NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
FINAL PERMIT FACT SHEET
June 2022

Permittee Name: Capitol Operating Group, LLC – English Lease Boundary Butte Field

Mailing Address: 5750 Johnston Street, Suite 103
Lafayette, LA 70503

Facility Location: Boundary Butte Field, San Juan County, Utah
And approximately 7.5 miles northwest of Red Mesa, Arizona

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NPDES Permit No.: NN0020133

I. STATUS OF PERMIT

Capitol Operating Group, LLC ("COG" or the "permittee") has applied for the renewal of its National Pollutant Discharge Elimination System ("NPDES") permit to authorize the discharge of treated effluent from Batteries #1 and 3 on the English Lease Boundary Butte Field (the "facility") located on the Navajo Nation in Southwestern Utah, to unnamed tributaries to Gothic Creek, a tributary to the San Juan River. A complete application for a permit renewal was submitted to U.S. EPA Region 9 ("USEPA") on September 24, 2021.

The Navajo Nation (or "Tribe") is a federally recognized Indian tribe. As the Navajo Nation EPA ("NNEPA") does not have primary regulatory responsibility for administering the NPDES permitting program, USEPA is preparing the draft NPDES permit renewal and fact sheet pursuant to Section 402 of the Clean Water Act ("CWA"), which requires point source dischargers to control the amounts of pollutants that are discharged to waters of the United States through obtaining an NPDES permit. The draft permit incorporates both federal standards and applicable tribal water quality requirements.

The facility was previously owned and operated by Nacogdoches Oil and Gas, Inc. ("Nacogdoches"), which was the previous permittee. Following the lease sale, COG submitted a "Notice of Transfer of Permit and Change of Owner/Operator for NPDES Permit" dated September 27, 2021, indicating that the transfer of permit owner/operator from Nacogdoches to COG had occurred on August 1, 2016. By providing USEPA with the signed transfer form, COG agreed to assume all responsibility, coverage, and liability of the permit as of the effective date of the sale.

The permittee is currently discharging under NPDES permit NN0020133, which became effective on April 1, 2017, and expires on March 31, 2022. Pursuant to 40 CFR § 122.21, USEPA issued an administrative continuance of the permit on March 9, 2022, and the terms of the existing permit are administratively extended until the issuance of a new permit.

This permittee has been classified as a minor discharger.

II. SIGNIFICANT CHANGES TO PREVIOUS PERMIT

Table 1. Significant Changes to Previous Permit

Permit Condition	Previous Permit (2017 – 2022)	Re-issued permit (2022 – 2027)	Reason for change
Units for mass effluent limits	The previous permit included mass limits for 5-day Biochemical Oxygen Demand (BOD_5) and total suspended solids (TSS) expressed in kg/day.	The draft permit includes mass limits for BOD_5 and TSS expressed in lbs/day.	To be consistent with other recently issued USEPA permits.
Phenanthrene and Selenium monitoring and effluent limits	The previous permit required monitoring for these metals as part of the priority pollutant scan.	The draft permit requires new effluent limits and monitoring for these metals.	Reasonable potential to exceed WQS.
Priority Pollutant Scan (PPS)	Once per permit cycle; 1st Quarter during Year 1	The draft permit requires four PPS per permit cycle: 1st Quarter during Year 1 2nd Quarter during Year 2 3rd Quarter during Year 3 4th Quarter during Year 4	To collect adequate data for a complete Reasonable Potential Analysis for next permit.
Hardness (as $CaCO_3$) monitoring	None	The draft permit requires effluent monitoring for hardness once per year.	To collect updated effluent hardness data in order to calculate hardness-dependent metals criteria.

III. GENERAL DESCRIPTION OF FACILITY

COG owns and operates Batteries #1 and 3 on the English Lease Boundary Butte oil field in San Juan County, Utah, which is about 7.5 miles northwest of Red Mesa, Apache County, Arizona, within the northern portion of the Navajo Nation.

The permittee has a lease from the Navajo Nation to extract petroleum at the English Lease Boundary Butte. Wells extract crude oil which is collected by gathering lines. The crude oil is sent to a treater-heater structure where oil and water is separated. The oil portion is then sent to production tanks to be transported out and the water portion (knockout water) will be sent to a pond-series for further treatment. The ponds are routinely skimmed to remove the floating layer of petroleum called emulsion which is stored in on-site tanks. These emulsion tanks are pumped when full, with the emulsion portion transported offsite and the water portion put back into the onsite ponds.

Battery #1:

Battery #1 sits on top of Boundary Butte Mesa. Crude oil collected from active Wells #20, 28 and 33 is sent to a treater-heater structure from which produced water is sent to a knockout water tank and oil is sent to three production tanks. An oil sales line comes off the production tanks. Produced water from the knockout tank is piped to a water storage tank and releases to a series of three unlined, settling ponds prior to discharge. A bird net is used to cover Ponds #1 and #2. In Pond #3, a pipe at a 45° angle in the pond bed and 3.5 feet below the water surface discharges treated produced water to Outfall No. 001, with flow going down to the valley floor into an unnamed wash. A pipeline was previously used to carry discharge water to the valley floor but was removed due to corrosion. The unnamed wash is a tributary to Gothic Creek, which is a tributary to the San Juan River. The average flow from Outfall No. 001 is 8,000 gallons per day, with a maximum flow of 80,000 gallons per day or 0.08 million gallons (MGD).

Emulsion is produced due to contact between two immiscible liquids (e.g., oil and water), emulsifying agents, and the diffusion of one liquid into another due turbulence flow or mixing in the emulsion tanks.

