Attachment F

EPA Letter, January 8, 2011, identifying issues with 2007 Rulemaking

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

JAN - 3 2008

Teresa Marks
Director
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118-5317

RE: Site-specific Water Quality Standards Revisions Associated with Lion Oil Company in Union County, Arkansas

Dear Ms. Marks:

Thank you for your recent letter, dated August 17, 2007, requesting review and approval of several site-specific water quality standards revisions to Regulation No. 2, *Regulation Establishing Water Quality Standards for Surface Waters of the State of Arkansas* for Loutre Creek and nine segments of Bayou de Loutre in the gulf coastal ecoregion of Arkansas. Loutre Creek is also the receiving waterbody for discharges from Lion Oil Company in Union County, Arkansas, with the nine Bayou de Loutre segments occurring downstream from these discharges.

Your letter included a request for U.S. Environmental Protection Agency (EPA) approval of the removal of the domestic water supply designated uses for Loutre Creek and Bayou de Loutre (from the mouth of Loutre Creek to the mouth of Gum Creek), along with site-specific criteria for chloride, sulfate, and total dissolved solids (TDS), for Loutre Creek and all nine segments of Bayou de Loutre. This letter responds to your request for EPA approval of the removal of the domestic water supply designated uses for Loutre Creek and Bayou de Loutre, as well as site-specific criteria for chloride, sulfate, and TDS, for Loutre Creek and the nine segments of Bayou de Loutre as described in Table 1 below.

Table 1. Site-specific water quality criteria revisions for chloride, sulfate, and TDS, for Loutre Creek and nine segments of Bayou de Loutre submitted by ADEQ to EPA for review and approval.

Stream Segment Name	Chloride (mg/L)		Sulfate (mg/L)		TDS (mg/L)	
	Previous	Revised	Previous	Revised	Previous	Revised
Loutre Creek[1]	14	256	31	997	123	1756
Bayou de Loutre[2]	250	264	90	635	500	1236
Bayou de Loutre[3]	--	--	90	431	500	966
Bayou de Loutre[4]	--	--	90	345	750	780

[1] Loutre Creek – from Hwy 15 south to the confluence of Bayou de Loutre
[2] Bayou de Loutre – from Loutre Creek to the discharge for the City of El Dorado South facility
[3] Bayou de Loutre – from the discharge from the City of El Dorado-South downstream to the mouth of Gum Creek
[4] Bayou de Loutre – from the mouth of Gum Creek downstream to the mouth of Boggy Creek

Stream Segment Name	Chloride (mg/L)		Sulfate (mg/L)		TDS (mg/L)	
	Previous	Revised	Previous	Revised	Previous	Revised
Bayou de Loutre[5]	--	--	90	296	--	--
Bayou de Loutre[6]	--	--	90	263	--	--
Bayou de Loutre[7]	--	--	90	237	--	--
Bayou de Loutre[8]	--	--	90	216	--	--
Bayou de Loutre[9]	--	--	90	198	--	--
Bayou de Loutre[10]	--	--	90	171	--	--

The Arkansas Pollution Control and Ecology Commission adopted the site-specific chloride, sulfate, and TDS criteria for Loutre Creek and the nine Bayou de Loutre segments identified in Table 1 above, as well as the removal of the domestic water supply designated use from Loutre Creek and Bayou de Loutre, as amendments to the Arkansas surface water quality standards via a third party rulemaking in Minute Order 07-20 on June 22, 2007. In accordance with the *Code of Federal Regulations* (CFR) at 40 CFR §131.20, the Arkansas Department of Environmental Quality (ADEQ) then submitted the water quality standards revisions and supporting documentation to EPA for review and approval. The submittal package was received by EPA on September 17, 2007, and included a statement dated August 17, 2007, from Ellen Carpenter, chief counsel for ADEQ, certifying that the amendments were duly adopted pursuant to State law.

We have completed our review of your request to approve the removal of the domestic water supply designated use from Loutre Creek and Bayou de Loutre (from the mouth of Loutre Creek to the mouth of Gum Creek) and site-specific criteria for chloride, sulfate, and TDS, for Loutre Creek and the nine Bayou de Loutre segments identified in Table 1 above. However, for the reasons described below, EPA is unable to take action on these site-specific water quality standards revisions.

In regards to the request to approve the removal of the domestic water supply designated use for Loutre Creek and Bayou de Loutre, Arkansas' water quality standards submission appears to be missing the necessary supporting documentation to demonstrate that the domestic water supply designated use is not an existing use for these two waterbodies. Because a clear demonstration in the supporting documentation to show that the domestic water supply designated uses in Loutre Creek and Bayou de Loutre are not existing uses is lacking, this submission does not meet the minimum requirements of a water quality standards submission as described in 40 CFR §131.6. Therefore, EPA is unable to take action on the request to approve these designated use removals. A description of the specific documentation that was found to be missing in the supporting documentation during EPA's review is provided in the enclosure to this letter.

