**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**
**PERMIT FACT SHEET**
**January 2021**


Permittee Name: Buena Vista Rancheria of Me-Wuk Indians

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NPDES Permit No.: CA0049675

## I. STATUS OF PERMIT

Buena Vista Rancheria of Me-Wuk Indians (the "permittee") has applied for the renewal of its National Pollutant Discharge Elimination System ("NPDES") permit to authorize the discharge of treated effluent from the Buena Vue Casino Wastewater Treatment Plant ("WWTP") located in Ione, Amador County, California. The Buena Vue Casino was previously known as Buena Vista Casino and is now known as Harrah's Northern California Casino. The permittee applied for a permit renewal on May 5, 2020.

The Buena Vista Rancheria of Me-Wuk Indians of California ("Tribe") is a federally recognized Indian tribe. As the Tribe does not have primary regulatory responsibility for administering the NPDES permitting program, EPA Region 9 is preparing the draft NPDES permit renewal and fact sheet pursuant to Section 402 of the Clean Water Act, which requires

point source dischargers to control the amount of pollutants that are discharged to waters of the United States. The draft permit incorporates both federal standards and applicable tribal water quality requirements.

The permittee is currently covered under NPDES Permit No. CA0049675, which became effective on November 2, 2015, through midnight November 1, 2020. This fact sheet is based on information provided by the discharger through its permit application, effluent discharge data, along with the applicable laws and regulations. Pursuant to 40 CFR § 122.21, the terms of the existing permit are administratively extended until the issuance of a new permit.

Pursuant to Section 402 of the Clean Water Act ("CWA"), the U.S. EPA is proposing issuance of the NPDES permit renewal to the permittee for the discharge of treated domestic wastewater to an effluent-dependent drainage ditch, ephemeral tributary of Jackson Creek, a tributary of Dry Creek, which is a tributary of the Mokelumne River, all waters of the United States.

Construction of the Buena Vue casino was completed in spring of 2019 and the WWTP commenced operation and discharge of treated effluent on April 29, 2019. This permittee is classified as a minor discharger.

## II. SIGNIFICANT CHANGES TO PREVIOUS PERMIT

| Permit Condition | Previous Permit (2015 – 2020) | Re-issued permit | Reason for change |
|---|---|---|---|
| DMR submittal | Hardcopy accepted | Switch to e-reporting | EPA e-reporting Rule |
| Biosolids report | Hardcopy accepted | Switch to e-reporting | EPA e-reporting Rule |
| Plant design capacity | 0.10 million gallons per day (MGD) for Phase 1 plant.<br><br>Capacity would be 0.20 MGD after Phase 2 expansion. | Phase 1 plant capacity is lowered to 0.08 MGD.<br><br>Phase 2 is uncertain at this point as the plant is operating only at half capacity or less due to the pandemic. | Mass limits are recalculated using the revised plant capacity of 0.08 MGD. |
| Mass-based effluent limits | The previous permit contained average monthly effluent limit ("AMEL") calculated based on 0.10 MGD and an average weekly effluent limit ("AWEL") based on 0.20 MGD. | Revised AMEL and AWEL are based on 0.08 MGD. | Mass limits are adjusted based on revised lower design capacity. |
| Electrical conductivity ("EC") monitoring | The previous permit required effluent monitoring for EC. | EC monitoring is removed. | The permit retains monitoring for total dissolved solids ("TDS"), which is an indicator parameter for salinity. Monitoring results for TDS should be characteristic of other |

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|---|---|---|---|
| | | | salinity parameters, including EC. Thus, EC monitoring is not needed. |
| Ammonia Impact Ratio ("AIR") | None | Compliance with the ammonia effluent limit will be determined using a ratio called AIR. The permit limit is set to a value of 1.0.<br><br>The permittee also must continue to monitor and report ammonia effluent values in addition to the AIR value. | AIR provides more flexibility than a specific, fixed effluent concentration and is easier than a floating limit to determine and report compliance. |
| Temperature monitoring and reporting | None | Weekly effluent monitoring requirement for temperature has been added. | To ensure that the applicable narrative standards are not exceeded and to calculate temperature-specific ammonia criteria. |
| Hardness (as $CaCO_3$) monitoring | None | Annual monitoring requirement for hardness has been added. | To collect sufficient effluent hardness data in order to calculate hardness-dependent metals criteria. |
| Effluent limits and monitoring for Nitrate plus Nitrite, as a single parameter | The previous permit included an AMEL and monitoring for nitrate only. | AMEL and monitoring for nitrate have been removed and replaced with nitrate plus nitrite, as a single parameter.<br><br>AWEL and monitoring for nitrate plus nitrite have been added. | To calculate compliance with the effluent limits established for nitrate plus nitrite, as a single parameter. These limits are proposed based on EPA's Human Health criteria and are consistent with the Primary Maximum Contaminant Level ("MCL") adopted by the California State Water Resources Control Board, Division of Drinking Water.<br><br>AWEL was established in addition to AMEL for the POTW in accordance with 40 CFR § 122.45(d). |
| Total coliform effluent limits | The previous permit included an AMEL of 23 MPN/100 mL (most probable number per 100 mL) | The draft permit includes effluent limits for total coliform organisms of 2.2 MPN/100 mL, not to be exceeded more than once in a 30-day period; 23 MPN/100 mL as a 7-day median, and 240 | Effluent limits for total coliform organisms in the draft permit were established in accordance with the disinfection standards in Chapter 3, Division 4, Title 22 of the California Code of Regulations. |

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|---|---|---|---|
| | | MPN/100 mL, at any time. | |
| Cyanide monitoring and effluent limit | The previous permit required cyanide monitoring as part of the priority pollutant scan during Years 1, 3 and 5. | Effluent limits and monitoring requirements for cyanide have been added. | Reasonable potential to exceed WQS. |
| Cadmium, Copper, Lead, Nickel, Zinc monitoring and effluent limits | The previous permit required monitoring for these metals as part of priority pollutant scan during Years 1, 3 and 5. | Effluent limits and monitoring requirements for these metals have been added. | Reasonable potential to exceed WQS. |
| Chronic WET testing requirements and triggers | The previous permit required the permittee to report results in Chronic Toxicity Units (TUc) and included triggers of any one test result greater than 1.6 TUc or any calculated monthly median value greater than 1.0 TUc. | The draft permit requires the permittee to report Pass "0" or Fail "1" of the Test of Significant Toxicity ("TST") null hypothesis ($H_o$) and the percent effect. | The requirements in the draft permit have been established in accordance with the TST statistical approach described in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010). |
| Chronic WET test species | The previous permit required the permittee to conduct short-term tests with the water flea, *Ceriodaphnia dubia* (survival and reproduction test), fathead minnow, *Pimephales promelas* (larval survival and growth test) and the green alga, *Raphidocelis subcapitata* (growth test). | The draft permit requires the permittee to conduct static non-renewal toxicity tests with the water flea, *Ceriodaphnia dubia* (Survival and Reproduction Test Method 1002.0). | *Ceriodaphnia dubia* is typically more sensitive to chronic WET and the effluent limits for ammonia and chlorine in the permit are aimed at protecting fish species. |
| Best Management Practices ("BMPs") | None | The new permit incorporates standard BMPs language for small utilities. | Provision of 40 CFR § 122.44(k)(4) |
| Asset Management Program ("AMP") | None | The new permit incorporates standard asset management requirement for small utilities. | Provision of 40 CFR § 122.41(e) |

## III. GENERAL DESCRIPTION OF FACILITY

The Buena Vue Casino is located on the Tribe's Rancheria land which is a 67-acre parcel in Amador County approximately four miles south of Ione, 32 miles east of Sacramento, California. The 70,000-square-foot casino began operation in April 2019 and has approximately

24,000 square feet of gaming, with 950 slot machines, 20 table games, and a restaurant steakhouse and a three-tiered food court.

