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OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY

MARY FALLIN  
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August 04, 2015

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RE: Groundwater Cleanup Levels and Discharge Limits for the Tronox Cimarron Site

This letter is to clarify the Department of Environmental Quality's (DEQ) position regarding groundwater cleanup levels at the Cimarron Site. We have determined that groundwater at the site should be cleaned up to the U.S. Environmental Protection Agency (EPA) Maximum Contaminant Levels (MCLs) or background. This determination is based on DEQ policy for establishing Risk Based cleanup levels for the remediation of contaminated properties. Please see, "Risk Based Decision Making for Site Cleanups" at: <http://www.deq.state.ok.us/factsheets/land/SiteCleanUp.pdf>.

For the groundwater cleanup at the Cimarron site, the DEQ considers the primary objective to be remediation of the uranium contamination to the MCL (i.e., 0.030 mg/L). Cleanup to this level will be the remediation goal. However, if it is determined that elevated uranium concentrations in sandstone C are naturally occurring (i.e., not enriched), a background level could be established in certain areas of this zone.

Cleaning up the nitrate contamination is viewed as a secondary or less immediate concern due to the ubiquitous presence of nitrate in Oklahoma groundwater from agricultural practices. The currently established anthropogenic background level for nitrate at the site is 22.9 mg/L. This will be the preliminary remediation goal (PRG) for all areas except the process building area where 52 mg/L is the cleanup level. We envision an approach for nitrate that would consist of active treatment, targeting areas with higher concentrations, in conjunction with monitored natural attenuation (MNA) and / or *in-situ* bioremediation to achieve the PRG.

The PRG for fluoride is the MCL (i.e., 4 mg/L). Achieving this level should be feasible given the small area of contamination and its co-location with nitrate and / or uranium contamination.

The facility will be subject to an Oklahoma Pollutant Discharge Elimination System (OPDES) permit requiring monitoring as long as there is a discharge. At this time the end of pipe discharge limits are the respective MCLs. The values for uranium and fluoride are mentioned above and the MCL for nitrate is 10 mg/L. Violations would occur if the limits are exceeded by 20 percent for 2 times in a 6 month period or 4 times at any level in 6 months.



A discharge permit application should be filed with the Water Quality Division (WQD) of DEQ after the design flow rates (and nitrate loading) are better understood and the treatability tests for nitrate removal (via *ex-situ* bio-denitrification) have been completed. The nitrate discharge limits can be re-evaluated at that time to consider some in-stream mixing, thus potentially raising the end of pipe allowable concentration.

As the 'pump and treat' remediation proceeds, the influent concentrations to the treatment units will eventually fall below the MCLs. DEQ has determined that when this situation is reliably reached, further treatment would not be required and given these circumstances it would be environmentally safe and economically beneficial to directly discharge the effluent to the Cimarron River.

The DEQ will issue a decision document that memorializes these remedial goals and establishes procedures for considering modifications in the future. Periodic evaluations will be required to assess the effectiveness and progress of the remedy and the availability of remaining funds necessary to complete the site cleanup. Any changes to the cleanup goals may require risk evaluation and public input.

If you have any questions, please feel free to call Paul Davis at (405) 702-5132 or me at (405) 702-5124.

Regards,



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