Figure 1: English Tank Battery #1 and Well Facility

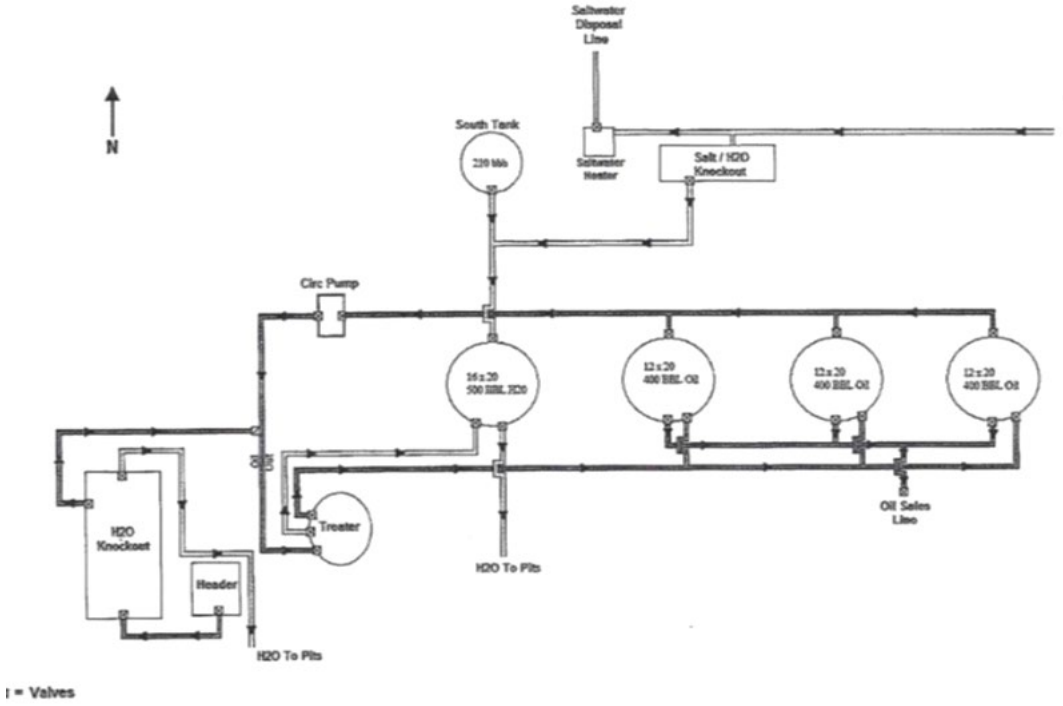


Figure 2: Aerial Imagery of Battery #1 via Google Earth

Battery # 3:

Battery #3 sits in the valley floor of Gothic Creek. Crude oil from active Wells #19 and 23 is collected and sent to a treater-heater structure from which produced water is sent to a knockout water tank and oil is sent to three production tanks. An oil sales line comes of the production tanks. Produced water from the knockout tank is sent to a water storage tank that releases produced water to a series of two unlined, settling ponds. A bird net covers both Ponds #1 and 2. In Pond #2, a pipe at a 45° angle in the pond bed and 3.5 feet below the water surface discharges treated produced water to Outfall No. 002. This unit has an average flow of 4,000 GPD, with a maximum design flow of 40,000 GPD or 0.04 MGD. At Outfall No. 002, discharge treated produced water enters a buried pipeline that carries the water toward Gothic Creek which is a tributary to the San Juan River. There is also an emulsion tank.

Figure 3: English Tank Battery #3 Facility Diagram

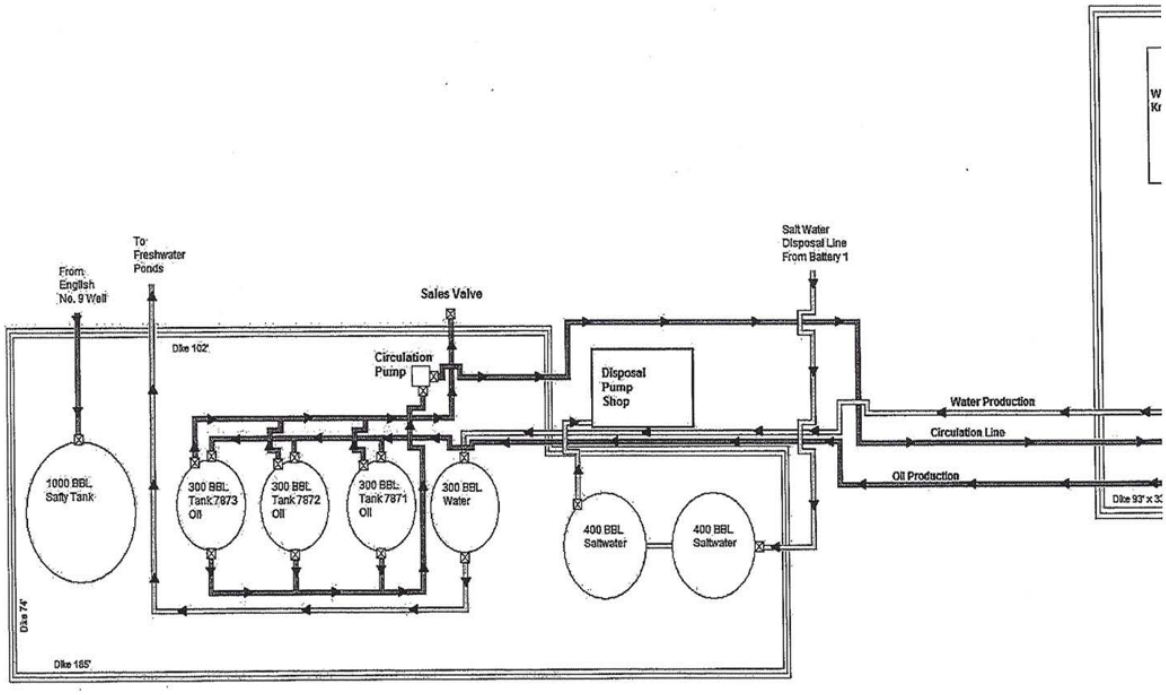
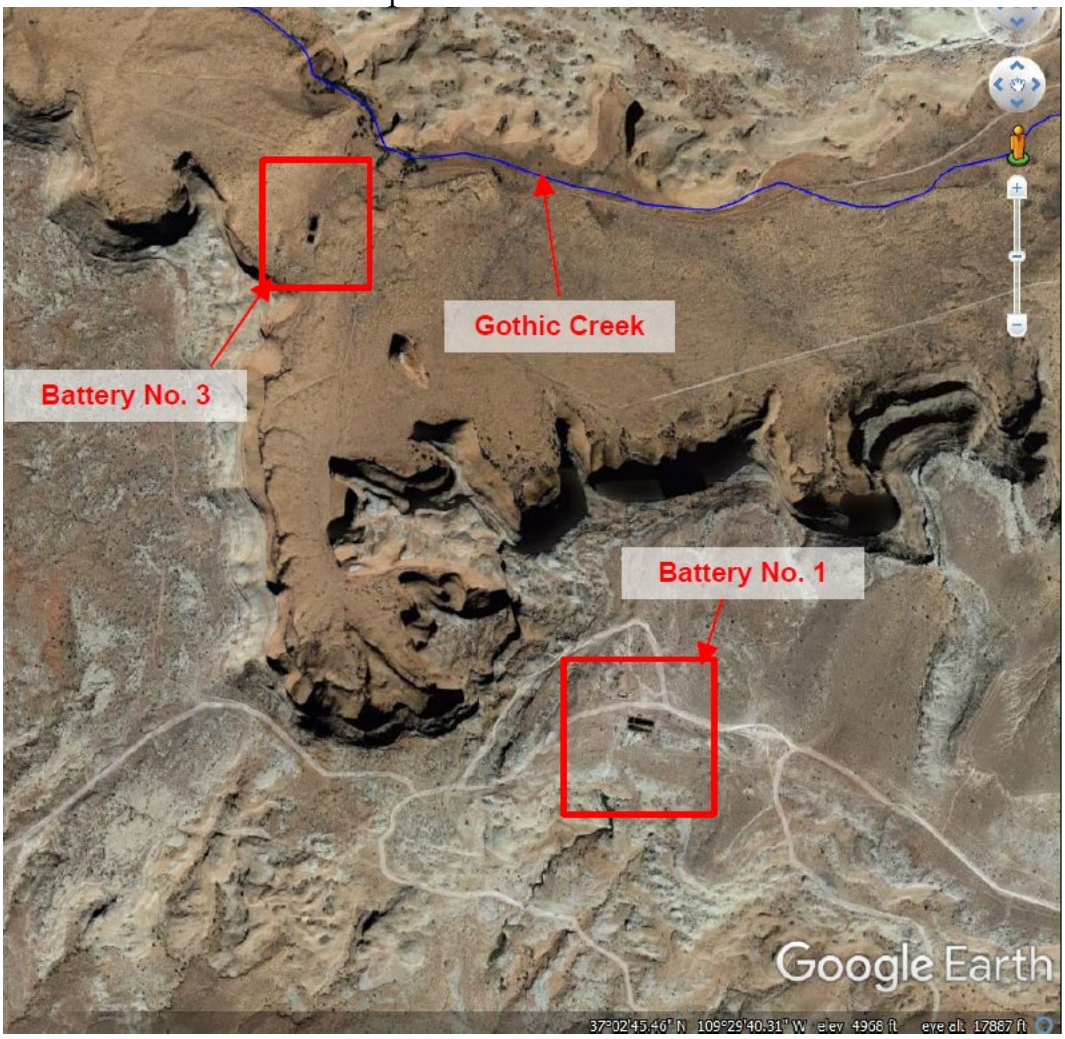