The WWTP serves the casino population of about 3,200 per day, receiving only domestic sewage with a design flow of 0.08 MGD. Wastewater generated from the casino includes sewage, restaurant washwaters, and miscellaneous wastewater from guest support services. The WWTP does not serve residential connections nor accept wastewater from any industrial facilities. According to the permit application, the annual average flow rates were 0.020 MGD in 2019, and 0.017 MGD in 2020. Maximum daily flow rates were 0.045 MGD in 2019 and 0.037 in 2020.

The casino WWTP is projected to be built in two phases. Phase 1 plant construction is completed in Spring 2019 and according to the permittee, the treatment plant is only operating at a fraction of what it was built for. Phase 2 plant expansion of up to 0.20 MGD flow capacity is still a proposal but not in the planning phase. And with impacts from the Covid-19 pandemic, the permittee is uncertain if Phase 2 will ever take place.

Phase 1:

Wastewater from the casino is treated through an immersed membrane bioreactor ("MBR") treatment system, a tertiary treatment system similar to an activated sludge treatment plant. The MBR is operated at a higher solids concentration than conventional activated sludge systems, which make it appropriate for treating high strength wastewater with varying flows that are typical of wastewaters produced by a casino operation.

For Phase 1, a Suez MBR package plant is being utilized and designed to operate with varying flows and loadings. The Suez MBR System is made from stainless steel tanks, incorporating an anoxic tank section, an aeration tank section, and a pair of membrane sections, all with their associated valving, piping, instrumentation and pumping capabilities, as well as fine screening. The system has its own Programable Logic Controller ("PLC") for controlling and monitoring the MBR process. In addition, there is a plant SCADA system for continuous monitoring of the entire system, along with alarm notification and callout capabilities.

Wastewater collection system at the casino has a passive grease interceptor for containing Fats Oil and Grease ("FOG"), located upstream of the influent pump station. Active grease interceptors are currently being investigated for use in the restaurant kitchen drains within the casino. The influent pump station has two submersible pumps to convey the wastewater across to the Suez MBR system for treatment.

The plant is designed with an additional steel-welded 250,000-gallon emergency storage tank in the event the flows are abnormally high, the aeration tank level is high and or the plant is temporarily shut down for maintenance activities. This stored influent is manually drained back to the plant drain pump station where a series of automated valves are operated to return the stored influent back into the Suez MBR process via the fine screens. There is a supplemental 10,000-gallon poly equalization tank for controlling regular influent flows into the MBR process.

The Suez MBR system is configured to run in a flow-through mode. The normal mode of operation is for the influent pump station to pump the raw wastewater directly into the poly EQ tank. There is a small submersible pump located in the EQ tank with valving to control an operator adjustable set flow into the MBR process. The operator also has the capability to bypass the EQ tank and pump directly into the MBR process, should it need to be done for maintenance activity of the EQ pumping system. When the EQ tank is being utilized, it pumps the raw wastewater directly into the fine screens for removal of any debris greater than 2mm. The screened influent flows by gravity into the Return Activated Sludge line ("RAS"), where the combined flow now enters the anoxic basin, then into the aeration basin and finally to the membrane section. In the anoxic section denitrification of the RAS nitrates takes place without an air source. Once the RAS and influent mixture has entered the aeration portion, a positive dissolved oxygen ("DO") is maintained to promote nitrification of the ammonia-laden waste stream. The air for this basin is supplied by process aeration blowers. At the end of the aeration basin, the denitrified waste stream now flows to the membrane train zone where the liquid solids separation takes places.

The membrane trains have hollow Ultra Filtration ("UF") fiber membrane cassettes located inside the tanks made of stainless steel. A slight vacuum is applied to the membranes via permeate pumps to pull clear effluent through the membranes. During this process, a constant source of coarse bubble scour air from the membrane blowers is applied at the bottom of the membrane cassettes to remove solids that might accumulate between and on the surface of the membranes. Thickened mixed liquor (RAS) from the membrane basins is recirculated at a rate of approximately 4:1, back to the anoxic basin and combined with the screened raw influent prior to entering the anoxic basin again. Final effluent will be disinfected through a pair of Trojan UV chambers in parallel prior to discharge. The effluent is not currently utilized for reclaim purposes at this time.

Solids removed from the fine screen and MBR sludge line will be sent to a screw press for dewatering and disposed at an off-site landfill.

Phase 2:

As stated earlier, Phase 2 of the construction is put on hold indefinitely. Discussions of the Phase 2 construction which were provided in the original permit application and in the 2015 permit fact sheet are being retained as follows.

For Phase 2, the casino anticipates adding a fully constructed plant to replace the MBR package plant. At the headworks, wastewater will be screened by a fine screen (2-mm) stainless steel bar screen with a conveyor/washer/compactor. The fine screening of large particulate matter is necessary to protect the membrane from large particles. Solids from the screen will go to a compactor and disposed at an off-site landfill. The headworks area will be covered to control odors.

The WWTP does not currently recycle nor reuse its treated effluent at the casino. For Phase 2, the casino anticipates that approximately 30% of treated effluent will be reused at the casino. Recycle uses include vegetated irrigation and non-potable uses in the casino such as toilet flushing. Final treated effluent designated for reuse will be chlorinated and sent to a

recycle water storage tank. The storage tank will contain baffle walls to double as the chlorine contact chamber.

If necessary, the WWTP has an offline 250,000-gallon tank that can serve as emergency storage, either for influent or treated effluent. The hours of emergency storage for Buena Vue WWTP are different for Phase 1 and Phase 2 as presented below.

**Table 1. Hours of Emergency Storage for Buena Vista WWTP**

| Phase/conditions | Flow rates (gpd) | Time (hours) |
|---|---|---|
| Phase 1 weekday | 50,000 | 120 |
| Phase 1 average | 100,000 | 60 |
| Phase 2 weekend | 160,000 | 37 |
| Phase 2 capacity | 200,000 | 30 |

Based on 250,000-gallon storage tank capacity

## IV. DESCRIPTION OF RECEIVING WATER

The WWTP discharges treated effluent at Outfall 001 to a constructed vegetated swale located on the Rancheria. Outfall 001 is located at latitude 38° 16' 23" N, longitude 120° 54' 36" W in Amador County, California. Overflow from the swale flows into existing drainage that appears to be a partially constructed, partially natural channel becoming a drainage ditch and runs adjacent to the road, and, at the northwestern boundary of the property, adjacent to a 23.93-acre jurisdictional wetland area but separated by a small soil berm, and then drains under Coal Mine Road via a culvert where it continues to a drainage ditch tributary of Jackson Creek, which subsequently flows into Dry Creek and to the lower Mokelumne River.

An EPA inspection conducted in May 2019 noted in further details that the wetland was observed to drain into the culvert that flowed under Coal Mine Road. The culvert dropped approximately 5 feet from the elevation of the wetland. A berm separating the wetland area from a shallow drainage canal alongside the road drained into the culvert. Because it was raining at the time of the site visit, the wetland was observed to be overflowing the berm and draining into the culvert.

## V. DESCRIPTION OF DISCHARGE

The WWTP provides tertiary treatment of wastewater and UV disinfection prior to discharge. The MBR system used at the facility incorporates the use of a membrane barrier for solids separation and produces high quality effluent, which allows for potential recycling and re-use.

### A. Application Discharge Data

As part of the application for permit renewal, the permittee is required to provide data from an analysis of the facility's treated wastewater discharge. Upon completion of plant construction, the WWTP began operation and discharge of treated effluent in May of 2019 until

the March 2020 lockdown due to the Covid-19 pandemic. The casino is now open for business and the WWTP is back in operation. Discharge data is limited given the plant's brief existence.

The plant design capacity is adjusted to 0.08 MGD from the 0.10 MGD listed in the previous permit cycle. Therefore, the permittee did not complete Table B in Form 2A which is required for flows equal to or greater than 0.10 MGD.

