



## 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: 11/2/2007

Project Name: RED RIVER & WICHITA WATER QUAL

Report Date: 11/19/2007

Lab Number	Sample Identification	Date Sampled	Analysis Date	Time	Analized By	Parameter	Q	Results	Units	MDL	SQL	Method
200704601	GAGE NUMBER: 07331000					METALS-TULSA:						
		11/1/2007	11/8/2007	10:30	JL	Arsenic, Dissolved	U	BDL	mg/L	0.009	0.00900	200.7/6010B
			11/8/2007	10:30	JL	Arsenic, Total	U	BDL	mg/L	0.009	0.00900	200.7/6010B
			11/8/2007	10:30	JL	Barium, Dissolved		0.200	mg/L	0.0006	0.000600	200.7/6010B
			11/8/2007	10:30	JL	Barium, Total		0.250	mg/L	0.0006	0.000600	200.7/6010B
			11/8/2007	10:30	JL	Cadmium, Dissolved	U	BDL	mg/L	0.0009	0.000900	200.7/6010B
			11/8/2007	10:30	JL	Cadmium, Total	U	BDL	mg/L	0.0009	0.000900	200.7/6010B
			11/8/2007	10:30	JL	Chromium, Dissolved	U	BDL	mg/L	0.0009	0.000900	200.7/6010B
			11/8/2007	10:30	JL	Chromium, Total	U	BDL	mg/L	0.0009	0.000900	200.7/6010B
			11/8/2007	10:30	JL	Copper, Dissolved		0.00900	mg/L	0.0003	0.000300	200.7/6010B
			11/8/2007	10:30	JL	Copper, Total		0.0400	mg/L	0.0003	0.000300	200.7/6010B
			11/8/2007	10:30	JL	Iron, Dissolved		0.320	mg/L	0.0008	0.000800	200.7/6010B
			11/8/2007	10:30	JL	Iron, Total		1.71	mg/L	0.0008	0.000800	200.7/6010B
			11/8/2007	10:30	JL	Lead, Dissolved	U	BDL	mg/L	0.009	0.00900	200.7/6010B
			11/8/2007	10:30	JL	Lead, Total	U	BDL	mg/L	0.009	0.00900	200.7/6010B
			11/8/2007	10:30	JL	Manganese, Dissolved		0.0800	mg/L	0.0001	0.000100	200.7/6010B
			11/8/2007	10:30	JL	Manganese, Total		0.440	mg/L	0.0001	0.000100	200.7/6010B
			11/8/2007	10:30	JL	Nickel, Dissolved	U	BDL	mg/L	0.0069	0.00690	200.7/6010B
			11/8/2007	10:30	JL	Nickel, Total	U	BDL	mg/L	0.0069	0.00690	200.7/6010B
			11/8/2007	10:30	JL	Silver, Dissolved	U	BDL	mg/L	0.0003	0.000300	200.7/6010B
			11/8/2007	10:30	JL	Silver, Total		0.230	mg/L	0.0003	0.000300	200.7/6010B
			11/8/2007	10:30	JL	Zinc, Dissolved	U	BDL	mg/L	0.0006	0.000600	200.7/6010B
			11/8/2007	10:30	JL	Zinc, Total	U	BDL	mg/L	0.0006	0.000600	200.7/6010B
			11/14/2007	16:30	JL	Mercury, Dissolved	U	BDL	mg/l	0.0002	0.0002	EPA_245.1
			11/14/2007	10:40	J/K	Mercury	U	BDL	mg/l	0.0002	0.0002	EPA_245.1
			11/12/2007	19:56	OL	Selenium, Dissolved	U	BDL	mg/l	0.0014	0.00140	EPA_7440
			11/8/2007	20:20	OL	Selenium	U	BDL	mg/l	0.0014	0.00140	EPA_7740
			11/8/2007	10:30	JL	Silicon Dioxide (silica)		21.9	mg/l	0.006	0.006	200.7/6010B

Laboratory Authorized Signature



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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: 11/2/2007

Project Name: RED RIVER & WICHITA WATER QUAL

Report Date: 11/19/2007

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: SALTS-TULSA and METALS-TULSA.

