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EL DORADO

CHEMICAL COMPANY

October 26, 2011

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

Re: 3rd Qtr 2011 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 – rev2.0 (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 July 1, 2011 through September 30, 2011 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) Completed multiple 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 (July 2011 through September 2011), the routine WET tests were completed monthly at the 1st storm event of each month. In addition, a second test was completed in August due to extended holding times for the initial acute WET tests completed in August on both outfalls. Since the WET test reports have been submitted to ADEQ under separate cover with the DMRs for the period, the full reports are not attached to this status report. The monthly WET tests results for this quarter are summarized in the following table:

Date of test	Storm event (inches)	Outfall 006			Outfall 007		
		Discharge	% NOEC		Discharge	% NOEC	
		MGD	Water flea	Fathead minnow	MGD	Water flea	Fathead minnow
July 25	0.36	1.034	100	100	1.299	100	32
August 15	0.41	0.044	100	100	0.262	<32	<32
August 25*	1.37	0.677	<22	100	0.608	<50	<32
September 24	0.73	0.073	75	100	0.365	<32	<32

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.
*Sample run with limited dilution series due to limited availability of test organism in the Lab. Outfall 006 only 22% and control. Outfall 007 only 50% and control.

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 3rd quarter WET tests analytical data indicate that differences in ammonia concentrations may have contributed to the differences between the two outfalls.

July 2011Tests Results.

The July 2011 WET test was completed on discharge resulting from a 0.36 inch storm event that resulted in flows of 1.034 mgd and 1.299 mgd through Outfall 006 and Outfall 007, respectively. July acute WET testing passed three of the four monitored endpoints, passing at the maximum exposure of 100% effluent for both species in Outfall 006 and passing the 100% exposure for the water flea WET test in Outfall 007. The July 2011 Outfall 007 fathead minnow WET test failed. The July 2011 WET test results were submitted to ADEQ along with the July DMR.

Outfall 006. Although the outfalls are adjacent sub-watersheds, Outfall 006 effluent passed in 100% exposure WET tests endpoints with NOEC concentrations greater than the proposed critical dilution of 22% percent effluent dilution. The effects of lime treatment in the watershed during the month of June 2011were reflected in increased pH of the storm runoff, recorded as 7.6 su.

Outfall 007. The July 2011 WET tests were different from previous WET testing on Outfall 007 dischargers in that the water flea passed in the maximum exposure but the fathead minnow failed in all but the 32 % exposure. The historical results have either passed the fathead minnow test and failed the water flea test or failed both. The analytical details of the Outfall 007 WET testing did not indicate a potential cause for the unique results of the Outfall 007 July 2011 tests.

Although the initial samples were received with a low dissolved oxygen and had to be aerated before WET tests were initiated, the 24 and 48 hour measurements did not require re-aeration. Therefore dissolved oxygen levels (and those constituents which exert an oxygen demand) did not seem to be an issue. The pH was maintained in a narrow range between 6.8 su and 7.4 su.. The only parameter of significant difference was the conductivity. This elevated conductivity may reflect the lime application in the water shed that occurred on July 1, only three days prior to the storm event. However, the range of conductivities measured (1802 uS to 1904 uS) are typically tolerated by the fathead minnow to a greater degree than the water flea.

August 2011 WET Tests Results.

The August 2011 WET testing was completed on two separate discharge events, the 1st on August 13th and the 2nd on August 24th.

The initial WET testing in August 2011 was completed on samples collected August 13, after a 0.41 inch rain that generated a discharge of 0.044 mgd through Outfall 006 and a discharge of 0.262 mgd through Outfall 007. There was almost 6 times the flow through Outfall 007 than through Outfall 006 during this storm event.

Although the samples were received at the lab having exceeded the method holding times, the WET tests were initiated on August 15, 2011. The August 15, 2011 test results passed both endpoints on Outfall 006 effluent (in 100% effluent), while the Outfall 007 effluent failed both tests.

As a replacement due to the holding time issue with the initial August 2011 WET tests, the second series of acute WET test were completed on samples collected on August 24, 2011. This storm event was 1.37 inches and generated 0.677 mgd and 0.608 mgd through Outfalls 006 and 007, respectively.

The replacement water flea WET test (the second August 2011 test series) was limited in scope by the availability of test organisms in the lab. The lab only had sufficient water fleas to complete the test using a single dilution. Due to the critical dilutions proposed in the draft NPDES permit (Outfall 006 at 22% and Outfall 007 at 50%), the lab completed the replacement water flea WET test using those dilutions only (along with a control).

