

**Surface Water Quality Data
Floodplain Locations**

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Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)

REPORT DATE: 12/21/2011

Location: 0501 SURFACE LOCATION S. bank San Juan River just E of Disposal Cell

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	09/13/2011	0001	141			#		
Ammonia Total as N	mg/L	09/13/2011	0002	0.1	U		#	0.1	
Ammonia Total as N	mg/L	09/13/2011	N001	0.1	U		#	0.1	
Calcium	mg/L	09/13/2011	0002	48			#	0.012	
Calcium	mg/L	09/13/2011	N001	120			#	0.012	
Chloride	mg/L	09/13/2011	0002	10			#	0.4	
Chloride	mg/L	09/13/2011	N001	10			#	0.4	
Magnesium	mg/L	09/13/2011	0002	6.8			#	0.013	
Magnesium	mg/L	09/13/2011	N001	30			#	0.013	
Manganese	mg/L	09/13/2011	0002	0.073			#	0.00011	
Manganese	mg/L	09/13/2011	N001	2.2			#	0.00011	
Nitrate + Nitrite as Nitrogen	mg/L	09/13/2011	0002	0.62			#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	09/13/2011	N001	0.61			#	0.01	
Oxidation Reduction Potential	mV	09/13/2011	N001	146			#		
pH	s.u.	09/13/2011	N001	8.05			#		
Potassium	mg/L	09/13/2011	0002	4.5			#	0.11	
Potassium	mg/L	09/13/2011	N001	17			#	0.11	
Selenium	mg/L	09/13/2011	0002	0.00094			#	0.000032	
Selenium	mg/L	09/13/2011	N001	0.0037			#	0.000032	
Sodium	mg/L	09/13/2011	0002	49			#	0.0066	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)

REPORT DATE: 12/21/2011

Location: 0501 SURFACE LOCATION S. bank San Juan River just E of Disposal Cell

Parameter	Units	Sample Date	Sample ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Sodium	mg/L	09/13/2011	N001	56			#	0.0066	
Specific Conductance	umhos/cm	09/13/2011	N001	717			#		
Strontium	mg/L	09/13/2011	0002	0.68			#	0.000078	
Strontium	mg/L	09/13/2011	N001	1.7			#	0.000078	
Sulfate	mg/L	09/13/2011	0002	130			#	1	
Sulfate	mg/L	09/13/2011	N001	140			#	1	
Temperature	C	09/13/2011	N001	18.48			#		
Turbidity	NTU	09/13/2011	N001	1000	>		#		
Uranium	mg/L	09/13/2011	0002	0.0022			#	0.0000029	
Uranium	mg/L	09/13/2011	N001	0.0084			#	0.0000029	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)

REPORT DATE: 12/21/2011

Location: 0897 SURFACE LOCATION S. bank San Juan River, just below Many Devils Wash confluence

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	09/14/2011	0001	188			#		
Ammonia Total as N	mg/L	09/14/2011	0002	0.1	U		#	0.1	
Ammonia Total as N	mg/L	09/14/2011	N001	0.1	U		#	0.1	
Calcium	mg/L	09/14/2011	0002	50			#	0.012	
Calcium	mg/L	09/14/2011	N001	72			#	0.012	
Chloride	mg/L	09/14/2011	0002	11			#	0.4	
Chloride	mg/L	09/14/2011	N001	11			#	0.4	
Magnesium	mg/L	09/14/2011	0002	8.6			#	0.013	
Magnesium	mg/L	09/14/2011	N001	18			#	0.013	
Manganese	mg/L	09/14/2011	0002	0.0012	B	U	#	0.00011	
Manganese	mg/L	09/14/2011	N001	0.57			#	0.00011	
Nitrate + Nitrite as Nitrogen	mg/L	09/14/2011	0002	0.54			#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	09/14/2011	N001	0.46			#	0.01	
Oxidation Reduction Potential	mV	09/14/2011	N001	186.5			#		
pH	s.u.	09/14/2011	N001	7.85			#		
Potassium	mg/L	09/14/2011	0002	2.8			#	0.11	
Potassium	mg/L	09/14/2011	N001	7.6			#	0.11	
Selenium	mg/L	09/14/2011	0002	0.00091			#	0.000032	
Selenium	mg/L	09/14/2011	N001	0.0021			#	0.000032	
Sodium	mg/L	09/14/2011	0002	34			#	0.0066	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)

REPORT DATE: 12/21/2011

Location: 0897 SURFACE LOCATION S. bank San Juan River, just below Many Devils Wash confluence

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Sodium	mg/L	09/14/2011	N001	37			#	0.0066	
Specific Conductance	umhos/cm	09/14/2011	N001	559			#		
Strontium	mg/L	09/14/2011	0002	0.69			#	0.000078	
Strontium	mg/L	09/14/2011	N001	0.94			#	0.000078	
Sulfate	mg/L	09/14/2011	0002	120			#	1	
Sulfate	mg/L	09/14/2011	N001	120			#	1	
Temperature	C	09/14/2011	N001	20.08			#		
Turbidity	NTU	09/14/2011	N001	1000	>		#		
Uranium	mg/L	09/14/2011	0002	0.0016			#	0.0000029	
Uranium	mg/L	09/14/2011	N001	0.0037			#	0.0000029	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)

REPORT DATE: 12/21/2011

Location: 0898 SURFACE LOCATION S. bank San Juan River, N of floodplain background area

Parameter	Units	Sample Date	Sample ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	09/15/2011	N001	340			#		
Ammonia Total as N	mg/L	09/15/2011	0001	0.1	U		#	0.1	
Ammonia Total as N	mg/L	09/15/2011	N001	0.1	U		#	0.1	
Calcium	mg/L	09/15/2011	0001	40			#	0.012	
Calcium	mg/L	09/15/2011	N001	320			#	0.06	
Chloride	mg/L	09/15/2011	0001	18			#	1	
Chloride	mg/L	09/15/2011	N001	18			#	1	
Magnesium	mg/L	09/15/2011	0001	5.6			#	0.013	
Magnesium	mg/L	09/15/2011	N001	120			#	0.065	
Manganese	mg/L	09/15/2011	0001	0.017			#	0.00011	
Manganese	mg/L	09/15/2011	N001	6.2			#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	09/15/2011	0001	0.94			#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	09/15/2011	N001	1.4			#	0.01	
Oxidation Reduction Potential	mV	09/15/2011	N001	70.9			#		
pH	s.u.	09/15/2011	N001	8.18			#		
Potassium	mg/L	09/15/2011	0001	7.5			#	0.11	
Potassium	mg/L	09/15/2011	N001	55	E		#	0.54	
Selenium	mg/L	09/15/2011	0001	0.0015			#	0.000032	
Selenium	mg/L	09/15/2011	N001	0.013	E	J	#	0.000032	
Sodium	mg/L	09/15/2011	0001	110			#	0.0066	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)

REPORT DATE: 12/21/2011

Location: 0898 SURFACE LOCATION S. bank San Juan River, N of floodplain background area

Parameter	Units	Sample Date	Sample ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Sodium	mg/L	09/15/2011	N001	130			#	0.033	
Specific Conductance	umhos/cm	09/15/2011	N001	867			#		
Strontium	mg/L	09/15/2011	0001	0.62			#	0.000078	
Strontium	mg/L	09/15/2011	N001	3.9			#	0.00039	
Sulfate	mg/L	09/15/2011	0001	240			#	2.5	
Sulfate	mg/L	09/15/2011	N001	240			#	2.5	
Temperature	C	09/15/2011	N001	17.86			#		
Turbidity	NTU	09/15/2011	N001	1000	>		#		
Uranium	mg/L	09/15/2011	0001	0.0031			#	0.0000029	
Uranium	mg/L	09/15/2011	N001	0.028			#	0.0000029	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)

REPORT DATE: 12/21/2011

Location: 0899 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	09/14/2011	N001	340			#		
Ammonia Total as N	mg/L	09/14/2011	0001	0.1	U		#	0.1	
Ammonia Total as N	mg/L	09/14/2011	N001	0.1	U		#	0.1	
Calcium	mg/L	09/14/2011	0001	50			#	0.012	
Calcium	mg/L	09/14/2011	N001	80			#	0.012	
Chloride	mg/L	09/14/2011	0001	11			#	0.4	
Chloride	mg/L	09/14/2011	N001	11			#	0.4	
Magnesium	mg/L	09/14/2011	0001	8.4			#	0.013	
Magnesium	mg/L	09/14/2011	N001	20			#	0.013	
Manganese	mg/L	09/14/2011	0001	0.0019	B		#	0.00011	
Manganese	mg/L	09/14/2011	N001	0.7			#	0.00011	
Nitrate + Nitrite as Nitrogen	mg/L	09/14/2011	0001	0.61			#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	09/14/2011	N001	0.57			#	0.01	
Oxidation Reduction Potential	mV	09/14/2011	N001	158.6			#		
pH	s.u.	09/14/2011	N001	7.98			#		
Potassium	mg/L	09/14/2011	0001	3			#	0.11	
Potassium	mg/L	09/14/2011	N001	8.8			#	0.11	
Selenium	mg/L	09/14/2011	0001	0.0011			#	0.000032	
Selenium	mg/L	09/14/2011	N001	0.0026			#	0.000032	
Sodium	mg/L	09/14/2011	0001	35			#	0.0066	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)

REPORT DATE: 12/21/2011

Location: 0899 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Sodium	mg/L	09/14/2011	N001	39			#	0.0066	
Specific Conductance	umhos/cm	09/14/2011	N001	690			#		
Strontium	mg/L	09/14/2011	0001	0.69			#	0.000078	
Strontium	mg/L	09/14/2011	N001	1			#	0.000078	
Sulfate	mg/L	09/14/2011	0001	120			#	1	
Sulfate	mg/L	09/14/2011	N001	120			#	1	
Temperature	C	09/14/2011	N001	15.59			#		
Uranium	mg/L	09/14/2011	0001	0.0016			#	0.0000029	
Uranium	mg/L	09/14/2011	N001	0.0043			#	0.0000029	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)

REPORT DATE: 12/21/2011

Location: 0940 SURFACE LOCATION S. bank San Juan River about 2500 ft E of US Hwy 666 bridge

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	09/15/2011	0001	104			#		
Ammonia Total as N	mg/L	09/15/2011	0002	0.1	U		#	0.1	
Ammonia Total as N	mg/L	09/15/2011	N001	0.1	U		#	0.1	
Calcium	mg/L	09/15/2011	0002	42			#	0.012	
Calcium	mg/L	09/15/2011	N001	160			#	0.012	
Chloride	mg/L	09/15/2011	0002	11			#	0.4	
Chloride	mg/L	09/15/2011	N001	11			#	0.4	
Magnesium	mg/L	09/15/2011	0002	6.3			#	0.013	
Magnesium	mg/L	09/15/2011	N001	56			#	0.013	
Manganese	mg/L	09/15/2011	0002	0.0048	B		#	0.00011	
Manganese	mg/L	09/15/2011	N001	2.3			#	0.00011	
Nitrate + Nitrite as Nitrogen	mg/L	09/15/2011	0002	0.74			#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	09/15/2011	N001	0.71			#	0.01	
Oxidation Reduction Potential	mV	09/15/2011	N001	307			#		
pH	s.u.	09/15/2011	N001	8.04			#		
Potassium	mg/L	09/15/2011	0002	3.8			#	0.11	
Potassium	mg/L	09/15/2011	N001	28			#	0.11	
Selenium	mg/L	09/15/2011	0002	0.00089			#	0.000032	
Selenium	mg/L	09/15/2011	N001	0.0063			#	0.000032	
Sodium	mg/L	09/15/2011	0002	58			#	0.0066	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)

REPORT DATE: 12/21/2011

Location: 0940 SURFACE LOCATION S. bank San Juan River about 2500 ft E of US Hwy 666 bridge

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab Data QA	Detection Limit	Uncertainty
Sodium	mg/L	09/15/2011	N001	71		#	0.0066
Specific Conductance	umhos/cm	09/15/2011	N001	557		#	
Strontium	mg/L	09/15/2011	0002	0.65		#	0.000078
Strontium	mg/L	09/15/2011	N001	2.1		#	0.000078
Sulfate	mg/L	09/15/2011	0002	150		#	1
Sulfate	mg/L	09/15/2011	N001	150		#	1
Temperature	C	09/15/2011	N001	16.1		#	
Turbidity	NTU	09/15/2011	N001	999		#	
Uranium	mg/L	09/15/2011	0002	0.0018		#	0.0000029
Uranium	mg/L	09/15/2011	N001	0.0097		#	0.0000029

Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)

REPORT DATE: 12/21/2011

Location: 0956 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Data QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	09/13/2011	0001	134		#		
Ammonia Total as N	mg/L	09/13/2011	0002	0.1	U	#	0.1	
Ammonia Total as N	mg/L	09/13/2011	N001	0.1	U	#	0.1	
Calcium	mg/L	09/13/2011	0002	49		#	0.012	
Calcium	mg/L	09/13/2011	N001	100		#	0.012	
Chloride	mg/L	09/13/2011	0002	9.9		#	0.4	
Chloride	mg/L	09/13/2011	N001	9.9		#	0.4	
Magnesium	mg/L	09/13/2011	0002	6.6		#	0.013	
Magnesium	mg/L	09/13/2011	N001	29		#	0.013	
Manganese	mg/L	09/13/2011	0002	0.016		#	0.00011	
Manganese	mg/L	09/13/2011	N001	1.7		#	0.00011	
Nitrate + Nitrite as Nitrogen	mg/L	09/13/2011	0002	0.53		#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	09/13/2011	N001	0.43		#	0.01	
Oxidation Reduction Potential	mV	09/13/2011	N001	-100		#		
pH	s.u.	09/13/2011	N001	8.48		#		
Potassium	mg/L	09/13/2011	0002	3.5		#	0.11	
Potassium	mg/L	09/13/2011	N001	15		#	0.11	
Selenium	mg/L	09/13/2011	0002	0.00064		#	0.000032	
Selenium	mg/L	09/13/2011	N001	0.0037		#	0.000032	
Sodium	mg/L	09/13/2011	0002	44		#	0.0066	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)

REPORT DATE: 12/21/2011

Location: 0956 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Sodium	mg/L	09/13/2011	N001	51			#	0.0066	
Specific Conductance	umhos/cm	09/13/2011	N001	501			#		
Strontium	mg/L	09/13/2011	0002	0.71			#	0.000078	
Strontium	mg/L	09/13/2011	N001	1.5			#	0.000078	
Sulfate	mg/L	09/13/2011	0002	130			#	1	
Sulfate	mg/L	09/13/2011	N001	130			#	1	
Temperature	C	09/13/2011	N001	21.5			#		
Turbidity	NTU	09/13/2011	N001	999			#		
Uranium	mg/L	09/13/2011	0002	0.002			#	0.0000029	
Uranium	mg/L	09/13/2011	N001	0.0081			#	0.0000029	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)

REPORT DATE: 12/21/2011

Location: 0965 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	09/13/2011	0001	136			#		
Ammonia Total as N	mg/L	09/13/2011	0002	0.1	U		#	0.1	
Ammonia Total as N	mg/L	09/13/2011	N001	0.1	U		#	0.1	
Calcium	mg/L	09/13/2011	0002	47			#	0.012	
Calcium	mg/L	09/13/2011	N001	100			#	0.012	
Chloride	mg/L	09/13/2011	0002	10			#	0.4	
Chloride	mg/L	09/13/2011	N001	10			#	0.4	
Magnesium	mg/L	09/13/2011	0002	6.2			#	0.013	
Magnesium	mg/L	09/13/2011	N001	30			#	0.013	
Manganese	mg/L	09/13/2011	0002	0.012			#	0.00011	
Manganese	mg/L	09/13/2011	N001	1.8			#	0.00011	
Nitrate + Nitrite as Nitrogen	mg/L	09/13/2011	0002	0.55			#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	09/13/2011	N001	0.54			#	0.01	
Oxidation Reduction Potential	mV	09/13/2011	N001	-121			#		
pH	s.u.	09/13/2011	N001	8.69			#		
Potassium	mg/L	09/13/2011	0002	3.5			#	0.11	
Potassium	mg/L	09/13/2011	N001	16			#	0.11	
Selenium	mg/L	09/13/2011	0002	0.00071			#	0.000032	
Selenium	mg/L	09/13/2011	N001	0.0038			#	0.000032	
Sodium	mg/L	09/13/2011	0002	45			#	0.0066	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)

REPORT DATE: 12/21/2011

Location: 0965 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Sodium	mg/L	09/13/2011	N001	53			#	0.0066	
Specific Conductance	umhos/cm	09/13/2011	N001	570			#		
Strontium	mg/L	09/13/2011	0002	0.69			#	0.000078	
Strontium	mg/L	09/13/2011	N001	1.5			#	0.000078	
Sulfate	mg/L	09/13/2011	0002	130			#	1	
Sulfate	mg/L	09/13/2011	N001	130			#	1	
Temperature	C	09/13/2011	N001	19.4			#		
Turbidity	NTU	09/13/2011	N001	999			#		
Uranium	mg/L	09/13/2011	0002	0.0019			#	0.0000029	
Uranium	mg/L	09/13/2011	N001	0.0087			#	0.0000029	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)

REPORT DATE: 12/21/2011

Location: 1203 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	09/13/2011	0001	132			#		
Ammonia Total as N	mg/L	09/13/2011	0002	0.1	U		#	0.1	
Ammonia Total as N	mg/L	09/13/2011	N001	0.1	U		#	0.1	
Calcium	mg/L	09/13/2011	0002	48			#	0.012	
Calcium	mg/L	09/13/2011	N001	100			#	0.012	
Chloride	mg/L	09/13/2011	0002	10			#	0.4	
Chloride	mg/L	09/13/2011	N001	10			#	0.4	
Magnesium	mg/L	09/13/2011	0002	6.8			#	0.013	
Magnesium	mg/L	09/13/2011	N001	28			#	0.013	
Manganese	mg/L	09/13/2011	0002	0.059			#	0.00011	
Manganese	mg/L	09/13/2011	N001	1.8			#	0.00011	
Nitrate + Nitrite as Nitrogen	mg/L	09/13/2011	0002	0.58			#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	09/13/2011	N001	0.6			#	0.01	
Oxidation Reduction Potential	mV	09/13/2011	N001	146.7			#		
pH	s.u.	09/13/2011	N001	8.2			#		
Potassium	mg/L	09/13/2011	0002	3.9			#	0.11	
Potassium	mg/L	09/13/2011	N001	14			#	0.11	
Selenium	mg/L	09/13/2011	0002	0.00078			#	0.000032	
Selenium	mg/L	09/13/2011	N001	0.0037			#	0.000032	
Sodium	mg/L	09/13/2011	0002	45			#	0.0066	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)

REPORT DATE: 12/21/2011

Location: 1203 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Sodium	mg/L	09/13/2011	N001	52			#	0.0066	
Specific Conductance	umhos/cm	09/13/2011	N001	742			#		
Strontium	mg/L	09/13/2011	0002	0.7			#	0.000078	
Strontium	mg/L	09/13/2011	N001	1.5			#	0.000078	
Sulfate	mg/L	09/13/2011	0002	130			#	1	
Sulfate	mg/L	09/13/2011	N001	130			#	1	
Temperature	C	09/13/2011	N001	21.26			#		
Turbidity	NTU	09/13/2011	N001	1000	>		#		
Uranium	mg/L	09/13/2011	0002	0.0021			#	0.0000029	
Uranium	mg/L	09/13/2011	N001	0.0081			#	0.0000029	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)

REPORT DATE: 12/21/2011

Location: 1205 SURFACE LOCATION.

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	09/15/2011	N001	286			#		
Ammonia Total as N	mg/L	09/15/2011	0001	0.1	U		#	0.1	
Ammonia Total as N	mg/L	09/15/2011	N001	0.1	U		#	0.1	
Calcium	mg/L	09/15/2011	0001	28			#	0.012	
Calcium	mg/L	09/15/2011	N001	290			#	0.012	
Chloride	mg/L	09/15/2011	0001	12			#	1	
Chloride	mg/L	09/15/2011	N001	12			#	1	
Magnesium	mg/L	09/15/2011	0001	4.3			#	0.013	
Magnesium	mg/L	09/15/2011	N001	89			#	0.013	
Manganese	mg/L	09/15/2011	0001	0.15			#	0.00011	
Manganese	mg/L	09/15/2011	N001	6.6			#	0.00011	
Nitrate + Nitrite as Nitrogen	mg/L	09/15/2011	0001	1.5			#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	09/15/2011	N001	1.5			#	0.01	
Oxidation Reduction Potential	mV	09/15/2011	N001	-96			#		
pH	s.u.	09/15/2011	N001	8.12			#		
Potassium	mg/L	09/15/2011	0001	5.6			#	0.11	
Potassium	mg/L	09/15/2011	N001	57			#	0.11	
Selenium	mg/L	09/15/2011	0001	0.0016			#	0.000032	
Selenium	mg/L	09/15/2011	N001	0.015			#	0.000032	
Sodium	mg/L	09/15/2011	0001	110			#	0.0066	
Sodium	mg/L	09/15/2011	N001	140			#	0.0066	
Specific Conductance	umhos/cm	09/15/2011	N001	840			#		

Surface Water Quality Data by Location (USEE102) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)

REPORT DATE: 12/21/2011

Location: 1205 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Strontium	mg/L	09/15/2011	0001	0.5			#	0.000078	
Strontium	mg/L	09/15/2011	N001	4.8			#	0.000078	
Sulfate	mg/L	09/15/2011	0001	180			#	2.5	
Sulfate	mg/L	09/15/2011	N001	190			#	2.5	
Temperature	C	09/15/2011	N001	19.12			#		
Turbidity	NTU	09/15/2011	N001	1000	U		#	1000	
Uranium	mg/L	09/15/2011	0001	0.0036			#	0.0000029	
Uranium	mg/L	09/15/2011	N001	0.029			#	0.0000029	

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:

- * Replicate analysis not within control limits.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
- C Pesticide result confirmed by GC-MS.
- D Analyte determined in diluted sample.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- J Estimated
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X,Y,Z Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:

- F Low flow sampling method used.
- L Less than 3 bore volumes purged prior to sampling.
- U Parameter analyzed for but was not detected.
- G Possible grout contamination, pH > 9.
- Q Qualitative result due to sampling technique.
- X Location is undefined.
- J Estimated value.
- R Unusable result.

QA QUALIFIER:

- # Validated according to quality assurance guidelines.

**Surface Water Quality Data
Terrace Locations**

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Surface Water Quality Data by Location (USEE102) FOR SITE SHP02, Shiprock Disposal Site (Terrace)

REPORT DATE: 12/21/2011

Location: 0662 SURFACE LOCATION Bob Lee Wash, just below outflow ditch confluence

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	09/15/2011	N001	64			#		
Ammonia Total as N	mg/L	09/15/2011	N001	0.1	U		#	0.1	
Calcium	mg/L	09/15/2011	N001	110			#	0.06	
Chloride	mg/L	09/15/2011	N001	54			#	10	
Magnesium	mg/L	09/15/2011	N001	14			#	0.065	
Manganese	mg/L	09/15/2011	N001	0.0058	B		#	0.00057	
Nitrate + Nitrite as Nitrogen	mg/L	09/15/2011	N001	0.28			#	0.01	
Oxidation Reduction Potential	mV	09/15/2011	N001	357			#		
pH	s.u.	09/15/2011	N001	7.91			#		
Potassium	mg/L	09/15/2011	N001	8.9			#	0.54	
Selenium	mg/L	09/15/2011	N001	0.00016		J	#	0.000032	
Sodium	mg/L	09/15/2011	N001	650			#	0.033	
Specific Conductance	umhos/cm	09/15/2011	N001	3800			#		
Strontium	mg/L	09/15/2011	N001	12			#	0.00039	
Sulfate	mg/L	09/15/2011	N001	2000			#	25	
Temperature	C	09/15/2011	N001	21.54			#		
Turbidity	NTU	09/15/2011	N001	11			#		
Uranium	mg/L	09/15/2011	N001	0.00032			#	0.0000029	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP02, Shiprock Disposal Site (Terrace)

REPORT DATE: 12/21/2011

Location: 0889 SURFACE LOCATION Many Devils Wash, just below knickpoint

Parameter	Units	Sample Date	Sample ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	09/15/2011	N001	684			#		
Ammonia Total as N	mg/L	09/15/2011	0001	0.25			#	0.1	
Ammonia Total as N	mg/L	09/15/2011	0002	0.3			#	0.1	
Calcium	mg/L	09/15/2011	0001	380			#	0.06	
Calcium	mg/L	09/15/2011	0002	370			#	0.12	
Chloride	mg/L	09/15/2011	0001	280			#	10	
Chloride	mg/L	09/15/2011	0002	280			#	10	
Magnesium	mg/L	09/15/2011	0001	210			#	0.065	
Magnesium	mg/L	09/15/2011	0002	210			#	0.13	
Manganese	mg/L	09/15/2011	0001	0.016	B		#	0.00057	
Manganese	mg/L	09/15/2011	0002	0.018	B		#	0.0011	
Nitrate + Nitrite as Nitrogen	mg/L	09/15/2011	0001	110		J	#	1	
Nitrate + Nitrite as Nitrogen	mg/L	09/15/2011	0002	110	N	J	#	1	
Oxidation Reduction Potential	mV	09/15/2011	N001	123.1			#		
pH	s.u.	09/15/2011	N001	8.09			#		
Potassium	mg/L	09/15/2011	0001	34			#	0.54	
Potassium	mg/L	09/15/2011	0002	29			#	1.1	
Selenium	mg/L	09/15/2011	0001	0.27			#	0.00032	
Selenium	mg/L	09/15/2011	0002	0.28			#	0.00032	
Sodium	mg/L	09/15/2011	0001	1200			#	0.33	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP02, Shiprock Disposal Site (Terrace)

REPORT DATE: 12/21/2011

Location: 0889 SURFACE LOCATION Many Devils Wash, just below knickpoint

Parameter	Units	Sample Date	ID	Result	Qualifiers Lab	Data QA	Detection Limit	Uncertainty
Sodium	mg/L	09/15/2011	0002	1300		#	0.066	
Specific Conductance	umhos/cm	09/15/2011	N001	7183		#		
Strontium	mg/L	09/15/2011	0001	2.8		#	0.00039	
Strontium	mg/L	09/15/2011	0002	2.7		#	0.00078	
Sulfate	mg/L	09/15/2011	0001	4200		#	25	
Sulfate	mg/L	09/15/2011	0002	4100		#	25	
Temperature	C	09/15/2011	N001	19.48		#		
Turbidity	NTU	09/15/2011	N001	1000		#		
Uranium	mg/L	09/15/2011	0001	0.028		#	0.000029	
Uranium	mg/L	09/15/2011	0002	0.027		#	0.000029	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP02, Shiprock Disposal Site (Terrace)

REPORT DATE: 12/21/2011

Location: 1215 SURFACE LOCATION Evaporation Pond

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	09/12/2011	N001	880			#		
Ammonia Total as N	mg/L	09/12/2011	N001	24			#	0.5	
Ammonia Total as N	mg/L	09/12/2011	N002	24			#	0.5	
Calcium	mg/L	09/12/2011	N001	540			#	1.2	
Calcium	mg/L	09/12/2011	N002	540			#	0.6	
Chloride	mg/L	09/12/2011	N001	3500			#	1000	
Chloride	mg/L	09/12/2011	N002	3600			#	200	
Magnesium	mg/L	09/12/2011	N001	9100			#	1.3	
Magnesium	mg/L	09/12/2011	N002	9400			#	0.65	
Manganese	mg/L	09/12/2011	N001	0.6			#	0.011	
Manganese	mg/L	09/12/2011	N002	0.59			#	0.0057	
Nitrate + Nitrite as Nitrogen	mg/L	09/12/2011	N001	2600			#	20	
Nitrate + Nitrite as Nitrogen	mg/L	09/12/2011	N002	2200			#	20	
Oxidation Reduction Potential	mV	09/12/2011	N001	273.5			#		
pH	s.u.	09/12/2011	N001	8.06			#		
Potassium	mg/L	09/12/2011	N001	750		J	#	11	
Potassium	mg/L	09/12/2011	N002	870			#	5.4	
Selenium	mg/L	09/12/2011	N001	3.7			#	0.0065	
Selenium	mg/L	09/12/2011	N002	3.8			#	0.0065	
Sodium	mg/L	09/12/2011	N001	16000			#	3.3	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP02, Shiprock Disposal Site (Terrace)

REPORT DATE: 12/21/2011

Location: 1215 SURFACE LOCATION Evaporation Pond

Parameter	Units	Sample Date	ID	Result	Qualifiers Lab Data QA	Detection Limit	Uncertainty
Sodium	mg/L	09/12/2011	N002	15000	#	1.6	
Specific Conductance	umhos/cm	09/12/2011	N001	71233	#		
Strontium	mg/L	09/12/2011	N001	16	#	0.0078	
Strontium	mg/L	09/12/2011	N002	17	#	0.0039	
Sulfate	mg/L	09/12/2011	N001	66000	#	2500	
Sulfate	mg/L	09/12/2011	N002	70000	#	500	
Temperature	C	09/12/2011	N001	23.28	#		
Turbidity	NTU	09/12/2011	N001	4.02	#		
Uranium	mg/L	09/12/2011	N001	5.4	#	0.00058	
Uranium	mg/L	09/12/2011	N002	5.7	#	0.00058	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP02, Shiprock Disposal Site (Terrace)

REPORT DATE: 12/21/2011

Location: 1219 SURFACE LOCATION

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	09/13/2011	N001	257			#		
Ammonia Total as N	mg/L	09/13/2011	N001	0.1	U		#	0.1	
Calcium	mg/L	09/13/2011	N001	640			#	0.06	
Chloride	mg/L	09/13/2011	N001	24			#	10	
Magnesium	mg/L	09/13/2011	N001	120			#	0.013	
Manganese	mg/L	09/13/2011	N001	0.0036	B	U	#	0.00011	
Nitrate + Nitrite as Nitrogen	mg/L	09/13/2011	N001	22			#	0.2	
Oxidation Reduction Potential	mV	09/13/2011	N001	-25			#		
pH	s.u.	09/13/2011	N001	7.14			#		
Potassium	mg/L	09/13/2011	N001	12			#	0.11	
Selenium	mg/L	09/13/2011	N001	0.12			#	0.00032	
Sodium	mg/L	09/13/2011	N001	110			#	0.0066	
Specific Conductance	umhos/cm	09/13/2011	N001	3131			#		
Strontium	mg/L	09/13/2011	N001	5.5			#	0.000078	
Sulfate	mg/L	09/13/2011	N001	1800			#	25	
Temperature	C	09/13/2011	N001	17.67			#		
Turbidity	NTU	09/13/2011	N001	9.6			#		
Uranium	mg/L	09/13/2011	N001	0.027			#	0.000029	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP02, Shiprock Disposal Site (Terrace)

REPORT DATE: 12/21/2011

Location: 1220 SURFACE LOCATION Seep at the Eagles Nest Arroyo east of town

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	09/13/2011	N001	388			#		
Ammonia Total as N	mg/L	09/13/2011	N001	0.1	U		#	0.1	
Calcium	mg/L	09/13/2011	N001	360			#	0.012	
Chloride	mg/L	09/13/2011	N001	24			#	4	
Magnesium	mg/L	09/13/2011	N001	100			#	0.013	
Manganese	mg/L	09/13/2011	N001	0.019			#	0.00011	
Nitrate + Nitrite as Nitrogen	mg/L	09/13/2011	N001	0.01	U		#	0.01	
Oxidation Reduction Potential	mV	09/13/2011	N001	-76			#		
pH	s.u.	09/13/2011	N001	8.11			#		
Potassium	mg/L	09/13/2011	N001	4.6			#	0.11	
Selenium	mg/L	09/13/2011	N001	0.0095			#	0.000032	
Sodium	mg/L	09/13/2011	N001	120			#	0.0066	
Specific Conductance	umhos/cm	09/13/2011	N001	2220			#		
Strontium	mg/L	09/13/2011	N001	3.9			#	0.000078	
Sulfate	mg/L	09/13/2011	N001	1400			#	10	
Temperature	C	09/13/2011	N001	16.5			#		
Turbidity	NTU	09/13/2011	N001	8.3			#		
Uranium	mg/L	09/13/2011	N001	0.027			#	0.0000029	

Surface Water Quality Data by Location (USEE102) FOR SITE SHP02, Shiprock Disposal Site (Terrace)

REPORT DATE: 12/21/2011

Location: 1221 SURFACE LOCATION Many Devils Wash, 10 feet up from the river.

Parameter	Units	Sample Date	ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (as CaCO ₃)	mg/L	09/14/2011	0001	210			#		
Ammonia Total as N	mg/L	09/14/2011	0001	0.15			#	0.1	
Calcium	mg/L	09/14/2011	0001	420			#	0.6	
Chloride	mg/L	09/14/2011	0001	1700			#	100	
Magnesium	mg/L	09/14/2011	0001	1700			#	0.65	
Manganese	mg/L	09/14/2011	0001	0.07	B		#	0.0057	
Nitrate + Nitrite as Nitrogen	mg/L	09/14/2011	0001	640			#	5	
Oxidation Reduction Potential	mV	09/14/2011	N001	227			#		
pH	s.u.	09/14/2011	N001	8.24			#		
Potassium	mg/L	09/14/2011	0001	69		J	#	5.4	
Selenium	mg/L	09/14/2011	0001	1.8			#	0.00032	
Sodium	mg/L	09/14/2011	0001	7600			#	0.33	
Specific Conductance	umhos/cm	09/14/2011	N001	34539			#		
Strontium	mg/L	09/14/2011	0001	9.2			#	0.0039	
Sulfate	mg/L	09/14/2011	0001	23000			#	250	
Temperature	C	09/14/2011	N001	21.86			#		
Turbidity	NTU	09/14/2011	N001	16.1			#		
Uranium	mg/L	09/14/2011	0001	0.17			#	0.000029	

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:

* Replicate analysis not within control limits.
> Result above upper detection limit.
A TIC is a suspected aldol-condensation product.
B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
C Pesticide result confirmed by GC-MS.
D Analyte determined in diluted sample.
E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
H Holding time expired, value suspect.
I Increased detection limit due to required dilution.
J Estimated
N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
U Analytical result below detection limit.
W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
X,Y,Z Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:

F	Low flow sampling method used.	G	Possible grout contamination, pH > 9.	J	Estimated value.
L	Less than 3 bore volumes purged prior to sampling.	Q	Qualitative result due to sampling technique.	R	Unusable result.
U	Parameter analyzed for but was not detected.	X	Location is undefined.		

QA QUALIFIER:

Validated according to quality assurance guidelines.

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Equipment Blank Data

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BLANKS REPORT

LAB: PARAGON/ALS LABORATORY GROUP (Fort Collins, CO)

RIN: 11094067

Report Date: 12/21/2011

Parameter	Site Code	Location ID	Sample Date	Sample ID	Units	Result	Qualifiers Lab Data	Detection Limit	Uncertainty	Sample Type
Ammonia Total as N	SHP01	0999	09/13/2011	N001	mg/L	0.1	U	0.1		E
Calcium	SHP01	0999	09/13/2011	N001	mg/L	0.032	B U	0.012		E
Chloride	SHP01	0999	09/13/2011	N001	mg/L	0.2	U	0.2		E
Magnesium	SHP01	0999	09/13/2011	N001	mg/L	0.013	U	0.013		E
Manganese	SHP01	0999	09/13/2011	N001	mg/L	0.00011	U	0.00011		E
Nitrate + Nitrite as Nitrogen	SHP01	0999	09/13/2011	N001	mg/L	0.01	U	0.01		E
Potassium	SHP01	0999	09/13/2011	N001	mg/L	0.11	U	0.11		E
Selenium	SHP01	0999	09/13/2011	N001	mg/L	0.000032	U	0.000032		E
Sodium	SHP01	0999	09/13/2011	N001	mg/L	0.017	B U	0.0066		E
Strontium	SHP01	0999	09/13/2011	N001	mg/L	0.000078	U	0.000078		E
Sulfate	SHP01	0999	09/13/2011	N001	mg/L	0.5	U	0.5		E
Uranium	SHP01	0999	09/13/2011	N001	mg/L	0.000004	B	0.0000029		E

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:

- * Replicate analysis not within control limits.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
- C Pesticide result confirmed by GC-MS.
- D Analyte determined in diluted sample.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- J Estimated
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X,Y,Z Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:

- F Low flow sampling method used.
- L Less than 3 bore volumes purged prior to sampling.
- U Parameter analyzed for but was not detected.
- G Possible grout contamination, pH > 9.
- Q Qualitative result due to sampling technique.
- X Location is undefined.
- J Estimated value.
- R Unusable result.

SAMPLE TYPES:

- E Equipment Blank.

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**Static Water Level Data
Floodplain Locations**

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STATIC WATER LEVELS (USEE700) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 12/21/2011

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0608		4893.35	09/13/2011	13:41:11	6.74	4886.61	
0610		4895.7	09/13/2011	15:18:12	10.26	4885.44	
0611		4895.62	09/13/2011	15:39:37	10.11	4885.51	
0612		4893.35	09/14/2011	12:41:59	7.79	4885.56	
0614		4892.79	09/13/2011	16:35:33	8.08	4884.71	
0615		4892.23	09/14/2011	15:17:58	9.19	4883.04	
0617		4891.9	09/14/2011	10:40:00	8.29	4883.61	
0618		4891.51	09/14/2011	10:47:15	7.96	4883.55	
0619		4892.19	09/15/2011	09:35:53	8.63	4883.56	
0622		4890.06	09/15/2011	08:37:17	5.94	4884.12	
0623		4891.19	09/15/2011	10:47:46	7.44	4883.75	
0625		4891.23	09/15/2011	10:29:00	7.32	4883.91	
0626		4891.4	09/15/2011	14:15:58	6.96	4884.44	
0628		4889.87	09/15/2011	16:02:53	5.27	4884.6	
0630		4887.62	09/15/2011	16:40:10	3.25	4884.37	
0734		4886.55	09/15/2011	14:05:37	6.35	4880.2	
0735		4895.85	09/15/2011	16:55:43	6.61	4889.24	
0736		4887.99	09/15/2011	16:39:09	6.54	4881.45	
0766		4892.55	09/15/2011	12:02:52	11.05	4881.5	
0768		4892.33	09/15/2011	09:15:26	8.52	4883.81	
0773		4894.87	09/13/2011	16:06:12	9.25	4885.62	
0775		4892.2	09/15/2011	13:44:06	9.31	4882.89	
0779		4893.86	09/14/2011	09:46:50	10.55	4883.31	
0782R		4884.75	09/13/2011	15:10:44	7.61	4877.14	
0783R		4884.09	09/13/2011	14:50:18	8	4876.09	

STATIC WATER LEVELS (USEE700) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 12/21/2011

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0792		4891.52	09/14/2011	11:18:11	8.01	4883.51	
0793		4891.05	09/14/2011	14:23:37	7.55	4883.5	
0797		4908.04	09/15/2011	09:35:35	8.75	4899.29	
0798		4891.55	09/15/2011	10:02:40	8.35	4883.2	
0850	B	4907.51	09/15/2011	10:00:08	9.35	4898.16	
0853		4891.41	09/14/2011	13:29:49	7.77	4883.64	
0854		4890.09	09/15/2011	12:30:47	8.41	4881.68	
0855		4888.18	09/15/2011	16:30:57	6.54	4881.64	
0856		4887.57	09/15/2011	14:35:57	7.05	4880.52	
0857		4894.02	09/14/2011	09:22:48	10.47	4883.55	
0862		4893.83	09/14/2011	15:37:00	91.21	4802.62	
0863		4893	09/14/2011	15:45:00	81.66	4811.34	
1000		4892.17	09/13/2011	16:39:00	7.83	4884.34	
1001		4892.44	09/13/2011	16:32:00	18.07	4874.37	
1008		4890.8	09/15/2011	11:26:31	8.79	4882.01	
1009		4892.1	09/14/2011	13:57:05	8.5	4883.6	
1062		4892.51	09/14/2011	15:35:00	8.12	4884.39	
1105	O	4892.4	09/14/2011	14:49:48	9.12	4883.28	
1111		4889.85	09/14/2011	17:10:12	7.9	4881.95	
1112		4890.01	09/13/2011	17:00:29	7.49	4882.52	B
1113		4892	09/13/2011	14:49:03	5.95	4886.05	
1114		4892.86	09/13/2011	11:25:58	5.89	4886.97	
1115		4895.59	09/13/2011	11:04:22	8.65	4886.94	
1117		4896.7	09/13/2011	08:48:07	9.32	4887.38	
1128		4897.63	09/13/2011	09:13:20	10.41	4887.22	
1132		4894.5	09/13/2011	10:16:05	7.34	4887.16	
1134		4895.88	09/13/2011	10:42:23	8.77	4887.11	

STATIC WATER LEVELS (USEE700) FOR SITE SHP01, Shiprock Disposal Site (Floodplain)
REPORT DATE: 12/21/2011

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
1135		4890.71	09/15/2011	15:00:01	8.65	4882.06	
1136		4892.47	09/14/2011	10:20:36	9.49	4882.98	
1137		4891.3	09/15/2011	13:40:59	8.99	4882.31	
1138		4891.48	09/15/2011	14:00:04	9.36	4882.12	
1139		4890.44	09/15/2011	14:15:33	8.57	4881.87	
1140		4891.53	09/14/2011	16:36:01	8.89	4882.64	
1141		4892.48	09/14/2011	16:07:01	9.22	4883.26	
1142		4894.34	09/14/2011	13:07:19	9.79	4884.55	
1143		4888.07	09/15/2011	17:45:49	7.06	4881.01	

FLOW CODES: B BACKGROUND
 N UNKNOWN

C CROSS GRADIENT
 O ON SITE

D DOWN GRADIENT
 U UPGRADIENT

F OFF SITE

WATER LEVEL FLAGS: D Dry

F FLOWING

B Below Top of Pump

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**Static Water Level Data
Terrace Locations**

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STATIC WATER LEVELS (USEE700) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 12/21/2011

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0600		4955.87	09/14/2011	15:45:04	33.39	4922.48	
0602		4956.89	09/14/2011	09:00:07	22.2	4934.69	
0603		4978.62	09/14/2011	14:00:08	31.53	4947.09	
0604		4995.87	09/15/2011	08:25:17	55.94	4939.93	
0725		4908.58	09/14/2011	11:25:40	14.55	4894.03	
0726		4939.95	09/13/2011	17:20:23	24.73	4915.22	
0727		4940.65	09/14/2011	11:00:32	7.28	4933.37	
0728		4964.46	09/13/2011	15:50:30	24.7	4939.76	
0730		4977.75	09/13/2011	16:10:44	36.41	4941.34	
0731		4972.15	09/14/2011	14:40:55	24.93	4947.22	
0800		4995.76	09/15/2011	11:02:00			D
0801		4995.29	09/15/2011	10:56:00	66.81	4928.48	
0802		4996.01	09/15/2011	10:54:00	64.82	4931.19	
0803		4994.4	09/15/2011	11:05:00			D
0812		5004.98	09/13/2011	12:20:10	60.75	4944.23	
0813		4984.37	09/13/2011	13:00:22	43.81	4940.56	
0814		4968.12	09/14/2011	12:55:26	32.69	4935.43	
0815		4953.67	09/13/2011	14:45:25	26.67	4927	
0816		4937.92	09/13/2011	15:10:28			B
0817		4957.34	09/14/2011	09:30:24	19.02	4938.32	
0819		4955.76	09/14/2011	09:50:44	20.1	4935.66	
0820		4954.95	09/14/2011	13:45:23	150.37	4804.58	
0821		4955.46	09/14/2011	12:42:00			D
0823		4957.65	09/14/2011	16:08:00			D
0824		4958.21	09/14/2011	16:35:21	169.76	4788.45	

STATIC WATER LEVELS (USEE700) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 12/21/2011

