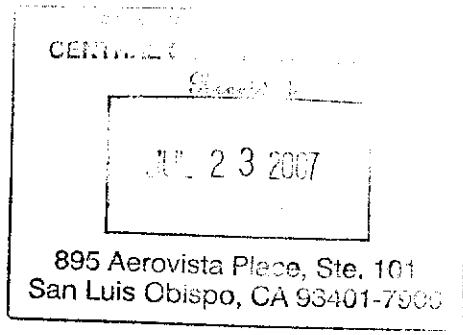
Santa Maria Facility
ConocoPhillips Company
2555 Willow Road
Arroyo Grande, CA 93420

ConocoPhillips

July 20, 2007

Ms. Sorrel Marks
California Regional Water Quality Control Board
Central Coast Region
895 Aerovista Place, Suite 101
San Luis Obispo, CA 93401-7906



PROPOSED WASTE DISCHARGE REQUIREMENTS, ORDER NO. R3-2007-0002
NPDES Permit CA0000051
SANTA MARIA FACILITY

Dear Sorrel:

ConocoPhillips Santa Maria Facility is pleased to present our comments to the proposed renewal of the Waste Discharge Requirements, Order No. RB3-2002-0010 including Standard Provisions, Monitoring & Reporting Program and Fact Sheet.

We have provided comments and minor grammatical revisions directly on an electronic version of the documents, which were emailed to you on Friday July 20, 2007.

The more significant areas of concern are presented in this letter for your consideration.

I. STORM WATER

Santa Maria Refinery (SMR) requests that storm water flow continue to be monitored as it has been under the current Order #R3-2002-0010. The current permit measures the storm water entering the system (contact storm water) by estimating the flow. In addition, the storm water entering the pond (non-contact storm water) is measured by estimating the flow.

Contact storm water is collected in all the process areas via the oily water sewer drain system and co-mingled with process waters collected in the same drains. Therefore, there is no practical way to measure the contact storm water before co-mingling with process water. The combined stream- contact storm water and process water- is measured by the meter at the parshall flume as it enters the outfall sump.

All non-contact storm water is segregated from contact storm water and goes to the evaporation pond. The Waste Discharge Requirements document contains the flow schematic as Attachment C. The amount of non-contact storm water entering the pond is estimated by engineering calculation.

The current permit allows the storm water entering the system to be estimated and the storm water entering the ponds to be estimated. The monthly report documents both the contact storm runoff flow to treatment in MGD and the non-contact storm runoff to pond in MGD.

II. PHENOLIC PERMIT LIMIT

The Phenolic Compounds Maximum Daily permit limit on Table 5 has dropped significantly in the new permit. SMR would appreciate a clarification as to why this limit was reduced from 4.40 lbs/day to 2.7 lbs/day.

III. MONITORING PROGRAM WASTEWATER EFFLUENT DISCHARGE POINT

SMR requests the sample location for the wastewater treatment plant be located upstream of where the RO brine reject enters the outfall sump. The high composition of salt in the RO brine reject water causes matrix interferences and raises the detection limits of analytical tests. In addition, the salt has caused erroneously high results of analytical tests. To verify the composition of the RO brine reject water, ConocoPhillips proposes that a composite sample, representative of flow rate and concentration of softener/RO Plant Effluent would be analyzed on an annual basis to document that there are no constituents of concern.

a. Background Information

In January 2001, the Santa Maria Facility changed the sampling protocol of the effluent leaving the Facility to better represent the discharged water and to accurately verify compliance with the technology-based versus the water quality-based limitations listed in the NPDES Permit. This protocol was submitted to the Board in the January 2001 DMR cover letter dated February 27, 2001, Santa Maria Facility file number ENV-01-030.

The Facility's Reverse Osmosis System started operating in September 2000, as permitted by the Regional Water Quality Control Board in a letter dated September 1999. RO brines associated with this process are discharged directly to an outfall sump where it combines with treated effluent from the Wastewater Treatment Plant (WWTP) and is discharged to the ocean through a diffuser. In light of some unforeseen issues identified after the system was started, the sampling protocol had to be changed to better define compliance with NPDES Permit limitations.