The replacement fathead minnow WET tests were completed using the full dilution series. The replacement WET tests passed the Outfall 006 fathead minnow test, while failing the other three (the Outfall 006 water flea, and Outfall 007 water flea and fathead minnow tests). Like the July 2011 tests, the August 2011 WET tests demonstrated distinctly different WET test signatures. Additional details of each of the August 2011 acute WET test are provided below.

The August 2011 WET test results were submitted to ADEQ along with the September DMR.

August 15 WET tests.

Outfall 006. Passed both the water flea and fathead minnow WET test endpoints in the maximum exposure (100% effluent). Although the test was completed on effluents that exceeded the protocol holding times, both species passed. There is no evidence that the extended holding time impacted the effluent quality and therefore the WET test results.

Outfall 007. The Outfall 007 WET tests failed both tests (water flea and fathead minnow) in all dilutions of the series, even the 32% exposure. Review of water quality data did not implicate a possible cause for the test failures other than the elevated TSS which was atypically elevated when compared to previous Outfall 007 discharges. This may reflect the characteristics of the storm event (short lived and minimal discharge generated). Although there were continued lime applications, the most recent application was 5 days prior the storm event on August 8, 2011.

August 25 WET tests.

Outfall 006. The August 25, 2011 acute WET test passed the fathead minnow test in the 100% exposure but failed the water flea test in the only exposure, 22% effluent. Due to the limited test, there was not sufficient water quality information to implicate a cause for the water flea test failure. The dissolved oxygen, pH, ammonia, or conductivity did not vary from previous tests which passed the water flea WET tests.

Outfall 007. The Outfall 007 WET tests failed both tests (water flea and fathead minnow) in all dilutions of the series, even the 32% exposure. Review of water quality did not identify any parameter out of ordinary reported ranges.

September 2011Tests Results.

The September WET tests were completed on runoff resulting from a 0.73 inch storm event. The storm event generated 0.073 mgd and 0.365 mgd in discharge through Outfall 006 and Outfall 007, respectively. Once again, as has been illustrated in previous comparisons, the flows generated in the respective watersheds were

approximately 1 to 5. The September 2011 WET tests were typical for the quarter, where the Outfall 006 tests passed and the Outfall 007 tests failed. The September DMR was submitted to ADEQ on October 2, 2011 with the September WET test reports attached.

Outfall 006. The Outfall 006 effluent passed the water flea in 75% exposure and the fathead minnow in the 100% exposure. The NOEC concentrations for both species were greater than the critical dilution proposed in the draft NPDES permit. (22% percent effluent dilution). The analytical chemistry completed in conjunction with the acute WET testing did not implicate a potential cause for the water flea failure of the 100% effluent dilution. The dissolved oxygen was sufficient, the pH was above 6 su, and the ammonia concentration was less than that typically measured in the discharge through Outfall 006.

Outfall 007. The September Outfall 007 WET tests were similar to previous results with NOEC <32% effluent. The analytical details of the Outfall 007 WET testing were unique when compared to previous WET tests completed on Outfall 007 discharge, including the conductivity (above 12,000 uS), and hardness (above 2,300 mg/L). The cause of the elevated conductivities and hardness values are not clearly understood and continue to be investigated.

Also, the pH of the effluent drift during the tests was from 6.5 su to 6.1 su, indicating the soil pH was influencing the water quality to a larger degree than during previous WET tests of the 3rd quarter 2011. This storm event discharge was the furthest removed from a lime treatment than any other 3rd quarter WET test (16 days since last lime application) and may have contributed to the test failure.

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.

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 3rd quarter of 2011.

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 has been applied to the watershed with the intent to stabilize pH fluctuation within a range of 1 to 1.5 su. This was 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 with the watershed. These elevated conductivities may be related to the lime application.

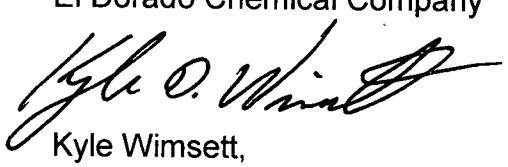
The lime applications occurred on July 11, August 8, and August 23 in both sub-watersheds and again on September 6, 2011 in the Outfall 007 watershed.

Future Activities.

Activities planned for the 4th Qtr 2011 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 discharge data with particular attention to facility conditions during the WET monitoring periods, will continue. Should the WET tests continue to 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



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