

Exhibit A to Lion Oil Petition

Marked-Up Copy of Proposed Changes to Regulation No. 2

**ARKANSAS POLLUTION CONTROL
AND ECOLOGY COMMISSION**



REGULATION NO. 2

**REGULATION ESTABLISHING WATER
QUALITY STANDARDS FOR SURFACE
WATERS OF THE STATE OF ARKANSAS**

INITIAL DRAFT

Submitted to the PC & E Commission in January, 2013

Arkansas Pollution Control and Ecology Commission
Regulation No. 2, As Amended

**Regulation Establishing
Water Quality Standards for Surface Waters
of the State of Arkansas**

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<u>Stream</u>	<u>Concentration-mg/L</u>		
	<u>Cl</u>	<u>SO₄</u>	<u>TDS</u>
Little Red River (including Greers Ferry Reservoir)	20	30	100
Black River	20	30	270
Strawberry River	20	30	270
Spring River	20	30	290
Eleven Point River	20	30	270
Stennitt Creek	ER	ER	456*
South Fork Spring River	20	30	270
Myatt Creek	20	30	270
Current River	20	30	270
White River (Dam #3 to Missouri line, including Bull Shoals Reservoir)			
Buffalo River	20	20	200
Crooked Creek	20	20	200
White River (Missouri line to headwaters, including Beaver Reservoir)	20	20	160
Kings River	20	20	150
West Fork White River	20	20	150
St. Francis River Basin			
St. Francis River (Mouth to 36° N. Lat.)	10	30	330
L'Anguille River	20	30	235
Tyronza River (headwaters to Ditch No. 6 confluence)	20	30	350
Ditch No. 27	ER	480	1200
Ditch No. 6 (mouth to Ditch No. 27 confluence)	ER	210	630
Tyronza River (mouth to Ditch No. 6 confluence)	20	60	350
Little River	20	30	365
Pemiscot Bayou	20	30	380
St. Francis River (36° N. Lat. to 36° 30' N. Lat.)	10	20	180
Ouachita River Basin			
Bayou Bartholomew	50	20	500
Chemin-A-Haut Creek	50	20	500
Overflow Creek	20	30	170
Bayou Macon	30	40	330
Boeuf River	90	30	460
Big Cornie Creek	230	30	500
Little Cornie Creek	200	10	400
Three Creeks	250	10	500
Little Cornie Bayou	200	20	500
Unnamed trib from GLCC 003	538*	35*-	519*
Unnamed trib to Little Cornie Bayou	305*	ER	325*
Little Cornie Bayou from unnamed trib to State Line	215*	25*	500*
Walker Branch	180*	ER	970*
Gum Creek	104*	ER	311*
Bayou de L'Outre above Gum Creek <u>Loutre Creek</u>	250	90	500

<u>Stream</u>	<u>Concentration-mg/L</u>		
	<u>Cl</u>	<u>SO₄</u>	<u>TDS</u>
Bayou de L'Outre below Gum Creek	250	90	750
Ouachita River (Louisiana line to Camden)	160	40	350
Saline River	20	40	120
Saline River east bifurcation at Holly Creek	ER	250	500
Hurricane Cr above Hurricane Lake Dam	20	250	500
Hurricane Cr from Hurricane Lk. Dam to Ben Ball Brdg	125	730	1210
Hurricane Cr from Ben Ball Bridge to Hwy. 270	125	700	1200
Hurricane CR from Hwy 270 to Saline River	100	500	1000
Alcoa unnamed tribs to Hurricane Cr.	125	700	1100
Dry Lost Creek and tribs	ER	560	880
Lost Creek to Little Lost Creek	ER	510	820
Lost Creek below Little Lost Creek	ER	300	550
Holly Creek	30	860	1600
Moro Creek	30	20	260
Smackover Creek	250	30	500
Unnamed trib A to Flat Creek from mouth of EDCC 001 ditch to confluence with Flat Creek	16*	80*	315*
Confluence with unnamed trib A to Flat Creek	23*	125*	475*
Bayou de L'Outre Creek above Loutre Creek	180	ER	970
Unnamed trib UT004 from GLCC	014*	ER	311*
Unnamed trib UT002 from GLCC	278*	90*	500*
Loutre Creek - from Hwy 15 South to the confluence of Bayou de Loutre	256 <u>241</u> *	997 <u>645</u> *	1756 <u>1354</u> *
Bayou de Loutre - from Loutre Creek to the discharge for the City of El Dorado - South facility	264 <u>255</u> *	635 <u>410</u> *	1236 <u>976</u> *
Bayou de Loutre - from the discharge for the City of El Dorado-South downstream to the mouth of Gum Creek	250*	434 <u>287</u> *	966 <u>799</u> *
Bayou de Loutre - from the mouth of Gum Creek downstream to the mouth of Boggy Creek	250*	345 <u>229</u> *	780 <u>750</u> *
Boggy Creek - from the discharge for Clean Harbors El Dorado LLC to the confluence of Bayou de Loutre	631*	63*	1360*
Bayou de Loutre- from the mouth of Boggy Creek downstream to the mouth of Hibank Creek	250*	296 <u>197</u> *	750*
Bayou de Loutre - from the mouth of Hibank Creek downstream to the mouth of Mill Creek	250*	263 <u>176</u> *	750*
Bayou de Loutre - from the mouth of Mill Creek downstream to the mouth of Buckaloo Branch	250*	237 <u>158</u> *	750*
Bayou de Loutre- from the mouth of Buckaloo Branch downstream to the mouth of Bear Creek	250*	216 <u>144</u> *	750*
Bayou de Loutre -- <u>unnamed tributaries of Bayou de Loutre</u> from the mouth of Bear Creek	250*	498 <u>133</u> *	750*

