



## Environmental Laboratory and Consulting Company

Analytical Laboratory - Environmental Consulting - Permit Application and Compliance

# Certificate of Analysis

ODEQ ID # 9953

To: MR. TONY CLYDE

TULSA DISTRICT CORPS OF ENGINEERS  
1645 S 101st EAST AVE  
TULSA, OK 74128-4609

Project #: W912BV-07-P0189  
Project Name: RED RIVER WATER QUALITY

Date Received: 5/23/2008  
Report Date: 6/10/2008

Lab Number	Sample Identification	Date Sampled	Analysis Date	Time	Analized By	Parameter	Q	Results	Units	MDL	SQL	Method
200802196	07331000					METALS-TUL-D:						
		5/22/2008	5/24/2008	10:30	JL	Dissolved Arsenic		0.046	mg/L	0.009	0.009	200.7/6010B
			5/24/2008		JL	Dissolved Barium		0.283	mg/L	0.0006	0.0006	200.7/6010B
			5/24/2008		JL	Dissolved Cadmium	U	BDL	mg/L	0.0009	0.0009	200.7/6010B
			5/24/2008		JL	Dissolved Chromium	U	BDL	mg/L	0.0009	0.0009	200.7/6010B
			5/24/2008		JL	Dissolved Copper		0.045	mg/L	0.0003	0.0003	200.7/6010B
			5/24/2008		JL	Dissolved Iron		0.367	mg/L	0.0008	0.0008	200.7/6010B
			5/24/2008		JL	Dissolved Lead		0.017	mg/L	0.009	0.009	200.7/6010B
			5/24/2008		JL	Dissolved Manganese		0.259	mg/L	0.0001	0.0001	200.7/6010B
200802200	07311900		5/24/2008		JL	Dissolved Zinc		0.123	mg/L	0.0006	0.0006	200.7/6010B
200802200	07311900					METALS-TULSA:						
		5/22/2008	5/24/2008	13:35	JL	Arsenic, Total		0.034	mg/L	0.009	0.009	200.7/6010B
			5/24/2008		JL	Barium, Total		0.12	mg/L	0.0006	0.0006	200.7/6010B
			5/24/2008		JL	Cadmium, Total		0.05	mg/L	0.0009	0.0009	200.7/6010B
			5/24/2008		JL	Chromium, Total	U	BDL	mg/L	0.0009	0.0009	200.7/6010B
			5/24/2008		JL	Copper, Total		0.128	mg/L	0.0003	0.0003	200.7/6010B
			5/24/2008		JL	Iron, Total		0.056	mg/L	0.0008	0.0008	200.7/6010B
			5/24/2008		JL	Lead, Total		0.091	mg/L	0.009	0.009	200.7/6010B
			5/24/2008		JL	Manganese, Total		0.078	mg/L	0.0001	0.0001	200.7/6010B
			5/24/2008		JL	Nickel, Total	U	BDL	mg/L	0.0069	0.0069	200.7/6010B
			5/24/2008		JL	Silver, Total		0.017	mg/L	0.0003	0.0003	200.7/6010B
			5/24/2008		JL	Zinc, Total		0.186	mg/L	0.0006	0.0006	200.7/6010B
			6/4/2008	13:45	OP	Mercury, Dissolved	U	BDL	mg/l	0.0002	0.0002	EPA_245.1
			5/29/2008	14:30	OP	Mercury	U	BDL	mg/l	0.0002	0.0002	EPA_245.1
			6/4/2008	13:05	OL	Selenium, Dissolved	<	0.014	mg/l	0.0014	0.014	EPA_7440
			6/2/2008	16:27	OL	Selenium	<	0.014	mg/l	0.0014	0.014	EPA_7740
			5/24/2008	13:35	JL	Silicon Dioxide (silica)		5.87	mg/l	0.006	0.006	200.7/6010B

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200802200	07311900	5/22/2008	5/24/2008	15:30	JL	SALTS-TULSA: Calcium, Dissolved		603.6	mg/L	0.0039	0.0039 200.7/6010B
200802196	07331000		5/24/2008		JL	Dissolved Nickel	U	BDL	mg/L	0.0069	0.0069 200.7/6010B
			5/24/2008		JL	Dissolved Silver	U	BDL	mg/L	0.0003	0.0003 200.7/6010B
			5/24/2008		JL	Dissolved Zinc		0.012	mg/L	0.0006	0.0006 200.7/6010B
200802196	07331000	5/22/2008	5/24/2008	13:35	JL	METALS-TULSA: Arsenic, Total		0.066	mg/L	0.009	0.009 200.7/6010B
			5/24/2008		JL	Barium, Total		0.267	mg/L	0.0006	0.0006 200.7/6010B
			5/24/2008		JL	Cadmium, Total	U	BDL	mg/L	0.0009	0.0009 200.7/6010B
			5/24/2008		JL	Chromium, Total	U	BDL	mg/L	0.0009	0.0009 200.7/6010B
			5/24/2008		JL	Copper, Total		0.048	mg/L	0.0003	0.0003 200.7/6010B
			5/24/2008		JL	Iron, Total		0.816	mg/L	0.0008	0.0008 200.7/6010B
			5/24/2008		JL	Lead, Total		0.016	mg/L	0.009	0.009 200.7/6010B
			5/24/2008		JL	Manganese, Total		0.245	mg/L	0.0001	0.0001 200.7/6010B
			5/24/2008		JL	Nickel, Total		0.009	mg/L	0.0069	0.0069 200.7/6010B
			5/24/2008		JL	Silver, Total	U	BDL	mg/L	0.0003	0.0003 200.7/6010B
			5/24/2008		JL	Zinc, Total		0.011	mg/L	0.0006	0.0006 200.7/6010B
			5/29/2008		OP	Mercury, Dissolved	U	BDL	mg/l	0.0002	0.0002 EPA_245.1
			5/29/2008	14:30	OP	Mercury	U	BDL	mg/l	0.0002	0.0002 EPA_245.1
			6/4/2008	12:53	OL	Selenium, Dissolved	U	BDL	mg/l	0.0014	0.0014 EPA_7440
			6/2/2008	14:43	OL	Selenium	U	BDL	mg/l	0.0014	0.0014 EPA_7740
			5/24/2008	13:35	JL	Silicon Dioxide (silica)		11	mg/l	0.006	0.006 200.7/6010B
200802196	07331000	5/22/2008	5/24/2008	15:30	JL	SALTS-TULSA: Calcium, Dissolved		193.4	mg/L	0.0039	0.0039 200.7/6010B
			5/24/2008		JL	Magnesium, Dissolved		74.1	mg/L	0.0006	0.0006 200.7/6010B
			5/24/2008		JL	Phosphorus, Total		0.3	mg/L	0.0096	0.0096 200.7/6010B
			5/24/2008		JL	Potassium, Dissolved		8.69	mg/L	0.0009	0.0009 200.7/6010B
			5/24/2008		JL	Sodium, Dissolved		80.6	mg/L	0.0018	0.0018 200.7/6010B
			5/24/2008	15:30	JL	Total Hardness		675	mg/l	0.06	0.06 200.7/6010B
			6/3/2008	10:30	BL	Total Alkalinity		176	mg/l	2	2 EPA_310.1

