

Berry Petroleum Company

5201 Truxtun Ave., Suite 300
Bakersfield, CA 93309-0640

(661) 616-3900
www.bry.com

June 2, 2008

Ms. Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
1001 I Street, 24th Floor
Post Office Box 100
Sacramento, California 95812-0100



Subject: Draft Review of Waste Discharge Requirements Order No. R5-2007-064 for
Berry Petroleum Company
Poso Creek/McVan Facility
State Water Resources Control Board File A-1871

Dear Ms. Townsend:

I am submitting the letter of comments to the June 2, 2008, draft Review (Review) of Waste Discharge Requirements Order No. R5-2007-064 (2008 Permit) on behalf of Berry Petroleum Company (Berry). Berry has owned/operated the Poso Creek/McVan Facility since 2003. The draft Review requested comments from Berry and others to be submitted to you by July 2, 2008.

The draft Review asserts five conclusions and if adopted by the State Water Resources Control Board (SWRCB), would remand Waste Discharge Requirements Order No. R5-2007-064 to the California Regional Water Quality Control, Central Valley Region (RWQCB) for reconsideration. On behalf of Berry, I have prepared the following comments to the five numbered conclusions.

1. *There have not been any "material and substantial alterations or additions to the permitted facility [that have] occurred after [the 2001] permit issuance."*

I do not agree.

The 2001 permit was issued to Wildcat Energy, LLC for discharge of up to 10,000 barrels per day of produced water to the unnamed tributary of Poso Creek. In 2001, the Poso Creek/McVan Facility consisted of ±40 oil wells producing about 45-50 barrels of oil per day and about 0.49 million (MM) gallons per day of produced water from the Etchegoin formation and included about 2 employees. As described in the 2001 permit, only conventional/primary oil recovery methods, not steam injection, were being employed at the McVan Facility at the time of the permit issuance.

In 2003, when Berry purchased the Poso Creek/McVan Facility, Berry applied for a name change for the Permit, an increase in flow to 40,000 barrels per day, and/or modifications to the effluent limitations for electrical conductance (EC), chloride, and boron. The additional flow was necessary to allow for significant investment into new oil field production and wastewater management facilities. These changes included production of oil and produced water from the

Ms. Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
June 2, 2008
Page 2

field using a new cyclic steam injection process, rehabilitation of older wells both in use and not in use in 2001, the addition of new wells in the Etchegoin formation, and the addition of new wells in the Chanac formation (a formation that had not been previously developed). The Poso Creek/McVan Facility now consists of 150 oil wells producing about 3900 barrels of oil per day and about 3.1 MM gallons per day of produced water from the Etchegoin and Chanac formations and includes about 10 employees. It is important to note, of the water produced by the newly developed formation, the Chanac has a higher concentration of certain dissolved minerals than that produced by the Etchegoin.

Berry acquired the Poso Creek/McVan Facility in 2003, and since 2006 the following investments have been initiated or completed:

- a. Berry has installed approximately 500,000 lineal feet of line pipe costing more than \$7,000,000.
- b. Berry has installed, or is currently installing, a produced water treatment, filtered water, and water softening facility that is capable of processing more than 5,000,000 gallons of water per day (GPD). Capital cost for the project is right at \$4,000,000.
- c. Berry has drilled a total of 174 new wells including 151 producers, 4 temperature observation, 3 water disposal wells, and 16 steam injection wells at a cost in excess of \$24,000,000.
- d. Berry has spent approximately \$7,000,000 for the installation of 4 new 85 MMBTU steam generators.
- e. Berry has upgraded the field's dehydration facility by investing nearly \$1,500,000.

Please note that the above does not include costs associated with the acquisition of offset acreage, right-of-ways, and mitigation lands for endangered species.

In the 2007 Permit, the RWQCB found that "Operations have substantially changed at the Facility since the last [2001 Permit] was adopted. Modifications have included the use of steam flooding, which increases oil recovery and therefore results in an increase of produced water for treatment and discharge."

In this era of limited petroleum supplies, Berry has plans for additional future investments in oil field production within the Poso Creek Oil Field and the Permit application reflected some of those planned additional investments. Clearly, Berry has made material and substantial alterations to the permitted facility since taking ownership and has plans for additional changes

Ms. Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
June 2, 2008
Page 3

to further optimize oil production. To date, these changes have resulted in a significant increase in oil field production and necessarily in the volume of produced water generated from those activities, as depicted on the attached chart of historical production.

2. *The "technical or legal mistake" exception to the antibacksliding rule applies only to technology-based limitations, and therefore cannot be a basis for relaxing the water quality-based pollutant limitations of the 2001 permit.*

As I understand it, the RWQCB adopted water quality objectives for produced water discharges in the Poso Creek Subarea as part of a 1971 RWQCB Resolution 71-122:

In the Poso Creek Subarea, discharges shall not exceed 1,000 micromhos per centimeter ($\mu\text{mhos/cm}$) for EC, 200 milligrams per liter (mg/L) for chlorides, and 1.0 mg/L for boron.

