

**Regional Water Quality Control Board
Central Valley Region
Board Meeting – 21/22 June 2007**

**Response to Written Comments for Berry Petroleum Company
Poso Creek/McVan Facility
Tentative Waste Discharge Requirements**

At a public hearing scheduled for 21/22 June 2007, the Regional Water Quality Control Board, Central Valley Region, (Regional Water Board) will consider adoption of Tentative Waste Discharge Requirements (TWDRs, NPDES Permit No. CA0078867) for the Berry Petroleum Company, Poso Creek/McVan Facility. This document contains responses to written comments received from interested parties regarding the TWDRs circulated on 5 April 2007. Written comments from interested parties were due by 7 May 2007 to receive full consideration. At the Discharger's request, staff agreed that written comments from the Discharger would be accepted to 14 May 2007. Comments were received by the respective deadlines as follows:

1. California Sportfishing Protection Alliance (CSPA), 7 May 2007.
2. Environmental Law Foundation (ELF), 7 May 2007.
3. Berry Petroleum Company (Berry), 11 May 2007.

The written comments are summarized below and followed by the response of the Regional Water Board staff.

CALIFORNIA SPORTFISHING PROTECTION ALLIANCE (CSPA) COMMENTS

CSPA – COMMENT No. 1: CSPA reiterates a section of the Fact Sheet, Compliance Summary, regarding exceedance of the Discharger's effluent flow limitation and states "the penalty assessed by the Regional Board for violating the flow limitation 26 times is simply to increase the allowable flow rate in the proposed Permit." CSPA objects to no efforts to require compliance with the existing NPDES Order.

RESPONSE: The Fact Sheet, Section II.D. and E., includes a summary of monitoring data collected and reported by the Discharger, and a compliance summary, for the time period between August 2003 and August 2006. With respect to flow, it was reported to exceed the daily maximum limit of 0.42 mgd for 26 of 763 measurements, with a reported maximum of 0.55 mgd. As stated in the Fact Sheet, no other effluent limitations (i.e., electrical conductivity (EC), chloride, boron, oil and grease) were exceeded. As detailed in the Fact Sheet, existing Order No. 5-01-133 limited flow to 0.42 mgd based on scaled back operations. A flow limit of 1.68 mgd was authorized by Order No. 95-153.

CSPA – COMMENT No. 2 and No. 3: These comments concern the antidegradation analysis. Specifically, CSPA states that the Fact Sheet incorrectly concludes the permitted discharge is consistent with the antidegradation provision of Section 131.12 and State Water Board Resolution No. 68-16. CSPA observed miscalculated mass of pollutants being discharged. CSPA states that, though degraded groundwater quality is likely, the TWDRs do not require

groundwater monitoring and should. It says the antidegradation analysis does not discuss or assess groundwater degradation from the discharge of salt or other pollutants by percolation. CSPA states that “the proposed increase in pollutant mass loading will inescapably and detrimentally affect aquatic life, contribute to violations of water quality standards and increase the risks and costs to the millions of people who depend upon surface water and groundwater for their drinking/irrigation/recreation water.” CSPA believes the TWDRs should not be adopted until a complete antidegradation analysis is conducted and the TWDRs are modified.

RESPONSE: In this case, a complete antidegradation analysis is unnecessary. The *Water Quality Control Plan for the Tulare Lake Basin, Second Edition (1995)* (Basin Plan) contains effluent salinity limits applicable to discharges within the Basin. Specifically, it states that discharges to surface waters must not “...exceed an EC of 1,000 micromhos per centimeter, a chloride content of 175 mg/l, or a boron content of 1.0 mg/l.” (Basin Plan page IV-10). It also states, “In the Poso Creek Subarea, discharges shall not exceed 1,000 micromhos/cm EC, 200 mg/l chlorides, and 1.0 mg/l boron.” (Basin Plan page IV-11). With respect to discharges to land, the Basin Plan states:

Discharges to areas that may recharge to good quality ground waters shall not exceed an EC of 1,000 micromhos per centimeter, a chloride content of 175 mg/l, or a boron content of 1.0 mg/l. (Basin Plan page IV-11)

For oilfield discharges, the Basin Plan states:

Maximum salinity limits for wastewaters in unlined sumps overlying ground water with existing and future probable beneficial uses are 1,000 mmhos/cm EC, 200 mg/l chlorides, and 1 mg/l boron,...