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200802196	07331000	5/22/2008	6/2/2008	10:00	BL	Chloride		67.5	mg/l	0.383	0.383 EPA 9253
			5/22/2008	10:30	B/J	Dissolved Oxygen		9.4	mg/l	0.1	0.1 EPA_360.1
			6/2/2008	15:00	OP	Fluoride	J	0.79	mg/L	0.04	0.04 EPA 340.1
			5/30/2008	14:00	OP	Nitrate/nitrite As Nitroge	U	BDL	mg/l	1.2	1.2 EPA 353.3
			5/22/2008	10:30	B/J	pH		8.4	s.u.		EPA_150.1
			5/28/2008	8:30	OP	Sulfate		550	mg/l	1.2	1.2 EPA_375.2
			5/29/2008	10:00	B/M	Total Dissolved Solids		1064	mg/l	5.5	5.5 EPA_160.1
			6/2/2008	9:45	OP	Total Kjeldahl Nitrogen	J	1.12	mg/l	0.4	0.4 EPA_351.3M
			5/27/2008	14:55	B/M	Total Suspended Solids		185.5	mg/l	1.7	1.7 EPA_160.2
			5/29/2008	15:30	BL	Turbidity		154	NTU	0.078	0.078 EPA_180.1
200802197	07331600	5/22/2008	METALS-TUL-D:								
			5/24/2008	10:30	JL	Dissolved Arsenic	U	BDL	mg/L	0.009	0.009 200.7/6010B
			5/24/2008		JL	Dissolved Barium		0.185	mg/L	0.0006	0.0006 200.7/6010B
			5/24/2008		JL	Dissolved Cadmium	U	BDL	mg/L	0.0009	0.0009 200.7/6010B
			5/24/2008		JL	Dissolved Chromium	U	BDL	mg/L	0.0009	0.0009 200.7/6010B
			5/24/2008		JL	Dissolved Copper		0.064	mg/L	0.0003	0.0003 200.7/6010B
			5/24/2008		JL	Dissolved Iron		0.095	mg/L	0.0008	0.0008 200.7/6010B
			5/24/2008		JL	Dissolved Lead	U	BDL	mg/L	0.009	0.009 200.7/6010B
			5/24/2008		JL	Dissolved Manganese		0.033	mg/L	0.0001	0.0001 200.7/6010B
			5/24/2008		JL	Dissolved Nickel	U	BDL	mg/L	0.0069	0.0069 200.7/6010B
200802197	07331600	5/22/2008	METALS-TULSA:								
			5/24/2008	13:35	JL	Arsenic, Total	U	BDL	mg/L	0.009	0.009 200.7/6010B
			5/24/2008		JL	Barium, Total		0.155	mg/L	0.0006	0.0006 200.7/6010B
			5/24/2008		JL	Cadmium, Total	U	BDL	mg/L	0.0009	0.0009 200.7/6010B
			5/24/2008		JL	Chromium, Total	U	BDL	mg/L	0.0009	0.0009 200.7/6010B
			5/24/2008		JL	Copper, Total		0.063	mg/L	0.0003	0.0003 200.7/6010B
			5/24/2008		JL	Iron, Total		0.099	mg/L	0.0008	0.0008 200.7/6010B

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200802197	07331600	5/22/2008	5/24/2008		JL	Lead, Total		0.023	mg/L	0.009	0.009 200.7/6010B
			5/24/2008		JL	Manganese, Total		0.031	mg/L	0.0001	0.0001 200.7/6010B
			5/24/2008		JL	Nickel, Total		0.008	mg/L	0.0069	0.0069 200.7/6010B
			5/24/2008		JL	Silver, Total	U	BDL	mg/L	0.0003	0.0003 200.7/6010B
			5/24/2008		JL	Zinc, Total		0.007	mg/L	0.0006	0.0006 200.7/6010B
			5/29/2008	14:30	OP	Mercury, Dissolved	U	BDL	mg/l	0.0002	0.0002 EPA_245.1
			5/29/2008	14:30	OP	Mercury	U	BDL	mg/l	0.0002	0.0002 EPA_245.1
			6/4/2008	12:56	OL	Selenium, Dissolved	U	BDL	mg/l	0.0014	0.0014 EPA_7440
			6/2/2008	14:46	OL	Selenium	U	BDL	mg/l	0.0014	0.0014 EPA_7740
			5/24/2008	13:35	JL	Silicon Dioxide (silica)		7.8	mg/l	0.006	0.006 200.7/6010B
			200802197	07331600	5/22/2008	SALTS-TULSA:					
5/24/2008	15:30	JL				Calcium, Dissolved		98.7	mg/L	0.0039	0.0039 200.7/6010B
5/24/2008		JL				Magnesium, Dissolved		33.9	mg/L	0.0006	0.0006 200.7/6010B
5/24/2008		JL				Phosphorus, Total		0.11	mg/L	0.0096	0.0096 200.7/6010B
5/24/2008		JL				Potassium, Dissolved		9.47	mg/L	0.0009	0.0009 200.7/6010B
5/24/2008		JL				Sodium, Dissolved		141.4	mg/L	0.0018	0.0018 200.7/6010B
5/24/2008	15:30	JL				Total Hardness		366	mg/l	0.06	0.06 200.7/6010B
6/3/2008	10:30	BL				Total Alkalinity		146	mg/l	2	2 EPA_310.1
6/2/2008	10:00	BL				Chloride		165	mg/l	0.383	0.383 EPA_9253
5/22/2008	13:25	B/J				Dissolved Oxygen		7.2	mg/l	0.1	0.1 EPA_360.1
6/2/2008	15:00	OP				Fluoride	J	0.53	mg/L	0.04	0.04 EPA_340.1
5/30/2008	14:00	OP				Nitrate/nitrite As Nitroge	U	BDL	mg/l	1.2	1.2 EPA_353.3
5/22/2008	13:25	B/J				pH		8.3	s.u.		EPA_150.1
5/28/2008	8:30	OP				Sulfate		240	mg/l	1.2	1.2 EPA_375.2
5/29/2008	10:00	B/M				Total Dissolved Solids		820	mg/l	5.5	5.5 EPA_160.1
6/2/2008	9:45	OP				Total Kjeldahl Nitrogen	J	0.56	mg/l	0.4	0.4 EPA_351.3M
5/27/2008	13:00	B/M	Total Suspended Solids		5.3	mg/l	1.7	1.7 EPA_160.2			
5/29/2008	15:30	BL	Turbidity		10	NTU	0.078	0.078 EPA_180.1			

200802198 07316000

METALS-TUL-D:

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Table with columns: Lab Number, Sample Identification, Date Sampled, Analysis Date, Analyzed Time, By, Parameter, Q Results, Units, MDL, SQL Method. Contains data for Lab 200802198 and Sample 07316000, including various metal analyses and total metal results.