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Lab Number	Sample Identification	Date Sampled	Analysis Date	Time	Analized By	Parameter	Q	Results	Units	MDL	SQL	Method
200704602	GAGE NUMBER: 07331600	11/1/2007	11/8/2007	10:30	JL	Copper, Total		0.0300	mg/L	0.0003	0.000300	200.7/6010B
			11/8/2007	10:30	JL	Iron, Dissolved	U	BDL	mg/L	0.0008	0.000800	200.7/6010B
			11/8/2007	10:30	JL	Iron, Total	U	BDL	mg/L	0.0008	0.000800	200.7/6010B
			11/8/2007	10:30	JL	Lead, Dissolved	U	BDL	mg/L	0.009	0.00900	200.7/6010B
			11/8/2007	10:30	JL	Lead, Total	U	BDL	mg/L	0.009	0.00900	200.7/6010B
			11/8/2007	10:30	JL	Manganese, Dissolved	U	BDL	mg/L	0.0001	0.000100	200.7/6010B
			11/8/2007	10:30	JL	Manganese, Total	U	BDL	mg/L	0.0001	0.000100	200.7/6010B
			11/8/2007	10:30	JL	Nickel, Dissolved	U	BDL	mg/L	0.0069	0.00690	200.7/6010B
			11/8/2007	10:30	JL	Nickel, Total	U	BDL	mg/L	0.0069	0.00690	200.7/6010B
			11/8/2007	10:30	JL	Silver, Dissolved	U	BDL	mg/L	0.0003	0.000300	200.7/6010B
			11/8/2007	10:30	JL	Silver, Total	U	BDL	mg/L	0.0003	0.000300	200.7/6010B
			11/8/2007	10:30	JL	Zinc, Dissolved	U	BDL	mg/L	0.0006	0.000600	200.7/6010B
			11/8/2007	10:30	JL	Zinc, Total	U	BDL	mg/L	0.0006	0.000600	200.7/6010B
			11/14/2007	16:30	JL	Mercury, Dissolved	U	BDL	mg/l	0.0002	0.0002	EPA_245.1
			11/14/2007	10:40	J/K	Mercury	U	BDL	mg/l	0.0002	0.0002	EPA_245.1
			11/12/2007	19:59	OL	Selenium, Dissolved	U	BDL	mg/l	0.0014	0.00140	EPA_7440
			11/8/2007	20:23	OL	Selenium	U	BDL	mg/l	0.0014	0.00140	EPA_7740
11/8/2007	10:30	JL	Silicon Dioxide (silica)			8.2	mg/l	0.006	0.006	200.7/6010B		
200704602	GAGE NUMBER: 07331600	11/1/2007	SALTS-TULSA:									
			11/8/2007	14:20	JL	Calcium, Dissolved		101	mg/L	0.0039	0.00390	200.7/6010B
			11/8/2007	14:20	JL	Magnesium, Dissolved		27.3	mg/L	0.0006	0.000600	200.7/6010B
			11/8/2007	14:20	JL	Phosphorus, Total		0.610	mg/L	0.0096	0.00960	200.7/6010B
			11/8/2007	14:20	JL	Potassium, Dissolved		5.40	mg/L	0.0009	0.000900	200.7/6010B
			11/8/2007	14:20	JL	Sodium, Dissolved		85.6	mg/L	0.0018	0.00180	200.7/6010B
			11/8/2007	14:20	JL	Total Hardness		351	mg/l	0.06	0.06	200.7/6010B
			11/7/2007	15:00	AP	Total Alkalinity		142	mg/l	2	2	EPA_310.1
			11/12/2007	13:25	MS	Chloride		125	mg/l	0.383	0.383	EPA 9253
			11/1/2007	13:07	A/J	Dissolved Oxygen		10.6	mg/l	0.1	0.1	EPA_360.1
			11/16/2007	10:45	A/K	Fluoride		0.390	mg/L			EPA 340.1

