

NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
AMENDED FACT SHEET – NOTICE OF DECISION

(Pursuant to NAC 445A.236)

Permittee Name: Encore Energy, Inc. (d/b/a Bango Oil, LLC)
16640 Wedge Parkway
Reno, NV 89511

Permit Number: NEV2009509

Location: Bango Oil, LLC (Bango Oil)
22211 Bango Road
Fallon, NV 89406 (Churchill County)
Latitude: 39° 29' 57" N, Longitude: 119° 02' 28" W
Elevation: 4,129 feet Above Sea Level (ASL)
Township 19N, Range 26E, SW¼ NW¼ Section 23

Bureau of Corrective Actions Sites: There is no Bureau of Corrective Actions remediation site, which is located within a one-mile radius of the Bango Oil facility.

Wellhead Protection Area: The Bango Oil facility is located outside the 6,000 ft Drinking Water Protection Area #4 (DWPA #4) for all public supply wells. The Bango Oil facility is not located within a delineated wellhead capture zone for any public supply well.

General: Bango Oil is a recycling facility, which re-refines non-hazardous, used lubrication oil (e.g., used motor oil) into a saleable resource (e.g., lubrication oil). The facility operates under a Special Use Permit (SUP) from Churchill County allowing a used oil throughput of 22,000 gallons per day (GPD). An amended SUP is in county review to increase oil processing capacity to 62,000 GPD. Bango Oil has constructed an on-site oil-removal treatment system to treat its process wastewater with the intent of recycling as much of the effluent as possible internally (water conservation) for process makeup supply including production pad washing, cooling tower makeup and fire system storage. To discharge any surplus treated effluent beyond process needs and storage capability, the facility has applied to the Division's Bureau of Water Pollution Control (BWPC) for a five-year water pollution control discharge permit. The BWPC permit will allow the surplus effluent to be discharged on-site for dust control (water truck application) and/or ornamental landscape (drip) irrigation. A truck fill stand will be part of the facility's reuse program for future water truck demand upon approval by the Division for any off-site application of the treated effluent. The Division's Bureau of Waste Management (BWM) issued Bango Oil a Written Determination, which allows the facility to process used oil. Air pollutant emissions are regulated under Class II Air Quality Operating Permit No. AP2992-1473 issued by the Division's Bureau of Air Pollution Control (BAPC). Complaints regarding odors are directed to the Division's BAPC for investigation in accordance with Nevada Administrative Code 445B.22087 Odors

Location: The Bango Oil facility is located one and one-quarter miles northwest of the intersection of Bango Road and U.S. Highway 50 in Churchill County. The company's 86-acre property is bounded on the north and west by a spur of the Union Pacific Railroad and on the east by Bango Road. The fenced production area (tank farm) is three acres.

Treatment System: The facility's non-contact process wastewater, which does not require treatment, consists of the blow-down from the plant's two cooling towers. The contact process wastewater requiring treatment (oil removal) includes pad wash down water, incident storm runoff (precipitation) generated on the concrete-lined production pad, wastewater accumulated in the plant's collection sumps (floor drains) and the moisture impurity removed from the used oil during the re-refining process. The facility contracts with its used oil suppliers to provide used oil with moisture impurity of 5.0% or less (by volume) without contract penalty. Bango Oil also tests the incoming used oil shipments for ethylene glycol (antifreeze) contamination and rejects any off-spec loads over 1,200 ppm (parts per million) glycol content. The company indicates that the oil treatment system is also effective for glycol removal. The first unit operation in the moisture removal system is gravity separation of the oil with re-refining of the lighter (less dense) oil phase using vacuum distillation. The heavier (denser) oil-contaminated wastewater phase is treated in an oil-removal treatment system to further recover trace oil globules (emulsion) from the water. The treatment system consists of chemical flocculation, dissolved air flotation, particulate filtration, stripping tower and clay/carbon adsorption to produce a colorless and odorless effluent. The daily production goal is to reclaim as much of the treated effluent as possible for process makeup (internal process storage tank rated at 25,000 gallons capacity). For surplus effluent storage, two (2), 25,000 gallons capacity storage tanks are available. At the current oil production limit (22,000 gpd), the facility estimates generation of 770 GPD of treated effluent (3.5% Ave. moisture content) with over fifty (50) days of storage reserve available in the surplus water storage tanks before the effluent must be recycled internally (process makeup), discharged on the property (dust control) or transported offsite to another permitted disposal facility. The reserve will provide storage for when weather conditions would prohibit dust control (e.g., frozen ground).

