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ENTERED

National Nuclear Security Administration
Los Alamos Site Office, MS A316
Environmental Restoration Program
Los Alamos, New Mexico 87544
(505) 667-4255/FAX (505) 606-2132

Date: JAN 11 2011
Refer To: EP2010-0561

JAN 12 2011

Mr. Brian Snyder, Water Division Director
Acting Public Utilities Division Director
Sangre de Cristo Water Division
City of Santa Fe
801 West San Mateo
P.O. Box 909
Santa Fe, New Mexico 87504

Subject: Correction to the Previously Submitted Rio Grande at Otowi Bridge Report (EP2010-0490)

Dear Mr. Snyder:

On November 19, 2010, Los Alamos National Laboratory submitted to your agency a report titled Los Alamos National Laboratory Surface Water Monitoring Report, Rio Grande at Otowi Bridge (EP2010-0490). Shortly after distribution, it was discovered the report contained the following omissions:

- The unfiltered suspended solids concentration (SSC) was reported by GEL at 165 mg/L. Since July 2008, SSC values in the Rio Grande at Otowi Bridge have ranged from 17 mg/L to 196 mg/L.

- **Particle Size:** An unfiltered sample (CAWR-10-17025) was submitted to the Desert Research Institute (DRI), Reno, NV, for particle-size analysis (see the enclosed CD for a copy of the geotechnical report). The sand, silt, and clay contents of the sample are as follows:

  - Sand 26.62%
  - Silt 64.91%
  - Clay 8.46%

34243

The attached CD contains the updated geotechnical and analytical reports for your review. If you have any questions, please contact Bob Beers at (505) 667-7969 (bbeers@lanl.gov) or Cheryl Rodriguez at (505) 665-5330 (crodriguez2@doeal.gov).

Sincerely,

Michael J. Graham, Associate Director
Environmental Programs
Los Alamos National Laboratory

Sincerely,

George J. Rael, Manager
Environmental Projects Office
Los Alamos Site Office

MG/GR/SP/BB:sm

Enclosure: CD with updated geotechnical and analytical reports

Cy: (w/enc.)
Virginia Vigil, Buckman Direct Diversion Board, Santa Fe, NM
Rick Carpenter, City of Santa Fe, Santa Fe, NM
Sandy Hurlocker, USDA, Santa Fe National Forest, Santa Fe, NM
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Bob Beers, ENV-RCRA, MS K490
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Michael J. Graham, ADEP, MS M991

Table 1.0
Rio Grande at Otowi Bridge
Radionuclides

Location Name	Start Date	Analyte	Anyl Meth Code	Fld Prep Code		Std Result	Units	Std Uncert	Std Mda	Lab Qual Code	Concat Flag Code	Sample Id	Lab Code	Scr Lvl	Scr Lvl Type Code
Rio Grande at Otowi Bridge	5/10/10	Am-241	HASL-300:AM-241	F	<	0.0093	pCi/L	0.005	0.022	U	U	CAWR-10-17026	GELC		
Rio Grande at Otowi Bridge	5/10/10	Am-241	HASL-300:AM-241	UF	<	0.0073	pCi/L	0.004	0.021	U	U	CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	5/10/10	Co-60	EPA:901.1	F	<	0.295	pCi/L	0.96	2.8	U	U	CAWR-10-17026	GELC		
Rio Grande at Otowi Bridge	5/10/10	Co-60	EPA:901.1	UF	<	-0.222	pCi/L	0.94	3.0	U	U	CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	5/10/10	Cs-137	EPA:901.1	F	<	0.468	pCi/L	0.80	2.7	U	U	CAWR-10-17026	GELC		
Rio Grande at Otowi Bridge	5/10/10	Cs-137	EPA:901.1	UF	<	0.902	pCi/L	0.83	3.0	U	U	CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	5/10/10	GROSSA	EPA:900	F	<	0.608	pCi/L	0.64	2.4	U	U	CAWR-10-17026	GELC	15	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	5/10/10	GROSSA	EPA:900	UF	<	3.75	pCi/L	1.4	3.5		U	CAWR-10-17025	GELC	15	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	5/10/10	GROSSB	EPA:900	F		2.86	pCi/L	0.87	2.3			CAWR-10-17026	GELC	50	EPA SEC DW LVL
Rio Grande at Otowi Bridge	5/10/10	GROSSB	EPA:900	UF		3.09	pCi/L	0.89	2.3			CAWR-10-17025	GELC	50	EPA SEC DW LVL
Rio Grande at Otowi Bridge	5/10/10	GROSSG	EPA:901.1	F	<	6.3	pCi/L	2.3	6.0		U	CAWR-10-17026	GELC		
Rio Grande at Otowi Bridge	5/10/10	GROSSG	EPA:901.1	UF	<	14.1	pCi/L	5.1	14		U	CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	5/10/10	H-3	Low_Level_Tritium	UF		17.18	pCi/L	2.68	1.79			CAWR-10-17025	ARSL	20,000	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	5/10/10	K-40	EPA:901.1	F	<	-3.1	pCi/L	13	41	U	U	CAWR-10-17026	GELC		
Rio Grande at Otowi Bridge	5/10/10	K-40	EPA:901.1	UF	<	-6.4	pCi/L	13	44	U	U	CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	5/10/10	Na-22	EPA:901.1	F	<	0.374	pCi/L	0.84	2.8	U	U	CAWR-10-17026	GELC		
Rio Grande at Otowi Bridge	5/10/10	Na-22	EPA:901.1	UF	<	-0.372	pCi/L	0.89	2.7	U	U	CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	5/10/10	Np-237	HASL-300:Np-237	F	<	0.004	pCi/L	0.004	0.012	U	U	CAWR-10-17026	GELC		
Rio Grande at Otowi Bridge	5/10/10	Np-237	EPA:901.1	F	<	1.37	pCi/L	1.7	5.6	U	U	CAWR-10-17026	GELC		
Rio Grande at Otowi Bridge	5/10/10	Np-237	EPA:901.1	UF	<	3.52	pCi/L	1.9	6.7	U	U	CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	5/10/10	Np-237	HASL-300:Np-237	UF	<	-0.013	pCi/L	0.009	0.030	U	U	CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	5/10/10	Pu-238	HASL-300:ISOPU	F	<	-0.002	pCi/L	0.006	0.038	U	U	CAWR-10-17026	GELC		
Rio Grande at Otowi Bridge	5/10/10	Pu-238	HASL-300:ISOPU	UF	<	0.003	pCi/L	0.003	0.042	U	U	CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	5/10/10	Pu-239/240	HASL-300:ISOPU	F	<	0.010	pCi/L	0.01	0.04	U	U	CAWR-10-17026	GELC		
Rio Grande at Otowi Bridge	5/10/10	Pu-239/240	HASL-300:ISOPU	UF	<	0.000	pCi/L	0.01	0.04	U	U	CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	5/10/10	Ra-226	EPA:903.1	F	<	0.255	pCi/L	0.11	0.24		U	CAWR-10-17026	GELC	5	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	5/10/10	Ra-226	EPA:903.1	UF		0.481	pCi/L	0.16	0.31			CAWR-10-17025	GELC	5	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	5/10/10	Ra-228	EPA:904	F	<	0.166	pCi/L	0.26	0.9	U	U	CAWR-10-17026	GELC	5	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	5/10/10	Ra-228	EPA:904	UF		1.83	pCi/L	0.41	0.86			CAWR-10-17025	GELC	5	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	5/10/10	Sr-90	EPA:905.0	F	<	-0.064	pCi/L	0.12	0.45	U	U	CAWR-10-17026	GELC	8	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	5/10/10	Sr-90	EPA:905.0	UF	<	-0.053	pCi/L	0.12	0.44	U	U	CAWR-10-17025	GELC	8	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	5/10/10	Th-228	HASL-300:ISOTH	F	<	0.013	pCi/L	0.007	0.045	U	U	CAWR-10-17026	GELC		
Rio Grande at Otowi Bridge	5/10/10	Th-228	HASL-300:ISOTH	UF		0.117	pCi/L	0.024	0.073			CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	5/10/10	Th-230	HASL-300:ISOTH	F	<	-0.013	pCi/L	0.006	0.063	U	U	CAWR-10-17026	GELC		
Rio Grande at Otowi Bridge	5/10/10	Th-230	HASL-300:ISOTH	UF	<	0.042	pCi/L	0.014	0.10	U	U	CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	5/10/10	Th-232	HASL-300:ISOTH	F	<	0.013	pCi/L	0.006	0.027	U	U	CAWR-10-17026	GELC		
Rio Grande at Otowi Bridge	5/10/10	Th-232	HASL-300:ISOTH	UF		0.110	pCi/L	0.023	0.044			CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	5/10/10	U-234	HASL-300:ISOU	F		0.513	pCi/L	0.055	0.050			CAWR-10-17026	GELC		
Rio Grande at Otowi Bridge	5/10/10	U-234	HASL-300:ISOU	UF		0.620	pCi/L	0.066	0.056			CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	5/10/10	U-235/236	HASL-300:ISOU	F	<	0.023	pCi/L	0.009	0.046	U	U	CAWR-10-17026	GELC		
Rio Grande at Otowi Bridge	5/10/10	U-235/236	HASL-300:ISOU	UF	<	0.030	pCi/L	0.011	0.051	U	U	CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	5/10/10	U-238	HASL-300:ISOU	F		0.316	pCi/L	0.039	0.046			CAWR-10-17026	GELC		
Rio Grande at Otowi Bridge	5/10/10	U-238	HASL-300:ISOU	UF		0.376	pCi/L	0.046	0.051			CAWR-10-17025	GELC		