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0825		4958.68	09/14/2011	16:50:19	137.73	4820.95	
0826		4950.73	09/14/2011	10:40:22	17.1	4933.63	
0827		4946.92	09/14/2011	12:15:17	26.42	4920.5	
0828		4957.43	09/13/2011	17:00:56	20.81	4936.62	
0829		4941.94	09/14/2011	11:44:00			D
0830		4960.77	09/15/2011	09:20:29	16.37	4944.4	
0832		4964.65	09/12/2011	15:34:00			D
0833		4940.52	09/14/2011	10:55:10	29.28	4911.24	
0835		4930.48	09/14/2011	08:50:42	22.31	4908.17	
0836		4901.74	09/13/2011	17:05:36	30.79	4870.95	
0837		4889.54	09/13/2011	16:05:20	22.34	4867.2	
0838		4937.7	09/12/2011	17:55:24	30.28	4907.42	
0843		4883.56	09/13/2011	14:15:06	14.68	4868.88	
0844		4948.46	09/12/2011	17:05:15	32.3	4916.16	
0846		4934.57	09/13/2011	17:16:00			D
0848		4949.91	09/14/2011	09:50:51	44.05	4905.86	
1002		4957.63	09/14/2011	14:00:00			D
1003		4957.84	09/14/2011	14:05:00			D
1004		4957.61	09/14/2011	14:10:00			D
1007		4962.01	09/14/2011	17:10:45	44.49	4917.52	
1049		4923.89	09/15/2011	12:30:50	6.68	4917.21	
1058		4973.58	09/13/2011	12:05:36	28.72	4944.86	
1059		4970.52	09/13/2011	11:35:43	23.39	4947.13	
1060		4970.62	09/12/2011	16:10:00			D
1067		4930.77	09/15/2011	11:09:00			D
1068		4927.97	09/14/2011	12:30:16	7.6	4920.37	
1069		4922.62	09/14/2011	12:09:00			D

STATIC WATER LEVELS (USEE700) FOR SITE SHP02, Shiprock Disposal Site (Terrace)
REPORT DATE: 12/21/2011

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
1073		4991.43	09/13/2011	14:00:53	49.85	4941.58	
1074		4959.52	09/15/2011	08:55:36	33.99	4925.53	
1079		4925.22	09/13/2011	17:40:52	20.11	4905.11	
1120		4890.98	09/13/2011	16:18:00			D
1122		4893.62	09/13/2011	16:21:00			D
DM7		4974.44	09/13/2011	16:24:00			D
MW1		4955.64	09/14/2011	15:55:14	50.81	4904.83	

FLOW CODES: B BACKGROUND
 N UNKNOWN

C CROSS GRADIENT
 O ON SITE

D DOWN GRADIENT
 U UPGRADIENT

F OFF SITE

WATER LEVEL FLAGS: D Dry

F FLOWING

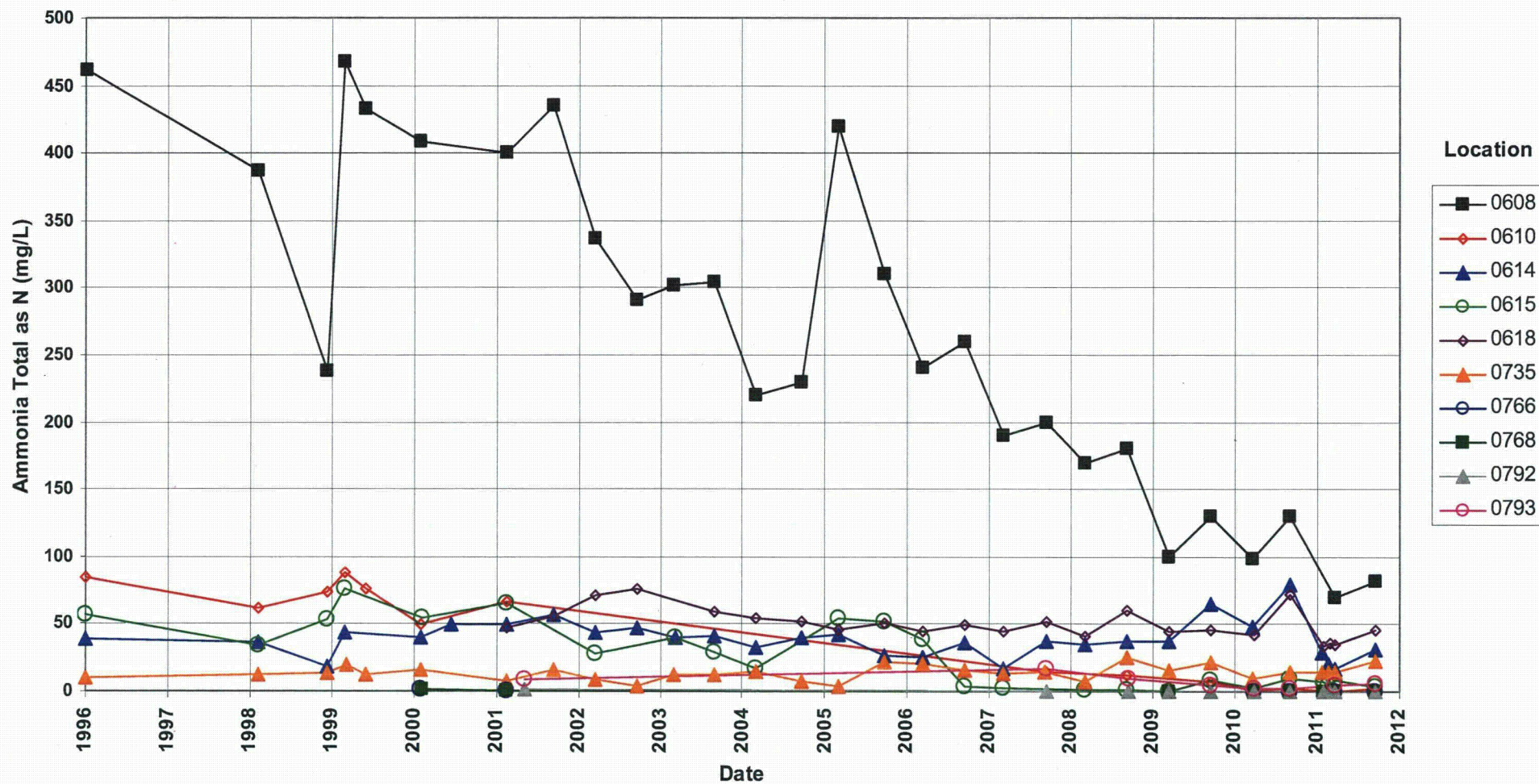
B Below Top of Pump

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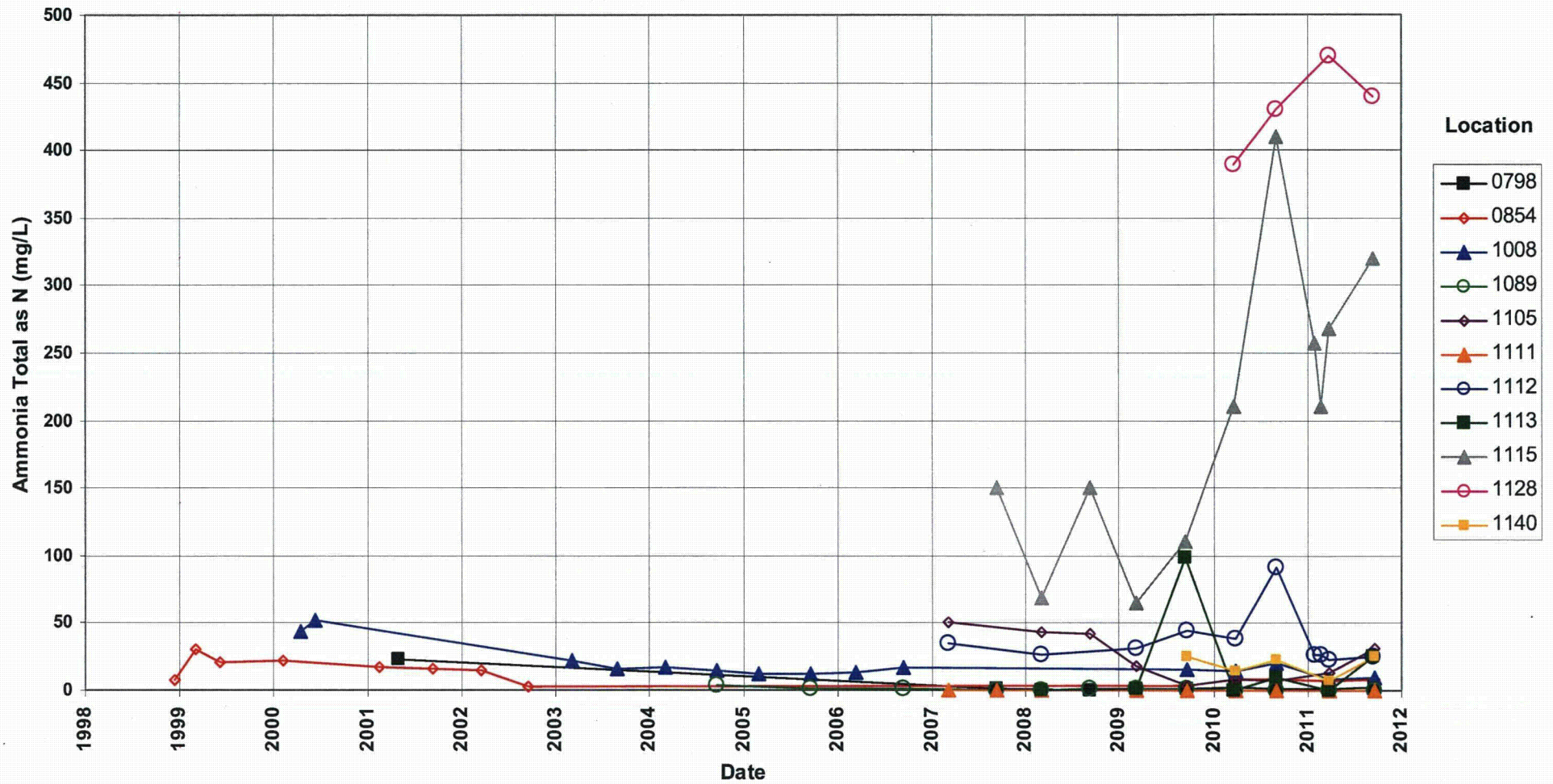
**Time-Concentration Graphs
Floodplain Groundwater Locations**

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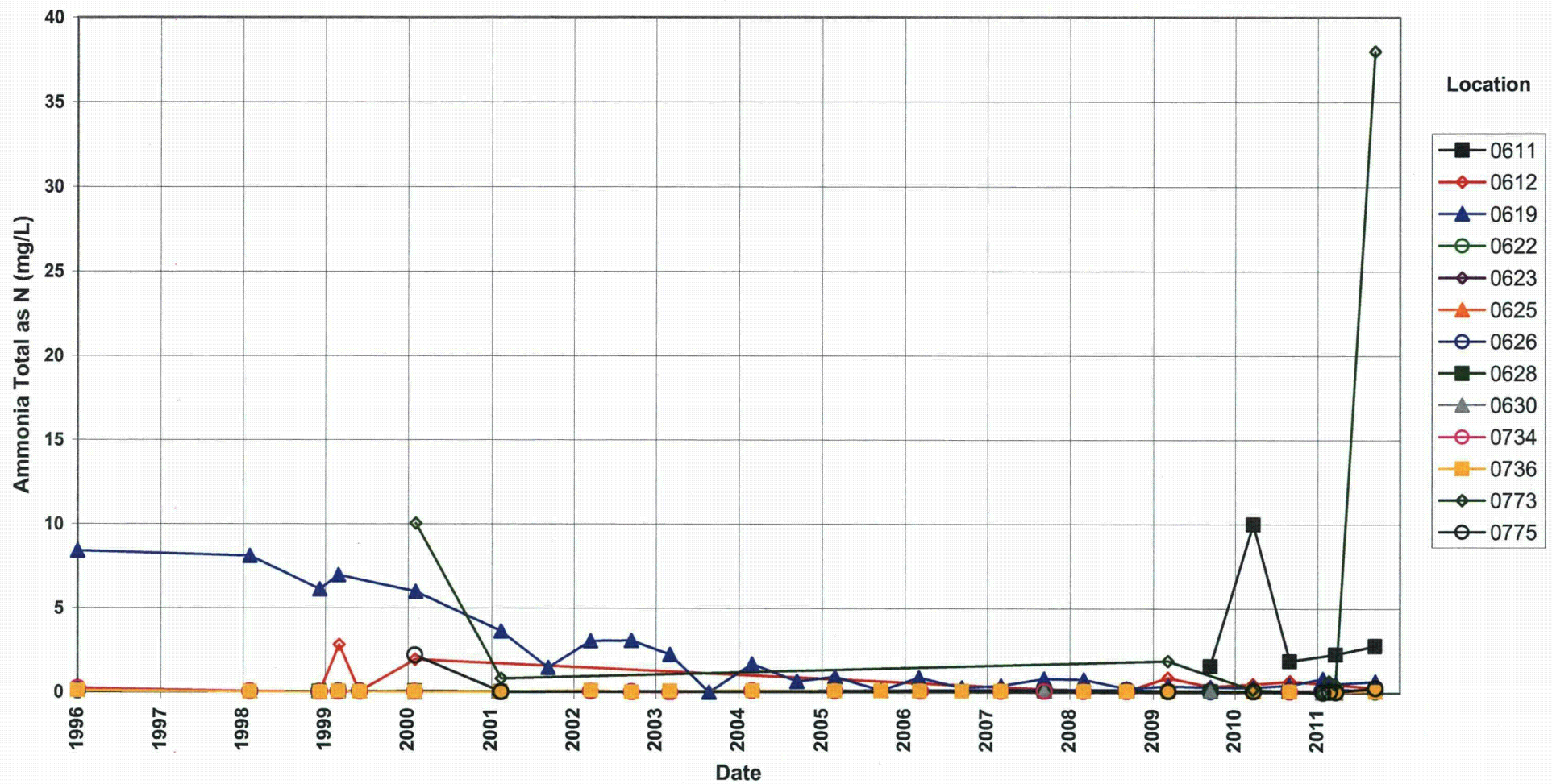
Shiprock Disposal Site (Floodplain) Ammonia Total as N Concentration



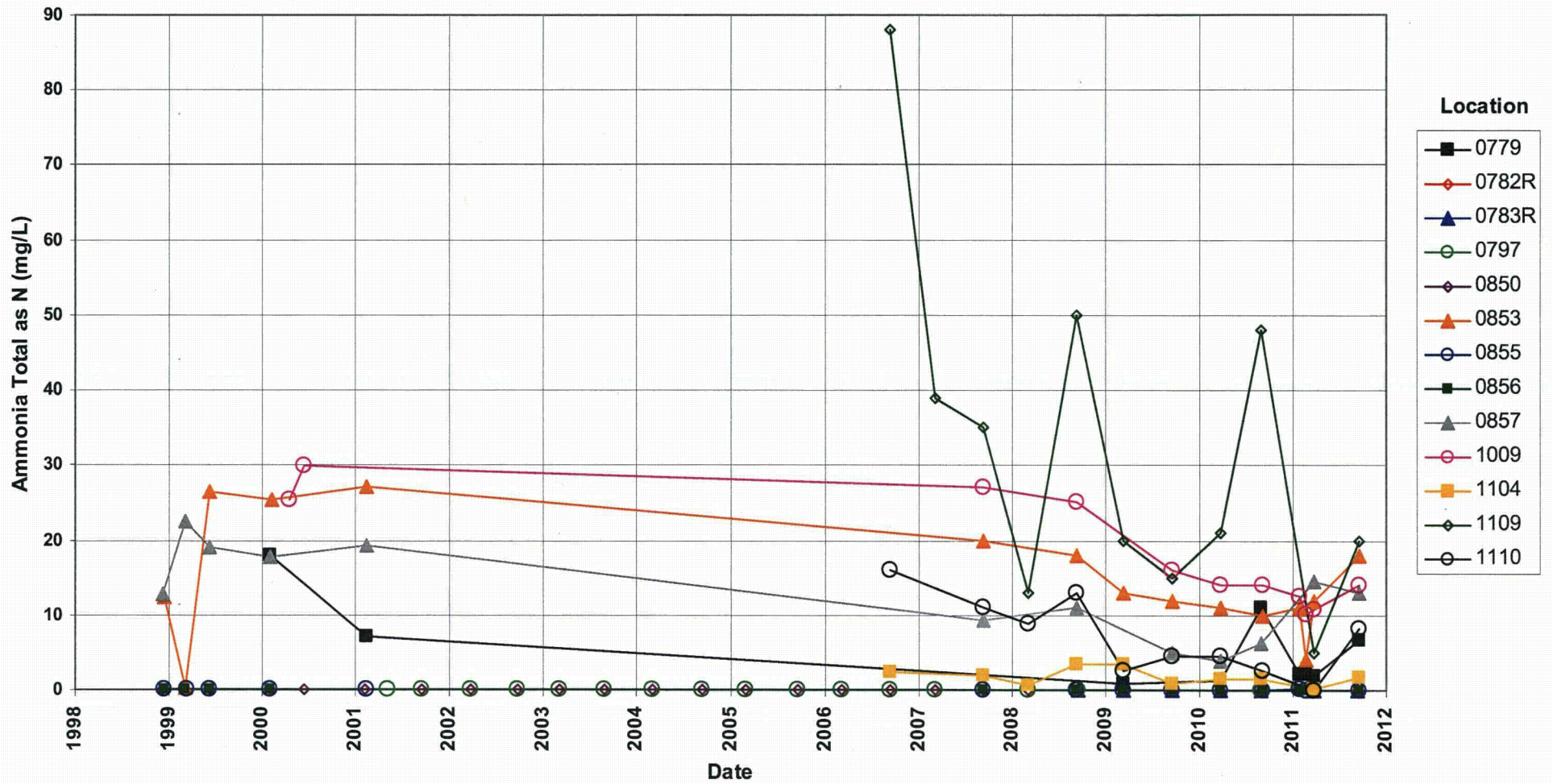
Shiprock Disposal Site (Floodplain) Ammonia Total as N Concentration



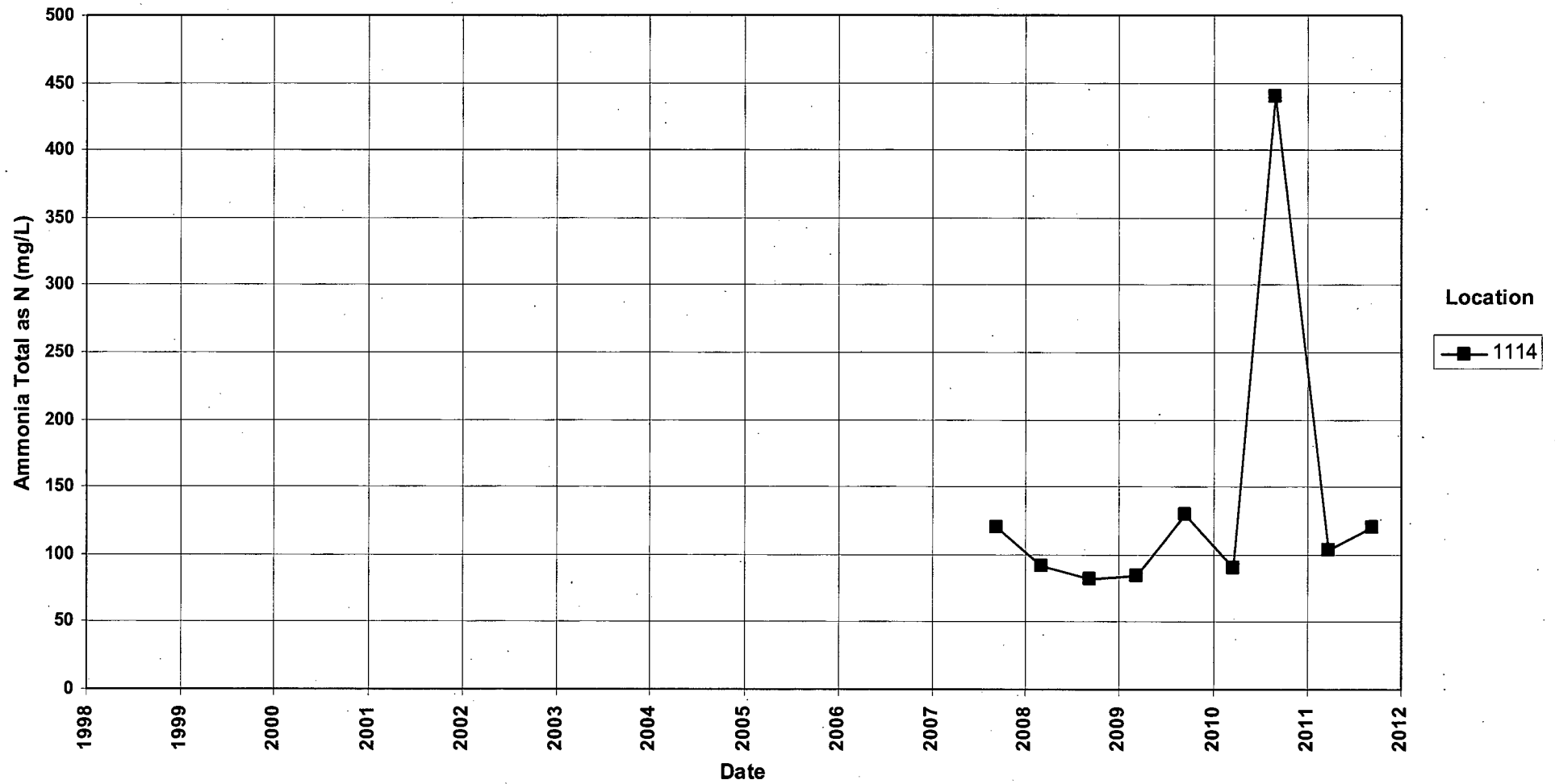
Shiprock Disposal Site (Floodplain) Ammonia Total as N Concentration



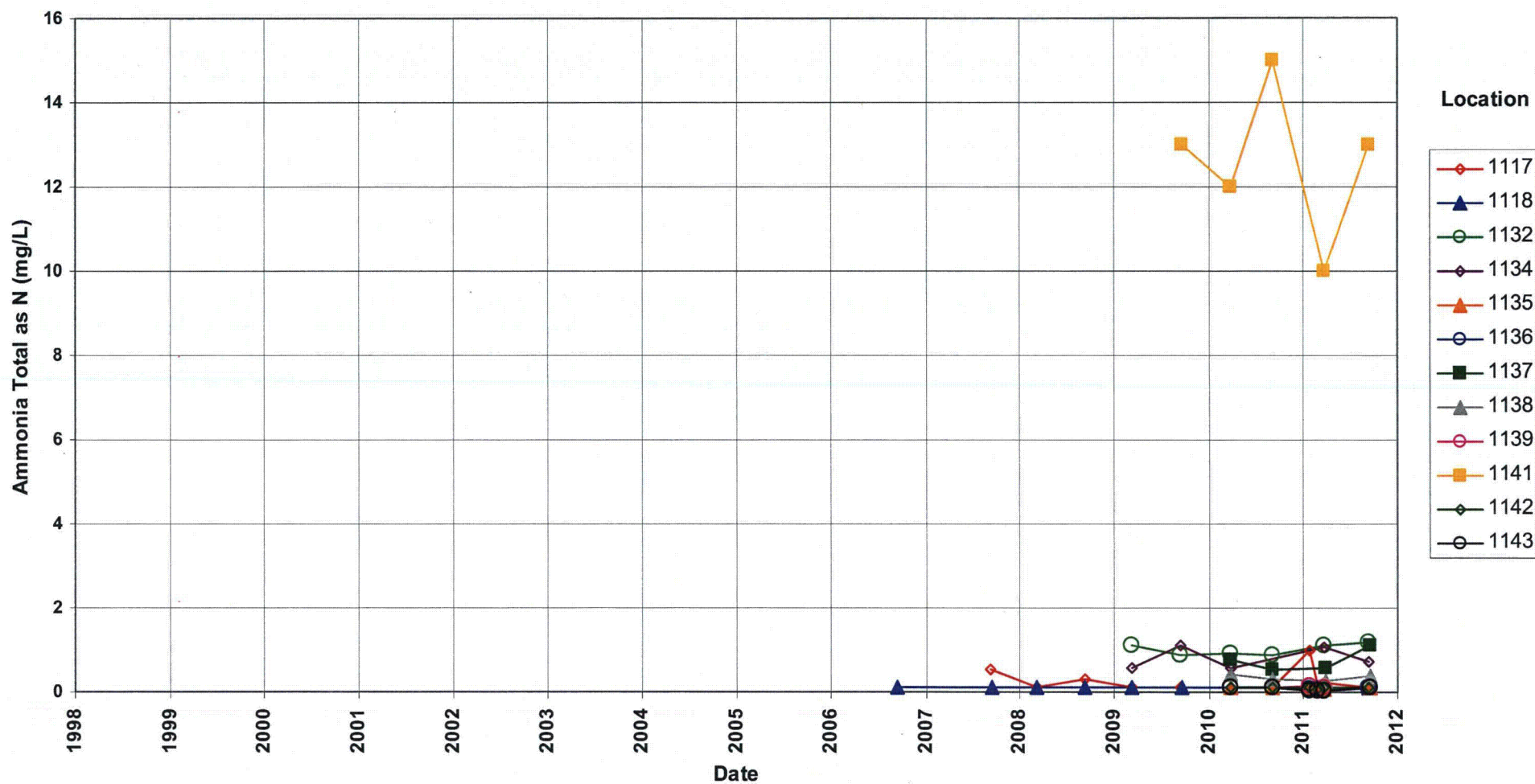
Shiprock Disposal Site (Floodplain) Ammonia Total as N Concentration



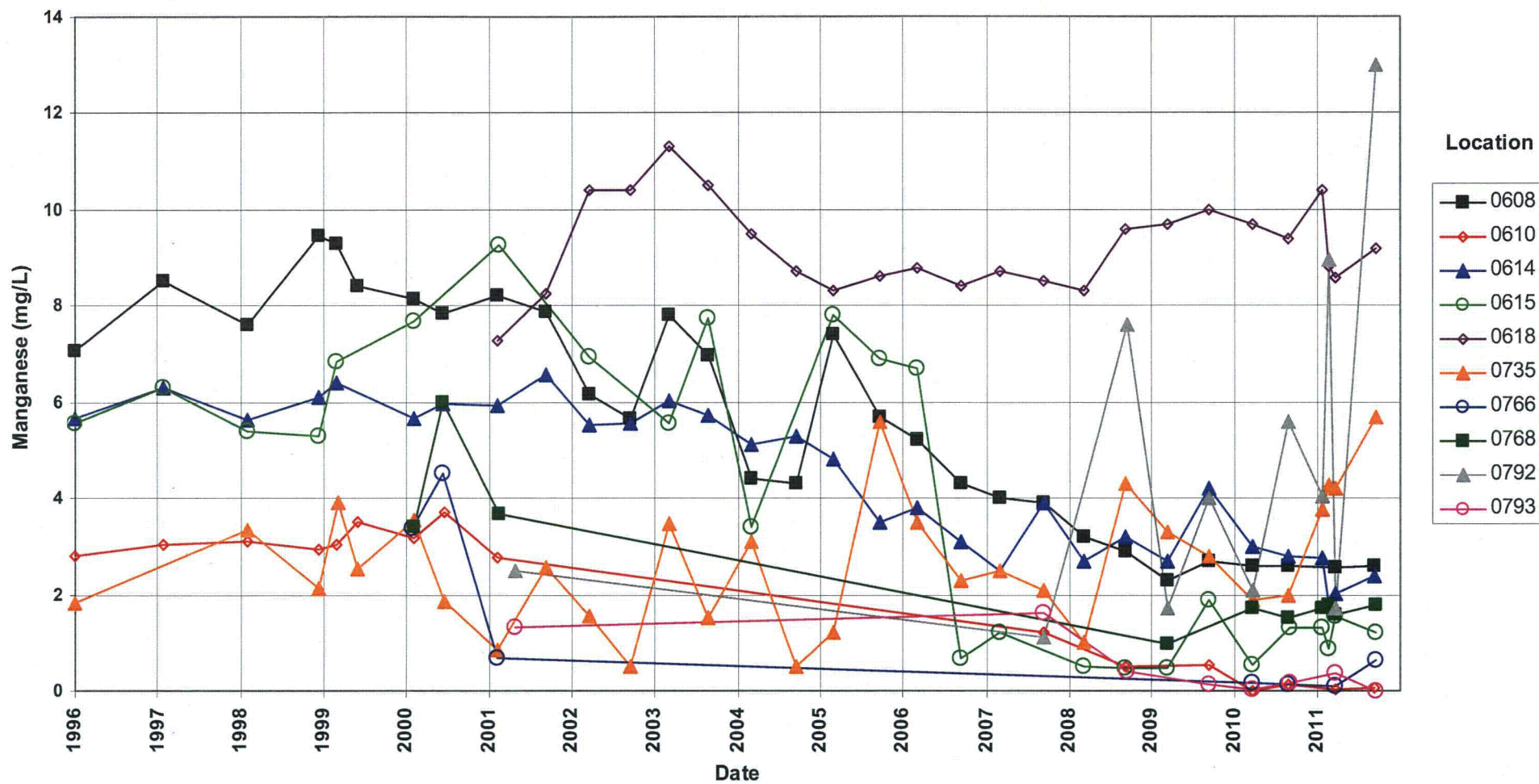
Shiprock Disposal Site (Floodplain)
Ammonia Total as N Concentration



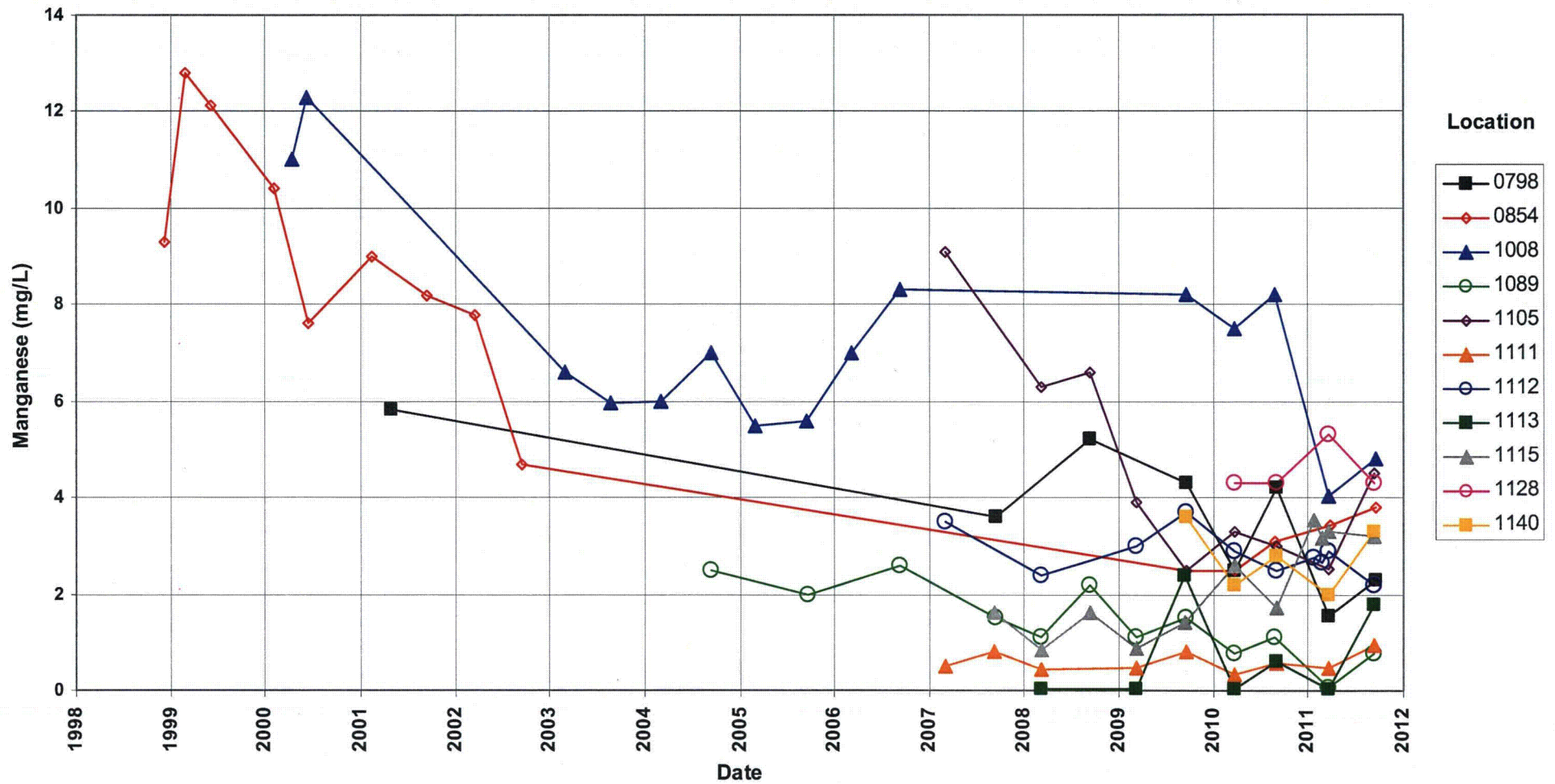
Shiprock Disposal Site (Floodplain) Ammonia Total as N Concentration



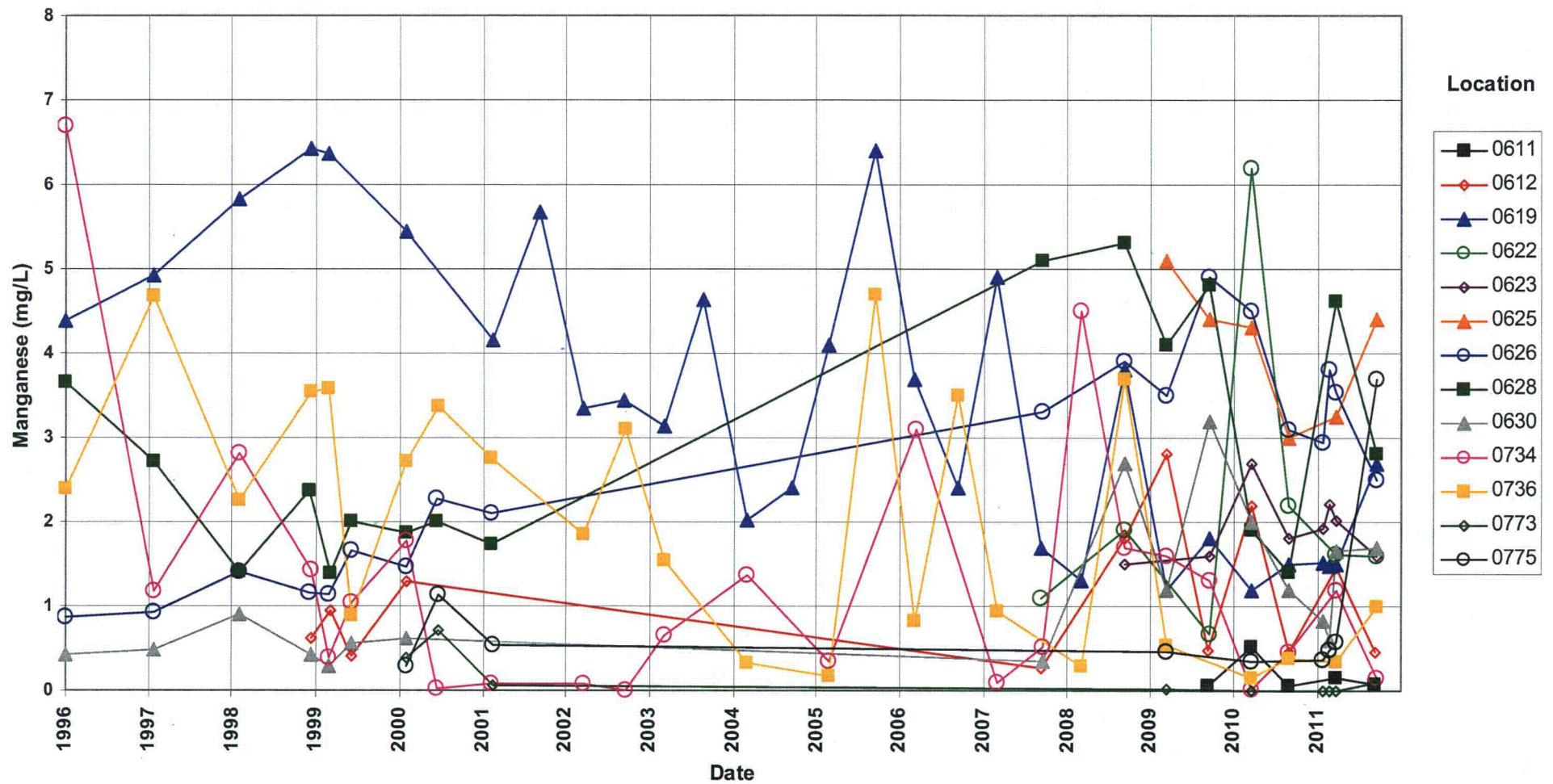
Shiprock Disposal Site (Floodplain) Manganese Concentration



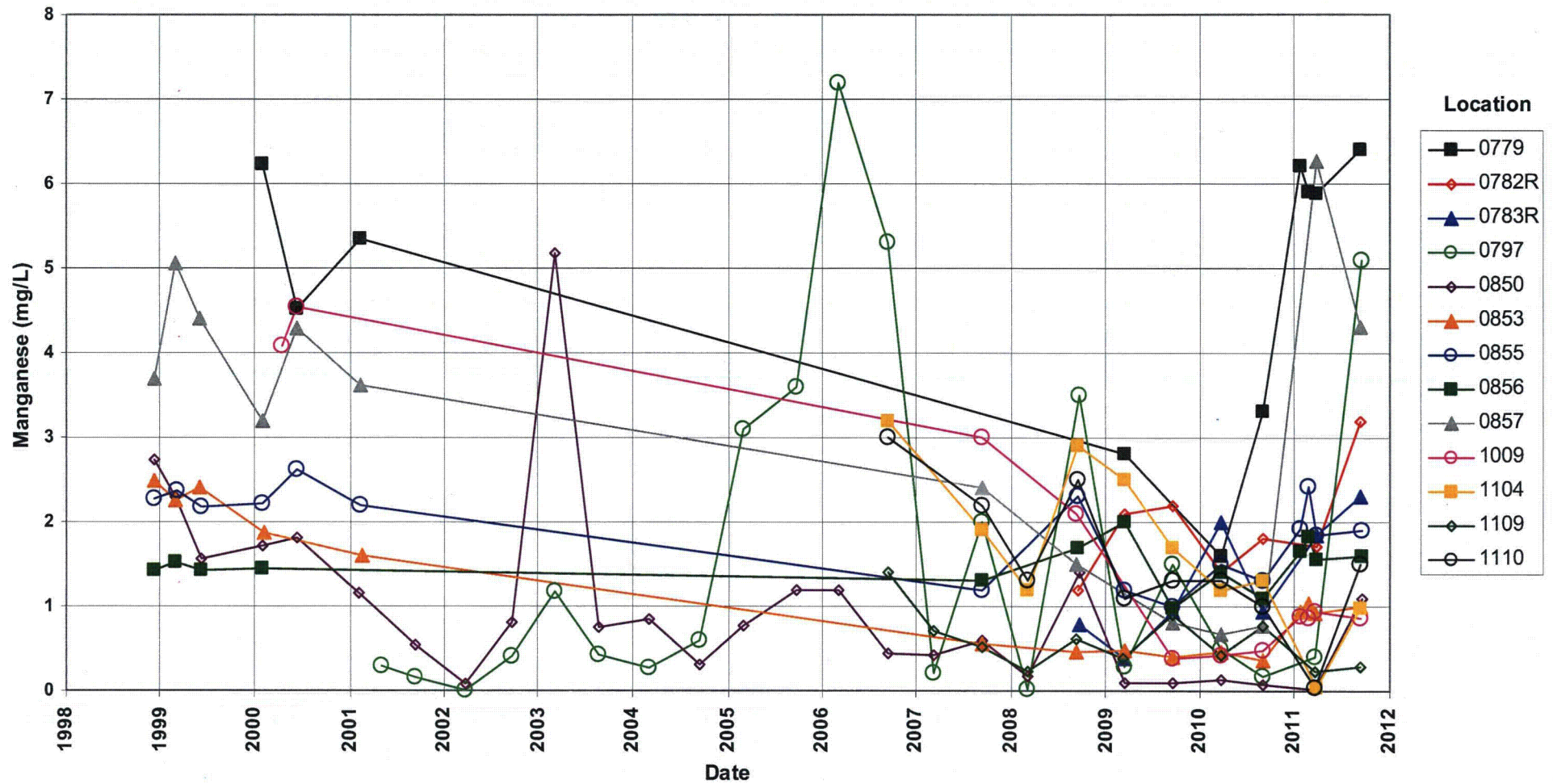
Shiprock Disposal Site (Floodplain) **Manganese Concentration**



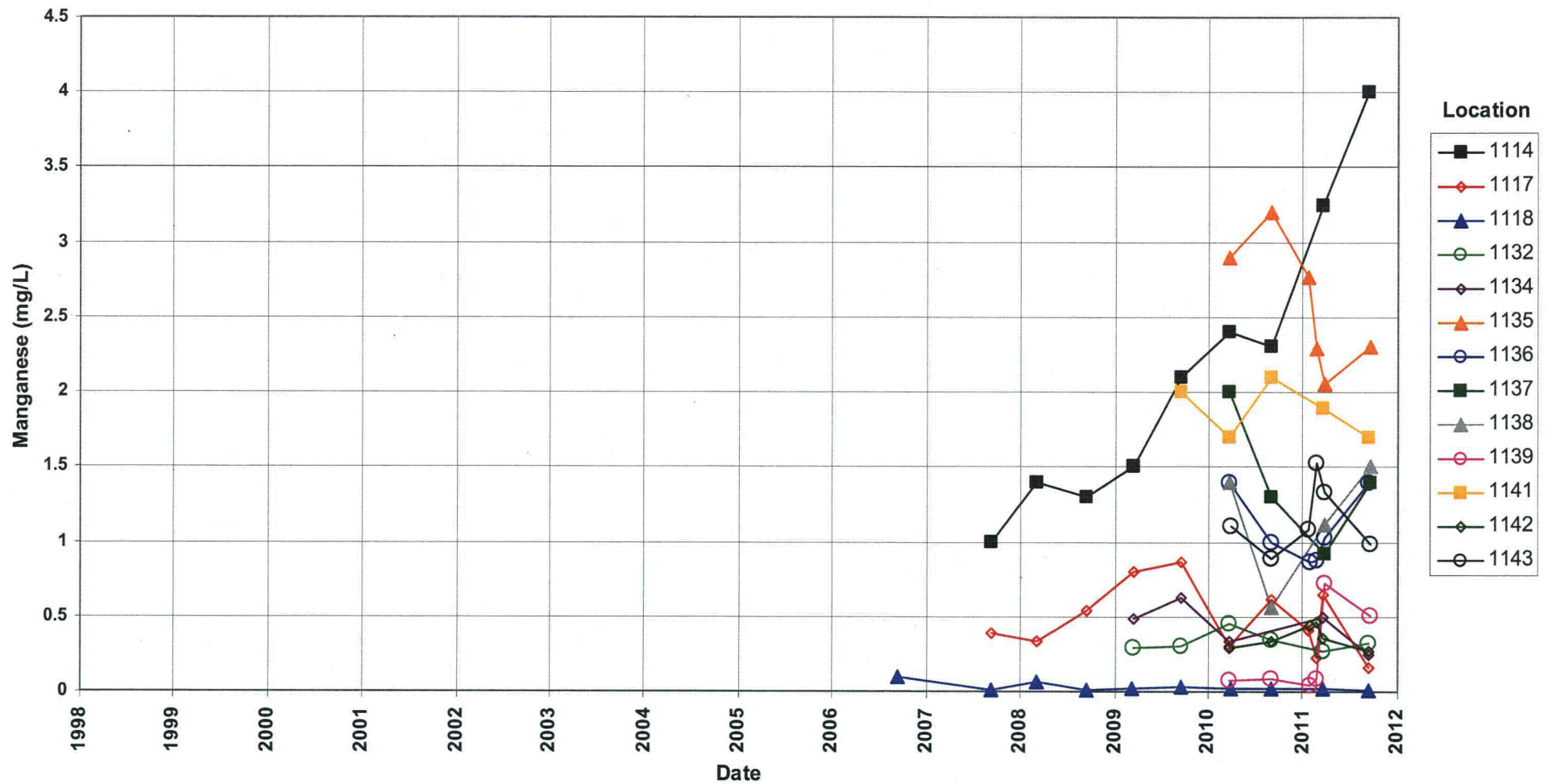
Shiprock Disposal Site (Floodplain) Manganese Concentration