Figure 4: Aerial view of Battery No. 3

IV. DESCRIPTION OF RECEIVING WATER

Discharge from Outfall No. 001 is to an unnamed wash that is a tributary to Gothic Creek. Discharge from Outfall No. 002 is to Gothic Creek which may have no natural flow during certain times of the year. Gothic Creek is a tributary to the San Juan River. There are no impairments or TMDLs for Gothic Creek, a tributary of the San Juan River. (Note that the September 2021 permit application incorrectly listed the waterbody as Chinle Wash instead of Gothic Creek.)

Figure 5. Aerial Imagery obtained via Google Earth showing the two batteries
The blue line that represents Gothic Creek is from USEPA's WATERS Data.



V. DESCRIPTION OF DISCHARGE

A. **<u>Battery # 1 – Outfall 001</u>**: Crude oil from active Wells #20, 28 and 33 is collected and sent to Battery #1. Crude oil is sent to a treater-heater from which water is separated and sent to a knockout water tank and oil is sent to three production tanks. Knockout water is sent to Pond #1 for settling and then to Ponds #2 and #3 in series. From Pond #3, treated water is discharged to Outfall 001 where water flows down to the valley floor into an unnamed wash, a tributary to Gothic Creek which is a tributary to the San Juan River.

Tables 1 and 2 show data related to discharge from Outfall 001 based on the permittee's NPDES renewal application and data reported on discharge monitoring reports. More information is available on Enforcement and Compliance History Online ("ECHO") at https://echo.epa.gov/detailed-facility-report?fid=110010134185.

Table 1. Application Discharge Data [Outfall 001] Reported in Form 2C

Pollutant Parameter	Units	Discharge Data		Number of Samples
		Maximum Daily Discharge	Average Daily Discharge	
Flow	MGD	0.08	N/A	2
Chemical oxygen demand (COD)	mg/L	<25.0	N/A	2
Total Suspended Solids (TSS)	mg/L	<4.0	N/A	2
Oil and Grease	mg/L	<5.0	N/A	2
pH	S.U.	7.94	N/A	2
Temperature, winter	°C	19	N/A	2
Temperature, summer	°C	21	N/A	2
Sulfate, as SO_4	mg/L	<10.0	N/A	2
Iron, total	mg/L	<0.05	N/A	2

Table 2. Effluent Data for [Outfall 001] from October 2016 to September 2021 Based on 0.08 MGD Design Flow

Parameter	Units (1)	Permit Effluent Limitations			Effluent Data			
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly	Highest Average Weekly	Highest Maximum Daily	Number of Samples
Flow Rate	MGD	(2)	--	(2)	0.07 (5/2018)	--	0.07 (5/2018)	53
BOD_5	mg/L	25	35	--	35 (2/2019)	35 (2/2019)	--	53
	kg/day	7.5	10.5	--	0.76 (2/2019)	0.76 (2/2019)	--	
TSS	mg/L	25	35	--	14.5 (7/2021)	14.5 (7/2021)	--	53
	kg/day	7.5	10.5	--	0.39 (7/2021)	0.39 (7/2021)	--	
Oil and Grease	mg/L	--	--	10	--	--	25.8 (2/2019)	53
TDS	mg/L	--	--	1200	--	--	1520 (6/2018)	20
pH	Standard Units	Between 6.5 and 9.0			7.49 – 8.71 (min-max) (9/2019 – 4/2017)			53

(1) Mass based limits calculated using 0.08 MGD flow.
(2) No effluent limits were established although monitoring and reporting were required.

Pollutants believed to be absent or never detected in the effluent are not included. The data show elevated concentrations of BOD_5 (mg/L), oil and grease, and total dissolved solids. All exceedances are discussed further in Part VI.B.4. Some parameters that were reported in the application are not limited in the current permit (including chemical oxygen demand, temperature, sulfate and iron).

B. **Battery #3 – Outfall 002**: Crude oil from active Wells #19 and 23 is collected and sent to Battery #3. Crude oil is sent to a treater-heater from which water is separated and sent to a

knockout water tank and oil is sent to three production tanks. Knockout water is sent to Pond #1 for settling and then to Pond #2. From Pond #2, treated water is discharged to Outfall 002 where water flows into an unnamed wash that flows into Gothic Creek, a tributary to the San Juan River.

Tables 3 and 4 show data related to discharge from Outfall 002 based on the permittee's NPDES renewal application and data reported on discharge monitoring reports. Again, more information can be found on ECHO at https://echo.epa.gov/detailed-facility-report?fid=110010134185.

Table 3. Application Discharge Data [Outfall 002] Reported in Form 2C

Pollutant Parameter	Units	Discharge Data		Number of Samples
		Maximum Daily Discharge	Average Daily Discharge	
Flow	MGD	0.04	n/a	2
COD	mg/L	<25.0	n/a	2
TSS	mg/L	<4.0	n/a	2
Oil and Grease	mg/L	<5.0	n/a	2
pH	S.U.	7.94	n/a	2
Temperature, winter	°C	19	n/a	2
Temperature, summer	°C	21	n/a	2
Sulfate, as SO_4	mg/L	<10.0	n/a	2
Iron, total	mg/L	<0.05	n/a	2

Table 4. Effluent Data for [Outfall 002] from October 2016 to September 2021
(Based on 0.04 MGD Design Flow)

Parameter	Units[1]	Permit Effluent Limitations			Effluent Data			
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly	Highest Average Weekly	Highest Maximum Daily	Number of Samples
Flow Rate	MGD	(2)	--	(2)	0.0019 (6/2017)	--	0.0019 (6/2017)	1
BOD_5	mg/L	25	35	--	5 (6/2017)	5 (6/2017)	--	1
	kg/day	7.5	10.5	--	0.04 (6/2017)	0.04 (6/2017)	--	
TSS	mg/L	25	35	--	11 (6/2017)	11 (6/2017)	--	1
	kg/day	7.5	10.5	--	0.08 (6/2017)	0.08 (6/2017)	--	
Oil and Grease	mg/L	--	--	10	--	--	<5 (6/2017)	1
TDS	mg/L	--	--	1200	--	--	1630 (6/2017)	1
pH	Standard Units	Between 6.5 and 9.0			8.65 – 8.65 (min-max) (6/2017)			1

(1) Mass based limits calculated using 0.04 MGD flow.
(2) No effluent limits were established although monitoring and reporting were required.