**Table 2. Effluent Data Reported in Form 2A**

| Pollutant Parameter | Units | Discharge Data | | Number of Samples |
|---|---|---|---|---|
| | | Maximum Daily Discharge | Average Daily Discharge | |
| Flow | MGD | 0.08 | 0.02 | 240 |
| Biochemical oxygen demand, 5-day ($BOD_5$) | mg/L | <30 | <3.2 | 34 |
| Total Suspended Solids (TSS) | mg/L | <30 | <5 | 34 |
| Ammonia (as N) | mg/L | N/A | N/A | N/A |
| pH | S.U. | 6.5 – 8.5 | | N/A |
| Temperature | °C | 18.1 | | 51 |
| Fecal coliform | MPN/100ml | <23 | <1.89 | 33 |
| Chlorine, total residual (TRC) | mg/L | N/A | N/A | N/A |
| Dissolved Oxygen | mg/L | N/A | N/A | N/A |
| Nitrate/Nitrite | mg/L | N/A | N/A | N/A |
| Total Kjeldahl Nitrogen (TKN) | mg/L | N/A | N/A | N/A |
| Oil & grease | mg/L | N/A | N/A | N/A |
| Phosphorus | mg/L | N/A | N/A | N/A |
| Total Dissolved Solids (TDS) | mg/L | N/A | N/A | N/A |
| Total Hardness (as $CaCO_3$) | mg/L | 71 | 1 | 1 |
| Arsenic, total recoverable | µg/L | 1.0 | 0.33 | 1 |
| Cadmium, total recoverable | µg/L | 0.25 | ND | 1 |
| Chromium, total recoverable | µg/L | 2.0 | 1.1 | 1 |
| Copper, total recoverable | µg/L | 8.5 | 0.5 | 1 |
| Lead, total recoverable | µg/L | 0.5 | ND | 1 |
| Nickel, total recoverable | µg/L | 7.6 | 5.0 | 1 |
| Zinc, total recoverable | µg/L | 24 | 1.0 | 1 |
| Cyanide | µg/L | 5.0 | ND | 1 |

## B. Recent Discharge Monitoring Report Data (2019-2020)

EPA reviewed DMR data for the period from May 2019 to June 2020. Table 3 provides a summary of effluent limitations and monitoring data based on this timeframe.

**Table 3. Effluent Data for [Outfall 001] from May 2019 to June 2020**

| Parameters | Units | Permit Effluent Limitations | | | Effluent Data | | | |
|---|---|---|---|---|---|---|---|---|
| | | Average Monthly | Average Weekly | Maximum Daily | Highest Average Monthly | Highest Average Weekly | Highest Maximum Daily | Monitoring Frequency |
| Flow Rate | MGD | Monitoring Only | -- | Monitoring Only | 0.031 | -- | 0.044 | Weekly |
| Ammonia (as N) | mg/L | 1.72 | -- | 3.45 | **7.79** | -- | **38** | Weekly |
| | lbs/day | 1.43 | | 5.75 | 1.2 | -- | **5.88** | |
| Biochemical Oxygen Demand 5-day ($BOD_5$) | mg/L | 30 | 45 | -- | 3.5 | 5.7 | -- | Weekly |
| | lbs/day | 25 (1) | 75 (2) | -- | 0.85 | 1.19 | -- | |
| | % Removal | >85 % | | | 97% | | | |
| Total Suspended Solids (TSS) | mg/L | 30 | 45 | -- | < 5 | 5 | -- | Weekly |
| | lbs/day | 25 (1) | 75 (2) | -- | 1.26 | < 1.87 | -- | |
| | % Removal | >85 % | | | 91% | | | |
| Electrical Conductivity | µmhos/cm | -- (3) | -- | -- (3) | 2250 | -- | 3500 | Weekly |
| Total Coliform Bacteria | MPN/ 100 ml | -- | -- (3) | 23 | -- | < 1.8 | 4.5 | Weekly |
| Nitrate, as N | mg/L | 10 | -- | -- | 7.3 | -- | -- | Weekly |
| | lbs/day | 8.3 | -- | -- | 1.11 | -- | -- | |
| Oil & Grease | mg/L | 10 | -- | 15 | < 5 | -- | < 5 | Weekly |
| | lbs/day | 8.3 | -- | 25 | < 2.75 | -- | < 7.45 | |
| Settleable Solids | mL/L | 0.1 | -- | 0.2 | < 0.1 | -- | < 0.1 | Weekly |
| Total Dissolved Solids (TDS) | mg/L | -- (1) | -- | -- (3) | 1212 | -- | 2200 | Weekly |
| | lbs/day | -- (1) | -- | -- (3) | 222 | -- | 410 | |
| Chlorine, total residual (TRC) | mg/L | 0.01 | -- | 0.02 | < 0.01 | -- | < 0.02 | Weekly |
| pH | S.U> | 6.5 to 8.5 (min-max) | | | | | | Daily |
| Temperature | °C | -- | -- | 23˚C | -- | -- | N/A | Weekly |
| Turbidity | NTU | 2 | -- | 5 | 0.238 | -- | 0.655 | Weekly |
| Whole Effluent Toxicity, chronic | TUc | --(3) | -- | --(3) | NA | -- | NA | 1st, 3rd, 5th years |

(1) Average monthly mass limits were based on 0.1 MGD.
(2) Average weekly mass limits were based on 0.2 MGD.
(3) No effluent limits are set at this time but monitoring and reporting are required.

## 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 (e.g., "technology-based effluent limits") and the water quality standards applicable to the receiving water (e.g., "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.

### A. Applicable Technology-Based Effluent Limitations

*Publicly Owned Wastewater Treatment Systems (POTWs)*

EPA developed technology-based treatment standards for municipal wastewater treatment plants in accordance with Section 301(b)(1)(B) of the Clean Water Act. The minimum

levels of effluent quality attainable by secondary treatment for $BOD_5$, TSS, and pH, as defined in 40 CFR § 133.102, are listed below. Mass limits are calculated based on the 0.08 MGD design capacity and are included for $BOD_5$ and TSS in the permit as required by 40 CFR § 122.45(f).

***$BOD_5$ and TSS:***

Concentration-based Limits
30-day average: 30 mg/L
7-day average: 45 mg/L
Minimum of 85% Removal Efficiency

Mass-based Limits
30-day average:

$$\frac{0.08\ MG}{day} \times \frac{30\ mg}{l} \times \frac{8.345\ lb/MG}{mg/l} = 20\ lbs\ per\ day$$

7-day average:

$$\frac{0.08\ MG}{day} \times \frac{45\ mg}{l} \times \frac{8.345\ lb/MG}{mg/l} = 30\ lbs\ per\ day$$

***pH:***

Instantaneous Measurement: 6.0 – 9.0 standard units (S.U.)

***Priority Pollutant Scan:***

The draft permit includes a monitoring requirement for the full list of priority pollutants as listed in 40 CFR Part 423, Appendix A during 1st, 3rd, 5th year of the permit cycle. No limit is set at this time.

Technology-based treatment requirements may be imposed on a case by case basis under Section 402(a)(1) of the Act, 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)).

The minimum levels of effluent quality attainable by secondary treatment for Settleable Solids, as specified in the EPA Region IX Policy memo dated May 14, 1979, are listed below:

***Settleable Solids***
30-day average – 1 mL/L
Daily maximum – 2 mL/L

## B. Water Quality-Based Effluent Limitations (WQBELs)

Water quality-based effluent limitations, or WQBELs, are required in NPDES permits when the permitting authority determines 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)).

When determining whether an effluent discharge causes, has the reasonable potential to cause, or contributes to an excursion above narrative or numeric criteria, the permitting authority shall use procedures that account for existing controls on point and non-point sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity) and where appropriate, the 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 the *Technical Support Document for Water Quality-Based Toxics Control* (TSD) (Office of Water Enforcement and Permits, 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:

1. Applicable standards, designated uses and impairments of receiving water
2. Dilution in the receiving water
3. Type of industry
4. History of compliance and toxic impacts
5. Existing data on toxic pollutants - Reasonable Potential Analysis

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

The Tribe does not have approved water quality standards for effluent discharges to waters located on the Buena Vista Rancheria. In situations where facilities are discharging into Tribal waters, and the Tribe does not have EPA-approved water quality standards, EPA may choose to apply adjacent or downstream standards to the water body for the purpose of developing permit limitations and conditions. Federal regulations at 40 CFR § 122.4(d) grants EPA the authority to protect all waters of all affected States. Moreover, where there are no approved Tribal water quality standards, EPA has the authority to impose conditions determined necessary to meet the requirements of Section 402(a)(1)(B) of the CWA. EPA has applied either federal water quality standards found in the California Toxics Rule ("CTR") in 40 CFR § 131.38, or the water quality standards found in the Central Valley Regional Water Quality Control Board's (Central Valley Water Board's) *Water Quality Control Plan for the Sacramento and San Joaquin River Basins, Fifth Edition, May 2018* ("Central Valley Basin Plan"), whichever is more protective of the receiving water beneficial uses.