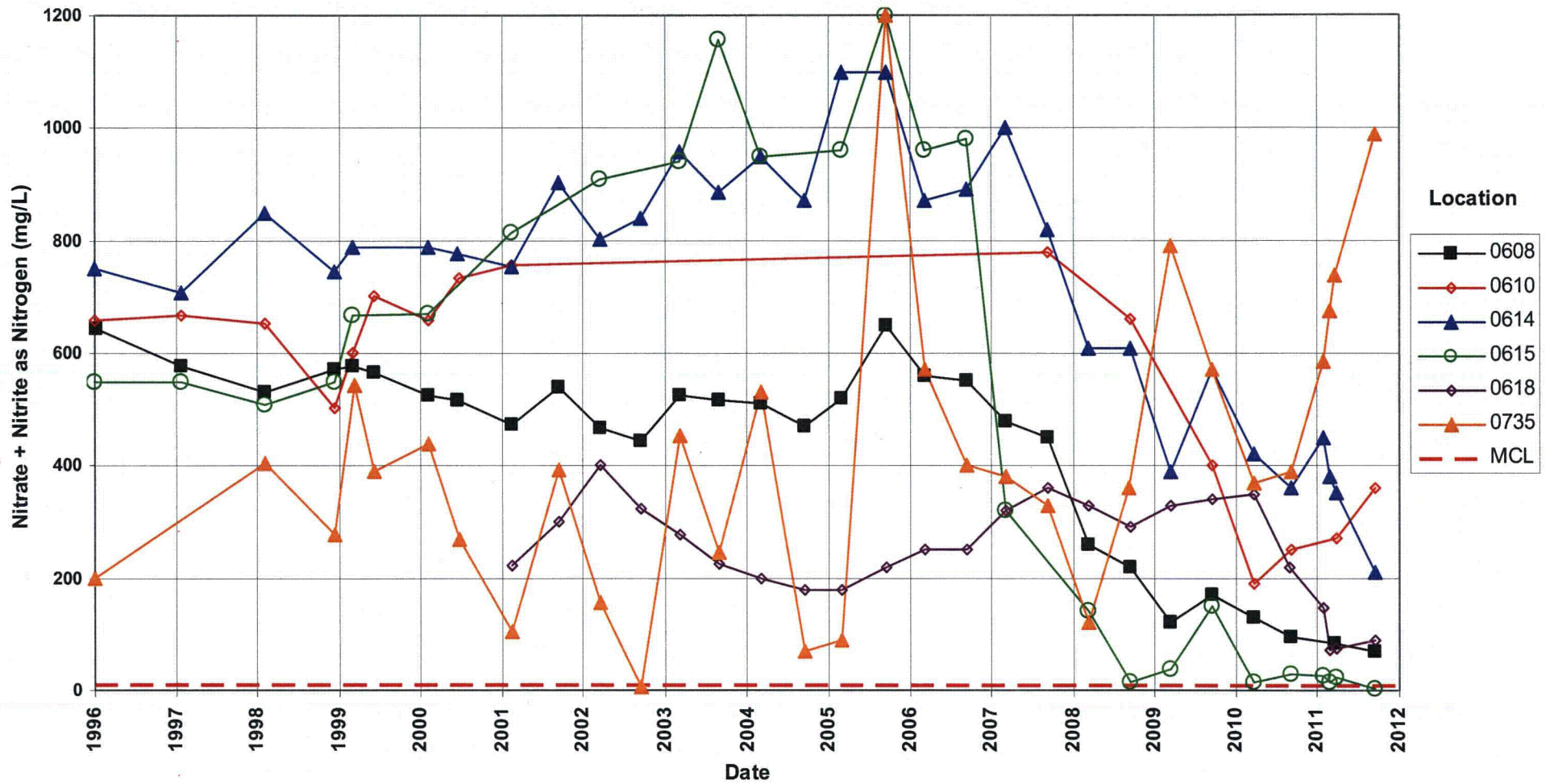
Shiprock Disposal Site (Floodplain) Manganese Concentration



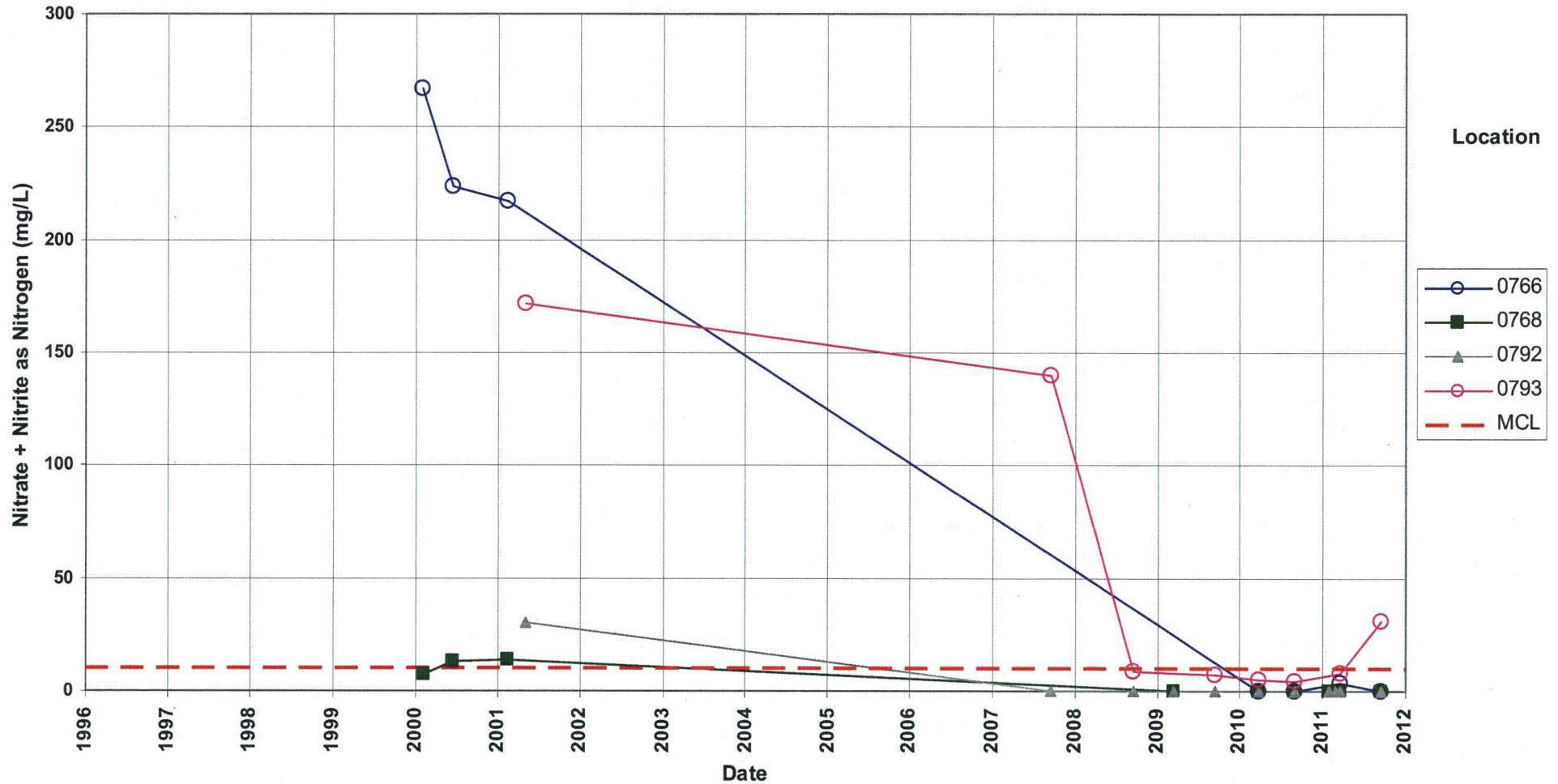
Shiprock Disposal Site (Floodplain) Manganese Concentration



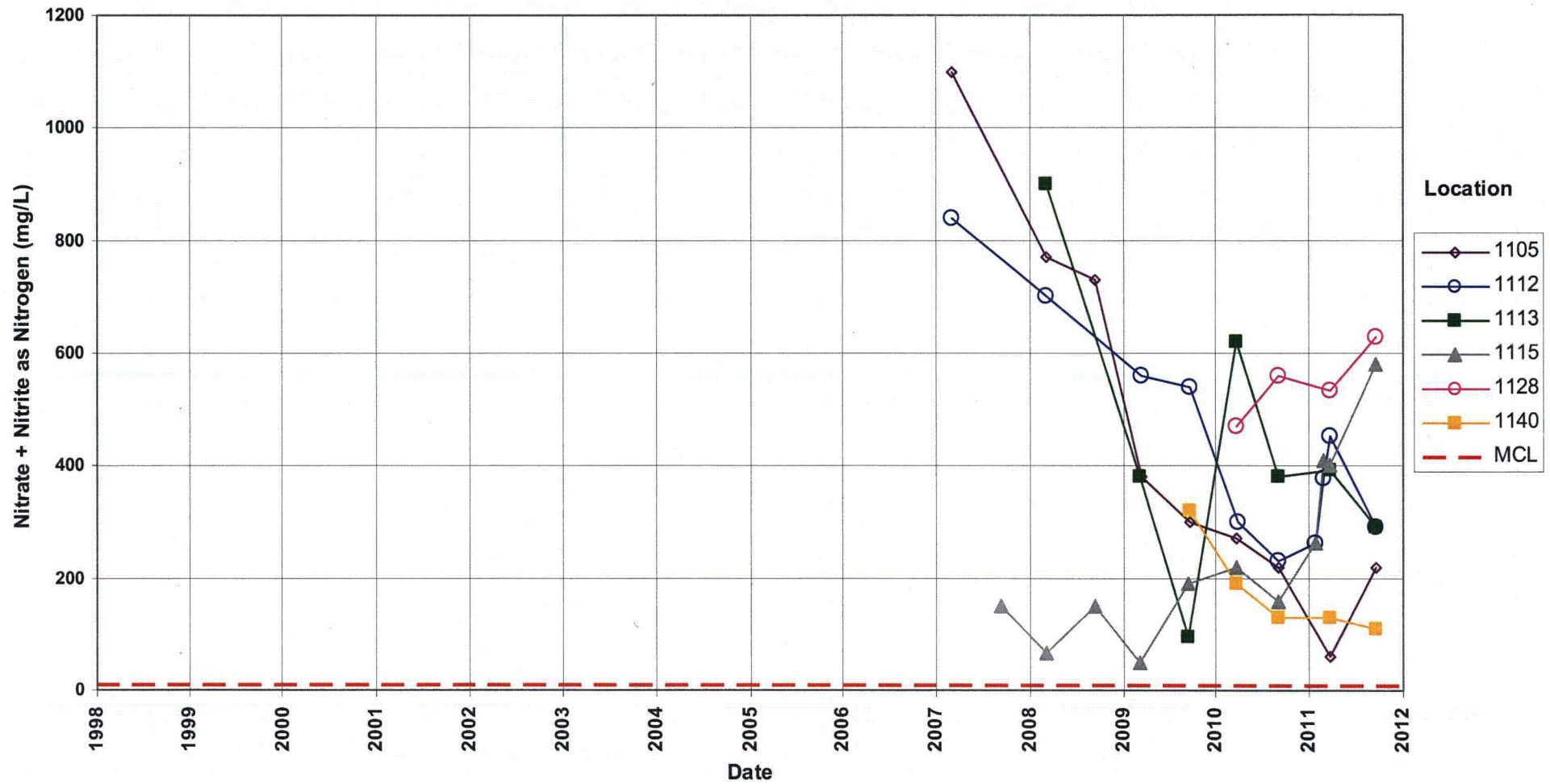
Shiprock Disposal Site (Floodplain)
Nitrate + Nitrite as Nitrogen Concentration
Maximum Contaminant Level (MCL) = 10.0 mg/L



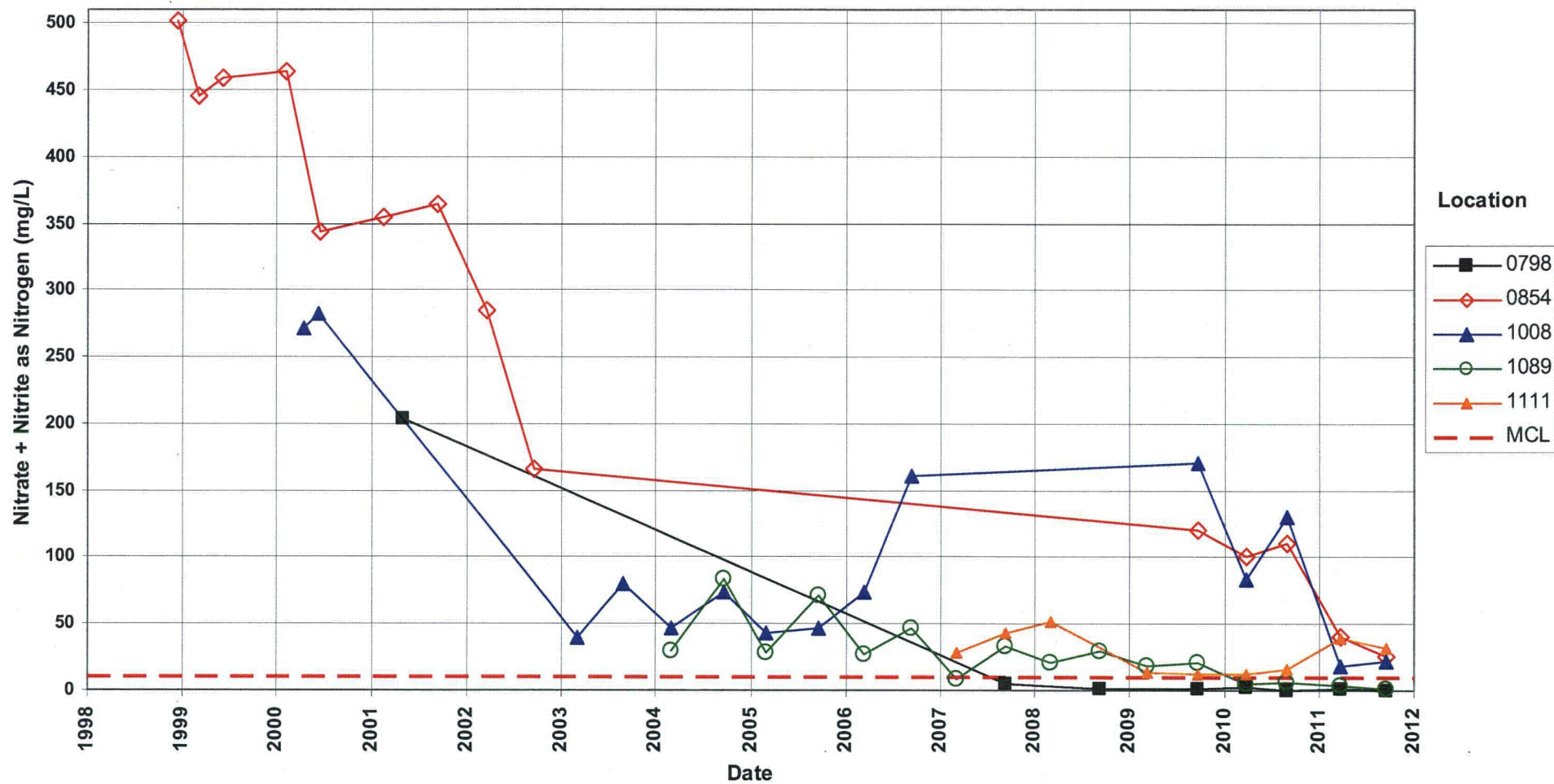
Shiprock Disposal Site (Floodplain)
Nitrate + Nitrite as Nitrogen Concentration
Maximum Contaminant Level (MCL) = 10.0 mg/L



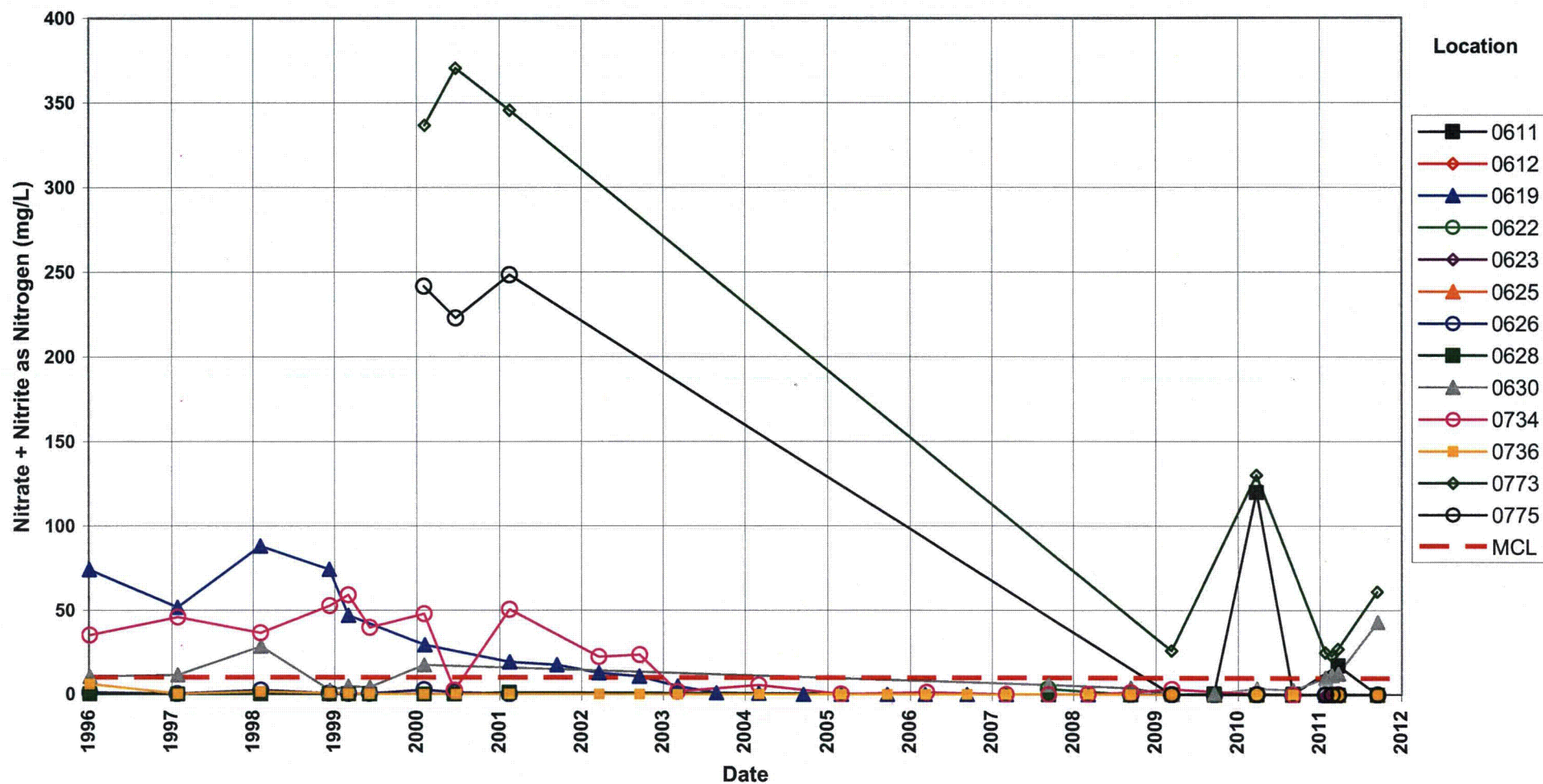
Shiprock Disposal Site (Floodplain)
Nitrate + Nitrite as Nitrogen Concentration
Maximum Contaminant Level (MCL) = 10.0 mg/L



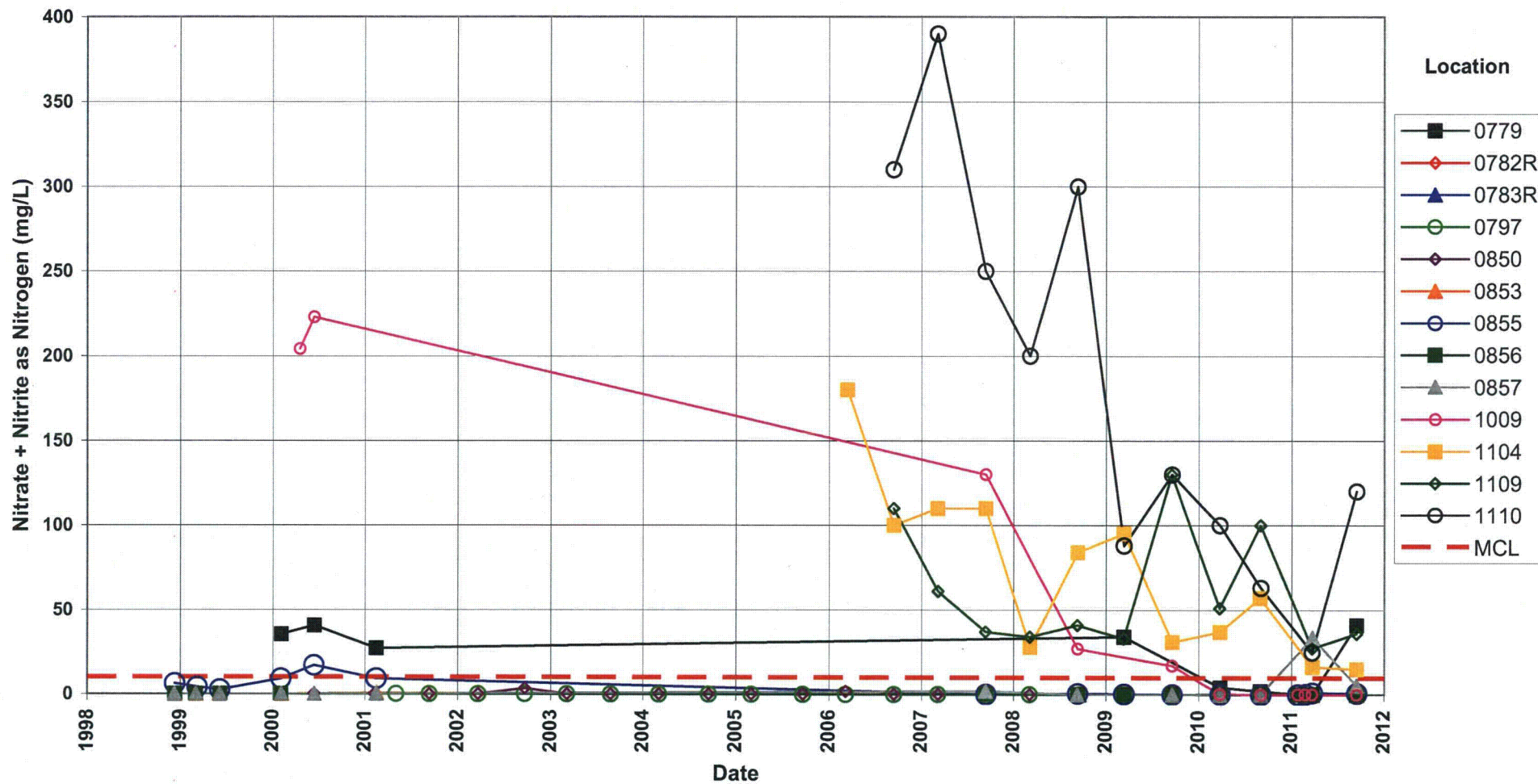
Shiprock Disposal Site (Floodplain)
Nitrate + Nitrite as Nitrogen Concentration
Maximum Contaminant Level (MCL) = 10.0 mg/L



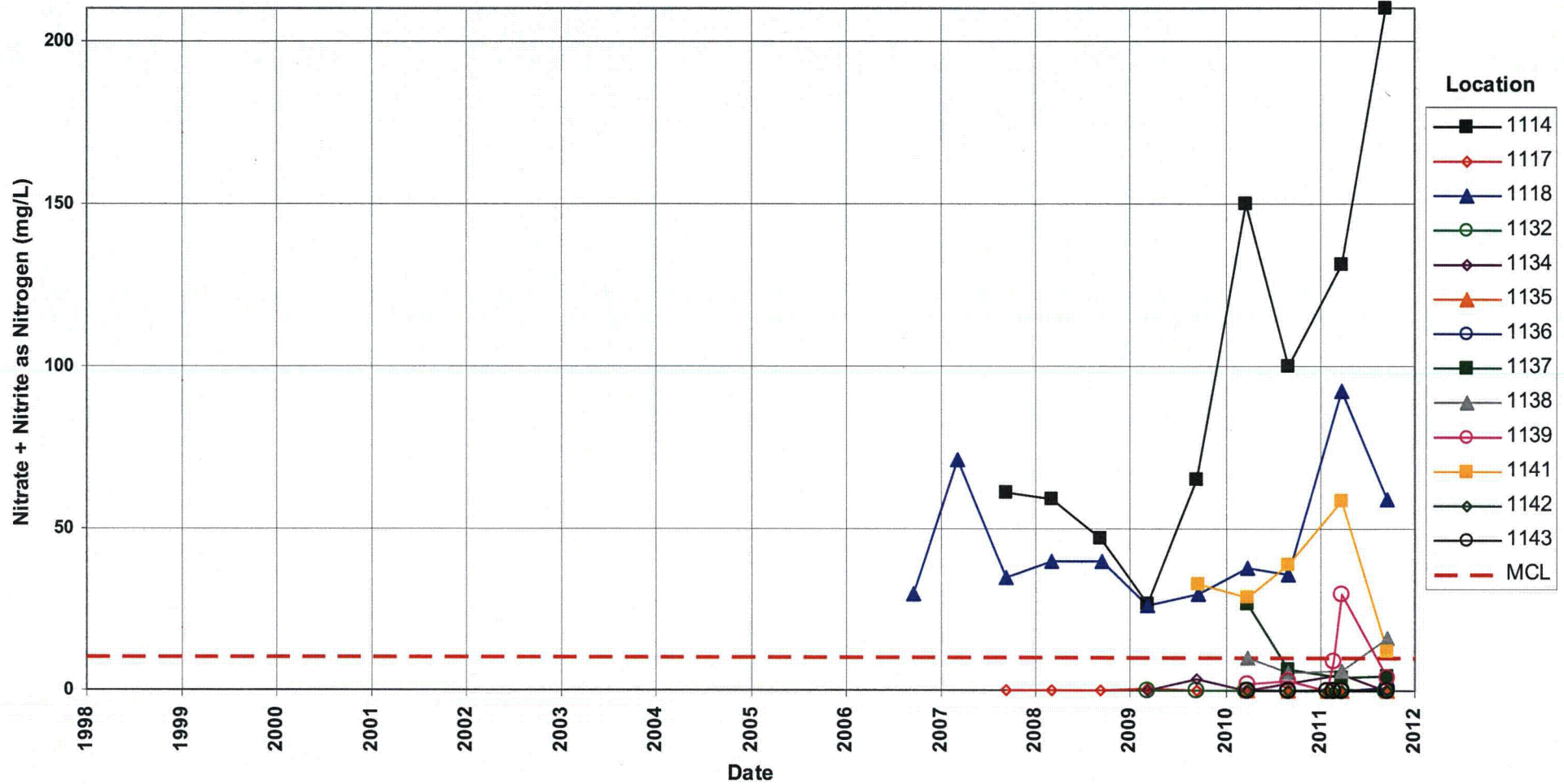
Shiprock Disposal Site (Floodplain)
Nitrate + Nitrite as Nitrogen Concentration
Maximum Contaminant Level (MCL) = 10.0 mg/L



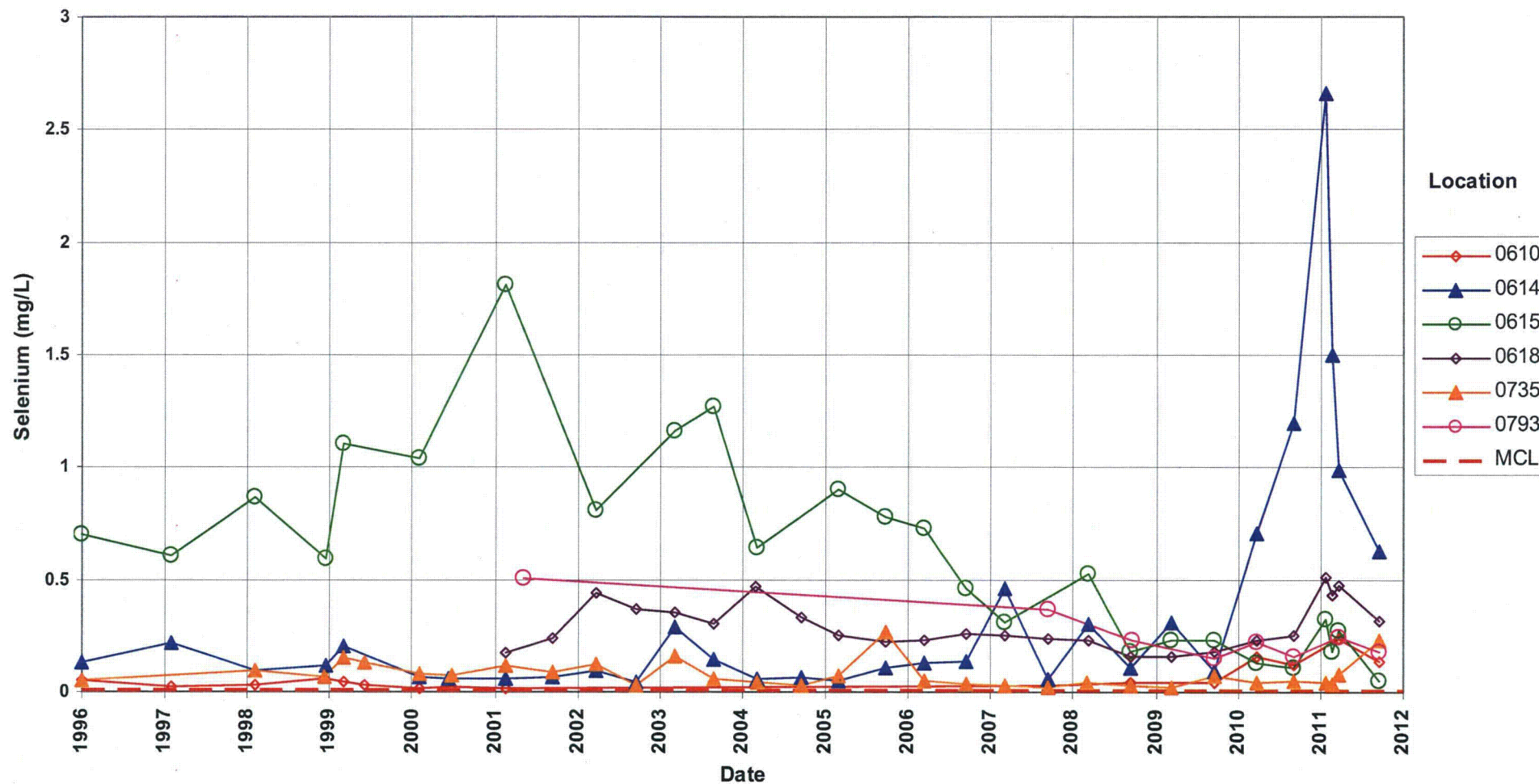
Shiprock Disposal Site (Floodplain)
Nitrate + Nitrite as Nitrogen Concentration
Maximum Contaminant Level (MCL) = 10.0 mg/L



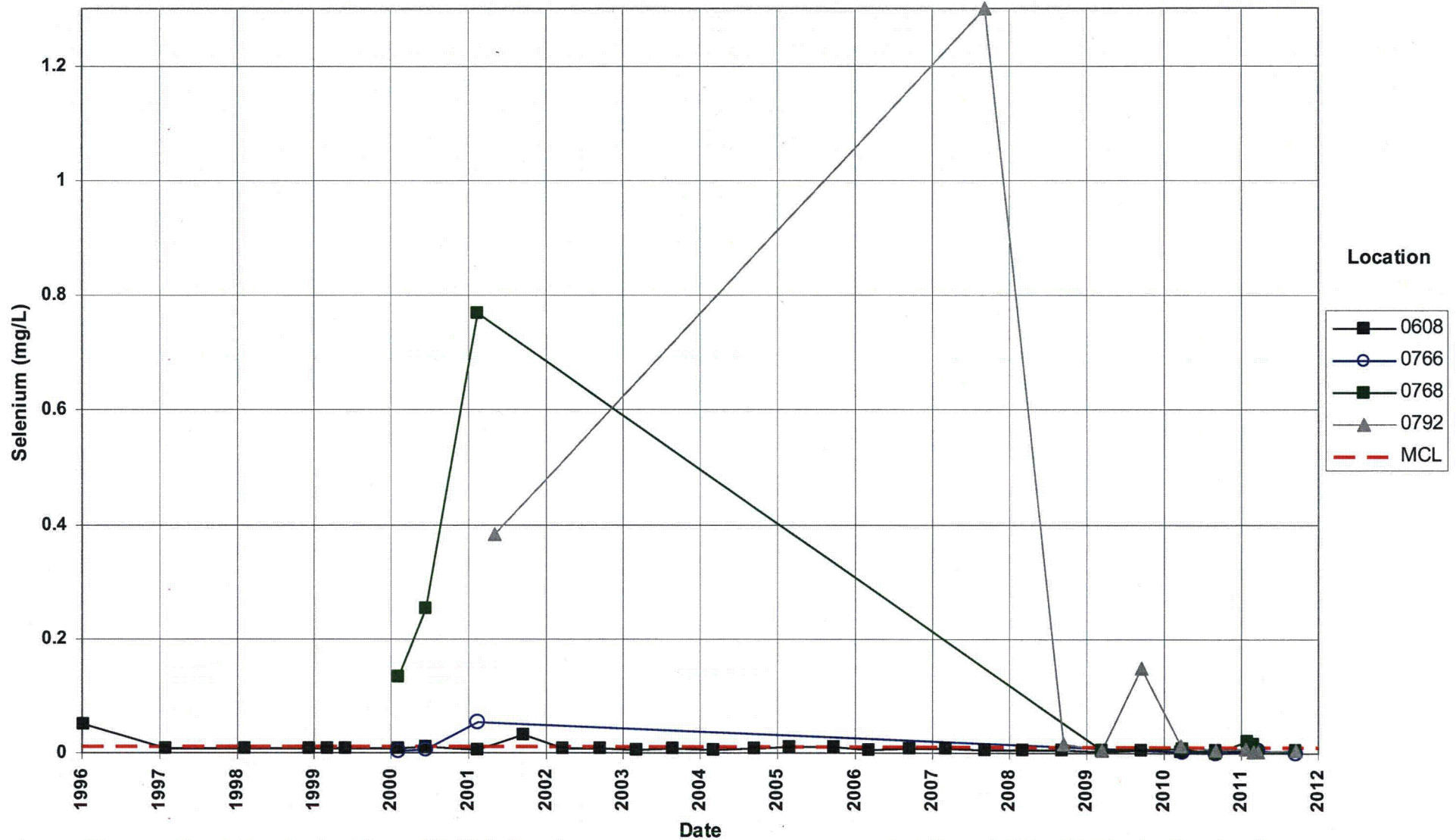
Shiprock Disposal Site (Floodplain)
Nitrate + Nitrite as Nitrogen Concentration
Maximum Contaminant Level (MCL) = 10.0 mg/L



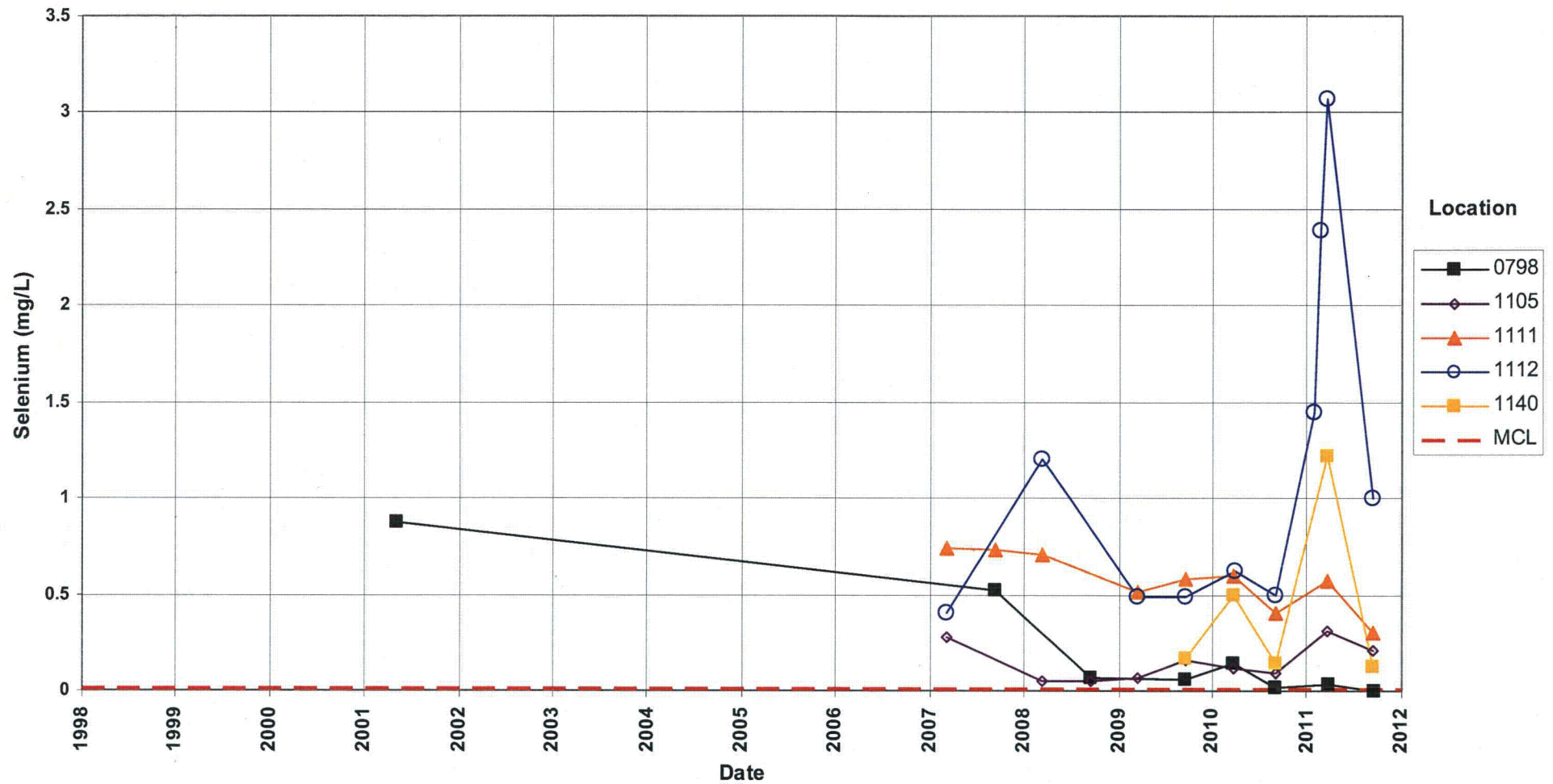
Shiprock Disposal Site (Floodplain)
Selenium Concentration
Maximum Contaminant Level (MCL) = 0.01 mg/L



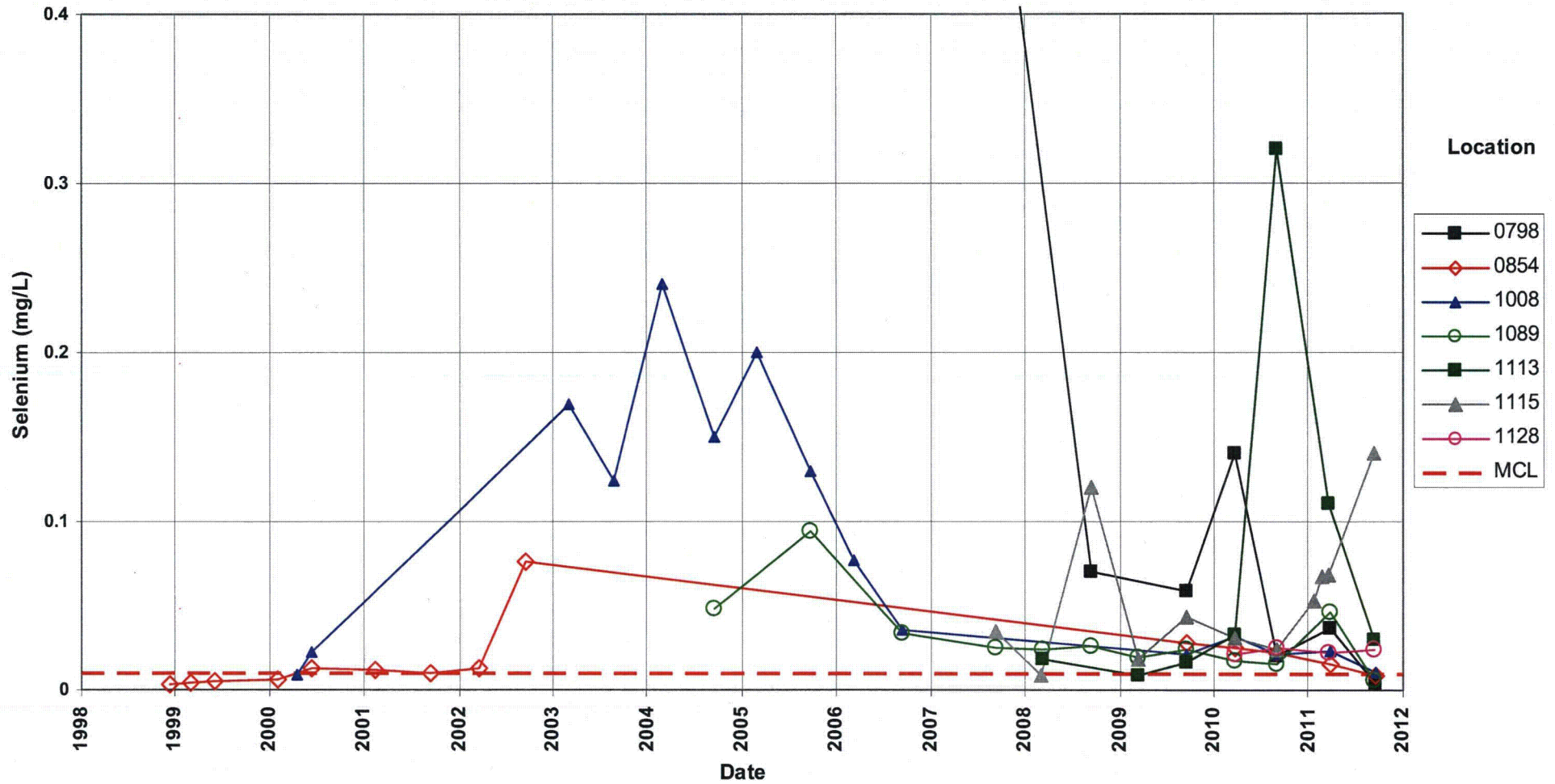
Shiprock Disposal Site (Floodplain)
Selenium Concentration
Maximum Contaminant Level (MCL) = 0.01 mg/L