Pollutants believed to be absent or never detected in the effluent are not included. The

data show elevated concentrations of total dissolved solids. All exceedances are discussed further in Part VI.B.4. Some parameters that were reported in the application are not limited in the current permit (including chemical oxygen demand, temperature, sulfate and iron).

VI. DETERMINATION OF NUMERICAL EFFLUENT LIMITATIONS

EPA has developed effluent limitations and monitoring requirements in the permit based on an evaluation of the technology used to treat the pollutant (i.e., "technology-based effluent limits") and the water quality standards applicable to the receiving water (i.e., "water quality-based effluent limits"). EPA has established the most stringent of applicable technology-based or water quality-based standards in the draft permit, as described below.

Section 301(a) of the CWA provides that the discharge of any pollutant to waters of the United States is unlawful except in accordance with a NPDES permit. Section 402 of the Act establishes the NPDES program. The program is designed to limit the discharge of pollutants into waters of the United States from point sources [40 CFR § 122.1(b)(1)] through a combination of various requirements including technology-based and water quality-based effluent limitations.

Sections 402 and 301(b)(1)(C) of the CWA require that the permit contain effluent limitations to meet water quality standards. Specifically, the regulation under 40 CFR § 122.44(d) states that an NPDES permit must contain:

"Water quality standards and State requirements: any requirements in addition to or more stringent than promulgated effluent limitations guidelines or standards under Sections 301, 304, 306, 307, 318 and 405 of CWA necessary to:

(11) Achieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality.

Section 40 CFR § 122.44(d)(i) states the following:

"Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality."

The permit limitations in this permit are based on the following:

1. In accordance with 40 CFR § 122.44(d), the need for discharge limitations for all pollutants that may impact applicable water quality criteria and water quality standards must be evaluated. As part of this evaluation, discharge limitations are based on applicable water quality standards. USEPA approved the 1999 Navajo Nation Surface Water Quality Standards ("NNSWQS"), on March 23, 2006. The NNSWQS were revised in 2007 and approved by U.S. EPA on March 26, 2009. EPA partially approved the 2015 NNSWQS revisions on October 5, 2020, effective March 17, 2021. The approved 1999 NNSWQS and the 2015 revisions will be

used on a best professional judgment ("BPJ") basis for purposes of developing water quality based effluent limitations. The requirements contained in the proposed permit are necessary to prevent violations of applicable water quality standards.

2. USEPA's best professional judgment ("BPJ") based on effluent guidelines for the onshore segment of the Oil and Gas Extraction Point Source Category (40 CFR Part 435, Subpart E).

3. The Colorado River Basin Salinity Policy.

4. The State of Utah Wastewater Disposal Regulations.

A. Applicable Technology-Based Effluent Limitations

Technology-based treatment requirements may be imposed on a case by case basis under Section 402(a)(1) of the CWA, to the extent that EPA promulgated effluent limitations are inapplicable (i.e., the regulation allows the permit writer to consider the appropriate technology for the category or class of point sources and any unique factors relating to the applicant) (40 CFR § 125.3(c)(2)).

Tank Battery #1 – Outfall 001: 0.08 MGD

BOD_5
Concentration-based Limits
30-day average – 25 mg/L
7-day average – 35 mg/L

Mass-based Limits
30-day average – 0.08 MGD x 25 mg/L x 8.345 (lbs/MG)/(mg/L) = 16.7 lbs/day
7-day average – 0.08 MGD x 35 mg/L x 8.345 (lbs/MG)/(mg/L) = 23.4 lbs/day

TSS
Concentration-based Limits
30-day average – 25 mg/L
7-day average – 35 mg/L

Mass-based Limits
30-day average – 0.08 MGD x 25 mg/L x 8.345 (lbs/MG)/(mg/L) = 16.7 lbs/day
7-day average – 0.08 MGD x 35 mg/L x 8.345 (lbs/MG)/(mg/L) = 23.4 lbs/day

Tank Battery #3 – Outfall 002: 0.04 MGD

BOD_5
Concentration-based Limits
30-day average – 25 mg/L
7-day average – 35 mg/L

Mass-based Limits
30-day average – 0.04 MGD x 25 mg/L x 8.345 (lbs/MG)/(mg/L) = 8.4 lbs/day
7-day average – 0.04 MGD x 35 mg/L x 8.345 (lbs/MG)/(mg/L) = 11.7 lbs/day

TSS
Concentration-based Limits
30-day average – 25 mg/L
7-day average – 35 mg/L

Mass-based Limits
30-day average – 0.04 MGD x 25 mg/L x 8.345 (lbs/MG)/(mg/L) = 8.4 lbs/day
7-day average – 0.04 MGD x 35 mg/L x 8.345 (lbs/MG)/(mg/L)) = 11.7 lbs/day

Tank Batteries #1 and 3– Outfalls 001 and 002

pH
Instantaneous Measurement: 6.5 – 9.0 standard units (S.U.)

B. Water Quality-Based Effluent Limitations

Water quality-based effluent limitations are required in NPDES permits when the permitting authority determines that a discharge causes, has the reasonable potential to cause, or contributes to an excursion above any water quality standard (40 CFR § 122.44(d)(1)). In making this determination, the permitting authority uses procedures accounting for:

- Existing controls on point and non-point sources of pollution;
- Variability of the pollutant or pollutant parameter in the effluent;
- Sensitivity of species to toxicity testing (when evaluating whole effluent toxicity); and, where appropriate,
- Dilution of the effluent in the receiving water (40 CFR § 122.44(d)(1)(ii)).

EPA evaluated the reasonable potential to discharge toxic pollutants according to guidance provided in EPA's *Technical Support Document for Water Quality-Based Toxics Control* (hereinafter, "TSD") (Office of Water, U.S. EPA, March 1991) and the *U.S. EPA NPDES Permit Writers' Manual* (Office of Water, U.S. EPA, September 2010). These factors include:

- Applicable standards, designated uses and impairments of receiving water

- Dilution in the receiving water
- Type of industry
- History of compliance problems and toxic impacts
- Existing data on toxic pollutants - Reasonable Potential Analysis

1. Applicable Standards, Designated Uses and Impairments of Receiving Water

In accordance with 40 CFR § 122.44(d), the need for discharge limitations for all pollutants that may impact applicable water quality criteria and water quality standards must be evaluated. As part of this evaluation, discharge limitations are based on applicable water quality standards.

The NNSWQS establish water quality criteria for the following beneficial uses in Gothic Creek: Secondary Human Contact, Agricultural Water Supply, Aquatic & Wildlife, and Livestock Watering.