Table 2.0
Rio Grande at Otowi Bridge
Volatile Organic Compounds (VOCs)

Location Name	Start Date	Analyte	Analyte Desc	Anyl Meth Code	Fld Prep Code		Std Result	Units	Std Mdl	Lab Qual Code	Concat Flag Code	Sample ID	Fld Qc Type Code	Lab Code
Rio Grande at Otowi Bridge	5/10/10	100-41-4	Ethylbenzene	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	100-42-5	Styrene	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	10061-01-5	Dichloropropene[cis-1,3-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	10061-02-6	Dichloropropene[trans-1,3-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	103-65-1	Propylbenzene[1-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	104-51-8	Butylbenzene[n-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	106-43-4	Chlorotoluene[4-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	106-46-7	Dichlorobenzene[1,4-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	106-93-4	Dibromoethane[1,2-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	107-02-8	Acrolein	SW-846:8260B	UF	<	5.0	ug/L	1.3	U	R	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	107-05-1	Chloro-1-propene[3-]	SW-846:8260B	UF	<	5.0	ug/L	1.5	U	UJ	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	107-06-2	Dichloroethane[1,2-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	107-12-0	Propionitrile	SW-846:8260B	UF	<	5.0	ug/L	1.5	U	R	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	107-13-1	Acrylonitrile	SW-846:8260B	UF	<	5.0	ug/L	1	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	108-05-4	Vinyl acetate	SW-846:8260B	UF	<	5.0	ug/L	1.5	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	108-10-1	Methyl-2-pentanone[4-]	SW-846:8260B	UF	<	5.0	ug/L	1.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	108-67-8	Trimethylbenzene[1,3,5-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	108-86-1	Bromobenzene	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	108-88-3	Toluene	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	108-90-7	Chlorobenzene	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	120-82-1	Trichlorobenzene[1,2,4-]	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	124-48-1	Chlorodibromomethane	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	126-98-7	Methacrylonitrile	SW-846:8260B	UF	<	5.0	ug/L	1	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	126-99-8	Chloro-1,3-butadiene[2-]	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	UJ	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	127-18-4	Tetrachloroethene	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	135-98-8	Butylbenzene[sec-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	142-28-9	Dichloropropane[1,3-]	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	156-59-2	Dichloroethene[cis-1,2-]	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	156-60-5	Dichloroethene[trans-1,2-]	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	1634-04-4	Methyl tert-Butyl Ether	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	541-73-1	Dichlorobenzene[1,3-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	56-23-5	Carbon Tetrachloride	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	563-58-6	Dichloropropene[1,1-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	591-78-6	Hexanone[2-]	SW-846:8260B	UF	<	5.0	ug/L	1.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	594-20-7	Dichloropropane[2,2-]	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	60-29-7	Diethyl Ether	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	630-20-6	Tetrachloroethane[1,1,1,2-]	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	67-64-1	Acetone	SW-846:8260B	UF	<	10.0	ug/L	3.5	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	67-66-3	Chloroform	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	71-36-3	Butanol[1-]	SW-846:8260B	UF	<	50.0	ug/L	15	U	R	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	71-43-2	Benzene	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	71-55-6	Trichloroethane[1,1,1-]	SW-846:8260B	UF	<	1.0	ug/L	0.33	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	74-83-9	Bromomethane	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	74-87-3	Chloromethane	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	74-88-4	Iodomethane	SW-846:8260B	UF	<	5.0	ug/L	1.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	74-95-3	Dibromomethane	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	74-97-5	Bromochloromethane	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	75-00-3	Chloroethane	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	75-01-4	Vinyl Chloride	SW-846:8260B	UF	<	1.0	ug/L	0.5	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	75-05-8	Acetonitrile	SW-846:8260B	UF	<	25.0	ug/L	6.3	U	R	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	75-09-2	Methylene Chloride	SW-846:8260B	UF	<	10.0	ug/L	3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	75-15-0	Carbon Disulfide	SW-846:8260B	UF	<	5.0	ug/L	1.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	75-25-2	Bromoform	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC

Table 2.0
Rio Grande at Otowi Bridge
Volatile Organic Compounds (VOCs)

