U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 8
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
STATEMENT OF BASIS

PERMITTEE:	United States Department of the Army
FACILITY NAME AND ADDRESS:	Fort Carson, Colorado – Landfill No. 5 1626 Evans Street, Bldg 1219 Fort Carson, CO 80913
PERMIT NUMBER:	CO0034771
RESPONSIBLE OFFICIAL:	Joseph Wyka Director Public Works Fort Carson (719) 526-1730 joseph.e.wyka.civ@army.mil
FACILITY CONTACT:	Jeff Farmer Environmental Division Fort Carson, CO 80913 (719) 526-1730 jeffery.b.farmer.civ@army.mil
PERMIT TYPE:	Minor, Permit Renewal, Industrial
FACILITY LOCATION:	Landfill No. 5 is located in the Southwest ¼ Section 10, Township 15S, Range 66W in El Paso County, CO

1 INTRODUCTION

This Statement of Basis (SOB) is for the renewal of the National Pollutant Discharge Elimination System (NPDES) permit (the Permit) to the United States Department of the Army (the Permittee) for the discharge of seepage from Fort Carson Landfill No. 5 (Facility or the landfill) to B Ditch, a tributary to Fountain Creek at Fort Carson, Colorado. The Permit establishes discharge limitations for any discharge of wastewater from the Facility through Outfall 006, Outfall 007 and Outfall 008 to Fountain Creek. The SOB explains the nature of the discharges, EPA's decisions for limiting the pollutants in the wastewater, and the regulatory and technical basis for these decisions.

The Facility is a federal facility in Colorado. EPA Region 8 is the NPDES permitting authority for federal facilities located in Colorado.

2 MAJOR CHANGES FROM PREVIOUS PERMIT

Major changes from the previous permit include the following:

- Effluent limitations have been removed and updated to comply with Colorado's water quality standards as well as correcting improperly applied national secondary treatment standards.
- Additional monitoring requirements for pollutants associated with landfills has been added.
- The Permit includes increased inspection requirements and an annual submission of a report to verify the volume and frequency of discharge.

3 BACKGROUND INFORMATION

Fort Carson is an active army post located just to the south of the City of Colorado Springs in El Paso County, CO. The previous permit authorized the discharge of seepage water from the Facility, which has been closed and has a final cover. The discharge points and the vast majority of the Facility are located in the Southwest ¼ Section 10, Township 15S, Range 66W. A small portion of the Facility is located in the SE ¼ of section 10. The Facility is located at the east end of O'Connell Blvd. at Fort Carson. The western end of the Facility has been paved and is used as a motorpool area. The Facility is considered a solid waste management unit (SWMU) in Fort Carson's Hazardous Waste Permit issued by the Colorado Department of Public Health and Environment (CDPHE).

3.1 Facility Process Description

Based on the information provided by the Permittee, discharge from the Facility is considered intercepted groundwater and does not contain leachate from the Facility.

The first EPA issued NPDES permit (effective April 1, 2006) authorized a discharge of groundwater seepage from the Facility via a 4" polyethylene drainpipe that discharged to B Ditch. Based on the 2006 SOB, the seep was created during subgrade preparation associated

with the final landfill cap installation. According to the Permittee, the discharge point is located at latitude 38^0 45' 12" N, longitude 104^0 45' 56" W. It was assigned Outfall Number 006.

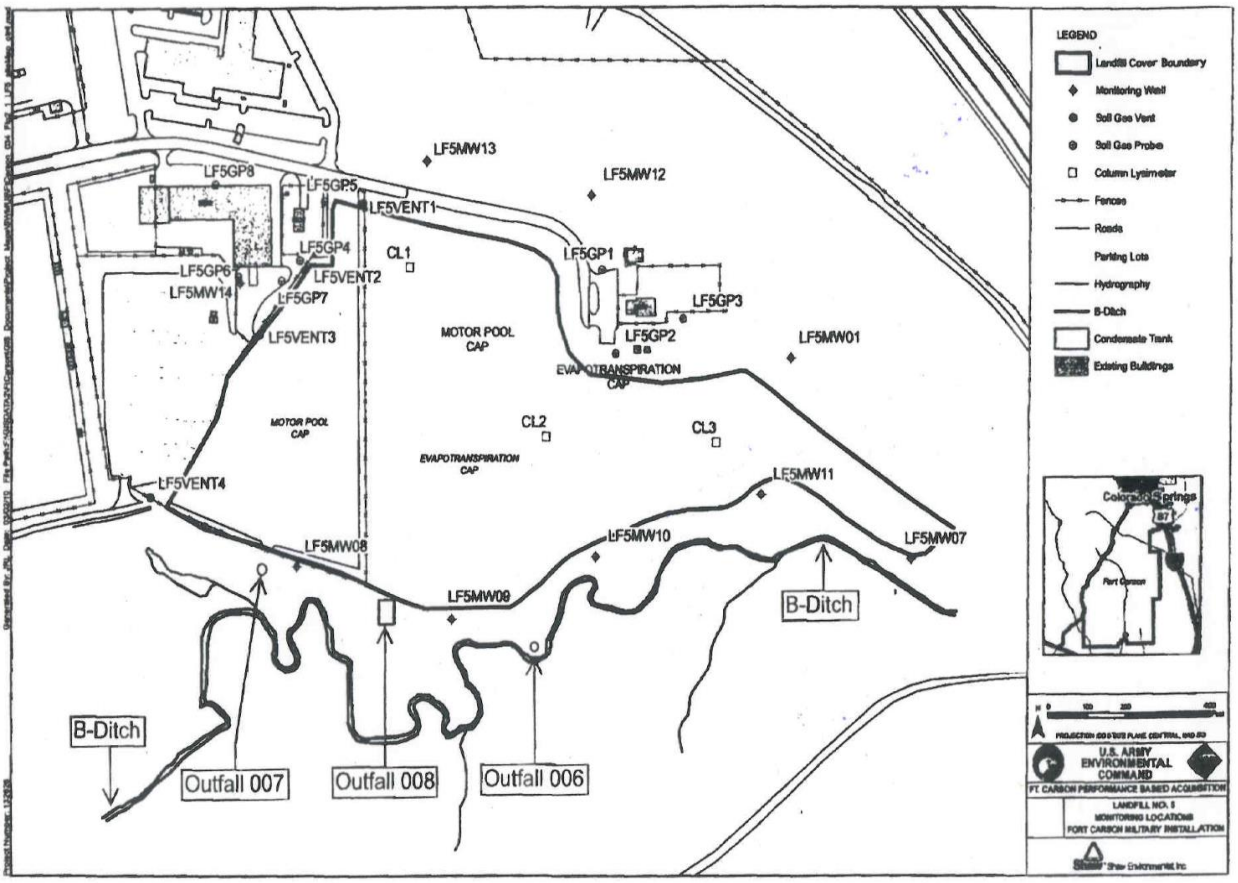
The 2006 permit authorized a second discharge of groundwater seepage from the Facility at a point approximately 600 feet to the west of Outfall 006 that discharged to B Ditch. This Outfall was assigned Outfall Number 007. The assumption was made that groundwater was seeping into the gas condensation collection system under the motor pool cap and draining to a condensation vault from which direct discharge to B Ditch would occur.