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Report Date: 6/10/2008

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200802199	07312100	5/22/2008	6/2/2008	9:45	OP	Total Kjeldahl Nitrogen	J	0.56	mg/l	0.4	0.4 EPA_351.3M	
			5/27/2008	13:00	B/M	Total Suspended Solids		68	mg/l	1.7	1.7 EPA_160.2	
			5/29/2008	15:30	BL	Turbidity		101.8	NTU	0.078	0.078 EPA_180.1	
200802200	07311900	5/22/2008	METALS-TUL-D:									
			5/24/2008	10:30	JL	Dissolved Arsenic	U	BDL	mg/L	0.009	0.009	200.7/6010B
			5/24/2008		JL	Dissolved Barium		0.095	mg/L	0.0006	0.0006	200.7/6010B
			5/24/2008		JL	Dissolved Cadmium		0.037	mg/L	0.0009	0.0009	200.7/6010B
			5/24/2008		JL	Dissolved Chromium	U	BDL	mg/L	0.0009	0.0009	200.7/6010B
			5/24/2008		JL	Dissolved Copper		0.075	mg/L	0.0003	0.0003	200.7/6010B
			5/24/2008		JL	Dissolved Iron		0.055	mg/L	0.0008	0.0008	200.7/6010B
			5/24/2008		JL	Dissolved Lead		0.11	mg/L	0.009	0.009	200.7/6010B
			5/24/2008		JL	Dissolved Manganese		0.068	mg/L	0.0001	0.0001	200.7/6010B
			5/24/2008		JL	Dissolved Nickel	U	BDL	mg/L	0.0069	0.0069	200.7/6010B
			5/24/2008		JL	Dissolved Silver		0.009	mg/L	0.0003	0.0003	200.7/6010B
			5/24/2008		JL	Magnesium, Dissolved		149.1	mg/L	0.0006	0.0006	200.7/6010B
			5/24/2008		JL	Phosphorus, Total		0.159	mg/L	0.0096	0.0096	200.7/6010B
			5/24/2008		JL	Potassium, Dissolved		44	mg/L	0.0009	0.0009	200.7/6010B
			5/24/2008		JL	Sodium, Dissolved		3882	mg/L	0.0018	0.0018	200.7/6010B
			5/24/2008	15:30	JL	Total Hardness		2278	mg/l	0.06	0.06	200.7/6010B
			6/3/2008	10:30	BL	Total Alkalinity		112	mg/l	2	2	EPA_310.1
			6/2/2008	10:00	BL	Chloride		3350	mg/l	0.383	0.383	EPA 9253
			5/22/2008	20:20	B/J	Dissolved Oxygen		8.2	mg/l	0.1	0.1	EPA_360.1
			6/2/2008	15:00	OP	Fluoride		1.23	mg/L	0.04	0.04	EPA 340.1
5/30/2008	14:00	OP	Nitrate/nitrite As Nitroge	U	BDL	mg/l	1.2	1.2	EPA 353.3			
5/22/2008	20:20	B/J	pH		8.2	s.u.			EPA_150.1			
5/28/2008	8:30	OP	Sulfate		2100	mg/l	1.2	1.2	EPA_375.2			
5/29/2008	10:00	B/M	Total Dissolved Solids		8462	mg/l	5.5	5.5	EPA_160.1			
6/2/2008	9:45	OP	Total Kjeldahl Nitrogen	U	BDL	mg/l	0.4	0.4	EPA_351.3M			
5/27/2008	13:00	B/M	Total Suspended Solids		23.8	mg/l	1.7	1.7	EPA_160.2			
5/29/2008	15:30	BL	Turbidity		37	NTU	0.078	0.078	EPA_180.1			

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200802201	07311800					METALS-TUL-D:						
		5/23/2008	5/24/2008	10:30	JL	Dissolved Arsenic	U	BDL	mg/L	0.009	0.009	200.7/6010B
			5/24/2008		JL	Dissolved Barium		0.11	mg/L	0.0006	0.0006	200.7/6010B
			5/24/2008		JL	Dissolved Cadmium		0.135	mg/L	0.0009	0.0009	200.7/6010B
			5/24/2008		JL	Dissolved Chromium	U	BDL	mg/L	0.0009	0.0009	200.7/6010B
			5/24/2008		JL	Dissolved Copper		0.216	mg/L	0.0003	0.0003	200.7/6010B
			5/24/2008		JL	Dissolved Iron	U	BDL	mg/L	0.0008	0.0008	200.7/6010B
			5/24/2008		JL	Dissolved Lead		0.069	mg/L	0.009	0.009	200.7/6010B
			5/24/2008		JL	Dissolved Manganese		0.115	mg/L	0.0001	0.0001	200.7/6010B
			5/24/2008		JL	Dissolved Nickel	U	BDL	mg/L	0.0069	0.0069	200.7/6010B
			5/24/2008		JL	Dissolved Silver	U	BDL	mg/L	0.0003	0.0003	200.7/6010B
			5/24/2008		JL	Dissolved Zinc		0.24	mg/L	0.0006	0.0006	200.7/6010B
200802201	07311800					METALS-TULSA:						
		5/23/2008	5/24/2008	13:35	JL	Arsenic, Total	U	BDL	mg/L	0.009	0.009	200.7/6010B
			5/24/2008		JL	Barium, Total		0.132	mg/L	0.0006	0.0006	200.7/6010B
			5/24/2008		JL	Cadmium, Total		0.105	mg/L	0.0009	0.0009	200.7/6010B
			5/24/2008		JL	Chromium, Total	U	BDL	mg/L	0.0009	0.0009	200.7/6010B
			5/24/2008		JL	Copper, Total		0.178	mg/L	0.0003	0.0003	200.7/6010B
			5/24/2008		JL	Iron, Total		0.185	mg/L	0.0008	0.0008	200.7/6010B
			5/24/2008		JL	Lead, Total		0.076	mg/L	0.009	0.009	200.7/6010B
			5/24/2008		JL	Manganese, Total		0.13	mg/L	0.0001	0.0001	200.7/6010B
			5/24/2008		JL	Nickel, Total	U	BDL	mg/L	0.0069	0.0069	200.7/6010B
			5/24/2008		JL	Silver, Total	U	BDL	mg/L	0.0003	0.0003	200.7/6010B
			5/24/2008		JL	Zinc, Total		0.159	mg/L	0.0006	0.0006	200.7/6010B
		6/4/2008		13:45	OP	Mercury, Dissolved	U	BDL	mg/l	0.0002	0.0002	EPA_245.1
		5/29/2008		14:30	OP	Mercury	U	BDL	mg/l	0.0002	0.0002	EPA_245.1
		6/4/2008		13:08	OL	Selenium, Dissolved	<	0.014	mg/l	0.0014	0.014	EPA_7440
		6/2/2008		16:30	OL	Selenium	<	0.014	mg/l	0.0014	0.014	EPA_7740
		5/24/2008		13:35	JL	Silicon Dioxide (silica)		8.56	mg/l	0.006	0.006	200.7/6010B

Laboratory Authorized Signature



## Environmental Laboratory and Consulting Company

Analytical Laboratory - Environmental Consulting - Permit Application and Compliance

# Certificate of Analysis

ODEQ ID # 9953

To: MR. TONY CLYDE

TULSA DISTRICT CORPS OF ENGINEERS  
1645 S 101st EAST AVE  
TULSA, OK 74128-4609

Project #: W912BV-07-P0189

Date Received: 5/23/2008

Project Name: RED RIVER WATER QUALITY

Report Date: 6/10/2008

Lab Number	Sample Identification	Date Sampled	Analysis Date	Time	Analized By	Parameter	Q	Results	Units	MDL	SQL	Method
200802201	07311800					SALTS-TULSA:						
		5/23/2008	5/24/2008	15:30	JL	Calcium, Dissolved		931.6	mg/L	0.0039	0.0039	200.7/6010B
			5/24/2008		JL	Magnesium, Dissolved		357.9	mg/L	0.0006	0.0006	200.7/6010B
			5/24/2008		JL	Phosphorus, Total		1.13	mg/L	0.0096	0.0096	200.7/6010B
			5/24/2008		JL	Potassium, Dissolved		36.8	mg/L	0.0009	0.0009	200.7/6010B
			5/24/2008		JL	Sodium, Dissolved		2742	mg/L	0.0018	0.0018	200.7/6010B
			5/24/2008	15:30	JL	Total Hardness		4652	mg/l	0.06	0.06	200.7/6010B
			6/3/2008	10:30	BL	Total Alkalinity		200	mg/l	2	2	EPA_310.1
			6/2/2008	10:00	BL	Chloride		3650	mg/l	0.383	0.383	EPA 9253
			5/23/2008	8:30	B/J	Dissolved Oxygen		9.3	mg/l	0.1	0.1	EPA_360.1
			6/2/2008	15:00	OP	Fluoride		1.33	mg/L	0.04	0.04	EPA 340.1
			5/30/2008	14:00	OP	Nitrate/nitrite As Nitroge	U	BDL	mg/l	1.2	1.2	EPA 353.3
			5/23/2008	8:30	B/J	pH		8.2	s.u.			EPA_150.1
			5/28/2008	8:30	OP	Sulfate		3450	mg/l	1.2	1.2	EPA_375.2
			5/29/2008	10:00	B/M	Total Dissolved Solids		10392	mg/l	5.5	5.5	EPA_160.1
			6/2/2008	9:45	OP	Total Kjeldahl Nitrogen	J	0.45	mg/l	0.4	0.4	EPA_351.3M
			5/27/2008	13:00	B/M	Total Suspended Solids		59.6	mg/l	1.7	1.7	EPA_160.2
			5/29/2008	15:30	BL	Turbidity		89	NTU	0.078	0.078	EPA_180.1
200802202	07311700					METALS-TUL-D:						
		5/23/2008	5/24/2008	10:30	JL	Dissolved Arsenic	U	BDL	mg/L	0.009	0.009	200.7/6010B
			5/24/2008		JL	Dissolved Barium		0.132	mg/L	0.0006	0.0006	200.7/6010B
			5/24/2008		JL	Dissolved Cadmium		0.139	mg/L	0.0009	0.0009	200.7/6010B
			5/24/2008		JL	Dissolved Chromium	U	BDL	mg/L	0.0009	0.0009	200.7/6010B
			5/24/2008		JL	Dissolved Copper		0.089	mg/L	0.0003	0.0003	200.7/6010B
			5/24/2008		JL	Dissolved Iron	U	BDL	mg/L	0.0008	0.0008	200.7/6010B
			5/24/2008		JL	Dissolved Lead		0.086	mg/L	0.009	0.009	200.7/6010B
			5/24/2008		JL	Dissolved Manganese	U	BDL	mg/L	0.0001	0.0001	200.7/6010B
			5/24/2008		JL	Dissolved Nickel	U	BDL	mg/L	0.0069	0.0069	200.7/6010B
			5/24/2008		JL	Dissolved Silver	U	BDL	mg/L	0.0003	0.0003	200.7/6010B