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200704602	GAGE NUMBER: 07331600	11/1/2007	11/19/2007	10:25	KK	Nitrate/nitrite As Nitroge	U	BDL	mg/l	1.2	1.2	EPA 353.3
			11/1/2007	13:07	A/J	pH		8.5	s.u.			EPA_150.1
			11/8/2007	14:35	AP	Sulfate		180	mg/l	1.2	1.2	EPA_375.2
			11/6/2007	13:30	SS	Total Dissolved Solids		634	mg/l	5.5	5.5	EPA_160.1
			11/5/2007	12:00	AP	Total Kjeldahl Nitrogen	J	1.12	mg/l	0.4	0.4	EPA_351.3M
			11/6/2007	15:45	SS	Total Suspended Solids		5.7	mg/l	1.7	1.7	EPA_160.2
			11/7/2007	13:05	KK	Turbidity		2.68	NTU	0.078	0.078	EPA_180.1
200704603	GAGE NUMBER: 07316000		METALS-TULSA:									
		11/1/2007	11/8/2007	10:30	JL	Arsenic, Dissolved	U	BDL	mg/L	0.009	0.00900	200.7/6010B
			11/8/2007	10:30	JL	Arsenic, Total	U	BDL	mg/L	0.009	0.00900	200.7/6010B
			11/8/2007	10:30	JL	Barium, Dissolved		0.150	mg/L	0.0006	0.000600	200.7/6010B
			11/8/2007	10:30	JL	Barium, Total		0.160	mg/L	0.0006	0.000600	200.7/6010B
			11/8/2007	10:30	JL	Cadmium, Dissolved	U	BDL	mg/L	0.0009	0.000900	200.7/6010B
			11/8/2007	10:30	JL	Cadmium, Total	U	BDL	mg/L	0.0009	0.000900	200.7/6010B
			11/8/2007	10:30	JL	Chromium, Dissolved	U	BDL	mg/L	0.0009	0.000900	200.7/6010B
			11/8/2007	10:30	JL	Chromium, Total	U	BDL	mg/L	0.0009	0.000900	200.7/6010B
			11/8/2007	10:30	JL	Copper, Dissolved	U	BDL	mg/L	0.0003	0.000300	200.7/6010B
			11/8/2007	10:30	JL	Copper, Total		0.0100	mg/L	0.0003	0.000300	200.7/6010B
			11/8/2007	10:30	JL	Iron, Dissolved		0.0970	mg/L	0.0008	0.000800	200.7/6010B
			11/8/2007	10:30	JL	Iron, Total		0.249	mg/L	0.0008	0.000800	200.7/6010B
			11/8/2007	10:30	JL	Lead, Dissolved	U	BDL	mg/L	0.009	0.00900	200.7/6010B
			11/8/2007	10:30	JL	Lead, Total	U	BDL	mg/L	0.009	0.00900	200.7/6010B
			11/8/2007	10:30	JL	Manganese, Dissolved	U	BDL	mg/L	0.0001	0.000100	200.7/6010B
			11/8/2007	10:30	JL	Manganese, Total		0.0800	mg/L	0.0001	0.000100	200.7/6010B
			11/8/2007	10:30	JL	Nickel, Dissolved	U	BDL	mg/L	0.0069	0.00690	200.7/6010B
			11/8/2007	10:30	JL	Nickel, Total	U	BDL	mg/L	0.0069	0.00690	200.7/6010B
			11/8/2007	10:30	JL	Silver, Dissolved	U	BDL	mg/L	0.0003	0.000300	200.7/6010B
			11/8/2007	10:30	JL	Silver, Total	U	BDL	mg/L	0.0003	0.000300	200.7/6010B

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Table with columns: Lab Number, Sample Identification, Date Sampled, Analysis Date, Analyzed Time, Analyzed By, Parameter, Q Results, Units, MDL, SQL, Method. Contains data for three sample groups: 200704603 (Zinc, Mercury, Selenium, Silicon Dioxide), 200704603 (SALTS-TULSA: Calcium, Magnesium, Phosphorus, Potassium, Sodium, Hardness, Alkalinity, Chloride, Dissolved Oxygen, Fluoride, Nitrate/nitrite, pH, Sulfate, Total Dissolved Solids, Total Kjeldahl Nitrogen, Total Suspended Solids, Turbidity), and 200704604 (METALS-TULSA: Arsenic).

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Table with columns: Lab Number, Sample Identification, Date Sampled, Analysis Date, Analyzed Time, Analyzed By, Parameter, Q Results, Units, MDL, SQL, Method. Contains multiple rows of chemical analysis data for various elements like Arsenic, Barium, Cadmium, etc.

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Table with columns: Lab Number, Sample Identification, Date Sampled, Analysis Date, Analyzed Time, Analyzed By, Parameter, Q, Results, Units, MDL, SQL, Method. Contains data for GAGE NUMBER: 07308500 and METALS-TULSA: 07312100.