Outfall 008 typically does not discharge. The application indicates Outfall 008 has not discharged since 2011. This outfall is not expected to discharge, but due to the uncertain nature of groundwater, will remain covered under this Permit. The French drain that was designed to flow to Outfall 008 was redirected to an above ground vault (Vault). The Vault was installed in 2011 at the request of Fort Carson's restoration program. The restoration program is responsible for the closure and management of the Facility. Discharge into the approximately 10,000-gallon vault is minimal. The Vault contents are removed and transferred by truck to the solid waste management unit (SWMU) treatment facility 3-5 times a year. After treatment at the SWMU, the groundwater is then discharged to Fort Carson's industrial wastewater system. The Permittee states that Outfall 008 cannot be sampled until the French drains are re-connected. The effluent collected in the Vault is periodically taken to an offsite groundwater treatment facility. The SWMU groundwater treatment facility is permitted through CDPHE for groundwater cleanup and identified as Treatment Area 4. Groundwater treatment consists of vacuum enhanced pumping with ex-situ catalyzed hydrogen peroxide treatment of groundwater to treat contamination in soil and groundwater.

Fort Carson's industrial wastewater system is a system that is comprised of oil water separators and grit traps that connect several motor pools (vehicle maintenance shops) and their associated vehicle wash facilities on Fort Carson to a centralized Fuel Oil Separator (FOS) located adjacent to Fort Carson Wastewater Treatment Plant. The FOS itself has 4 large concreate lagoons where POL (petroleum, oil, lubricants) that come from vehicle washing / maintenance is then removed further.

The FOS is connected to the wastewater treatment plant via one lateral pipe that is controlled by a valve and, if opened, it would allow treated wastewater from the FOS to flow into the wastewater treatment plant's headworks building. Ultimately the contents of the vault are discharged at the Fort Collins wastewater treatment plant's outfall, which is permitted under permit number CO0021181.

Figure 3-1. Map of the Facility



FORT CARSON LANDFILL NO. 5
FIGURE 2

3.2 Treatment Process

The Facility does not have onsite wastewater treatment. The discharge consists of groundwater from areas around the landfill. The collection system consists of buried pipes that collect and convey the groundwater from around the landfill to B Ditch. According to the operator, discharges are influenced by precipitation and infiltration of stormwater.

Since the landfill is closed, there are no multi-sector general permit requirements for stormwater management at the Facility. Activities on this site are regulated through the

conditions for landfill closure from CDPHE as well as the Fort Carson Municipal Separate Storm Sewer system permit (permit number COR042001).

3.3 Chemicals Used

No chemicals are added to the effluent.

4 PERMIT HISTORY

According to EPA records maintained for the Facility, this renewal is at least the 3rd issuance of this NPDES permit. The previous permit for the Facility became effective on September 1, 2011 and was set to expire on June 30, 2016. The Facility submitted a permit renewal application prior to the permit's expiration, and thus the previous permit was administratively continued.

4.1 Discharge Monitoring Report (DMR) Data

In Appendix A the discharge monitoring data is presented for Outfalls 006, 007, and 008. The data is for the period of coverage of the 2011 issuance of the Permit (including the administrative extension) through December 31, 2021. Violations were mainly the result of late DMR submission. The only effluent violation was between September 1, 2011 and December 31,2011 from Outfall 008 with a pH of 6.4 standard units. The lower pH limit was 6.5. This was the last measured discharge from Outfall 008 since subsequent flows from Outfall 008 have been captured by a French drain and conveyed to the Vault for disposal off site.

4.2 Other Facility History

On September 21, 2017, the EPA inspected the Facility. The inspection found that Outfall 006 was occasionally submerged by the flow in B Ditch resulting in a failure to collect samples in the second quarter of 2015. When the outfall is submerged, the Facility is not able to collect discharge samples.

5 DESCRIPTION OF RECEIVING WATER

The Facility will discharge directly to B Ditch, which flows approximately 0.6 miles to the confluence with Fountain Creek. Fountain Creek has not been identified for impairment as defined in 303(d) of the Clean Water Act. Tables 1 through 3 display CDPHE's water quality standards for section COARFO02A of Fountain Creek. Downstream segments were not reviewed for impact due to the greater than 16,500:1 dilution expected at the confluence with Fountain Creek.

Table 1. – Physical and Biological Colorado water quality standards for section COARFO02A Fountain Creek: Regulation #32 Stream Classifications and Water Quality Standards, Fountain Creek Basin 1/

	DM, acute	MWAT, chronic
Temperature, °C	WS-II	WS-II
D.O. (mg/L)	---	5.0
pH	6.5-9.0	---
chlorophyll a ($mg/m^{2)}$	---	---
E. Coli (per 100 mL)	---	126

1/ Code of Colorado Regulations 5CCR 1002-32, Table 2a. Mainstem of Fountain Creek from a point immediately above the confluence with Monument Creek to a point immediately above the State Highway 47 Bridge; COARFO02A Designation: Reviewable; Classifications: Agriculture, Aq Life Warm 2, Recreation E, Water Supply.
T = total recoverable
DM = daily maximum
MWAT = maximum weekly average temperature
All metals are dissolved unless otherwise noted.

Table 2. – Inorganic Colorado water quality standards for section COARFO02A Fountain Creek: Regulation #32 Stream Classifications and Water Quality Standards, Fountain Creek Basin 1/

	Acute (mg/L)	Chronic (mg/L)
Ammonia	TVS	TVS
Boron	---	0.75
Chloride	---	250
Chlorine	0.019	0.011
Cyanide	0.005	---
Nitrate	10	---
Nitrite	0.5	---
Phosphorus	---	---
Sulfate	---	WS
Sulfide	---	0.002

1/ Code of Colorado Regulations 5CCR 1002-32, Table 2a. Mainstem of Fountain Creek from a point immediately above the confluence with Monument Creek to a point immediately above the State Highway 47 Bridge; COARFO02A Designation: Reviewable; Classifications: Agriculture, Aq Life Warm 2, Recreation E, Water Supply.
T = total recoverable
DM = daily maximum
MWAT = maximum weekly average temperature
All metals are dissolved unless otherwise noted.