Santa Maria Facility has two sets of permit limits: technology-based (page 4, Table 1) that are primarily reported in units of mass, and water quality-based (pages 5 to 7, Tables 2, 3 and 4) that are primarily reported in units of concentration. The technology-based limitations are intended to monitor performance of a treatment process. The water quality-based limitations are enforced to prevent potential degradation of receiving water, which is the Pacific Ocean for the Facility's effluent.

Since start-up of the RO System, the combined flow has been analyzed for compliance with both the technology-based and the water quality-based limitations. However, in December 2000, test method interference became evident for some technology-based compounds such as total suspended solids and chemical oxygen demand. The interference was caused by the high composition of salt in the RO brine. Additionally, the RO brine flow rate to the outfall sump is erratic, which causes some difficulty obtaining a representative grab sample to verify compliance with mass based limitations. Therefore, accurate measurements for the purpose of compliance with some of the effluent limitations had become impracticable. Starting in January 2001, the sampling protocol of the effluent was changed, which allowed the Facility to better represent the discharged water and to accurately verify compliance with the technology-based versus the water quality-based limitations listed in the NPDES Permit.

The sample point for the technology-based parameters (Table 1 parameters) has been moved directly up-stream of the outfall sump which is still downstream of the last treatment unit and prior to mixing with the RO brine. Moving the sample point has eliminated test method interference caused by RO brine and monitors WWTP performance directly, which enhances meeting the intent of these limitations. These samples are referred to as "WET Effluent".

The sample point for the water quality-based parameters is downstream of the combined flow (outlet of the outfall sump), which includes both the treatment unit and the tributary RO brine stream. This provides verification that the quality of the water discharged to the ocean is below the water quality-based limitations listed in the Facility's NPDES Permit. These samples are referred to as "Refinery Effluent."

b. Reverse Osmosis Brine

The RO System provides high quality water for the Refinery's boilers and utilities. The RO System processes groundwater from on-site water wells (WW#2, WW#4, and WW#5) to reduce hardness. The RO brine is primarily composed of sodium chloride salts and hardness constituents.

The RO brine composition was estimated by doing a mass balance of the system assuming source water quality and assuming maximum operating conditions of 0.260 mgd. This data is included in Attachment 1. These estimates may be high because they are based on operating conditions of 0.260 mgd and the average flow of RO brine discharge over the period of May 2002 through April 2007 was 0.159 mgd. Recent water quality data from water wells is available for physical parameters, general chemistry, inorganic compounds and organic compounds. This data is included in Attachment 2.

c. Concerns

The combined flow of water treatment effluent and RO brine causes matrix interferences in the analytical tests due to the high salt content of RO brine. The current sampling protocol was developed to comply with the technology-based limits (Table 1 parameters) that are primarily reported in units of mass and water quality-based limits (Table 2, 3, & 4 parameters) that are primarily reported in units of concentration. The new Order R3-2007-0002 requires all constituents (Tables 5, 7, 8, & 9 parameters) to be reported in units of concentration and units of mass. Past experience has shown that it is impractical to get a true representation of the constituents of concern when the RO brine is mixed with the water treatment effluent because of the complexity of the RO brine high salt composition and irregular flow rates. The RO brine reject water causes matrix interferences and raises the detection limits of analytical tests, and has caused erroneously high results of analytical tests.

d. Proposal

SMR requests the sample location for the wastewater treatment plant not be changed, but remain located upstream of where the RO brine reject enters the outfall sump which is still downstream of the last treatment unit. This would best represent the discharged water and accurately verify compliance with the all the constituents in the permit.

The RO brine would be treated as a separate effluent stream. A composite sample, representative of flow rate and concentration of softener/RO Plant effluent, would be sampled on an annual basis to verify there are no constituents of concern.