Laboratory Authorized Signature



## Environmental Laboratory and Consulting Company

Analytical Laboratory - Environmental Consulting - Permit Application and Compliance

# Certificate of Analysis

ODEQ ID # 9953

To: MR. TONY CLYDE

TULSA DISTRICT CORPS OF ENGINEERS  
1645 S 101st EAST AVE  
TULSA, OK 74128-4609

Project #: W912BV-07-P0189

Date Received: 5/23/2008

Project Name: RED RIVER WATER QUALITY

Report Date: 6/10/2008

Lab Number	Sample Identification	Date Sampled	Analysis Date	Time	Analized By	Parameter	Q	Results	Units	MDL	SQL	Method
200802202	07311700	5/23/2008	5/24/2008		JL	Dissolved Zinc		0.175	mg/L	0.0006	0.0006	200.7/6010B
200802202	07311700					METALS-TULSA:						
		5/23/2008	5/24/2008	13:35	JL	Arsenic, Total	U	BDL	mg/L	0.009	0.009	200.7/6010B
			5/24/2008		JL	Barium, Total		0.144	mg/L	0.0006	0.0006	200.7/6010B
			5/24/2008		JL	Cadmium, Total		0.132	mg/L	0.0009	0.0009	200.7/6010B
			5/24/2008		JL	Chromium, Total	U	BDL	mg/L	0.0009	0.0009	200.7/6010B
			5/24/2008		JL	Copper, Total		0.155	mg/L	0.0003	0.0003	200.7/6010B
			5/24/2008		JL	Iron, Total	U	BDL	mg/L	0.0008	0.0008	200.7/6010B
			5/24/2008		JL	Lead, Total		0.176	mg/L	0.009	0.009	200.7/6010B
			5/24/2008		JL	Manganese, Total	U	BDL	mg/L	0.0001	0.0001	200.7/6010B
			5/24/2008		JL	Nickel, Total	U	BDL	mg/L	0.0069	0.0069	200.7/6010B
			5/24/2008		JL	Silver, Total	U	BDL	mg/L	0.0003	0.0003	200.7/6010B
			5/24/2008		JL	Zinc, Total		0.182	mg/L	0.0006	0.0006	200.7/6010B
			6/4/2008	13:45	OP	Mercury, Dissolved	U	BDL	mg/l	0.0002	0.0002	EPA_245.1
			5/29/2008	14:30	OP	Mercury	U	BDL	mg/l	0.0002	0.0002	EPA_245.1
			6/4/2008	13:18	OL	Selenium, Dissolved	<	0.014	mg/l	0.0014	0.014	EPA_7440
			6/2/2008	16:33	OL	Selenium	<	0.014	mg/l	0.0014	0.014	EPA_7740
			5/24/2008	13:35	JL	Silicon Dioxide (silica)		2.08	mg/l	0.006	0.006	200.7/6010B
200802202	07311700					SALTS-TULSA:						
		5/23/2008	5/24/2008	15:30	JL	Calcium, Dissolved		930.7	mg/L	0.0039	0.0039	200.7/6010B
			5/24/2008		JL	Magnesium, Dissolved		239.3	mg/L	0.0006	0.0006	200.7/6010B
			5/24/2008		JL	Phosphorus, Total		0.74	mg/L	0.0096	0.0096	200.7/6010B
			5/24/2008		JL	Potassium, Dissolved		29.2	mg/L	0.0009	0.0009	200.7/6010B
			5/24/2008		JL	Sodium, Dissolved		4299	mg/L	0.0018	0.0018	200.7/6010B
			5/24/2008	15:30	JL	Total Hardness		3506	mg/l	0.06	0.06	200.7/6010B
			6/3/2008	10:30	BL	Total Alkalinity		58	mg/l	2	2	EPA_310.1
			6/2/2008	10:00	BL	Chloride		4700	mg/l	0.383	0.383	EPA 9253
			5/23/2008	9:45	B/J	Dissolved Oxygen		8.6	mg/l	0.1	0.1	EPA_360.1
			6/2/2008	15:00	OP	Fluoride		1.3	mg/L	0.04	0.04	EPA 340.1
			5/30/2008	14:00	OP	Nitrate/nitrite As Nitroge	U	BDL	mg/l	1.2	1.2	EPA 353.3

Laboratory Authorized Signature



## Environmental Laboratory and Consulting Company

Analytical Laboratory - Environmental Consulting - Permit Application and Compliance