Location Name	Start Date	Analyte	Analyte Desc	Anyl Meth Code	Fld Prep Code		Std Result	Units	Std Mdl	Lab Qual Code	Concat Flag Code	Sample ID	Fld Qc Type Code	Lab Code
Rio Grande at Otowi Bridge	5/10/10	75-27-4	Bromodichloromethane	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	75-34-3	Dichloroethane[1,1-]	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	75-35-4	Dichloroethene[1,1-]	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	75-69-4	Trichlorofluoromethane	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	75-71-8	Dichlorodifluoromethane	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	UJ	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	76-13-1	Trichloro-1,2,2-trifluoroethane[1,1,2-]	SW-846:8260B	UF	<	5.0	ug/L	1	U	UJ	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	78-83-1	Isobutyl alcohol	SW-846:8260B	UF	<	50.0	ug/L	13	U	R	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	78-87-5	Dichloropropane[1,2-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	78-93-3	Butanone[2-]	SW-846:8260B	UF	<	5.0	ug/L	1.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	79-00-5	Trichloroethane[1,1,2-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	79-01-6	Trichloroethene	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	79-34-5	Tetrachloroethane[1,1,2,2-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	80-62-6	Methyl Methacrylate	SW-846:8260B	UF	<	5.0	ug/L	1	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	87-61-6	Trichlorobenzene[1,2,3-]	SW-846:8260B	UF	<	1.0	ug/L	0.33	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	87-68-3	Hexachlorobutadiene	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	91-20-3	Naphthalene	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	95-47-6	Xylene[1,2-]	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	95-49-8	Chlorotoluene[2-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	95-50-1	Dichlorobenzene[1,2-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	95-63-6	Trimethylbenzene[1,2,4-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	96-12-8	Dibromo-3-Chloropropane[1,2-]	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	96-18-4	Trichloropropane[1,2,3-]	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	97-63-2	Ethyl Methacrylate	SW-846:8260B	UF	<	5.0	ug/L	1	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	98-06-6	Butylbenzene[tert-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	98-82-8	Isopropylbenzene	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	99-87-6	Isopropyltoluene[4-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	lene[1,3 and	Xylene[1,3-]+Xylene[1,4-]	SW-846:8260B	UF	<	2.0	ug/L	0.5	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	100-41-4	Ethylbenzene	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	100-42-5	Styrene	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	10061-01-5	Dichloropropene[cis-1,3-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	10061-02-6	Dichloropropene[trans-1,3-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	103-65-1	Propylbenzene[1-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	104-51-8	Butylbenzene[n-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	106-43-4	Chlorotoluene[4-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	106-46-7	Dichlorobenzene[1,4-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	106-93-4	Dibromoethane[1,2-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	107-02-8	Acrolein	SW-846:8260B	UF	<	5.0	ug/L	1.3	U	R	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	107-05-1	Chloro-1-propene[3-]	SW-846:8260B	UF	<	5.0	ug/L	1.5	U	UJ	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	107-06-2	Dichloroethane[1,2-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	107-12-0	Propionitrile	SW-846:8260B	UF	<	5.0	ug/L	1.5	U	R	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	107-13-1	Acrylonitrile	SW-846:8260B	UF	<	5.0	ug/L	1	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	108-05-4	Vinyl acetate	SW-846:8260B	UF	<	5.0	ug/L	1.5	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	108-10-1	Methyl-2-pentanone[4-]	SW-846:8260B	UF	<	5.0	ug/L	1.3	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	108-67-8	Trimethylbenzene[1,3,5-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	108-86-1	Bromobenzene	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	108-88-3	Toluene	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	108-90-7	Chlorobenzene	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	120-82-1	Trichlorobenzene[1,2,4-]	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	124-48-1	Chlorodibromomethane	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	126-98-7	Methacrylonitrile	SW-846:8260B	UF	<	5.0	ug/L	1	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	126-99-8	Chloro-1,3-butadiene[2-]	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	UJ	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	127-18-4	Tetrachloroethene	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	135-98-8	Butylbenzene[sec-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC

Table 2.0
Rio Grande at Otowi Bridge
Volatile Organic Compounds (VOCs)

Location Name	Start Date	Analyte	Analyte Desc	Anyl Meth Code	Fld Prep Code		Std Result	Units	Std Mdl	Lab Qual Code	Concat Flag Code	Sample ID	Fld Qc Type Code	Lab Code
Rio Grande at Otowi Bridge	5/10/10	142-28-9	Dichloropropane[1,3-]	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	156-59-2	Dichloroethene[cis-1,2-]	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	156-60-5	Dichloroethene[trans-1,2-]	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	1634-04-4	Methyl tert-Butyl Ether	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	541-73-1	Dichlorobenzene[1,3-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	56-23-5	Carbon Tetrachloride	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	563-58-6	Dichloropropene[1,1-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	591-78-6	Hexanone[2-]	SW-846:8260B	UF	<	5.0	ug/L	1.3	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	594-20-7	Dichloropropane[2,2-]	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	60-29-7	Diethyl Ether	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	630-20-6	Tetrachloroethane[1,1,1,2-]	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	67-64-1	Acetone	SW-846:8260B	UF	<	10.0	ug/L	3.5	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	67-66-3	Chloroform	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	71-36-3	Butanol[1-]	SW-846:8260B	UF	<	50.0	ug/L	15	U	R	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	71-43-2	Benzene	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	71-55-6	Trichloroethane[1,1,1-]	SW-846:8260B	UF	<	1.0	ug/L	0.33	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	74-83-9	Bromomethane	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	74-87-3	Chloromethane	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	74-88-4	Iodomethane	SW-846:8260B	UF	<	5.0	ug/L	1.3	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	74-95-3	Dibromomethane	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	74-97-5	Bromochloromethane	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	75-00-3	Chloroethane	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	75-01-4	Vinyl Chloride	SW-846:8260B	UF	<	1.0	ug/L	0.5	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	75-05-8	Acetonitrile	SW-846:8260B	UF	<	25.0	ug/L	6.3	U	R	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	75-09-2	Methylene Chloride	SW-846:8260B	UF	<	10.0	ug/L	3	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	75-15-0	Carbon Disulfide	SW-846:8260B	UF	<	5.0	ug/L	1.3	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	75-25-2	Bromoform	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	75-27-4	Bromodichloromethane	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	75-34-3	Dichloroethane[1,1-]	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	75-35-4	Dichloroethene[1,1-]	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	75-69-4	Trichlorofluoromethane	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	75-71-8	Dichlorodifluoromethane	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	UJ	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	76-13-1	Trichloro-1,2,2-trifluoroethane[1,1,2-]	SW-846:8260B	UF	<	5.0	ug/L	1	U	UJ	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	78-83-1	Isobutyl alcohol	SW-846:8260B	UF	<	50.0	ug/L	13	U	R	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	78-87-5	Dichloropropane[1,2-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	78-93-3	Butanone[2-]	SW-846:8260B	UF	<	5.0	ug/L	1.3	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	79-00-5	Trichloroethane[1,1,2-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	79-01-6	Trichloroethene	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	79-34-5	Tetrachloroethane[1,1,2,2-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	80-62-6	Methyl Methacrylate	SW-846:8260B	UF	<	5.0	ug/L	1	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	87-61-6	Trichlorobenzene[1,2,3-]	SW-846:8260B	UF	<	1.0	ug/L	0.33	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	87-68-3	Hexachlorobutadiene	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	91-20-3	Naphthalene	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	95-47-6	Xylene[1,2-]	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	95-49-8	Chlorotoluene[2-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	95-50-1	Dichlorobenzene[1,2-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	95-63-6	Trimethylbenzene[1,2,4-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	96-12-8	Dibromo-3-Chloropropane[1,2-]	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	96-18-4	Trichloropropane[1,2,3-]	SW-846:8260B	UF	<	1.0	ug/L	0.3	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	97-63-2	Ethyl Methacrylate	SW-846:8260B	UF	<	5.0	ug/L	1	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	98-06-6	Butylbenzene[tert-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	98-82-8	Isopropylbenzene	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	99-87-6	Isopropyltoluene[4-]	SW-846:8260B	UF	<	1.0	ug/L	0.25	U	U	CAWR-10-17028	FTB	GELC
Rio Grande at Otowi Bridge	5/10/10	lene[1,3 and	Xylene[1,3-]+Xylene[1,4-]	SW-846:8260B	UF	<	2.0	ug/L	0.5	U	U	CAWR-10-17028	FTB	GELC