<u>Stream</u>	<u>Concentration-mg/L</u>		
downstream to the final segment of Bayou de Loutre			
Bayou de Loutre (Final segment) – from the mouth of	250*	171 115*	750*
Bear Creek to the Arkansas/Louisiana State Line			
Ouachita River (Camden to Carpenter Dam)	50	40	150
Town Creek below Acme tributary	ER	200	700
Unnamed trib from Acme	ER	330	830
Little Missouri River	10	90	180
Muddy Fork Little Missouri	ER	250	500
Bluff Creek and unnamed trib.	ER	651*	1033*
Garland Creek	250	250	500
South Fork Caddo	ER	60	128
Back Valley Creek	ER	250	500
Wilson Creek from its mouth upstream approx.	56	250	500
1.7 miles at the UMETCO property line			
Ouachita River (Carpenter Dam to Headwaters,	10	10	100
including Lake Ouachita tributaries)			
Red River Basin			
Bayou Dorcheat	100	16*	250
Albemarle unnamed trib (AUT) to Horsehead Creek	137*	ER	383*
Horsehead Creek from AUT to mouth	85*	ER	260*
Cypress Creek	250	70	500
Crooked Creek	250	10	500
Dismukes Creek	26	ER	157
Big Creek from Dismukes to Bayou Dorcheat	20	ER	200
Bois d'Arc Creek from Caney Creek to Red River	113*	283*	420*
Caney Creek	113*	283*	420*
Bodcau Creek	250	70	500
Poston Bayou	120	40	500
Kelley Bayou	90	40	500
Red River from Oklahoma to confluence with Little River	250	200	850
Red River from Little River to Louisiana	250	200	500
Sulphur River	120	100	500
Days Creek	250	250	500
McKinney Bayou	180	60	480
Little River	20	20	100
Saline River	20	10	90
Mine Creek from Hwy 27 to Millwood	90	65	700
Lake			
Cossatot River	10	15	70
Upper Rolling Fork	20	20	100
Rolling Fork from unnamed trib A to	130	70	670
DeQueen Lake			
Unnamed tribs A and Al at Grannis	135	70	700
Mountain Fork	20	20	110

Stream**Concentration-mg/L**

	<u>Cl</u>	<u>SO₄</u>	<u>TDS</u>
Mississippi River (Louisiana line to Arkansas River)	60	150	425
Mississippi River (Arkansas River to Missouri line)	60	175	450

ER - ecoregion standard

* - based on critical background flow of 4 cfs

** - These limits shall apply to all tributaries of Bayou Meto and Bayou Two Prairie listed in Appendix A

Any modification of these values must be made in accordance with Reg. 2.306.