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Report Date: 11/19/2007

Lab Number	Sample Identification	Date Sampled	Analysis Date	Time	By	Parameter	Q	Results	Units	MDL	SQL	Method
200704605	GAGE NUMBER: 07312100	11/1/2007	11/8/2007	10:30	JL	Lead, Dissolved	U	BDL	mg/L	0.009	0.00900	200.7/6010B
			11/8/2007	10:30	JL	Lead, Total	U	BDL	mg/L	0.009	0.00900	200.7/6010B
			11/8/2007	10:30	JL	Manganese, Dissolved	U	BDL	mg/L	0.0001	0.000100	200.7/6010B
			11/8/2007	10:30	JL	Manganese, Total	U	BDL	mg/L	0.0001	0.000100	200.7/6010B
			11/8/2007	10:30	JL	Nickel, Dissolved	U	BDL	mg/L	0.0069	0.00690	200.7/6010B
			11/8/2007	10:30	JL	Nickel, Total	U	BDL	mg/L	0.0069	0.00690	200.7/6010B
			11/8/2007	10:30	JL	Silver, Dissolved	U	BDL	mg/L	0.0003	0.000300	200.7/6010B
			11/8/2007	10:30	JL	Silver, Total	U	BDL	mg/L	0.0003	0.000300	200.7/6010B
			11/8/2007	10:30	JL	Zinc, Dissolved	U	BDL	mg/L	0.0006	0.000600	200.7/6010B
			11/8/2007	10:30	JL	Zinc, Total	U	BDL	mg/L	0.0006	0.000600	200.7/6010B
			11/14/2007	16:30	JL	Mercury, Dissolved	U	BDL	mg/l	0.0002	0.0002	EPA_245.1
			11/14/2007	10:40	J/K	Mercury	U	BDL	mg/l	0.0002	0.0002	EPA_245.1
			11/12/2007	20:20	OL	Selenium, Dissolved	U	BDL	mg/l	0.0014	0.00140	EPA_7440
			11/8/2007	20:48	OL	Selenium	U	BDL	mg/l	0.0014	0.00140	EPA_7740
			11/8/2007	10:30	JL	Silicon Dioxide (silica)			6.4	mg/l	0.006	0.006
200704605	GAGE NUMBER: 07312100	11/1/2007	SALTS-TULSA:									
			11/8/2007	14:20	JL	Calcium, Dissolved		284	mg/L	0.0039	0.00390	200.7/6010B
			11/8/2007	14:20	JL	Magnesium, Dissolved		77.1	mg/L	0.0006	0.000600	200.7/6010B
			11/8/2007	14:20	JL	Phosphorus, Total		0.100	mg/L	0.0096	0.00960	200.7/6010B
			11/8/2007	14:20	JL	Potassium, Dissolved		11.4	mg/L	0.0009	0.000900	200.7/6010B
			11/8/2007	14:20	JL	Sodium, Dissolved		760	mg/L	0.0018	0.00180	200.7/6010B
			11/8/2007	14:20	JL	Total Hardness		1002	mg/l	0.06	0.06	200.7/6010B
			11/7/2007	15:00	AP	Total Alkalinity		109	mg/l	2	2	EPA_310.1
			11/12/2007	13:25	MS	Chloride		975	mg/l	0.383	0.383	EPA_9253
			11/1/2007	18:30	A/J	Dissolved Oxygen		10.2	mg/l	0.1	0.1	EPA_360.1
			11/16/2007	10:45	A/K	Fluoride		0.710	mg/L			EPA_340.1
			11/19/2007	10:25	KK	Nitrate/nitrite As Nitroge	U	BDL	mg/l	1.2	1.2	EPA_353.3
			11/1/2007	18:30	A/J	pH		8.5	s.u.			EPA_150.1
			11/8/2007	14:35	AP	Sulfate		390	mg/l	1.2	1.2	EPA_375.2

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Table with columns: Lab Number, Sample Identification, Date Sampled, Analysis Date, Analyzed Time, Analyzed By, Parameter, Q Results, Units, MDL, SQL Method. Contains data for samples 200704605 and 200704606.

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Table with columns: Lab Number, Sample Identification, Date Sampled, Analysis Date, Analyzed Time, Analyzed By, Parameter, Q Results, Units, MDL, SQL, Method. Contains data for samples 200704606 and 200704607.

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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 two main sections of data for sample 200704607.

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Table with columns: Lab Number, Sample Identification, Date Sampled, Analysis Date, Analyzed Time, Analyzed By, Parameter, Q, Results, Units, MDL, SQL, Method. Contains data for sample 200704607 and 200704608.