Applicable water quality standards establish water quality criteria for the protection of aquatic wildlife from acute and chronic exposure to certain metals that are hardness dependent, with a "cap" of 400 mg/l. Based on available hardness data for the discharge, the permit establishes water quality standards for these metals based on a hardness value of 250 mg/L.

Gothic Creek is not listed as impaired according to the CWA Part 303(d) List of Water Quality Limited Segments.

2. Dilution in the Receiving Water

Discharges from Outfalls Nos. 001 and 002 flow to Gothic Creek which may have no natural flow during certain times of the year. Therefore, no dilution of the effluent has been considered in the development of WQBELs applicable to the discharges.

3. Type of Industry

Typical pollutants of concern in treated wastewater from oil and gas operations include oil and grease and organics found in petroleum products, as well as total dissolved solids and total suspended solids. pH and BOD may also be of concern due to the treatment operations. The SIC for the operation is 1311 – Crude Petroleum and Natural Gas.

4. History of Compliance Problems and Toxic Impacts

Review of DMRs from October 2016 to September 2021 showed six exceedances for TDS, two for Oil and Grease, and one for BOD_5. For Outfall No. 001, there were two months of no discharges (August 2017 and October 2018), two months of lost sample/data not available (November 2020 and December 2020), one month of frozen conditions (December 2017), one month of operation shutdown (March 2018), and one month of lab unable to perform analysis (September 2019). For Outfall No. 002, there was only one month (June 2017) of a discharge out of 60 months.

Table 5. DMR Violations from October 2016 to September 2021

Outfall No.	Month	Parameter	Value (mg/L)	Limit (mg/L)
001	November 2016	Oil & Grease	14.2	10
001	June 2017	TDS, daily max.	1260	1200
002	June 2017	TDS, daily max.	1630	1200
001	June 2018	TDS, daily max.	1520	1200
001	February 2019	BOD_5, weekly average	35	25
001	February 2019	Oil & Grease	25.8	10
001	December 2020	TDS, daily max.	1240	1200
001	June 2021	TDS, daily max.	1300	1200
001	September 2021	TDS, daily max.	1350	1200

5. Existing Data and Reasonable Potential Analysis

For pollutants with effluent data available, EPA has conducted a RP analysis based on statistical procedures outlined in EPA's TSD to determine whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion above a numeric or narrative water quality criterion for individual toxicants. EPA can use a variety of factors and information where facility-specific effluent monitoring data are unavailable or limited (Section 3.2 of EPA's TSD). These statistical procedures result in the calculation of the projected maximum effluent concentration based on monitoring data to account for effluent variability and a limited data set. The projected maximum effluent concentrations were estimated using a coefficient of variation and the 99 percent confidence interval or the 99th percentile based on an assumed lognormal distribution of daily effluent values (Sections 3.3.2 and 5.5.2 of EPA's TSD). EPA calculated the projected maximum effluent concentration for each pollutant using the following equation:

Projected maximum concentration = C_e × *reasonable potential multiplier factor*
Where "C_e" is the reported maximum effluent value and the multiplier factor is obtained from Table 3-1 of the TSD.

Table 6. Summary of Reasonable Potential Statistical Analysis for Outfall No. 001

Parameter	Maximum Observed Value [(1)]	*n*	RP Multiplier	Projected Maximum Effluent Concentration	Most Stringent Water Quality Criterion	Statistical Reasonable Potential?
Phenanthrene	5 µg/L	1	13.2	66 µg/L	6.3 µg/L (LW, chronic)	Y
Selenium	3.8 µg/L	1	13.2	182 µg/L	2 µg/L (A&W, chronic)	Y

[(1)] For purposes of RP analysis, parameters measured as Non-Detect are considered to be zeroes. Only pollutants detected are included in this analysis.

Table 7. Summary of Reasonable Potential Statistical Analysis for Outfall No. 002

Parameter	Maximum Observed Value [(1)]	*n*	RP Multiplier	Projected Maximum Effluent Concentration	Most Stringent Water Quality Criterion	Statistical Reasonable Potential?
Phenanthrene	5 µg /L	1	13.2	66 µg/L	6.3 µg/L (A&W, chronic)	Y

Selenium	4.1 µg/L	1	13.2	54 µg/L	2 µg/L (A&W, chronic)	Y

(1) For purposes of RP analysis, parameters measured as Non-Detect are considered to be zeroes. Only pollutants detected are included in this analysis.

C. Rationale for Effluent Limitations and Monitoring

EPA evaluated the typical pollutants expected to be in discharge effluent and selected the most stringent of applicable technology-based standards or water quality-based effluent limitations. Where effluent concentrations of toxic parameters are unknown or are not reasonably expected to be discharged in concentration that have the reasonable potential to cause or contribute to water quality standards, EPA has established monitoring requirements in the permit. This data will be re-evaluated and the permit re-opened to incorporate effluent limitations if necessary.

Flow:

No limits have been established for flow, but flow rates must be monitored and reported. Continuous monitoring is required for flow when discharging at Outfall 001.

BOD_5 and TSS:

The BOD_5 and TSS technology-based limits are described above, and the permit retains these limits. Under 40 CFR § 122.45(f), mass limits are required for BOD_5 and TSS. The mass-based limits included in the permit are calculated based on the 0.08 MGD design flow for Outfall 001 and 0.04 MGD for Outfall 002.

Oil & Grease (O&G)

Consistent with the previous permit, the O&G maximum limitation is 10 mg/L and the monitoring frequency is once per month.

TDS

The TDS daily maximum concentration of 1200 mg/L is based on the NNSWQS for both these discharge outfalls. The mass limit is also well below the 1 ton/day maximum guideline as set by the Colorado River Basin Salinity Policy. The TDS limitation for the permit is based on present and past performances of the facility. The monitoring frequency is once per quarter. This limit is consistent with that in the previous permit.

Selenium

To conduct the reasonable potential analysis, EPA compared the most stringent, applicable water quality standard to the projected maximum expected value in the discharge in accordance with EPA's TSD. As shown in Tables 6 and 7 above, there is reasonable potential for selenium in the effluent to cause or contribute to exceedances above the applicable water quality criteria.

Monitoring of selenium had been included in the priority pollutant scan. However, because monitoring for selenium was conducted by the permittee only once during the previous permit cycle, there was not sufficient data to calculate representative geometric means from multiple data points to evaluate compliance with the applicable water quality standards.

Therefore, the draft permit establishes effluent limits and annual monitoring requirements for selenium.

Phenanthrene

To conduct the reasonable potential analysis, EPA compared the most stringent, applicable water quality standard to the projected maximum expected value in the discharge in accordance with EPA's TSD. As shown in Tables 6 and 7, there is reasonable potential for phenanthrene in the effluent to cause or contribute to exceedances above the applicable water quality criteria.

Monitoring of phenanthrene had been included in the priority pollutant scan. However, because monitoring for phenanthrene was conducted by the permittee only once during the previous permit cycle, there was not sufficient data to calculate representative geometric means from multiple data points to evaluate compliance with the applicable water quality standards. Therefore, the draft permit establishes effluent limits and annual monitoring requirements for phenanthrene.