(B) Ecoregion Reference Stream Minerals Values

The following values determined from Arkansas' least-disturbed ecoregion reference streams are considered to be the maximum naturally occurring levels. For waterbodies not listed above, any discharge which results in instream concentrations more than 1/3 higher than these values for CI and S04= or more than 15 mg/l, whichever is greater, is considered to be a significant modification of the water quality. Similarly, such modification exists if the following TDS values are exceeded after being increased by the sum of the increases to CI and S04. Such modifications may be made only in accordance with Reg. 2.306.

CALCULATED ECOREGION REFERENCE STREAM VALUES (mg/l)

Ecoregion	Chlorides	Sulfates	TDS
Ozark Highlands	17.3	22.7	250
Boston Mountains	17.3	15	95.3
Arkansas River Valley	15	17.3	112.3
Ouachita Mountains	15	20	142
Gulf Coastal Plains	18.7	41.3	138
Delta	48	37.3	411.3

(C) Domestic Water Supply Criteria

In no case shall discharges cause concentrations in any waterbody to exceed 250, 250 and 500 mg/l of chlorides, sulfates and total dissolved solids, respectively, or cause concentrations to exceed the applicable limits in the streams to which they are a tributary, except in accordance with Reg. 2.306.

Reg. 2.512 Ammonia

Total ammonia nitrogen (N) shall not exceed those values and frequency of occurrence established in the following tables:

ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION



REGULATION NO. 2

APPENDIX A

**Designated Uses, Specific Standards and Maps of Waters of
the State by Ecoregions**

(September 24, 2010)



DESIGNATED USES: GULF COASTAL ECOREGION

(Plates GC-1, GC-2, GC-3, GC-4)

Extraordinary Resource Waters

Saline River (GC-3, GC-4)

Moro Creek - adjacent to natural area (GC-3)

Natural and Scenic Waterways

Saline River from the Grant-Saline County line to mouth (GC-3)

Ecologically Sensitive Waterbodies

Little River above Millwood Reservoir - location of Ouachita rock pocketbook and pink mucket mussels (GC-1)

Grassy Lake and Yellow Creek below Millwood Reservoir - unique ecosystem and biota (GC-1)

Lower Little Missouri River - location of peppered shiner and longnose darter (GC-2)

Lower Saline River - location of peppered shiner, crystal darter and goldstripe darter (GC-3)

Ouachita River near Arkadelphia - location of flat floater, Ouachita rock pocketbook and pink mucket mussels (GC-2)

Streams with Substantial Springwater Influence

L'Eau Fraie (GC-4)

Cypress Creek (GC-4)

East and West Fork Tulip Creeks (GC-4)

Others to be determined

Primary Contact Recreation - all streams with watersheds greater than 10 mi² and all lakes/reservoirs

Secondary Contact Recreation - all waters

Domestic, Industrial and Agricultural Water Supply - all waters

Fisheries

Trout

Little Missouri River from Narrows Dam to confluence with Muddy Fork (GC-1)

Lakes and Reservoirs - all

Streams

Seasonal Gulf Coastal fishery - all streams with watersheds of less than 10 mi² except as otherwise provided in Reg. 2.505

Perennial Gulf Coastal fishery - all streams with watersheds of 10 mi² or larger and those waters where discharges equal or exceed 1 CFS

Use Variations Supported by UAA

Loutre Creek - perennial fishery, except seasonal from railroad bridge to mouth (GC-2,#1)

Unnamed tributary to Smackover Creek - no fishable/swimmable uses (GC-2,#2)

Unnamed tributary to Flat Creek - no fishable/swimmable uses (GC-2,#4)

Dodson Creek - perennial fishery (GC-4,#5)

Jug Creek - perennial fishery (GC-2,#6)

Lick Creek - seasonal fishery; no primary contact (GC-1,#7)

Coffee Creek and Mossy Lake - no fishable/swimmable or domestic water supply uses (GC-3,#8)

Red River from Oklahoma to confluence with Little River - No domestic water supply use (GC-1,#9)

Bluff Creek and unnamed tributary - no domestic water supply use (GC-1,#10)

Mine Creek from Highway 27 to Millwood Lake - no domestic water supply use (GC-1,#11)

Caney Creek - no domestic or industrial water supply use (GC-1,#12)

Use Variations Supported by UAA

Bois d'Arc Creek from Caney Creek to Red River - no domestic or industrial water supply use(GC-1,#13)

