



CHEMICAL COMPANY

July 25, 2012

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

Re: 2nd Quarter 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 April 1, 2012 through June 30, 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 (NH₃-N), total dissolved solids (TDS), cadmium (Cd), Lead (Pb), Zinc (Zn), and pH as they may relate to the WET;
- 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; and
- 4) Continued efforts to transfer flows out of Outfall 006 and 007 watersheds into the Outfall 001 wastewater treatment watershed.

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Additional details of the completed activities are provided below:

Continued the Routine Baseline Toxicity Testing and Associated Analytical Chemistry

During this reporting period (April 1, 2012 through June 30, 2012), the routine WET tests were completed monthly at the first storm event of each month. There were no measurable storm events during the month of May 2012, therefore there were no WET tests completed during the month of May 2012. Since the WET test reports have been or will be 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 2nd Quarter 2012 is summarized in the following table. Historical results for the previous TRE reporting periods are provided for comparison.

Date of test	Date of Sample collection	Storm event (inches)	Outfall 006			Outfall 007		
			Discharge MGD	% NOEC		Discharge MGD	% NOEC	
				Water flea	Fathead minnow		Water flea	Fathead minnow
July 25-27,2011	7/24/11	0.36	1.034	100	100	1.299	100	32
August 15-18, 2011	8/14/11	0.41	0.044	100	100	0.262	<32	<32
August 25-28, 2011	8/24/11	1.37	0.677	<22	100	0.608	<50	<32
Sept. 24-26,2011	9/23/11	0.73	0.073	75	100	0.365	<32	<32
Oct. 19-21, 2011	10/18/11	0.40	0.2598	100	100	0.9177	75	100
Nov. 9-11, 2011	11/8/11	0.45	0.5752	<32%	32	1.299	<32	<32
Dec. 5-8, 2011	12/4/11	1.0	0.4007	NA**	100	0.7562	NA**	100
Dec.18-20, 2011	12/15/11	0.30	0.2598	22%	NA	0.1797	<50	NA
Jan.10-12, 2012	1/9/2012	0.8	0.3257	100	100	0.4783	42	56
Feb. 4-6, 2012	2/4/2012	0.5	0.0224	75	100	0.0575	56	56
Mar. 9-12, 2012	3/8/2012	2.3	1.6610	100	100	4.369	100	100
April 3-5, 2012	4/2/2012	0.5	0.1512	100	100	0.2618	75	32
May 15, 2012*	NO DISCHARGE related to storm event							
June 13, 2012**	6/12/2012	0.7	0.0224	<100	<100	0.0575	<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.

*May 2012 discharge occurred through Outfall 007 resulting from fire control efforts after May 15, 2012 facility explosion, no WET test testing completed at direction of ADEQ.

** June 2012 Test: 100% effluent was only test dilution due to limited organisms at testing facility,

A summary of the individual monthly WET tests results for Outfall 006 and Outfall 007 completed during the course of the 2nd Quarter 2012 is provided below. The WET tests completed during this reporting period continued to demonstrate variable results from month to month. The details of each of the WET tests were evaluated to determine if a potential cause for the test results could be identified.

April 2012 WET Tests Results

The April 2012 WET tests were completed on discharge resulting from a 0.50 inch storm event on April 2, 2012 that generated flows of 0.15 mgd and 0.26 mgd through Outfall 006 and Outfall 007, respectively. The April 2012 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 75% exposure for the water flea WET test in Outfall 007. The April 2012 Outfall 007 fathead minnow WET test showed no observed effect concentration (NOEC) at 32% effluent. The lowest observed effect concentration (LOEC) was 42% exposure which is just below the 50% critical dilution proposed for use in the draft NPDES renewal permit. The April 2012 WET test results were submitted to ADEQ along with the April DMR.

Outfall 006. Outfall 006 effluent **passed** both tests in 100% exposure. The NOEC concentrations (100% effluent) were greater than the proposed critical dilution of 22% percent effluent dilution. The effects of lime treatment in the watershed during the 2nd Quarter 2012 were reflected in the pH of the storm runoff that ranged from 6.67 su to 7.27 su.

Outfall 007. The April 2012 WET tests demonstrated reduced WET performance when compared to the results of the previous month.

The water flea passed with an NOEC of 75% effluent. Although this was less than the March 2012 WET test result, it remained above the proposed critical dilution for the Outfall 007 discharge.

The fathead minnow failed in the maximum exposure (100% effluent) and the fathead minnow NOEC (32%) was less than the proposed critical dilution (50%). The failure in April 2012 WET test was the first for the fathead minnow since November 2011 where the NOEC was less than 32% effluent.

The low dissolved oxygen demonstrated in previous WET test failures was not an issue with the 2nd Quarter 2012 WET tests. Therefore, dissolved oxygen levels did not seem to be an issue in the April 2012 WET tests.

Lastly, the conductivity continued to be elevated and may reflect the lime application in the watershed which occurred just three days prior to the discharge event. The range of conductivities measured were above 2400 uS and are typically tolerated by the fathead minnow to a greater degree than the water flea. However in this case, the water flea NOEC was greater than the fathead minnow.

May 2012 WET Tests Results

There was no flow generated through Outfalls 006 and 007 as a result of storm events during the month of May 2012. There was a flow through Outfall 007 that resulted from the fire control efforts on May 15, 2012. The discharge was monitored, however, there was no WET testing completed as directed by ADEQ.

June 2012 Test Results

The June 2012 WET tests were completed on effluent generated from a 0.7 inch storm event on June 12, 2012. The storm event generated discharges of 0.02 mgd and 0.06 mgd through Outfalls 006 and 007, respectively.

Due to the limited availability of test organisms at the WET testing lab, the June 2012 WET testing was completed using a control and a single effluent dilution (100%). The June 2012 WET test results are being submitted to ADEQ along with the June 2012 DMR.

Outfall 006. The Outfall 006 effluent failed the water flea and fathead minnow WET tests in the 100% exposure.

Outfall 007. The Outfall 007 WET tests failed 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 discharges through the storm water outfalls during the 2nd Quarter of 2012 were limited when compared to previous monitoring quarters. As an example, nine storm events resulted in a total of 7.9 inches of rainfall at the facility during the 2nd Quarter 2012. There were no measurable storm events during the month of May and one-quarter of the rain for the period fell during a single event on April 15, 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 2nd Quarter of 2012.

In an attempt to increase the buffering capacity of the watershed, multiple applications of pelletized lime have 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 su to 1.5 su. The success of the previous lime application has been demonstrated in the 006 sub-watershed. However, the 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 2nd Quarter of 2012, there were a total of 14 lime applications (7 in the Outfall 006 watershed and 7 in the Outfall 007 watershed). Typical applications in the Outfall 006 watershed were one-half ton, while the application in the Outfall 007 watershed varied (5 one-half ton and 2 one-ton applications).

Modifications to Watershed flows

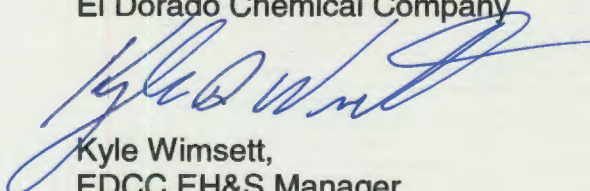
For the past several years, EDCC has implemented measures to minimize surface runoff to Outfalls 006 and 007. Those measures have included construction of drainage swales, culverts and other means to reduce the drainage areas of those Outfalls and divert flow to the collection and treatment system that discharges through Outfall 001.

Future Activities

Activities planned for the 3rd Quarter 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, EDCC will continue 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. 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

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