

NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
FACT SHEET
(Pursuant to NAC 445A.236)

Permittee Name: Fulcrum Sierra BioFuels, LLC
4900 Hopyard Rd., Ste. 220
Pleasanton, CA 94588

Permit Number: NEV2011500

Location: Fulcrum Sierra BioFuels, LLC
Tahoe-Reno Industrial Center (TRIC)
3600 Peru Drive, McCarran, Storey County, NV 89434
Latitude: 39° 31' 29" N, Longitude: 119° 29' 21" W
Township 19N, Range 22E, SW¼ of Section 11

Bureau of Corrective Actions Sites: There is no Bureau of Corrective Action (BCA) remediation site located within a one-mile radius of the proposed evaporation pond.

Wellhead Protection Area: The evaporation pond will not be located within a currently established Wellhead Protection Area. The nearest supply well to the evaporation pond will be a non-transient non-community supply well located 2½ miles to the northwest. This well is operated by the Tahoe-Reno Industrial Center (TRIC) for supplying water to the industrial park.

General: Fulcrum Sierra BioFuels, LLC (Fulcrum) has submitted zero-discharge permit application # NEV20115000 to the Division's Bureau of Water Pollution Control for a double-lined evaporation pond. The applicant, Fulcrum, is constructing a waste-to-ethanol facility located in Storey County at the TRIC. The facility will manufacture fuel-grade ethanol from post-sorted municipal solid waste.

The facility's process wastewater includes the blow-down from an in-line process scrubber. Treatment of the facility's process wastewater involves a Zero Liquid Discharge (ZLD) system for the removal of suspended and total dissolved solids (salt). Exiting the ZLD system will be negligible effluent flow, and the brine (salt) will be concentrated and crystallized. When the ZLD system is offline for cleaning or repair, the facility's process wastewater will be discharged into the double-lined evaporation pond.

The double-lined (60-mil HDPE) evaporation pond is furnished with a leak detection sump and operated with zero-discharge to the groundwater. The 0.54 acre (surface area) evaporation pond provides 395,000 gallons of storage capacity. The 6 ft. deep pond basin includes 1 ft. soil cover (ballast), 1 ft. salt (sludge) storage, 2 ft. operating depth (water), and 2 ft. of freeboard (dead space). The inlet pipe is furnished with a temperature dissipater to cool the wastewater flow to at least 20°F below the HDPE liner's upper recommended working temperature. Domestic (sanitary) wastewater from the facility will be separately discharged into the TRIC collection system (# NEV2000502).

Flow: When the ZLD system is offline, the evaporation pond will store and evaporate the facility's process wastewater without discharge to the environment. The facility's water balance was calculated for zero-discharge at the following flow limits: 0.7 GPM (0.001 MGD) – 30 Day Average / 3.6 GPM – 0.0052 MGD - Daily Maximum Basis.

Receiving Water Characteristics: Four well boreholes were previously drilled at test well sites in Township 19N, Range 22E; Section 11 to depths ranging 550-800 ft. below ground surface. No groundwater was encountered in these tests. Located one section from the facility to the east (Section 10), the static groundwater level was reported at 759 ft. below ground surface. This zero-discharge permit does not require a groundwater monitoring well. Leakage from the primary liner (60-mil HDPE) will be captured and measured in a leak detection sump. The sump water will then be returned (pumped) to the evaporation pond. For a double-lined wastewater impoundment with collection sump, the evaporation pond conforms to the NDEP WTS-37 guidance for a maximum allowable primary liner leakage rate of 500 Gallons per Day per acre (GPD/acre). For the evaporation pond (0.54 acre surface area), the allowable primary liner leakage rate is calculated equivalent to 270 GPD (500 GPD/acre × 0.54 acre).

Wastewater Analysis: The proposed evaporation pond is not yet constructed. Thus, Discharge Monitoring Report (DMR) data is not available. Table 1 summarizes the applicant’s estimated concentration levels of inorganic contaminants in the blow-down discharged into the evaporation pond. The full list of inorganic parameters will be reported to NDEP in a quarterly NDEP Profile I analysis when the evaporation pond is constructed and operational.