# Certificate of Analysis

ODEQ ID # 9953

To: MR. TONY CLYDE

TULSA DISTRICT CORPS OF ENGINEERS  
1645 S 101st EAST AVE  
TULSA, OK 74128-4609

Project #: W912BV-07-P0189

Date Received: 5/23/2008

Project Name: RED RIVER WATER QUALITY

Report Date: 6/10/2008

Lab Number	Sample Identification	Date Sampled	Analysis Date	Time	By	Analysis Parameter	Q	Results	Units	MDL	SQL Method	
200802202	07311700	5/23/2008	5/23/2008	9:45	BJ	pH		8.3	s.u.		EPA_150.1	
			5/28/2008	8:30	OP	Sulfate		2650	mg/l	1.2	1.2 EPA_375.2	
			5/29/2008	10:00	B/M	Total Dissolved Solids		10926	mg/l	5.5	5.5 EPA_160.1	
			6/2/2008	9:45	OP	Total Kjeldahl Nitrogen	J	0.62	mg/l	0.4	0.4 EPA_351.3M	
			5/27/2008	13:00	B/M	Total Suspended Solids		17.3	mg/l	1.7	1.7 EPA_160.2	
			5/29/2008	15:30	BL	Turbidity		20.7	NTU	0.078	0.078 EPA_180.1	
200802203	07311630	5/23/2008	METALS-TUL-D:									
			5/24/2008	10:30	JL	Dissolved Arsenic	U	BDL	mg/L	0.009	0.009	200.7/6010B
			5/24/2008		JL	Dissolved Barium	U	BDL	mg/L	0.0006	0.0006	200.7/6010B
			5/24/2008		JL	Dissolved Cadmium		0.091	mg/L	0.0009	0.0009	200.7/6010B
			5/24/2008		JL	Dissolved Chromium	U	BDL	mg/L	0.0009	0.0009	200.7/6010B
			5/24/2008		JL	Dissolved Copper		0.09	mg/L	0.0003	0.0003	200.7/6010B
			5/24/2008		JL	Dissolved Iron	U	BDL	mg/L	0.0008	0.0008	200.7/6010B
			5/24/2008		JL	Dissolved Lead		0.133	mg/L	0.009	0.009	200.7/6010B
			5/24/2008		JL	Dissolved Manganese	U	BDL	mg/L	0.0001	0.0001	200.7/6010B
			5/24/2008		JL	Dissolved Nickel	U	BDL	mg/L	0.0069	0.0069	200.7/6010B
			5/24/2008		JL	Dissolved Silver	U	BDL	mg/L	0.0003	0.0003	200.7/6010B
5/24/2008		JL	Dissolved Zinc		0.096	mg/L	0.0006	0.0006	200.7/6010B			
200802203	07311630	5/23/2008	METALS-TULSA:									
			5/24/2008	13:35	JL	Arsenic, Total	U	BDL	mg/L	0.009	0.009	200.7/6010B
			5/24/2008		JL	Barium, Total	U	BDL	mg/L	0.0006	0.0006	200.7/6010B
			5/24/2008		JL	Cadmium, Total		0.075	mg/L	0.0009	0.0009	200.7/6010B
			5/24/2008		JL	Chromium, Total	U	BDL	mg/L	0.0009	0.0009	200.7/6010B
			5/24/2008		JL	Copper, Total		0.129	mg/L	0.0003	0.0003	200.7/6010B
			5/24/2008		JL	Iron, Total	U	BDL	mg/L	0.0008	0.0008	200.7/6010B
			5/24/2008		JL	Lead, Total		0.105	mg/L	0.009	0.009	200.7/6010B
			5/24/2008		JL	Manganese, Total	U	BDL	mg/L	0.0001	0.0001	200.7/6010B
			5/24/2008		JL	Nickel, Total	U	BDL	mg/L	0.0069	0.0069	200.7/6010B
5/24/2008		JL	Silver, Total	U	BDL	mg/L	0.0003	0.0003	200.7/6010B			

Laboratory Authorized Signature



## Environmental Laboratory and Consulting Company

Analytical Laboratory - Environmental Consulting - Permit Application and Compliance

# Certificate of Analysis

ODEQ ID # 9953

To: MR. TONY CLYDE

TULSA DISTRICT CORPS OF ENGINEERS  
1645 S 101st EAST AVE  
TULSA, OK 74128-4609

Project #: W912BV-07-P0189

Date Received: 5/23/2008

Project Name: RED RIVER WATER QUALITY

Report Date: 6/10/2008

Lab Number	Sample Identification	Date Sampled	Analysis Date	Time	By	Parameter	Q	Results	Units	MDL	SQL Method
200802203	07311630	5/23/2008	5/24/2008		JL	Zinc, Total		0.067	mg/L	0.0006	0.0006 200.7/6010B
			6/4/2008	13:45	OP	Mercury, Dissolved	U	BDL	mg/l	0.0002	0.0002 EPA_245.1
			5/29/2008	14:30	OP	Mercury	U	BDL	mg/l	0.0002	0.0002 EPA_245.1
			6/4/2008	13:21	OL	Selenium, Dissolved	<	0.007	mg/l	0.0014	0.007 EPA_7440
			6/2/2008	16:36	OL	Selenium	<	0.007	mg/l	0.0014	0.007 EPA_7740
			5/24/2008	13:35	JL	Silicon Dioxide (silica)		9.09	mg/l	0.006	0.006 200.7/6010B
200802203	07311630	5/23/2008	SALTS-TULSA:								
			5/24/2008	15:30	JL	Calcium, Dissolved		1000	mg/L	0.0039	0.0039 200.7/6010B
			5/24/2008		JL	Magnesium, Dissolved		193.7	mg/L	0.0006	0.0006 200.7/6010B
			5/24/2008		JL	Phosphorus, Total		0.64	mg/L	0.0096	0.0096 200.7/6010B
			5/24/2008		JL	Potassium, Dissolved		26.1	mg/L	0.0009	0.0009 200.7/6010B
			5/24/2008		JL	Sodium, Dissolved		3008	mg/L	0.0018	0.0018 200.7/6010B
			5/24/2008	15:30	JL	Total Hardness		3374	mg/l	0.06	0.06 200.7/6010B
			6/3/2008	10:30	BL	Total Alkalinity		134	mg/l	2	2 EPA_310.1
			6/2/2008	10:00	BL	Chloride		3350	mg/l	0.383	0.383 EPA 9253
			5/23/2008	10:35	B/J	Dissolved Oxygen		10.38	mg/l	0.1	0.1 EPA_360.1
			6/2/2008	15:00	OP	Fluoride		1.53	mg/L	0.04	0.04 EPA 340.1
			5/30/2008	14:00	OP	Nitrate/nitrite As Nitroge	U	BDL	mg/l	1.2	1.2 EPA 353.3
			5/23/2008	10:35	B/J	pH		8.2	s.u.		EPA_150.1
			5/28/2008	8:30	OP	Sulfate		2950	mg/l	1.2	1.2 EPA_375.2
			5/29/2008	14:00	B/M	Total Dissolved Solids		9892	mg/l	5.5	5.5 EPA_160.1
			6/2/2008	9:45	OP	Total Kjeldahl Nitrogen	U	BDL	mg/l	0.4	0.4 EPA_351.3M
5/27/2008	13:00	B/M	Total Suspended Solids	J	3.3	mg/l	1.7	1.7 EPA_160.2			
5/29/2008	15:30	BL	Turbidity		7.4	NTU	0.078	0.078 EPA_180.1			
200802204	07311600	5/23/2008	METALS-TUL-D:								
			5/24/2008	10:30	JL	Dissolved Arsenic	U	BDL	mg/L	0.009	0.009 200.7/6010B
			5/24/2008		JL	Dissolved Barium	U	BDL	mg/L	0.0006	0.0006 200.7/6010B
			5/24/2008		JL	Dissolved Cadmium		0.178	mg/L	0.0009	0.0009 200.7/6010B
5/24/2008		JL	Dissolved Chromium	U	BDL	mg/L	0.0009	0.0009 200.7/6010B			

Laboratory Authorized Signature



Environmental Laboratory and Consulting Company

Analytical Laboratory - Environmental Consulting - Permit Application and Compliance

Certificate of Analysis

ODEQ ID # 9953

To: MR. TONY CLYDE

TULSA DISTRICT CORPS OF ENGINEERS
1645 S 101st EAST AVE
TULSA, OK 74128-4609

Project #: W912BV-07-P0189

Date Received: 5/23/2008

Project Name: RED RIVER WATER QUALITY

Report Date: 6/10/2008

Table with columns: Lab Number, Sample Identification, Date Sampled, Analysis Date, Analyzed Time, By, Parameter, Q Results, Units, MDL, SQL Method. Contains data for various chemical analyses including Dissolved Copper, Iron, Lead, Manganese, Nickel, Silver, Zinc, and METALS-TULSA (Arsenic, Barium, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Nickel, Silver, Zinc) and SALTS-TULSA (Calcium, Magnesium, Phosphorus, Potassium, Sodium).