[5] Bayou de Loutre – from the mouth of Boggy Creek downstream to the mouth of Hibank Creek
[6] Bayou de Loutre – from the mouth of Hibank Creek downstream to the mouth of Mill Creek
[7] Bayou de Loutre – from the mouth of Mill Creek downstream to the mouth of Buckaloo Branch
[8] Bayou de Loutre – from the mouth of Buckaloo Branch downstream to the mouth of Bear Creek
[9] Bayou de Loutre – from the mouth of Bear Creek to the final segment of Bayou de Loutre
[10] Bayou de Loutre (Final Segment) to the Arkansas/Louisiana state line

In regards to the request to approve the site-specific minerals criteria, Arkansas' water quality standards submission does not provide adequate supporting documentation to demonstrate that the revised site-specific criteria are appropriately protective. Because a clear demonstration of protection in the supporting documentation is lacking, this submission does not meet the minimum requirements of a water quality standards submission as described in 40 CFR §131.6. Therefore, EPA is unable to take action on these site-specific criteria revisions. Specific issues of concern regarding the adequacy of the supporting documentation for this submission are identified in the enclosure to this letter. We encourage ADEQ to work with the third party, Lion Oil Company, in responding to the issues identified in the enclosure to this letter so that EPA may have the necessary supporting documentation to take action on the adopted revisions.

I would also like to acknowledge the efforts of the Pollution Control and Ecology Commission, and particularly ADEQ, in the development of these revised standards. We look forward to continue working with you on this water quality standards revision and encourage early and up-front coordination on any future proposed water quality standards revisions to facilitate EPA's review of State-adopted water quality standards revisions submitted for approval. If you have any questions or concerns, please contact me at (214) 665-7101, or have your staff contact Melinda McCoy at (214) 665-8059.

Sincerely yours,

Miguel I. Flores
Director
Water Quality Protection Division

Enclosure

cc: Steve Drown, Chief, Water Division, Arkansas Department of Environmental Quality

Issues of Concern - Supporting Documentation for Site-specific Water Quality Standards Revisions Associated with Lion Oil Company in Union County, Arkansas

A third party, Lion Oil Company, contracted with GBM^c & Associates in order to complete a use attainability analysis (UAA)[1] for Loutre Creek and nine segments of Bayou de Loutre in the gulf coastal ecoregion of Arkansas. Loutre Creek is also the receiving waterbody for discharges from Lion Oil Company in Union County, Arkansas, with the nine Bayou de Loutre segments occurring downstream from these discharges. The UAA study served as the supporting documentation for the site-specific water quality standards revisions associated with these waterbodies, which included removal of the domestic water supply use for Loutre Creek and Bayou de Loutre (from the mouth of Loutre Creek to the mouth of Gum Creek) and site-specific criteria for chloride, sulfate and total dissolved solids (TDS).

By letter dated August 17, 2007, the Arkansas Department of Environmental Quality (ADEQ) submitted the water quality standards revisions, along with supporting documentation (the UAA report), to EPA for review and approval. The information provided below describes specific issues of concern regarding the adequacy of the supporting documentation to demonstrate that the domestic water supply designated use is not an existing use for Loutre Creek and Bayou de Loutre (from the mouth of Loutre Creek to the mouth of Gum Creek) and that the site-specific minerals criteria are appropriately protective, as referenced in the letter accompanying this enclosure.

DOMESTIC WATER SUPPLY USE REMOVAL

Missing Letters from the Arkansas Department of Health (ADH)

Loutre Creek

A letter dated November 8, 2005, from the Arkansas Natural Resources Commission (ANRC) to Mr. Vince Blubaugh, was provided in Appendix B of the UAA report which stated that removal of the domestic water supply use from Loutre Creek would not conflict with the Arkansas State Water Plan. Although this letter demonstrates that Loutre Creek is not being considered as a future water supply source per the Arkansas State Water Plan, it does not address whether or not Loutre Creek is currently being used as a source of domestic water supply. In order to provide a clear demonstration in the supporting documentation to show that the domestic water supply designated use in Loutre Creek is not an existing use, please provide a copy of ADH's letter regarding Loutre Creek.