Receiving Water: Process reuse of effluent for pad washing, cooling tower makeup and fire system storage is zero-discharge to the environment. For surplus disposal of effluent by water truck, the effluent is principally evaporated off the soil surface during soil wetting for dust control. Sufficient volume (head) of water is not discharged from a properly operated water truck to cause groundwater recharge. The Division will require Bango Oil to install and monitor a dedicated monitoring well. The well's location is to be down-gradient of the proposed dust control area in accordance with the Division's guidance (WTS-4). Bango Oil has defined the main water truck application area as a ½-mile length of pole-line road (dirt road), which terminates in the northwest corner of the property, at the rail spur load-out. A supply well for this facility is located inside the tank farm (fenced enclosure). It was completed in 2005 (Well Log # 98431). This well log indicated a static groundwater depth of 53 feet (unconfined aquifer) and 250 feet (confined aquifer). The permit application makes reference to another supply well, which formerly serviced the now abandoned railroad siding location. This well log (# 9762) recorded a groundwater depth of 70 feet in the unconfined or shallow aquifer. The Bango Oil property slopes to the southeast away from the processing facility into a playa depression. This playa depression is located approximately 1,000 ft. SE of the processing facility and at an elevation of 10 ft. below the plant pad. Thus, the likely groundwater flow gradient is to the SE of the Bango Oil processing facility and away from the TCID Canal (4,179 ft. elev. ASL due W of the Bango Oil facility) or the Lahontan Reservoir (4,155 ft. elev. ASL @ canal discharge).

Baseline Monitoring: For baseline sampling, the Division requires periodic sampling of the facility's monitoring well prior to and then quarterly during discharge. The depth to the unconfined aquifer groundwater occurrence at the monitoring well location will be determined by the well driller upon well installation. The Bango Oil supply well is installed in a confined

aquifer (fractured volcanic rock) at a screened interval depth of between 260 and 300 feet. With the upper confining layer (non-fractured volcanic rock) and water truck application method, the Division does not anticipate any recharge into the lower confined aquifer.

Flow Limit: The influent (throughput) rate of the oil-removal treatment works is: 14,000 GPD (30-day Average) and 21,000 GPD (Daily Maximum), as specified by the design. The effluent (discharge) rate for dust control and/or irrigation is: 1,100 (30-day Average) / 4,000 (Daily Maximum) GPD (Phase 1 SUP) and 3,100 (30-day Average) / 4,000 (daily Maximum) GPD (Phase 2 – Amended SUP), respectively. The Phase 2 flow limit in this permit is in effect upon Churchill County approval of the Amended SUP for Bango Oil allowing oil processing expansion to 62,000 GPD. The daily maximum discharge rate to the environment of 4,000 gallons/day incorporates public and county comment received during the Public Notice and Public Hearing Periods and represents the operating capacity of Bango Oil's water truck (i.e., one load applied per day, maximum). Derivation of the 30-day Average flow limits in the Phase 1 & 2 SUP is illustrated as follows:

Phase 1 (Existing SUP): $5\% \text{ Moisture Content} \times 22,000 \text{ GPD} = 1,100 \text{ GPD of H}_2\text{O}$ (30-day Average Limit).

Phase 2 (Amended SUP): $5\% \text{ Moisture Content} \times 62,000 \text{ GPD} = 3,100 \text{ GPD of H}_2\text{O}$ (30-day Average Limit).

Phases 1 & 2: 4,000 GPD of H₂O (Daily Maximum).

The 30-Day Average Flow Limit is determined by dividing a calendar month's discharge flow by the number of days in that month.

Discharge denotes dust control and/or drip-irrigation.

DMR Analysis: To date, Bango Oil has constructed its oil-removal treatment system but has discharged no treated effluent to the environment. Testing by Bango Oil has indicated to NDEP the ability to discharge treated effluent at or below 1.0 mg/l (1 mg/l equivalent to 1 part per million) of Total Petroleum Hydrocarbon (TPH). Bango Oil has also indicated its treatment system produces a colorless and odorless effluent provided that the effluent TPH level is maintained $\leq 15.0 \text{ mg/l}$.