Town Creek below Acme tributary - no domestic water supply(GC-4,#14)

Unnamed trib. from Acme - no domestic water supply(GC-4,#14)

Gum Creek - no domestic water supply use(GC-2,#15)

Bayou de Loutre from Gum Creek to State line - no domestic water supply use(GC-2,#16)

Walker Branch - no domestic water supply use(GC-2,#17)

Little Cornie Bayou from Walker Branch to State line - no domestic water supply use(GC-2,#18)

Alcoa unnamed trib to Hurricane Cr.and Hurricane Cr. - no domestic water supply use(GC-4,#19)

Holly Creek - no domestic water supply use(GC-4,#20)

Dry Lost Creek and Tribs. - no domestic water supply use(GC-4,#21)

Lost Creek - no domestic water supply use(GC-4,#22)

Albemarle unnamed trib (AUT) to Horsehead Creek - no domestic water supply use(GC-2,#27)

Horsehead Creek from AUT to mouth - no domestic water supply use(GC-2,#27)

Dismukes Creek and Big Creek to Bayou Dorcheat - no domestic water supply

Boggy Creek from the discharge from Clean Harbors El Dorado LCC downstream to the confluence of Bayou de Loutre - no domestic water supply use

Unnamed tributary to Flat Creek from EDCC Outfall 001 d/s to confluence with unnamed tributary A to Flat Creek - no domestic water supply use (GC-2,#37)

Unnamed tributary A to Flat Creek from mouth of EDCC 001 ditch to confluence with Flat Creek - no domestic water supply use (GC-2,#38)

Flat Creek from mouth of UTA to confluence with Haynes Creek - no domestic water supply use (GC-2,#39)

Haynes Creek from mouth of Flat Creek to confluence with Smackover Creek - no domestic water supply use (GC-2,#40)

Loutre Creek– Limited Gulf Coastal Fishery (Small/Urbanized/Historical Resource Extraction) (GC-2, #41)**SPECIFIC STANDARDS: GULF COASTAL ECOREGION**

(Plates GC-1, GC-2, GC-3, GC-4)

	Typical Streams	Spring Water Streams	Lakes and Reservoirs
Temperature °C (°F)*	30 (86)	30 (86)	32 (89.6)
Ouachita River	32 (89.6)		
(state line to Little Missouri River)	32 (89.6)		
Red River			
Turbidity (NTU) (base/all)	21/32	21/32	25/45
Red River (base/all)	50/150		
Minerals	see Reg. 2.511		see Reg. 2.511
Dissolved Oxygen (mg/l) **	Pri.	Crit.	see Reg. 2.505
<10 mi ² watershed	5	2	
10 mi ² -500 mi ²	5	3	
>500 mi ² watershed	5	5	
All sizes	6	5	
All other standards	(same as statewide)		

* Increase over natural temperatures may not be more than 2.8°C (5°F).

** At water temperatures <10°C or during March, April and May when stream flows are 15 CFS and greater, the primary season D.O. standard will be 6.5 mg/l. When water temperatures exceed 22°C, the critical season D.O. standard may be depressed by 1 mg/l for no more than 8 hours during a 24-hour period.

Variations Supported by UAA

Loutre Creek - from headwaters to railroad bridge, critical season D.O. standard - 3 mg/l; primary season - 5 mg/l; from railroad bridge to mouth, critical season D.O. - 2 mg/l (GC-2,#1)

Unnamed tributary to Smackover Creek - headwaters to Smackover Creek, year round D.O. criteria - 2 mg/l (GC-2,#2)

Unnamed tributary to Flat Creek - from headwaters to Flat Creek, year round D.O. criteria - 2 mg/l (GC-2,#4)

Dodson Creek - from headwaters to confluence with Saline River, critical season D.O. standard - 3 mg/l (GC-4,#5)

Jug Creek - from headwaters to confluence with Moro Creek, critical season D.O. standard - 3 mg/l (GC-2,#6)

Lick Creek - from headwaters to Millwood Reservoir, critical season D.O. standard - 2 mg/l (GC-1,#7)

Coffee Creek and Mossy Lake - exempt from Reg. 2.406 and Chapter Five (GC-3,#8)

Red River from Oklahoma to confluence with Little River - total dissolved solids - 850 mg/l (GC-1,#9)