The water quality standards found in the Central Valley Basin Plan (hereafter referred to as the "Basin Plan") are composed of use designations, numeric and/or narrative water quality criteria. The applicable water quality standards in the Basin Plan are those that apply to the Mokelumne River (via Dry Creek and Jackson Creek). There are no specifically identified beneficial uses for the tributaries of Dry Creek. Therefore, the beneficial uses designated for Jackson Creek are those that apply to the Mokelumne River from Camanche Reservoir to the Delta and are listed in Table 2-1 of the Basin Plan, as follows:

- **AGR** Agricultural Supply, including Irrigation and Stock Watering
- **REC-1** Water Contact Recreation
- **REC-2** Non-Contact Water Recreation
- **WARM** Warm Freshwater Habitat
- **COLD** Cold Freshwater Habitat
- **MIGR** Warm/Cold Migration of Aquatic Organisms
- **SPWN** Warm/Cold Spawning, Reproduction, and/or early Development
- **WILD** Wildlife Habitat

Additionally, the California State Water Resources Control Board Resolution 88-63, incorporated into the Basin Plan pursuant to Regional Board Resolution 89-056, requires that **MUN** Municipal and Domestic Supply use be applied to surface waterbodies that do not have beneficial uses listed in Table 2-1. Therefore, **MUN** also applies to tributaries to the Mokelumne River.

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 limited hardness data for the discharge collected during the previous permit, the permit establishes water quality standards for hardness-dependent metals based on a hardness value of 220 mg/L.

Jackson Creek is not listed as impaired according to California's CWA Section 303(d) List of Water Quality Limited Segments. No TMDLs are applicable to permittee's discharge.

### 2. Dilution in the Receiving Water

Effluent discharge from the facility flows into a constructed swale and then to an effluent-dependent drainage ditch tributary to Jackson Creek, a tributary to Dry Creek and the lower Mokelumne River. The ephemeral tributary may have no natural flow during certain times of the year; therefore, no dilution of the effluent has been considered in the development of water quality-based effluent limits applicable to the discharge.

### 3. Type of Industry

Typical pollutants of concern in untreated and treated domestic wastewater include ammonia, nitrate, oxygen demand, pathogens, temperature, pH, oil and grease, and solids. Chlorine and turbidity may also be of concern due to treatment plant operations.

The WWTP will not serve any residential customers, and most flows originate from domestic wastewater at the casino. No industrial sources will discharge to the WWTP, although there will be a restaurant and food court in the casino. The permittee will be required to conduct full scans of priority pollutants in the 1$^{st}$, 3$^{rd}$ and 5$^{th}$ year thereafter. Reasonable potential will be re-evaluated at this time and the permit may be re-opened to incorporate new water quality-based limits as necessary.

### 4. History of compliance and toxic impacts

Review of discharge data showed no effluent violations over the past year. The discharger did not provide any WET data so no chronic toxicity was evaluated. EPA visited the facility on July 16, 2019 and found no issues of non-compliance during the previous permit term.

### 5. Existing data on toxic pollutants - Reasonable Potential Analysis

The WWTP commenced operation and discharge in late April 2019 and was shut down in March 2020 due to the Covid19 pandemic. Therefore, discharge data was scant during the previous permit term.

For pollutants with effluent data available, EPA conducted a reasonable potential analysis based on statistical procedures outlined in EPA's TSD (EPA 1991). These statistical procedures calculate the projected maximum effluent concentration based on available monitoring data to account for effluent variability and a limited data set. EPA estimated the projected maximum effluent concentrations assuming a coefficient of variation (CV) of 0.6 and the 99% confidence interval of the 99$^{th}$ 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. (EPA 1991).

**Table 4. Summary of Reasonable Potential Statistical Analysis Parameter**

| Pollutant Parameter [(1)] | Maximum Observed Concentration | *n* | RP Multiplier | Projected Maximum Effluent Concentration | Most Stringent Water Quality Criterion | Statistical Reasonable Potential? |
|---|---|---|---|---|---|---|
| Ammonia (as N) | 38 mg/L | 32 | 1.4 | 53 mg/L | [(2)] | Yes [(3)] |
| Arsenic, total recoverable | 1.0 µg/L | 1 | 13.2 | 13.2 µg/L | 150 µg/L [(4)] | No |
| Cadmium, total recoverable | 0.25 µg/L | 1 | 13.2 | 3.3 µg/L | 1.8 µg/L | Yes [(3)] |
| Chromium, total recoverable | 2.0 µg/L | 1 | 13.2 | 26 µg/L | -- [(5)] | No |
| Copper, total recoverable | 8.5 µg/L | 1 | 13.2 | 112 µg/L | 18.3 µg/L [(4)] | Yes [(3)] |
| Lead, total recoverable | 0.5 µg/L | 1 | 13.2 | 6.6 µg/L | 3.2 µg/L [(4)] | Yes [(3)] |
| Nickel, total recoverable | 7.6 µg/L | 1 | 13.2 | 100 µg/L | 52 µg/L [(4)] | Yes [(3)] |
| Nitrate plus Nitrite (as N) | 7.3 mg/L | 32 | 1.4 | 10 mg/L | 10 mg/L | Yes |

| Pollutant Parameter (1) | Maximum Observed Concentration | *n* | RP Multiplier | Projected Maximum Effluent Concentration | Most Stringent Water Quality Criterion | Statistical Reasonable Potential? |
|---|---|---|---|---|---|---|
| Total Dissolved Solids (TDS) | 2200 mg/L | 12 | 2.8 | 6160 mg/L | 500 mg/L | Yes |
| Zinc, total recoverable | 24 µg/L | 1 | 13.2 | 316.8 µg/L | 234 µg/L (4) | Yes (3) |
| Cyanide | 5.0 µg/L | 1 | 13.2 | 66 µg/L | 5.2 µg/L | Yes (3) |

Footnotes:

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

(2) EPA's 1999 Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life recommends acute criteria for ammonia that are pH-dependent and chronic criteria for ammonia that are pH- and temperature dependent.

(3) See Section IV.C, below, for a discussion of the reasonable potential statistical analysis results and rationale for establishing numeric effluent limits and monitoring requirements in the permit.

(4) The applicable water quality criteria for hardness-dependent metals are based on a hardness value of 220 mg/L.

(5) EPA does not have criteria for total chromium (i.e. only chromium IV and chromium III).

## C. Rationale for Effluent Limitations and Monitoring

EPA evaluated the typical pollutants expected to be in WWTP 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.

The WWTP does not currently recycle nor reuse its treated effluent at the casino. And plans involving Phase 2 expansion and water reuse are uncertain for the foreseeable future. Therefore, the permit does not include discharge requirements at a tertiary treatment level which would be consistent with the criteria in California's CCR, Title 22, Section 60304, et seq. for the use of recycled water.

***Ammonia and Ammonia Impact Ratio ("AIR")***

Treated and untreated domestic wastewater may contain levels of ammonia that are toxic to aquatic organisms. Ammonia is converted to nitrate during the biological nitrification process, and then nitrate is converted to nitrogen gas through the biological denitrification process. Due to the potential for ammonia to be present in sanitary wastewater at toxic levels and due to the conversion of ammonia to nitrate, effluent limitations are established using the AIR for all facilities.