Table 3.0
Rio Grande at Otowi Bridge
Semivolatile Organic Compounds (SVOCs)

Location Name	Start Date	Analyte	Analyte Desc	Anyl Meth Code	Fld Prep Code		Std Result	Units	Std Mdl	Lab Qual Code	Concat Flag Code	Sample Id	Fld Qc Type Code	Lab Code
Rio Grande at Otowi Bridge	5/10/10	100-01-6	Nitroaniline[4-]	SW-846:8270C	UF	<	10	ug/L	3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	100-02-7	Nitrophenol[4-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	100-51-6	Benzyl Alcohol	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	101-55-3	Bromophenyl-phenylether[4-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	103-33-3	Azobenzene	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	105-67-9	Dimethylphenol[2,4-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	106-44-5	Methylphenol[4-]	SW-846:8270C	UF	<	10	ug/L	3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	106-46-7	Dichlorobenzene[1,4-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	106-47-8	Chloroaniline[4-]	SW-846:8270C	UF	<	10.00	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	108-60-1	Oxybis(1-chloropropane)[2,2'-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	108-95-2	Phenol	SW-846:8270C	UF	<	10.00	ug/L	1	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	110-86-1	Pyridine	SW-846:8270C	UF	<	10	ug/L	3	U	UJ	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	111-44-4	Bis(2-chloroethyl)ether	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	111-91-1	Bis(2-chloroethoxy)methane	SW-846:8270C	UF	<	10	ug/L	3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	117-81-7	Bis(2-ethylhexyl)phthalate	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	117-84-0	Di-n-octylphthalate	SW-846:8270C	UF	<	10	ug/L	3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	118-74-1	Hexachlorobenzene	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	120-12-7	Anthracene	SW-846:8270C	UF	<	1	ug/L	0.2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	120-82-1	Trichlorobenzene[1,2,4-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	120-83-2	Dichlorophenol[2,4-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	121-14-2	Dinitrotoluene[2,4-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	122-39-4	Diphenylamine	SW-846:8270C	UF	<	10	ug/L	3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	123-91-1	Dioxane[1,4-]	SW-846:8270C	UF	<	10	ug/L	2	U	UJ	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	129-00-0	Pyrene	SW-846:8270C	UF	<	1	ug/L	0.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	131-11-3	Dimethyl Phthalate	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	132-64-9	Dibenzofuran	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	191-24-2	Benzo(g,h,i)perylene	SW-846:8270C	UF	<	1	ug/L	0.2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	1912-24-9	Atrazine	SW-846:8270C	UF	<	10.0	ug/L	3	U	R	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	193-39-5	Indeno(1,2,3-cd)pyrene	SW-846:8270C	UF	<	1	ug/L	0.2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	205-99-2	Benzo(b)fluoranthene	SW-846:8270C	UF	<	1	ug/L	0.2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	206-44-0	Fluoranthene	SW-846:8270C	UF	<	1	ug/L	0.2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	207-08-9	Benzo(k)fluoranthene	SW-846:8270C	UF	<	1	ug/L	0.2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	208-96-8	Acenaphthylene	SW-846:8270C	UF	<	1	ug/L	0.2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	218-01-9	Chrysene	SW-846:8270C	UF	<	1	ug/L	0.2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	50-32-8	Benzo(a)pyrene	SW-846:8270C	UF	<	1	ug/L	0.2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	51-28-5	Dinitrophenol[2,4-]	SW-846:8270C	UF	<	20	ug/L	5	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	53-70-3	Dibenz(a,h)anthracene	SW-846:8270C	UF	<	1	ug/L	0.2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	534-52-1	Dinitro-2-methylphenol[4,6-]	SW-846:8270C	UF	<	10	ug/L	3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	541-73-1	Dichlorobenzene[1,3-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	55-18-5	Nitrosodiethylamine[N-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC

Table 3.0
Rio Grande at Otowi Bridge
Semivolatile Organic Compounds (SVOCs)

Location Name	Start Date	Analyte	Analyte Desc	Anyl Meth Code	Fld Prep Code		Std Result	Units	Std Mdl	Lab Qual Code	Concat Flag Code	Sanple Id	Fld Qc Type Code	Lab Code
Rio Grande at Otowi Bridge	5/10/10	56-55-3	Benzo(a)anthracene	SW-846:8270C	UF	<	1	ug/L	0.2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	58-90-2	Tetrachlorophenol[2,3,4,6-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	59-50-7	Chloro-3-methylphenol[4-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	606-20-2	Dinitrotoluene[2,6-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	608-93-5	Pentachlorobenzene	SW-846:8270C	UF	<	10	ug/L	3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	62-53-3	Aniline	SW-846:8270C	UF	<	10	ug/L	2.5	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	62-75-9	Nitrosodimethylamine[N-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	621-64-7	Nitroso-di-n-propylamine[N-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	65-85-0	Benzoic Acid	SW-846:8270C	UF	<	20	ug/L	6	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	67-72-1	Hexachloroethane	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	7005-72-3	Chlorophenyl-phenyl[4-] Ether	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	77-47-4	Hexachlorocyclopentadiene	SW-846:8270C	UF	<	10	ug/L	3	U	UJ	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	78-59-1	Isophorone	SW-846:8270C	UF	<	10	ug/L	3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	83-32-9	Acenaphthene	SW-846:8270C	UF	<	1	ug/L	0.31	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	84-66-2	Diethylphthalate	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	84-74-2	Di-n-butylphthalate	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	85-01-8	Phenanthrene	SW-846:8270C	UF	<	1	ug/L	0.2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	85-68-7	Butylbenzylphthalate	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	86-73-7	Fluorene	SW-846:8270C	UF	<	1	ug/L	0.2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	87-68-3	Hexachlorobutadiene	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	87-86-5	Pentachlorophenol	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	88-06-2	Trichlorophenol[2,4,6-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	88-74-4	Nitroaniline[2-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	88-75-5	Nitrophenol[2-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	88-85-7	Dinoseb	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	90-12-0	Methylnaphthalene[1-]	SW-846:8270C	UF	<	1	ug/L	0.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	91-20-3	Naphthalene	SW-846:8270C	UF	<	1	ug/L	0.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	91-57-6	Methylnaphthalene[2-]	SW-846:8270C	UF	<	1	ug/L	0.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	91-58-7	Chloronaphthalene[2-]	SW-846:8270C	UF	<	1	ug/L	0.3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	91-94-1	Dichlorobenzidine[3,3'-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	92-87-5	Benzidine	SW-846:8270C	UF	<	10	ug/L	3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	924-16-3	Nitroso-di-n-butylamine[N-]	SW-846:8270C	UF	<	10	ug/L	3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	930-55-2	Nitrosopyrrolidine[N-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	95-48-7	Methylphenol[2-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	95-50-1	Dichlorobenzene[1,2-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	95-57-8	Chlorophenol[2-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	95-94-3	Tetrachlorobenzene[1,2,4,5]	SW-846:8270C	UF	<	10	ug/L	3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	95-95-4	Trichlorophenol[2,4,5-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	98-95-3	Nitrobenzene	SW-846:8270C	UF	<	10	ug/L	3	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	99-09-2	Nitroaniline[3-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	CAWR-10-17025		GELC

