to sample used for the duplicate had low concentrations of oil and grease. No samples were considered affected for these analytes.

The method blanks and spiked blanks were in control for VOCs, SVOCs, Metals, Chemical Oxygen Demand and oil and grease for these samples. All other parameters tested were in control.

### **3.7 FIELD QUALITY CONTROL SAMPLES**

The QC samples collected in the field and shipped include field duplicates, field blanks and a trip blank.

#### **3.7.1 Field Duplicates**

This type of field duplicate measures the total system variability (field and laboratory variance). Two field duplicates were obtained, one composite and one grab sample from the Meyer Outfall location. It must be noted that while the grab samples are true duplicate samples, the composite duplicate is actually a split sample taken from the composite of the original. The samplers and

the laboratory refer to the field duplicates as NM\_QC for both the grab and the composite samples.

Although all composite samples are mixed in an attempt to ensure sample uniformity prior to collection of the split sample, the method of sample capture can result in an unequal partitioning of suspended solids that affect other parameters. The larger RPDs for some parameters, (i.e. color and oil and grease) are driven by the non-homogeneous character of the wastewater samples.

### **3.7.2 VOC Trip Blank and Field Blank**

Trip blanks, consisting of an aliquot of laboratory grade deionized water, are shipped with VOC sample containers and are used to determine whether the sample bottle was contaminated during shipment from the bottle storage, shipment to the laboratory, or during analysis at the laboratory. Field blanks, filled with distilled water in the field during sample collection, are collected to evaluate potential contamination of samples during sample collection. Very low levels of some analytes were found in the field blank.

#### 4.0 CONCLUSIONS

In accordance with the settlement agreement with the New Mexico Environment Department (NMED) and Fort Bliss, this semiannual report is prepared summarizing wastewater monitoring efforts at two oxidation ponds (Doña Ana and Meyer) conducted for the New Mexico Range Outfalls in September 2010. Samples were collected 3, 8, and 9 September 2010.

All wastewater sample results are well within the EPWU Rule #9 TBLLs. There were no sampling anomalies and all QC samples are within normal and acceptable limits.

## REFERENCES

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<http://www.epa.gov/epawaste/hazard/testmethods/sw846/online/index.htm>

**APPENDIX A**

**Copy of Field Log Pages and pH Calibration Pages for Current Reporting Period  
for September 2010**