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4500 NORTH WEST AVE. • P. O. BOX 231 • EL DORADO, AR 71731 • (870) 863-1400

EL DORADO

CHEMICAL COMPANY

April 25, 2012,

Mary Barnett, Ecologist
Water Division
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, AR. 72118-5317

Re: 1st Qtr 2012 Activities Report, Outfalls 006 and 007 TRE
El Dorado Chemical Company
NPDES Permit # AR 00000752; AFIN 70-00040

Dear Ms. Barnett:

As required by the Storm Water Toxicity Reduction Evaluation (TRE) Plan for Outfalls 006 and 007 – rev 2.0 (dated January 25, 2011) and in accordance with ADEQ's approval dated January 27, 2011, this letter provides the quarterly activities report.

TRE activities completed during the period from January 1, 2012 through March 31, 2012 include:

1) Continued the baseline whole effluent toxicity (WET) testing and analytical chemistry on a monthly basis when discharge occurred. In addition to the current critical dilutions of 100% effluent and the current 0.75 dilutions series, the WET testing dilution series included the proposed new critical dilutions for Outfall 006 and 007, 22% and 50%, respectively. The proposed new critical dilutions are based on the site-specific flow study submitted to, and approved by, ADEQ;

2) Continued the assemblage and tracking of facility discharge data, including flow, total suspended solids (TSS), ammonia nitrogen (NH_3-N), total dissolved solids (TDS), cadmium (Cd), Lead (Pb), Zinc (Zn), sulfate (SO_4), and pH as they may relate to the WET; and

3) Continued lime applications to increase alkalinity of watershed soils with the objective of increasing the buffering capacity of the watershed and to counteract low pH of storm waters discharged from the respective watersheds.

Additional details of the completed activities are provided below:

Continued the Routine Baseline Toxicity Testing and Associated Analytical Chemistry.

During this reporting period (January 1, 2012 through March 31, 2012), the routine WET tests were completed monthly at the first storm event of each month. Since the WET test reports have been or will be (i.e .March 2012) submitted to ADEQ under separate cover with the DMRs for the period, the full reports are not attached to this status report. The WET testing completed during the 1st Quarter 2012 are summarized in the following table along with the results of the previous reporting quarters for comparison.

Date of test	Date of Sample collection	Storm event (inches)	Outfall 006			Outfall 007		
			Discharge	% NOEC		Discharge	% NOEC	
			MGD	Water flea	Fathead minnow	MGD	Water flea	Fathead minnow
July 25-27	7/24/11	0.36	1.034	100	100	1.299	100	32
August 15-18	8/14/11	0.41	0.044	100	100	0.262	<32	<32
August 25-28*	8/24/11	1.37	0.677	<22	100	0.608	<50	<32
Sept. 24-26	9/23/11	0.73	0.073	75	100	0.365	<32	<32
October 19-21	10/18/11	0.40	0.2598	100	100	0.9177	75	100
Nov. 9-11*	11/8/11	0.45	0.5752	<32%	32	1.299	<32	<32
December 5-8	12/4/11	1.0	0.4007	NA**	100	0.7562	NA**	100
December*18-20	12/15/11	0.30	0.2598	22%	NA	0.1797	<50	NA
January10-12, 2012	1/9/2012	0.8	0.3257	100	100	0.4783	42	56
February 4-6, 2012	2/4/2012	0.5	0.0224	75	100	0.0575	56	56
March 9-12, 2012	3/8/2012	2.3	1.661	100	100	4.369	100	100

Shaded cells indicate the WET tests that passed at the proposed new critical dilutions (006 at 22% and 007 at 50%) reflecting site runoff to the receiving stream as developed by the ADEQ approved flow study.

A summary of the individual monthly WET tests results for Outfall 006 and Outfall 007 completed during the course of the 1st Qtr 2012 is provided below. The WET tests completed during this reporting period continued to demonstrate variable results from month to month but passed the WET test endpoints at the critical dilutions proposed in the pending permit renewal in all but a single endpoint.. These results are more comparable to the results demonstrated during the 3rd Qtr 2011. The details of each of the WET tests were evaluated to determine if a potential cause for the test results could be identified. The preliminary assessment of the 1st Qtr WET tests analytical data indicate that differences in ammonia concentrations may have contributed to the differences between the two outfalls.

January 2012 WET Tests Results.

The January 2012 WET tests were completed on discharge resulting from a 0.80 inch storm event on January 9 that generated flows of 0.33 mgd and 0.48 mgd through Outfall 006 and Outfall 007, respectively. The January acute WET testing passed three of the four monitored endpoints at the proposed critical dilutions, passing at the

maximum exposure of 100% effluent for both species in Outfall 006 and passing the 56 exposure for the fathead minnow WET test in Outfall 007. The January 2012 Outfall 007 water flea WET test failed?? in the 42% exposure which is just below the 50% critical dilution proposed in the current draft NPDES renewal permit. The January 2012 WET test results were submitted to ADEQ along with the January DMR.

Outfall 006. Outfall 006 effluent ***passed*** in 100% exposure with NOEC concentrations greater than the proposed critical dilution of 22% percent effluent dilution. The effects of lime treatment in the watershed during the 1st quarter 2012 were reflected in the pH of the storm runoff, that ranged from 6.7 su to 7.6 su.