Table 4.0
Rio Grande at Otowi Bridge
Pesticides/PCBs

Location Name	Start Date	Analyte	Analyte Desc	Anyl Meth Code	Fld Prep Code		Std Result	Units	Std Mdl	Lab Qual Code	Concat Flag Code	Sample Id	Fld Qc Type Code	Lab Code
Rio Grande at Otowi Bridge	5/10/10	309-00-2	Aldrin	SW-846:8081A	UF	<	0.021	ug/L	0.005	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	319-84-6	BHC[alpha-]	SW-846:8081A	UF	<	0.021	ug/L	0.005	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	319-85-7	BHC[beta-]	SW-846:8081A	UF	<	0.021	ug/L	0.006	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	319-86-8	BHC[delta-]	SW-846:8081A	UF	<	0.021	ug/L	0.005	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	58-89-9	BHC[gamma-]	SW-846:8081A	UF	<	0.021	ug/L	0.005	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	5103-71-9	Chlordane[alpha-]	SW-846:8081A	UF	<	0.021	ug/L	0.005	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	5103-74-2	Chlordane[gamma-]	SW-846:8081A	UF	<	0.021	ug/L	0.005	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	72-54-8	DDD[4,4'-]	SW-846:8081A	UF	<	0.042	ug/L	0.011	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	72-55-9	DDE[4,4'-]	SW-846:8081A	UF	<	0.042	ug/L	0.005	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	50-29-3	DDT[4,4'-]	SW-846:8081A	UF	<	0.042	ug/L	0.011	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	60-57-1	Dieldrin	SW-846:8081A	UF	<	0.042	ug/L	0.011	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	959-98-8	Endosulfan I	SW-846:8081A	UF	<	0.021	ug/L	0.005	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	33213-65-9	Endosulfan II	SW-846:8081A	UF	<	0.042	ug/L	0.011	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	1031-07-8	Endosulfan Sulfate	SW-846:8081A	UF	<	0.042	ug/L	0.011	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	72-20-8	Endrin	SW-846:8081A	UF	<	0.042	ug/L	0.011	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	7421-93-4	Endrin Aldehyde	SW-846:8081A	UF	<	0.042	ug/L	0.005	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	53494-70-5	Endrin Ketone	SW-846:8081A	UF	<	0.042	ug/L	0.011	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	76-44-8	Heptachlor	SW-846:8081A	UF	<	0.021	ug/L	0.005	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	1024-57-3	Heptachlor Epoxide	SW-846:8081A	UF	<	0.021	ug/L	0.005	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	72-43-5	Methoxychlor[4,4'-]	SW-846:8081A	UF	<	0.211	ug/L	0.053	U	U	CAWR-10-17025		GELC
Rio Grande at Otowi Bridge	5/10/10	8001-35-2	Toxaphene (Technical Grade)	SW-846:8081A	UF	<	0.526	ug/L	0.16	U	U	CAWR-10-17025		GELC

Location Name	Start Date	Analyte	Analyte Desc	Anyl Meth Code	Fld Prep Code		Std Result	Units	Std Mdl	Lab Qual Code	Concat Flag Code	Sample Id	Fld Qc Type Code	Lab Code
Rio Grande at Otowi Bridge	5/10/10	1336-36-3	Total PCB	EPA:1668A	UF	<	0.00000000	ug/L	NA	U	U	CAWR-10-17025		CFA
Rio Grande at Otowi Bridge	5/10/10	1336-36-3	Total PCB	EPA:1668A	UF	<	0.00000000	ug/L	NA	U	U	CAWR-10-17027	FB	CFA

Notes:
NA means that no MDL is available for Total PCB measurements because the result is a summation of individual congener values.

Table 5.0
Rio Grande at Otowi Bridge
General Inorganics

Location Name	Start Date	Analyte	Anyl Meth Code	Fld Prep Code		Std Result	Units	Std Mdl	Lab Qual Code	Concat Flag Code	Sample Id	Lab Code	Scr Lvl	Scr Lvl Type Code
Rio Grande at Otowi Bridge	05/10/10	ALK-CO3	EPA:310.1	UF	<	1	mg/L	0.73	U	U	CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	05/10/10	ALK-CO3+HCO3	EPA:310.1	UF		71.9	mg/L	0.73			CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	05/10/10	Br(-1)	EPA:300.0	UF	<	0.20	mg/L	0.07	U	U	CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	05/10/10	CN(TOTAL)	EPA:335.4	UF	<	0.005	mg/L	0.002	U	U	CAWR-10-17025	GELC	0.2	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	05/10/10	Ca	SW-846:6010B	UF		31.4	mg/L	0.05			CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	05/10/10	Ca	SW-846:6010B	F		27.3	mg/L	0.05			CAWR-10-17026	GELC		
Rio Grande at Otowi Bridge	05/10/10	Cl(-1)	EPA:300.0	UF		2.59	mg/L	0.066			CAWR-10-17025	GELC	250	EPA SEC DW LVL
Rio Grande at Otowi Bridge	05/10/10	ClO4	SW-846:6850	UF		0.09	ug/L	0.05	J	J	CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	05/10/10	DO	Field Measurement	UF		9.68	mg/L				CAWR-10-17025	FLD		
Rio Grande at Otowi Bridge	05/10/10	F(-1)	EPA:300.0	UF		0.18	mg/L	0.033			CAWR-10-17025	GELC	4	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	05/10/10	HARDNESS	SM:A2340B	F		88	mg/L	0.35			CAWR-10-17026	GELC		
Rio Grande at Otowi Bridge	05/10/10	HARDNESS	SM:A2340B	UF		102	mg/L	0.35			CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	05/10/10	K	SW-846:6010B	F		2.0	mg/L	0.05	E		CAWR-10-17026	GELC		
Rio Grande at Otowi Bridge	05/10/10	K	SW-846:6010B	UF		2.5	mg/L	0.05	E		CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	05/10/10	Mg	SW-846:6010B	UF		5.6	mg/L	0.09			CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	05/10/10	Mg	SW-846:6010B	F		4.9	mg/L	0.09			CAWR-10-17026	GELC		
Rio Grande at Otowi Bridge	05/10/10	NH3-N	EPA:350.1	UF		0.18	mg/L	0.016		J	CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	05/10/10	NO3+NO2-N	EPA:353.2	UF	<	0.12	mg/L	0.05	J	U	CAWR-10-17025	GELC	10	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	05/10/10	Na	SW-846:6010B	F		10.3	mg/L	0.10			CAWR-10-17026	GELC		
Rio Grande at Otowi Bridge	05/10/10	Na	SW-846:6010B	UF		10.6	mg/L	0.10			CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	05/10/10	PO4-P	EPA:365.4	UF		0.1	mg/L	0.02			CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	05/10/10	SO4(-2)	EPA:300.0	UF		34.2	mg/L	0.10			CAWR-10-17025	GELC	250	EPA SEC DW LVL
Rio Grande at Otowi Bridge	05/10/10	SPEC_CONDC	FIELD CONDUCTIVITY	UF		215	uS/cm				CAWR-10-17025	FLD		
Rio Grande at Otowi Bridge	05/10/10	SPEC_CONDC	EPA:120.1	UF		238	uS/cm	1.0			CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	05/10/10	SSC	EPA:160.2	UF		165	mg/L	2.3			CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	05/10/10	TDS	EPA:160.1	UF		169	mg/L	2.4			CAWR-10-17025	GELC	500	EPA SEC DW LVL
Rio Grande at Otowi Bridge	05/10/10	TEMP	FIELD TEMP	UF		10.6	deg C				CAWR-10-17025	FLD		
Rio Grande at Otowi Bridge	05/10/10	TKN	EPA:351.2	UF		0.37	mg/L	0.033		J	CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	05/10/10	TOC	SW-846:9060	UF		5.2	mg/L	0.33			CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	05/10/10	TURB	FIELD TURB	UF		47.6	NTU				CAWR-10-17025	FLD		
Rio Grande at Otowi Bridge	05/10/10	pH	FIELD PH	UF		7.14	SU				CAWR-10-17025	FLD	6.5-8.5	EPA SEC DW LVL
Rio Grande at Otowi Bridge	05/10/10	pH	EPA:150.1	UF		8.11	SU	0.01	H	J-	CAWR-10-17025	GELC	6.5-8.5	EPA SEC DW LVL