Discharges of oil field wastewater that exceed the above maximum salinity limits may be permitted to unlined sumps, stream channels, or surface waters if the discharger successfully demonstrates to the Regional Water Board in a public hearing that the proposed discharge will not substantially affect water quality nor cause a violation of water quality objectives. (Basin Plan page IV-15)

State Water Board Resolution 68-16 and 40 CFR 131.12 (federal Antidegradation Policy) preceded the Basin Plan. The Regional Water Board considered groundwater and surface water degradation that would result if it allowed discharges consistent with the above limits and, in approving the Basin Plan, deemed the degradation to be consistent with Resolution 68-16 and 40 CFR 131.12 and the Basin Plan effluent limits to be reflective of Best Practicable Treatment and Control (BPTC). The effluent salinity limits in the TWDRs

² In the Matter of the Review of Own Motion of Waste Discharge Requirements Order Nos. R4-2002-0121 [NPDES No. CA0054011] and R4-2002-0123 [NPDES NO. CA0055119] and Time Schedule Order Nos. R4-2002-0122 and R4-2002-0124 for Los Coyotes and Long Beach Wastewater Reclamation Plants Issued by the California Regional Water Quality Control Board, Los Angeles Region SWRCB/OCC FILES A-1496 AND 1496(a)

implement the Basin Plan and the resulting degradation has been found consistent with Resolution 68-18 and 40 CFR 131.12, and remain unchanged.

The incorrect mass limits have been corrected.

The TWDRs do not include groundwater monitoring. As stated in Fact Sheet section II.A.2, groundwater is approximately 550 feet below ground surface. Fact Sheet section II.A.4 states groundwater is expected to have a total dissolved solids concentration of 500 mg/l, which would correspond roughly to an EC of 670 to 770 umhos/cm. Metal constituents of concern, including lead, zinc, and molybdenum, will attenuate as the discharge percolates through the soil to groundwater; it is unlikely that they will reach groundwater in significant concentrations. If effluent EC, chloride, and boron levels are discharged at the proposed limits, associated degradation will be consistent with State and federal antidegradation policies for reasons described above. Water Code section 13267 requires the burden and costs of technical or monitoring reports to bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. As the need for groundwater monitoring reports is absent given the Basin Plan authorization and as benefit to be obtained from such reports (relevant to the discharge) is unlikely, the cost of groundwater monitoring is not reasonable and the TWDRs do not include a requirement to monitor the underlying groundwater.

The CSPA quote overstates the possibility of harm to beneficial uses given the reality of this ongoing, minor discharge. This low flow discharge has been occurring in some form for decades to an ephemeral waterbody in an arid area; rainfall averages 6.8 inches per year and annual evaporation exceeds 80 inches per year. The unnamed ephemeral stream only flows to Poso Creek during heavy rain events and only supports a limited component of WARM, if any. Poso Creek itself is often dry downstream of its confluence with the ephemeral stream and, given the intermittent nature of Poso Creek's flow, COLD is not likely attained in this reach.

CSPA – COMMENT No. 4: CSPA states the TWDRs fail to contain an effluent limitation for zinc in accordance with 40 CFR 122.44 and CWC Section 13377.

RESPONSE: The Fact Sheet, Section IV.C.3.h., provides a summary of the available discharge monitoring data for zinc. The data is not sufficient to conclude there is a reasonable potential for the effluent to cause an exceedance of the water quality criteria for zinc. The calculated criteria for zinc was based on limited data for hardness. Also, the Discharger has installed a new, larger WEMCO air floatation treatment unit. The old dilapidated unit may be the source of the zinc in the discharge, and if this is the case, the new unit will improve the quality of the discharge with respect to zinc. Given the situation, the TWDRs require the Discharger to monitor the effluent monthly for total recoverable zinc and to conduct a reasonable potential analysis after collection of one year of data. The

TWDRs include a reopener to allow the Regional Water Board to add and/or modify effluent limitations and requirements for zinc if necessary.