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Lab Number	Sample Identification	Date Sampled	Analysis Date	Time	Analized By	Parameter	Q	Results	Units	MDL	SQL	Method
200704608	GAGE NUMBER: 07311700	11/2/2007	11/8/2007	11:30	JL	Manganese, Total	U	BDL	mg/L	0.0001	0.000100	200.7/6010B
			11/8/2007	11:30	JL	Nickel, Dissolved	U	BDL	mg/L	0.0069	0.00690	200.7/6010B
			11/8/2007	11:30	JL	Nickel, Total	U	BDL	mg/L	0.0069	0.00690	200.7/6010B
			11/8/2007	11:30	JL	Silver, Dissolved	U	BDL	mg/L	0.0003	0.000300	200.7/6010B
			11/8/2007	11:30	JL	Silver, Total	U	BDL	mg/L	0.0003	0.000300	200.7/6010B
			11/8/2007	11:30	JL	Zinc, Dissolved	U	BDL	mg/L	0.0006	0.000600	200.7/6010B
			11/8/2007	11:30	JL	Zinc, Total	U	BDL	mg/L	0.0006	0.000600	200.7/6010B
			11/14/2007	16:30	JL	Mercury, Dissolved	U	BDL	mg/l	0.0002	0.0002	EPA_245.1
			11/14/2007	10:40	J/K	Mercury	U	BDL	mg/l	0.0002	0.0002	EPA_245.1
			11/12/2007	22:09	OL	Selenium, Dissolved	<	0.00720	mg/l	0.0014	0.00700	EPA_7440
			11/8/2007	21:51	OL	Selenium	<	0.00576	mg/l	0.0014	0.00560	EPA_7740
			11/8/2007	11:30	JL	Silicon Dioxide (silica)		0.63	mg/l	0.006	0.006	200.7/6010B
			200704608	GAGE NUMBER: 07311700	11/2/2007	SALTS-TULSA:						
11/8/2007	14:50	JL				Calcium, Dissolved		1070	mg/L	0.0039	0.00390	200.7/6010B
11/8/2007	14:50	JL				Magnesium, Dissolved		260	mg/L	0.0006	0.000600	200.7/6010B
11/8/2007	14:50	JL				Phosphorus, Total		0.500	mg/L	0.0096	0.00960	200.7/6010B
11/8/2007	14:50	JL				Potassium, Dissolved		29.0	mg/L	0.0009	0.000900	200.7/6010B
11/8/2007	14:50	JL				Sodium, Dissolved		5580	mg/L	0.0018	0.00180	200.7/6010B
11/8/2007	14:50	JL				Total Hardness		3779	mg/l	0.06	0.06	200.7/6010B
11/8/2007	9:00	AP				Total Alkalinity		60	mg/l	2	2	EPA_310.1
11/12/2007	13:25	MS				Chloride		6248	mg/l	0.383	0.383	EPA 9253
11/2/2007	10:03	A/J				Dissolved Oxygen		10.5	mg/l	0.1	0.1	EPA_360.1
11/16/2007	10:45	A/K				Fluoride		1.42	mg/L			EPA 340.1
11/19/2007	10:25	KK				Nitrate/nitrite As Nitroge	U	BDL	mg/l	1.2	1.2	EPA 353.3
11/2/2007	10:03	A/J				pH		8.2	s.u.			EPA_150.1
11/8/2007	14:35	AP				Sulfate		2550	mg/l	1.2	1.2	EPA_375.2
11/6/2007	13:30	SS				Total Dissolved Solids		14862	mg/l	5.5	5.5	EPA_160.1
11/6/2007	14:00	AP				Total Kjeldahl Nitrogen	U	BDL	mg/l	0.4	0.4	EPA_351.3M
11/7/2007	10:30	SS				Total Suspended Solids	J	2.4	mg/l	1.7	1.7	EPA_160.2

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: 11/2/2007

Project Name: RED RIVER & WICHITA WATER QUAL

Report Date: 11/19/2007

Table with columns: Lab Number, Sample Identification, Date Sampled, Analysis Date, Analyzed Time, Analyzed By, Parameter, Q Results, Units, MDL, SQL, Method. Includes data for Turbidity 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