Table 6.0
Rio Grande at Otowi Bridge
Metals

Location Name	Start Date	Analyte	Anyl Meth Code	Fld Prep Code		Std Result	Units	Std Mdl	Lab Qual Code	Concat Flag Code	Sample Id	Lab Code	Scr Lvl	Scr Lvl Type Code
Rio Grande at Otowi Bridge	05/10/10	Ag	SW-846:6020	F	<	1	ug/L	0.2	U	U	CAWR-10-17026	GELC	100	EPA SEC DW LVL
Rio Grande at Otowi Bridge	05/10/10	Ag	SW-846:6020	UF	<	1	ug/L	0.2	U	U	CAWR-10-17025	GELC	100	EPA SEC DW LVL
Rio Grande at Otowi Bridge	05/10/10	Al	SW-846:6010B	F	<	200	ug/L	68	U*	UJ	CAWR-10-17026	GELC	200	EPA SEC DW LVL
Rio Grande at Otowi Bridge	05/10/10	Al	SW-846:6010B	UF		2570	ug/L	68	*	J	CAWR-10-17025	GELC	200	EPA SEC DW LVL
Rio Grande at Otowi Bridge	05/10/10	As	SW-846:6020	UF	<	5	ug/L	1.5	U	U	CAWR-10-17025	GELC	10	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	05/10/10	As	SW-846:6020	F	<	5	ug/L	1.5	U	U	CAWR-10-17026	GELC	10	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	05/10/10	B	SW-846:6010B	F		17.8	ug/L	15	J	J	CAWR-10-17026	GELC		
Rio Grande at Otowi Bridge	05/10/10	B	SW-846:6010B	UF		19.9	ug/L	15	J	J	CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	05/10/10	Ba	SW-846:6010B	UF		71	ug/L	1			CAWR-10-17025	GELC	2000	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	05/10/10	Ba	SW-846:6010B	F		42	ug/L	1			CAWR-10-17026	GELC	2000	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	05/10/10	Be	SW-846:6010B	F	<	5	ug/L	1	U	U	CAWR-10-17026	GELC	4	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	05/10/10	Be	SW-846:6010B	UF	<	5	ug/L	1	U	U	CAWR-10-17025	GELC	4	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	05/10/10	Cd	SW-846:6020	UF		0.116	ug/L	0.11	J	J	CAWR-10-17025	GELC	5	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	05/10/10	Cd	SW-846:6020	F	<	1	ug/L	0.11	U	U	CAWR-10-17026	GELC	5	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	05/10/10	Co	SW-846:6010B	F	<	5.0	ug/L	1	U	U	CAWR-10-17026	GELC		
Rio Grande at Otowi Bridge	05/10/10	Co	SW-846:6010B	UF		1.5	ug/L	1	J	J	CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	05/10/10	Cr	SW-846:6020	UF		3.29	ug/L	2.5	J	J	CAWR-10-17025	GELC	100	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	05/10/10	Cr	SW-846:6020	F	<	10	ug/L	2.5	U	U	CAWR-10-17026	GELC	100	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	05/10/10	Cu	SW-846:6010B	UF	<	10	ug/L	3	U	U	CAWR-10-17025	GELC	1300	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	05/10/10	Cu	SW-846:6010B	F	<	10	ug/L	3	U	U	CAWR-10-17026	GELC	1300	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	05/10/10	Fe	SW-846:6010B	UF		1810	ug/L	30	*	J	CAWR-10-17025	GELC	300	EPA SEC DW LVL
Rio Grande at Otowi Bridge	05/10/10	Fe	SW-846:6010B	F	<	100	ug/L	30	U*	UJ	CAWR-10-17026	GELC	300	EPA SEC DW LVL
Rio Grande at Otowi Bridge	05/10/10	Hg	EPA:245.2	F	<	0.2	ug/L	0.066	U	U	CAWR-10-17026	GELC	2	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	05/10/10	Hg	EPA:245.2	UF	<	0.2	ug/L	0.066	U	U	CAWR-10-17025	GELC	2	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	05/10/10	Mn	SW-846:6010B	UF		98.1	ug/L	2			CAWR-10-17025	GELC	50	EPA SEC DW LVL
Rio Grande at Otowi Bridge	05/10/10	Mn	SW-846:6010B	F		3.97	ug/L	2	J	J	CAWR-10-17026	GELC	50	EPA SEC DW LVL
Rio Grande at Otowi Bridge	05/10/10	Mo	SW-846:6020	UF		1.9	ug/L	0.1			CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	05/10/10	Mo	SW-846:6020	F		1.91	ug/L	0.1			CAWR-10-17026	GELC		
Rio Grande at Otowi Bridge	05/10/10	Ni	SW-846:6020	UF		3.1	ug/L	0.5			CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	05/10/10	Ni	SW-846:6020	F		1.2	ug/L	0.5	J	J	CAWR-10-17026	GELC		
Rio Grande at Otowi Bridge	05/10/10	Pb	SW-846:6020	UF		2	ug/L	0.5			CAWR-10-17025	GELC	15	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	05/10/10	Pb	SW-846:6020	F	<	2.0	ug/L	0.5	U	U	CAWR-10-17026	GELC	15	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	05/10/10	Sb	SW-846:6020	UF	<	3	ug/L	0.5	U	U	CAWR-10-17025	GELC	6	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	05/10/10	Sb	SW-846:6020	F	<	3	ug/L	0.5	U	U	CAWR-10-17026	GELC	6	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	05/10/10	Se	SW-846:6020	UF	<	5	ug/L	1	U	U	CAWR-10-17025	GELC	50	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	05/10/10	Se	SW-846:6020	F	<	5	ug/L	1	U	U	CAWR-10-17026	GELC	50	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	05/10/10	SiO2	SW-846:6010B	UF		27	mg/L	0.05			CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	05/10/10	Sn	SW-846:6010B	UF	<	10	ug/L	2.5	U	U	CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	05/10/10	Sn	SW-846:6010B	F	<	10	ug/L	2.5	U	U	CAWR-10-17026	GELC		
Rio Grande at Otowi Bridge	05/10/10	Sr	SW-846:6010B	UF		221	ug/L	1			CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	05/10/10	Sr	SW-846:6010B	F		204	ug/L	1			CAWR-10-17026	GELC		
Rio Grande at Otowi Bridge	05/10/10	Tl	SW-846:6020	F	<	1	ug/L	0.3	U	U	CAWR-10-17026	GELC	2	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	05/10/10	Tl	SW-846:6020	UF		0.392	ug/L	0.3	J	J	CAWR-10-17025	GELC	2	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	05/10/10	U	SW-846:6020	F		1.2	ug/L	0.05			CAWR-10-17026	GELC	30	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	05/10/10	U	SW-846:6020	UF		1.4	ug/L	0.05			CAWR-10-17025	GELC	30	EPA PRIM DW LVL
Rio Grande at Otowi Bridge	05/10/10	V	SW-846:6010B	F		2.2	ug/L	1	J	J	CAWR-10-17026	GELC		
Rio Grande at Otowi Bridge	05/10/10	V	SW-846:6010B	UF		6.5	ug/L	1			CAWR-10-17025	GELC		
Rio Grande at Otowi Bridge	05/10/10	Zn	SW-846:6010B	UF		9.92	ug/L	3.3	J	J	CAWR-10-17025	GELC	5000	EPA SEC DW LVL
Rio Grande at Otowi Bridge	05/10/10	Zn	SW-846:6010B	F	<	10.0	ug/L	3.3	U	U	CAWR-10-17026	GELC	5000	EPA SEC DW LVL