Laboratory Authorized Signature



## Environmental Laboratory and Consulting Company

Analytical Laboratory - Environmental Consulting - Permit Application and Compliance

# Certificate of Analysis

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Project #: W912BV-07-P0189

Date Received: 5/23/2008

Project Name: RED RIVER WATER QUALITY

Report Date: 6/10/2008

Lab Number	Sample Identification	Date Sampled	Analysis Date	Analyzed		Parameter	Q	Results	Units	MDL	SQL Method	
				Time	By							
200802204	07311600	5/23/2008	5/24/2008	15:30	JL	Total Hardness		3508	mg/l	0.06	0.06	200.7/6010B
			6/3/2008	10:30	BL	Total Alkalinity		86	mg/l	2	2	EPA_310.1
			6/2/2008	10:00	BL	Chloride		7700	mg/l	0.383	0.383	EPA 9253
			5/23/2008	11:47	B/J	Dissolved Oxygen		8.6	mg/l	0.1	0.1	EPA_360.1
			6/2/2008	15:00	OP	Fluoride		1.62	mg/L	0.04	0.04	EPA 340.1
			5/30/2008	14:00	OP	Nitrate/nitrite As Nitroge	U	BDL	mg/l	1.2	1.2	EPA 353.3
			5/23/2008	11:47	B/J	pH		8.1	s.u.			EPA_150.1
			5/28/2008	8:30	OP	Sulfate		3150	mg/l	1.2	1.2	EPA_375.2
			5/29/2008	14:00	B/M	Total Dissolved Solids		16488	mg/l	5.5	5.5	EPA_160.1
			6/2/2008	9:45	OP	Total Kjeldahl Nitrogen	J	0.62	mg/l	0.4	0.4	EPA_351.3M
			5/27/2008	14:55	B/M	Total Suspended Solids		11.3	mg/l	1.7	1.7	EPA_160.2
			5/29/2008	15:30	BL	Turbidity		8.3	NTU	0.078	0.078	EPA_180.1
			200802205	07311782	5/23/2008	METALS-TUL-D:						
5/24/2008	10:30	JL				Dissolved Arsenic	U	BDL	mg/L	0.009	0.009	200.7/6010B
5/24/2008		JL				Dissolved Barium	U	BDL	mg/L	0.0006	0.0006	200.7/6010B
5/24/2008		JL				Dissolved Cadmium		0.21	mg/L	0.0009	0.0009	200.7/6010B
5/24/2008		JL				Dissolved Chromium	U	BDL	mg/L	0.0009	0.0009	200.7/6010B
5/24/2008		JL				Dissolved Copper		0.06	mg/L	0.0003	0.0003	200.7/6010B
5/24/2008		JL				Dissolved Iron	U	BDL	mg/L	0.0008	0.0008	200.7/6010B
5/24/2008		JL				Dissolved Lead		0.393	mg/L	0.009	0.009	200.7/6010B
5/24/2008		JL				Dissolved Manganese		0.09	mg/L	0.0001	0.0001	200.7/6010B
5/24/2008		JL				Dissolved Nickel	U	BDL	mg/L	0.0069	0.0069	200.7/6010B
5/24/2008		JL				Dissolved Silver	U	BDL	mg/L	0.0003	0.0003	200.7/6010B
5/24/2008		JL				Dissolved Zinc		0.83	mg/L	0.0006	0.0006	200.7/6010B
200802205	07311782	5/23/2008				METALS-TULSA:						
			5/24/2008	13:35	JL	Arsenic, Total	U	BDL	mg/L	0.009	0.009	200.7/6010B
			5/24/2008		JL	Barium, Total	U	BDL	mg/L	0.0006	0.0006	200.7/6010B
			5/24/2008		JL	Cadmium, Total		0.275	mg/L	0.0009	0.0009	200.7/6010B
5/24/2008		JL	Chromium, Total	U	BDL	mg/L	0.0009	0.0009	200.7/6010B			

Laboratory Authorized Signature



## Environmental Laboratory and Consulting Company

Analytical Laboratory - Environmental Consulting - Permit Application and Compliance

# Certificate of Analysis

ODEQ ID # 9953

To: MR. TONY CLYDE

TULSA DISTRICT CORPS OF ENGINEERS  
1645 S 101st EAST AVE  
TULSA, OK 74128-4609

Project #: W912BV-07-P0189

Date Received: 5/23/2008

Project Name: RED RIVER WATER QUALITY

Report Date: 6/10/2008

Lab Number	Sample Identification	Date Sampled	Analysis Date	Time	Analized By	Parameter	Q	Results	Units	MDL	SQL Method				
200802205	07311782	5/23/2008	5/24/2008		JL	Copper, Total		0.169	mg/L	0.0003	0.0003	200.7/6010B			
			5/24/2008		JL	Iron, Total	U	BDL	mg/L	0.0008	0.0008	200.7/6010B			
			5/24/2008		JL	Lead, Total		0.364	mg/L	0.009	0.009	200.7/6010B			
			5/24/2008		JL	Manganese, Total		0.097	mg/L	0.0001	0.0001	200.7/6010B			
			5/24/2008		JL	Nickel, Total	U	BDL	mg/L	0.0069	0.0069	200.7/6010B			
			5/24/2008		JL	Silver, Total	U	BDL	mg/L	0.0003	0.0003	200.7/6010B			
			5/24/2008		JL	Zinc, Total		1.291	mg/L	0.0006	0.0006	200.7/6010B			
			6/4/2008	13:45	OP			Mercury, Dissolved	U	BDL	mg/l	0.0002	0.0002	EPA_245.1	
			5/29/2008	14:30	OP			Mercury	U	BDL	mg/l	0.0002	0.0002	EPA_245.1	
			6/4/2008	13:28	OL			Selenium, Dissolved	<	0.028	mg/l	0.0014	0.028	EPA_7440	
			6/2/2008	16:43	OL			Selenium	<	0.014	mg/l	0.0014	0.014	EPA_7740	
			5/24/2008	13:35	JL			Silicon Dioxide (silica)		1.02	mg/l	0.006	0.006	200.7/6010B	
			200802205	07311782	5/23/2008	SALTS-TULSA:									
						5/24/2008	15:30	JL	Calcium, Dissolved		1467	mg/L	0.0039	0.0039	200.7/6010B
5/24/2008		JL				Magnesium, Dissolved		433	mg/L	0.0006	0.0006	200.7/6010B			
5/24/2008		JL				Phosphorus, Total		0.81	mg/L	0.0096	0.0096	200.7/6010B			
5/24/2008		JL				Potassium, Dissolved		164.5	mg/L	0.0009	0.0009	200.7/6010B			
5/24/2008		JL				Sodium, Dissolved		24850	mg/L	0.0018	0.0018	200.7/6010B			
5/24/2008	15:30	JL				Total Hardness		5834	mg/l	0.06	0.06	200.7/6010B			
6/3/2008	10:30	BL				Total Alkalinity		96	mg/l	2	2	EPA_310.1			
6/2/2008	10:00	BL				Chloride		14500	mg/l	0.383	0.383	EPA 9253			
5/23/2008	12:50	B/J				Dissolved Oxygen		9.4	mg/l	0.1	0.1	EPA_360.1			
6/2/2008	15:00	OP				Fluoride		1.81	mg/L	0.04	0.04	EPA 340.1			
5/30/2008	14:00	OP				Nitrate/nitrite As Nitroge	U	BDL	mg/l	1.2	1.2	EPA 353.3			
5/23/2008	12:50	B/J				pH		7.9	s.u.			EPA_150.1			
5/28/2008	8:30	OP				Sulfate		3700	mg/l	1.2	1.2	EPA_375.2			
5/29/2008	14:00	B/M				Total Dissolved Solids		40438	mg/l	5.5	5.5	EPA_160.1			
6/2/2008	9:45	OP				Total Kjeldahl Nitrogen	J	1.12	mg/l	0.4	0.4	EPA_351.3M			
5/27/2008	14:55	B/M				Total Suspended Solids	J	3.6	mg/l	1.7	1.7	EPA_160.2			
5/29/2008	15:30	BL	Turbidity		6	NTU	0.078	0.078	EPA_180.1						

Laboratory Authorized Signature



Environmental Laboratory and Consulting Company

Analytical Laboratory - Environmental Consulting - Permit Application and Compliance

Certificate of Analysis

ODEQ ID # 9953

To: MR. TONY CLYDE

TULSA DISTRICT CORPS OF ENGINEERS
1645 S 101st EAST AVE
TULSA, OK 74128-4609

Project #: W912BV-07-P0189

Date Received: 5/23/2008

Project Name: RED RIVER WATER QUALITY

Report Date: 6/10/2008

Table with columns: Lab Number, Sample Identification, Date Sampled, Analysis Date, Analyzed Time, Analyzed By, Parameter, Q, Results, Units, MDL, SQL Method. Contains two main sections: METALS-TUL-D and METALS-TULSA.