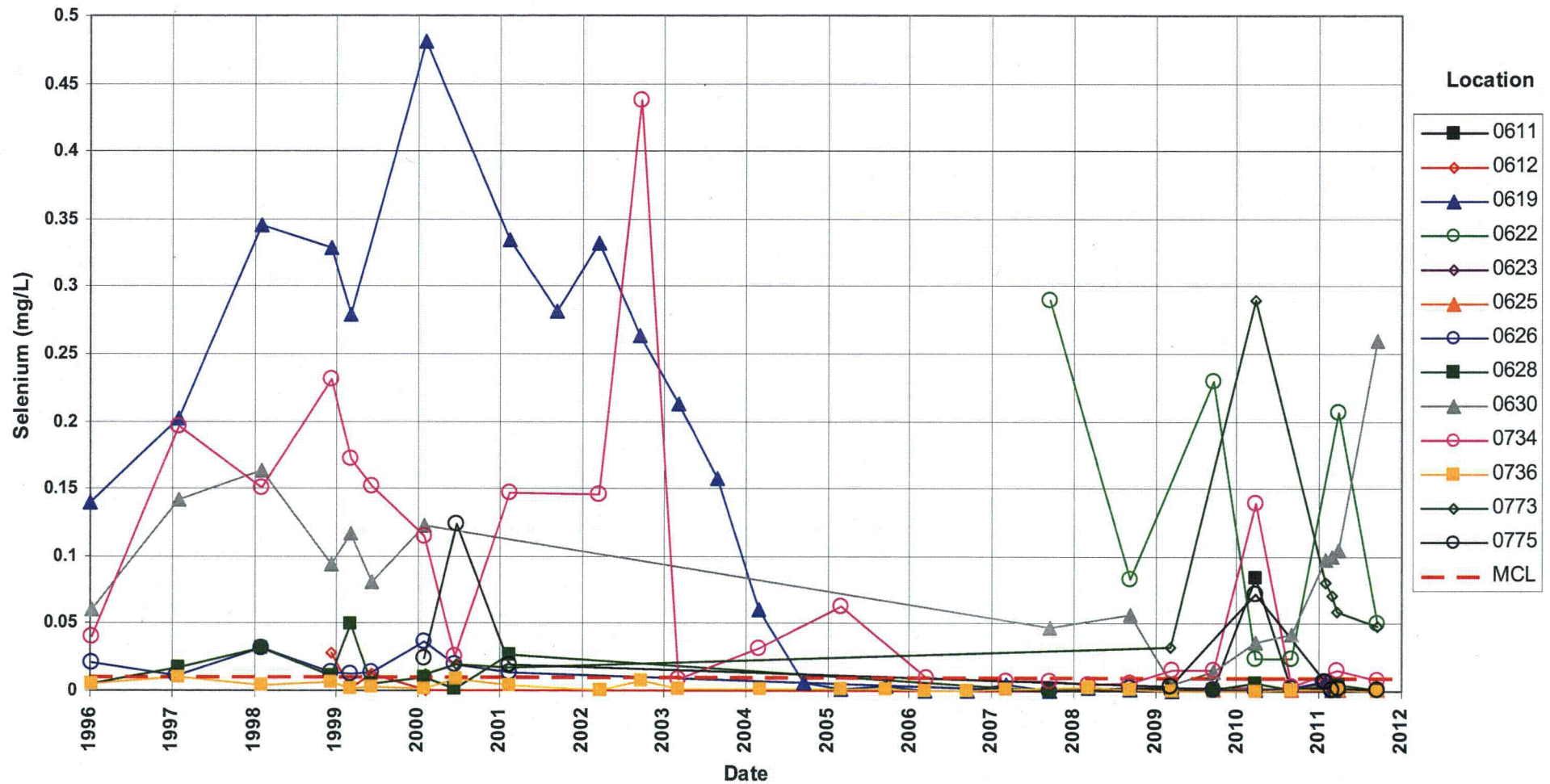
Shiprock Disposal Site (Floodplain)
Selenium Concentration
Maximum Contaminant Level (MCL) = 0.01 mg/L



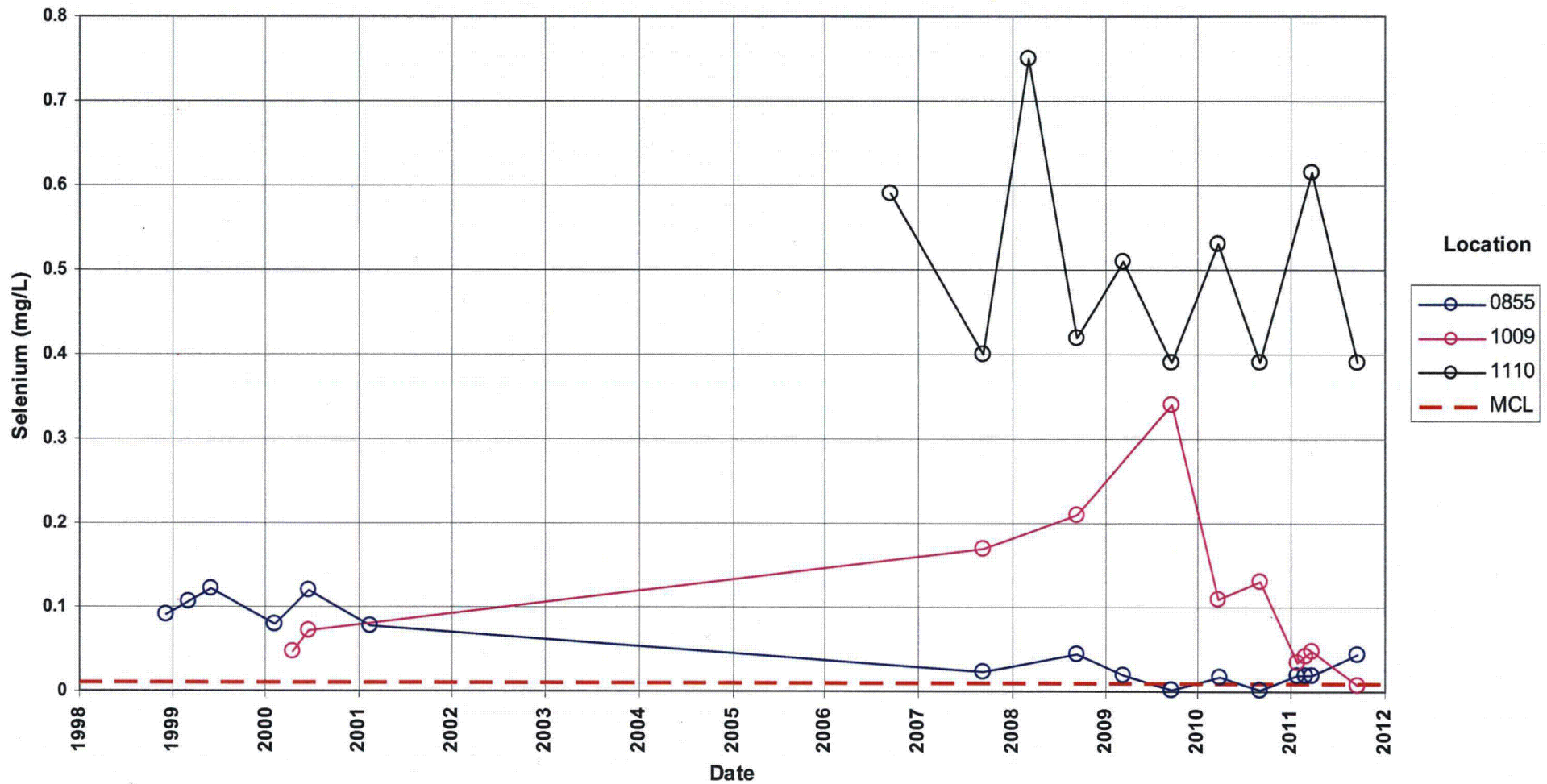
Shiprock Disposal Site (Floodplain)
Selenium Concentration
Maximum Contaminant Level (MCL) = 0.01 mg/L



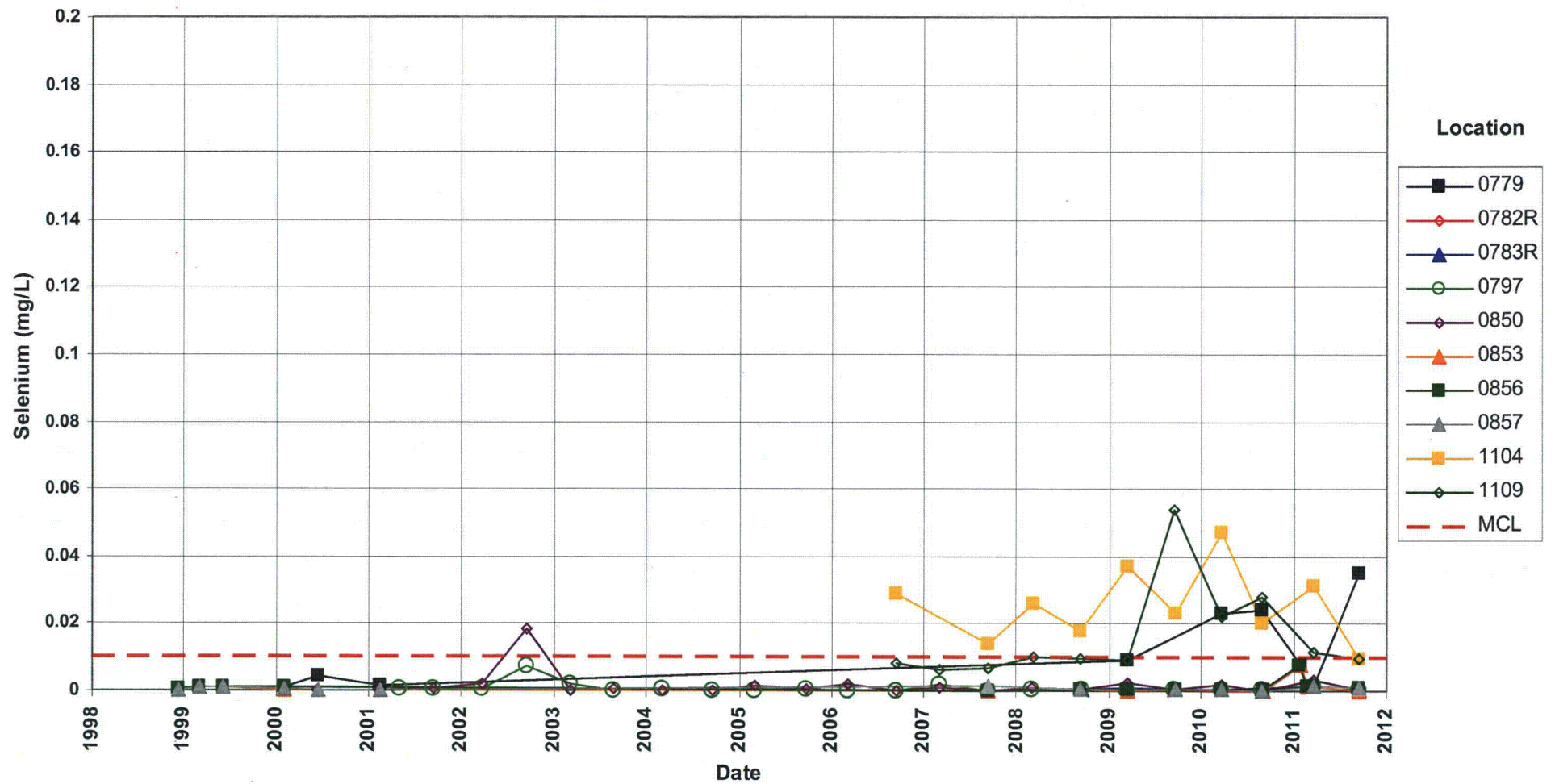
Shiprock Disposal Site (Floodplain)
Selenium Concentration
Maximum Contaminant Level (MCL) = 0.01 mg/L



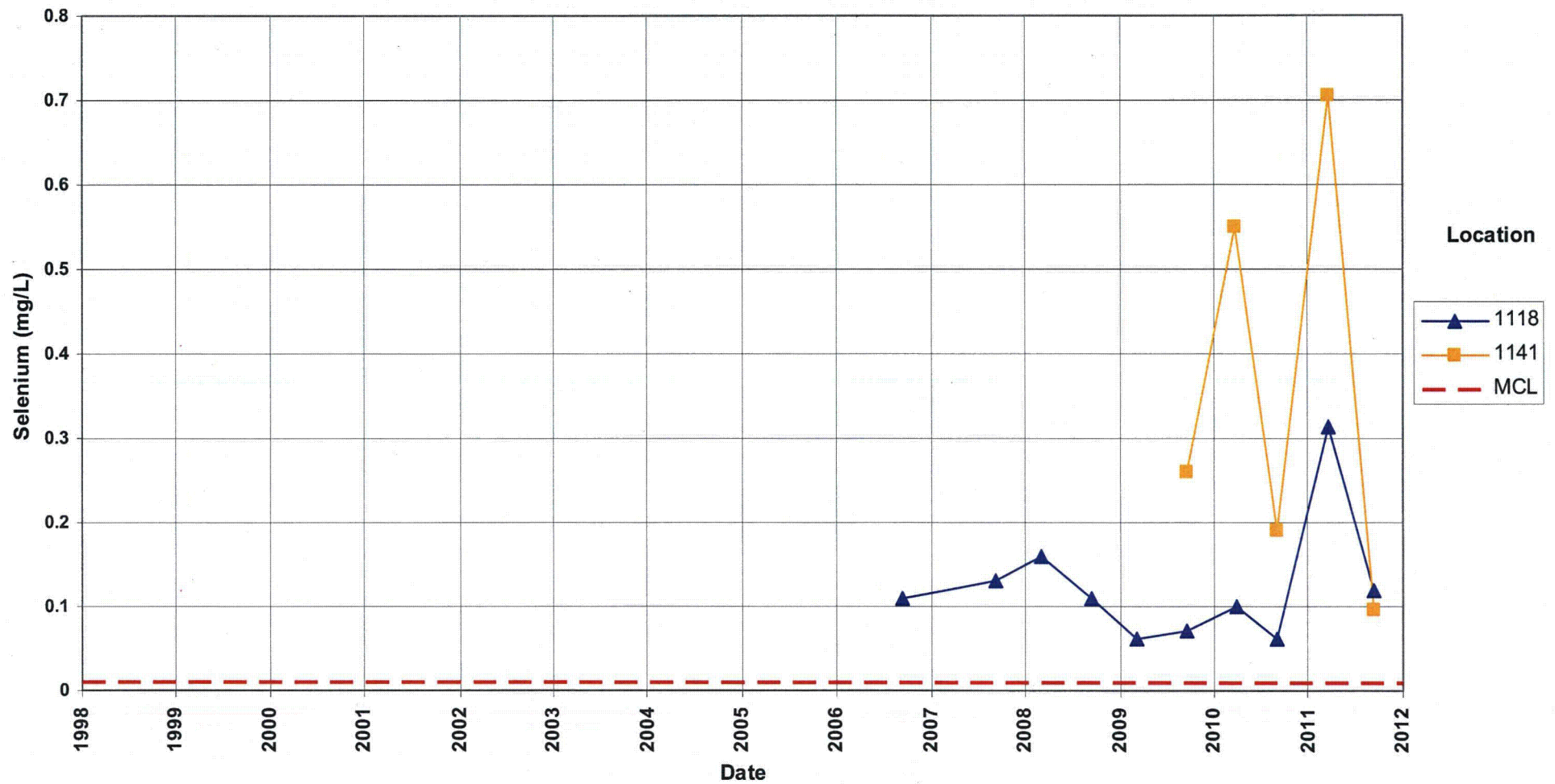
Shiprock Disposal Site (Floodplain)
Selenium Concentration
Maximum Contaminant Level (MCL) = 0.01 mg/L



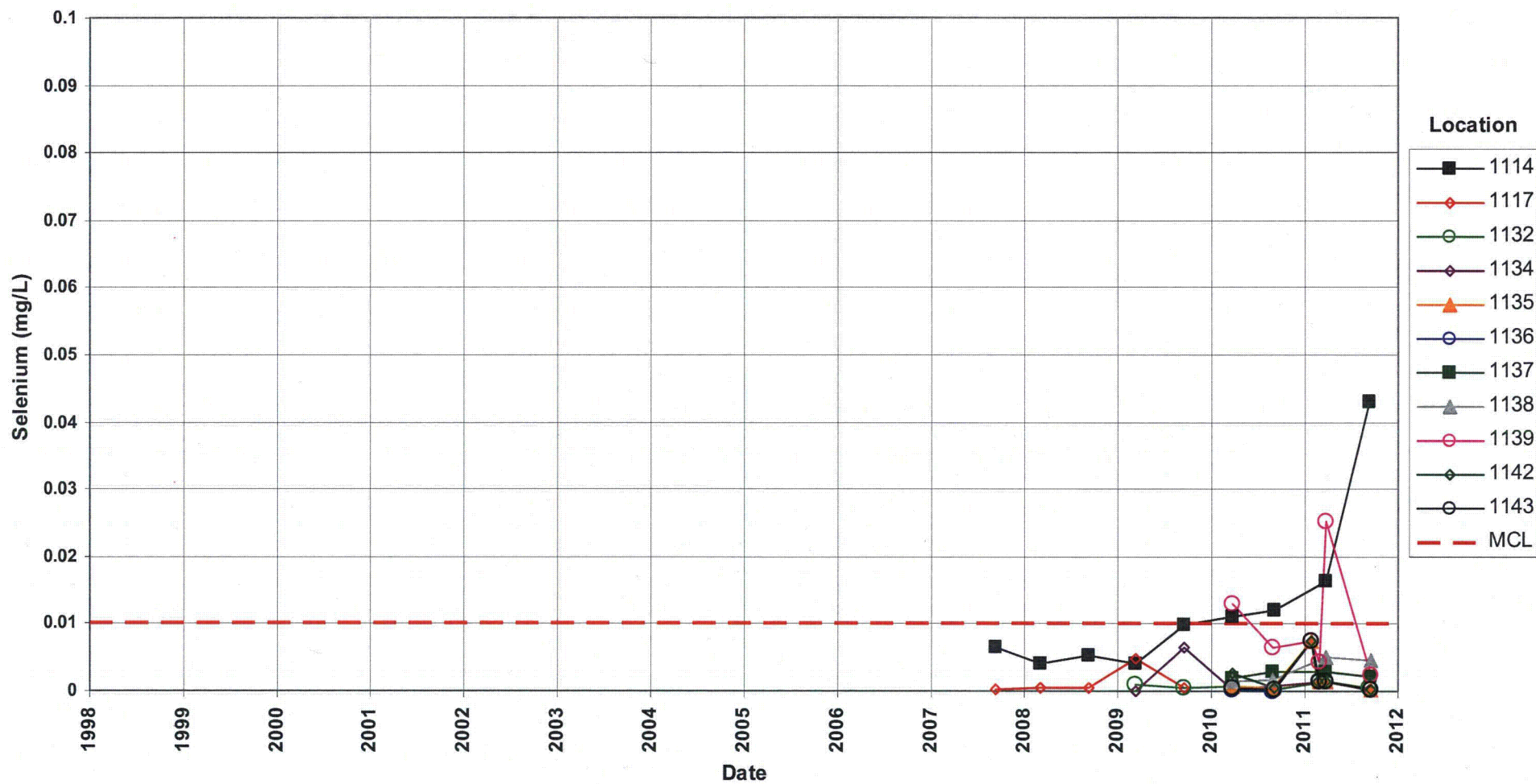
Shiprock Disposal Site (Floodplain)
Selenium Concentration
Maximum Contaminant Level (MCL) = 0.01 mg/L



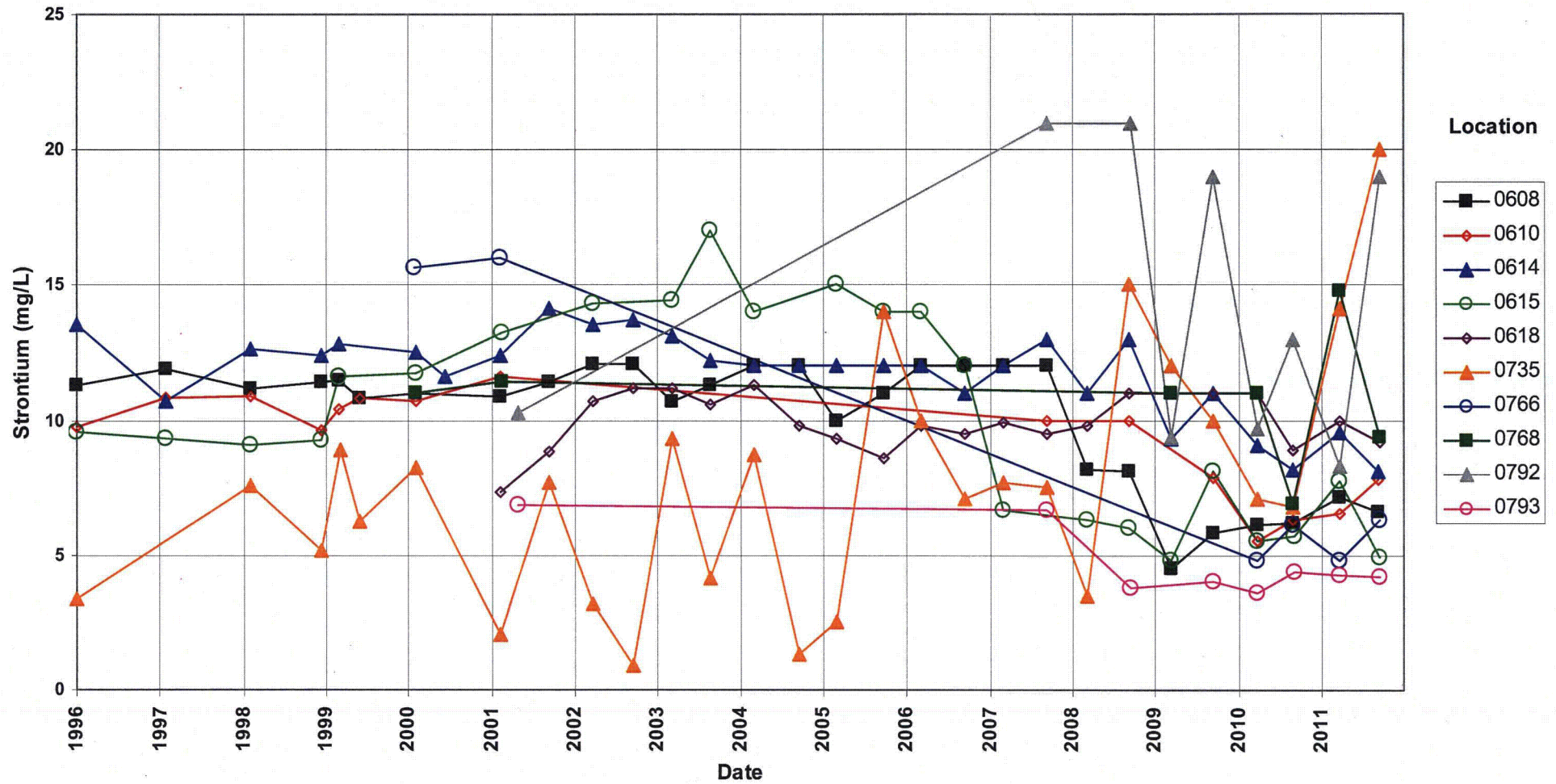
Shiprock Disposal Site (Floodplain)
Selenium Concentration
Maximum Contaminant Level (MCL) = 0.01 mg/L



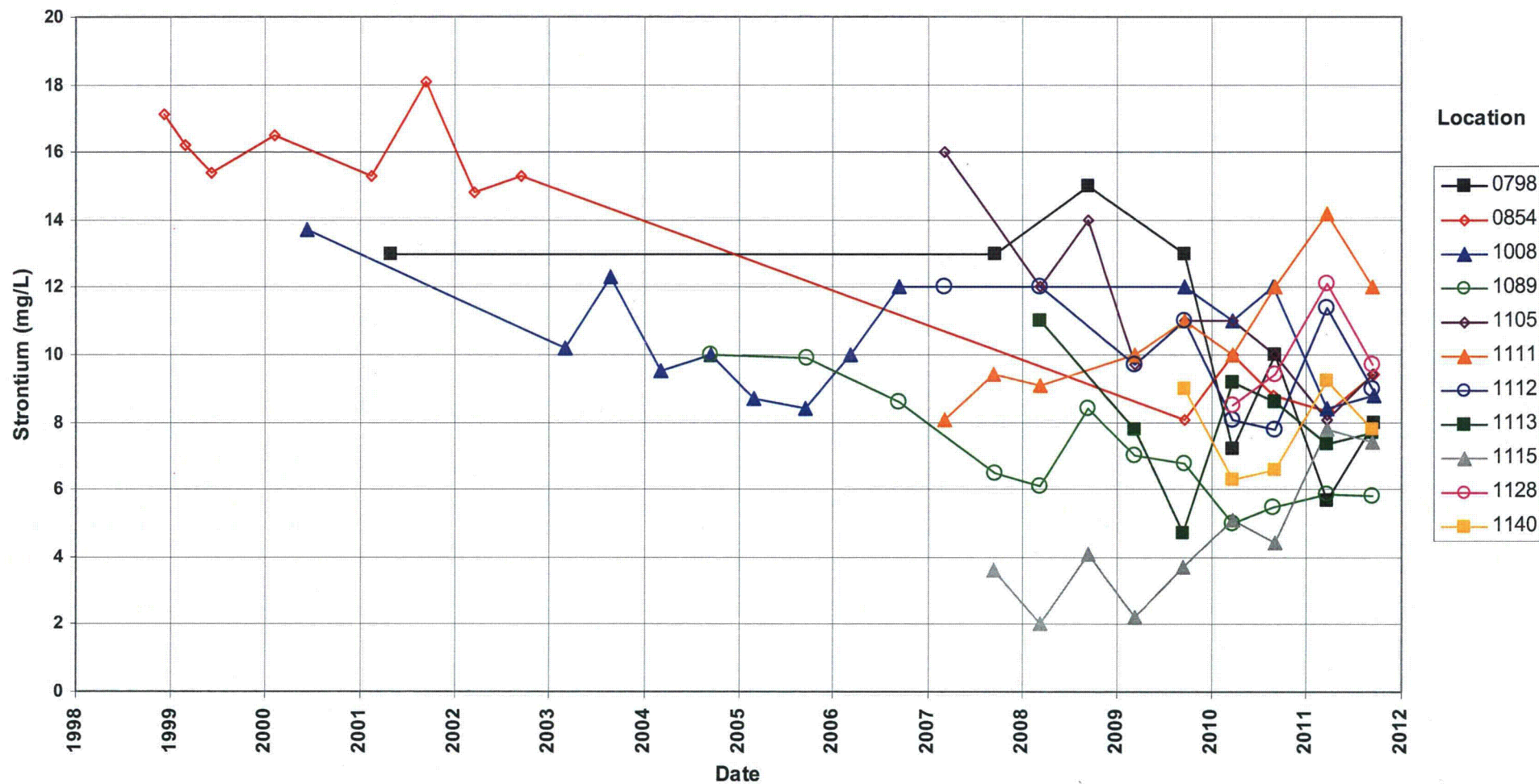
Shiprock Disposal Site (Floodplain)
Selenium Concentration
Maximum Contaminant Level (MCL) = 0.01 mg/L



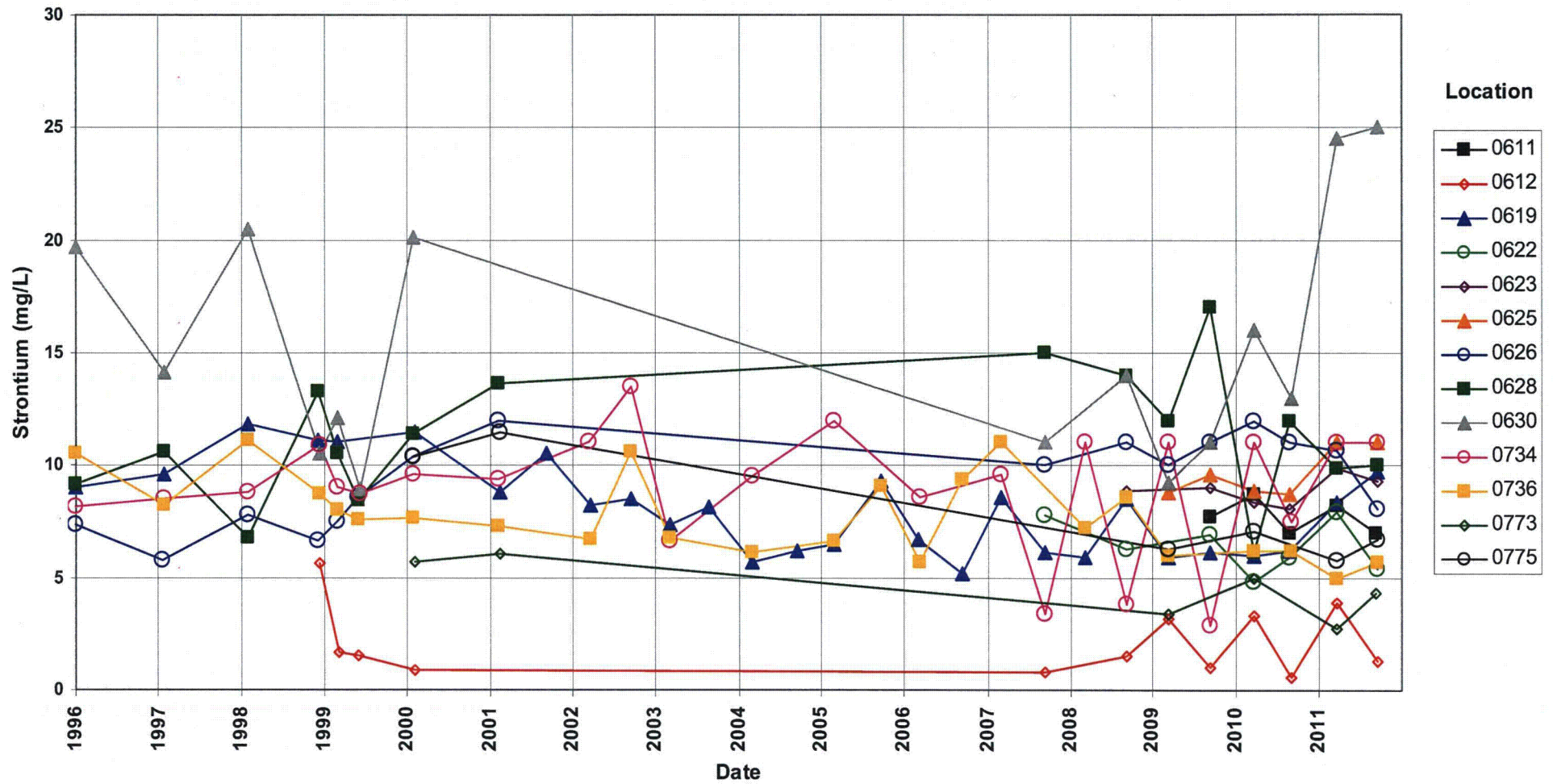
Shiprock Disposal Site (Floodplain) Strontium Concentration



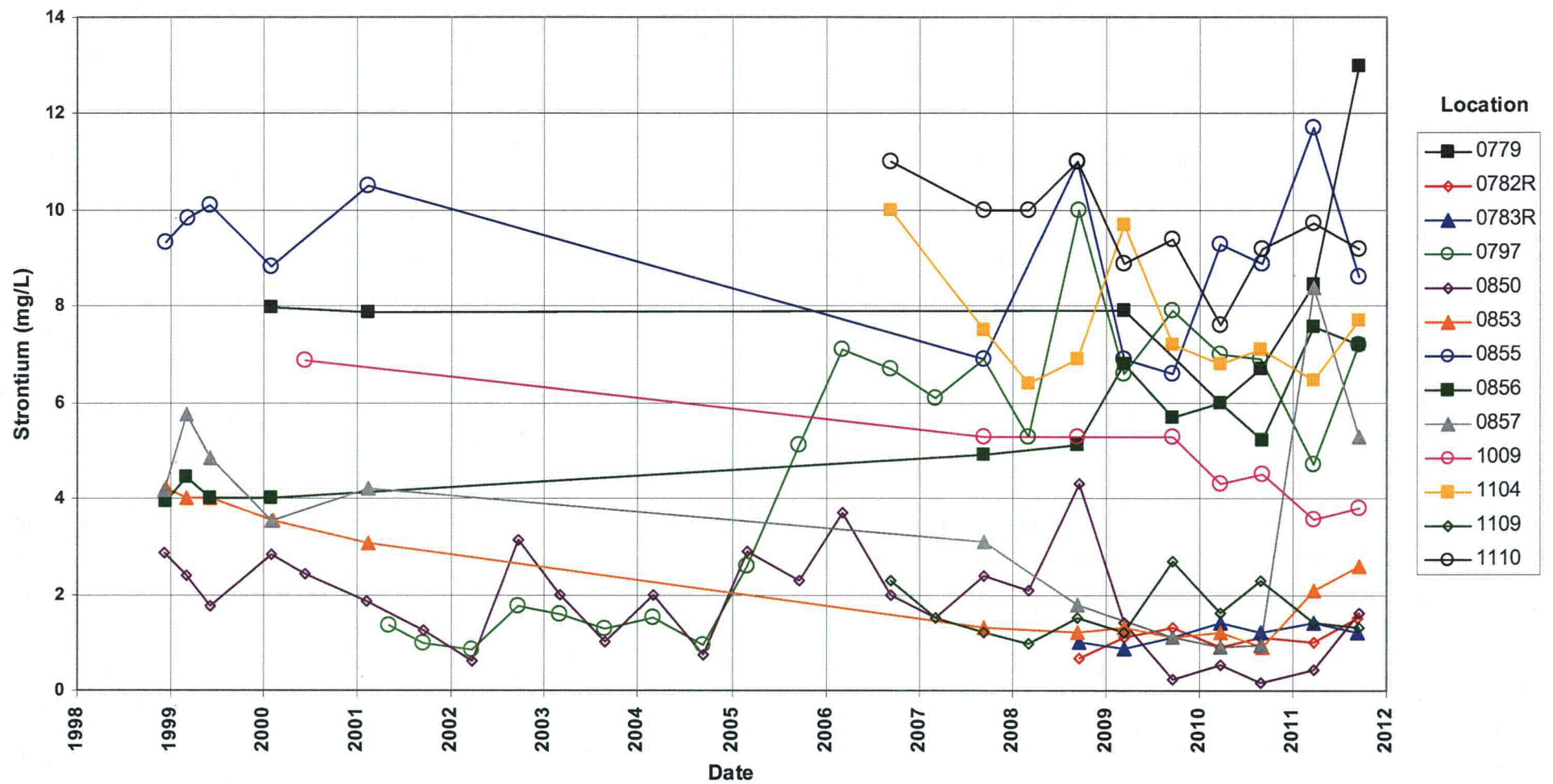
Shiprock Disposal Site (Floodplain) Strontium Concentration



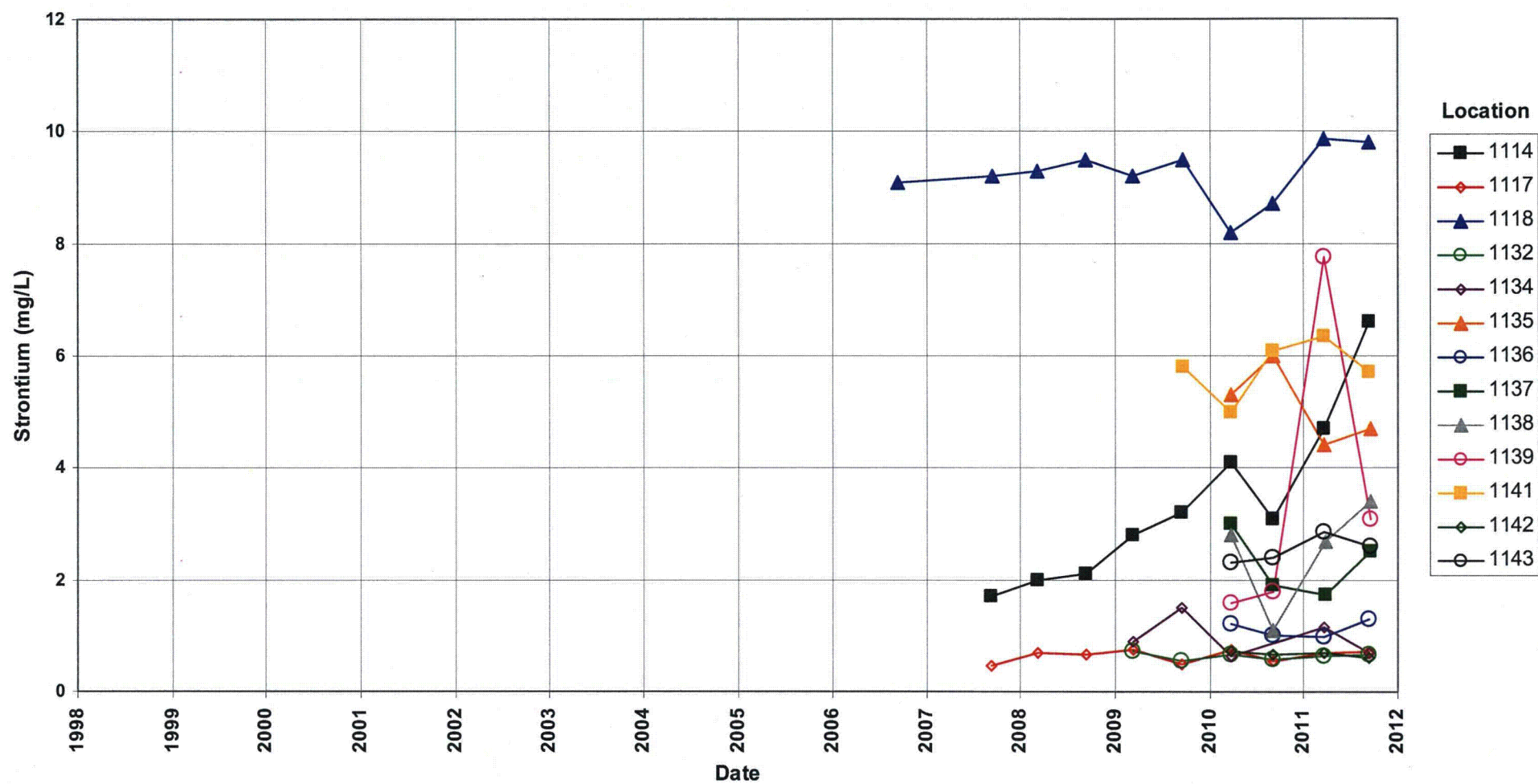
Shiprock Disposal Site (Floodplain) Strontium Concentration



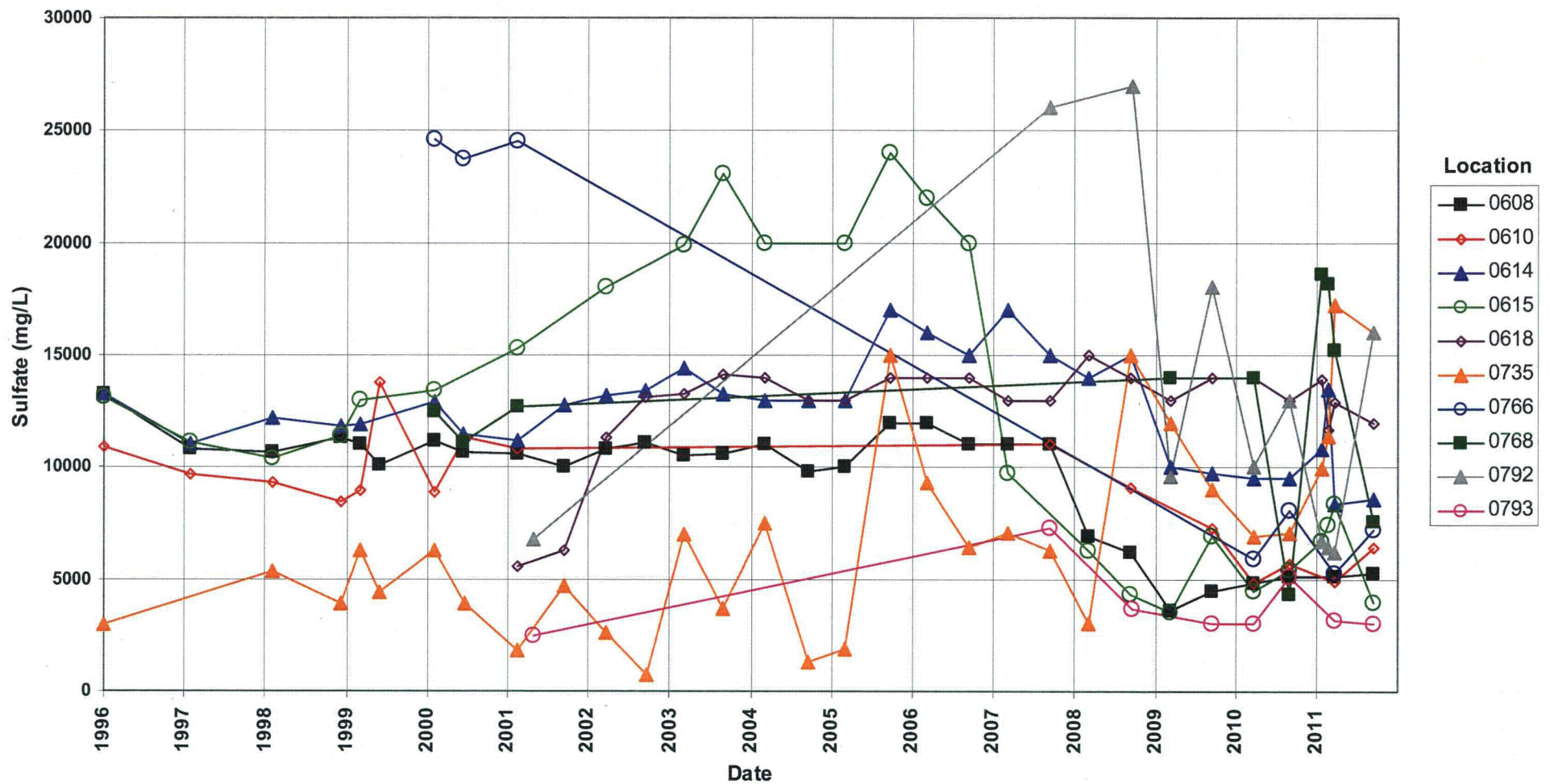
Shiprock Disposal Site (Floodplain) Strontium Concentration