Table 3. – Metals, Colorado water quality standards for section COARFO02A Fountain Creek: Regulation #32 Stream Classifications and Water Quality Standards, Fountain Creek Basin 1/

	Acute (ug/L)	Chronic (ug/L)
Arsenic	340	---
Arsenic(T)	---	0.02-10
Cadmium	TVS	TVS
Cadmium(T)	5.0	---
Chromium III	---	TVS
Chromium III(T)	50	---
Chromium IV	TVS	TVS
Copper	TVS	TVS
Iron	---	WS
Iron(T)	---	1000
Lead	TVS	TVS
Lead(T)	50	---
Manganese	TVS	TVS/WS
Mercury(T)	---	0.01
Molybdenum(T)	---	150
Nickel	TVS	TVS
Nickel(T)	---	100
Selenium	TVS	TVS
Silver	TVS	TVS
Uranium	Varies 2/	Varies 3/
Zinc	TVS	TVS

1/ Code of Colorado Regulations 5CCR 1002-32, Table 2a. Mainstem of Fountain Creek from a point immediately above the confluence with Monument Creek to a point immediately above the State Highway 47 Bridge; COARFO02A Designation: Reviewable; Classifications: Agriculture, Aq Life Warm 2, Recreation E, Water Supply.
T = total recoverable
DM = daily maximum
MWAT = maximum weekly average temperature
All metals are dissolved unless otherwise noted.
2/ Uranium (acute) = See Colorado Code of Regulations 5CCR 1002-32; 32.5(3) for details.
3/ Uranium (chronic) = See Colorado Code of Regulations 5CCR 1002-32; 32.5(3) for details.

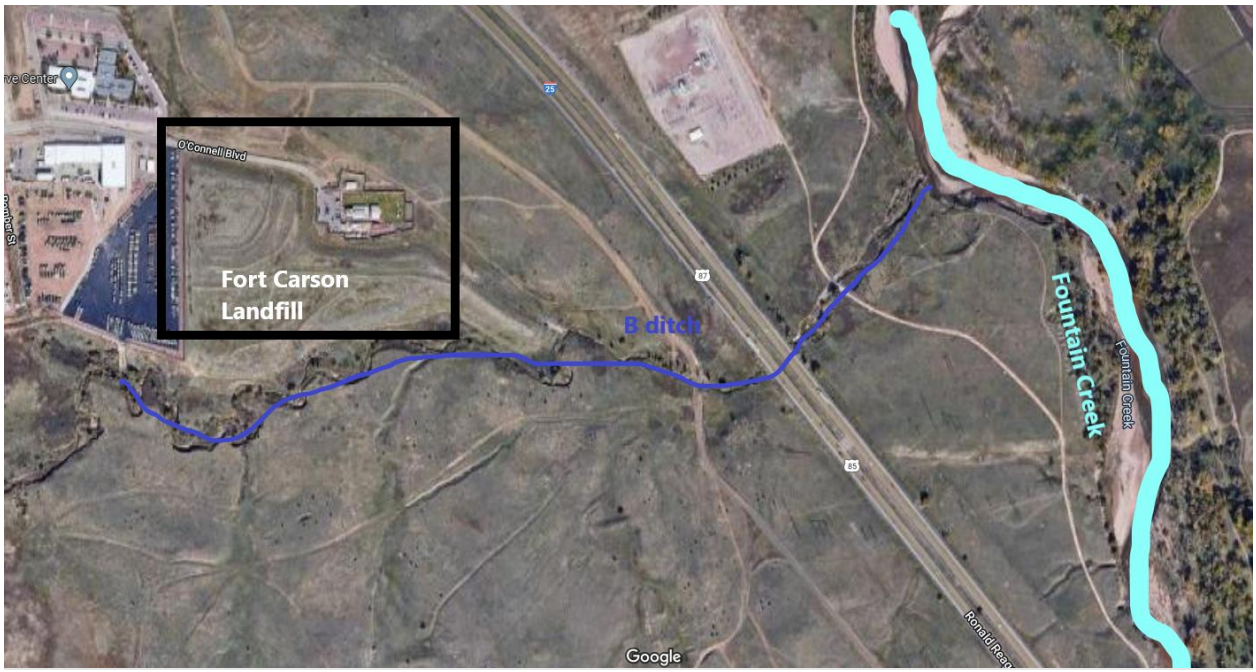
The beneficial uses for Fountain Creek are agriculture, aquatic life warm 2, recreation E, and water supply. These beneficial uses and the other information in Tables 1 through 3 were used to establish the water quality based effluent limitations.

The maximum flow from the Facility was reported as 2,685 gallons per day (0.004 cubic feet per second) in the December 31, 2015 discharge monitoring report. The 95th percentile flow in Fountain Creek was calculated at 69.3 cubic feet per second (USGS station # 07106000 reported data from February 1, 2017 through January 10, 2021 pulled on February 18, 2022).

The critical low flow in Fountain Creek is 16,641 times larger than the maximum flow reported from the Facility.

Figure 5-1 displays the Facility, B Ditch, and the confluence with Fountain Creek. The discharge will travel approximately 0.6 miles in B Ditch before the confluence with Fountain Creek.

Figure 5-1. Facility Receiving Water



6 PERMIT LIMITATIONS

6.1 Technology Based Effluent Limitations (TBELs)

The activities previously conducted at the landfill classify this Facility as a non-hazardous waste landfill as defined by the Landfill Point Source Category Effluent Limitation Guideline (ELG) at 40 CFR part 445. Table 4. -contains the requirements of the BPT ELG defined in 40 CFR 445.21.

40 CFR 445.1(d) states, "The provisions of this part do not apply to discharges of contaminated ground water or wastewater from recovery pumping wells." The permit application states the discharge is groundwater and as such part 445 is not applicable. However, the pollutants in Table 4 are pollutants of concern. Discharges from this Facility will be monitored for the pollutants identified as being associated with landfills at 40 CFR 445.21.

40 CFR 445.11 identifies analine, pyridine and arsenic as pollutants of concern at hazardous waste landfills. The Permittee will be required to monitor for these pollutants due to the lack of documentation for the wastes in the landfill.

Table 4. - Effluent limitations attainable by the application of the best practicable control technology currently available (BPT).

Regulated parameter	Maximum daily[1]	Maximum monthly avg.[1]
BOD	140	37
TSS	88	27
Ammonia (as N)	10	4.9
α-Terpineol	0.033	0.016
Benzoic acid	0.12	0.071
p-Cresol	0.025	0.014
Phenol	0.026	0.015
Zinc	0.20	0.11
pH	([2])	([2])

[1]Milligrams per liter (mg/L, ppm)
[2]Within the range 6 to 9

6.2 Water Quality Based Effluent Limitations (WQBELs)

The Facility discharges to B Ditch, which flows to Fountain Creek. The receiving water is within the state of Colorado and thus the state of Colorado's water quality standards (WQS) apply. EPA has reviewed the applicable State water quality standards for consideration of the development of WQBELs.

WQBELS were calculated based on the water quality standards discussed in Section 5. Reasonable potential for discharges from Outfall 008 to violate WQS could not be reviewed due to a lack of analytical data (i.e. absence of discharge since 2011).

The Permittee indicated that Facility discharges are influenced by precipitation events and are likely to occur when B Ditch is flowing, providing additional dilution beyond that of Fountain Creek.

For many of the pollutants discussed below, a WQBEL was not established in accordance with the CDPHE Water Quality Control Division Colorado Mixing Zone Implementation Guidance (2002) Exclusion for extreme mixing ratios. The threshold for exclusion is a ratio of effluent to stream of 1:20 under conditions of low flow, i.e., effluents equal to or less than 4.75% of the combined flow are excluded from mixing-zone analysis, provided that such discharges are classified by CDPHE as "minor", and that CDPHE finds no reason to expect that the discharge might raise special issues of environmental concern. The Facility's discharges are predicted to be less than 1:16,500 of the critical flow in Fountain Creek.