Laboratory Authorized Signature



## Environmental Laboratory and Consulting Company

Analytical Laboratory - Environmental Consulting - Permit Application and Compliance

# Certificate of Analysis

ODEQ ID # 9953

To: MR. TONY CLYDE

TULSA DISTRICT CORPS OF ENGINEERS  
1645 S 101st EAST AVE  
TULSA, OK 74128-4609

Project #: W912BV-07-P0189

Date Received: 5/23/2008

Project Name: RED RIVER WATER QUALITY

Report Date: 6/10/2008

Lab Number	Sample Identification	Date Sampled	Analysis Date	Time	Analized By	Parameter	Q	Results	Units	MDL	SQL	Method
200802206	07311783					SALTS-TULSA:						
		5/23/2008	5/24/2008	15:30	JL	Calcium, Dissolved		1460	mg/L	0.0039	0.0039	200.7/6010B
			5/24/2008		JL	Magnesium, Dissolved		430.9	mg/L	0.0006	0.0006	200.7/6010B
			5/24/2008		JL	Phosphorus, Total		1.16	mg/L	0.0096	0.0096	200.7/6010B
			5/24/2008		JL	Potassium, Dissolved		128	mg/L	0.0009	0.0009	200.7/6010B
			5/24/2008		JL	Sodium, Dissolved		18600	mg/L	0.0018	0.0018	200.7/6010B
			5/24/2008	15:30	JL	Total Hardness		6564	mg/l	0.06	0.06	200.7/6010B
			6/3/2008	10:30	BL	Total Alkalinity		138	mg/l	2	2	EPA_310.1
			6/2/2008	10:00	BL	Chloride		15500	mg/l	0.383	0.383	EPA 9253
			5/23/2008	12:53	B/J	Dissolved Oxygen		9.4	mg/l	0.1	0.1	EPA_360.1
			6/2/2008	15:00	OP	Fluoride		1.77	mg/L	0.04	0.04	EPA 340.1
			5/30/2008	14:00	OP	Nitrate/nitrite As Nitroge	U	BDL	mg/l	1.2	1.2	EPA 353.3
			5/23/2008	12:53	B/J	pH		7.8	s.u.			EPA_150.1
			5/28/2008	8:30	OP	Sulfate		3900	mg/l	1.2	1.2	EPA_375.2
			5/29/2008	14:00	B/M	Total Dissolved Solids		36542	mg/l	5.5	5.5	EPA_160.1
			6/2/2008	9:45	OP	Total Kjeldahl Nitrogen	J	1.12	mg/l	0.4	0.4	EPA_351.3M
			5/27/2008	14:55	B/M	Total Suspended Solids		29.4	mg/l	1.7	1.7	EPA_160.2
			5/29/2008	16:00	BL	Turbidity		22	NTU	0.078	0.078	EPA_180.1
200802207	07308500					METALS-TUL-D:						
		5/23/2008	5/24/2008	10:30	JL	Dissolved Arsenic	U	BDL	mg/L	0.009	0.009	200.7/6010B
			5/24/2008		JL	Dissolved Barium		0.156	mg/L	0.0006	0.0006	200.7/6010B
			5/24/2008		JL	Dissolved Cadmium		0.028	mg/L	0.0009	0.0009	200.7/6010B
			5/24/2008		JL	Dissolved Chromium	U	BDL	mg/L	0.0009	0.0009	200.7/6010B
			5/24/2008		JL	Dissolved Copper		0.075	mg/L	0.0003	0.0003	200.7/6010B
			5/24/2008		JL	Dissolved Iron		0.115	mg/L	0.0008	0.0008	200.7/6010B
			5/24/2008		JL	Dissolved Lead		0.06	mg/L	0.009	0.009	200.7/6010B
			5/24/2008		JL	Dissolved Manganese		0.051	mg/L	0.0001	0.0001	200.7/6010B
			5/24/2008		JL	Dissolved Nickel	U	BDL	mg/L	0.0069	0.0069	200.7/6010B
			5/24/2008		JL	Dissolved Silver	U	BDL	mg/L	0.0003	0.0003	200.7/6010B
			5/24/2008		JL	Dissolved Zinc		0.148	mg/L	0.0006	0.0006	200.7/6010B

Laboratory Authorized Signature



## Environmental Laboratory and Consulting Company

Analytical Laboratory - Environmental Consulting - Permit Application and Compliance

# Certificate of Analysis

ODEQ ID # 9953

To: MR. TONY CLYDE

TULSA DISTRICT CORPS OF ENGINEERS  
1645 S 101st EAST AVE  
TULSA, OK 74128-4609

Project #: W912BV-07-P0189  
Project Name: RED RIVER WATER QUALITY

Date Received: 5/23/2008  
Report Date: 6/10/2008

Lab Number	Sample Identification	Date Sampled	Analysis Date	Time	Analized By	Parameter	Q	Results	Units	MDL	SQL Method
200802207	07308500					METALS-TULSA:					
		5/23/2008	5/24/2008	13:35	JL	Arsenic, Total		0.027	mg/L	0.009	0.009 200.7/6010B
			5/24/2008		JL	Barium, Total		0.162	mg/L	0.0006	0.0006 200.7/6010B
			5/24/2008		JL	Cadmium, Total		0.033	mg/L	0.0009	0.0009 200.7/6010B
			5/24/2008		JL	Chromium, Total	U	BDL	mg/L	0.0009	0.0009 200.7/6010B
			5/24/2008		JL	Copper, Total		0.123	mg/L	0.0003	0.0003 200.7/6010B
			5/24/2008		JL	Iron, Total		0.194	mg/L	0.0008	0.0008 200.7/6010B
			5/24/2008		JL	Lead, Total		0.053	mg/L	0.009	0.009 200.7/6010B
			5/24/2008		JL	Manganese, Total		0.053	mg/L	0.0001	0.0001 200.7/6010B
			5/24/2008		JL	Nickel, Total	U	BDL	mg/L	0.0069	0.0069 200.7/6010B
			5/24/2008		JL	Silver, Total	U	BDL	mg/L	0.0003	0.0003 200.7/6010B
			5/24/2008		JL	Zinc, Total		0.173	mg/L	0.0006	0.0006 200.7/6010B
		6/4/2008		13:45	OP	Mercury, Dissolved	U	BDL	mg/l	0.0002	0.0002 EPA_245.1
		5/29/2008		14:30	OP	Mercury	U	BDL	mg/l	0.0002	0.0002 EPA_245.1
		6/4/2008		13:34	OL	Selenium, Dissolved	<	0.007	mg/l	0.0014	0.007 EPA_7440
		6/2/2008		16:49	OL	Selenium	<	0.007	mg/l	0.0014	0.007 EPA_7740
		5/24/2008		13:35	JL	Silicon Dioxide (silica)		6.19	mg/l	0.006	0.006 200.7/6010B
200802207	07308500					SALTS-TULSA:					
		5/23/2008	5/24/2008	15:30	JL	Calcium, Dissolved		386.2	mg/L	0.0039	0.0039 200.7/6010B
			5/24/2008		JL	Magnesium, Dissolved		126.7	mg/L	0.0006	0.0006 200.7/6010B
			5/24/2008		JL	Phosphorus, Total		0.24	mg/L	0.0096	0.0096 200.7/6010B
			5/24/2008		JL	Potassium, Dissolved		33.4	mg/L	0.0009	0.0009 200.7/6010B
			5/24/2008		JL	Sodium, Dissolved		2994	mg/L	0.0018	0.0018 200.7/6010B
			5/24/2008	15:30	JL	Total Hardness		1746	mg/l	0.06	0.06 200.7/6010B
		6/3/2008		10:30	BL	Total Alkalinity		136	mg/l	2	2 EPA_310.1
		6/2/2008		12:00	BL	Chloride		2350	mg/l	0.383	0.383 EPA 9253
		5/23/2008		15:35	B/J	Dissolved Oxygen		8.4	mg/l	0.1	0.1 EPA_360.1
		6/2/2008		15:00	OP	Fluoride	J	1.08	mg/L	0.04	0.04 EPA 340.1
		5/30/2008		14:00	OP	Nitrate/nitrite As Nitroge	U	BDL	mg/l	1.2	1.2 EPA 353.3
		5/23/2008		15:35	B/J	pH		8.5	s.u.		EPA_150.1