CSPA – COMMENT No. 5: CSPA states the TWDRs are inconsistent with 40 CFR 122.44(l) as it improperly relaxes effluent limitations for EC, chloride, and boron.

RESPONSE: As detailed in the Fact Sheet, operations have substantially changed at the Facility since Order No. 5-01-133 was issued and the approach utilized by Regional Water Board staff to develop and implement effluent limitations for NPDES permits has substantially changed since Order No. 5-01-133 was issued. The TWDRs apply EC, chloride, and boron effluent limits consistent with Basin Plan criteria for this type of discharge.

CSPA – COMMENT No. 6: CSPA states the TWDRs contain an Effluent Limitation for acute toxicity that allows mortality that exceeds the Basin Plan water quality objective and does not comply with 40 CFR 122.44 (d)(1)(i).

RESPONSE: The TWDRs contain several mechanisms to ensure that effluent discharges do not cause acute or chronic toxicity in the receiving water. Receiving water limits proscribe the discharge from causing toxicity in the receiving water. The TWDRs include effluent limitations for all toxic pollutants with reasonable potential to cause or contribute to an exceedance of water quality objectives in the receiving water. Where appropriate, these limits are developed based on aquatic life toxicity criteria. However, these limits do not address the synergistic effects that can occur in mixtures of pollutants, the synergistic effects that can occur when effluent is mixed with receiving water, or the toxicity of pollutants for which there are no criteria. Therefore, the TWDRs also require whole effluent chronic toxicity testing, which identifies both acute and chronic effluent toxicity. If this testing shows that the discharge causes, has the reasonable potential to cause, or contributes to an in stream excursion of the water quality objective for toxicity, the TWDRs require the Discharger to investigate the causes of, and identify corrective actions to eliminate, the toxicity.

The acute limits establish additional thresholds to control acute toxicity in the effluent: survival in one test no less than 70% and a median of no less than 90% survival in three consecutive tests. Some in-test mortality can occur by chance. To account for this, the acute toxicity test acceptability criteria allow ten percent mortality (requires 90% survival) in the control. Thus, the acute limits allow for some test variability, but impose ceilings for exceptional events (i.e., 30% mortality or more), and for repeat events (i.e., median of three events exceeding mortality of 10%).

The TWDRs protect aquatic life beneficial uses by implementing numerous measures to control individual toxic pollutants and whole effluent toxicity. Both the acute limits and receiving water limits are consistent with numerous NPDES permits issued by the Regional Water Board and throughout the State and are appropriate.

CSPA – COMMENT No. 7: CSPA states the TWDRs do not contain Effluent Limitations for chronic toxicity and therefore does not comply with 40 CFR 122.44 (d)(1)(i) and the SIP.

RESPONSE: The Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP) contains implementation gaps regarding the appropriate form and implementation of chronic toxicity limits. This has resulted in the petitioning of a NPDES permit in the Los Angeles Region² that contained numeric chronic toxicity effluent limitations. As a result of this petition, the State Water Board adopted WQO 2003-012 directing its staff to revise the toxicity control provisions in the SIP. The State Water Board state the following in WQO 2003-012, *“In reviewing this petition and receiving comments from numerous interested persons on the propriety of including numeric effluent limitations for chronic toxicity in NPDES permits for publicly-owned treatment works that discharge to inland waters, we have determined that this issue should be considered in a regulatory setting, in order to allow for full public discussion and deliberation. We intend to modify the SIP to specifically address the issue. We anticipate that review will occur within the next year. We therefore decline to make a determination here regarding the propriety of the final numeric effluent limitations for chronic toxicity contained in these permits.”* The process to revise the SIP is currently underway. Proposed changes include clarifying the appropriate form of effluent toxicity limits in NPDES permits and general expansion and standardization of toxicity control implementation related to the NPDES permitting process.