Ammonia – Ammonia is identified as a pollutant of concern from landfills in 40 CFR part 445. The previous permit did not require regular ammonia monitoring. After reviewing the monitoring data submitted with the application for renewal, Outfall 006 reported ammonia as being below the method detection limit of 0.1 mg/L. Outfall 007 had a reported value of 14 mg/L. Using the equation provided in the State of Colorado's water quality standards for acute ammonia toxicity and the pH of Fountain Creek, the calculated water quality based limit of 17.0 mg/L to protect aquatic life. According to discharge monitoring reports, Outfall 007 has been noted to rarely discharge and the expected dilution of greater than 100:1 in Fountain Creek will dilute the ammonia even further below the acutely non-toxic level. Since Outfall 007 discharges on an intermittent basis, a chronic effluent limitation was not calculated. Additional data collection will be required for ammonia at all outfalls to better assess the risk of ammonia toxicity from this Facility.

Boron – Boron was detected in Outfall 006 (1 mg/L) and Outfall 007 (2.2 mg/L). The State's water quality standard for boron is 0.750 mg/L. The Outfalls will continue to be monitored for boron. No WQBEL will be developed at this time due to the greater than 16,500:1 dilution expected in Fountain Creek.

Temperature – The State's WQS provide daily max and weekly maximum average temperatures for Fountain Creek. Fountain Creek is classified as Warm Stream Tier 2. The Maximum Weekly Average Temperature is 27.5 $^{\circ}$C (March-November) and 13.8 $^{\circ}$C (December-February). The daily maximum temperature for Fountain Creek is 28.6 $^{\circ}$C (March-November) and 25.2 $^{\circ}$C (December-February). The application data indicate the discharge is within the State's water quality standards. Application data for winter daily maximum and maximum weekly average temperature are 15.3 $^{\circ}$C and 13.7 $^{\circ}$C respectively. Application data for summer daily maximum and weekly maximum average temperature are 17 $^{\circ}$C and 16.2 $^{\circ}$C respectively. No WQBEL will be developed at this time due to the greater than 16,500:1 dilution expected in Fountain Creek. Temperature monitoring is required in the Permit.

Total Residual Chlorine (TRC) – The application showed TRC at 0.02 mg/L for Outfall 006 and 0.03 mg/L for Outfall 007. The State's water quality standards for TRC 0.019 mg/L for acute and 0.011 mg/L for chronic. No WQBEL will be developed at this time due to the greater than 16,500:1 dilution expected in Fountain Creek. TRC monitoring will be required to verify the discharge does not cause RP to exceed the State's WQS.

Nitrate and Nitrite – The application identified nitrate and nitrite as being present in the Facility's discharge. Outfall 006 reported 35.4 mg/L and Outfall 007 reported 3.64 mg/L. The State has individual WQS for nitrate (10 mg/L) and nitrite (0.5 mg/L). Nitrate and nitrite were not monitored in the previous permit and will be added in this Permit. The greater than 16,500:1 dilution in Fountain Creek will prevent reasonable potential from exceeding the State's WQS.

Oil and Grease (O&G) – The previous permit contained an effluent limitation and monitoring requirements for oil and grease in accordance with the Region 8 oil and grease policy. The monitoring will be maintained at the same rate and the effluent limit will remain the same.

Selenium – Selenium was detected in Outfall 006 (0.088 mg/L) and not in Outfall 007. The State's water quality standard for selenium is 0.0184 mg/L. The outfalls will continue to be monitored for selenium. No WQBEL will be developed at this time due to the greater than 16,500:1 dilution expected in Fountain Creek. **Manganese -** Toxicity for manganese was calculated using the Fountain Creek's hardness. Hardness measurements were not available for the Facility's discharge or Fountain Creek. Hardness can be calculated from specific conductance discussed in United States Geological Survey (USGS) report 1990-93, Water Quality Assessment of the Arkansas River Basin, Southeastern Colorado. Using discharge monitoring report data and data from USGS Station # 07106000, Fountain Creek has the lowest 95th% hardness at 199.78 mg/L $CaCO_3$ of hardness. Metal toxicity is increased at lower levels of hardness. Therefore, 199.78 mg/L hardness was used in the calculations for manganese toxicity WQBEL.

Manganese was detected in Outfall 007 (0.210 mg/L) and not in Outfall 006. The State's acute toxicity water quality standard for manganese is calculated at 3.760 mg/L. The State also has a water supply water quality standard of 0.050 mg/L that applies to this section of Fountain Creek. The outfalls will continue to be monitored for manganese. No WQBEL will be developed at this time due to the greater than 16,500:1 dilution expected in Fountain Creek.

Cyanide – Cyanide was detected in Outfall 007 with a concentration of 0.031 mg/L. The State's WQS is currently 0.005 mg/L. The outfalls will continue to be monitored for cyanide. No WQBEL will be developed at this time due to the greater than 16,500:1 dilution expected in Fountain Creek.

Iron – Iron was detected in Outfall 007 with a concentration of 0.42 mg/L. The State's water supply WQS is currently 0.3 mg/L. The outfalls will continue to be monitored for iron. No

WQBEL will be developed at this time due to the greater than 16,500:1 dilution expected in Fountain Creek.

Sulfate – Sulfate was detected in Outfall 006 (5900 mg/L) and Outfall 007 (2300 mg/L). The State has a water supply WQS of 250 mg/L that applies to this section of Fountain Creek. The outfalls will continue to be monitored for sulfate. No WQBEL will be developed at this time due to the greater than 16,500:1 dilution expected in Fountain Creek.

Per- and polyfluoroalkyl substances (PFAS) – PFAS has been identified by the State of Colorado as a pollutant of concern for drinking water sources and likely to be present in landfill wastewater. Additionally, EPA's November 22, 2020 memo, "Recommendations from the PFAS NPDES Regional Coordinators Committee Interim Strategy for Per- and Polyfluoroalkyl Substances in Federally Issued National Pollutant Discharge Elimination System Permits" recommends PFAS monitoring be added to NPDES permits where it is expected to be present. EPA's "PFAS Strategic Roadmap: EPA's Commitments to Action 2021-2024" indicates EPA plans to include monitoring for PFAS where it is expected to be present. PFAS monitoring has been added to the monitoring requirements to provide information on whether PFAS effluent limitations will be necessary in future permits.

pH – pH was the only pollutant with an effluent violation of the previous permit, which occurred at Outfall 008. Outfall 008 has not discharged since the pH violation occurred. pH will continue to be monitored to provide information for subsequent permitting actions. The effluent limitation will remain because it is EPA Region 8 policy to require pH between 6.5 and 9.0 standard units to protect aquatic life. The State's WQS do not require WQBELS for pH in cases of extreme dilution and there is greater than 16,500:1 dilution expected in Fountain Creek.