We are grateful for the opportunity to comment on the proposed renewal of the NPDES permit and appreciate the Water Board considering our proposed recommendations. If you have any questions, please do not hesitate to call me at (805) 343-3241.

Sincerely,

Kristen M. Kopp

Kristen M. Kopp
Supervisor, Environment and Regulatory Compliance

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Attachments

ATTACHMENT 1

RO BRINE DISCHARGE
ESTIMATED WATER QUALITY –
BASED ON MAXIMUM DESIGN RATE OVER A 24-HOUR PERIOD

Water	260,000 gallons
Sodium	2,166 mg/l
Magnesium	168 ppm
Calcium	496 ppm
Chloride	3,133 mg/l
Bicarbonate	769 ppm
Sulfate	1,374 ppm
Silica	137 ppm
Nitrate	4 ppm
Total dissolved solids – TDS	7,200 ppm
Total Suspended Solids – TSS	4 ppm

ATTACHMENT 2

WELL WATER RESULTS - MAY 2005

Chemical	Units	PQL	Well #2 Result	Well #4 Result	Well #5 Result
Total Hardness (as CaCO3) (mg.l)	mg/l	0.50	620	460	350
Calcium (Ca) (mg/l)	mg/l	0.050	160	120	80
Magnesium (Mg) (mg/l)	mg/l	0.050	55	41	36
Sodium (NA) (mg/l)	mg/l	0.50	78	64	110
Potassium (K) (mg/l)	mg/l	1.0	3.6	3.1	3.5
Total Alkalinity (as CaCO3) (mg/l)	mg/l				
Hydroxide (OH) (mg/l)	mg/l	3.2	ND	ND	ND
Carbonate (CO2) (mg/l)	mg/l	6.0	ND	ND	ND
Bicarbonate (HCO3) (mg/l)	mg/l	12	250	200	58
Sulfate (SO4) (mg/l)	mg/l	2.0	500	350	290
Chloride (Cl) (mg/l)	mg/l	1.0	40	41	170
Nitrate (as NO3) (mg/l)	mg/l		2.5	7.4	20
Fluoride (F) Temp. Depend. (mg/l)	mg/l	0.10	0.35	0.33	0.14
pH (laboratory) (Std. Units)	std.units	0.05	7.96	7.98	7.39
Specific Conductance (EC) (umhos/cm)	umho/cm	1.0	1300	1000	1200
Total Filterable Residue@180c(TDS)(mg/l)	mg/l	50	1000	780	820
Apparent Color (unfiltered) (Units)	Units	1.0	2.0	1.0	1.0
Odor Threshold at 60C (ton)	TON	1.0	ND	ND	ND
Lab Turbidity (NTU)	NTU	0.10	2.4	0.11	0.57
MBAS (mg/l)	mg/l	0.10	ND	ND	ND
Aluminum	ug/l	50	ND	ND	68
Antimony	ug/l	2.0	ND	ND	ND
Arsenic	ug/l	2.0	ND	ND	ND
Barium	ug/l	10	21	21	48
Beryllium	ug/l	1.0	ND	ND	ND
Cadmium	ug/l	1.0	1.3	1.4	2.0
Chromium (total Cr)	ug/l	10	10	11	ND
Copper	ug/l	10	ND	ND	ND
Iron	ug/l	50	280	ND	260
Manganese	ug/l	10	ND	ND	100
Mercury	ug/l	0.20	ND	ND	ND
Nickel	ug/l	10	ND	ND	21
Selenium	ug/l	2.0	2.8	2.6	ND
Silver	ug/l	10	ND	ND	ND
Thallium	ug/l	1.0	ND	ND	ND
Zinc	ug/l	50	ND	ND	ND
Nitrate+Nitrite as Nitrogen (N) (ug/l)	ug/l	0.10	0.61	1.6	4.5
Nitrite as Nitrogen (N)	ug/l	20	ND	ND	ND
Cyanide	ug/l	0.020	ND	ND	ND
Langlier Index	NA		0.85	0.69	ND