EPA's 1999 Ambient Water Quality Criteria for the protection of freshwater aquatic life for total ammonia recommends acute (1-hour average; criteria maximum concentration or "CMC") standards based on pH and chronic (30-day average; criteria continuous concentration or "CCC") standards based on pH and temperature.

The AIR is calculated as the ratio of the ammonia value in the effluent to the applicable ammonia water quality standard. EPA's Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life recommends acute and chronic criteria for ammonia that are pH and temperature dependent. Therefore, pH, temperature, and ammonia sampling must be taken concurrently. See Attachment E of the permit for a sample log to help calculate and record the AIR values and Attachment F for the applicable water quality standards.

The draft permit contains an AIR value of one (1.0) as the enforceable effluent limit. The permittee must also monitor and report ammonia effluent values in addition to the AIR value. AIR provides more flexibility than a specific, fixed effluent concentration and is protective of water quality standards since the value (1.0) is set at the water quality standard. If the reported value exceeds 1.0, then the effluent ammonia concentration (as N) exceeded the ammonia water quality criterion. With an AIR value exceeding 1.0, the permittee would be in violation of the permit.

***Fecal Coliform:***

Based on the nature of wastewater treatment plant effluent, there is a reasonable potential for total coliform bacteria to violate water quality standards. Based on REC-1 Beneficial Use, total coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed 200/100 ml, nor shall more than 10% of the total number of samples during any 30-day period exceed 400/100 ml - 10% of samples for 30-day period. Based on the Regional Board's Basin Plan, the discharge of municipal waste during October 1 through May 14 shall be of advanced treated wastewater in accordance with effluent limitations contained in NPDES permits for each affected discharger, and shall meet a median total coliform level of 2.2 MPN/100 mL in a 7-day average.

The effluent is designed to meet California's Title 22 disinfection standards for the re-use of wastewater. Title 22 requires that for spray irrigation of food crops, parks, playgrounds, schoolyards, and other areas of public access, wastewater be adequately disinfected, oxidized, coagulated, clarified, and filtered. The effluent total coliform levels are evaluated in two ways: (a) may not exceed 2.2 MPN/100 ml as 7-day median or (b) may not exceed 23 MPN/100 ml in any 30-day period. The effluent limits and monitoring requirements are retained in the permit.

***Nitrate and Nitrite:***

Treated and untreated domestic wastewater may contain levels of ammonia that are toxic to aquatic organisms. Ammonia is converted to nitrate during biological nitrification process, and then nitrate is converted to nitrogen gas through biological denitrification process.

EPA's Ambient Water Quality Criteria for the Protection of Human Health for nitrate (only) is 10 mg/L for non-cancer effects. California has also adopted a Primary MCL of 10 mg/L for the sum of nitrate and nitrite (measured as N). Due to the potential for ammonia to be present in sanitary wastewater and due to the conversion of ammonia to nitrate, effluent limitations are established for nitrate plus nitrite (measured as N). In accordance with 40 CFR § 122.45(d), EPA has established average monthly and average weekly water quality-based effluent limits for discharges of nitrate plus nitrite from the facility. The effluent limits are retained in the permit.

Following Section 5.4 of EPA's TSD, which describes procedures for calculating water quality-based effluent limits for pollutants affecting human health, the average monthly water quality-based effluent limit for nitrate plus nitrite is set equal to the waste load allocation of 10 mg/L. For non-priority pollutants with Primary MCL's to protect human health (e.g., nitrate plus nitrite), the Central Valley Water Board calculates the average weekly water quality-based effluent limits using a statistical multiplier that is calculated by dividing the statistical multiplier established at the 98$^{th}$ percentile occurrence probability by the statistical multiplier established at the 95$^{th}$ percentile occurrence probability. In this procedure, EPA estimates that the CV of pollutants in the effluent is 0.6 and, based on Table 5-2 of the TSD, chooses the statistical multiplier of 2.68 established at the 98$^{th}$ percentile occurrence probability and the statistical multiplier of 1.55 established at the 95$^{th}$ percentile occurrence probability. The resulting statistical multiplier for calculating the average weekly water quality-based effluent limit is 1.73.

Using a waste load allocation of 10 mg/L for nitrate plus nitrite, the average monthly and average weekly water quality-based effluent limits are calculated as shown below:

30-day average = 10 mg/L
7-day average – 10 mg/L x 1.73 = 17 mg/L

***Oil and Grease:***

There is reasonable potential to impact the waterbody, and the effluent limits are retained in the permit. The effluent limits are EPA's interpretation of the narrative standard that all waters be free from oils, greases, waxes, or other materials that cause nuisance, result in a visible film or coating on the water surface.

Similar domestic wastewater treatment facilities have shown that a maximum daily limit of 15 mg/L and an average monthly limit of 10 mg/L can be easily achieved. Therefore, EPA is retaining the effluent limits for oil and grease based on best professional judgment ("BPJ"), since there are no applicable guidelines and performance standards for oil and grease, and the existing permit limit is consistent with other POTW limits.

***pH:***

The Basin Plan requires that a pH of 6.5-8.5 must be met at all times and that changes in normal ambient pH level not exceed 0.5 units. This is more stringent than technology-based requirements for pH; therefore, water quality-based effluent limits for pH of 6.5 as an instantaneous minimum and 8.5 as an instantaneous maximum are retained in this permit for the protection of the Basin Plan objectives.

***Temperature:***

There are no numeric water quality standards for temperature, only narrative standards, which have been incorporated into the permit. Effluent monitoring requirements for temperature have been incorporated in the draft permit to ensure that the applicable narrative standards are not exceeded and to calculate temperature-specific ammonia criteria, as described above.

***Total Dissolved Solids/Electrical Conductivity:***

To protect the beneficial uses of water for agriculture uses, studies by the United Nations have recommended a goal of 700 umhos/cm. The California Department of Health Services has recommended a Secondary MCL for EC of 900 umhos/cm, with an upper level of 1600 umhos/cm and a short-term level of 2200 umhos/cm. When expressed as total dissolved solids, California has recommended a Secondary MCL of 500 mg/L, with an upper level of 1,000 mg/L, and a short-term level of 1,500 mg/L.

Secondary MCLs are drinking water standards contained in Title 22 of the California's CCR, which requires compliance with these standards on an annual average basis, when sampling at least quarterly. There is reasonable potential to impact the waterbody, and the effluent limits for total dissolved solids are retained in the permit. Total dissolved solids is an indicator parameter for salinity, and monitoring results for total dissolved solids should be characteristic of other salinity parameters, including electrical conductivity. Therefore, monitoring requirement for electrical conductivity is not being retained from the existing permit.

***Total Residual Chlorine:***

Chlorine will not be used to disinfect the facility's effluent intended for discharge, which is treated with UV disinfection. Chlorine will only be used to disinfect the effluent intended for discharge as a backup to the UV disinfection system. Although chlorine is not expected to be present in discharges to surface water, EPA believes there is a reasonable potential for chlorine residual to be present in some cases. Therefore, effluent limits and weekly monitoring requirements for total residual chlorine are retained in the permit to assess compliance during normal operations.

***Cyanide:***

To conduct a reasonable potential analysis, EPA compared the most stringent water quality standard to the projected maximum expected value for cyanide in the discharge in accordance with EPA's TSD. As shown in Table 4 above, there is reasonable potential for cyanide in the effluent to cause or contribute to an exceedance above the most stringent water quality criterion, i.e. freshwater chronic water quality standards for the protection of aquatic life from EPA's *National Recommended Water Quality Criteria* (USEPA, 2002b). Cyanide

monitoring has been included in the priority pollutant scans during the 1st, 3rd and 5th years of the permit cycle. However, because monitoring for cyanide was conducted by the permittee only once during the previous permit cycle, there was not sufficient data to calculate a representative geometric mean from multiple data points to evaluate compliance with the water quality standards. Therefore, the draft permit establishes an effluent limit and an annual monitoring requirement for cyanide.

***Metals: Cadmium, Copper, Lead, Nickel, and Zinc***

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 Table 4 above, there is reasonable potential for cadmium, copper, lead, nickel, and zinc in the effluent to cause or contribute to exceedances above the applicable water quality criteria.