Laboratory Authorized Signature



## Environmental Laboratory and Consulting Company

Analytical Laboratory - Environmental Consulting - Permit Application and Compliance

# Certificate of Analysis

ODEQ ID # 9953

To: MR. TONY CLYDE

TULSA DISTRICT CORPS OF ENGINEERS  
1645 S 101st EAST AVE  
TULSA, OK 74128-4609

Project #: W912BV-07-P0189

Date Received: 5/23/2008

Project Name: RED RIVER WATER QUALITY

Report Date: 6/10/2008

Lab Number	Sample Identification	Date Sampled	Analysis Date	Time	By	Parameter	Q	Results	Units	MDL	SQL Method	
200802207	07308500	5/23/2008	5/28/2008	8:30	OP	Sulfate		1450	mg/l	1.2	1.2 EPA_375.2	
			5/29/2008	14:00	B/M	Total Dissolved Solids		6192	mg/l	5.5	5.5 EPA_160.1	
			6/2/2008	9:45	OP	Total Kjeldahl Nitrogen	J	0.62	mg/l	0.4	0.4 EPA_351.3M	
			5/27/2008	14:55	B/M	Total Suspended Solids		37	mg/l	1.7	1.7 EPA_160.2	
			5/29/2008	16:00	BL	Turbidity		33	NTU	0.078	0.078 EPA_180.1	
200802208	07331600 DUPLICATE	5/22/2008	METALS-TUL-D:									
			5/24/2008	10:30	JL	Dissolved Arsenic		0.043	mg/L	0.009	0.009	200.7/6010B
			5/24/2008		JL	Dissolved Barium		0.181	mg/L	0.0006	0.0006	200.7/6010B
			5/24/2008		JL	Dissolved Cadmium	U	BDL	mg/L	0.0009	0.0009	200.7/6010B
			5/24/2008		JL	Dissolved Chromium	U	BDL	mg/L	0.0009	0.0009	200.7/6010B
			5/24/2008		JL	Dissolved Copper		0.064	mg/L	0.0003	0.0003	200.7/6010B
			5/24/2008		JL	Dissolved Iron		0.087	mg/L	0.0008	0.0008	200.7/6010B
			5/24/2008		JL	Dissolved Lead		0.016	mg/L	0.009	0.009	200.7/6010B
			5/24/2008		JL	Dissolved Manganese		0.033	mg/L	0.0001	0.0001	200.7/6010B
			5/24/2008		JL	Dissolved Nickel		0.009	mg/L	0.0069	0.0069	200.7/6010B
			5/24/2008		JL	Dissolved Silver	U	BDL	mg/L	0.0003	0.0003	200.7/6010B
5/24/2008		JL	Dissolved Zinc		0.006	mg/L	0.0006	0.0006	200.7/6010B			
200802208	07331600 DUPLICATE	5/22/2008	METALS-TULSA:									
			5/24/2008	13:35	JL	Arsenic, Total		0.033	mg/L	0.009	0.009	200.7/6010B
			5/24/2008		JL	Barium, Total		0.148	mg/L	0.0006	0.0006	200.7/6010B
			5/24/2008		JL	Cadmium, Total	U	BDL	mg/L	0.0009	0.0009	200.7/6010B
			5/24/2008		JL	Chromium, Total	U	BDL	mg/L	0.0009	0.0009	200.7/6010B
			5/24/2008		JL	Copper, Total		0.079	mg/L	0.0003	0.0003	200.7/6010B
			5/24/2008		JL	Iron, Total		0.081	mg/L	0.0008	0.0008	200.7/6010B
			5/24/2008		JL	Lead, Total		0.022	mg/L	0.009	0.009	200.7/6010B
			5/24/2008		JL	Manganese, Total		0.029	mg/L	0.0001	0.0001	200.7/6010B
5/24/2008		JL	Nickel, Total		0.007	mg/L	0.0069	0.0069	200.7/6010B			

Laboratory Authorized Signature



Environmental Laboratory and Consulting Company

Analytical Laboratory - Environmental Consulting - Permit Application and Compliance

Certificate of Analysis

ODEQ ID # 9953

To: MR. TONY CLYDE

TULSA DISTRICT CORPS OF ENGINEERS
1645 S 101st EAST AVE
TULSA, OK 74128-4609

Project #: W912BV-07-P0189
Project Name: RED RIVER WATER QUALITY

Date Received: 5/23/2008
Report Date: 6/10/2008

Table with columns: Lab Number, Sample Identification, Date Sampled, Analysis Date, Analyzed Time, By, Parameter, Q Results, Units, MDL, SQL Method. Contains data for sample 07331600 DUPLICATE and 07331600 DUPLICATE under SALTS-TULSA.

Laboratory Authorized Signature



**Environmental Laboratory and Consulting Company**

Analytical Laboratory - Environmental Consulting - Permit Application and Compliance

**Certificate of Analysis**

**ODEQ ID # 9953**

To: MR. TONY CLYDE

TULSA DISTRICT CORPS OF ENGINEERS  
1645 S 101st EAST AVE  
TULSA, OK 74128-4609

Project #: W912BV-07-P0189

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Project Name: RED RIVER WATER QUALITY

Report Date: 6/10/2008

Lab Number	Sample Identification	Date Sampled	Analysis Date	Time	By	Parameter	Q	Results	Units	MDL	SQL Method
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Note:

- 200802200: Change in detection limit in selenium is based on dilution factor.
- 200802201: Change in detection limit in selenium is based on dilution factor.
- 200802202: Change in detection limit in selenium is based on dilution factor.
- 200802203: Change in detection limit in selenium is based on dilution factor.
- 200802204: Change in detection limit in selenium is based on dilution factor.
- 200802205: Change in detection limit in selenium is based on dilution factor.
- 200802206: Change in detection limit in selenium is based on dilution factor.
- 200802207: Change in detection limit in selenium is based on dilution factor.

- MDL = Method Detection Limit. SQL\* = Sample Quantitation Level.
- B = Analyte was detected in both the sample and associated blank.
- OL2 = Subcontracted to ODEQ Lab #7211.

- BDL = Analyte was analyzed for but not detected above MDL.
- J = Analyte was detected above the MDL but below the PQL.
- Q = Surrogate recovery fell outside acceptance limits.

\* When a sample contains a high concentration of either a target or non-target compound(s) or interference, it must be diluted. SQL = Dilution factor x MDL. Samples are disposed of 20 days after the sample is reported.

Laboratory Authorized Signature