Hardness (as $CaCO_3$)

The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for metals. In order to have sufficient effluent hardness data to calculate hardness-dependent metals criteria, this draft permit includes a requirement for annual monitoring for hardness.

pH:

To ensure adequate protection of beneficial uses of the receiving water, the permit requires that effluent pH not fall below 6.5 or above 9.0 standard pH units, identical to those in the previous permit. They are based on NNSWQS. The monitoring frequency is once per month, consistent with the previous permit.

D. Anti-Backsliding

Sections 402(o) and 303(d)(4) of the CWA and 40 CFR § 122.44(l) prohibit the renewal or reissuance of an NPDES permit that contains effluent limits and permit conditions less stringent than those established in the previous permit, except as provided in the statute and regulation.

The draft permit renewal does not establish any effluent limits less stringent than those in the previous permit and does not allow backsliding.

E. Antidegradation Policy

EPA's antidegradation policy under CWA Section 303(d)(4) and 40 CFR § 131.12 and the NNSWQS require that existing water uses and the level of water quality necessary to protect the existing uses be maintained. The receiving water is not listed as an impaired waterbody for BOD_5, TSS, coliform, temperature or total ammonia under section 303(d) of the CWA.

As described in this document, the permit establishes effluent limits and monitoring requirements to ensure that all applicable water quality standards are met. The permit does not include a mixing zone; therefore, these limits will apply at the end of pipe without consideration of dilution in the receiving water.

Since the permittee is expected to comply with all limits in the permit, the effluent should not have a negative, degrading effect, on the receiving waterbody. A priority pollutant scan has been conducted of the effluent, demonstrating that most pollutants will be discharged below detection levels. While the permit establishes new limits for phenanthrene and selenium and does not establish limits for the remaining parameters in the priority pollutant scan, the permittee is required to monitor for the full list of priority pollutants as listed at 40 CFR Part 423 Appendix A. Thus, due to the low levels of toxic pollutants present in the effluent, and inclusion of water quality-based effluent limitations, the discharge is not expected to adversely affect receiving water bodies or result in any degradation of water quality.

VII. MONITORING AND REPORTING REQUIREMENTS

The permit requires the permittee to conduct monitoring for all pollutants or parameters where effluent limits have been established, at the minimum frequency specified. Additionally, where effluent concentrations of toxic parameters are unknown or where data are insufficient to determine reasonable potential, monitoring may be required for pollutants or parameters where effluent limits have not been established.

A. Effluent Monitoring and Reporting

The permittee must conduct effluent monitoring to evaluate compliance with the permit conditions. The permittee shall perform all monitoring, sampling and analyses in accordance with the methods described in the most recent edition of 40 CFR Part 136, unless otherwise specified in the permit. All monitoring data shall be reported on monthly DMR forms and submitted monthly as specified in the permit.

B. Priority Toxic Pollutants Scan

A priority toxic pollutants scan must be conducted during the first four years of the five-year permit term to ensure that the discharge does not contain toxic pollutants in concentrations that may cause a violation of water quality standards: 1st Quarter during Year 1, 2nd Quarter in Year 2, 3rd Quarter in Year 3, and 4th Quarter in Year 4. The data gathered will be used in Reasonable Potential Analysis in the next permit. The permittee must perform all effluent sampling and analyses for the priority pollutants scan in accordance with the methods described in the most recent edition of 40 CFR Part 136, unless otherwise specified in the permit or by EPA. 40 CFR § 131.36 provides a complete list of Priority Toxic Pollutants. It should be noted that toxic metals under the NNSWQS listed for dissolved concentrations.

VIII. SPECIAL CONDITIONS

A. Asset Management and Operation and Maintenance

40 CFR §122.41(e) requires permittees to properly operate and maintain all facilities and systems of treatment and control which are installed or used by the permittee to achieve compliance with the conditions of this permit. Asset management planning provides a framework for setting and operating quality assurance procedures and ensuring the permittee has sufficient financial and technical resources to continually maintain a targeted level of service. The AMP includes an inventory of all critical assets, projected useful life, and replacement plans for the assets. Assets may include, but are not limited to, heater-treaters, oil-water separators, skimmers, process and storage tanks, pump stations, settlement ponds, inter-pond and outfall pipes, fencing and netting, etc. The AMP must be updated annually. Asset management requirements have been established in the permit to ensure compliance with the provisions of 40 CFR §122.41(e).

B. Development and Implementation of Best Management Practices and Pollution Prevention

40 CFR § 122.44(k)(4) requires permittees to develop (or update) and implement Best Management Practices ("BMPs") for pollution prevention. A Pollution Prevention Plan must be developed (updated) and implemented with appropriate pollution prevention measures or BMPs designed to prevent pollutants from entering the unnamed washes that discharges into Gothic Creek while performing normal processing operations at the facility. The Plan must also include installation and maintenance of water fencing and/or netting in the area above and around the retention water pit and secondary sedimentation basin to prevent wildlife and domestic livestock contact with the water in these structures.

The permittee must develop and implement BMPs that are necessary to control the Oil and Grease concentrations.

IX. OTHER CONSIDERATIONS UNDER FEDERAL LAW

A. Consideration of Environmental Justice

USEPA conducted a screening level evaluation of vulnerabilities in the community posed to local residents near the vicinity of the permitted facility using USEPA's EJSCREEN tool (https://www.epa.gov/ejscreen). The purpose of the screening is to identify areas disproportionately burdened by pollutant loadings and to consider demographic characteristics of the population living in the vicinity of the discharge when drafting permit conditions.

In February 2022, USEPA conducted an EJSCREEN analysis of the community in a 10-mile radius of the vicinity of the outfalls. Of the 12 environmental indicators screened through EJSCREEN, the evaluation determined elevated risk for the following factors:

Table 8. EJSCREEN Analysis –
English Lease Boundary Butte

Selected Variables	Percentile in State	Percentile in EPA Region	Percentile in USA
Environmental Justice Indexes			
EJ Index for Particulate Matter 2.5	82	80	62
EJ Index for Ozone	84	82	66
EJ Index for 2017 Diesel Particulate Matter*	80	77	58
EJ Index for 2017 Air Toxics Cancer Risk*	82	80	60
EJ Index for 2017 Air Toxics Respiratory HI*	81	79	60
EJ Index for Traffic Proximity	80	78	60
EJ Index for Lead Paint	89	87	71
EJ Index for Superfund Proximity	82	81	61
EJ Index for RMP Facility Proximity	80	79	60
EJ Index for Hazardous Waste Proximity	79	77	58
EJ Index for Underground Storage Tanks	81	79	63
EJ Index for Wastewater Discharge	78	80	74

EJ Index for the Selected Area Compared to All People's Blockgroups in the State/Region/US

The results, summarized in Table 8, show that the area around the English Lease Boundary Butte facility was above the 66th percentile nationally for ozone and 62nd percentile nationally for PM2.5. USEPA has also evaluated whether demographic characteristics of the population living in the vicinity of the facility indicate that the local population might be particularly susceptible to such environmental risks. The EJSCREEN analysis of the demographic characteristics of the community living near the facility indicates that a high proportion of Minority Population (77%), over age 64 (96%), Low Income population (86%), and with less than high school education (88%).