For example, the California Toxics Rule includes hardness-dependent criteria for the protection of freshwater aquatic life for copper. Using an effluent hardness reading of 220 mg/L and default dissolved-to-total metal translators, EPA calculated the Criterion Maximum Concentration ("CMC") and Criterion Continuous Concentration ("CCC") for copper as shown below:

$$CMC = e\{0.9422[\ln(220)] - 1.464\} \times 0.960 = 29.4\ \mu g/L$$

$$CCC = e\{0.8545[\ln(220)] - 1.465\} \times 0.960 = 18.3\ \mu g/L$$

Monitoring of cadmium, copper, lead, nickel, and zinc has been included in the thrice priority pollutant scans. However, because monitoring for cadmium, copper, lead, nickel, and zinc 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 cadmium, copper, lead, nickel, and zinc.

***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.

***Whole Effluent Toxicity (WET):***

The Basin Plan includes a narrative objective for toxicity that requires that "All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life." EPA's Technical Support Document for Water Quality-Based Toxics Control recommends a chronic toxicity monthly median limit of 1.0 TUc and a maximum daily limit of 1.6 TUc. EPA did not receive any WET testing results during the last 5-year permit term. To ensure compliance with the narrative objective for toxicity, this draft permit includes monitoring requirements for chronic WET. Testing for chronic WET must be completed in accordance with Part II, Section D of the 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 permit does not establish any effluent limits less stringent than those in the previous permit and does not allow backsliding.

The permit establishes more stringent mass-based technology-based effluent limitations for $BOD_5$, TSS, and oil and grease based on a revised plant capacity that is lower than that in the previous permit.

### E. Antidegradation Policy

EPA's antidegradation policy at 40 CFR § 131.12 and California's anti-degradation policy specify existing water uses and the level of water quality necessary to protect these existing uses.

As described in this document, the permit contains effluent limits and monitoring requirements to ensure that all applicable water quality standards are met. The permit does not include a mixing zone, and therefore, all effluent limits will apply at the end of pipe without consideration of dilution in the receiving water. Furthermore, the waterbody is not listed as an impaired waterbody for $BOD_5$, TSS, coliform, temperature, total ammonia, turbidity, or oil and grease under section 303(d) of the CWA.

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. The draft permit includes a requirement for multiple priority pollutant scans over the permit term and re-opener provisions. While no limits are set at this time, the permittee is required to monitor for the full list of priority pollutants as listed at 40 CFR Part 423 Appendix A. The permittee needs to sample the discharge during the 1$^{st}$, 3$^{rd}$ and 5$^{th}$ year of the permit term.

## VII. NARRATIVE WATER QUALITY-BASED EFFLUENT LIMITS

The Central Valley Regional Water Quality Control Board's Basin Plan contains narrative water quality standards applicable to the downstream receiving water. Therefore, the permit incorporates applicable narrative water quality objectives contained in the Basin Plan.

The discharge must not cause the following in downstream waters:

1. The fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, to exceed a geometric mean of 200 MPN/100 mg/L, nor cause more than ten percent of the total samples taken during any 30-day period to exceed 400 MPN/100 mg/L.

2. Biostimulatory substances that promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.

3. Aesthetically undesirable discoloration.

4. Concentrations of dissolved oxygen to fall below 7.0 mg/L. The monthly median of the mean daily dissolved oxygen concentration shall not fall below 85 percent of saturation in the main water mass, and the 95$^{th}$ percentile concentration shall not fall below 75 percent of saturation.

5. Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.

6. Oils, greases, waxes, or other materials to accumulate in concentrations that cause nuisance, result in a visible film or coating on the water surface or on objects in the water, or otherwise adversely affect beneficial uses.

7. The ambient pH to fall below 6.5, exceed 8.5, or change by more than 0.5 units. A one-month averaging period may be applied when calculating the pH change of 0.5 units.

8. Radionuclides to be present in concentrations that harm human, plant, animal or aquatic life; or that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.

9. Deposition of material that causes nuisance or adversely affects beneficial uses.

10. Taste- or odor-producing substances to impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin or to cause nuisance or adversely affect beneficial uses.

11. The ambient temperature to increase more than 5°F.

12. Toxic pollutants to be present in the water column, sediments, or biota in concentrations that adversely affect beneficial uses; that produce detrimental response in human, plant, animal, or aquatic life; or that bioaccumulate in aquatic resources at levels which are harmful to human health.

13. The turbidity to increase as follows:

    a. More than 1 Nephelometric Turbidity Units (NTUs) where natural turbidity is between 0 and 5 NTUs.

    b. More than 20 percent where natural turbidity is between 5 and 50 NTUs.

    c. More than 10 NTUs where natural turbidity is between 50 and 100 NTUs.

    d. More than 10 percent where natural turbidity is greater than 100 NTUs.

When wastewater is treated to a tertiary level (including coagulation) or equivalent, a one-month averaging period may be used when determining compliance with Receiving Water Limitation E.13.a.

14. Aquatic communities and populations, including vertebrate, invertebrate, and plant species, to be degraded.

## VIII. 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 shall 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, third and fifth year 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. 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.

### C. Whole Effluent Toxicity (WET) Requirements

Aquatic life is a public resource protected in surface waters covered by the CWA. As evidence that CWA requirements protecting aquatic life from toxicity are met in surface waters receiving the NPDES discharge, samples are collected from the effluent and tested for toxicity in a laboratory using EPA's WET methods. These results are used to determine if the effluent causes toxicity to aquatic organisms. Toxicity testing is important because for scores of individual chemicals and compounds, chemical-specific environmentally protective levels for toxicity to aquatic life have not been developed or set as water quality standards. These chemicals and compounds can eventually make their way into NPDES effluents and their receiving surface waters. When this happens, toxicity tests of effluents can demonstrate toxicity due to present, but unknown, toxicants (including possible synergistic and additive effects), signaling a water quality problem for aquatic life.

EPA's WET methods are systematically-designed instructions for laboratory experiments that expose sensitive life stages of a test species (e.g., fish, invertebrate, algae) to both an NPDES effluent sample and a negative control sample. During the toxicity test, each exposed organism can show a difference in biological response. Undesirable biological responses include eggs not fertilized, early life stages that grow too slowly or abnormally, death, etc. At the end of a toxicity test, the different biological responses of the organisms in the effluent group and the organisms in the control group are summarized using common descriptive statistics (e.g., means, standard deviations, coefficients of variation). The effluent and control groups are then compared using an applicable inferential statistical approach (i.e., hypothesis testing or point estimate model) specified in the NPDES permit. The chosen statistical approach shall be compatible with both the experimental design of the EPA's WET method and the applicable toxicity water quality standard. Based on this statistical comparison, a toxicity test will demonstrate that the effluent is either toxic or not toxic. EPA's WET methods are specified under 40 CFR Part 136 and/or in applicable water quality standards.

The facility only began operation in May 2019 and did not perform WET testing so no chronic WET data is available to evaluate reasonable potential.

EPA recommends inferential statistical approaches that a permitting authority chooses from to set a protective level for toxicity in an NPDES discharge. The statistical approach chosen for this permit is based on bioequivalence hypothesis testing and is called the Test of Significant Toxicity ("TST") statistical approach. It is described in EPA's *National Pollutant Discharge Elimination System Test of Significant Toxicity Technical Document* (EPA 833-R-10-004, 2010; TST Technical Document) and Denton DL, Diamond J, and Zheng L. 2011.

Test of significant toxicity: A statistical application for assessing whether an effluent or site water is truly toxic. *Environ Toxicol Chem* 30:1117-1126. This statistical approach supports important choices made within a toxicity laboratory which favor quality data and EPA's intended levels for statistical power when true toxicity is statistically determined to be unacceptably high (≥ 25 PE, Percent (%) Effect), or acceptably low (< 10 PE). Example choices are practices supporting healthy test organisms, increasing the minimum recommended replication component of the WET method's experimental design (if needed), technician training, etc.