Rationale for Proposed Limits:

TPH: TPH is not one individual contaminant (compound) but rather a range of Gas (GRO), Diesel (DRO) and Oil-Range (ORO) Petroleum Hydrocarbons (e.g., C₆ – C₄₀) found in crude oil (petroleum). There is no State or Federal drinking water limit for TPH. For an oil-removal treatment system, the Division's most stringent discharge standard is 1.0 mg/l TPH, which is applied in this permit. At this treatment standard, effluent usage allowed by the Division at other regulated facilities include dust control, irrigation and discharge to surface and groundwater. At a TPH level of 1.0 mg/l, regulatory history indicates neither odor nor aesthetic (e.g., sheen) concern with effluent treated to this level. For the first year, Bango Oil is required to test each tank load (25,000 gallons/tank load) prior to discharge. Written request to the Division for a reduced monthly monitoring frequency will be considered upon one-year of compliance determination for the monitored hydrocarbon parameters.

BTEX: BTEX denotes the petroleum-derived compounds of benzene, ethylbenzene, toluene and xylenes common to gasoline, which could occur in used oil. For BTEX, the Division adopts the Federal drinking water limits expressed in units of $\mu\text{g/l}$ (micrograms per liter) with 1.0 $\mu\text{g/l}$ equivalent to one part per billion. The specific BTEX limits in this discharge permit are: benzene (5 $\mu\text{g/l}$), ethylbenzene (100 $\mu\text{g/l}$), toluene (100 $\mu\text{g/l}$) and xylenes (200 $\mu\text{g/l}$). Each tank load discharged must be tested for the first year prior to consideration of a monthly monitoring frequency.

MTBE: Methyl Tertiary Butyl Ether (MTBE) is a gasoline-additive, which is being phased out throughout the U.S. due to groundwater concern. In oil recycling, trace gasoline impurity could contaminate the used oil with improper source segregation at the oil collection facilities. For the Bango Oil facility, the Division applies its most stringent interim MTBE action level of 20 $\mu\text{g/l}$ for a site in close proximity to receptors and/or sensitive environment. This limit also takes into account effluent odor concern. Neither the State nor the U.S. EPA (Federal) has enacted a Maximum Contaminant Level (MCL) for MTBE. With eventual MTBE phase out, elevated levels of MTBE are not expected in Bango Oil's used oil or its treated effluent, for which the Division will require a quarterly effluent confirmation.

Ethylene Glycol: Bango Oil has indicated its treatment system is also effective in ethylene glycol removal but no data to the Division is available to support this statement since no discharge has occurred. To date, Bango Oil conducts an in-house sample of incoming loads, but compliance determination to the Division requires effluent analysis by a State-certified lab. Ethylene glycol (antifreeze) contamination of used oil occurs from engine activity and improper source segregation at the garage recycling centers where the used oil is collected. Presently, neither the State nor the U.S. EPA (Federal) has enacted a Maximum Contaminant Level (MCL) for ethylene glycol. According to the Agency for Toxic Substances and Disease Registry ToxFAQs™, "EPA has determined that lifetime exposure to 14 ppm ethylene glycol is not expected to cause any adverse effects". For Bango Oil's discharge, the Division will require quarterly monitoring of this parameter to determine if a specific discharge limit is needed.

pH: This parameter denotes the measure of acidity or alkalinity in water. For treated effluent, the Division applies the discharge standard of 6.0 to 9.0 Standard Units (SU), which is considered an acceptable pH level in the drinking water range. For reference, the pH of distilled water is 7.0 SU. The required sampling frequency is quarterly.