USEPA also considers the characteristics of the wastewater treatment facility operation and discharges, and whether those discharges, in combination with discharges from local ozone sources, pose exposure risks that the NPDES permit needs to further address. The Boundary Butte facility is unlikely to discharge any noticeable ozone. USEPA finds no evidence to indicate wastewater facility discharge poses a significant risk to local residents. USEPA concludes that the facility is unlikely to contribute to EJ issues. Furthermore, USEPA believes that by implementing and requiring compliance with the provisions of the Clean Water Act, which are designed to ensure full protection of human health, the permit is sufficient to ensure the facility discharges to not cause or contribute to human health risk in the vicinity of the wastewater facility.

B. Impact to Threatened and Endangered Species

Section 7 of the Endangered Species Act of 1973 (16 U.S.C. § 1536) requires federal agencies to ensure that any action authorized, funded, or carried out by the federal agency does not jeopardize the continued existence of a listed or candidate species, or result in the destruction or adverse modification of its habitat.

The website for the U.S. Fish and Wildlife Service's ("USFWS") –Utah Ecological Services office generated an Official Species list on January 13, 2022, which identified the threatened and endangered species and their critical habitat that may occur in the vicinity of the English Lease Boundary Butte field. This Information for Planning and Conservation ("IPaC") report provides an up-to-date listing of all proposed (P), candidate (C), threatened (T) and endangered (E) species that occur in area neighboring the facility in the southwestern Utah and northeastern Arizona area in the northern portion of the Navajo Nation and should be considered as part of an effect analysis for this permit. (See https://ecos.fws.gov/ipac/gettingStarted/map). The listed species are provided in Table 9 below.

Table 9. Listed species, designated under the U.S. Endangered Species Act

Type	Common Name	Scientific Name	Status	Critical Habitat
Fish	Colorado Pikeminnow	*Ptychocheilus lucius*	E	No*
	Razorback Sucker	*Xyrauchen texanus*	E	No*
Birds	California Condor	*Gymnogyps californianus*	T	N/A*
	Mexican Spotted Owl	*Strix occidentalis lucida*	T	No*
Insects	Monarch Butterfly	*Danaus plexippus*	C	No
Plant	Navajo Sedge	*Carex specuicola*	T	No*

*These species have designated or proposed critical habitat outside of the Action Area.

The action area is defined as the Boundary Butte field and discharge outfalls to unnamed tributary of Gothic Creek, which may reach the San Juan River. As the discharge from the facility is limited, Gothic Creek may have no natural flow during certain times of the year and does not reach San Juan River. The action area does not include Gothic Creek nor San Juan River, as effluent discharge from the facility is limited and would only reach these waters during times of high flow when it would become so diluted as to have no effect. There are no designated critical habitats for any of the listed species in the action area.

Fish

Both **Colorado Pikeminnow** *(Ptychocheilus lucius)* and **Razorback Sucker** (*Xyrauchen texanus)* are endemic to the Colorado River basin and historically found in major tributaries such as the San Juan River. However, their ranges were reduced following the construction of dams and considered nearly extirpated in the San Juan River basin (Platania et al. 1991, cited in USFWS 2020c; Bestgen et al. 2012, cited in USFWS 2018). Neither species are not known to occur in the project action area as they both require stable water availability for habitat. Colorado pikeminnow (https://ecos.fws.gov/ecp/species/3531) spawn in groups over the summer where cobble and gravel streambeds are recently cleaned by spring peak flows, and they mature where snowmelt flows decrease to stable summer flows with periodic flash floods (USFWS 2020c). Razorback suckers (https://ecos.fws.gov/ecp/species/530) also typically spawn in clean, rocky substrates. While spawning sites have been noted over other substrates, maturation requires backwaters, floodplains, and flows sufficient to maintain healthy conditions, with adults found in main channel runs, eddies and shore runs, with depths of about 1 m (USFWS 2018). Although annual restocking occurs in the San Juan River (USFWS 2020c, USFWS 2018), suitable habitat does not occur in the vicinity of the action area nor in any of the washes leading to the San Juan River. Therefore, EPA has determined that the action will have no effect on both species.

Birds

California Condors *(Gymnogyps californianus)* are found throughout parts of California, Nevada, Colorado, Arizona, and Utah, although no known specific populations are known to occur in the project action area (https://ecos.fws.gov/ecp/species/8193). California condors may use roosting sites on ridges, rocky outcrops, or steep canyons, and they forage for carrion, primarily in foothill grasslands and oak savanna habitats (USFWS 2013). The action area does not contain suitable sites for roosting or foraging. California condors may occasionally be seen overhead in the action area, possibly from a release site for the nonessential experimental population. This site was established in 1996 near Vermilion Cliffs National Monument, about 200 miles to the southwest of the action area (USFWS 2013). Stressors affecting California condors include consumption of lead shot or micro-trash, predators, powerlines, starvation, falls, and other isolated incidents (USFWS 2013). Effluent discharge from the facility would not affect availability of carrion or otherwise contribute to stressors affecting California condors. This permit will not result in any violation of 50 CFR § 17.84(j), which includes special rules for the non-essential experimental populations of California condors, including the site near Vermilion Cliffs. EPA has determined that the action will have no effect on California condors.

Mexican Spotted Owls (*Strix occidentalis lucida*) may occur in Arizona, Colorado, New Mexico, Texas, and Utah, although populations in or near the project area have not been documented (https://ecos.fws.gov/ecp/species/8196). Spotted owls occur in old-growth or mature, complex forest structures components (uneven aged stands, high canopy closure, multi-storied levels, high tree density). Owls are also found in canyon habitat dominated by vertical-walled rocky cliffs within complex watersheds, including tributary side canyons. Rock walls with caves, ledges, and other areas provide protected nest and roost sites. Canyon habitat may include small, isolated patches or stringers of forested vegetation including stands of mixed-conifer, ponderosa pine, pine-oak, pinyon-juniper, and/or riparian vegetation in which owls regularly roost and forage. Roosting and nesting habitats exhibit certain identifiable features, including large trees (those with a trunk diameter of 12 inches or more (i.e., high tree basal area)), uneven aged tree stands, multi-storied canopy, a tree canopy creating shade over 40 percent or more of the ground (i.e., moderate to high canopy closure), and areas of downed logs and snags (standing dead trees). Owl foraging habitat includes a wide variety of forest conditions, canyon bottoms, cliff faces, tops of canyon rims, and riparian areas. They feed primarily on small mammals, although they will also prey on birds, bats, reptiles, and arthropods. Actions that fragment the forest or remove old-growth forests adversely affect the species. These types of habitats are not found in the vicinity of the action area, and the project does not include any activities that would affect the species. Therefore, EPA has determined that the action will not affect the Mexican spotted owl.