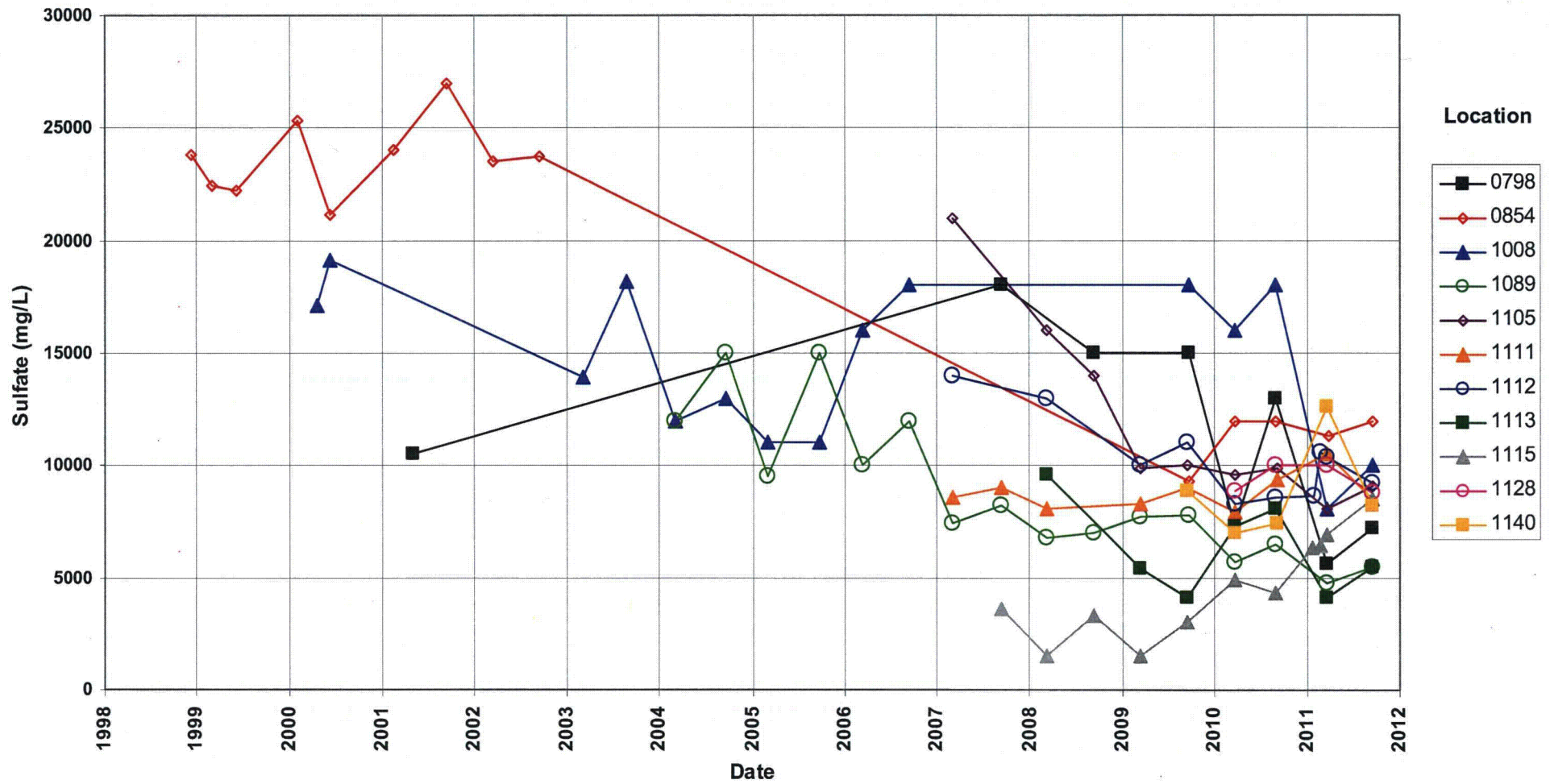
Shiprock Disposal Site (Floodplain) Strontium Concentration



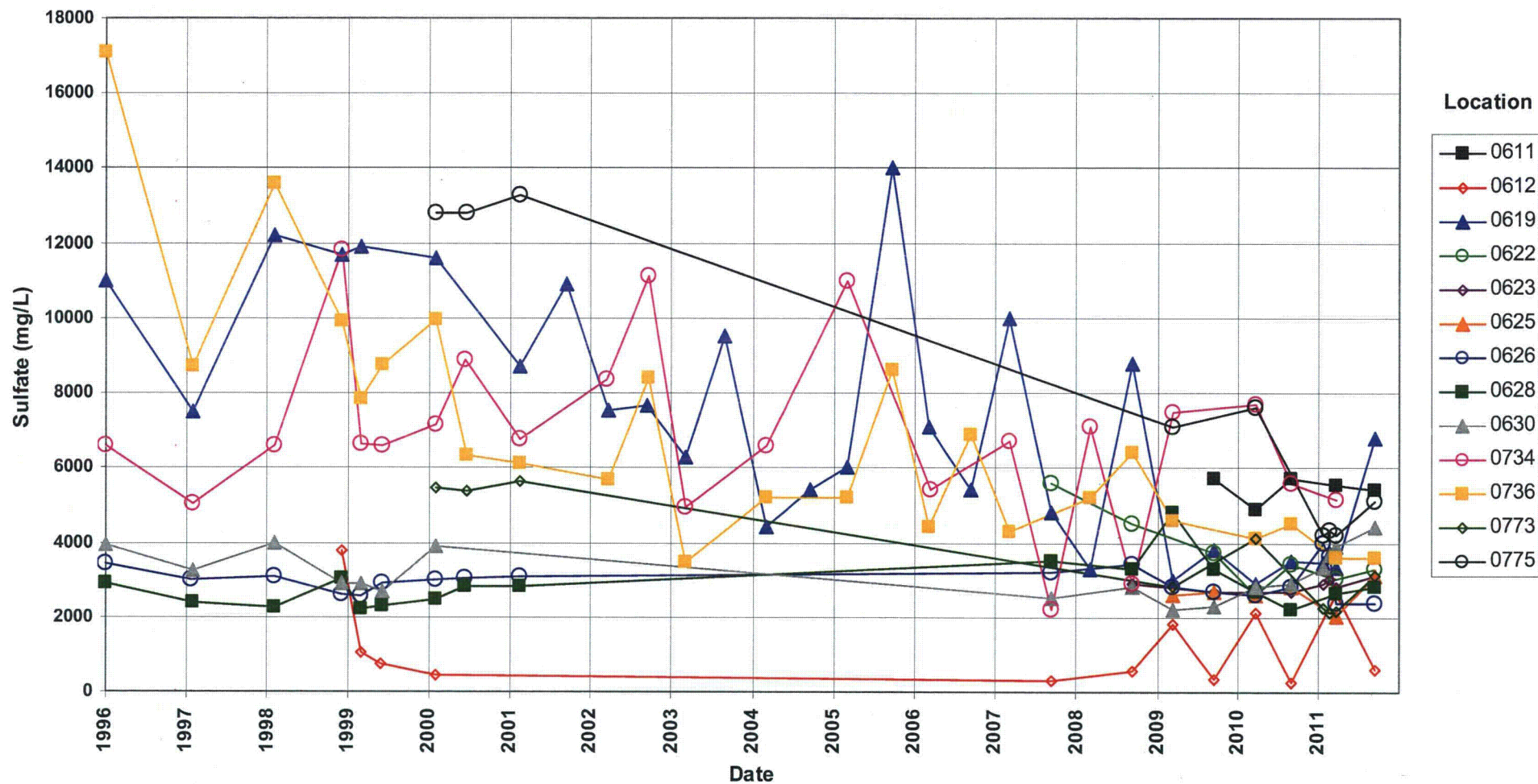
Shiprock Disposal Site (Floodplain) **Sulfate Concentration**



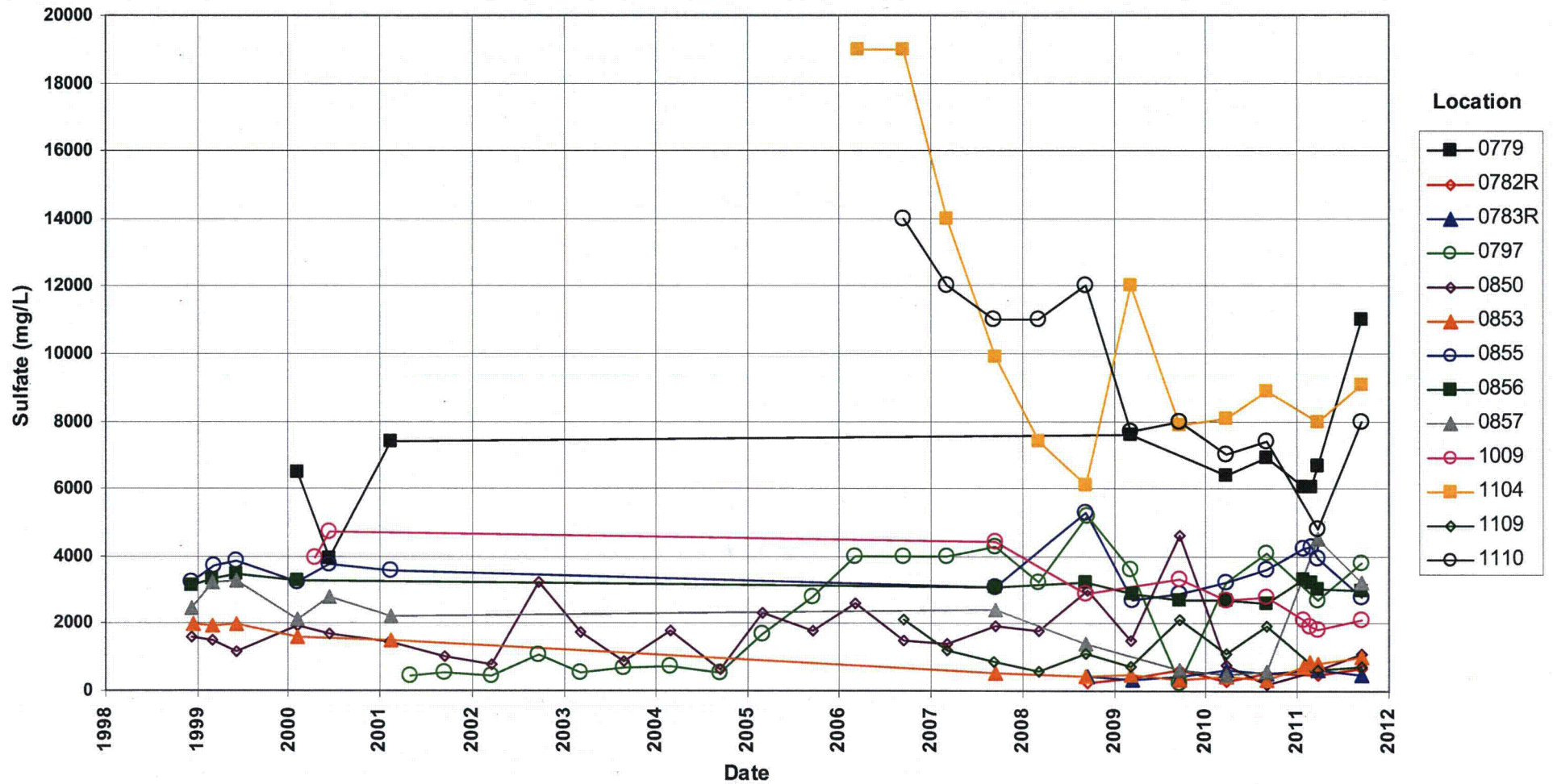
Shiprock Disposal Site (Floodplain) Sulfate Concentration



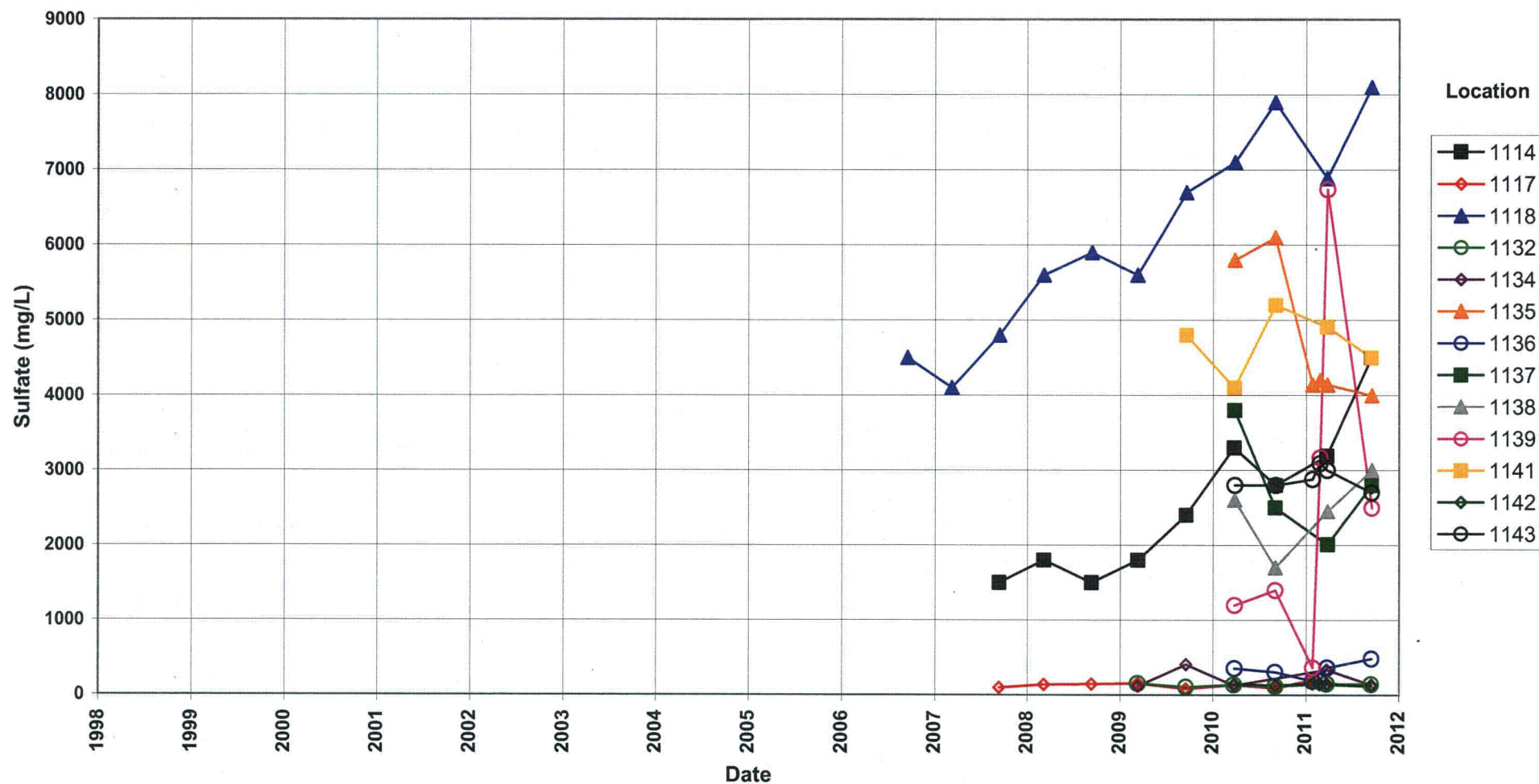
Shiprock Disposal Site (Floodplain) **Sulfate Concentration**



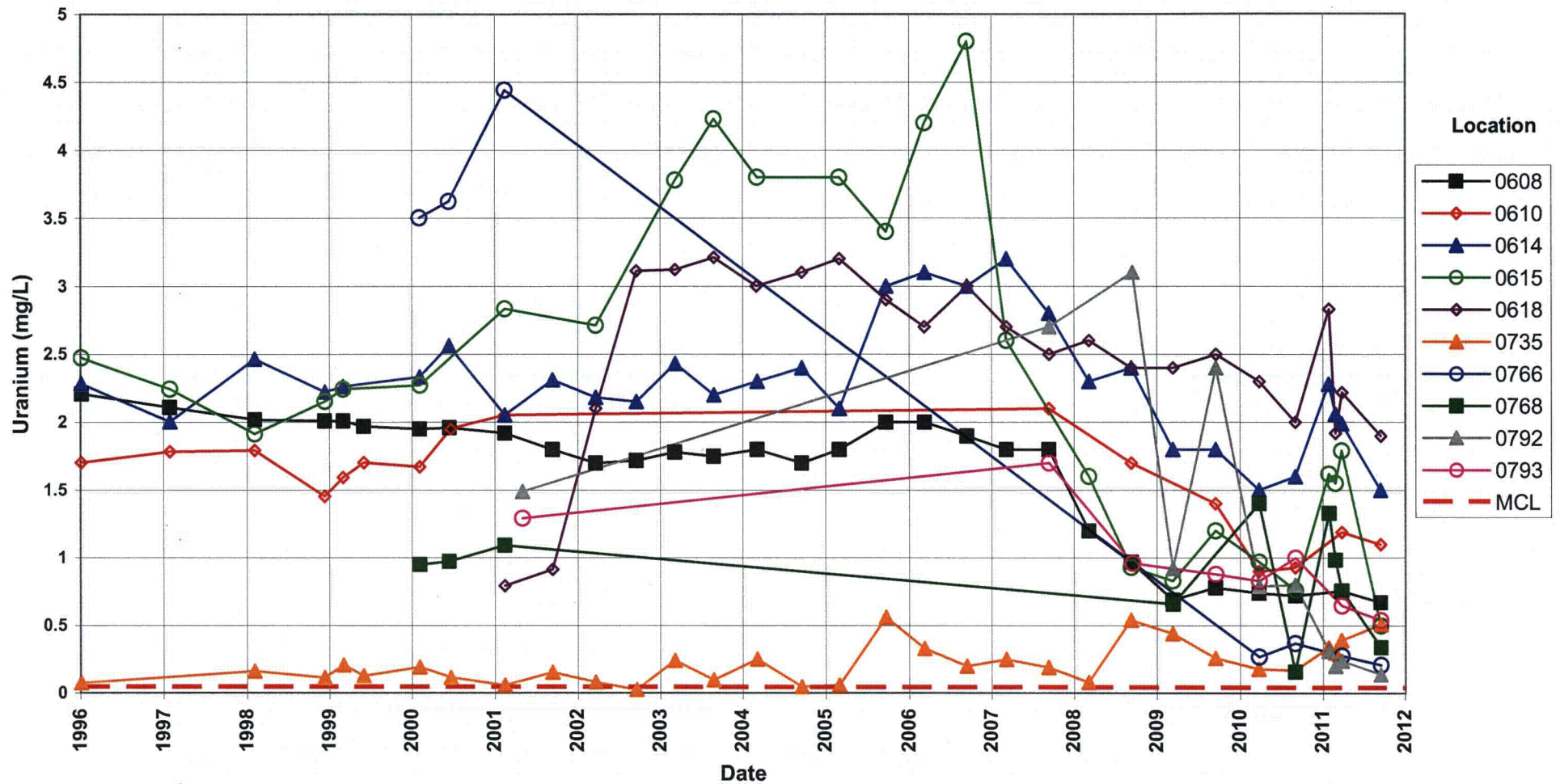
Shiprock Disposal Site (Floodplain) **Sulfate Concentration**



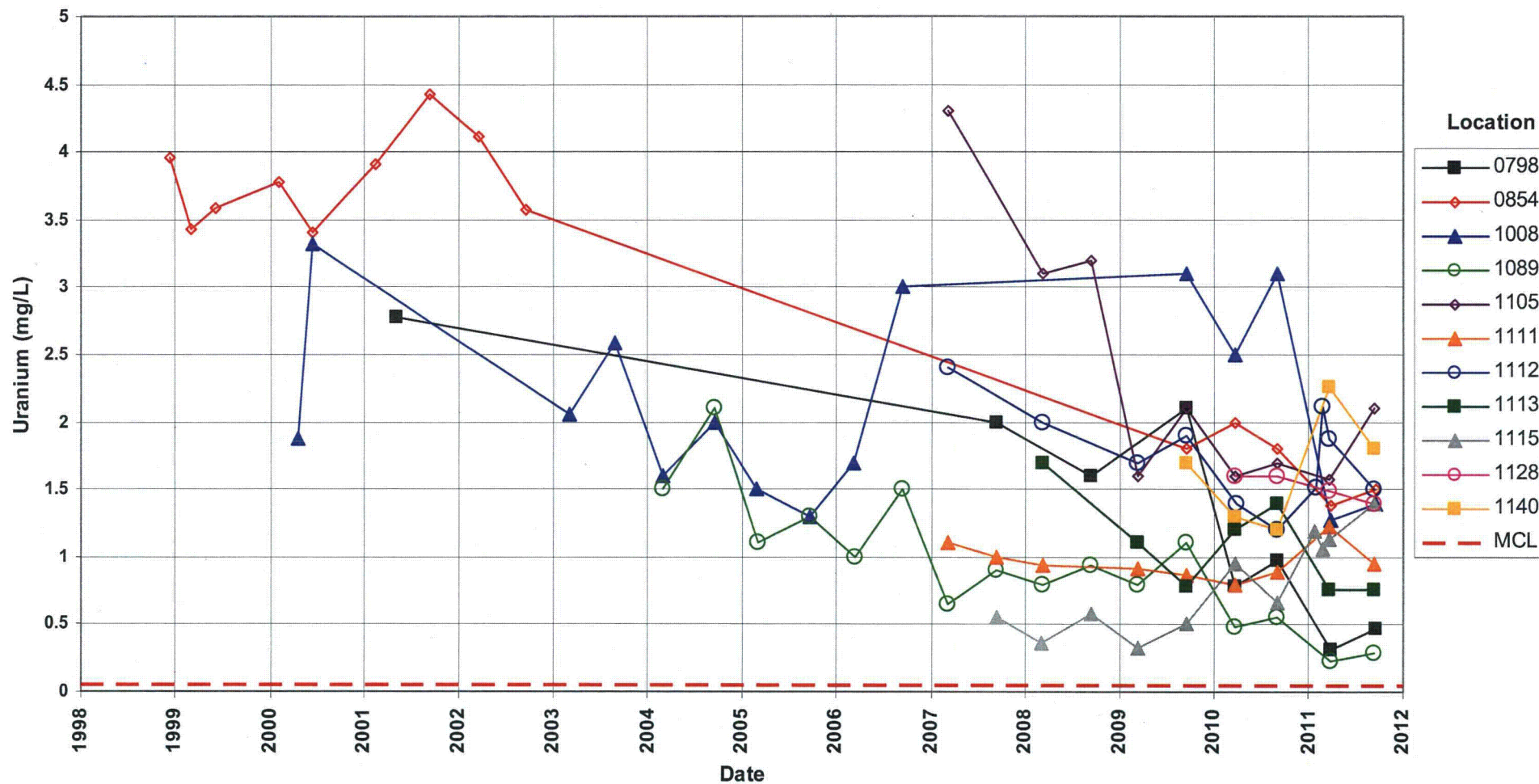
Shiprock Disposal Site (Floodplain) Sulfate Concentration



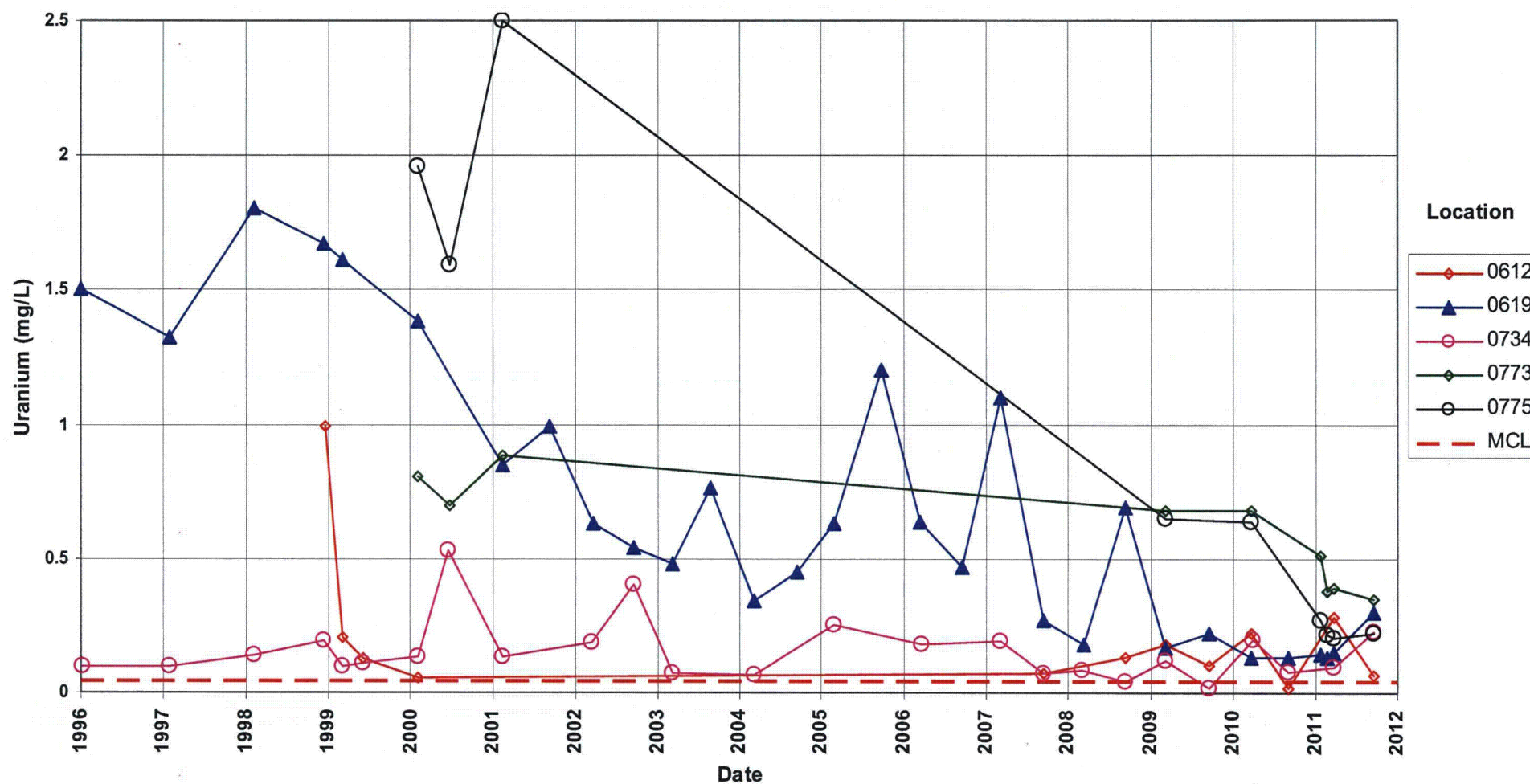
Shiprock Disposal Site (Floodplain)
Uranium Concentration
Maximum Contaminant Level (MCL) = 0.044 mg/L



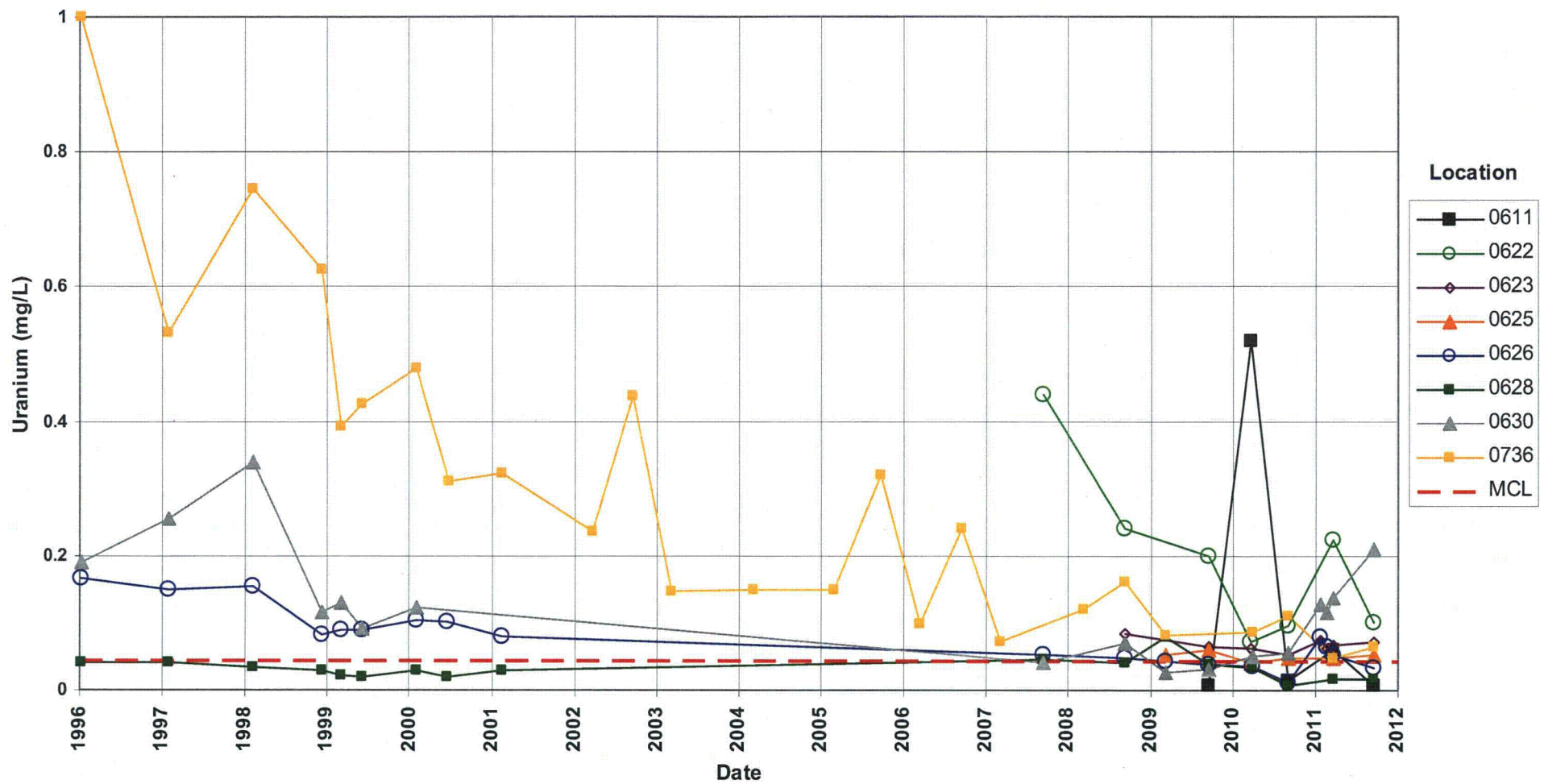
Shiprock Disposal Site (Floodplain)
Uranium Concentration
Maximum Contaminant Level (MCL) = 0.044 mg/L



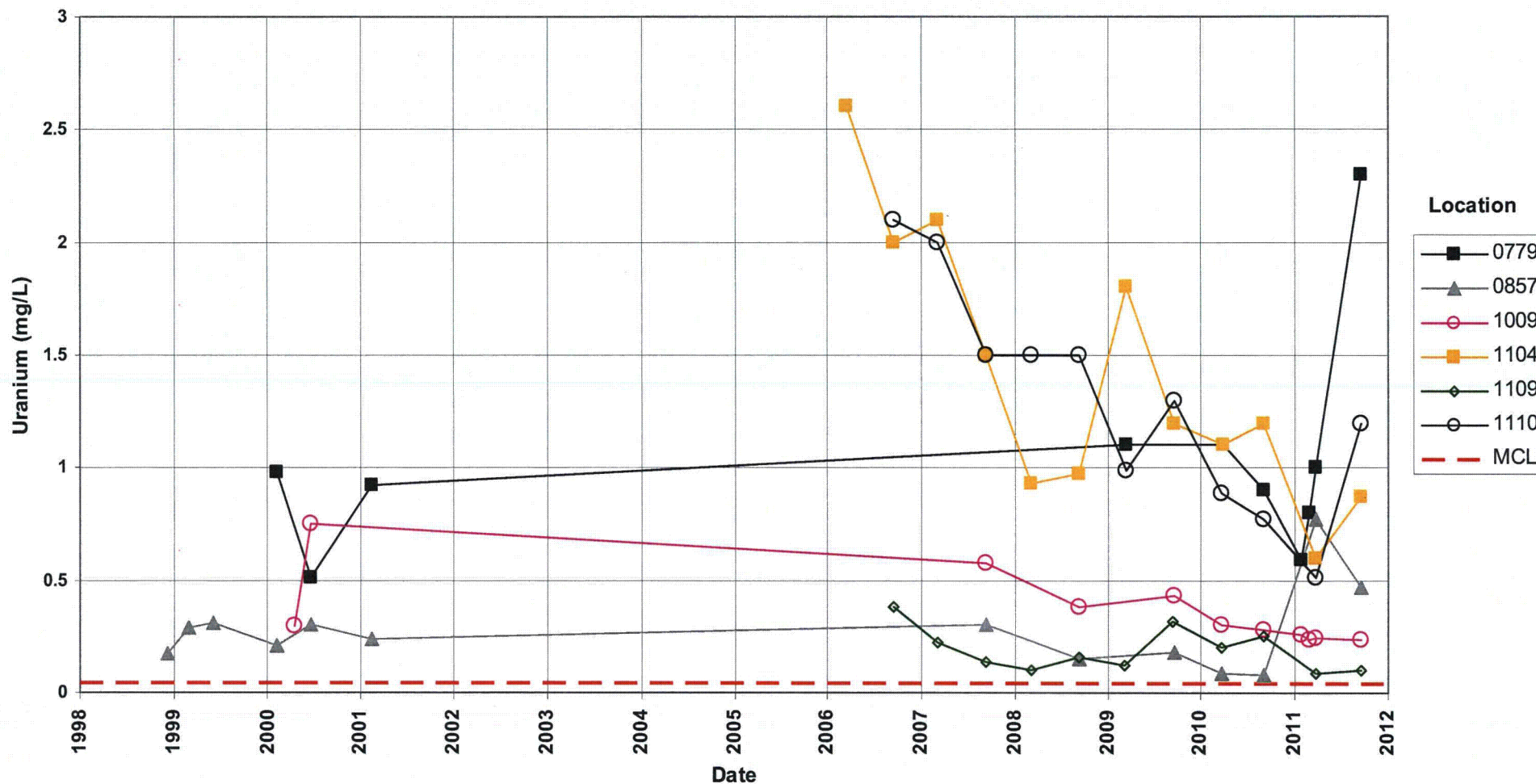
Shiprock Disposal Site (Floodplain)
Uranium Concentration
Maximum Contaminant Level (MCL) = 0.044 mg/L



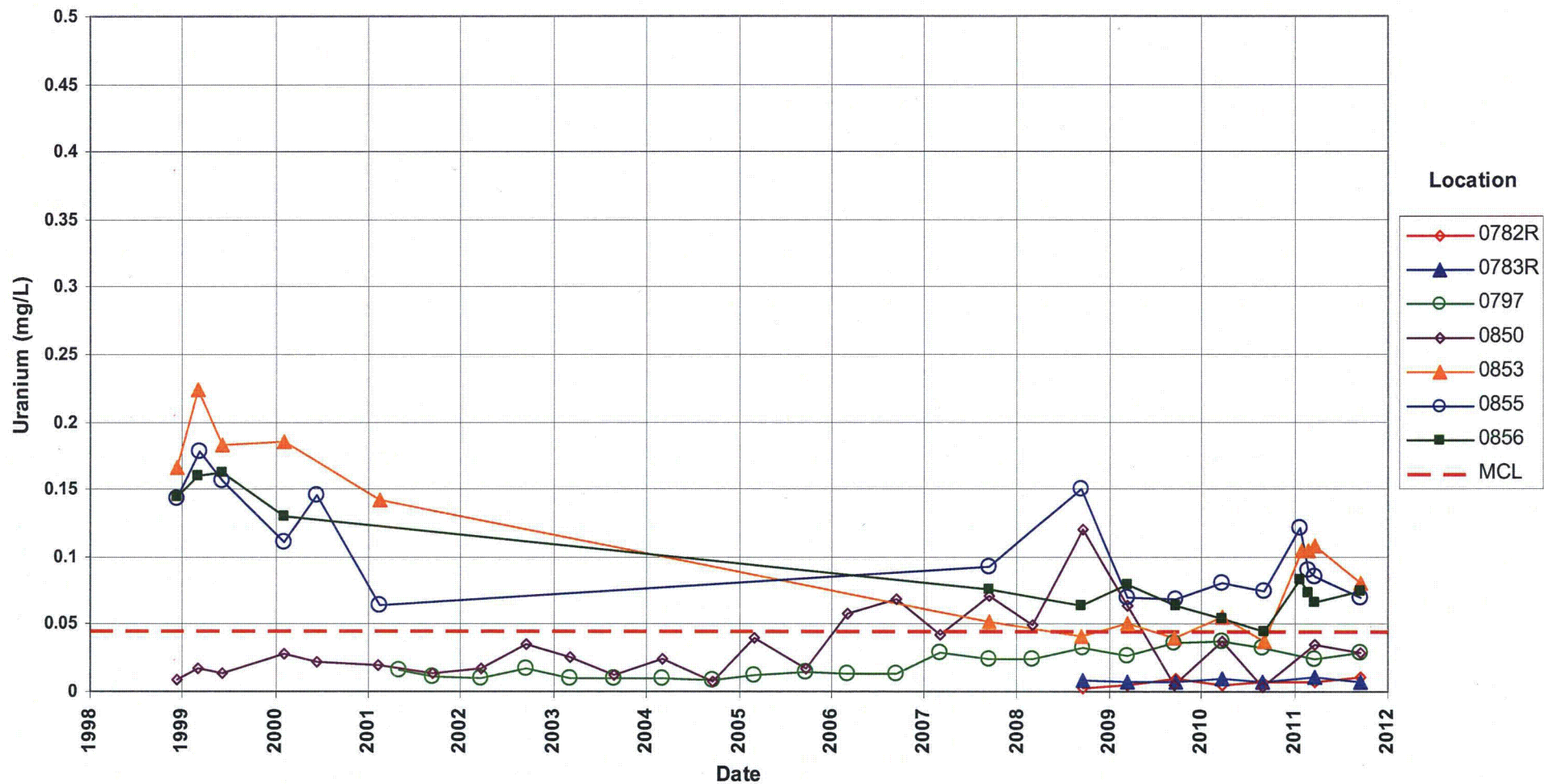
Shiprock Disposal Site (Floodplain)
Uranium Concentration
Maximum Contaminant Level (MCL) = 0.044 mg/L



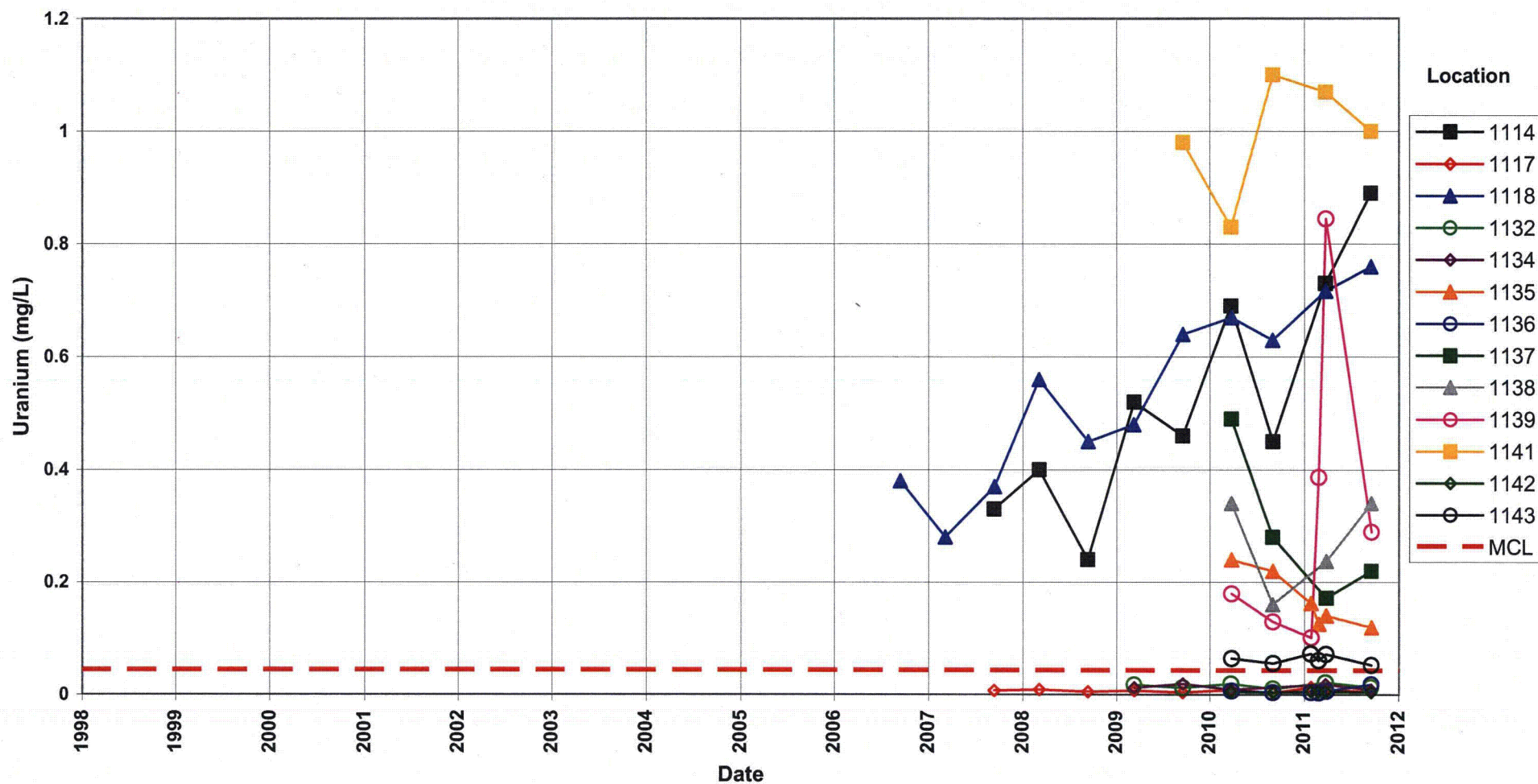
Shiprock Disposal Site (Floodplain)
Uranium Concentration
Maximum Contaminant Level (MCL) = 0.044 mg/L



Shiprock Disposal Site (Floodplain)
Uranium Concentration
Maximum Contaminant Level (MCL) = 0.044 mg/L



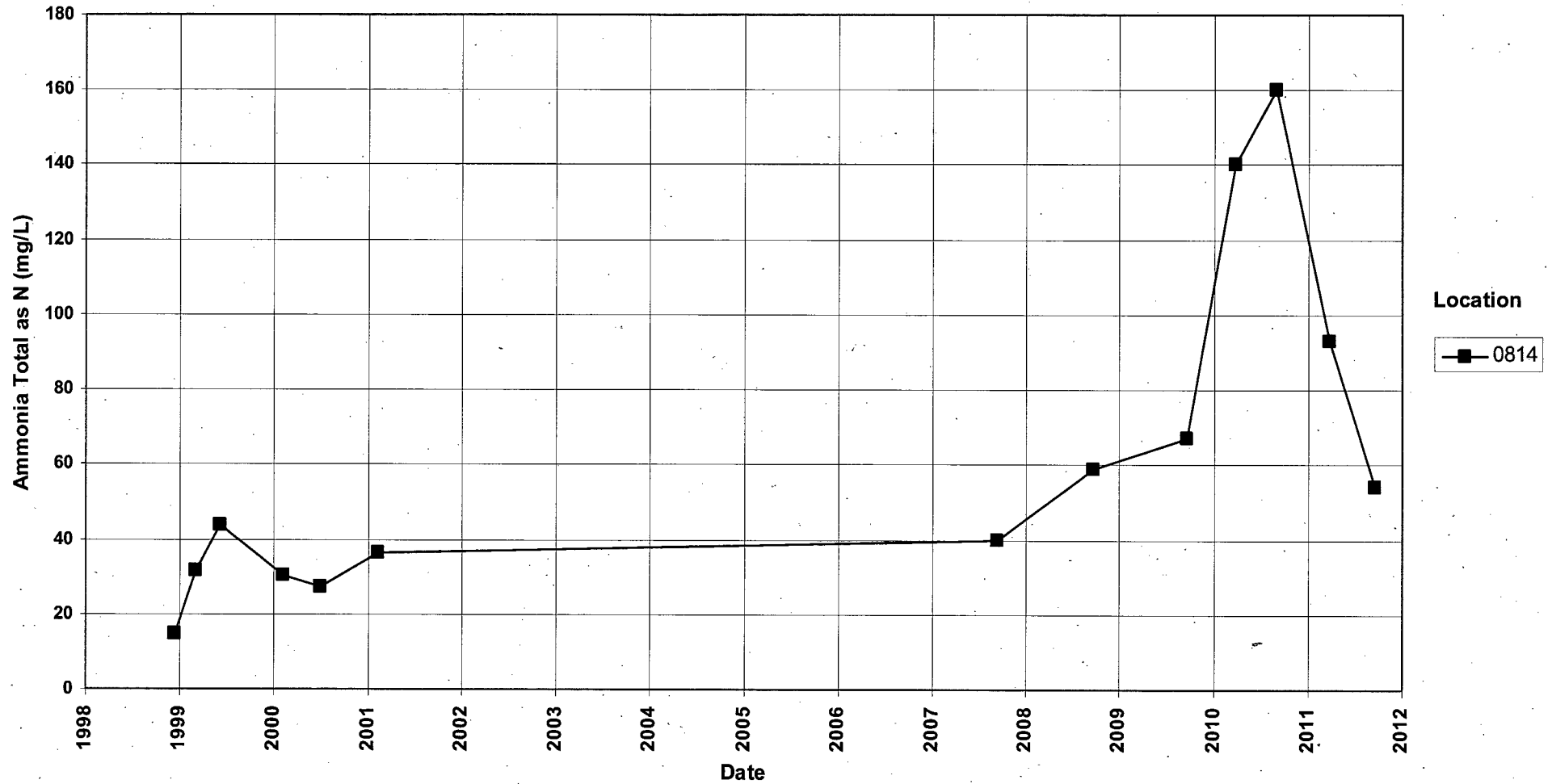
Shiprock Disposal Site (Floodplain)
Uranium Concentration
Maximum Contaminant Level (MCL) = 0.044 mg/L