Hardness – Hardness is not a pollutant of concern but is used to evaluate RP for WQBELs. Therefore, monitoring at the outfalls will be required for hardness.

6.3 Final Effluent Limitations

Applicable TBELs and WQBELs were compared, and the most stringent of the two was selected for the following effluent limits (Table 5).

Table 5. - Final Effluent Limitations for Outfalls 006, 007 and 008

Effluent Characteristic	30-Day Average Effluent Limitations a/	7-Day Average Effluent Limitations a/	Daily Maximum Effluent Limitations a/	Limit Basis
Flow, mgd	report only	report only	report only	N/A
Biochemical Oxygen Demand (BOD5), mg/L	report only	report only	report only	N/A
Total Suspended Solids (TSS), mg/L	report only	report only	report only	N/A
Oil and Grease (O&G), mg/L	report only	report only	10	PP, WQBEL
Total Ammonia Nitrogen (as N), mg/L g/	report only	report only	report only	N/A
Nitrate (as N), mg/L	report only	report only	report only	N/A
Nitrite (as N), mg/L	report only	report only	report only	N/A
Total Phosphorus, mg/L	report only	report only	report only	N/A
Sulfate as SO_4, mg/L	report only	report only	report only	N/A
Manganese, total, mg/L	report only	report only	report only	N/A
Boron, total, mg/L	report only	report only	report only	N/A
Hardness, mg/L $CaCO_3$	report only	report only	report only	N/A
Temperature, °C	report only	report only	report only	N/A
Cyanide, total, mg/L	report only	report only	report only	N/A
α-Terpineol,	report only	report only	report only	N/A
Benzoic acid	report only	report only	report only	N/A
p-Cresol	report only	report only	report only	N/A
Phenol	report only	report only	report only	N/A
Selenium, total, mg/L	report only	report only	report only	N/A
Iron, total, mg/L	report only	report only	report only	N/A
Zinc	report only	report only	report only	N/A
Analine, mg/L	report only	report only	report only	N/A
Pyridine, mg/L	report only	report only	report only	N/A
Arsenic, mg/L	report only	report only	report only	N/A
Total Residual Chlorine (TRC), mg/L	report only	report only	report only	N/A
Per- and polyfluoroalkyl substances (PFAS) mg/L	report only	report only	report only	N/A

Effluent Characteristic	**30-Day Average Effluent Limitations a/**	**7-Day Average Effluent Limitations a/**	**Daily Maximum Effluent Limitations a/**	**Limit Basis**
pH	Must remain between 6.5 and 9.0 standard units			PP, WQBEL

a/ See section 1 of the Permit for definition of terms.

b/ [WQBEL = Limitation based on water quality-based effluent limit; TBEL = Limitation based on technology based effluent limit; PP = Limitation based on previous permit]

6.4 Antidegradation

Fountain Creek is designated as "Reviewable" for implementing CDPHE's antidegradation policy. The regulated activity shall be considered not to result in significant degradation, as measured in the reviewable waters segment if the maximum discharge is less than 1:100 of the 95th percentile critical low flow in Fountain Creek. See Colorado Regulation 31.8(3)(c)(ii)(A). The maximum flow from the Facility was reported as 2,685 gallons per day (0.004 cubic feet per second) in the December 31, 2015 discharge monitoring report. The 95th percentile flow in Fountain Creek was calculated at 69.3 cubic feet per second (USGS station # 07106000 reported data from February 1, 2017 through January 10, 2021 pulled on February 18, 2022). The critical low flow in Fountain Creek is 16,641 times larger than the maximum flow reported from the Facility.

6.5 Anti-Backsliding

Federal regulations at 40 CFR Part 122.44(l)(1) require that when a permit is renewed or reissued, interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit unless the circumstances on which the previous permit were based have materially and substantially changed since the time the Permit was issued and would constitute cause for permit modification or revocation and reissuance under 40 CFR Part 122.62.

This permit renewal complies with anti-backsliding regulatory requirements. All limits are as stringent as the previous permit with one exception. In previous permits, effluent limitations from the national secondary treatment standards (40 CFR part 133) were referenced to develop effluent limitations for BOD and TSS. The application of this TBEL has been determined to be in error and does not apply to this Facility since it is not a public owned treatment works. The removal of these limits complies with the anti-backsliding exception in 40 CFR 122.44(l)(2)(i)(B)(2), which allows limits to removed based on technical mistakes when issuing the previous permit:

7 MONITORING REQUIREMENTS

7.1 Self-Monitoring Requirements

Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, as required in 40 CFR Part 122.41(j), unless another method is required under 40 CFR subchapters N or O.

The Permittee is required to monitor for the pollutants that have been identified as in the 40 CFR 445 as likely to be present in landfill wastewater or leachate have been added to the monitoring requirements. The monitoring requirements have been added to verify that groundwater is not contaminated by the landfill wastewater.

All samples are to be grab samples because the effluent quality is not expected to vary throughout the day.

Table 6. - Monitoring requirements for Outfalls 006, 007, 008

Effluent Characteristic	**Monitoring Frequency**	**Samples Type a/**	**Data Reported on DMR b/**
Flow, mgd, c/	Monthly	Grab	Daily Max. 30-Day Average.
Biochemical Oxygen Demand (BOD5), mg/L	Quarterly	Grab	Daily Max. 30-Day Avg.
Total Suspended Solids (TSS), mg/L	Quarterly	Grab	Daily Max. 30-Day Avg.
Oil and Grease (O&G), mg/L d/	Quarterly	Grab	Daily Max. 30-Day Avg.
Total Ammonia Nitrogen (as N), mg/L g/	Quarterly	Grab	Daily Max. 30-Day Avg.
Nitrate (as N), mg/L	Quarterly	Grab	Daily Max. 30-Day Avg.
Nitrite (as N), mg/L	Quarterly	Grab	Daily Max. 30-Day Avg.
Total Phosphorus, mg/L	Quarterly	Grab	Daily Max. 30-Day Avg.
Sulfate as SO_4, mg/L	Quarterly	Grab	Daily Max. 30-Day Avg.
Manganese, total, mg/L	Quarterly	Grab	Daily Max. 30-Day Avg.
Boron, total, mg/L	Quarterly	Grab	Daily Max. 30-Day Avg.
Hardness, mg/L $CaCO_3$	Quarterly	Grab	Daily Max. 30-Day Avg.
Temperature, °C	Quarterly	Grab	Daily Max. 30-Day Avg.
Cyanide, total, mg/L	Quarterly	Grab	Daily Max. 30-Day Avg.
α-Terpineol, mg/L	Quarterly	Grab	Daily Max. 30-Day Avg.
Benzoic acid, mg/L	Quarterly	Grab	Daily Max. 30-Day Avg.
p-Cresol, mg/L	Quarterly	Grab	Daily Max. 30-Day Avg.
Phenol, mg/L	Quarterly	Grab	Daily Max. 30-Day Avg.
Selenium, total, mg/L	Quarterly	Grab	Daily Max. 30-Day Avg.
Iron, total, mg/L	Quarterly	Grab	Daily Max.