As the toxicity control provisions in the SIP are under revision, it is not appropriate to develop numeric effluent limitations for chronic toxicity. Therefore, the TWDRs require the Discharger meet best management practices for compliance with the Basin Plan’s narrative toxicity objective, as allowed under 40 CFR 122.44(k). The TWDRs require toxicity reduction evaluation implementation if a pattern of effluent toxicity is observed. This provision requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity.

CSPA – COMMENT No. 8: CSPA states the TWDRs are based on an incomplete RWD and should not be issued until the discharge is fully characterized and a protective permit can be written.

RESPONSE: The Discharger submitted a RWD and applied for NPDES permit renewal in December 2003. The Discharger submitted additional information in May 2005 and the application was deemed complete by Regional Water Board staff. The complete RWD provides the information required to adopt requirements. The Discharger completed

sampling and analyses for priority pollutants in December 2000, October 2003, October 2004, and October 2005. The reasonable potential analysis was completed using the most recent three data sets. The Fact Sheet, Section IV.C.3., includes a summary of the reasonable potential analysis and provides a description of those constituents with detectable results and possible or likely reasonable potential. A detailed summary of the priority pollutant monitoring data used for the reasonable potential analysis is included as an attachment (Table 1).

CSPA – COMMENT No. 9: CSPA states the TWDRs do not contain an effluent limit for temperature in violation of 40 CFR 122.44 and CWC Section 13377.

RESPONSE: As described above, the ephemeral stream is effluent dominated and some designated beneficial uses may not actually be attainable. It is also unlikely that COLD exists downstream from the confluence of the ephemeral stream and Poso Creek. To this point, temperature has been addressed only by receiving water limits for temperature consistent with the temperature water quality objectives in the Basin Plan. Due to stream conditions, or lack thereof, there is not typically flow in the ephemeral stream upstream of the discharge. Likewise, Poso Creek is often dry upstream of its confluence with the ephemeral stream.

There is not currently enough information available to determine whether the temperature of this ongoing discharge has or is adversely impacting the WARM designated beneficial use of the ephemeral stream or the WARM and COLD designated beneficial uses of Poso Creek; thus imposition of an arbitrary effluent temperature limit would be unreasonable absent better information. The TWDRs require the Discharger to conduct monthly sampling of temperature of the effluent and receiving water and the TWDRs appropriately apply a receiving water limitation for temperature. The TWDRs require the Discharger to evaluate whether its discharge adversely affects, or has the potential to adversely affect, the WARM designated beneficial use of the ephemeral stream and the WARM and COLD designated beneficial uses of Poso Creek within the reaches of the water bodies potentially affected by the discharge. If the elevated temperature waste discharge is found to not adversely affect, or not have the potential to adversely affect, the designated beneficial uses, no further evaluation will be required. If the study concludes a reasonable potential exists for the discharge to affect WARM and/or COLD, the Discharger is to (1) provide a work plan and time schedule for implementing project modifications that fully protect WARM and/or COLD, as appropriate, and propose an effluent limitation for temperature sufficient to protect the uses under all foreseeable discharge conditions, and/or (2) determine whether WARM and/or COLD are unattainable within the reaches potentially affected by the discharge (for reasons other than the quality of the discharge) and obtain technical information necessary for the Regional Water Board to consider dedesignation of the use(s) in accordance with 40 CFR 131.10. The TWDRs include a reopener to allow the Regional Water Board to reconsider the Order if the study demonstrates the need to modify the effluent or receiving water limitations, as appropriate.

CSPA – COMMENT No. 10: CSPA states the TWDRs do not contain a protective effluent limit for oil and grease in violation of 40 CFR 122.44 and CWC Section 13377.