TST results do not often differ from other EPA-recommended statistical approaches using hypothesis testing (Diamond D, Denton D, Roberts J, Zheng L. 2013. Evaluation of the Test of Significant Toxicity for determining the toxicity of effluents and ambient water samples. *Environ Toxicol Chem* 32:1101-1108.) The TST maintains EPA's desired low false positive rate for WET methods—the probability of declaring toxicity when true toxicity is acceptably low ≤ 5% — when quality toxicity laboratories conduct toxicity tests (TST Technical Document); Fox JF, Denton DL, Diamond J, and Stuber R. 2019.

Comparison of false-positive rates of 2 hypothesis-test approaches in relation to laboratory toxicity test performance. *Environ Toxicol Chem* 38:511-523.) Note: The false positive rate is a long-run property for the toxicity laboratory conducting a WET method. A low false positive rate is indicted by a low long-run toxicity laboratory control coefficent of variation for the test species/WET method, using a minimum of 30 to 50 toxicity tests.

Following 40 CFR § 122.44(d)(1) and guidance for determining reasonable potential in chapter 3 of Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001, 1991), chapter 2 in EPA Regions 8, 9 and 10 Toxicity Training Tool (January 2010), and appendix E in National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (EPA 833-R-10-003, 2010), reasonable potential for chronic toxicity has been established. See, also, Toxicity Reduction and Toxicity Identification Evaluations for Effluents, Ambient Waters, and Other Aqueous Media (SETAC 2005). Based on the concentration levels of cyanide, cadmium, copper, lead, nickel, and zinc during the last priority pollutant scan, a chronic toxicity WQBEL (i.e., WET limit) is required for the permitted discharge. As a result, monitoring and reporting for compliance with median monthly and maximum daily effluent limits for the parameter of chronic toxicity are required, so that effluent toxicity can be assessed in relation to these WQBELs for the permitted discharge (see Part I, Table 1 in NPDES permit). See VI.C. for more information.

In accordance with 40 CFR § 122.44(d)(1)(ii), in setting the permit's levels for chronic toxicity and conditions for discharge, EPA is using a test species/chronic short-term WET method and a discharge Instream Waste Concentration ("IWC") representing conservative assumptions for effluent dilution necessary to protect receiving water quality. The IWC is a discharge-specific term based on the permit's authorized mixing zone or initial dilution. Generally, the dilution model result "S" from Visual Plumes/Cormix is used. S is the volumetric dilution factor, i.e. 1 volume effluent is diluted with S − 1 volumes surface water) = [(Ve + Va) / Ve]. Following the mass balance equation, if the dilution ratio D = Qs / Qe, then [(Qe + Qs) / Qe] = 1 + D = S.

For this discharge, S = 1 (i.e., no authorized dilution). The discharge-specific IWC = 1 to 1 dilution (1:1, 1/1) = 100% effluent. The IWC made by the toxicity laboratory is mixed as 1 part solute (i.e., effluent) to 0 parts dilutant (1: (1 – 1)) for a total of 1 part.

The TST's null hypothesis for chronic toxicity ($H_o$) is:

| IWC mean response (% effluent) ≤ 0.75 × Control mean response |
|---|

The TST's alternative hypothesis ($H_a$) is:

| IWC mean response (% effluent) > 0.75 × Control mean response |
|---|

For this permit, results obtained from a single chronic toxicity test are analyzed using the TST statistical approach, where the required chronic toxicity IWC for Discharge Outfall Number 001 is 100% effluent.

For NPDES samples for toxicity testing, the sample hold time begins when the 24-hour composite sampling period is completed (or the last grab sample in a series of grab samples is taken) and ends at the first time of sample use (initiation of toxicity test). 40 CFR § 136.3(e)

states that the WET method's 36-hour hold time cannot be exceeded unless a variance of up to 72-hours is authorized by EPA.

For this discharge, EPA has set a median monthly effluent limit and a maximum daily effluent limit (40 CFR § 122.45(d)) for chronic toxicity. These limits are set to restrict the discharge of toxic pollutants in toxic amounts and protect both applicable aquatic life water quality standards, including standards downstream of the discharge, and existing aquatic life designated uses in receiving waters (CWA §§ 101(a)(3), 301(b)(1)(C)). The median monthly WQBEL, of no more than 1 of a maximum of 3 chronic toxicity tests with unacceptably high toxicity declared by the TST statistical approach, ensures a high probability of declaring such discharges toxic. The maximum daily WQBEL, of 1 toxicity test rejecting the TST null hypothesis and an associated chronic biological endpoint PE < 50 (2x the TST's chronic toxicity Regulatory Management Decision (RMD) of 25 PE), ensures the restriction of highly toxic (chronic, acute) discharges. Both effluent limits take into account that, on occasion, quality toxicity laboratories conducting effluent toxicity tests can incorrectly declare a sample with acceptable toxicity "toxic" (≤ 5% of the time when the true toxicity of the discharge is < 10 PE).

Species sensitivity screening for chronic toxicity is not an automatic requirement in this permit. However, the permit retains a species sensitivity screening condition as an option for the authority to exercise, particularly when the quality of the permitted discharge has changed, or is expected to change, during the permit term.

## IX. SPECIAL CONDITIONS

### A. Reclaimed Water Limitations

The Rancheria may re-use wastewater for on-site irrigation and non-potable water uses such as toilet flushing. Therefore, the Tribe has agreed to follow the reclamation criteria established by the California Department of Health Services to protect public health and the environment. The California Department of Health Services ("DHS") has established statewide reclamation criteria in Chapter 3, Division 4, Title 22, California Code of Regulations ("CCR"), Section 60304, et seq. for the use of reclaimed water. These requirements implement the reclamation criteria in Title 22.

Although the Tribe is not required to comply with these State criteria, the Tribe has agreed to follow criteria for the re-use of its wastewater, and these terms are therefore included in the permit.

### B. Development and Implementation of Best Management Practices ("BMPs")

Pursuant to 40 CFR § 122.44(k)(4), EPA may impose BMPs that are "reasonably necessary…to carry out the purposes of the Act."

1. The permittee shall develop and implement BMPs that are necessary to safeguard against erosion from the discharge and prevent adverse impacts to receiving waters.

2. The permittee shall ensure that the facilities or systems are operated by an operator that has training and/or certification equivalent to the requirements of the State of California for operating and maintaining such facilities or systems.

### C. Biosolids Requirements

Standard requirements for the monitoring, reporting, recordkeeping, and handling of biosolids, in accordance with 40 CFR Part 503, are contained in the permit. If the permittee changes the management of its biosolids, the permittee must notify EPA of any changes.

### D. Sanitary Sewer Overflows

The permit prohibits sanitary sewer overflows and requires the permittee to identify and describe all sanitary sewer overflows that occur over the permit term.

### E. Asset Management Plan

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. Asset management requirements have been established in the permit to ensure compliance with the provisions of 40 CFR § 122.41(e).

## X. OTHER CONSIDERATIONS UNDER FEDERAL LAW

### A. Consideration of Environmental Justice

EPA conducted a screening level evaluation of vulnerabilities in the community posed to local residents near the vicinity of the permitted facility using EPA's EJSCREEN tool. 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 July 2020, EPA conducted an EJSCREEN analysis of the community near the vicinity of the outfall. Of the 11 environmental indicators screened through EJSCREEN, the evaluation determined an elevated indicator score for ozone. As a result of the analysis, EPA is aware of the potential for cumulative burden of the permitted discharge on the impacted community and will issue this permit in consideration of permittee and consistent with the Clean Water Act, which is protective of all beneficial uses of the receiving water, including human health.

### 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.

EPA completed an Information for Planning and Conservation ("IPaC") report via the US Fish and Wildlife Service website. This September 2020 report provides an up-to-date list of all proposed, candidate, threatened and endangered species that occur in area neighboring the permittee in Amador County and should be considered as part of an effect analysis for this permit. (See https://ecos.fws.gov/ipac/gettingStarted/map)

Along with the IPaC report, EPA also reviewed documents prepared for the Tribal Environmental Impact Report ("TEIR") entitled, *"Biological Resource Assessment for the 67-acre Buena Vista Rancheria Project"* (North Fork Associates, September 26, 2005) and *"Environmental Settling, Impacts, and Mitigation – Biological Resources"* (North Fork Associates, May 2007) to determine whether the discharge would affect any endangered species or habitat. From the IPaC report, EPA found that there are currently seven federally-listed threatened (T) or endangered (E) species that may occur in the vicinity of the unnamed tributary to Jackson Creek. The listed species are provided in Table 5 below.