Bayou de Loutre (from the mouth of Loutre Creek to the mouth of Gum Creek)

Although the unnamed tributaries to Bayou de Loutre are addressed in an ADH letter dated December 6, 2005, the main stem of Bayou de Loutre does not appear to be addressed in Appendix B of the UAA report. From Appendix B of the UAA report for the Great Lakes Chemical Corporation third-party rulemaking, it appears that a letter dated May 31, 2006, was

[1] GBM^c & Associates. 2006. *Loutre Creek – Section 2.306 Site Specific Water Quality Study.* Prepared for Lion Oil Company, El Dorado, Arkansas.

sent from Mr. Vince Blubaugh to ADH in reference to "the upper reach of Bayou de Loutre down to its confluence with Gum Creek near El Dorado, Arkansas." However, a response from ADH to this May 31, 2006, letter appears to be missing from the UAA reports for the waterbodies associated with both the Lion Oil Company and Great Lakes Chemical Corporation rulemakings. In order to provide a clear demonstration in the supporting documentation to show that the domestic water supply designated use in Bayou de Loutre (from the mouth of Loutre Creek to the mouth of Gum Creek) is not an existing use, please provide a copy of ADH's letter in response to Mr. Blubaugh's May 31, 2006, request regarding Bayou de Loutre.

SITE-SPECIFIC MINERALS CRITERIA

Toxicity Testing

As it pertains to toxicity testing and analyses, supporting documentation to demonstrate that the site-specific minerals criteria for Loutre Creek and Bayou de Loutre (from the mouth of Loutre Creek to the mouth of Gum Creek) are appropriately protective of aquatic life is generally lacking.

Loutre Creek

Although Section 3.6.2 – "Toxicity Testing" of the UAA report provides the results of chronic biomonitoring tests for *Ceriodaphnia dubia* and *Pimephales promelas* conducted for Outfall 001 during the last five years, it is not clear what minerals concentrations (chloride, sulfate, and TDS) were associated with each of these tests and whether or not the minerals concentrations during the toxicity testing were representative of the adopted site-specific minerals criteria under review for Loutre Creek. (Please note that while the UAA report mentions that "calculated TDS" concentrations associated with the biomonitoring tests are identified in Appendix D-1, it appears that the table in Appendix D-1 was not complete (i.e., 8.5 x 11 inch copy was made of the table, rather than a legal-sized copy, thereby rendering the table incomplete)).

Bayou de Loutre (from the mouth of Loutre Creek to the mouth of Gum Creek)

The supporting documentation in the UAA report does not include a general evaluation or review of the site-specific criteria for the nine Bayou de Loutre segments in light of the available scientific literature concerning the toxicity effects of chloride, sulfate, and TDS to aquatic organisms. Supporting documentation from the literature or other appropriate supporting documentation is important for providing a clear demonstration that the site-specific criteria for Bayou de Loutre are appropriately protective of the aquatic life use (Gulf Coastal perennial fishery) in this waterbody, particularly given the fact that biological community analyses for the Bayou de Loutre segments are not included in the UAA report. Such information may also be useful to supplement the toxicity testing information provided for outfall 001, especially if the minerals concentrations present during the toxicity testing referenced above are not available or were not representative of the adopted site-specific minerals criteria under review for Loutre Creek.

Mass Balance Calculations Utilized in the Derivation of Site-Specific Minerals Criteria for Loutre Creek and the Nine Bayou de Loutre Segments

EPA noted three issues of concern with regard to the mass balance calculations utilized in the derivation of the site-specific criteria for Loutre Creek and the nine Bayou de Loutre (BDL) segments.

Loutre Creek

It is not clear from Section 5.2.2 – "Computations for Loutre Creek" of the UAA report why 20% of the respective data sets for chloride, sulfate, and TDS were added to the effluent concentrations for Lion Oil outfall 001. Was the additional 20% included to account for the minerals contributions from the Lion Oil storm water outfalls? And, if so, please describe how and why this method was chosen to account for the additional Lion Oil outfalls.

Bayou de Loutre (from the mouth of Loutre Creek to the mouth of Gum Creek)

Because the mass balance calculations for the nine Bayou de Loutre segments depend upon and include the mass balance calculation results from the upstream Great Lakes Chemical Corporation (GLCC) UAA report, EPA requests that the two previous comments it submitted for the GLCC mass balance calculations be addressed in relation to this UAA report as well (i.e., exclusion of background flow from UT004 and UT002 and exclusion of GLCC outfall 001). EPA noted that these exclusions appear to have been carried on in the mass balance calculations shown in sections 5.2.3 through 5.2.11 of the Lion Oil UAA report.

Also, it is not clear how the effluent concentrations of 684 mg/L, 1643 mg/L, and 3128 mg/L, for chloride, sulfate, and TDS, respectively, in Table 5.2 of the UAA report were derived. The UAA report (bottom of page 56) states, "The 'effluent concentration' was derived from a mass balance calculation utilizing the flow weighted mixed concentrations from Chemtura [GLCC] 002, Chemtura 004, and Lion 001" (brackets added). Please provide a copy of this calculation, showing the resulting values. Further, please provide a rationale for why these concentrations were utilized in place of the previously calculated minerals concentrations in Bayou de Loutre above its confluence with Loutre Creek (derived from the mass balance calculations provided in the GLCC UAA report).