Bluff Creek and unnamed trib. - sulfates 651 mg/l; total dissolved solids 1033 mg/l(GC-1,#10)

Muddy Fork Little Missouri River - sulfates 250 mg/l; total dissolved solids 500 mg/l(GC-1,#24)

Little Missouri River - sulfates 90 mg/l; total dissolved solids 180 mg/l(GC-1,#25)

Mine Creek from Highway 27 to Millwood Lake - chlorides - 90 mg/l; sulfates - 65 mg/l; TDS - 700 mg/l (GC-1,#11)

Caney Creek - chlorides 113 mg/l; sulfates 283 mg/l; total dissolved solids 420 mg/l(GC-1,#12)

Bois d'Arc Creek from Caney Creek to Red River - chlorides 113 mg/l; sulfates 283 mg/l; dissolved solids 420 mg/l(GC-1,#13)

Town Creek below Acme tributary - sulfates 200 mg/l; TDS 700 mg/l(GC-4,#14)

Unnamed trib. from Acme - sulfates 330 mg/l; TDS 830 mg/l(GC-4,#14)

Gum Creek - chlorides 104 mg/L; TDS 311 mg/L(GC-2,#15)

Bayou de Loutre from Gum Creek to State line - Chlorides 250 mg/l; TDS solids 750 mg/l(GC-2,#16)

Walker Branch - chlorides 180 mg/l; total dissolved solids 970 mg/l(GC-2,#17)

Ouachita River - from Ouachita River mile(ORM) 223 to the Arkansas-Louisiana border(ORM 221 .l),site specific seasonal D.O.criteria: 3 mg/L June and July; 4.5 mg/L August; 5 mg/L September through May. These seasonal criteria may be unattainable during or following naturally occurring high flows,(i.e., river stage above 65 feet measured at the lower gauge at the Felsenthal Lock and Dam, Station No.89-o, and also for the two weeks following the recession of flood waters below 65 feet), which occurs from May through August. Naturally occurring conditions which fail to meet criteria should not be interpreted as violations of these criteria (GC-3,#26)

Alcoa unnamed trib. to Hurricane Cr. And Hurricane Cr. - see Reg. 2.511 (CG-4,#19)

Holly Creek - See Reg. 2.511 (CG-4,#20)

Saline River bifurcation - see Reg. 2.511 (GC-4,#23)

Dry Lost Creek and tributaries - see Reg. 2.511 (GC-4,#21)

Lost Creek - see Reg. 2.511 (GC-4,#22)

Albemarle unnamed trib (AUT) to Horsehead Creek - chlorides 137 mg/l; TDS 383 mg/l (GC-2,#27)

Horsehead Creek from AUT to mouth - chlorides 85 mg/l; TDS 260 mg/l (GC-2,#27)

Bayou Dorcheat - sulfates 16 mg/l (GC-2,#27)

Dismukes Creek - chlorides 26 mg/L; TDS 157 mg/L (GC-2,#28)

Big Creek from Dismukes to Bayou Dorcheat - chlorides 20 mg/L; TDS 200 mg/L (GC-2,#28)

Bayou de Loutre from Chemtura outfall to Loutre Creek - maximum water temperature 96°F (GC-2,#29)

Unnamed tributary of Lake June below Entergy Couch Plant to confluence with Lake June - maximum water temperature 95 degrees F (limitation of 5 degrees above natural temperature does not apply) (GC-1,#30)

Unnamed tributary from Great Lakes Chemical Company Outfall 002 to Bayou de Loutre-chloride 65, sulfate 35 mg/L, TDS 141 mg/L (GC-2,#31)

Unnamed tributary from Great Lakes Chemical Company Outfall 004 to Bayou de Loutre-chloride 239 mg/L., TDS 324 mg/L (GC-2,#32)

Bayou de Loutre from mouth of UT004 to mouth of Loutre Creek, chloride 278 mg/L (GC-2,#33)

Unnamed tributary from Great Lakes Chemical Company Outfall 003 (UT003) downstream to unnamed tributary to Little Cornie Bayou - chloride 538 mg/L, sulfate 35 mg/L, and TDS 519 mg/L (GC-2,#34)

Unnamed tributary of Little Cornie Bayou to confluence with Little Cornie Bayou - chloride 305 mg/L and TDS