Insects

Monarch Butterfly *(Danaus plexippus)* is a candidate species and not yet listed or proposed for listing, (Endangered and Threatened Wildlife and Plants; 12-Month Finding for the Monarch Butterfly, December 17, 2020). (https://ecos.fws.gov/ecp/species/9743). Candidate species do not have statutory protection under the ESA, although USFWS encourages cooperative conservation efforts for these species. No critical habitat has been designated for this species by the USFWS.

Plant

Navajo Sedge *(Carex specuicola)* occurs in hanging gardens associated with moist seeps alongside sheer cliffs (https://ecos.fws.gov/ecp/species/8579), none of which occur within the more arid vicinity of the action area. Therefore, EPA has determined that the action will not affect the Navajo Sedge.

Conclusion

Considering all the information available, EPA concludes that the reissuance of this permit will not affect any of the above listed species. There is no designated critical habitat for any of the listed species within the action area. A copy of the draft fact sheet and permit will be forwarded to the Utah Field Office of the USFWS for review and comment prior to and during the 30-day public review period. If, in the future, EPA obtains information or is provided information that indicates that there could be adverse impacts to federally listed species, EPA will contact the appropriate agency or agencies and initiate consultation, to ensure that such impacts are minimized or mitigated. In addition, re-opener clauses have been included should new information become available to indicate that the requirements of the permit need to be changed.

C. Impact to Coastal Zones

The Coastal Zone Management Act ("CZMA") requires that federal activities and licenses, including federally permitted activities, must be consistent with an approved state Coastal Management Plan (CZMA Sections 307(c)(1) through (3)). Section 307(c) of the CZMA and implementing regulations at 40 CFR Part 930 prohibit EPA from issuing a permit for an activity affecting land or water use in the coastal zone until the applicant certifies that the proposed activity complies with the State (Tribe or Territory) Coastal Zone Management program, and the State (Tribe or Territory) or its designated agency concurs with the certification.

The draft permit does not affect land or water use in the coastal zone; therefore, CZMA does not apply to this permit.

D. Impact to Essential Fish Habitat

The 1996 amendments to the Magnuson-Stevens Fishery Management and Conservation Act ("MSA") set forth new mandates for the National Marine Fisheries Service, regional fishery management councils and other federal agencies to identify and protect important marine and anadromous fish species and habitat. The MSA requires federal agencies to make a determination on Federal actions that may adversely impact Essential Fish Habitat ("EFH").

The permit contains technology-based effluent limits and numerical and narrative water quality-based effluent limits as necessary for the protection of applicable aquatic life uses. The permit does not directly discharge to areas of essential fish habitat (i.e., not in marine waters). Therefore, EPA has determined that essential fish habit does not apply to this permit.

E. Impact to National Historic Properties

Section 106 of the National Historic Preservation Act ("NHPA") requires federal agencies to consider the effect of their undertakings on historic properties that are either listed on, or eligible for listing on, the National Register of Historic Places. Pursuant to the NHPA and 36 CFR § 800.3(a)(1), EPA is making a determination that re-issuing this NPDES permit does not have the potential to affect any historic properties or cultural properties. As a result, Section 106 does not require EPA to undertake additional consulting on this permit reissuance.

The permit does not allow the disturbance of any historic properties.

F. Water Quality Certification Requirements (40 CFR § 124.53 and § 124.54) to National Historic Properties

For this permit, the Permittee is required to seek water quality certification that this Permit will meet applicable water quality standards (including paying applicable fees) from the Navajo Nation EPA. Certification under section 401 of the CWA must be in writing and include the conditions necessary to assure compliance with referenced applicable provisions of sections 208(e), 301, 302, 303, 306, and 307 of the CWA and appropriate requirements of Tribal law. EPA cannot issue the Permit until the certifying Tribes have granted certification under 40 CFR § 124.55 or waived its right to certify.

XI. STANDARD CONDITIONS

A. Reopener Provisions

In accordance with 40 CFR Parts 122 and 124, the draft permit may be modified by EPA to include effluent limits, monitoring, or other conditions to implement new regulations, including EPA-approved Tribal water quality standards; to address new information indicating the presence of effluent toxicity or the reasonable potential for the discharge to cause or contribute to exceedances of water quality standards; or new permit conditions for species pursuant to ESA requirements.

B. Standard Provisions

The permit requires the permittee to comply with USEPA Region 9's *Standard Federal NPDES Permit Conditions* found at Part III of the permit.

XII. ADMINISTRATIVE INFORMATION

A. Public Notice (40 CFR § 124.10)

The public notice is the vehicle for informing all interested parties and members of the general public of the contents of a NPDES permit or other significant action with respect to an NPDES permit or application.

B. Public Comment Period (40 CFR § 124.10)

Notice of the draft permit was placed on EPA Region 9's website on May 18, 2022, for a 30-day comment period for interested parties to respond in writing to EPA. Comments may be submitted until the close of the public comment period to Tran.Linh@epa.gov. No comments were received during the comment period.

C. Public Hearing (40 CFR § 124.12(c))

A public hearing may be requested in writing by any interested party. The request should state the nature of the issues proposed to be raised during the hearing. A public hearing will be held if EPA determines there is a significant amount of interest expressed during the 30-day public comment period or when it is necessary to clarify the issues involved in the permit decision. No request for a public hearing was received during the comment period.

XIII. CONTACT INFORMATION

Comments, submittals, and additional information relating to this proposal may be directed to:

Linh Tran, NPDES Permits Office, U.S. EPA Region 9
Tran.Linh@epa.gov
(415) 972-3511

XIV. REFERENCES

EPA. 1991. *Technical Support Document for Water Quality-based Toxics Control*. Office of Water, EPA. EPA/505/2-90-001.

EPA. 1996. *Regions IX & X Guidance for Implementing Whole Effluent Toxicity Testing Programs*, Interim Final, May 31, 1996.

EPA. 2004. *Technical Support Document for the 2004 Effluent Guidelines Program Plan*. Office of Water, EPA. EPA-821-R-04-014.

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EPA. 2013. *National Recommended Water Quality Criteria*. Office of Water, EPA. Aquatic Life Criteria Table. https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table#table

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USFWS. 2022. IPaC report for Endangered and Threatened species list within the English Lease Boundary Butte field, San Juan County, Utah (provided by the Utah Field office of U.S. Fish and Wildlife Service, January 13, 2022)

USFWS. 2013. Pacific Southwest Region 8, California Condor (*Gymnogyps californianus*) 5-Year Review: Summary and Evaluation. June 2013.

USFWS. 2018. Mountain-Prairie Region 6. Species Status Assessment Report for the Razorback Sucker (*Xyrauchen texanus*). Final, August 2018.

USFWS. 2019. Southwest Region, Albuquerque, NM. Navajo Sedge (*Carex specuicola*) Recovery Plan Amendments for Eleven Southwest Species. December 6, 2019.

USFWS. 2020. Upper Colorado Basin, Region 7. 2020c. Species Status Assessment Report for the Colorado Pikeminnow (*Ptychocheilus lucius*). Final, March 2020.

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