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Lab Number	Sample Identification	Date Sampled	Analysis Date	Time	Analized By	Parameter	Q	Results	Units	MDL	SQL	Method
200704609	GAGE NUMBER: 07311630	11/2/2007	11/8/2007	11:30	JL	Silicon Dioxide (silica)		11.5	mg/l	0.006	0.006	200.7/6010B
200704609	GAGE NUMBER: 07311630					SALTS-TULSA:						
		11/2/2007	11/8/2007	14:50	JL	Calcium, Dissolved		965	mg/L	0.0039	0.00390	200.7/6010B
			11/8/2007	14:50	JL	Magnesium, Dissolved		179	mg/L	0.0006	0.000600	200.7/6010B
			11/8/2007	14:50	JL	Phosphorus, Total		0.300	mg/L	0.0096	0.00960	200.7/6010B
			11/8/2007	14:50	JL	Potassium, Dissolved		19.1	mg/L	0.0009	0.000900	200.7/6010B
			11/8/2007	14:50	JL	Sodium, Dissolved		2710	mg/L	0.0018	0.00180	200.7/6010B
			11/8/2007	14:50	JL	Total Hardness		3343	mg/l	0.06	0.06	200.7/6010B
			11/8/2007	9:00	AP	Total Alkalinity		168	mg/l	2	2	EPA_310.1
			11/12/2007	13:25	MS	Chloride		3524	mg/l	0.383	0.383	EPA 9253
			11/2/2007	11:08	A/J	Dissolved Oxygen		9.8	mg/l	0.1	0.1	EPA_360.1
			11/16/2007	10:45	A/K	Fluoride		1.42	mg/L			EPA 340.1
			11/19/2007	10:25	KK	Nitrate/nitrite As Nitroge	U	BDL	mg/l	1.2	1.2	EPA 353.3
			11/2/2007	11:08	A/J	pH		8.1	s.u.			EPA_150.1
			11/8/2007	14:35	AP	Sulfate		2150	mg/l	1.2	1.2	EPA_375.2
			11/6/2007	13:30	SS	Total Dissolved Solids		9718	mg/l	5.5	5.5	EPA_160.1
			11/6/2007	14:00	AP	Total Kjeldahl Nitrogen	J	0.67	mg/l	0.4	0.4	EPA_351.3M
			11/7/2007	10:30	SS	Total Suspended Solids		6.3	mg/l	1.7	1.7	EPA_160.2
			11/7/2007	13:05	KK	Turbidity		2.81	NTU	0.078	0.078	EPA_180.1
200704610	GAGE NUMBER: 07311600					METALS-TULSA:						
		11/2/2007	11/8/2007	11:30	JL	Arsenic, Dissolved	U	BDL	mg/L	0.009	0.00900	200.7/6010B
			11/8/2007	11:30	JL	Arsenic, Total	U	BDL	mg/L	0.009	0.00900	200.7/6010B
			11/8/2007	11:30	JL	Barium, Dissolved		0.0600	mg/L	0.0006	0.000600	200.7/6010B
			11/8/2007	11:30	JL	Barium, Total		0.0600	mg/L	0.0006	0.000600	200.7/6010B
			11/8/2007	11:30	JL	Cadmium, Dissolved	U	BDL	mg/L	0.0009	0.000900	200.7/6010B
			11/8/2007	11:30	JL	Cadmium, Total	U	BDL	mg/L	0.0009	0.000900	200.7/6010B
			11/8/2007	11:30	JL	Chromium, Dissolved	U	BDL	mg/L	0.0009	0.000900	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: 11/2/2007