Effluent Characteristic	**Monitoring Frequency**	**Samples Type a/**	**Data Reported on DMR b/**
Zinc, mg/L	Quarterly	Grab	Daily Max. 30-Day Avg.
Analine, mg/L	Quarterly	Grab	Daily Max. 30-Day Avg.
Pyridine, mg/L	Quarterly	Grab	Daily Max. 30-Day Avg.
Arsenic, mg/L	Quarterly	Grab	Daily Max. 30-Day Avg.
Total Residual Chlorine (TRC), mg/L	Quarterly	Grab	Daily Max. 30-Day Avg.
Per- and polyfluoroalkyl substances (PFAS) mg/L e/	Quarterly d/	Grab a/	Daily Max. 30-Day Avg.
pH, Standard Units	Quarterly	Grab a/	Instantaneous Min. Instantaneous Max

a/ See section 1 of the Permit for definition of terms.
b/ Refer to the Permit for requirements regarding how to report date on the DMR.
c/ Flow measurements of effluent volume shall be made in such a manner that the Permittee can affirmatively demonstrate that representative values are being obtained. The average flow rate in mgd during the reporting period and the maximum flow rate observed, in mgd, shall be reported.
d/ For oil and grease monitoring a visual inspection is required to determine if the discharge has a sheen. If a sheen is observed then a sample must be analyzed.
e/ PFAS currently does not have an EPA approved 40 CFR 136 analytical method. The Permittee shall use EPA method 1633 until a method is approved.

7.2 Monitoring Frequency

The monitoring frequency for every analyte will be on a quarterly basis. This has changed from the previous permit which required semiannual monitoring for sulfate, TSS, BOD_5 and specific conductance. The new analytes are required to be monitored on the same quarterly basis. The quarterly monitoring event is expected to be frequent enough to characterize the wastewater discharge, because the variability of the effluent is expected to be low and the Facility does not continuously discharge.

8 SPECIAL CONDITIONS

N/A

9 REPORTING REQUIREMENTS

Reporting requirements are based on requirements in 40 CFR §§ 122.44, 122.48, and Parts 3 and 127. A discharge monitoring report (DMR) frequency of quarterly was chosen, because of the intermittent nature of the discharge. The Facility has reported discharges less than once per month. The Permit includes increased inspection requirements and submission of an annual flow report to verify the volume and frequency of discharge for future permitting actions.

10 COMPLIANCE RESPONSIBILITIES AND GENERAL REQUIREMENTS

10.1 Inspection Requirements

On a monthly basis, unless otherwise modified in writing by EPA, the Permittee shall inspect Outfall 006, Outfall 007, and Outfall 008. The Permittee shall document the inspection, as required by the Permit. The monthly inspection is required to provide information regarding discharge frequency from this Facility that will be used to determine water quality impacts. The presence or absence of flow from each outfall must be recorded in an inspection log. If an outfall is discharging, a flow measurement must be taken. The inspection log can be hard copy or electronic.

10.2 Operation and Maintenance

40 CFR § 122.41(e) requires Permittees to properly operate and maintain at all times, all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. In addition to an operation and maintenance plan, regular facility inspections, an asset management plan, and consideration of staff and funding resources are important aspects of proper operation and maintenance. Asset management planning provides a framework for setting and operating quality assurance procedures and helps to ensure the Permittee has sufficient financial and technical resources to continually maintain a targeted level of service. Consideration of staff and funding provide the Permittee with the necessary resources to operate and maintain a well-functioning facility. These requirements have been established in sections 6.3.3 and 6.3.4 of the Permit to help ensure compliance with the provisions of 40 CFR 122.41(e).

11 ENDANGERED SPECIES CONSIDERATIONS

The Endangered Species Act of 1973 requires all Federal Agencies to ensure, in consultation with the U.S. Fish and Wildlife Service (FWS), that any Federal action carried out by the Agency is not likely to jeopardize the continued existence of any endangered species or threatened species (together, “listed” species), or result in the adverse modification or destruction of habitat of such species that is designated by the FWS as critical (“critical habitat”). See 16 U.S.C. § 1536(a)(2), 50 CFR Part 402. When a Federal agency’s action “may

affect" a protected species, that agency is required to consult with the FWS (formal or informal) (50 CFR § 402.14(a)).

The U.S. Fish and Wildlife Information for Planning and Conservation (IPaC) website (https://ecos.fws.gov/ipac/) was accessed on 3/1/2022 to determine federally-listed Endangered, Threatened, Proposed and Candidate Species for the area near the Facility. The IPaC Trust Resource Report findings are provided below. The designated area utilized was identified in the IPaC search and covers the entire Facility as well as the area downstream of the confluence between B Ditch and Fountain Creek. See Figure 11-1 for a map of the project location used in IPAC.

Figure 11-1 -Project location map for biological analysis

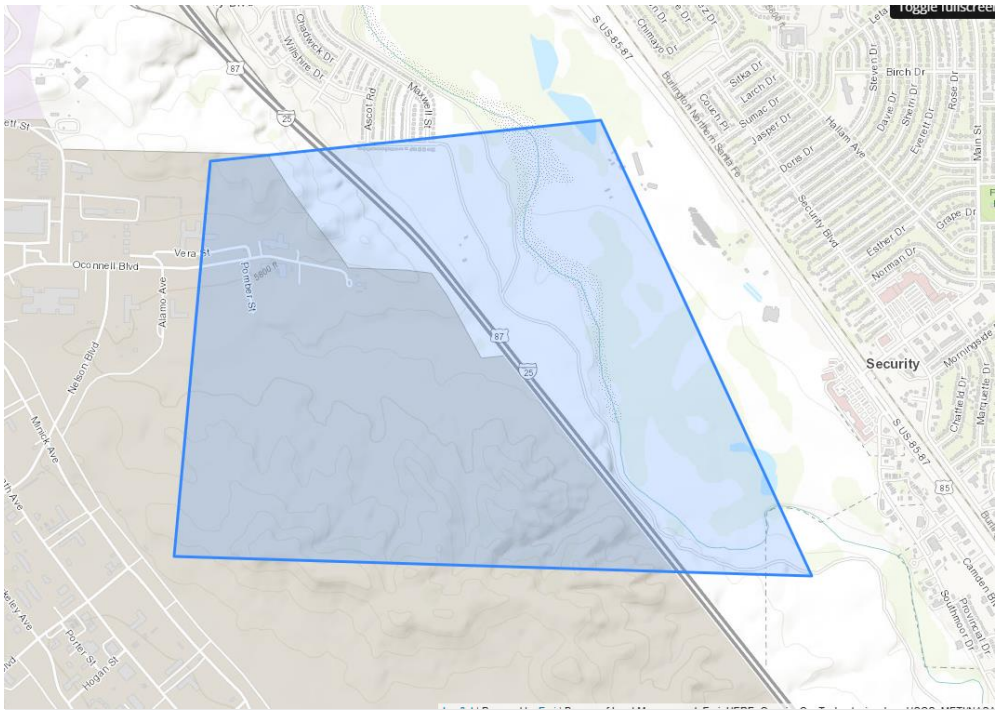


Table 7. - IPaC Federally listed Threatened and Endangered Species

Species	Scientific Name	Species Status	Designated Critical Habitat
Eastern Black Rail	*Laterallus jamaicensis*	Threatened	No designated critical habitat
Greenback Cutthroat Trout	*Oncorhynchus clarkii stomias*	Threatened	No designated critical habitat
Monarch Butterfly	*Danaus plexippus*	Candidate	No designated critical habitat
Piping Plover	*Charadrius melodus*	Threatened	"There is final critical habitat for this species (published in the Federal Register on May 19, 2009). Your location is outside the critical habitat."