325 mg/L (GC-2,#35)

Little Cornie Bayou from mouth UTA to state line- chloride 215mg/L,sulfate 25mg/L and TDS 500mg/L. (GC-2,#36)

Unnamed tributary to Flat Creek from EDCC Outfall 001 d/s to confluence with unnamed tributary A to Flat Creek Chloride 23 mg/L, Sulfate 125 mg/L, TDS 475 mg/L, (GC-2,#37)

Unnamed tributary A to Flat Creek from mouth of EDCC 001 ditch to confluence with Flat Creek, Chloride 16 mg/L, Sulfate 80 mg/L, TDS 315 mg/L, (GC-2,#38)

Loutre Creek from Hwy 15 South to the confluence of Bayou de Loutre Chloride, ~~256241~~mg/l*, Sulfate ~~997645~~mg/l*, TDS, ~~47561354~~ mg/l*, Selenium 38 ug/L (replaces chronic and acute criteria under Regulation 2.508) (GC-2, #41)

Bayou de Loutre from Loutre Creek to the discharge for the City of El Dorado South facility Chloride, ~~264255~~mg/l*, Sulfate ~~635410~~mg/l*, TDS, ~~1236976~~ mg/l* ~~(GC-3,#42)-(GC-42)~~

Bayou de Loutre from the discharge from the City of El Dorado-South downstream to the mouth of Gum Creek. Chloride, 250 mg/l*, Sulfate ~~431287~~mg/l*, TDS, ~~966799~~ mg/l* ~~(GC-3,#43)(GC-43)~~

Bayou de Loutre from the mouth of Gum Creek downstream to the mouth of Boggy Creek Chloride, 250 mg/l*, Sulfate ~~345229~~mg/l*, TDS, ~~780750~~ mg/l* ~~(GC-3,#44)(GC-44)~~

Bayou de Loutre from the mouth of Boggy Creek downstream to the mouth of Hibank Creek Chloride, 250 mg/l*, Sulfate ~~296197~~mg/l*, TDS, 750 mg/l* ~~(GC-3,#45)-(GC-45)~~

Bayou de Loutre from the mouth of Hibank Creek downstream to the mouth of Mill Creek Chloride, 250 mg/l*, Sulfate ~~263176~~mg/l*, TDS, 750 mg/l* ~~(GC-3,#46)(GC-46)~~

Bayou de Loutre from the mouth of Mill Creek downstream to the mouth of Buckaloo Branch Chloride, 250 mg/l*, Sulfate ~~237158~~ mg/l*, TDS, 750 mg/l* ~~(GC-3,#47)-(GC-47)~~

Bayou de Loutre from the mouth of Buckaloo Branch downstream to the mouth of Bear Creek Chloride, 250 mg/l*, Sulfate ~~216144~~mg/l*, TDS, 750 mg/l* ~~(GC-3,#48)(GC-48)~~

Bayou de Loutre unnamed tributaries of Bayou de Loutre from the mouth of Bear Creek to the final segment of Bayou de Loutre. Chloride, 250 mg/l*, Sulfate ~~498133~~ mg/l*, TDS, 750 mg/l* ~~(GC-3,#49)-(GC-49)~~

Bayou de Loutre (Final Segment) from the mouth of Bear Creek to the Arkansas / Louisiana State Line. Chloride, 250 mg/l*, Sulfate ~~471115~~ mg/l*, TDS, 750 mg/l* ~~(GC-3,#50)-(GC-50)~~

Boggy Creek from the discharge from Clean Harbors El Dorado LCC downstream to the confluence of Bayou de Loutre. Chloride, 63 mg/l; Sulfate, 63 mg/l, TDS, 1360; Selenium, 15.6 u/l

McGeorge Creek (headwaters to Willow Springs Branch) Sulfate, 250 mg/L; TDS, 432 mg/L (GC-4,#52)

Willow Springs Branch (McGeorge Creek to Little Fourche Creek) Sulfate, 112 mg/L; TDS 247 mg/L (GC-4,#53)

Little Fourche Creek (Willow Springs Branch to Fourche Creek) TDS, 179 mg/L (GC-4,#54)

Variations Supported by EIP

Holly Creek; Selenium, Chronic Standard, 17ug/l (GC-4,#1)

Plate GC-2 (Gulf Coastal Plain)