Project Name: RED RIVER & WICHITA WATER QUAL

Report Date: 11/19/2007

Lab Number	Sample Identification	Date Sampled	Analysis Date	Time	Analized By	Parameter	Q	Results	Units	MDL	SQL	Method
200704610	GAGE NUMBER: 07311600	11/2/2007	11/8/2007	11:30	JL	Chromium, Total	U	BDL	mg/L	0.0009	0.000900	200.7/6010B
			11/8/2007	11:30	JL	Copper, Dissolved	U	BDL	mg/L	0.0003	0.000300	200.7/6010B
			11/8/2007	11:30	JL	Copper, Total	U	BDL	mg/L	0.0003	0.000300	200.7/6010B
			11/8/2007	11:30	JL	Iron, Dissolved		0.0400	mg/L	0.0008	0.000800	200.7/6010B
			11/8/2007	11:30	JL	Iron, Total		0.0800	mg/L	0.0008	0.000800	200.7/6010B
			11/8/2007	11:30	JL	Lead, Dissolved	U	BDL	mg/L	0.009	0.00900	200.7/6010B
			11/8/2007	11:30	JL	Lead, Total	U	BDL	mg/L	0.009	0.00900	200.7/6010B
			11/8/2007	11:30	JL	Manganese, Dissolved	U	BDL	mg/L	0.0001	0.000100	200.7/6010B
			11/8/2007	11:30	JL	Manganese, Total	U	BDL	mg/L	0.0001	0.000100	200.7/6010B
			11/8/2007	11:30	JL	Nickel, Dissolved	U	BDL	mg/L	0.0069	0.00690	200.7/6010B
			11/8/2007	11:30	JL	Nickel, Total	U	BDL	mg/L	0.0069	0.00690	200.7/6010B
			11/8/2007	11:30	JL	Silver, Dissolved	U	BDL	mg/L	0.0003	0.000300	200.7/6010B
			11/8/2007	11:30	JL	Silver, Total	U	BDL	mg/L	0.0003	0.000300	200.7/6010B
			11/8/2007	11:30	JL	Zinc, Dissolved	U	BDL	mg/L	0.0006	0.000600	200.7/6010B
			11/8/2007	11:30	JL	Zinc, Total	U	BDL	mg/L	0.0006	0.000600	200.7/6010B
			11/14/2007	16:30	JL	Mercury, Dissolved	U	BDL	mg/l	0.0002	0.0002	EPA_245.1
			11/14/2007	10:40	J/K	Mercury	U	BDL	mg/l	0.0002	0.0002	EPA_245.1
			11/12/2007	22:36	OL	Selenium, Dissolved	<	0.0140	mg/l	0.0014	0.0140	EPA_7440
			11/8/2007	21:54	OL	Selenium	<	0.00576	mg/l	0.0014	0.00560	EPA_7740
			11/8/2007	11:30	JL	Silicon Dioxide (silica)		2.98	mg/l	0.006	0.006	200.7/6010B
200704610	GAGE NUMBER: 07311600	11/2/2007	SALTS-TULSA:									
			11/8/2007	14:50	JL	Calcium, Dissolved		1080	mg/L	0.0039	0.00390	200.7/6010B
			11/8/2007	14:50	JL	Magnesium, Dissolved		244	mg/L	0.0006	0.000600	200.7/6010B
			11/8/2007	14:50	JL	Phosphorus, Total		0.400	mg/L	0.0096	0.00960	200.7/6010B
			11/8/2007	14:50	JL	Potassium, Dissolved		33.0	mg/L	0.0009	0.000900	200.7/6010B
			11/8/2007	14:50	JL	Sodium, Dissolved		7010	mg/L	0.0018	0.00180	200.7/6010B
			11/8/2007	14:50	JL	Total Hardness		3986	mg/l	0.06	0.06	200.7/6010B
			11/8/2007	9:00	AP	Total Alkalinity		106	mg/l	2	2	EPA_310.1
			11/12/2007	13:25	MS	Chloride		7823	mg/l	0.383	0.383	EPA 9253

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: 11/2/2007

Project Name: RED RIVER & WICHITA WATER QUAL

Report Date: 11/19/2007

Table with columns: Lab Number, Sample Identification, Date Sampled, Analysis Date, Analyzed Time, Analyzed By, Parameter, Q Results, Units, MDL, SQL Method. Contains data for sample 200704610 and 200704611.

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 & WICHITA WATER QUAL

Report Date: 11/19/2007

Lab Number	Sample Identification	Date Sampled	Analysis Date	Time	Analized By	Parameter	Q	Results	Units	MDL	SQL	Method
200704611	GAGE NUMBER: 07311782	11/2/2007	11/8/2007	11:30	JL	Silver, Dissolved	U	BDL	mg/L	0.0003	0.000300	200.7/6010B
			11/8/2007	11:30	JL	Silver, Total	U	BDL	mg/L	0.0003	0.000300	200.7/6010B
			11/8/2007	11:30	JL	Zinc, Dissolved		0.0560	mg/L	0.0006	0.000600	200.7/6010B
			11/8/2007	11:30	JL	Zinc, Total		0.0760	mg/L	0.0006	0.000600	200.7/6010B
			11/14/2007	16:30	JL	Mercury, Dissolved	U	BDL	mg/l	0.0002	0.0002	EPA_245.1
			11/14/2007	10:40	J/K	Mercury	U	BDL	mg/l	0.0002	0.0002	EPA_245.1
			11/12/2007	22:39	OL	Selenium, Dissolved	<	0.0140	mg/l	0.0014	0.0140	EPA_7440
			11/8/2007	21:57	OL	Selenium	<	0.00576	mg/l	0.0014	0.00560	EPA_7740
			11/8/2007	11:30	JL	Silicon Dioxide (silica)		8.8	mg/l	0.006	0.006	200.7/6010B
200704611	GAGE NUMBER: 07311782	11/2/2007	SALTS-TULSA:									
			11/8/2007	14:50	JL	Calcium, Dissolved		1800	mg/L	0.0039	0.00390	200.7/6010B
			11/8/2007	14:50	JL	Magnesium, Dissolved		496	mg/L	0.0006	0.000600	200.7/6010B
			11/8/2007	14:50	JL	Phosphorus, Total		0.700	mg/L	0.0096	0.00960	200.7/6010B
			11/8/2007	14:50	JL	Potassium, Dissolved		131	mg/L	0.0009	0.000900	200.7/6010B
			11/8/2007	14:50	JL	Sodium, Dissolved		22200	mg/L	0.0018	0.00180	200.7/6010B
			11/8/2007	14:50	JL	Total Hardness		6681	mg/l	0.06	0.06	200.7/6010B
			11/8/2007	9:00	AP	Total Alkalinity		112	mg/l	2	2	EPA_310.1
			11/12/2007	13:25	MS	Chloride		17869	mg/l	0.383	0.383	EPA 9253
			11/2/2007	13:26	A/J	Dissolved Oxygen		10.5	mg/l	0.1	0.1	EPA_360.1
			11/16/2007	10:45	A/K	Fluoride		1.72	mg/L			EPA 340.1
			11/19/2007	10:25	KK	Nitrate/nitrite As Nitroge	U	BDL	mg/l	1.2	1.2	EPA 353.3
			11/2/2007	13:26	A/J	pH		8.1	s.u.			EPA_150.1
			11/8/2007	14:35	AP	Sulfate		2800	mg/l	1.2	1.2	EPA_375.2
			11/8/2007	15:15	SS	Total Dissolved Solids		38628	mg/l	5.5	5.5	EPA_160.1
			11/6/2007	14:00	AP	Total Kjeldahl Nitrogen	U	BDL	mg/l	0.4	0.4	EPA_351.3M
			11/8/2007	10:15	SS	Total Suspended Solids	J	3	mg/l	1.7	1.7	EPA_160.2
			11/7/2007	13:05	KK	Turbidity		1.11	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: 11/2/2007