Table 2.1: Suspended Sediment Concentration and Laser Particle Size Analysis Results for LANL Request No. 10-3118

LabID	Received	Field ID	SSC (g/L)	Tot. Solids (g)	H2O Bottle (mL)	Laser Particle Size Analysis Run info File_ID	%Obs.	Wgt. Res.	Geometric Mean	St.Dev.
C10-469	5/18/10	CAWR-10-17025	0.33	1.20	3617	LAN-006 & LAN-007	35.13	0.36	22.12	4.33
C10-470	5/18/10	CAWR-10-17022	0.30	1.08	3578	LAN-008 & LAN-009	34.79	0.40	15.57	4.40
C10-471	5/18/10	CAWR-10-17019	0.31	1.06	3442	LAN-010	35.10	0.34	14.55	4.37

LabID	% Particle Size, low diameter (um) 1000	500	250	200	150	125	100	75	62.5	50	40	30	20	19	18	17	16	15	14	13	12	11
C10-469	0.00	0.00	0.48	1.57	4.17	3.57	4.87	6.97	5.00	6.82	7.25	8.63	9.04	0.95	0.99	1.03	1.08	1.15	1.23	1.33	1.44	1.56
C10-470	0.00	0.00	0.17	0.55	2.02	2.27	3.71	5.80	4.11	5.55	6.14	8.14	10.34	1.21	1.26	1.32	1.39	1.46	1.55	1.65	1.76	1.89
C10-471	0.00	0.00	0.17	0.36	1.42	1.72	3.04	5.34	4.17	5.93	6.66	8.70	10.59	1.20	1.25	1.30	1.36	1.44	1.52	1.62	1.74	1.87

LabID	10	9	8	7	6	5	4	3	2	1.5	1	0.5	0.01	ΣSum	% Size Fraction Sand	Silt	Clay	ΣSum
C10-469	1.70	1.85	2.01	2.19	2.39	2.63	2.92	3.19	3.54	2.04	2.22	3.21	0.99	100.00	26.62	64.91	8.46	100.00
C10-470	2.02	2.18	2.36	2.56	2.81	3.13	3.51	3.89	4.35	2.53	2.77	3.89	1.69	100.00	18.64	70.48	10.88	100.00
C10-471	2.01	2.17	2.35	2.56	2.82	3.16	3.57	3.98	4.45	2.60	2.90	4.15	1.90	100.00	16.21	72.25	11.54	100.00

Analytical Results of Suspended Sediment Concentration and Laser Particle-Size Analysis For water Samples From Los Alamos National Laboratory

Report for Request: **10-3118**
Prepared: **09/23/10**

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Contents:

(1) Summary of laboratory procedures used at DRI
(2) Table of SSC and LPSA results for submitted samples
(3) Summary of analytical results
(4) Appendix: Documentation of laboratory procedures
(5) CD with summary file (in MS Excel format) of included data

Laboratory Analytical Results for Request Nos. 10-3118

1.0 SUMMARY OF ANALYTICAL LABORATORY PROCEDURES USED AT DRI

1.1 General Summary: Methods used by the DRI Soil Characterization and Quaternary Pedology Laboratory for Suspended Sediment Concentration (SSC) measurement and Laser Particle Size Analysis (LPSA) follow standard analytical methods commonly employed for the analysis of water and sediment samples. Detailed descriptions of these methods are documented in Appendix A1.

1.2 QA/QC Procedures: Standard QA/QC procedures are followed for SSC and LPSA. Analytical balances are serviced once a year by a manufacturer-approved technician and are checked for calibration weekly by laboratory personnel. All samples are logged into and out of the lab and all laboratory measurements are recorded in ink on laboratory worksheets. All data is entered into a computer database with backups for all data. A laboratory flowchart system with checks-and-balances is incorporated into laboratory procedures to ensure that all samples are correctly analyzed. All analyses are performed by laboratory personnel trained in the methods.

2.0 TABLE OF SSC AND LPSA RESULTS FOR SUBMITTED SAMPLES

Results for all samples are presented in Table 2-1. Suspended sediment concentrations are presented in g/L. The total solids in the samples are also presented (in g) as well as the total volume of water in the samples (in mL). For laser particle size analysis, analysis information provided includes the digital file name(s), % obscuration, and weighted residual (the meaning of these parameters is explained in Appendix A1.2). The results are given in terms of the percentage of particles falling into 35 size bins, each size bin being labeled by the low diameter of it's size range (in µm). As a quality assurance measure, the percentages in all the bins are added up to show that they amount to 100% (+/– 0.1%). The percentages of sand, silt, and clay are determined by adding up the percentages in all the bins that fall into the sand, silt, and clay size ranges as shown in Table 2-2. Although the upper size limit of sand is generally defined as 2000 µm rather than the 1000 µm shown here, particles greater than 1000 µm cannot be measured at DRI using LPSA. Water samples are poured through a sieve with 1000 µm apertures before being transferred to the analyzer, so that particles >1000 µm are excluded from the analysis. In the case of these samples, no sediment was retained on the sieve, so the LPSA results represent the entire sample.

Table 2-2. The size ranges for sand, silt, and clay, as used in LPSA.

Major Class	Minimum Size (µm)
Sand	1000 – 62.5
Silt	15 – 2
Clay	< 2

3.0 SUMMARY OF ANALYTICAL RESULTS

As shown in Table 2.1, all samples in Request. No. 10-3118 (CAWR-10-17025, 10-17022, and 17019) displayed very similar values in SSC, ranging from 0.30 to 0.33 g/L. The results of LPSA show slight variation with sand ranging from 26.62 to 16.21%, silt ranging from 72.25 to 64.91%, and clay ranging from 11.54 to 8.46%.

APPENDIX A1:

A1.1. Method for Determination of Suspended Sediment Concentration

Suspended-sediment concentration (SSC) is determined using ATSM method D 3977-97, "Standard Test Method for Determining Sediment Concentration in Water Samples" (ASTM, 2000) using test method A -Evaporation. Each sample bottle is weighed and emptied into a weighed 1500 mL beaker, and then the sample bottle is re-weighed to determine initial sample mass. The density of water is assumed to be 0.998 g/mL at STP. If deemed necessary, the bottle is rinsed using DI water and the rinsings are emptied into the beaker. The beaker is then placed in an oven at 105° for 24 hrs or until a constant weight is achieved (usually less than 48 hrs). The beaker is weighed to determine the mass of the solids, and then the solids are resuspended in liquid for transferal to the Laser Particle Size Analyzer. It is assumed in this method that the weight of any dissolved solids in the sample is insignificant compared to that of the suspended sediments, so that the weight of the dried sample is effectively the weight of the suspended sediments.