TABLE 1: WASTEWATER ANALYSIS SUMMARY

Parameter	Estimated Level
pH	7.0 S.U.
TDS	76,300 mg/l
TSS	14,000 mg/l
Nitrate-Nitrogen	11.8 mg/l
Phosphate	2.8 mg/l
Chloride	45,800 mg/l
Sodium	30,300 mg/l
Arsenic	0.21 mg/l
Copper	0.23 mg/l
Iron	0.23 mg/l
Lead	40.6 mg/l
Zinc	0.01 mg/l
Temperature (prior to cooling)	≤ 140°F

Rational for Permit Requirements: The permit limits in Table 2 on the following page are proposed by NDEP for this double-lined process wastewater impoundment.

TABLE 2: DISCHARGE LIMITATIONS

PARAMETERS	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS		
	30-Day Average	Daily Maximum	Sample Location	Measurement Frequency	Sample Type
Flow, Millions Gallons per Day (MGD)	0.001	0.0052	Discharge Line	Continuous	Flow Meter
NDEP Profile I Analysis	M&R (all parameters)		Discharge Line	Quarterly	Discrete
Pond Freeboard, ft. (Minimum)	2.0		Pond	Weekly	Staff Gage or Level Sensor
Primary Liner Leak Rate, Gallons per Day (GPD) ¹ (Maximum)	270		Pond Sump	Monthly	Field Measurement

1. 270 GPD = (500 GPD/acre × 0.54 acre).

Schedule of Compliance: (all compliance deliverables shall be addressed to the attention of the Compliance Coordinator, Bureau of Water Pollution Control):

- Within thirty (30) days of the completion of construction of the evaporation pond, the Permittee shall submit a copy of the engineer's Construction Quality Assurance (CQA) letter indicating that the evaporation pond was constructed in accordance with the NDEP approved design plans. The CQA letter shall be wet stamped and signed by a Nevada Professional Engineer (P.E.).
- The Permittee shall notify the Division in writing not more than fourteen (14) calendar days following the startup of the evaporation pond.
- Within ninety (90) days after the startup of the evaporation pond, the Permittee shall submit a copy of an Operations & Maintenance (O&M) Manual for the evaporation pond, prepared in accordance with NDEP Water Technical Sheet No. WTS-2: *Minimum Information Required for an Operation and Maintenance Manual*. The O&M Manual shall be prepared under the supervision of a registered Nevada engineer (P.E.).

Procedures for Public Comment: The Notice of the Division's intent to issue zero-discharge permit NEV2011500, subject to the conditions contained within the permit is being sent to the **Comstock Chronicle** and **Reno Gazette-Journal** newspapers for publication. The notice is also being electronically mailed to all interested persons requesting listing on our public notification mailing list. Anyone wishing to comment on the proposed permit can do so in writing within a period of thirty (30) calendar days of the date of publication of the public notice in the newspapers. The comment period can be extended at the discretion of the Administrator. The deadline date and time by which all comments are to be submitted (via postmarked mail or time-stamped faxes, e-mails, or hand-delivered items) to the Division is **Monday, November 22, 2010, by 5:00 P.M. PST.**

A public hearing on the proposed determination can be requested by the applicant, any affected State, any affected interstate agency, the Regional Administrator or any interested agency, person or group of persons.

The request must be filed within the comment period and must indicate the interest of the person filing the request and the reasons why a hearing is warranted.

Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed discharge or any other area the Administrator determines to be appropriate. All public hearings must be conducted in accordance with NAC 445A.238.

The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

Proposed Determination: The Division has made the tentative determination to issue the proposed zero-discharge permit for a period of five (5) years.

Prepared by: Mark A. Kaminski, P.E., Staff Engineer III
Technical Services Branch
Bureau of Water Pollution Control

Date: October 14, 2010