Project Name: RED RIVER & WICHITA WATER QUAL

Report Date: 11/19/2007

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

Laboratory Authorized Signature



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Certificate of Analysis

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

Project #: W912BV-07-P0189

Date Received: 11/2/2007

Project Name: RED RIVER & WICHITA WATER QUAL

Report Date: 11/19/2007

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 of data for samples 200704612 and 200704613.

Laboratory Authorized Signature



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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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Report Date: 11/19/2007

Table with columns: Lab Number, Sample Identification, Date Sampled, Analysis Date, Analyzed Time, Analyzed By, Parameter, Q Results, Units, MDL, SQL, Method. Includes data for Lab 200704613 and Lab 200704613 under SALTS-TULSA.

Laboratory Authorized Signature



## Environmental Laboratory and Consulting Company

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# 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: 11/2/2007

Project Name: RED RIVER & WICHITA WATER QUAL

Report Date: 11/19/2007

Lab Number	Sample Identification	Date Sampled	Analysis Date	Time	By	Parameter	Q	Results	Units	MDL	SQL	Method
200704613	GAGE NUMBER: 07312100 FIELD DUP	11/1/2007	11/19/2007	10:25	KK	Nitrate/nitrite As Nitroge	U	BDL	mg/l	1.2	1.2	EPA 353.3
			11/1/2007	19:25	A/J	pH		8.5	s.u.			EPA_150.1
			11/8/2007	14:35	AP	Sulfate		700	mg/l	1.2	1.2	EPA_375.2
			11/8/2007	15:15	SS	Total Dissolved Solids		2982	mg/l	5.5	5.5	EPA_160.1
			11/6/2007	14:00	AP	Total Kjeldahl Nitrogen	U	BDL	mg/l	0.4	0.4	EPA_351.3M
			11/8/2007	10:15	SS	Total Suspended Solids		5.1	mg/l	1.7	1.7	EPA_160.2
			11/7/2007	13:05	KK	Turbidity		1.89	NTU	0.078	0.078	EPA_180.1

Note:

200704606: This sample had to be diluted due to matrix interference for the selenium. Therefore, the detection limit is higher.  
 200704608: This sample had to be diluted due to matrix interference for the selenium. Therefore, the detection limit is higher.  
 200704609: This sample had to be diluted due to matrix interference for the selenium. Therefore, the detection limit is higher.  
 200704610: This sample had to be diluted due to matrix interference for the selenium. Therefore, the detection limit is higher.  
 200704611: This sample had to be diluted due to matrix interference for the selenium. Therefore, the detection limit is higher.  
 200704612: This sample had to be diluted due to matrix interference for the selenium. Therefore, the detection limit is higher.

MDL = Method Detection Limit. SQL\* = Sample Quantitation Level.

BDL = Analyte was analyzed for but not detected above MDL.

B = Analyte was detected in both the sample and associated blank.

J = Analyte was detected above the MDL but below the PQL.

OL2 = Subcontracted to ODEQ Lab #7211.

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