**Table 5. Listed species, designated under the U.S. Endangered Species Act**

| Type | Common Name | Scientific Name | Status | Critical Habitat |
|---|---|---|---|---|
| Amphibians | California Tiger Salamander | *Ambystoma californiense* | T | No |
| | California Red-Legged Frog | *Rana aurora draytonii* | T | No |
| Crustacean | Vernal Pool Fairy Shrimp | *Branchinecta lynchi* | T | No |
| Fish | Delta Smelt | *Hypomesus transpacificus* | T | No |
| Flowering Plants | Ione (incl. Irish Hill) Buckwheat | *Eriogonum apricum (*incl. *var. prostratum)* | E | No |
| | Ione Manzanita | *Arctostaphylos myrtifolia* | T | No |
| Insect | Valley Elderberry Longhorn Beetle | *Desmocerus californicus dimorphus* | T | No |

The action area is defined as the wastewater treatment facility and discharge outfall, the constructed vegetated swale that flows into a ditch alongside Coal Mine Road then drains into a culvert that flows under the road where it continues as a drainage ditch into an unnamed tributary to Jackson Creek. The receiving water that comprises the action area is confined to the stretch from the outfall to where the unnamed tributary meets Jackson Creek, a tributary to Dry Creek and to the lower Mokelumne River. The action area does not include Jackson Creek, Dry Creek nor the lower Mokelumne River as discharge from the facility is limited and the unnamed tributary may have no natural flow during certain times of the year and does not reach Jackson Creek. The IPaC report confirms that the action area is outside of the critical habitats for these species.

***Amphibians***

The California tiger salamander and California red-legged frog are restricted to vernal pools and seasonal ponds, and the California tiger salamander is also found in constructed stock ponds. The receiving waters are limited to the receiving wash and downstream channels and do

not include vernal pools, seasonal ponds, or stock ponds. Additionally, the September 2005 *Biological Resource Assessment* concluded that neither of these species were observed during surveys and that the adjacent wetland areas are not likely to support breeding populations. The action area does not include the wetland and these species do not occur within the action area. Therefore, EPA has determined that the action will not affect the California Tiger salamander or the California red-legged frog.

***Crustaceans***

The May 2007 *Biological Resources* finds that vernal pools are present in and adjacent to the road right-of-way at the intersection of SR88 and Liberty Road. The vernal pools occur in swales and isolated depressions and provide habitat for many aquatic invertebrates and crustaceans. However, the receiving waters are limited to the receiving wash and downstream channels and do not include vernal pools and the vernal pool fairy shrimp is restricted to vernal pools which are themselves not connected to waterbodies leading to Jackson Creek. The discharge is confined to receiving water and does not flow through vernal pools. EPA has determined that the action will not affect the vernal pool fairy shrimp because these species do not occur within the action area.

***Fish***

Delta smelt occur only in upper Sacramento-San Joaquin estuary or adjacent to the lower reaches of the San Joaquin River. This species does not occur within the action area, and thus EPA has determined that the action will not affect the Delta smelt.

***Flowering Plants***

According to the May 2007 *Biological Resources*, Ione (incl. Irish Hill) Buckwheat and Ione Manzanita are known to occur on the Ione and Valley Springs Formations. The action area is outside of the formations and the action area does not contain suitable habitat for these species. EPA has determined that the action will not affect the Ione Buckwheat or Ione Manzanita because these species do not occur within the action area.

***Insect***

Elderberry shrubs, the host plant for Valley elderberry longhorn beetle do not occur in the action area. The absence of elderberry shrubs in the area precludes the presence of this species. EPA has determined that the action will not affect the Valley elderberry longhorn beetle because this species does not occur within the action area.

**Conclusion**

EPA concludes that the reissuance of this permit will have no effect on the Federally-listed endangered or threatened species or critical habitat, as discussed above. EPA drafted the permit to protect the beneficial uses of the receiving water, which include propagation and preservation of aquatic wildlife. The draft permit also contains provisions for monitoring conventional pollutants, toxic chemicals, and nonconventional pollutants in compliance with Federal and the State Water Quality Control Plan for the Sacramento and San Joaquin River Basins to ensure an appropriate level of quality of water is discharged by the facility.

EPA believes that a "No Effect" determination is appropriate for each species listed in Table 5, above. A copy of the draft fact sheet and permit will be forwarded to the Sacramento Field Office of the United States Fish and Wildlife Service 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 (or Territory) Coastal Zone Management program, and the State (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. The permittee has previously conducted archeologic surveys to determine areas of historic interest and has established a boundary of construction that will not affect any historic areas. See "Archaeological Inventory of the Buena Vista Rancheria, Amador County, California", Project Number 1550-01, October 2005 prepared by Pacific Legacy, Inc.

## 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 Attachment A.

## 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 November 4, 2020, for 30 days for interested parties to respond in writing to EPA. No comments were received during that time.

### 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. During the public comment time, EPA did not receive a request from an interested party to hold a public hearing.

**D. Water Quality Certification Requirements** (40 CFR § 124.53 and § 124.54)

EPA is the Clean Water Act (Act) Section 401 certifying authority for this permit, because the Buena Vista Rancheria of the Me-Wuk Indians of California has not received authorization to implement section 303(c) of the Act. As stated in the public notice for this permit, EPA asked for public comment on Section 401 certification requirements. No comments were received. EPA granted the Section 401 certification in January 2021.

Generally, the permit contains conditions and requirements for the facility discharges to meet water quality standards in the receiving waters. As discussed in part III. General Description of the Facility of the fact sheet, this WWTP provides tertiary treatment level using the membrane bioreactor system combined with UV disinfection to yield high quality effluent with very low levels of pollutants. The effluent limitations are set at levels such that the discharge will maintain water quality standards upon mixing with receiving waters. The term water quality standards include numeric and narrative water quality criteria as well as the beneficial uses of the ambient waterbody; e.g., recreational bathing, fishing, and supporting aquatic life.

## XIII. CONTACT INFORMATION

Comments, submittals, and additional information relating to this proposal may be directed to Linh Tran, NPDES Permits Office at:

Email: Tran.Linh@epa.gov
Phone: (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.

EPA. 2010. *U.S. EPA NPDES Permit Writers' Manual*. Office of Water, EPA. EPA-833-K-10-001.

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

EPA. 2015. *National Recommended Water Quality Criteria*. Office of Water, EPA. Human Health Criteria Table. https://www.epa.gov/wqc/national-recommended-water-quality-criteria-human-health-criteria-table

EPA. 2019. July 16 inspection report prepared by Water Enforcement Section on July 31, 2019

USFWS 2020. IPaC report for Endangered and Threatened species list within Buena Vista Rancheria area of Amador County, California (dated September 2020)

USFWS 2020. List of threatened and endangered species that may occur in project location, and/or may be affected by project Buena Vue ESA Species List_ Sacramento Fish And Wildlife Office.pdf (provided by U.S. Fish and Wildlife Service dated September 2020)

Buena Vista Rancheria NPDES Permit Application: Form 1, Form 2A and Form 2S emailed on May 5, 2020; and supplemental information emailed on June 19, 2020. Updated operations narrative emailed on June 30, 2020. Clarification of sample collection after final treatment prior to outfall emailed on November 30, 2020.

*"Environmental Settling, Impacts, and Mitigation – Biological Resources"* (prepared by North Fork Associates, May 2007) emailed to EPA on July 29, 2020

Archaeological Inventory of the Buena Vista Rancheria, Amador County, California, Project Number 1550-01, October 2005, prepared by Pacific Legacy, Inc.

Final Tribal Environmental Impact Report, January 2007