The RWQCB reaffirmed these water quality objectives for NPDES permits with adoption of the Tulare Lake Basin Plan in 1985:

Discharges shall not exceed an EC of 1,000 $\mu\text{mhos/cm}$, a chloride content of 175 mg/L, or a boron content of 1.0 mg/L.

At Berry's request, these previously adopted water quality objectives were incorporated into the 2007 Permit, rather than the 2001 Permit limits (700 $\mu\text{mhos/cm}$ EC, 106 mg/L chlorides, and 0.75 mg/L boron). The quality of produced water is not entirely predictable; it varies somewhat between isolated production zones and can vary based on steaming operations as well. Berry's recent monitoring data for the discharge (since adoption of the 2007 Permit) shows slight increases in EC, chloride, and boron concentrations, approaching the 2001 effluent limits for EC and boron. The changes are due to the change to cyclic steaming after 2003 and the addition of new wells that produce from a new geologic formation. If the 2001 effluent limits for EC and boron were currently in effect, Berry could be in jeopardy of fines for effluent limit exceedences that represent no adverse effect on beneficial uses. In addition, if the 2001 limits were currently in effect, Berry would have to limit oil field production solely based on EC and chloride concentrations of the produced water, rather than the production value of the oil. Berry needs to retain the 2007 Permit effluent limits to allow flexibility for developing additional oil field production and related discharge of produced water.

Limits adopted in the Basin Plan have been found by the RWQCB to be consistent with the state anti-degradation policy and have been found to represent no threat to beneficial uses of Poso Creek. Therefore, adoption of the 2001 limits was inconsistent with the Basin Plan since the RWQCB had already concluded that there is no need for more stringent limits to protect beneficial uses.

Ms. Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
June 2, 2008
Page 4

3. *The RWQCB must explain why it is necessary to relax electrical conductance [EC], chloride, and boron limitations to accommodate important social and economic development in the discharge area.*

I agree.

In the immediate area of the discharge, the social and economic development is related to oil field production and cattle grazing. As described previously, the 2007 permit allows for flexibility in developing oil resources. Changing the effluent limitations to the Resolution 71-122 limits, allow for increased oil production. In addition, the discharge of produced water in the unnamed tributary is the only source of water for stock watering downstream of the discharge. In this time of oil shortages and increased food prices, the oil and cattle production are important resources for social and economic development of the immediate area and for the rest of the citizens of State of California.

4. *The RWQCB must explain why relaxation of effluent limitations of EC, chloride, and boron is consistent with the maximum benefit to the people of the state.*

I agree.

The effluent limitations of the 2007 Permit allow for flexibility in the development of natural resources (oil) and allows for the multiplier effects of that development investment; increased local employment by Berry and oil field service providers, increased employee income spent locally, development of additional local goods and services that can be supported by that spending. In addition, the State of California will benefit by the development of additional, in-state, petroleum resources to off-set the import of foreign oil, limit the cost of future fuel supplies and to support food (cattle) production to feed California citizens.

It is not at all clear that anyone, or anything, is harmed by changing the effluent limitations for the discharge. With adoption of Resolution 71-122, the RWQCB found the effluent limits in the 2007 Permit to be protective of beneficial uses of the State's waters. The ongoing Beneficial Use Studies (required in the 2007 Permit) have not identified a community of aquatic organisms that are harmed by the discharge. To the contrary, the discharge allows for beneficial use of the produced water for stock watering and groundwater recharge. The initial portion of this study, a survey for aquatic organisms, has been published in the Beneficial Use Studies Work Plan submitted by Berry in September 2007.

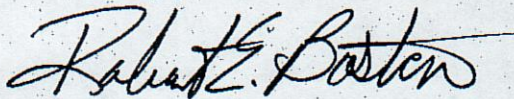
5. *The RWQCB should clarify the basis for its determination that an increase in flow will not adversely affect beneficial uses.*

Ms. Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
June 2, 2008
Page 5

Berry is in the process of conducting a series of Beneficial Use Studies for the discharge, as required in the 2007 Permit. These studies should show that impacts to beneficial uses of water, if any, would be minimal. These studies should be completed and submitted to the RWQCB early in 2009. I suggest that this appeal be stayed pending completion of the Beneficial Use Studies.

If you have questions or comments, please call me.

Sincerely yours,



Robert E. Boston
Manager Environmental, Health & Safety
Berry Petroleum Company

Attachment: Poso Creek McVan Lease Production

ccs: P. Creedon, CVRWQCB
L. Okun, SWRCB
E. Wadhvani, SWRCB
D. Eberhardt, U.S. EPA
L. Harlow, CVRWQCB
J. Pedri, CVRWQCB
D. Mathis, CVRWQCB
P. Pulupa, SWRCB