Profile 1 Analysis: An annual Profile 1 Analysis is required to monitor a comprehensive suite of inorganic parameters such as pH, TDS (Total Dissolved Solids) and heavy metals (e.g., lead). For irrigation, Water Quality Standards (WQS) for toxics, including heavy metals, are listed in the Nevada Administrative Code (NAC) 445A.144. When sampling data is available, the Division will compare the monitoring data from Bango Oil's treated effluent with the applicable WQS to determine if irrigation (landscape) is allowed on a long-term basis. For reference, Bango Oil has proposed drip-irrigation of ornamental landscape (i.e., trees and bushes supplied by a nursery) planted alongside the perimeter of the three-acre fenced enclosure for windbreak and visual aesthetic. For dust control application in the State, the NAC does not have a listed beneficial use standard for toxics.

Groundwater Sampling: At the expected effluent generation rates (1,100 GPD - Phase 1 or 3,100 GPD - Phase 2) and water truck application method of surplus discharge, the Division does not anticipate groundwater recharge to occur. The Division requires groundwater sampling prior to

and during discharge in the unconfined (monitoring well) aquifer. TPH, the primary measurable parameter in used oil, is required to be sampled quarterly. Comment during the public hearing on salt accumulation in the soil from dust control will require quarterly TDS monitoring. The other parameters in Table 2 shall be monitored annually.

Proposed Effluent Limitations and Special Conditions: Prior to the discharge of treated effluent from any tank, the Permittee is to receive laboratory notification from a State-certified laboratory for the parameters in Table 1 requiring sampling for each tank load (i.e., “Each Discharge”) the first year (then monthly upon Division approval). This notification shall confirm that all discharge limitations are within acceptable limits in Table 1 below. It is the responsibility of the Permittee to store the effluent in the storage tanks while awaiting the lab results. Any off-spec effluent quality must be reprocessed within the treatment system to meet all required limitations prior to discharge. Reuse of effluent within the process is considered zero-discharge to the environment. Bango Oil has not applied for any treated effluent to be discharged off of its property. **Any use of the treated effluent off of the property owned by Bango Oil must be approved in writing by the Division.**

Table 1: Plant Discharge Limitations

PARAMETER	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS	
	30-Day Average	Daily Maximum	Measurement Frequency	Sample Type or Location
Influent Flow, Gallons per Day (GPD) ¹	14,000	21,000	Continuous	Flow Meter
Effluent Flow, Gallons per Day (GPD) ²	1,100 – Phase 1 3,100 – Phase 2	4,000	Continuous (Logbook)	Flow Meter or Load Count
Purge/Extract TPH (8015B/8260B), mg/l	1.0		Each Storage Tank Discharged	Effluent
Benzene, µg/l	5		Each Storage Tank Discharged	Effluent
Ethylbenzene, µg/l	100		Each Storage Tank Discharged	Effluent
Toluene, µg/l	100		Each Storage Tank Discharged	Effluent
Xylenes (Total), µg/l	200		Each Storage Tank Discharged	Effluent
MTBE, µg/l	20		Quarterly	Effluent
Ethylene Glycol, mg/l	M&R		Quarterly	Effluent

pH, Std. Units	Within 6.0 – 9.0	Quarterly	Effluent
TDS, mg/l	M&R	Quarterly	Effluent
Profile 1 Analysis	M&R	Annually (4 th Quarter)	Effluent

1. Influent denotes process wastewater treated in the oil-removal treatment works.
2. Effluent denotes discharge of treated effluent and cooling tower blow-down for dust control or drip-irrigation. Final approval of the Phase 2 flow limit requires Churchill County approval of the amended Special Use Permit (SUP) capacity of 62,000 GPD (used oil processing rate).

Table 2: Groundwater Monitoring (MW-1)

PARAMETER	GROUNDWATER LIMITATIONS	MONITORING REQUIREMENTS	
		Measurement Frequency	Sample Type
Purge/Extract TPH (8015B/8260B), mg/l	1.0 mg/l	Quarterly	Discrete
TDS, mg/l	Monitor & Report	Quarterly	Discrete
Depth to Groundwater, ft	Monitor & Report	Quarterly	Field Measurement (MW-1)
Groundwater Elevation, ft	Monitor & Report	Quarterly	Field Measurement (MW-1)
Benzene, µg/l	5	Annually (4 th Quarter)	Discrete
Ethylbenzene, µg/l	100	Annually (4 th Quarter)	Discrete
Toluene, µg/l	100	Annually (4 th Quarter)	Discrete
Xylenes (Total), µg/l	200	Annually (4 th Quarter)	Discrete
MTBE, µg/l	20	Annually (4 th Quarter)	Discrete
Profile 1 Analysis	M&R (All Parameters)	Annually (4 th Quarter)	Discrete

1. Groundwater samples shall be taken only after purging (flushing) at least three (3) well volumes of groundwater from the well casing.
2. The required groundwater baseline sample shall be taken prior to any discharge to the environment.