Outfall 007. The January 2012 WET tests demonstrated improvement in WET performance when compared to the results of the previous quarter.

The water flea and the fathead minnow failed in the maximum exposure (100 % effluent) but the fathead minnow NOEC (56%) was greater than the proposed critical dilution (50%)

The low dissolved oxygen demonstrated in previous WET test failures was not an issue with the 1st Qtr 2012 WET tests. Therefore, dissolved oxygen levels (and those constituents which exert an oxygen demand) did not seem to be an issue in the January WET tests.

Lastly, the conductivity continued to be elevated and may reflect the lime application in the watershed. The range of conductivities measured were below 100 uS and are typically tolerated by the fathead minnow to a greater degree than the water flea.

February 2012 WET Tests Results.

The February 2012 WET tests were completed on a discharge generated during a February 4 storm event (0.5 inches). The flows generated were 0.02 mgd and 0.06 mgd through Outfall 006 and Outfall 007, respectively.

The February 2012 WET test results passed the WET test exposures above the proposed critical dilutions of 22 % and 50% in outfalls 006 and 007, respectively. The February 2012 WET test results were submitted to ADEQ along with the November DMR.

Outfall 006. The February 2012 Outfall 006 WET tests passed both the water flea and fathead minnow WET test endpoints with NOECs of 75% and 100% effluent exposures, respectively. A review of the analytical data completed in conjunction with the WET test failed to identify a likely cause for the unique results. The pH of the storm sample was within a narrow range (7.4 su to 7.8 su) and the dissolved oxygen concentrations were maintained above 7.6 mg/L.

Outfall 007. The February 2012 test failed in the 100% effluent exposure. However, the Outfall 007 WET tests passed both the water flea and fathead minnow, with NOEC of 56% effluent for both species when comparing the critical dilution against the proposed critical dilution of 50% effluent

March 2012 TEST RESULTS.

The March 2012 WET tests were completed on effluent generated from a 2.3 inch storm event on March 8, 2012. The storm event generated discharges of 1.66 mgd and 4.37 mgd through Outfalls 006 and 007, respectively.

The March WET testing passed both the water flea and the fathead minnow in the maximum exposure of 100% effluent in both outfalls.

The March 2012 WET test results are being submitted to ADEQ along with the March 2012 DMR.

Outfall 006.
The Outfall 006 effluent ***passed*** the water flea and fathead minnow in the 100% exposure.

Outfall 007.
The March Outfall 007 WET tests passed both tests at the maximum effluent exposures.

Facility Discharge Data.

In addition to the routine WET testing, collection of additional facility information continues. This information includes, but is not limited to, facility operations, chemical use data, tracking of internal housekeeping records and documentation of activities within the individual outfall sub-basins. During this monitoring period, EDCC initiated efforts to verify sources of storm water contributions to the individual watersheds.
The discharge trough the storm water outfalls during the 1st Qtr of 2012 were particularly active. A total of 16 storm events were recorded during the 1st Qtr 2012.

Treatment of Watershed Soils.

The routine practice of monitoring the Outfall 006 and Outfall 007 storm water ditches continues after storm events as long as residual storm water is present in drainage ditches. Results of this monitoring have demonstrated that the pH of the residual storm waters in these drainage ditches are approximately 6 su. In response to the pH

monitoring of the residual storm waters, lime was again applied with a broadcast spreader to both the 006 and 007 watersheds during the 1st quarter of 2012.

In an attempt to increase the buffering capacity of the watershed as a means to control pH of the storm water runoff, multiple applications of pelletized lime has been applied to both watersheds. Pelletized lime continues to be applied to the watershed with the intent to stabilize pH fluctuation within a range of 1 to 1.5 su. This is a conservative application to control storm water pH fluctuations. The success of the previous lime application has been demonstrated in the 006 sub-watershed. However, Outfall 007 sub-watershed continues to demonstrate elevated conductivities in the routine monitoring of the watershed. These elevated conductivities may be related to the lime application.

During the 1st quarter of 2102, there was a total of 15 lime applications (7 in the Outfall 006 watershed and 8 in the Outfall 007 watershed). Typical applications in the Outfall 006 watershed were ½ ton, while the typical application in the Outfall 007 watershed was 1 ton per application.

Future Activities.

Activities planned for the 2nd Qtr 2012 include continuation of the routine monthly storm water WET testing, continued monitoring of effluent constituents, tracking of site storm data (duration and magnitude), and discharge volumes. In addition, the assemblage of facility data, including the monitoring of routine storm water sources and discharge data with particular attention to facility conditions during the WET monitoring periods, will continue. Should the WET tests routinely (consecutive failures) fail at dilutions less than the proposed site specific critical dilutions (i.e., 22% for Outfall 006 and 50% for Outfall 007), additional TRE efforts may be implemented to identify the cause(s) of the WET test failures.

Please do not hesitate to contact me if you have any questions or require additional information regarding the implementation of the Outfall 006/007 TRE.

Respectfully submitted,
El Dorado Chemical Company

Kyle Wimsett,
EDCC EH&S Manager

ECC: Greg Withrow, EDCC General Manager
John Carver, LSB Industries
Roland McDaniel, GBMc & Associates
Chuck Nestrud, CN&J