**Time-Concentration Graphs
West Terrace Groundwater Locations**

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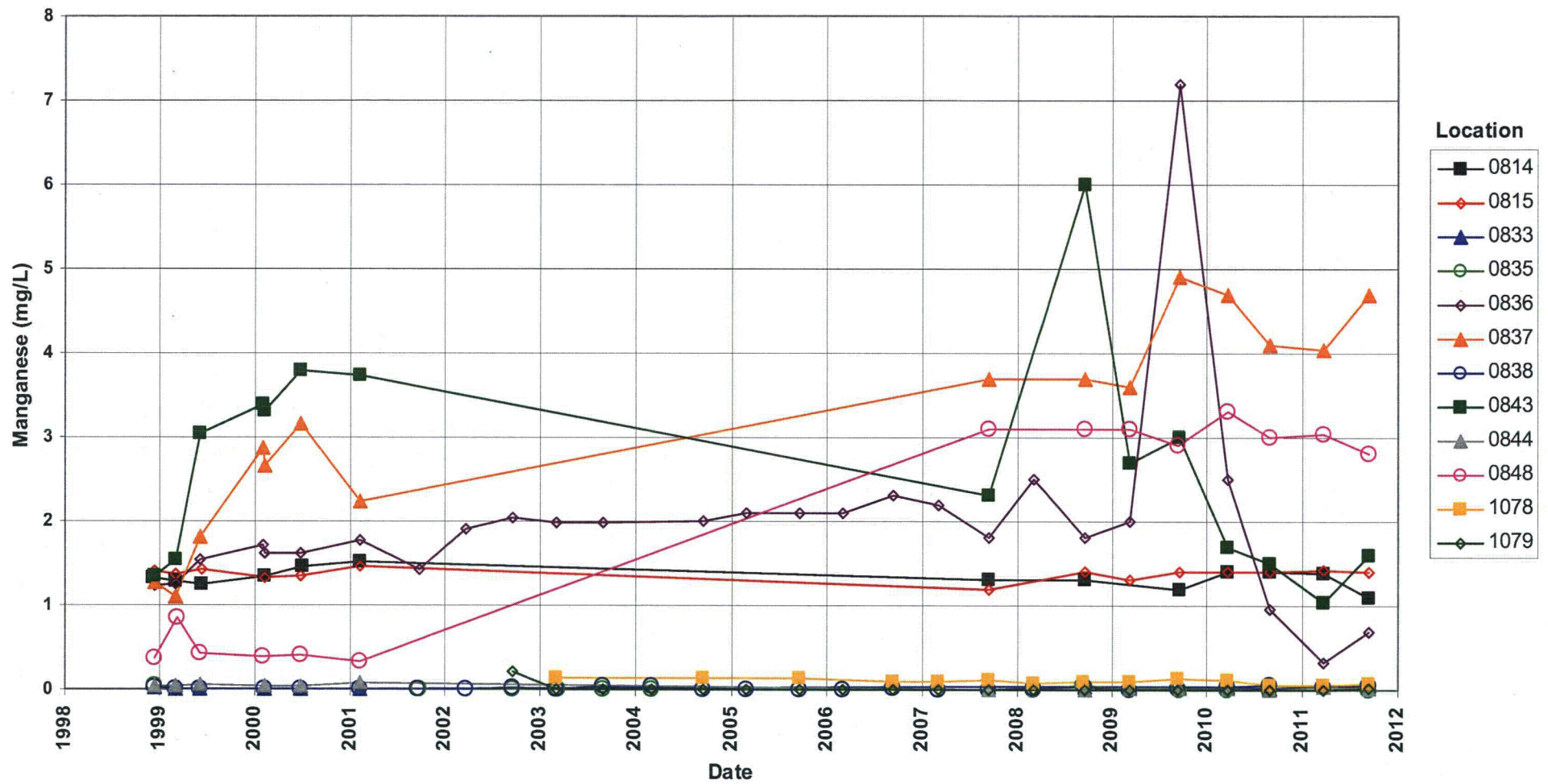
Shiprock Disposal Site (Terrace)
Ammonia Total as N Concentration



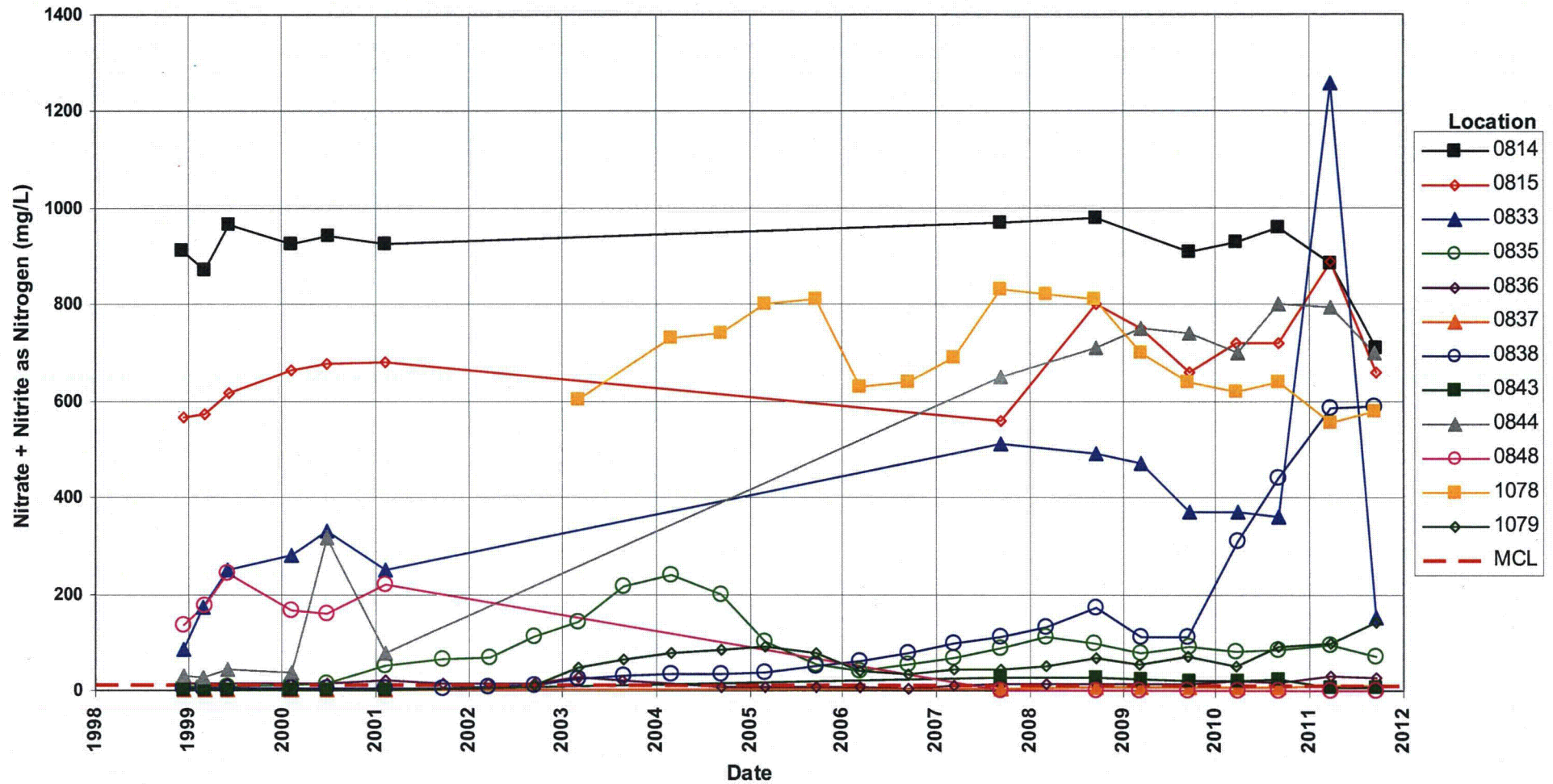
Shiprock Disposal Site (Terrace) **Ammonia Total as N Concentration**



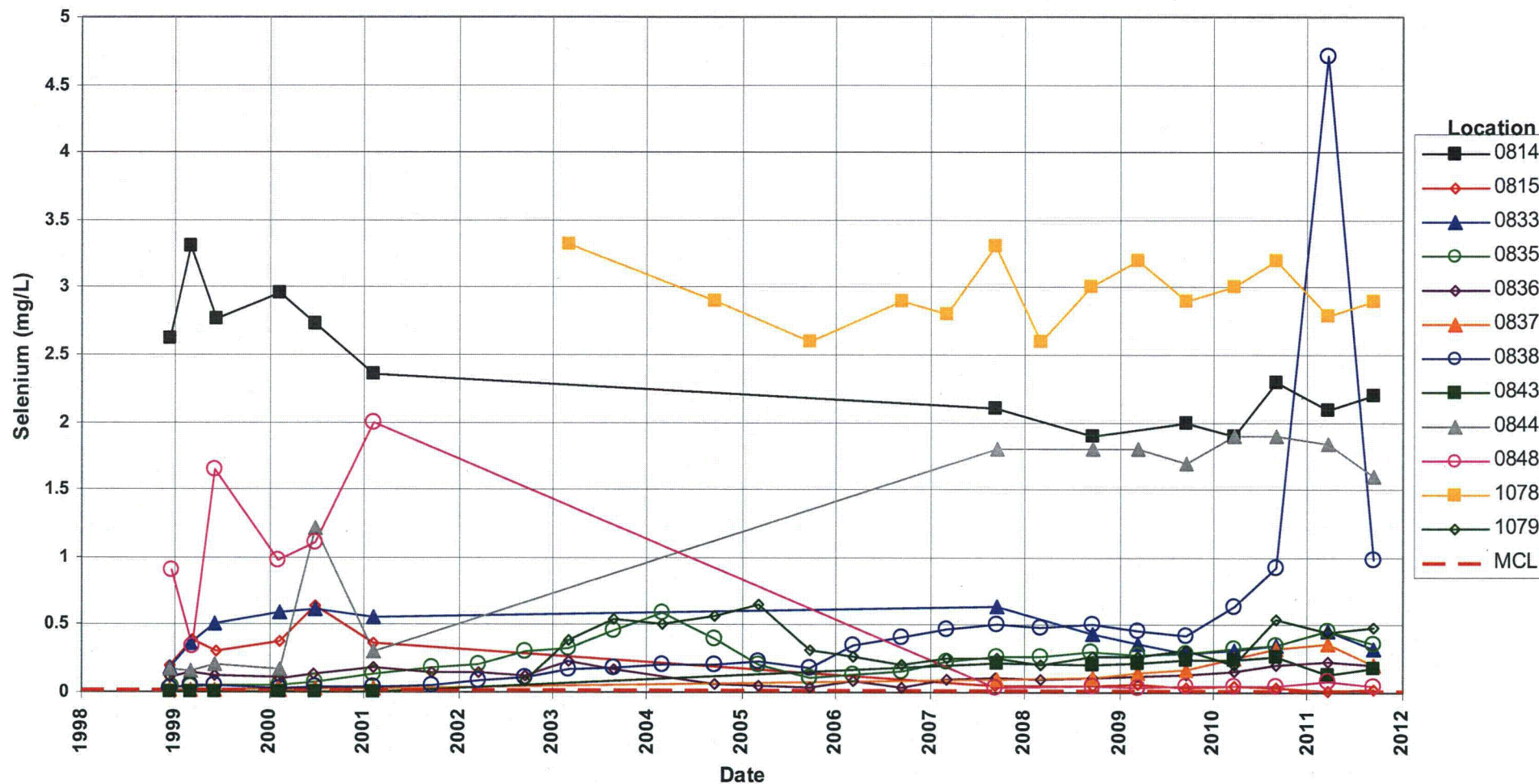
Shiprock Disposal Site (Terrace) Manganese Concentration



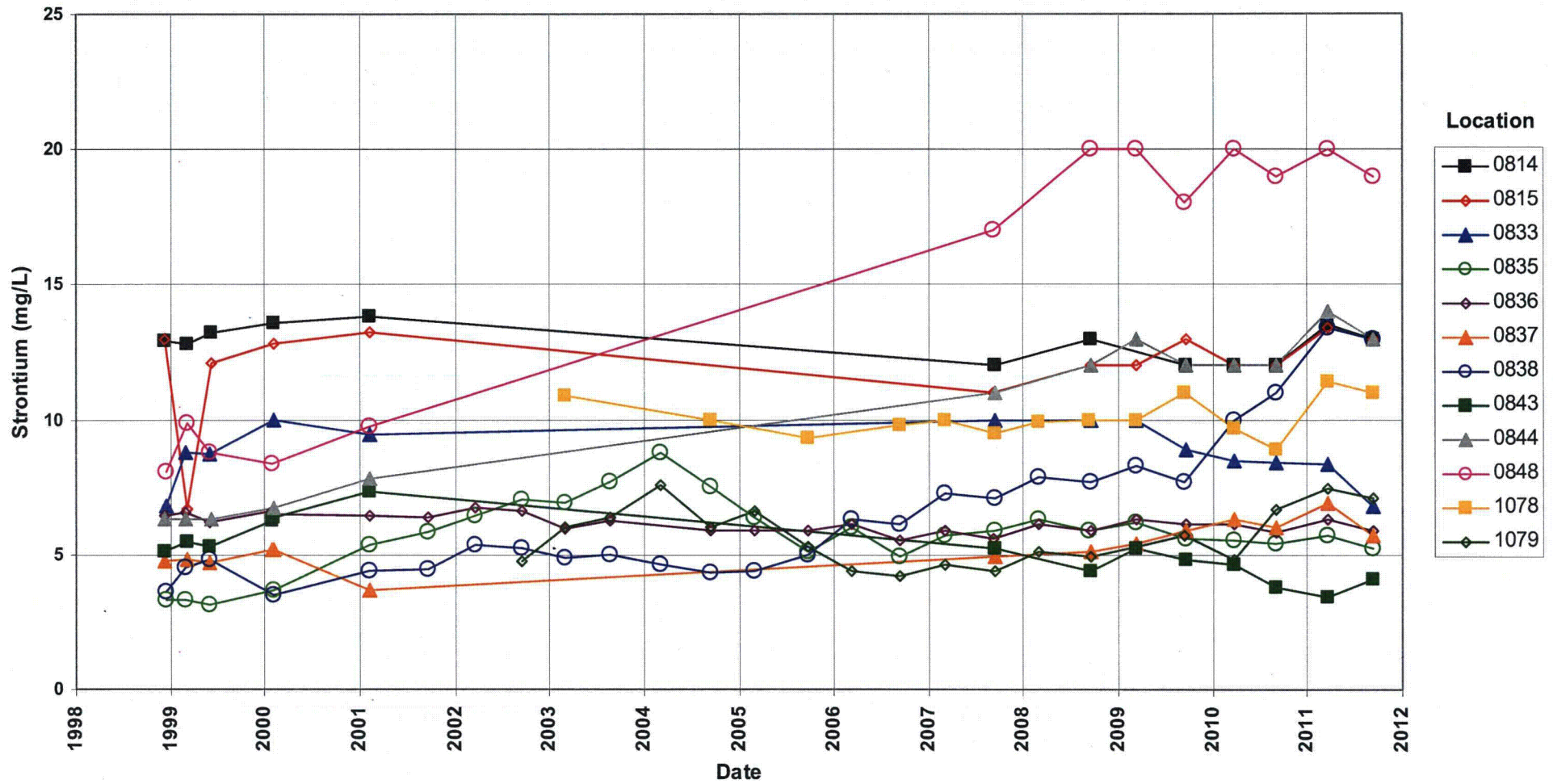
Shiprock Disposal Site (Terrace)
Nitrate + Nitrite as Nitrogen Concentration
Maximum Contaminant Level (MCL) = 10.0 mg/L



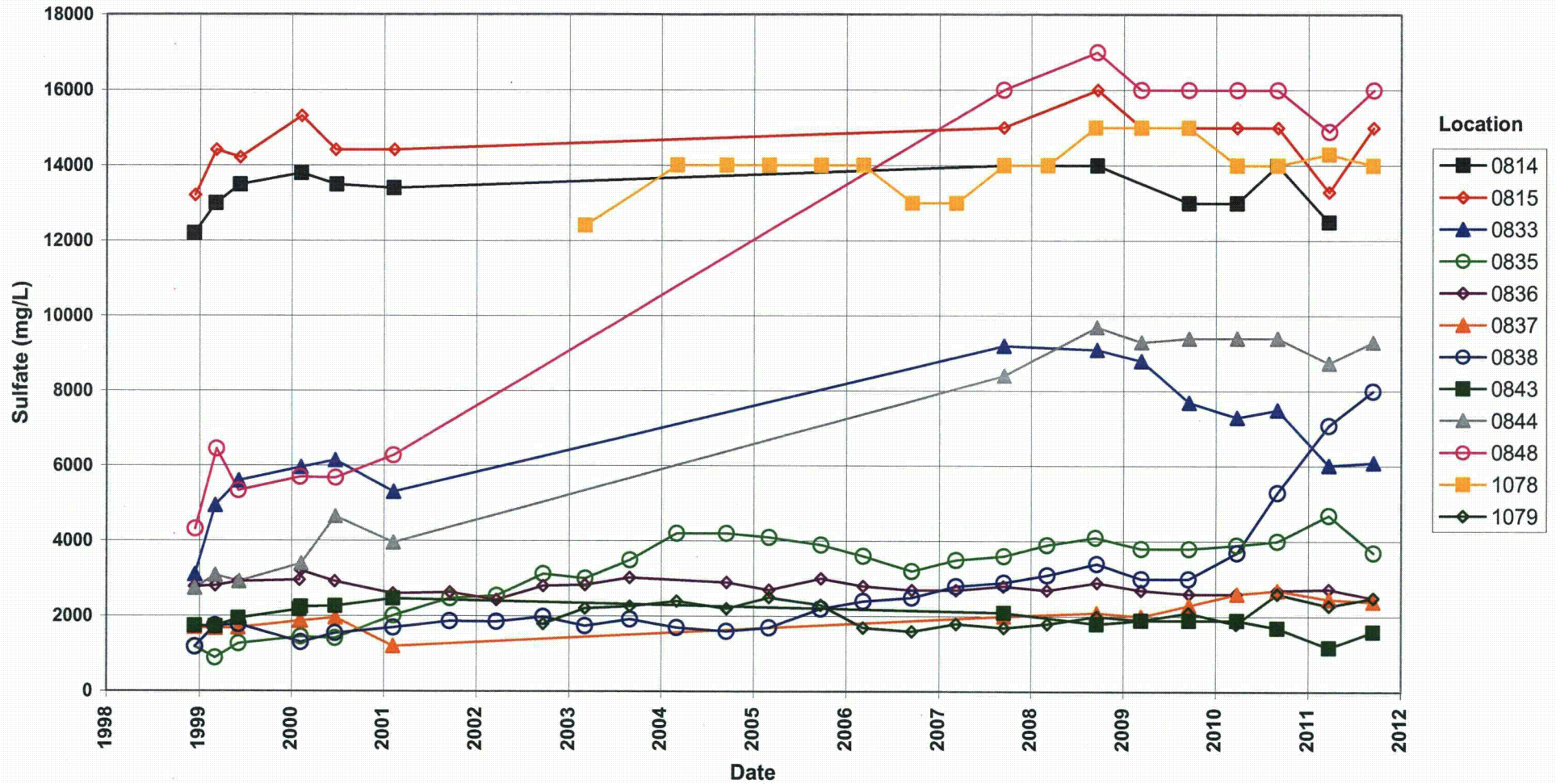
Shiprock Disposal Site (Terrace)
Selenium Concentration
Maximum Contaminant Level (MCL) = 0.01 mg/L



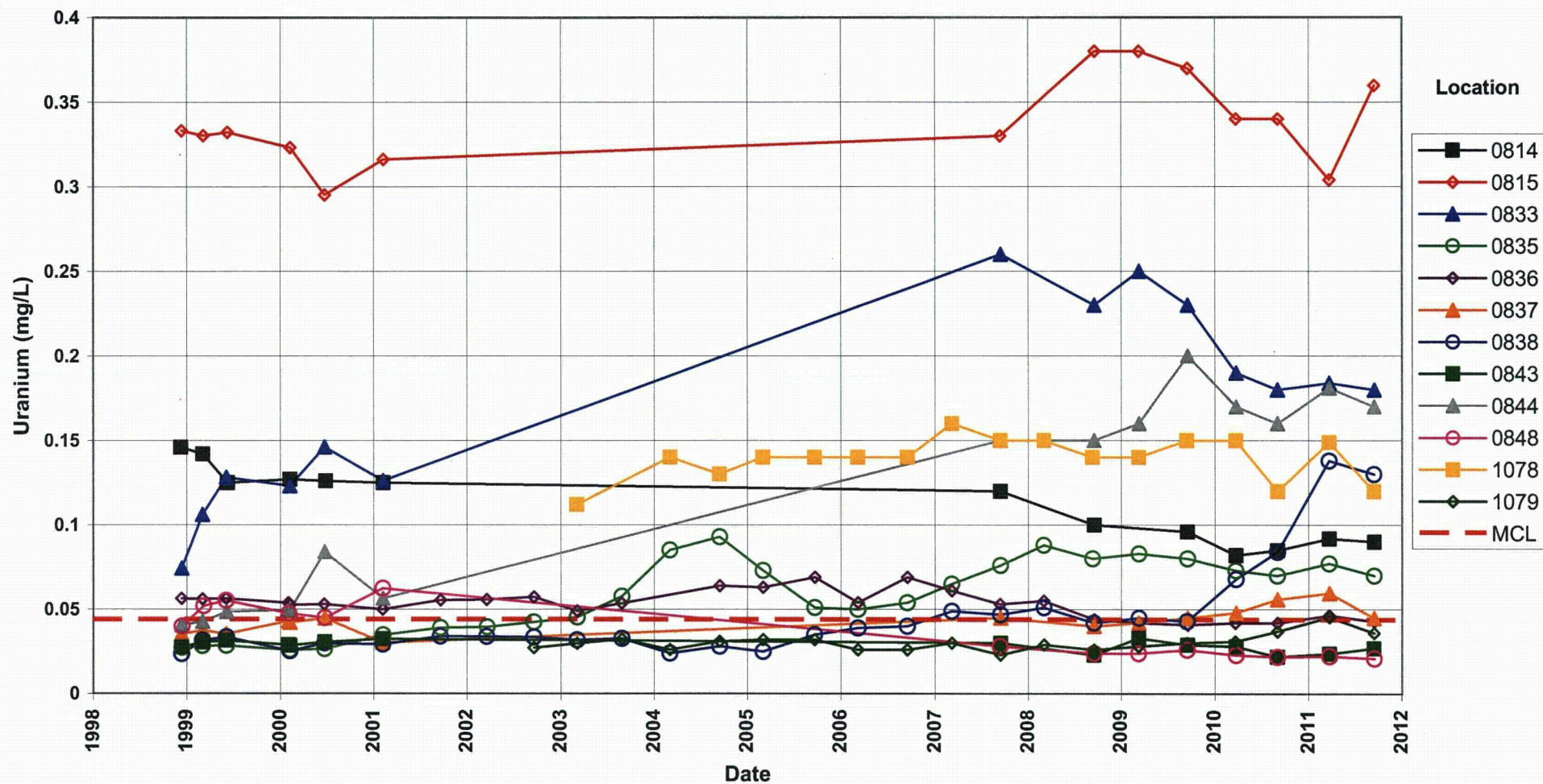
Shiprock Disposal Site (Terrace) Strontium Concentration



Shiprock Disposal Site (Terrace) Sulfate Concentration



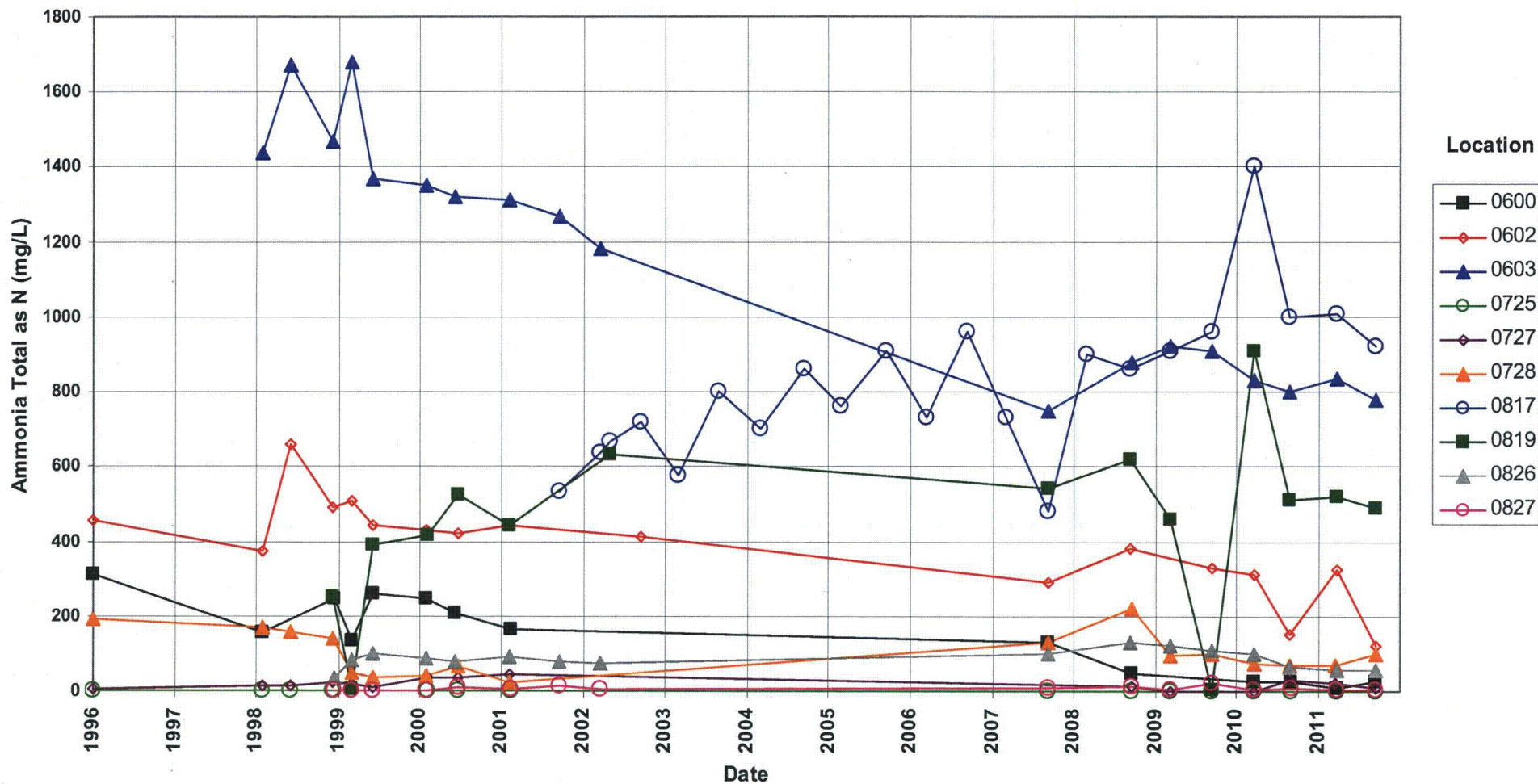
Shiprock Disposal Site (Terrace)
Uranium Concentration
Maximum Contaminant Level (MCL) = 0.044 mg/L



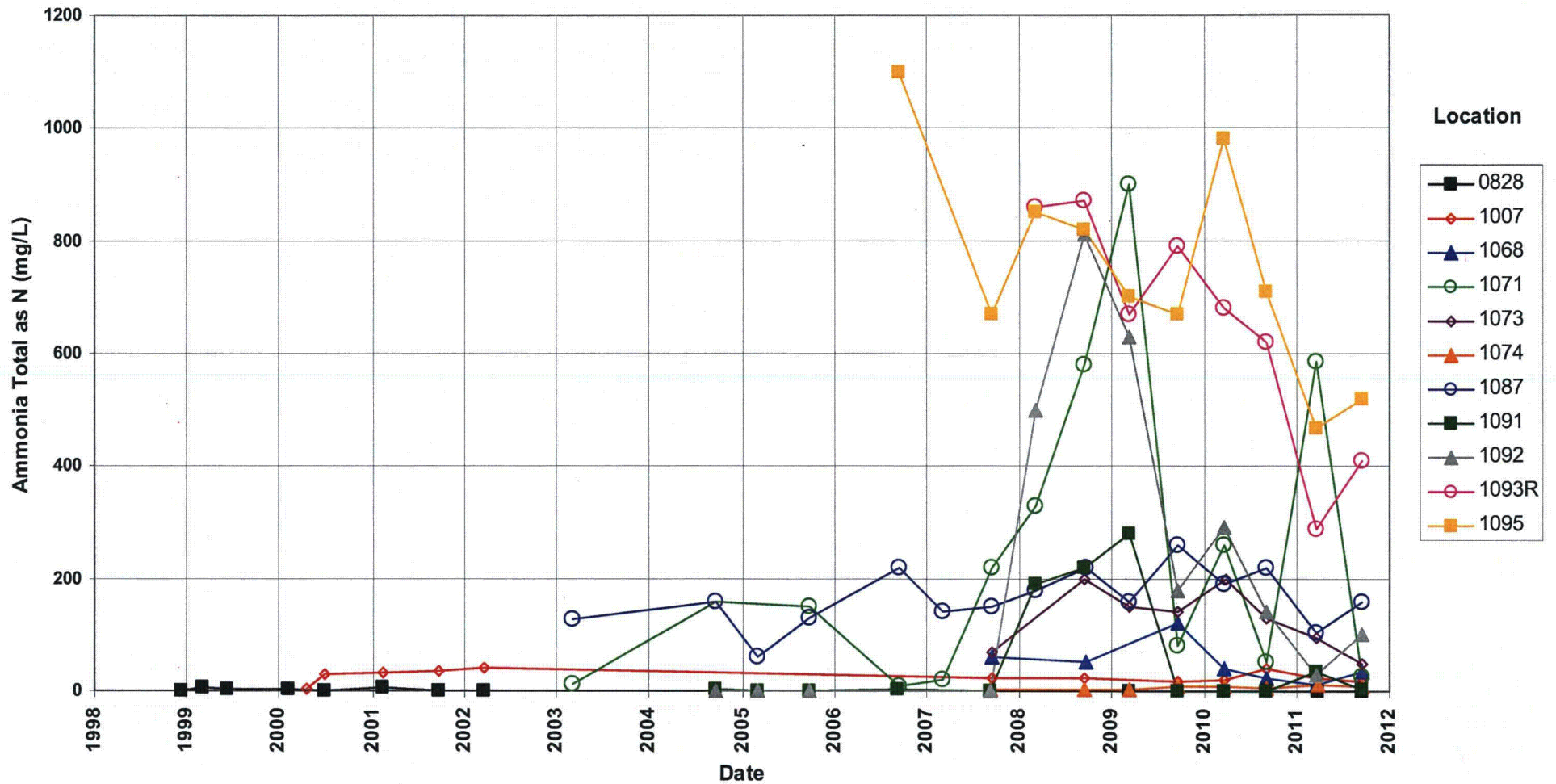
**Time-Concentration Graphs
East Terrace Groundwater Locations**

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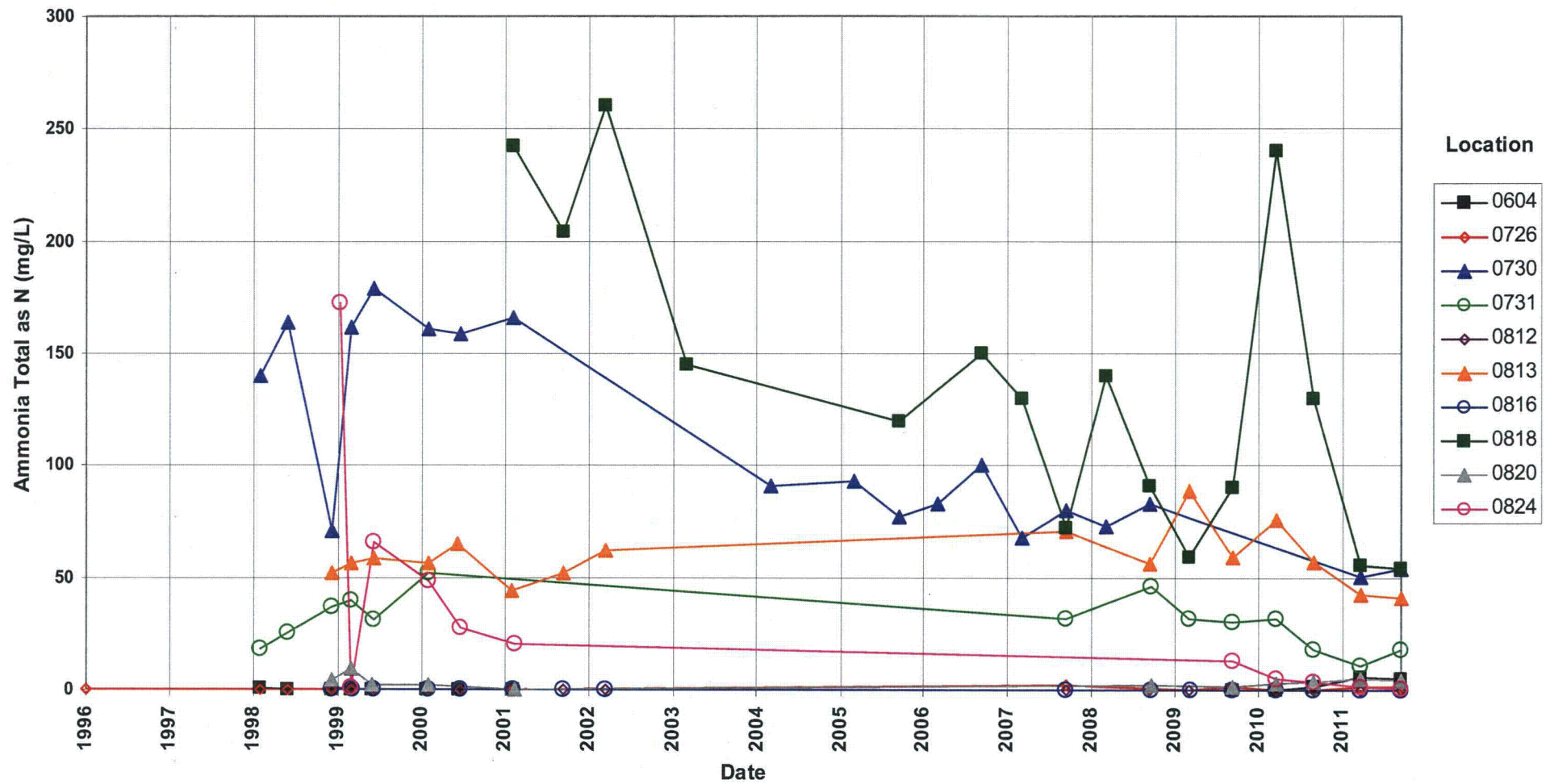
Shiprock Disposal Site (Terrace) Ammonia Total as N Concentration



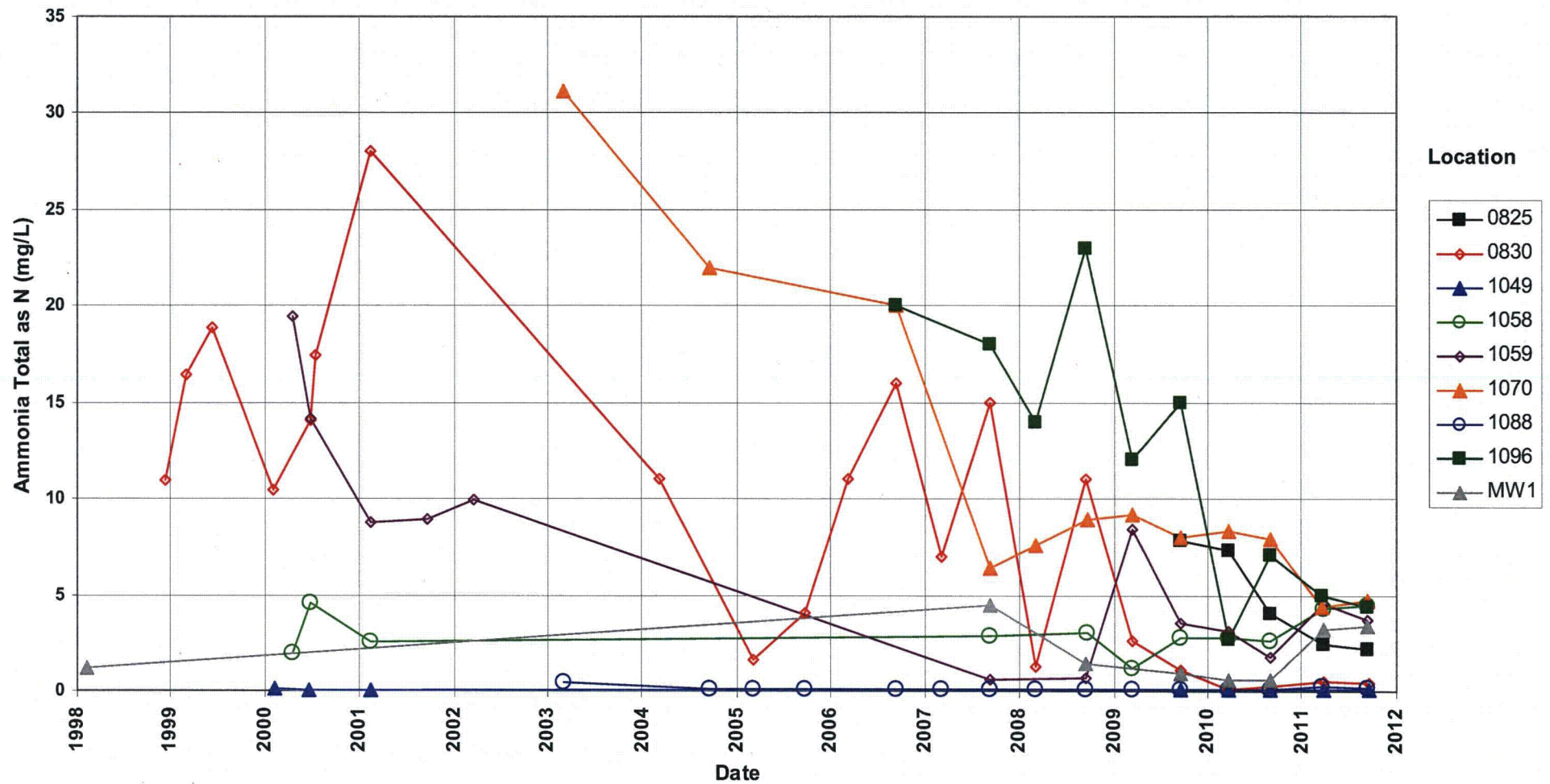
Shiprock Disposal Site (Terrace) **Ammonia Total as N Concentration**



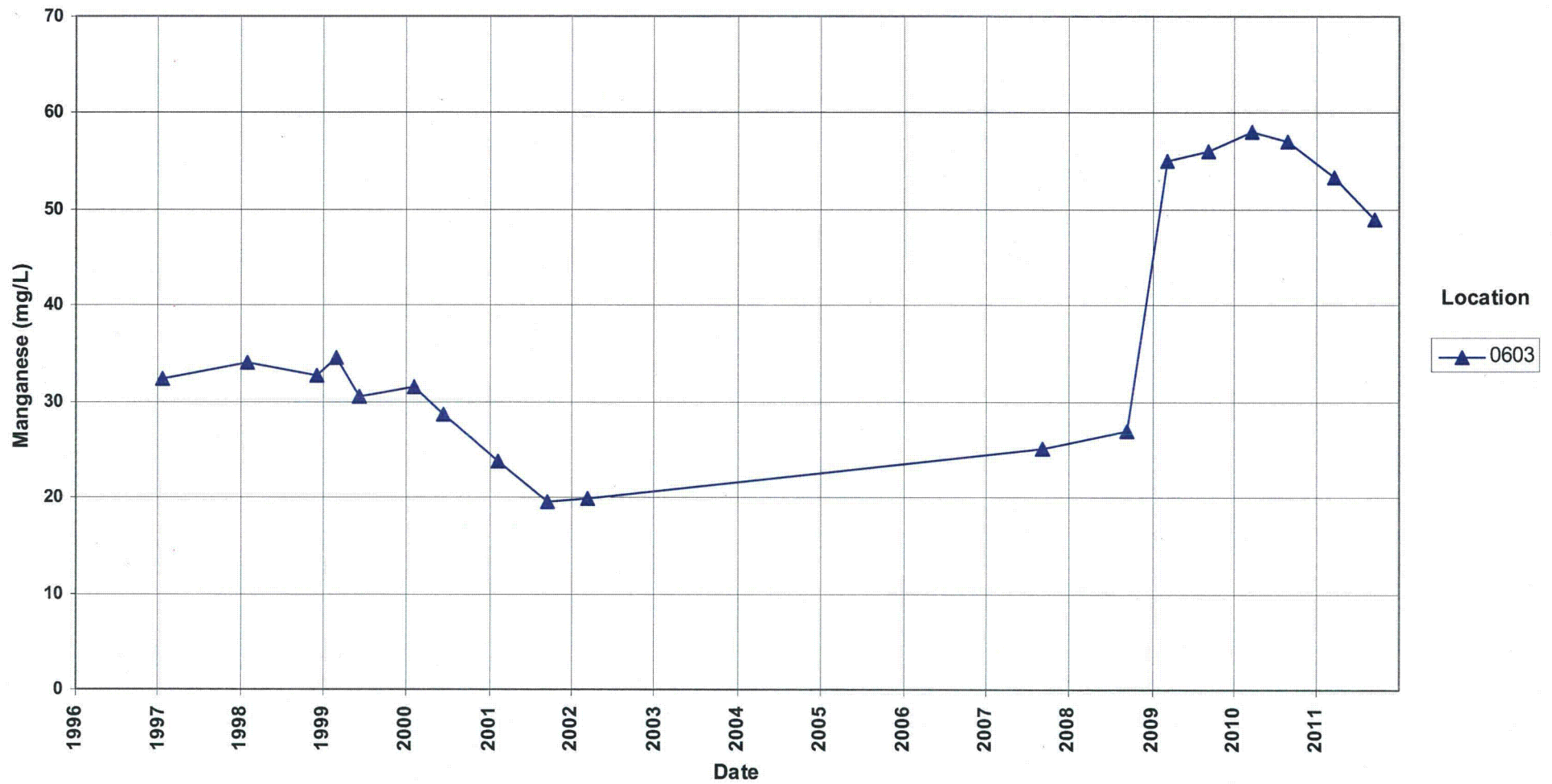
Shiprock Disposal Site (Terrace) Ammonia Total as N Concentration