Schedule of Compliance: The Permittee shall submit the following items to the Division for

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

- The Permittee shall achieve compliance with the effluent limitations upon issuance of the permit.
- Upon startup of the oil removal treatment system, the Permittee shall notify the Division in writing within fourteen (14) days.
- Prior to discharge of effluent, the Permittee shall have submitted plans for a down-gradient monitoring well installed in accordance with Division guidance document WTS-4.
- Within ninety (90) days of NDEP approval of the monitoring well location, the Permittee will have installed the monitoring well per the approved plans. Completion of this well shall be documented with submittal of a copy of the Well Driller's Log.
- Prior to discharge of effluent, the Permittee shall have completed an initial round of sampling specified in Tables 1-2 and demonstrated in written submittal to the Division compliance with the applicable effluent limits. Such submittal shall include copies of the lab results from a State-certified laboratory.
- Within thirty (30) days of startup of the oil removal treatment system, the Permittee shall submit a copy of the engineer's Construction Quality Assurance (CQA) letter indicating that the oil removal treatment system was installed in accordance with the approved design plans. The CQA letter shall be wet stamped and signed by a Nevada Professional Engineer (P.E.).
- Within thirty (30) days of the startup of the oil removal treatment system, the Permittee shall submit a copy of the as-built design plans wet stamped and signed by a Nevada Professional Engineer (P.E.).
- Within ninety (90) days of the startup of the oil removal treatment system, the Permittee shall submit a final, site-specific Operations & Maintenance (O&M) Manual for the oil-removal wastewater treatment system prepared in accordance with the Division's WTS-2 guidance document: *Minimum Information Required for an Operation and Maintenance Manual for a Wastewater Treatment Plant*.
- Within ninety (90) days of the startup of the oil removal treatment system, the Permittee shall submit a final Effluent Management Plan (EMP) to address the discharge of effluent for dust control and drip-irrigation of landscape. The EMP shall be prepared in accordance using the guidelines in the Division's WTS-1B guidance document: *General Design Criteria for Preparing and Effluent Management Plan*.

Procedures for Public Comment: The Notice of the Division's intent to issue the proposed water pollution control discharge permit for a period of five (5) years, subject to the conditions contained within the permit is being sent to the **Lahontan Valley News** and **Reno Gazette-Journal** newspapers for publication. The notice is also being electronically mailed to interested persons 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 newspaper. 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 23, 2009, by 5:00 P.M. PST.**

Due to a significant degree of interest in this proposed project, the Division has scheduled a Public Hearing to gather additional public input regarding the draft permit conditions. The Public Hearing has been scheduled for 6:00 P.M. on Wednesday, December 2, 2009, at the Churchill County Commission, Administrative Building, Conference Room 145; 155 N. Taylor St., Fallon, Nevada 89406. The doors to the hearing room will open to the general public at 5:45 P.M.

Members of the public wishing to comment upon the proposed permit and/or to recommend terms and conditions for consideration of incorporation in the permit are invited to attend the hearing meeting and provide comments and information that are pertinent to the discharge permit. Comments not related to water quality issues cannot be considered during this Public Hearing. The Division may set a five-minute time limit for oral statements based on the number of people in attendance who would like to comment. Comments and information may be submitted by interested persons through the close of the Public Hearing.

All comments or objections received within the thirty (30) day public notice period or submitted at the Public Hearing will be considered in the formulation of final determinations regarding the application. If the determinations of the Administrator are substantially changed from the tentative determinations, the Administrator will give public notice of the revised determinations. Additional comments and objections will be considered at that time.

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 determination to issue the proposed water pollution control discharge permit to Bango Oil for a period of five (5) years. The permit will be effective **April 1, 2010.**

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

Date: October 15, 2009 (for the Public Notice)

Revised Date: April 1, 2010 (for the Notice of Decision)