Species	Scientific Name	Species Status	Designated Critical Habitat
Ute Ladies'-tresses	*Spiranthes diluvialis*	Threatened	No designated critical habitat
Western Prairie Fringed Orchid	*Platanthera praeclara*	Threatened	No designated critical habitat
Pallid Sturgeon	*Scaphirhynchus albus*	Endangered	No designated critical habitat

11.1 Biological Evaluation

The justification to support the determination for the species is as follows. The Facility was previously covered under an EPA Region 8 NPDES individual permit.

Based on the IPaC information generated, the Facility location is outside of the critical habitat for the Piping Plover, Eastern Black rail, Greenback Cutthroat Trout, Monarch Butterfly, and Pallid Sturgeon. EPA's determination for this species is "No Effect" because of Habitat information in Table 7.

Ute Ladies'-Tresses and Western Prairie Fringed Orchid are not known to inhabit the area. EPA's determination for this species is "No Effect" because of Habitat information in Table 7.

Pallid Sturgeon prefer deeper rivers with moderate to swift currents and are unlikely to be found in Fountain Creek. EPA's determination for this species is "No Effect" because of Habitat information in Table 7.

12 NATIONAL HISTORIC PRESERVATION ACT REQUIREMENTS

Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470(f) requires that federal agencies consider the effects of federal undertakings on historic properties. The first step in this analysis is to consider whether the undertaking has the potential to affect historic properties, if any are present. See 36 CFR 800.3(a)(1). Permit renewals where there is no new construction are generally not the type of action with the potential to cause effects on historic properties.

13 401 CERTIFICATION CONDITIONS

Colorado is the Clean Water Act (CWA) Section 401 certifying authority for the Permit, and a CWA Section 401 certification will be requested prior to Permit finalization.

14 MISCELLANEOUS

The effective date of the Permit and the Permit expiration date will be determined upon issuance of the Permit. The intention is to issue the Permit for a period not to exceed 5 years.

Permit drafted by Paul Garrison, U.S. EPA, 303-312-6016 03/2022

ADDENDUM

AGENCY CONSULTATIONS

During public notice of the permit June 1-30, 2022, the Colorado State Historic Preservation Office did not comment on EPA's preliminary determination that the Permit reissuance will not impact any historic properties.

On May 16, 2022, EPA sent a sent a CWA Section 401 certification request to Colorado. Colorado waived Section 401 certification. Any review or appeal of these conditions must be made through State procedures pursuant to 40 CFR § 124.55(e).]

PUBLIC NOTICE AND RESPONSE TO COMMENTS

Commentor: Permittee

Comment #1: The draft does not take into account that, in late 2017, the owner contracted with the United States Geological Survey (USGS) to operate and maintain a monitoring station on B Ditch East of the permitted outfalls. The station monitors flow year-round and monitor temperature and specific conductance from 1 April through 31 October. Consideration of data provided by this USGS monitoring station could possibly impact, among other things, the dilution calculations presented within the draft permit. This data can be found on the USGS site by searching for USGS 07105780 B ditch drain near Security, CO.

Response: In Section 6.2 of the Statement of Basis the EPA describes the method for developing Water Quality Based Effluent Limitations (WQBELS). WQBELs were calculated to meet water quality standards in Fountain Creek. There is extreme dilution expected when the Facility's discharges enter Fountain Creek. According to Colorado's water quality standards, WQBELS are not required for most of the priority pollutants associated with landfills. The only pollutants with effluent limitations are pH and oil and grease. Dilution calculations were not performed for these pollutants because the facility's discharge history does not show a need for implementing a mixing zone. With no need for a mixing zone there is not an immediate need to use the USGS B Ditch data mentioned in the comment to adjust permit limits in the Permit. No changes to the Permit or Statement of Basis were made in response to this comment.

Comment #2: In reference to the monthly inspection requirements outlined in paragraph 6.2, the owner is required to annotate the flow rate of the discharge, if occurring, in million gallons per day on a monthly compliance schedule. The monthly compliance schedule for flow monitoring is an increase from previous permits, which set a compliance schedule for flow on a quarterly basis. Increasing the frequency to monthly is not necessary, as there are sufficient historical data to determine average flow rates for the permitted outfalls. Historical flow data are found in the owner's discharge monitoring reports submitted to the Environmental Protection Agency.

Response: The EPA reviewed the discharge data from the previous permit cycle and determined quarterly observations were inadequate to characterize seasonal variations in

discharge rates from the facility. The EPA has clarified the conditions that require a flow measurement in Section 10.1 of the Statement of Basis and Section 6.2.1.3-4 of the Permit.

The following language was added to the final Permit and Statement of Basis:

Statement of Basis Section 10.1 now reads as:

> On a monthly basis, unless otherwise modified in writing by EPA, the Permittee shall inspect Outfall 006, Outfall 007, and Outfall 008. The Permittee shall document the inspection, as required by the Permit. The monthly inspection is required to provide information regarding discharge frequency and rate from this Facility. The information will be used to determine water quality impacts in future permitting actions. The presence or absence of flow from each outfall must be recorded in an inspection log. If a discharge is occurring, the flow at the outfall must be measured. Note: A discharge is not considered occurring if an outfall's flow is infiltrating or evaporating before mixing with other flows in B-ditch. The inspection log can be hard copy or electronic.

Permit Section 6.2.1.3-4 now read as:

> 6.2.1.3 Is there a flow from the outfall? Note: A discharge is not considered occurring if an outfall's flow is infiltrating or evaporating before mixing with other flows in B-ditch;
>
> 6.2.1.4 The flow rate of the discharge if occurring;

Comment #3: Additional sampling requirements added to the draft from the previous permit and permit renewals do not take into account that Landfill No. 5 is a permitted restoration site with regulatory oversite conducted by the Colorado Department of Public Health and Environment (CDPHE). As such, long term sampling and reporting on groundwater monitoring wells associated with Landfill No.5 are ongoing and reported as required. The addition of monitoring requirements in draft permit CO-0034771 for the following constituents duplicates sampling efforts and unnecessarily increases operational expenditures.