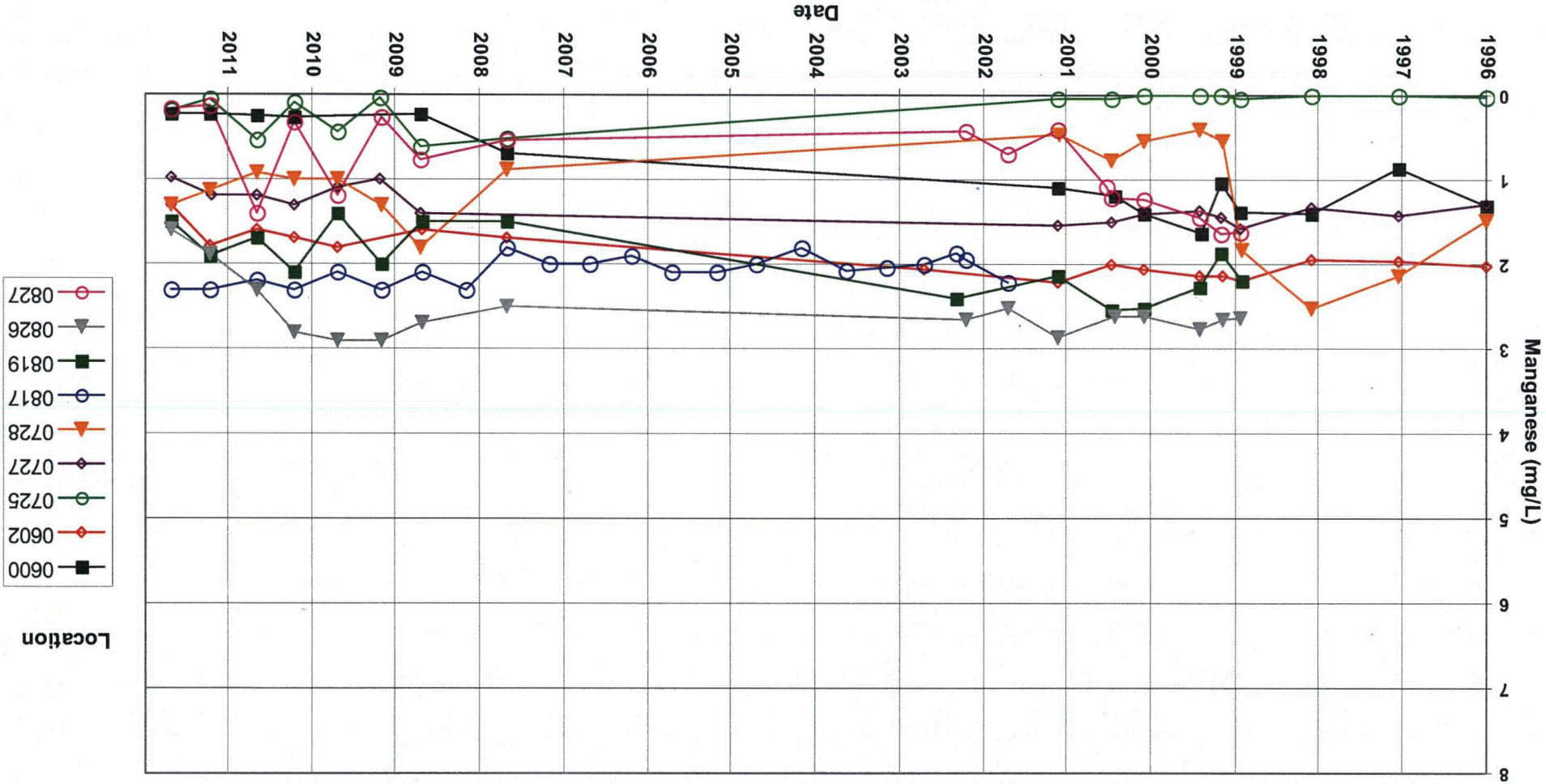
Shiprock Disposal Site (Terrace)
Ammonia Total as N Concentration



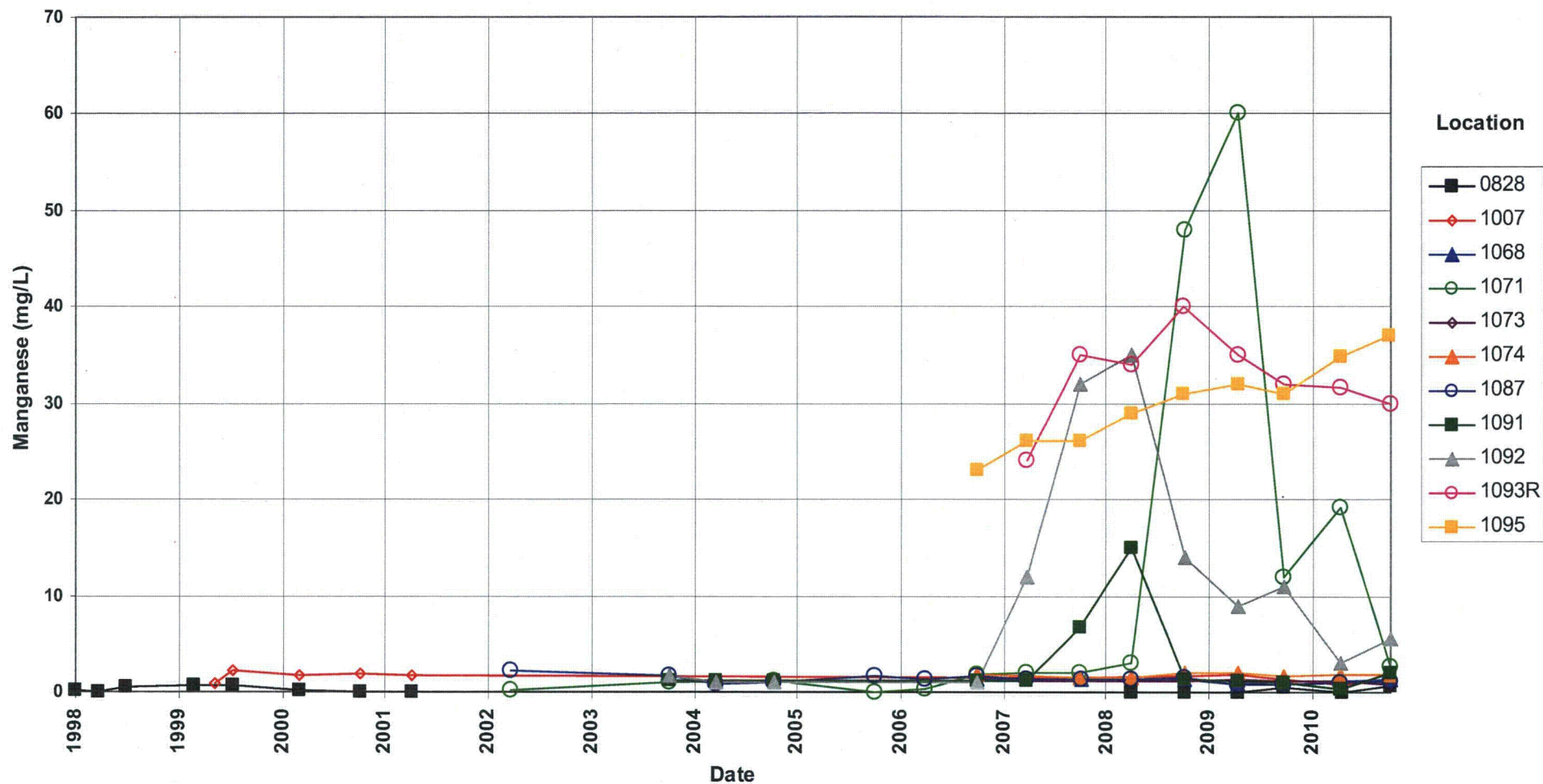
Shiprock Disposal Site (Terrace) Manganese Concentration

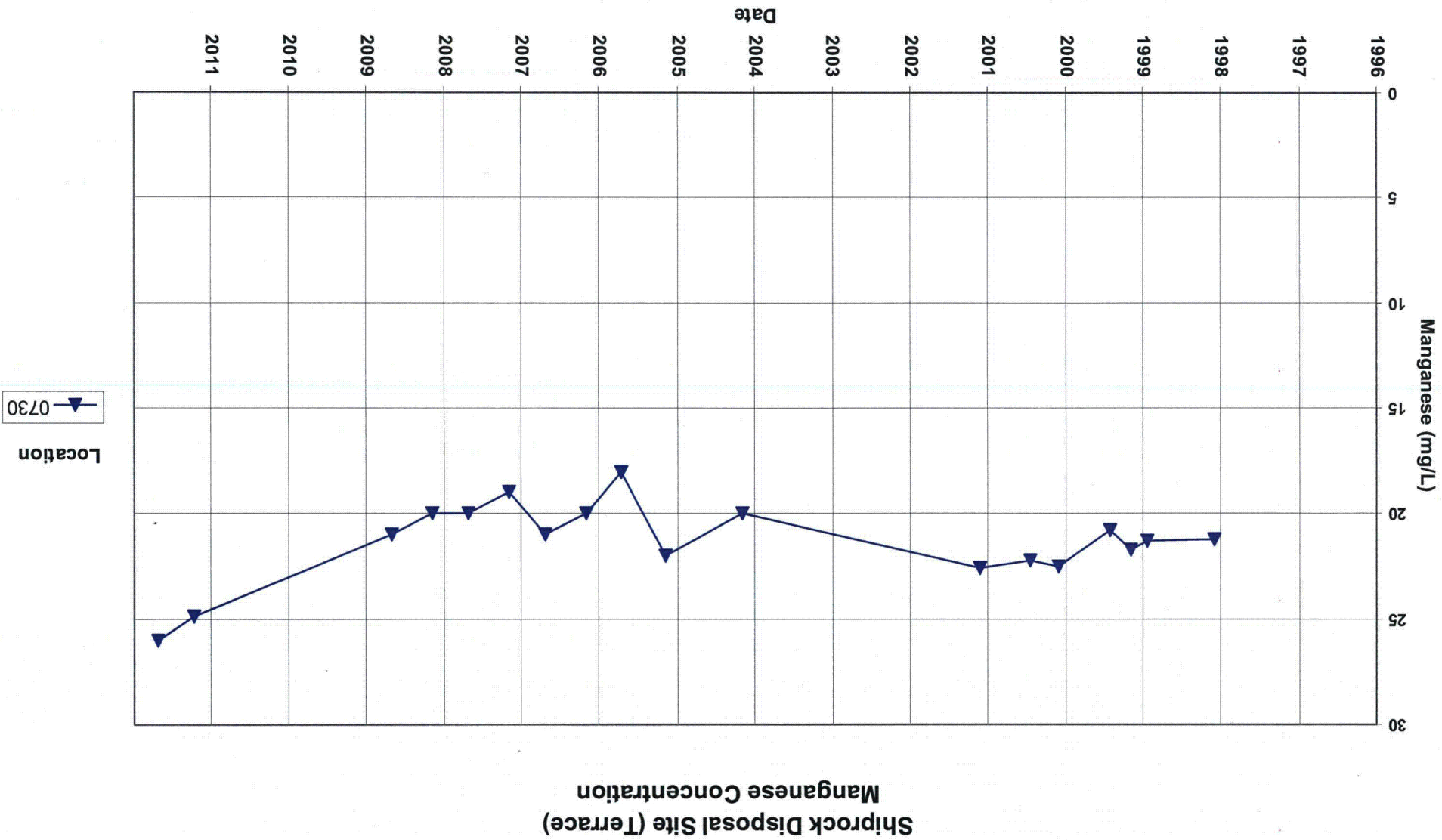


Shiprock Disposal Site (Terrace) Manganese Concentration

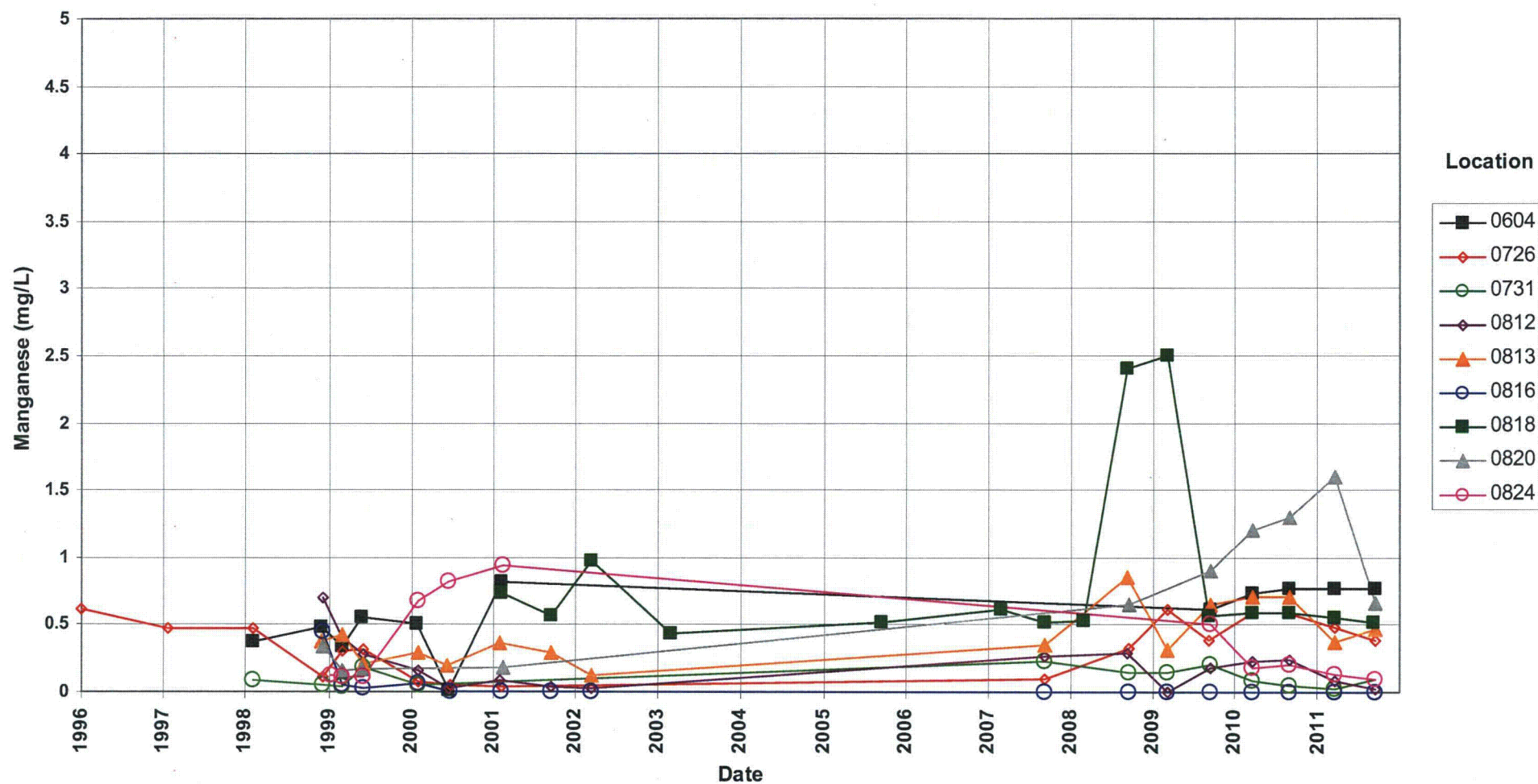


Shiprock Disposal Site (Terrace) Manganese Concentration

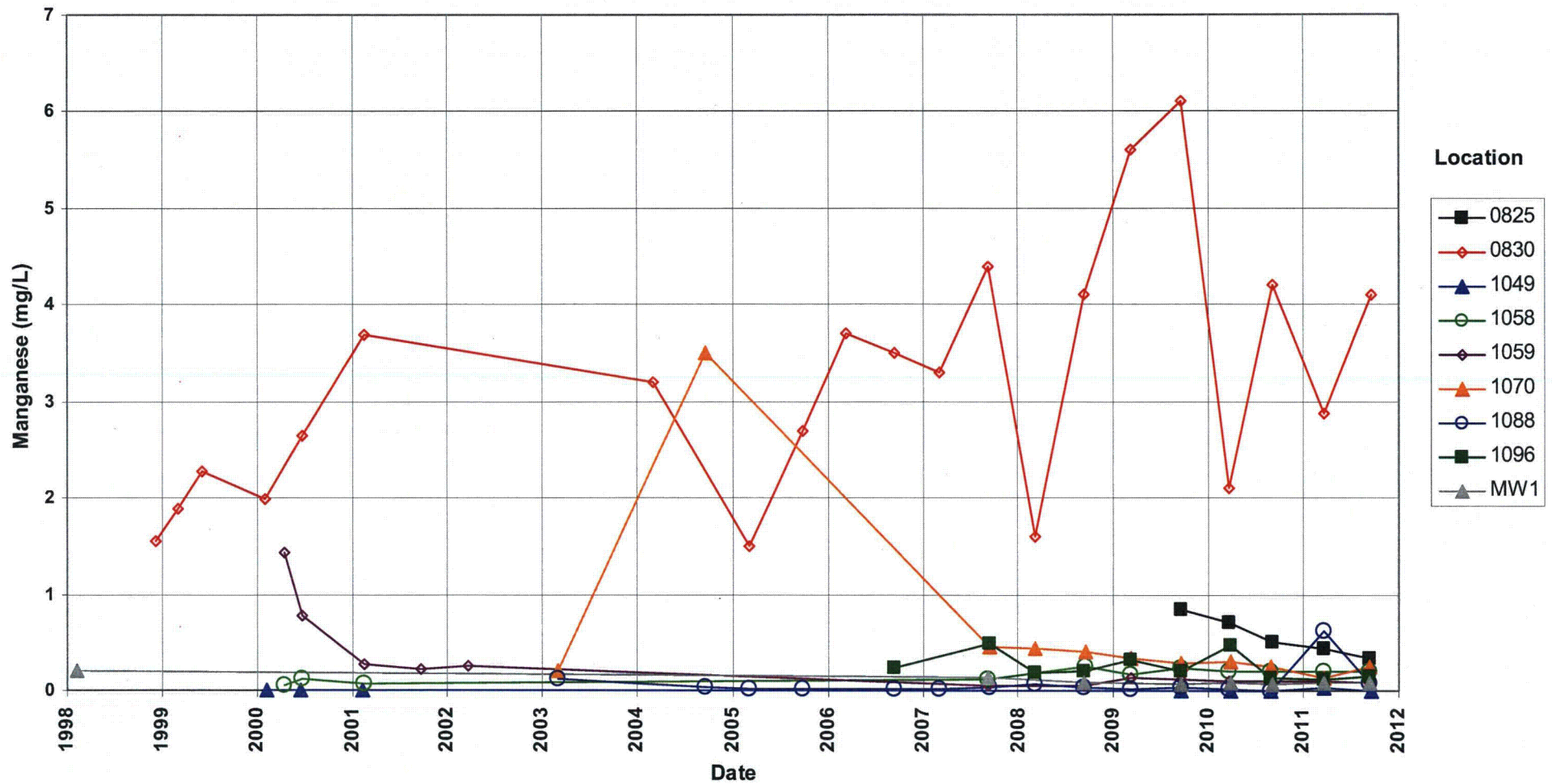




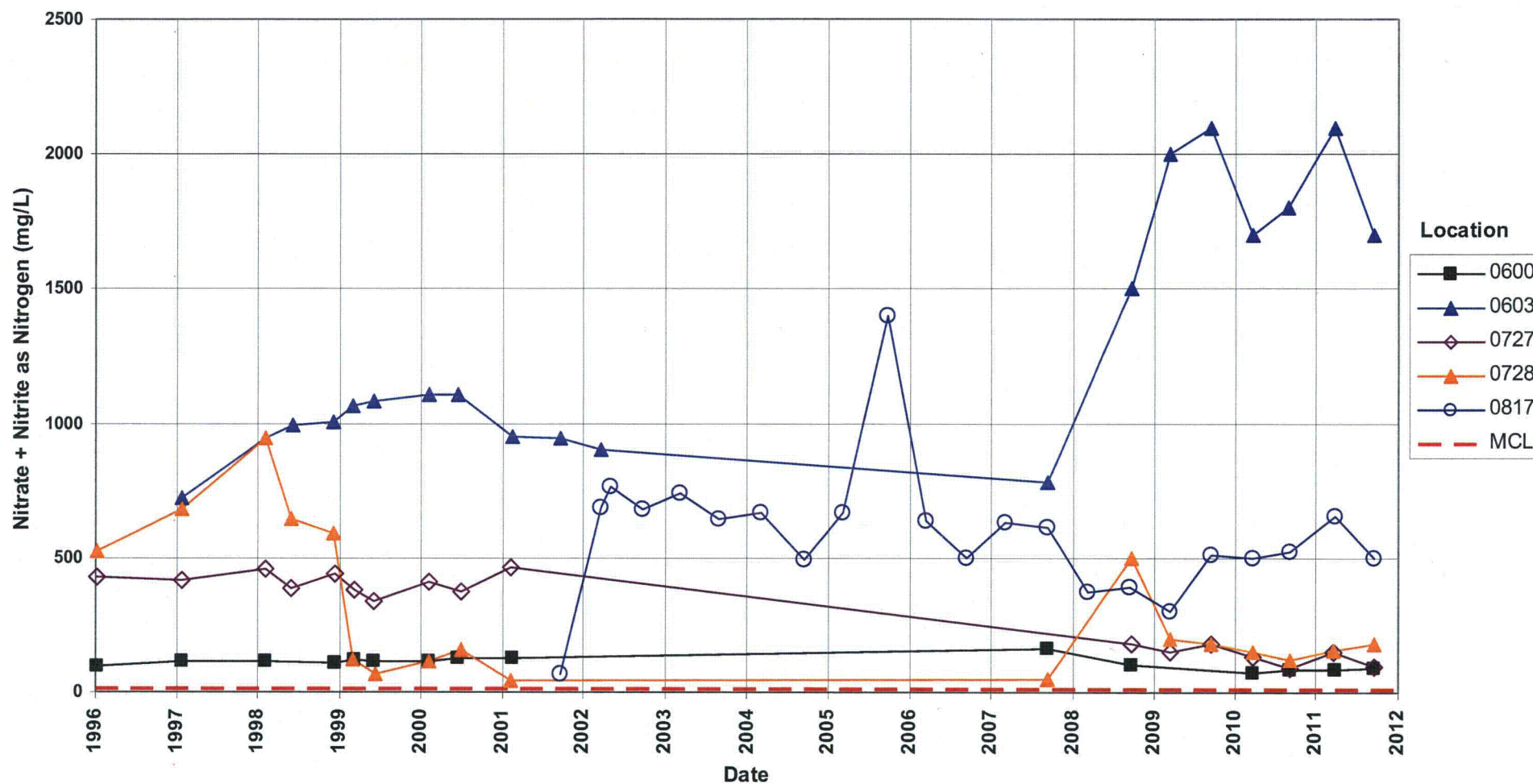
Shiprock Disposal Site (Terrace) Manganese Concentration



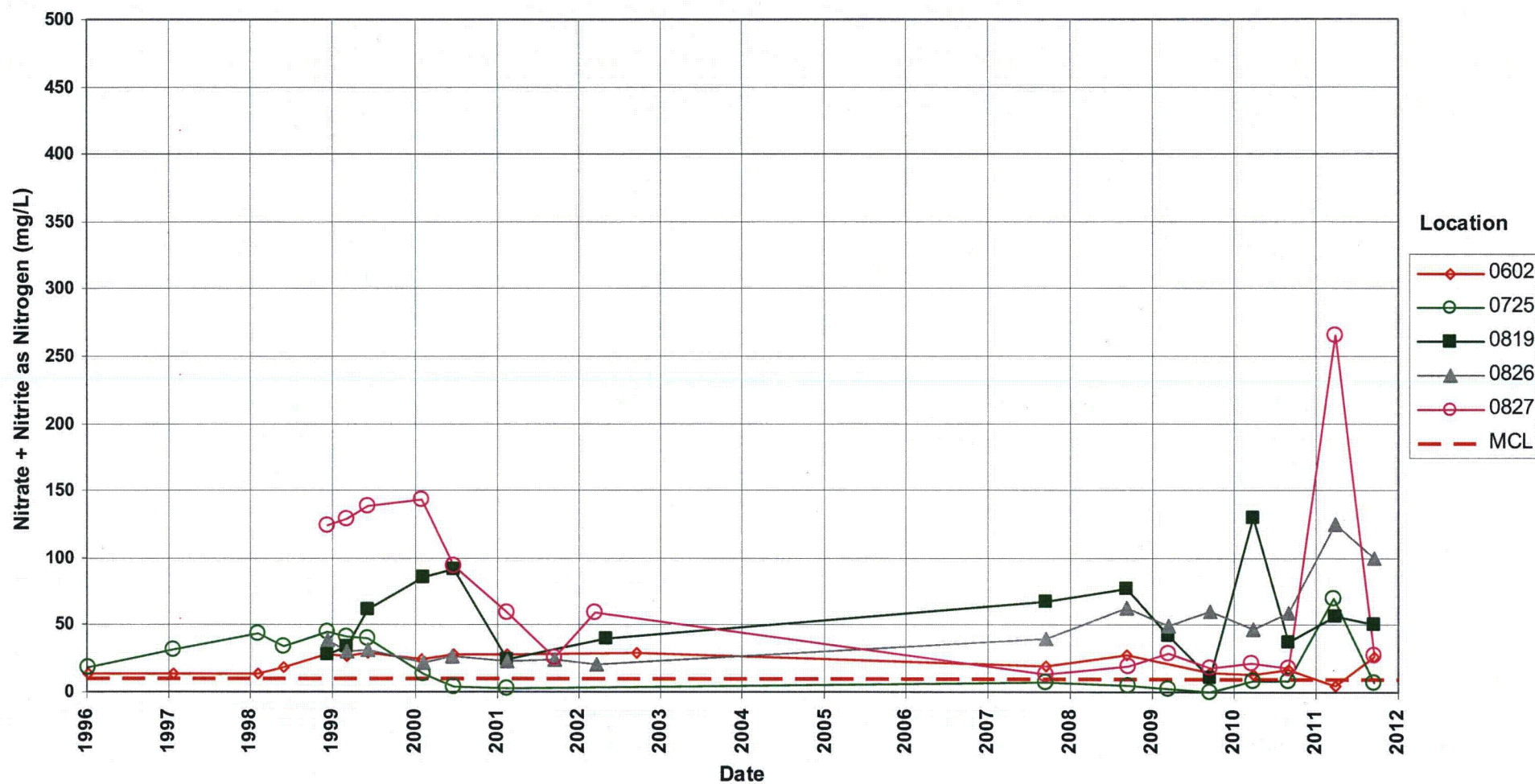
Shiprock Disposal Site (Terrace) Manganese Concentration



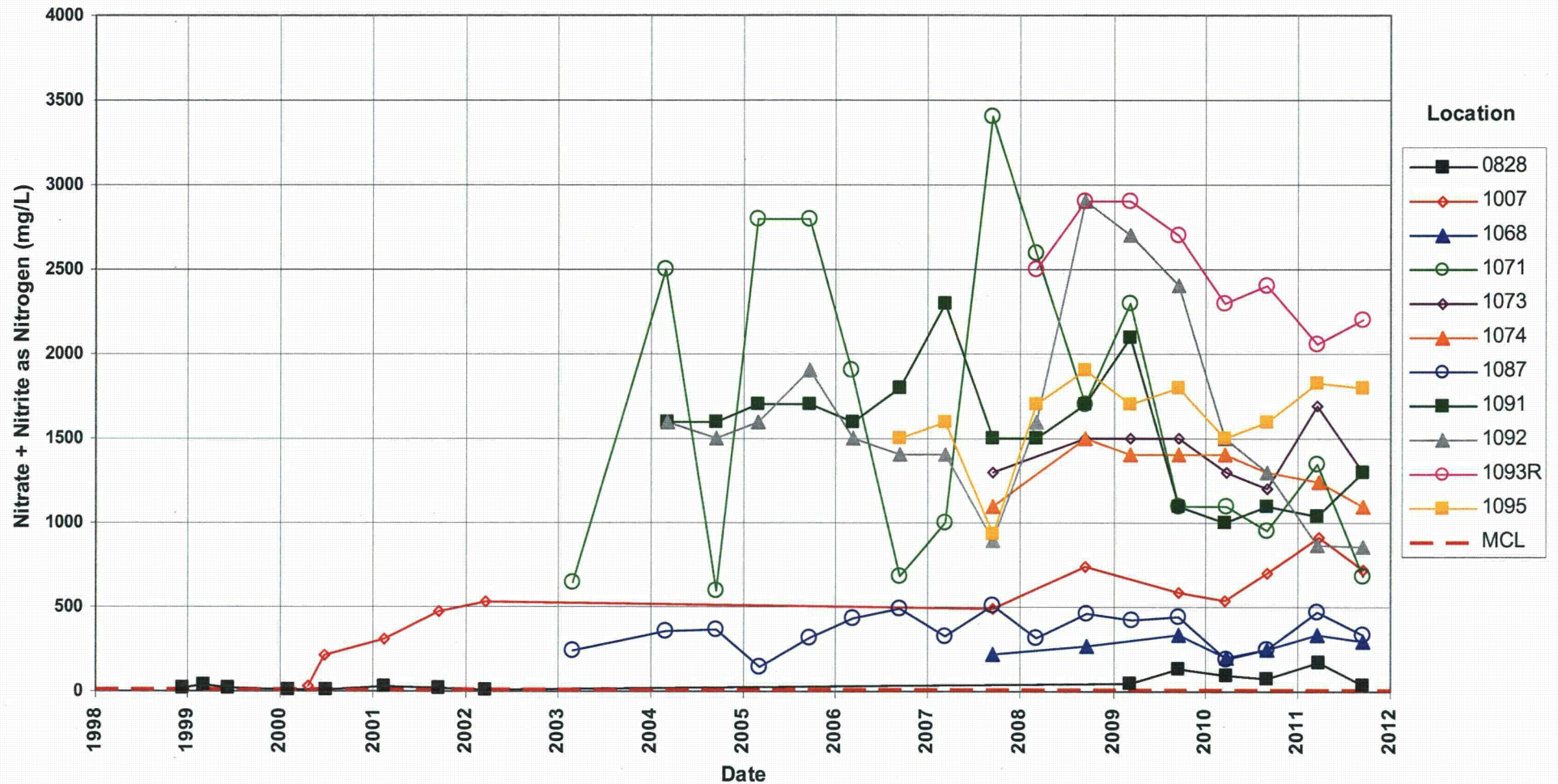
Shiprock Disposal Site (Terrace)
Nitrate + Nitrite as Nitrogen Concentration
Maximum Contaminant Level (MCL) = 10.0 mg/L



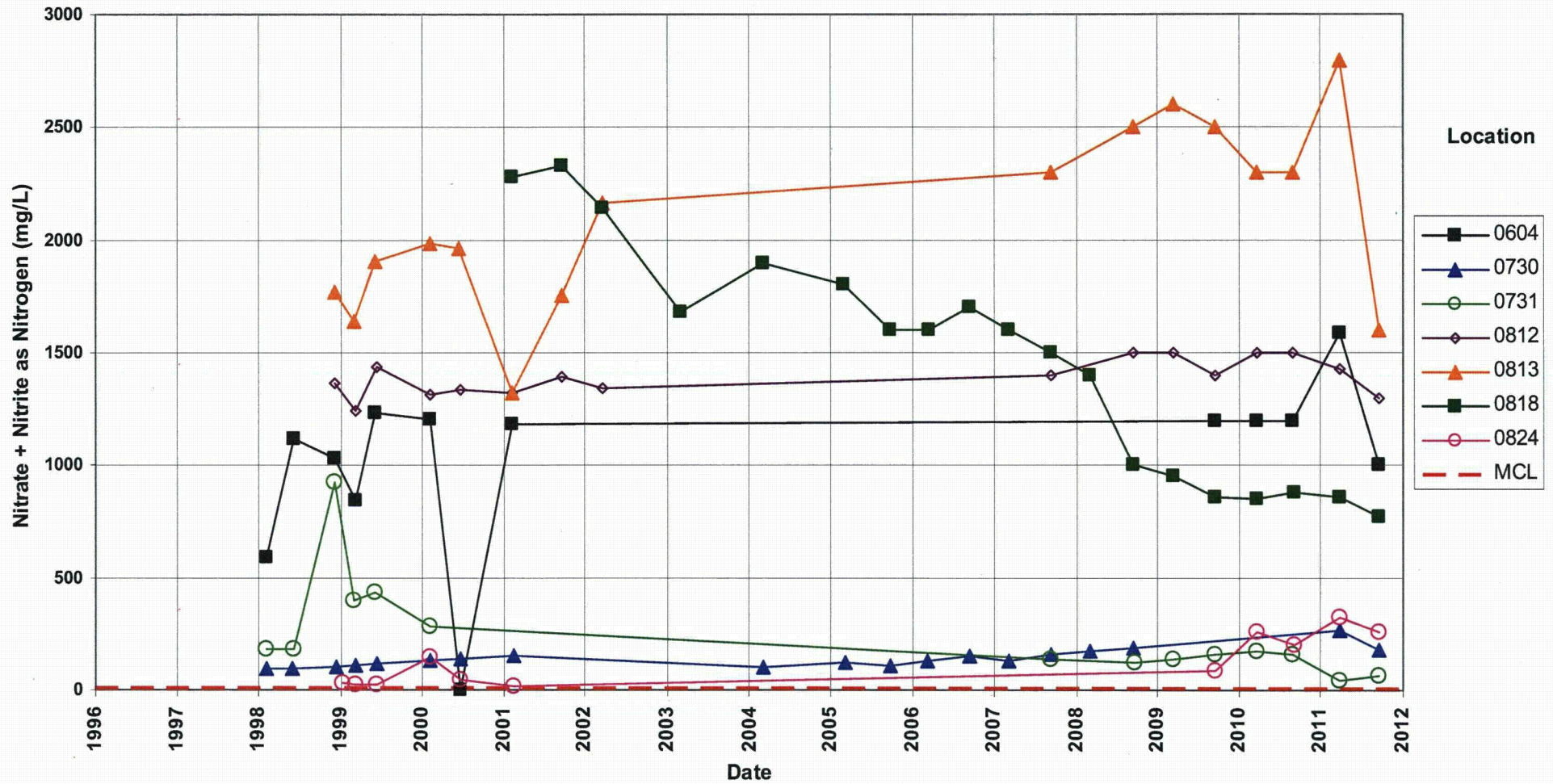
Shiprock Disposal Site (Terrace)
Nitrate + Nitrite as Nitrogen Concentration
Maximum Contaminant Level (MCL) = 10.0 mg/L



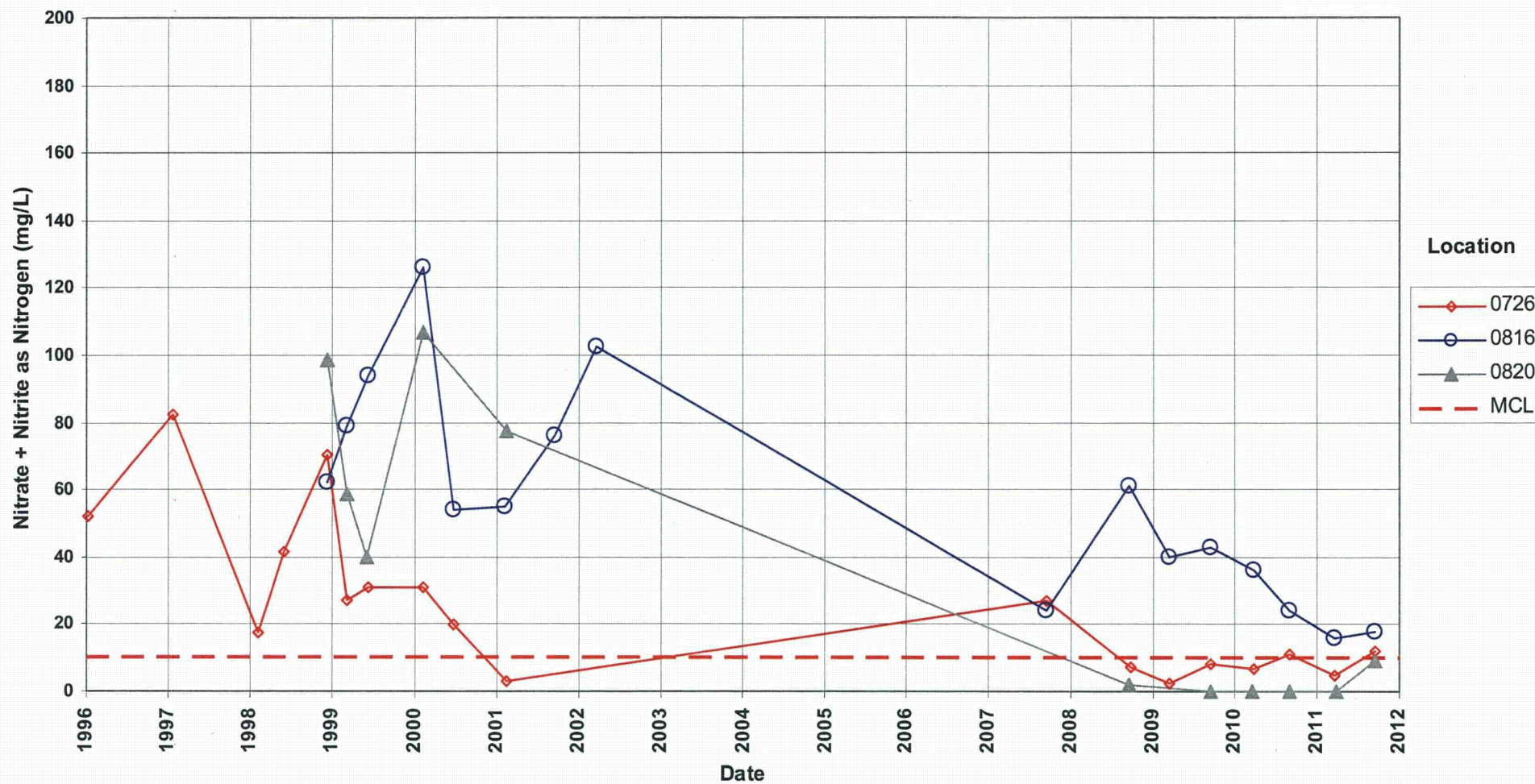
Shiprock Disposal Site (Terrace)
Nitrate + Nitrite as Nitrogen Concentration
Maximum Contaminant Level (MCL) = 10.0 mg/L



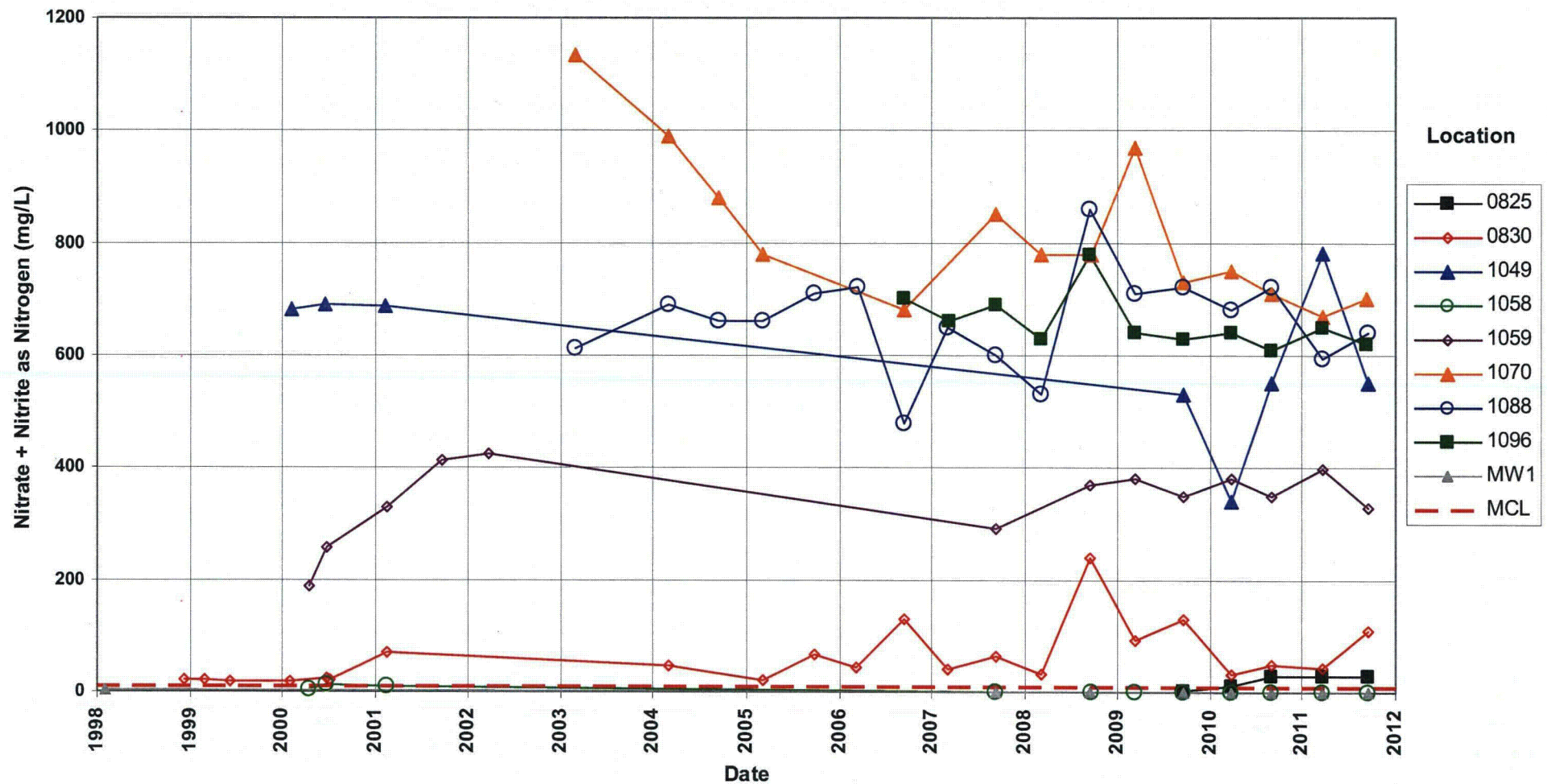
Shiprock Disposal Site (Terrace)
Nitrate + Nitrite as Nitrogen Concentration
Maximum Contaminant Level (MCL) = 10.0 mg/L



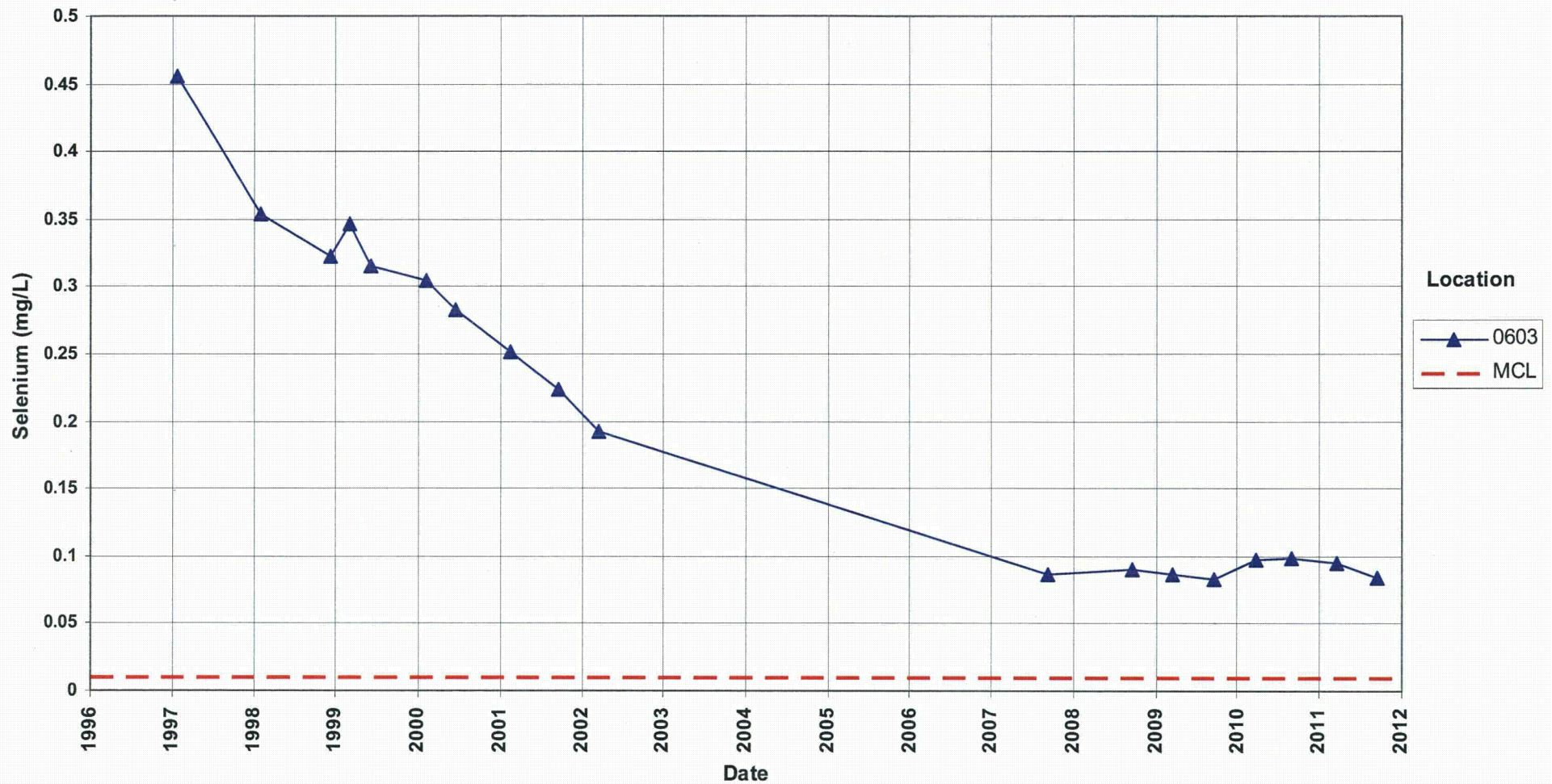
Shiprock Disposal Site (Terrace)
Nitrate + Nitrite as Nitrogen Concentration
Maximum Contaminant Level (MCL) = 10.0 mg/L