Equipment:

Balance (Top loader)	1500 mL Beakers
Wire Brush	Repipettor
Convection Oven	Hot plate and water bath
Desiccators	

SSC Procedure:

(1) Weigh 1500 mL beaker to the nearest 0.001 g.

(2) Weigh sample bottle to nearest 0.001 g.

(3) Empty sample contents into beaker, removing as much solid material as possible.

(4) Rinse bottle with 20 mL increments of DI and return rinse to beaker (and note how many 20 mL rinses are used).

(5) Weigh and record mass of empty bottle and filled beaker.

(6) Dry beaker in oven at 105°C for 24 hrs or constant weight.

(7) Cool sample in desiccators, weigh- to nearest 0.001 g

(8) If the sample was too large to fit in the beaker in one go, dry the sample in increments, weighing the filled beaker and the dried beaker each time. Remember to weigh the empty bottle when all the sample has finally been poured into the beaker.

Documentation and Calculations:

(1) Transfer all weights and sample information to appropriate spreadsheet set-up for SSC calculations in laboratory computer.

(2) Ensure all numbers are entered correctly. Back-up all data.

(3) Laboratory data entered into spreadsheet for SSC should include the following:

a) Weight of full sample container - $M_{Bottle+sample}$

b) Empty sample bottle - M_{Bottle}

c) Beaker tare weight - M_{Beaker}

d) Oven dry beaker + sample weight. $M_{Sed+Beaker}$

$$M_{Sediment}(g) = M_{Sed+Beaker} - M_{Beaker}$$

$$Volume(l) = \frac{M_{Bottle+sample} - \left(M_{Bottle} + M_{Sediment}\right)}{0.998}$$

$$SSC(g/L) = \frac{M_{sediment}}{Volume}$$

A1.2. Method for Laser Particle Size Analysis

Laser particle size analysis (LPSA) procedure is used to determine the percentage of size-class fractions in a soil or sediment sample (Gee and Or, 2002). The procedure is based on ASTM C 1070 – 01 for the determination of PSDA of alumina and quartz powders by laser light scatter (ASTM, 2000). Laser light scattering is based on the Mie theory of light scattering by a spherical particle. In the DRI Quaternary Pedology and Soil Characterization Lab, the instrument used is a Micromeretics Saturn DigiSizer 5200®. The sample is internally dispersed using ultra-sonication in an aqueous medium of 0.005% surfactant (Na metaphosphate) and circulated through the path of the laser light beam. As the particles pass through the laser beam, the light scatters at angles inversely proportional to their size and with intensity directly proportional to their size. A forty-five degree rotational Charged-Coupled Device (CCD) detector collects the scattered light intensity, which is converted to electrical signals and analyzed in a microprocessor. Data reduction consists of a mathematical convolution based on scattering model sets, each calculated from general Mie theory for narrow distributions of isotropic spheres of a specific index of refraction and suspended in liquid of a specific index of refraction. Data reported by the Saturn DigiSizer relates directly to an equivalent Mie sphere. Mie theory consists of a 'real' refractive index (1.550 for soils) and an 'imaginary' refractive index (0.100 for soils) determined by Micromeretics Laboratories. The predictive model error (weighted residual) is proportional to the measure of the calculated Mie theory model to predictions of the observed laser light scattering pattern.

For soils, there are two methods of running samples: 1) a sample may be externally dispersed and sieved to remove the sand fraction, so that only the fine fraction is put into the laser analyzer, or 2) the entire sample may be dispersed within the laser analyzer by ultra-sonication. Method 1 has the advantage of added resolution to the fine end by removing larger particles, thereby reducing multiple light scatter. The pump speed may also be reduced thus decreasing the entrapment of air in the surfactant. Method 2 has the advantage of the entire sample being presented enabling the ability to determine a geometric mean of the entire particle size distribution. In the case of water samples, the entire sample is usually put into the machine (they are sieved to <1000 μm before hand but rarely is any sediment retained on the sieve), but

because they are already in a liquid form, they are introduced into the laser analyzer like the externally dispersed soil samples.

Equipment:

Balance (analytic and top loader)	Funnel
50 ml centrifuge tubes	250 ml beakers
Ependorf repipettor	63 µm (#230) sieve – 3”
Mechanical shaker table	Aluminum boats
Ring stand	Convection oven

Reagents:

Dispersing & Rinse agent: 0.005% Sodium metaphosphate (0.002 g/L)

38 mg sodium metaphosphate $Na_6(PO_3)_6$

Dissolve into RO while filling 5 g carboy

External Dispersion (used for soil samples only):

(1) Transfer LPSA sample split (~1 g clay rich, or ~ 4 g sand rich) into a 50 ml centrifuge tube weighed to the nearest 0.001g.

(2) Add 25 ml dispersant into each tube using repipettor. Place on mechanical shaker table and shake for 12 hours (low setting).

(3) Wet sieve the clay and silt fraction, using DI water, through a 63 µm sieve (#230 mesh) and into a 250 ml beaker. Continue wet sieving until roughly 200 mL is collected in beaker and the water passing through sieve runs clear.

(4) Wash sands back into a weighed tin, place in oven set at 105°C for at least 12 hours. Place in desiccator to cool and weigh to nearest 0.0001g.

Laser Analysis:

(1) Build sample file to run a minimum of 3 replications at 35% laser obscuration using internal auto-dilution. Set pump speed to 11 l/min. Auto-sonicate for 90 seconds followed by 90 seconds of re-circulation. Save sample file and close.

(2) Open the sample file under unit 1 and verify beam obscuration is –0.3< %Obs < 0.3% before adding sample. If not, rinse. Run new background if blank obscuration remains out of tolerance

(3) *METHOD 1- Externally dispersed soils or water samples:* Manually set pump speed to 200 rpm and drain sample reservoir to roughly 200 mL. Pour contents of 250 mL beaker into chamber. Rinse beaker adequately with RO. Do not overfill chamber. Reset pump speed to 1199 rpm and proceed to step 5. In the case of waters samples, pour the water-sediment mixture through a 1000 µm (1 mm) sieve into a beaker to remove any >1000 µm particles before transferring the sample to the DigiSizer liquid sample handling unit. In the case of suspended sediment samples that have been dried, resuspend the sediments in ~200 ml of the surfactant used in the DigisSizer before sieving them and transferring them to the DigiSizer as described above.

(4) *METHOD 2- Entire sample (for dry soil samples)*: Transfer entire LPSA sample split into DigiSizer liquid sample handling unit.

(5) Manually ultra-sonicate sample until a stable obscuration is achieved (usually 30 – 60 seconds). Begin analytic run.

(6) After replicate runs, verify weighted residual is within range (generally < 3%). Residual is highly dependent on beam obscuration. If sample has insufficient volume, residual may be significantly higher.

(7) Auto-rinse unit 2 times with surfactant mixture.

Documentation and Calculations:

(1) Transfer all results and sample information to appropriate spreadsheet set-up for LPSA calculations in Lab computer. Ensure all numbers are entered correctly. Back-up all data

(2) Complete all log and flow chart sheets for LPSA for each sample run. Any notes regarding unusual properties or potential problems with the samples should be included.

(3) Transfer all lab worksheets to appropriate file cabinet, make sure all worksheets are complete and in order.