1. Nitrate (as N)

2. Nitrite (as N)

3. Manganese

4. Phenol

5. Selenium

6. Iron

7. Zinc

8. Aniline

9. Pyridine

Response: Monitoring groundwater for compliance with a restoration site permit issued by CDPHE is not an acceptable substitute for monitoring effluent. Monitoring data needs to be representative of the discharge. The flow and composition of groundwater is very complex and it would be infeasible to make accurate assumptions on the discharge composition based on groundwater well monitoring data. The additional constituents are identified as priority pollutants associated with landfill wastewater as discussed in the Statement of Basis section 6.1. No changes to the Permit or Statement of Basis were made in response to this comment.

Comment #4: As you are aware, the Army has been investigating PFAS under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and through the CERCLA process, the Army will continue to investigate potential sources of PFAS and will take appropriate response actions to address PFAS under CERCLA to ensure protection of human health and the environment. As far as provisions related to sampling and the sampling methodology for PFAS, the Army needs to better understand the proposed provisions within the permit in order to properly formulate any comments. Therefore, Fort Carson requests a meeting with EPA prior to providing comments on the PFAS provisions.

Response: The EPA has contacted the Permittee and discussed the circumstances that warrant PFAS monitoring.

CHANGES FROM DRAFT PERMIT

The following edits were made after Public Notice:

1. The information in Figure 5-1 in the draft SOB was reformatted into Tables 1-3 in the final SOB to make the document compliant with Section 508 of the Rehabilitation Act. This resulted in renumbering of subsequent tables in the SOB.

2. Footnote c of Table 6 of the SOB and Table 3 of the Permit was modified to clarify the reporting units as gallons per day instead of MGD.

3. Section 6.2.1.3 and 6.2.1.4 of the Permit were redundant and have been clarified do define what is considered a discharge and require a flow measurement when discharging.

Appendix A

Table 8 Outfall 006 DMR data – empty cells indicate no discharge reported, or monitoring not possible

	BOD_5 mg/L	BOD_5 mg/L	Flow gal/day	Flow gal/day	Oil and grease visual Sheen	Oil & Grease mg/L	pH minimum standard units	pH Maximum standard units	TSS mg/L	TSS mg/L	Specific conductance umho/cm	Sulfate mg/L as SO_4
Period	30DA AVG	7 DA AVG	TOTAL	DAILY AV	Yes/No	DAILY MX	MINIMUM	MAXIMUM	30DA AVG	7 DA AVG	DAILY MX	DAILY MX
Effluent limitation	30	45	N/A	N/A	N/A	10	6.5	9	30	45	N/A	N/A
12/31/2011												
06/30/2012												
12/31/2012	0.40	0.40	63	60	No		7.26	8.11	11.30	11.30	9810	6100
06/30/2013	0.60	0.60	68	45	No		7.43	7.89	3.60	3.60	10200	6800
12/31/2013	3.40	3.40	28	22	No		7.49	7.53	30.00	30.00	9770	6700
06/30/2014	1.10	1.10	114	90	No		7.40	8.00	1.20	1.20	9950	5500
12/31/2014	0.60	0.60	190	142	No		7.30	7.40	4.20	4.20	10000	5000
06/30/2015			99	99	No		7.30	7.30				
12/31/2015	1.10	1.10	1978	1146	No	1.5	7.10	7.40	20.40	20.40	9790	5900
06/30/2016	0.40	0.40	1552	1534	No		7.20	7.30	3.60	3.60	9690	6000
12/31/2016	0.27	0.27	1775	1419	No		7.09	7.23	1.30	1.30	9470	5900
06/30/2017	0.52	0.52	394	368	No		7.34	7.52	1.90	1.90	9810	5900
12/31/2017	0.24	0.24	570	513	No		7.07	7.20	1.70	1.70	9510	5700
06/30/2018	0.65	0.65	282	269	No		7.46	7.88	8.00	8.00	9520	5400
12/31/2018	0.44	0.44	347	325	No		7.37	7.44	1.90	1.90	8810	5500
06/30/2019	6.40	6.40	160	217	No		7.26	7.37	29.07	41.80	9610	6000
12/31/2019	0.61	0.61	248	246	No		7.13	7.13	18.42	18.42	9220	250
06/30/2020	0.19	0.19	392	367	No		6.99	7.08	11.00	11.00	8990	5300
12/31/2020	1.35	1.35	521	413	No		7.08	7.14	20.40	20.40	9610	5400
06/30/2021	0.35	0.35	285	235	No		7.00	7.10	6.30	6.30	8970	5900
12/31/2021	0.26	0.26	80	76	No		7.30	7.34	5.33	5.33	9470	5900

Table 9 Outfall 007 DMR data – empty rowindicates no discharge occurred for the monitoring period

	BOD_5 mg/L	BOD_5 mg/L	Flow gal/day	Flow gal/day	Oil and grease visual Sheen	Oil & Grease mg/L	pH minimum standard units	pH Maximum standard units	TSS mg/L	TSS mg/L	Specific conductance umho/cm	Sulfate mg/L as SO_4
Period	30DA AVG	7 DA AVG	TOTAL	DAILY AV	Yes/No	DAILY MX	MINIMUM	MAXIMUM	30DA AVG	7 DA AVG	DAILY MX	DAILY MX
Effluent limitation	30	45	N/A	N/A	N/A	10	6.5	9	30	45	N/A	N/A
12/31/2011												
06/30/2012												
12/31/2012												
06/30/2013												
12/31/2013												
06/30/2014												
12/31/2014												
06/30/2015												
12/31/2015	4.50	4.50	707	287.0	No	1.6	7.70	7.70	6.80	6.8	7130	2300
06/30/2016	4.80	4.80	310	212.0	No		7.60	7.90	1.40	1.4	8170	2800
12/31/2016	3.50	3.50	192	116.0	No		7.12	7.85	16.00	16.0	7810	3000
06/30/2017												
12/31/2017	6.24	6.24	49	28.6	No		8.00	8.48	8.00	8.0	6010	1400
06/30/2018												
12/31/2018												
06/30/2019		6.58		48.9	No		6.95	6.95	1.20	1.2	1330	140
12/31/2019												
06/30/2020												
12/31/2020												
06/30/2021												
12/31/2021												

Table 10 Outfall 008 DMR data – empty cell indicates no discharge occurred for the monitoring period

	BOD_5 mg/L	BOD_5 mg/L	Flow gal/day	Flow gal/day	Oil and grease visual Sheen	Oil & Grease mg/L	pH minimum standard units	pH Maximum standard units	TSS mg/L	TSS mg/L	Specific conductance umho/cm	Sulfate mg/L as SO_4
Period	30DA AVG	7 DA AVG	TOTAL	DAILY AV	Yes/No	DAILY MX	MINIMUM	MAXIMUM	30DA AVG	7 DA AVG	DAILY MX	DAILY MX
Effluent Limitation	30	45	N/A	N/A	N/A	10	6.5	9	30	45	N/A	N/A
12/31/2011	5.1	5.1	1460	730	No		6.4	6.4	2.4	2.4	618	99
06/30/2012												
12/31/2012												
06/30/2013												
12/31/2013												
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