RESPONSE: The TWDRs include a technology based effluent limit for oil and grease of 35 mg/L (490 pounds per day). The TWDRs also include a receiving water narrative limit for oil and grease. The effluent limit for oil and grease is a technology-based limitation and is consistent with federal guidelines for the oil and gas extraction industry (40 CFR 35, Subpart E).

The TWDRs continue the oil and grease effluent limitation established by Order No. 5-01-133, includes narrative objectives for oil and grease, and is consistent with how the USEPA implements its oil and grease criteria. For aquatic life, the criteria consists of three parts:

- (1) 0.01 of the lowest continuous flow 96-hour LC50 to several important freshwater and marine species, each having demonstrated high susceptibility to oils and petrochemicals.
- (2) Levels of oils or petrochemicals in the sediment which cause deleterious effects to the biota should not be allowed.
- (3) Surface waters shall be virtually free from floating nonpetroleum oils of vegetable or animal origin, as well as petroleum-derived oils.

Implementation of (1) is consistent with Whole Effluent Toxicity testing requirement of the TWDRs. Order No. 05-01-133 contains acute toxicity effluent limitations and required the Discharger to monitor its effluent for acute toxicity. For the reasons described above, the TWDRs do not contain chronic toxicity effluent limitations. However, Order No. 05-01-133 also required the Discharger to perform three species chronic toxicity testing of the effluent. Staff has included a section in the Fact Sheet that describes the results of this testing; the results do not indicate the effluent contains significant aquatic toxicity.

Regarding (2) and (3), the TWDRs contain prohibitions that proscribe nuisance and pollution. The TWDRs receiving water limitations prohibit the discharge from causing the following in the ephemeral stream and Poso Creek: chemical constituents to be present in concentrations that adversely affect beneficial uses, discoloration that causes nuisance or adversely affects beneficial uses, floating material to be present in amounts that cause nuisance or adversely affect beneficial uses; oils, greases, waxes, or other materials to be present in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses, substances to be present in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses; suspended material to be present in concentrations that cause nuisance or adversely affect beneficial uses; taste- or odor-producing substances to be present in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or to domestic or municipal water supplies; and toxic

substances to be present, individually or in combination, in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.

ENVIRONMENTAL LAW FOUNDATION (ELF) COMMENTS

ELF – COMMENT A: ELF states that the TWDRs illegally relax existing effluent limitations and does not include justification for the proposed limits.

RESPONSE: See response to CSPA Comment No. 5.

ELF – COMMENT B: ELF states that the TWDRs unlawfully allow groundwater to be degraded.

RESPONSE: See response to CSPA Comment Nos. 2 and 3.

ELF – COMMENT C: ELF states that the TWDRs unlawfully allow surface water to be degraded.

RESPONSE: See response to CSPA Comment Nos. 2 and 3.

BERRY PETROLEUM COMPANY (BERRY) COMMENTS

BERRY – Berry provided editorial corrections and objected in general to the broad scope for identifying beneficial uses of surface waters downstream of the discharge point for support of a use attainability analysis and potential dedesignation of identified beneficial uses. Berry indicated willingness to collect limited data to support only the reaches potentially affected by its discharge.

RESPONSE: This objection was mainly addressed when the beneficial uses of the identified receiving waters were reevaluated for consistency with the Basin Plan by Regional Water Board staff. According to Basin Plan criteria, the Poso Creek tributary to which the discharge occurs is a Valley Floor Water. Valley Floor Water designated uses differ from the beneficial uses previously determined applicable for the discharge by the tributary rule by the addition of IND, PRO, and RARE, and by the absence of COLD and FRSH. Poso Creek remains a secondary receiving water for the discharge and its designated beneficial uses, as set forth in the Basin Plan, must be protected from the discharge when the discharge has hydraulic continuity with the creek. Berry is required to protect the identified and appropriate beneficial uses for the identified receiving waters.

The requirement for Berry to conduct the beneficial use study has been modified for clarity and scope. See also response to CSPA comment No. 9. Where appropriate, Berry's other requested modifications have been made to the TWDRs.