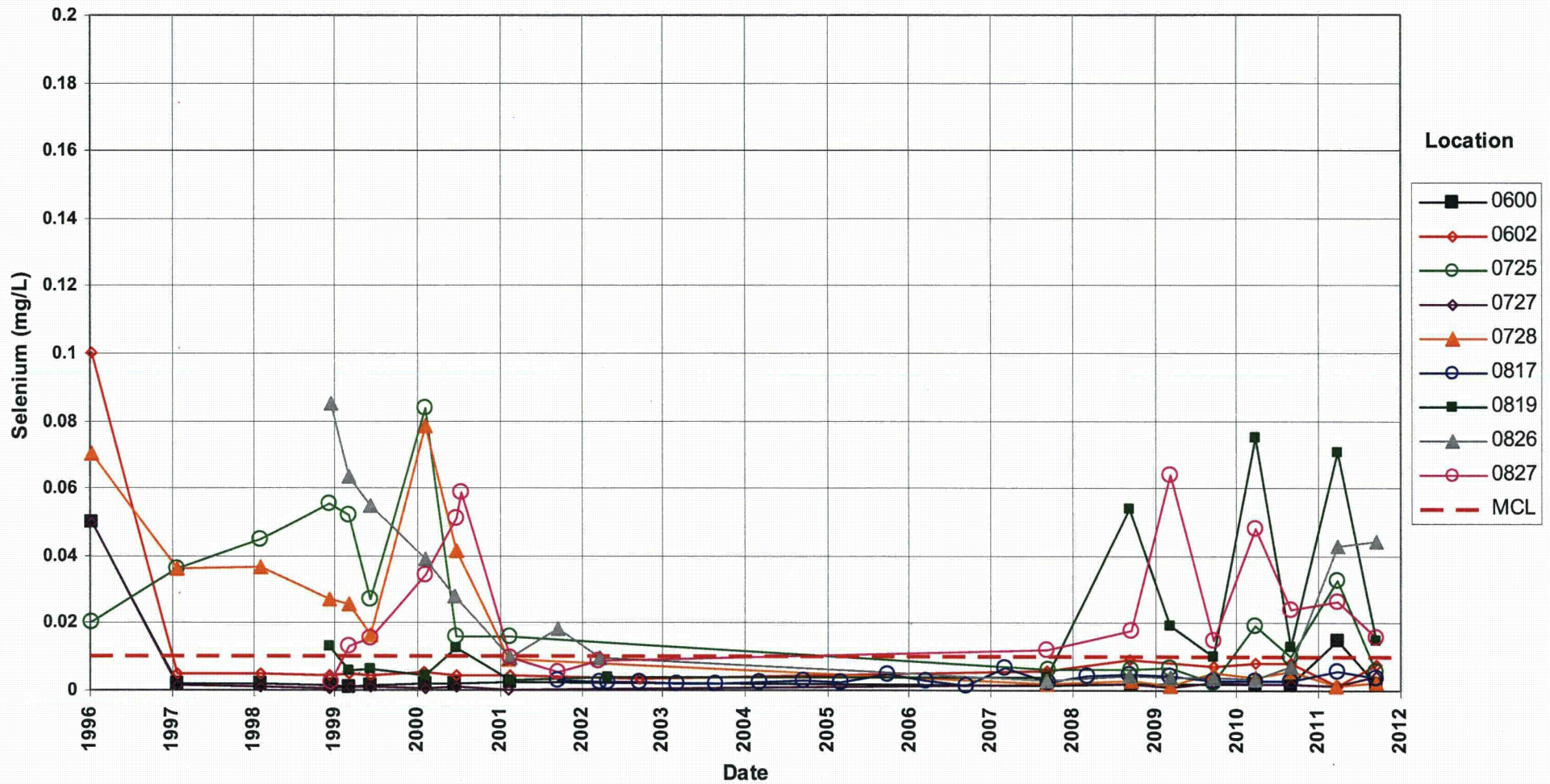
Shiprock Disposal Site (Terrace)
Nitrate + Nitrite as Nitrogen Concentration
Maximum Contaminant Level (MCL) = 10.0 mg/L



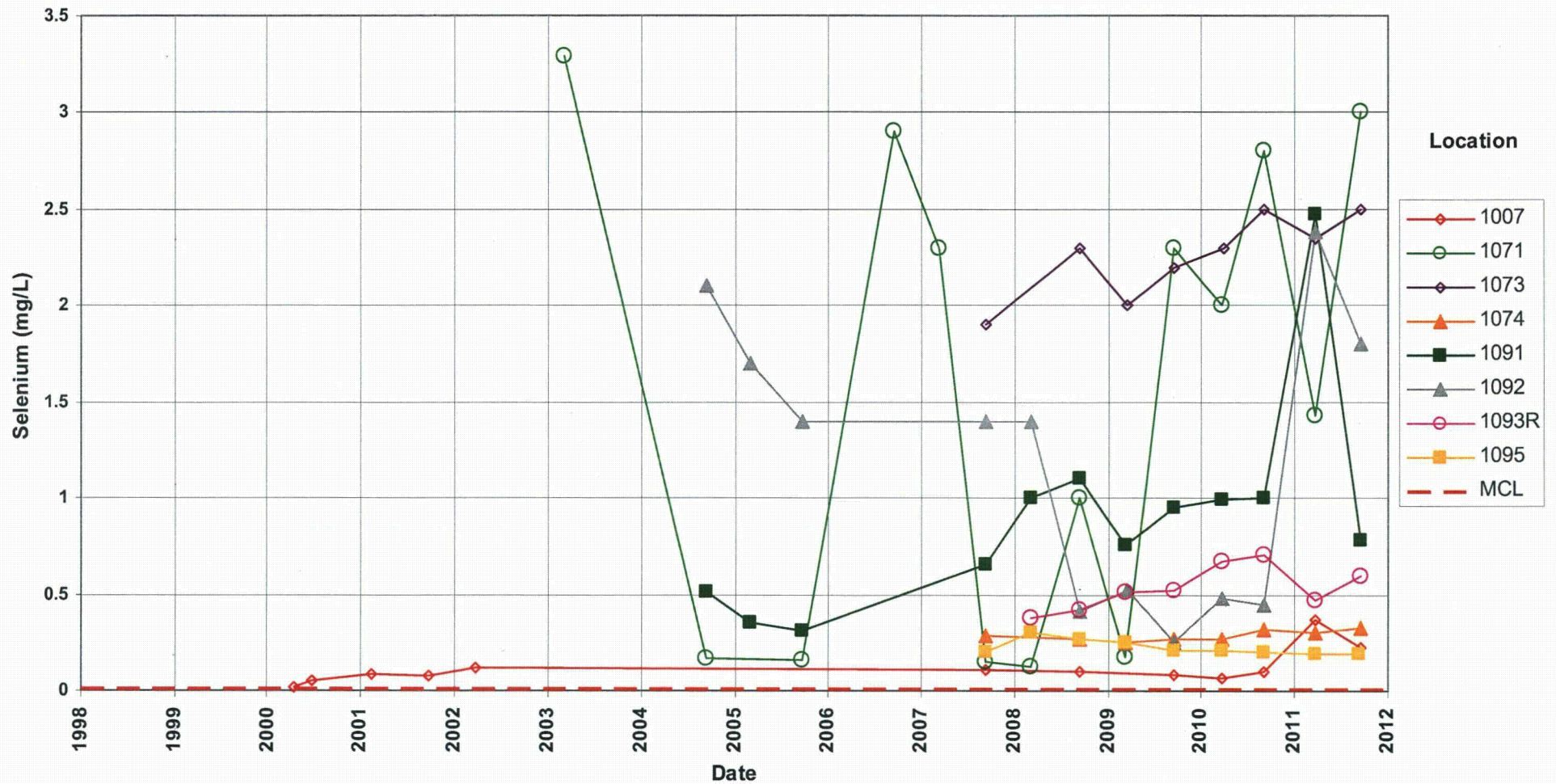
Shiprock Disposal Site (Terrace)
Selenium Concentration
Maximum Contaminant Level (MCL) = 0.01 mg/L



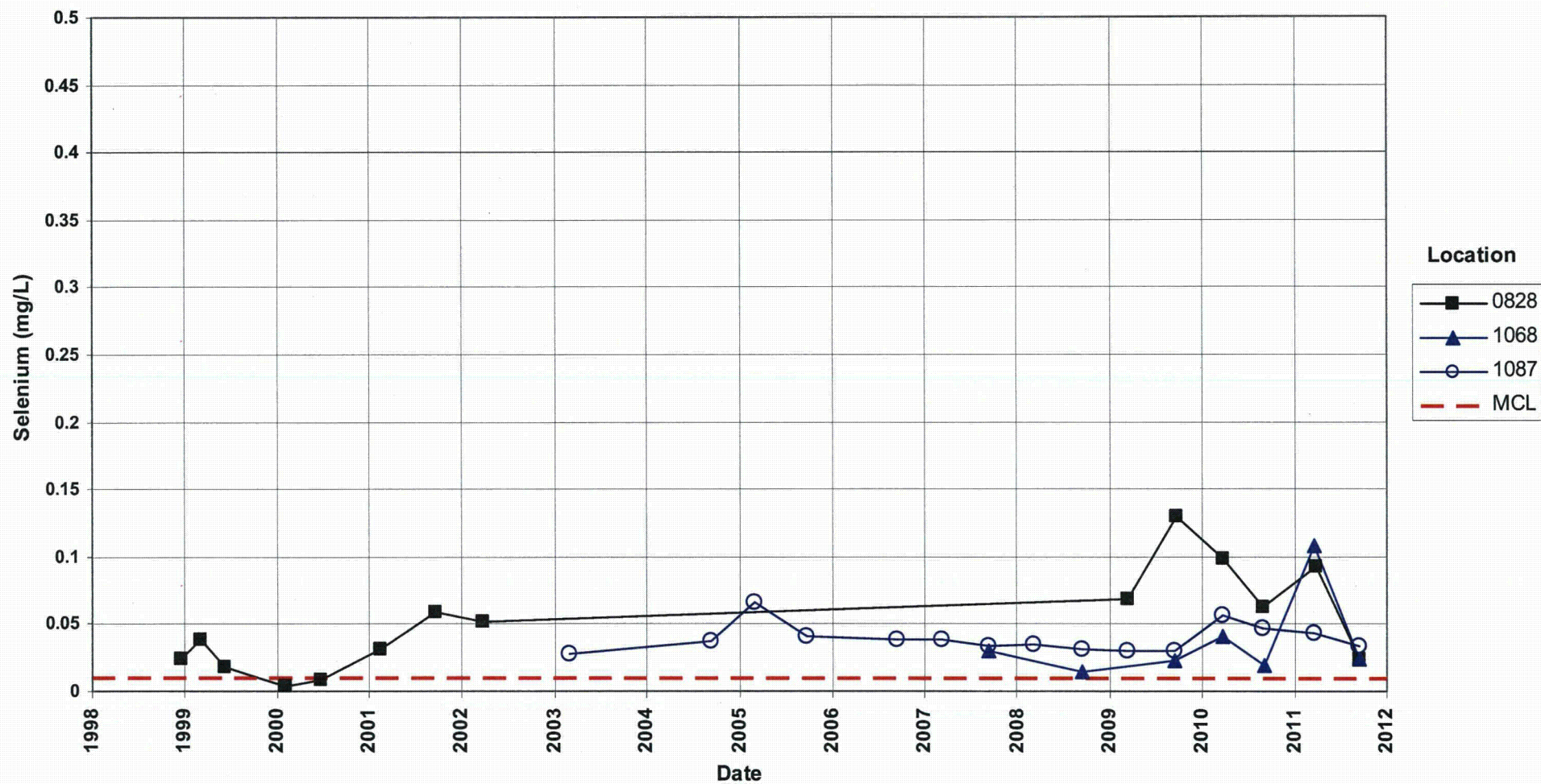
Shiprock Disposal Site (Terrace)
Selenium Concentration
Maximum Contaminant Level (MCL) = 0.01 mg/L



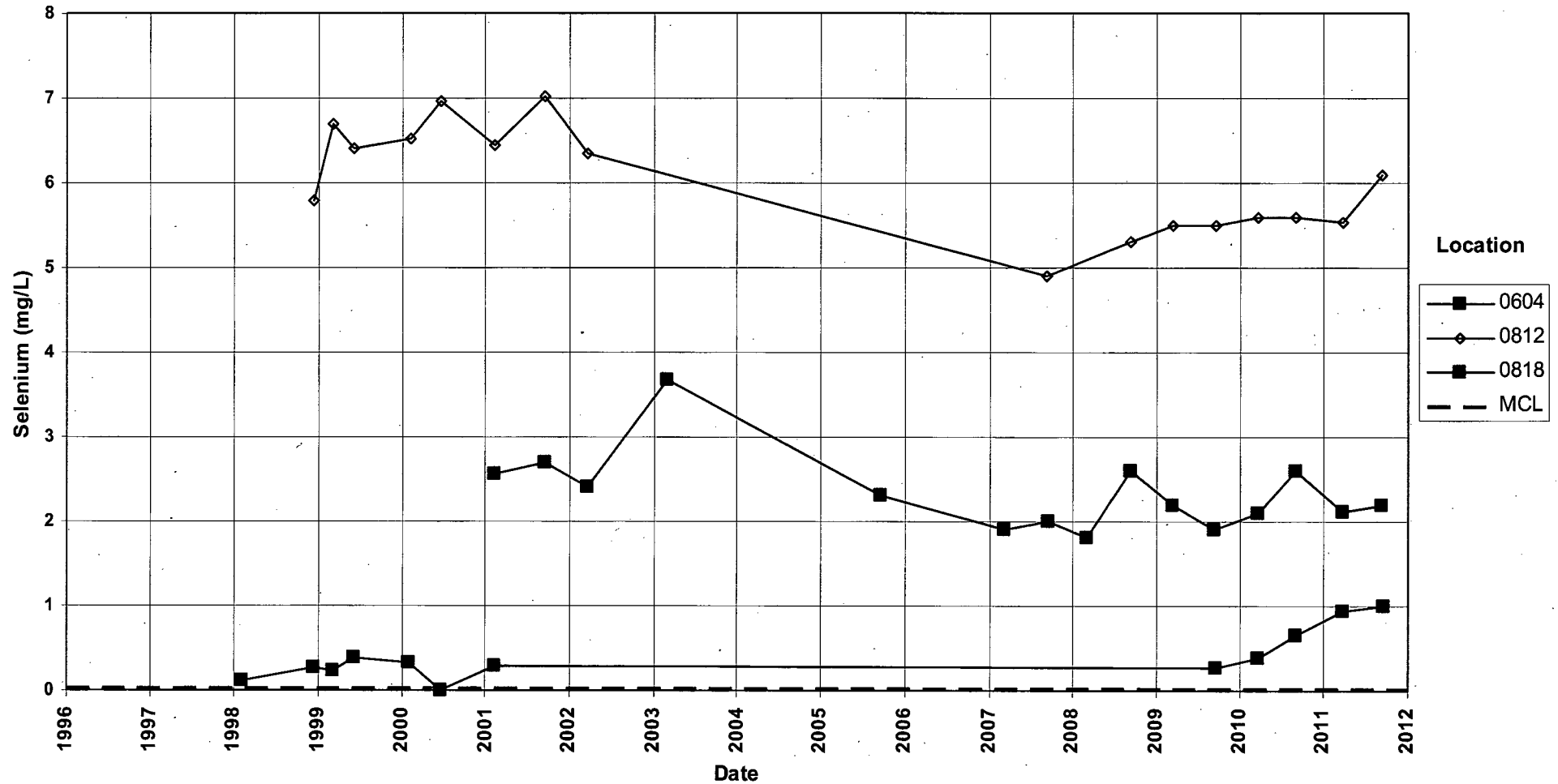
Shiprock Disposal Site (Terrace)
Selenium Concentration
Maximum Contaminant Level (MCL) = 0.01 mg/L



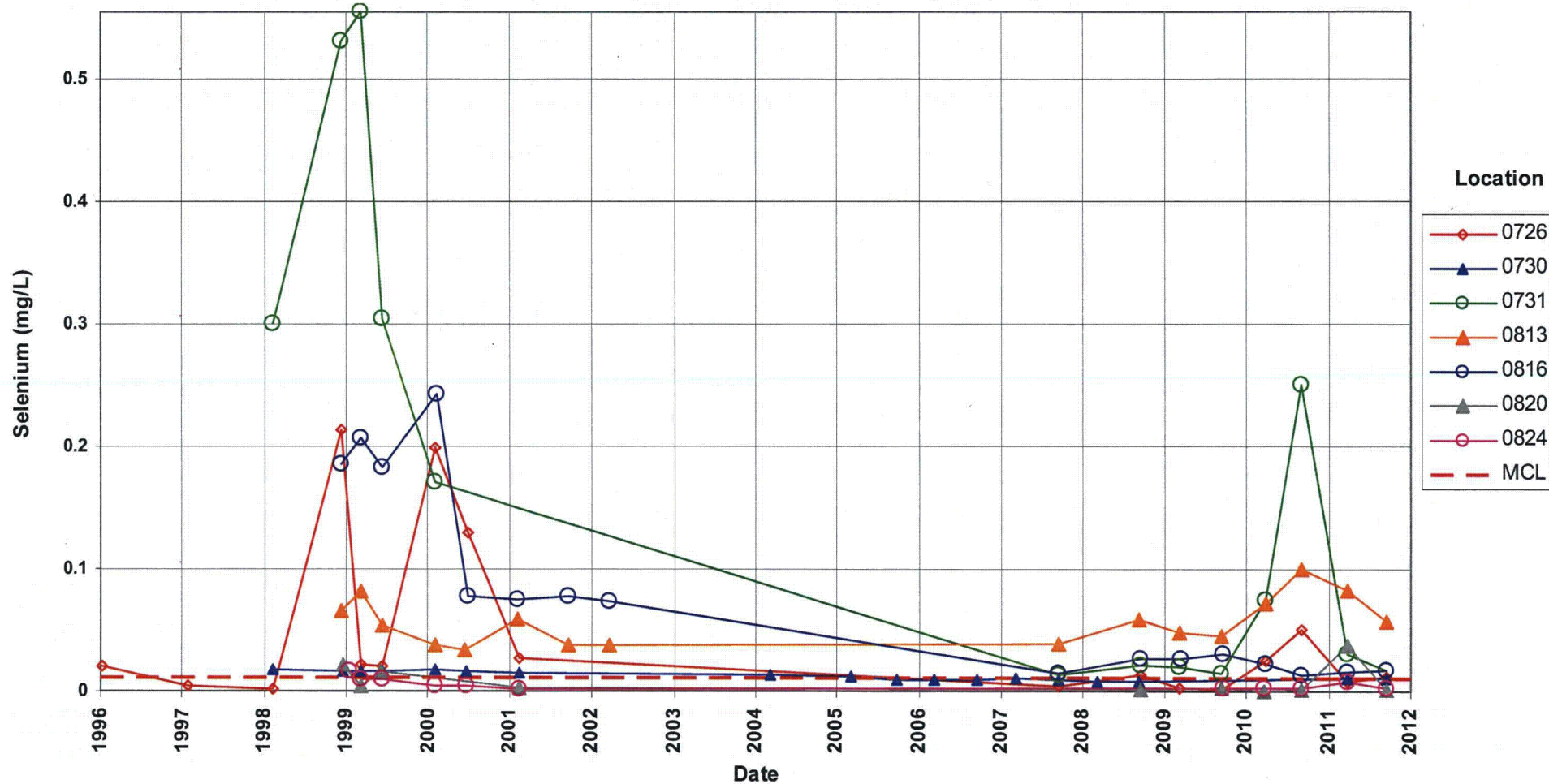
Shiprock Disposal Site (Terrace)
Selenium Concentration
Maximum Contaminant Level (MCL) = 0.01 mg/L



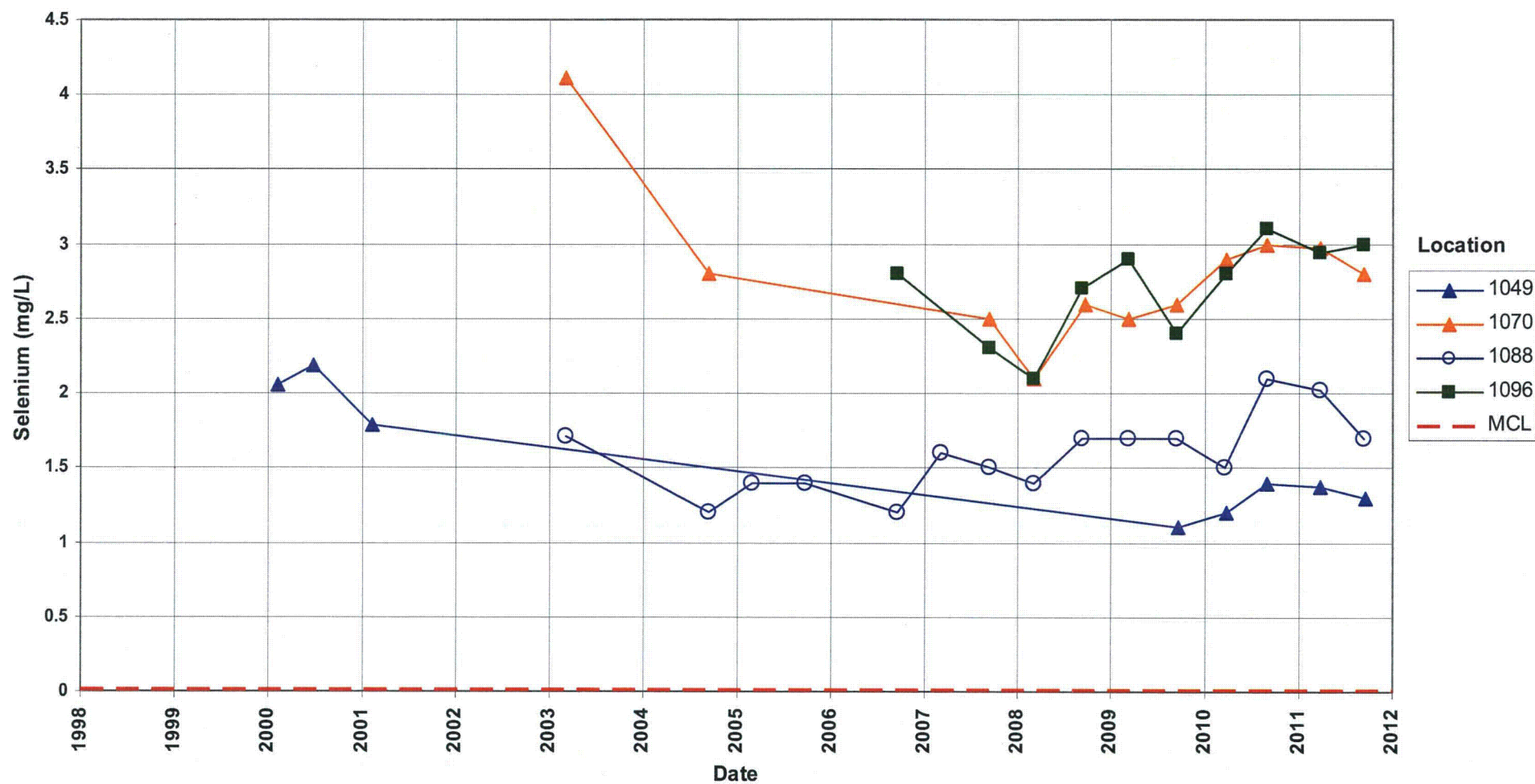
Shiprock Disposal Site (Terrace)
Selenium Concentration
Maximum Contaminant Level (MCL) = 0.01 mg/L



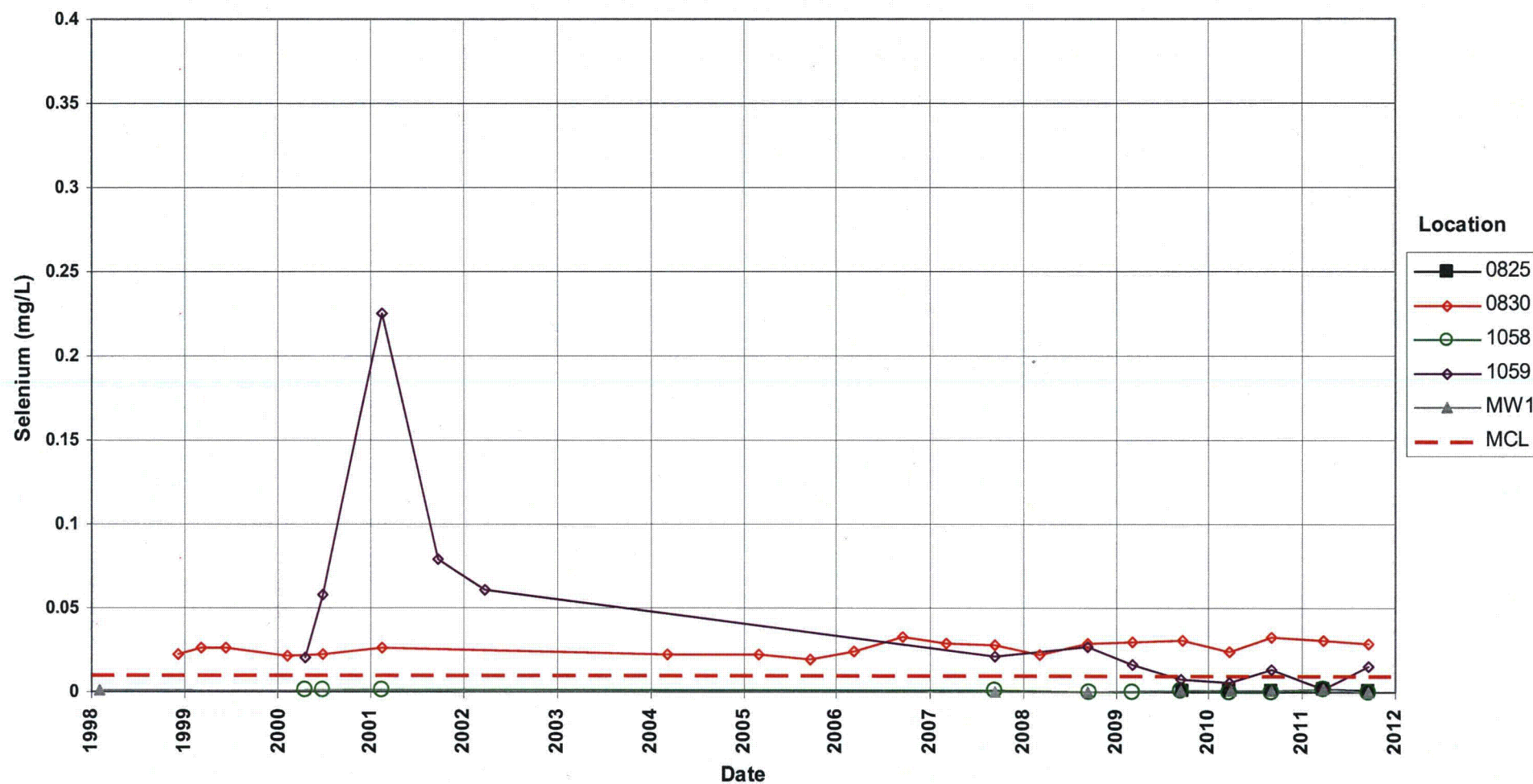
Shiprock Disposal Site (Terrace)
Selenium Concentration
Maximum Contaminant Level (MCL) = 0.01 mg/L



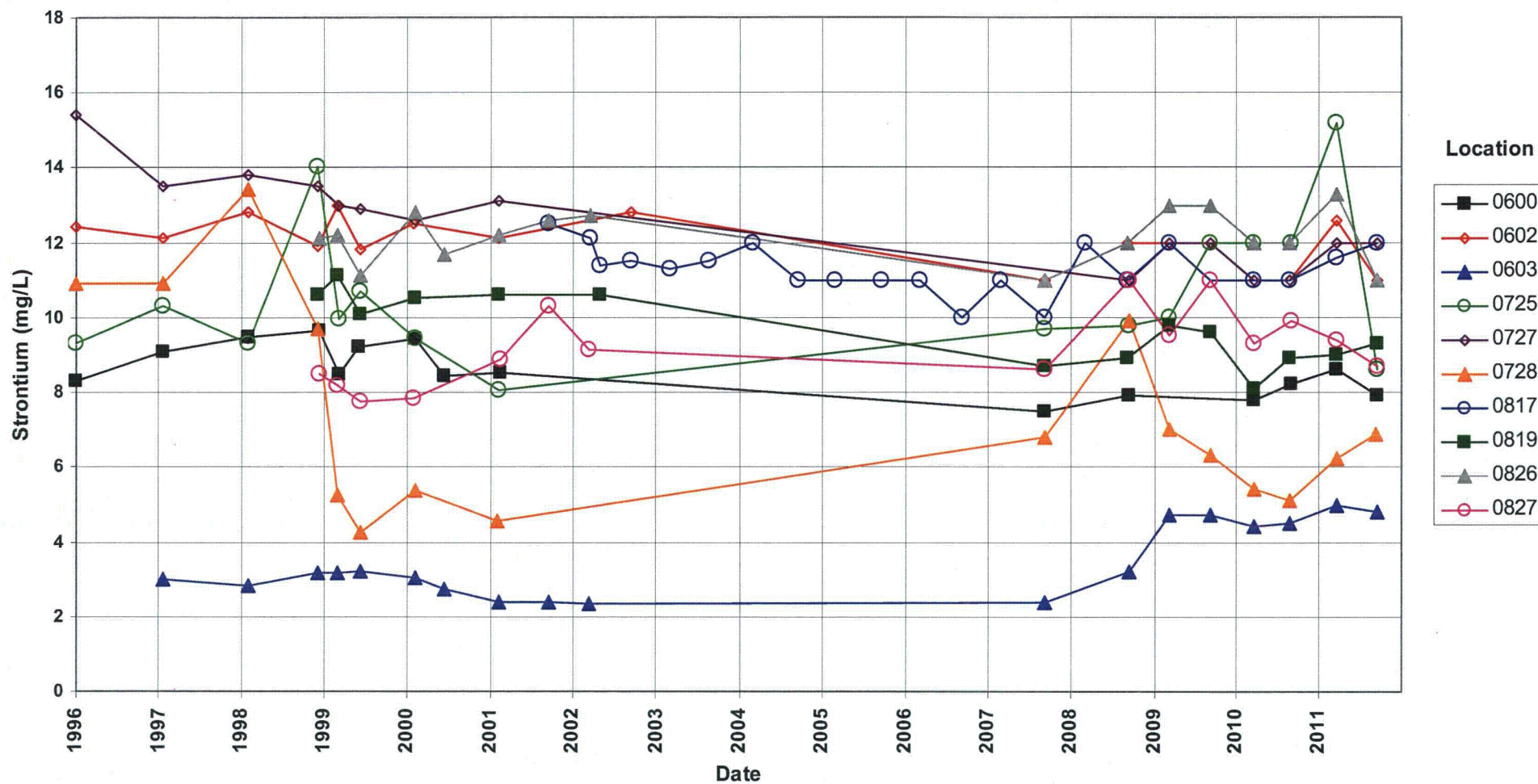
Shiprock Disposal Site (Terrace)
Selenium Concentration
Maximum Contaminant Level (MCL) = 0.01 mg/L



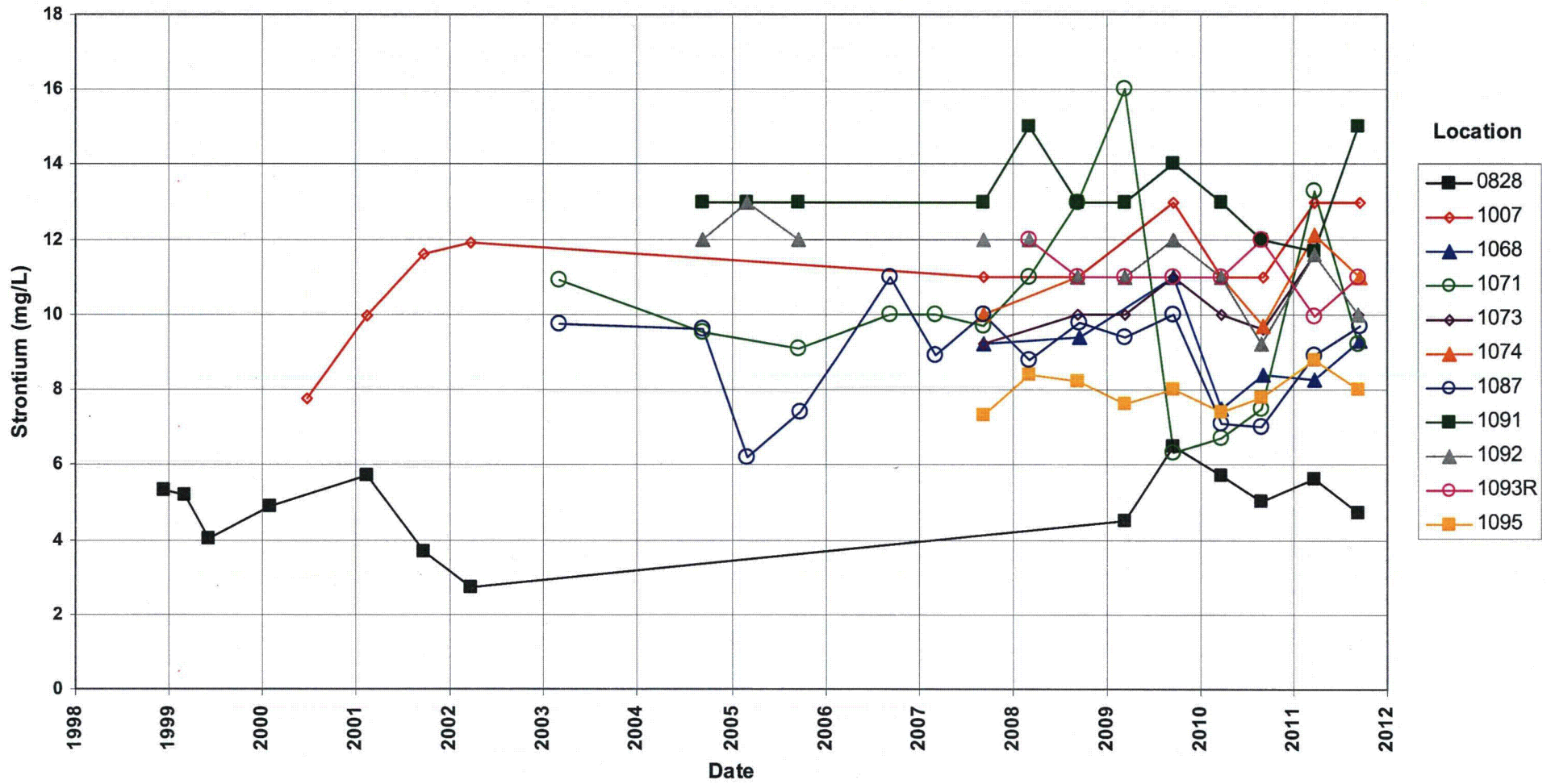
Shiprock Disposal Site (Terrace)
Selenium Concentration
Maximum Contaminant Level (MCL) = 0.01 mg/L



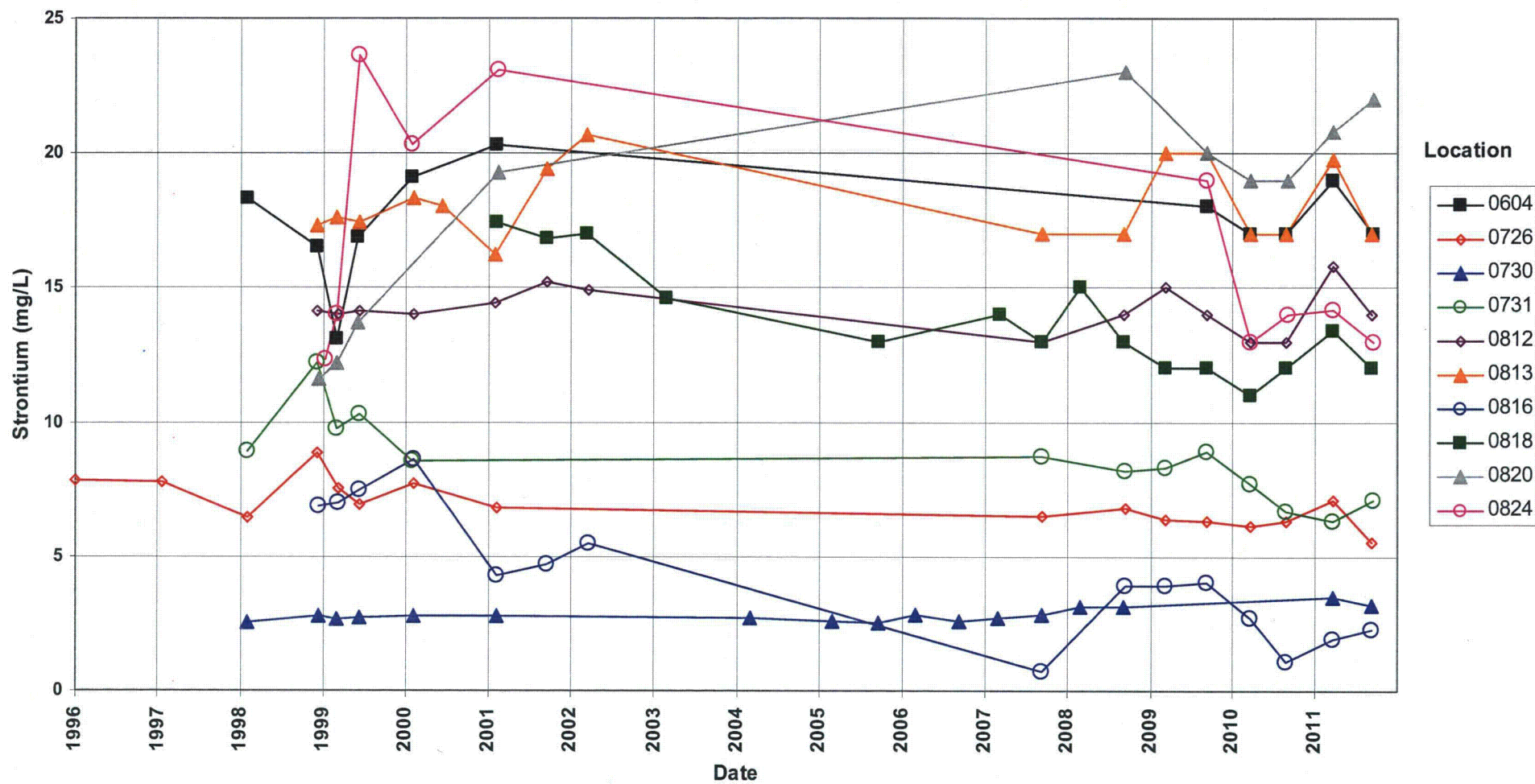
Shiprock Disposal Site (Terrace) Strontium Concentration



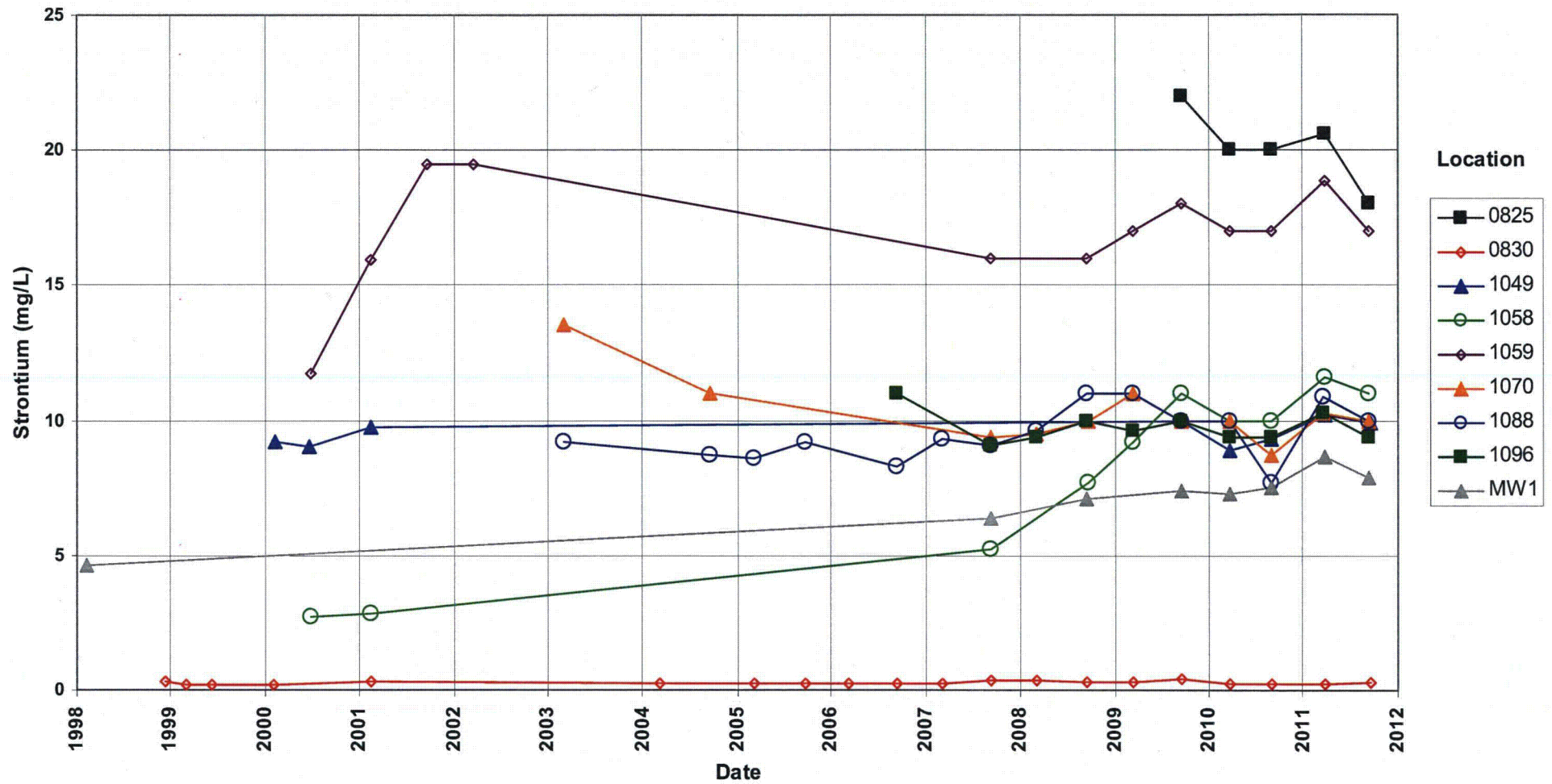
Shiprock Disposal Site (Terrace)
Strontium Concentration



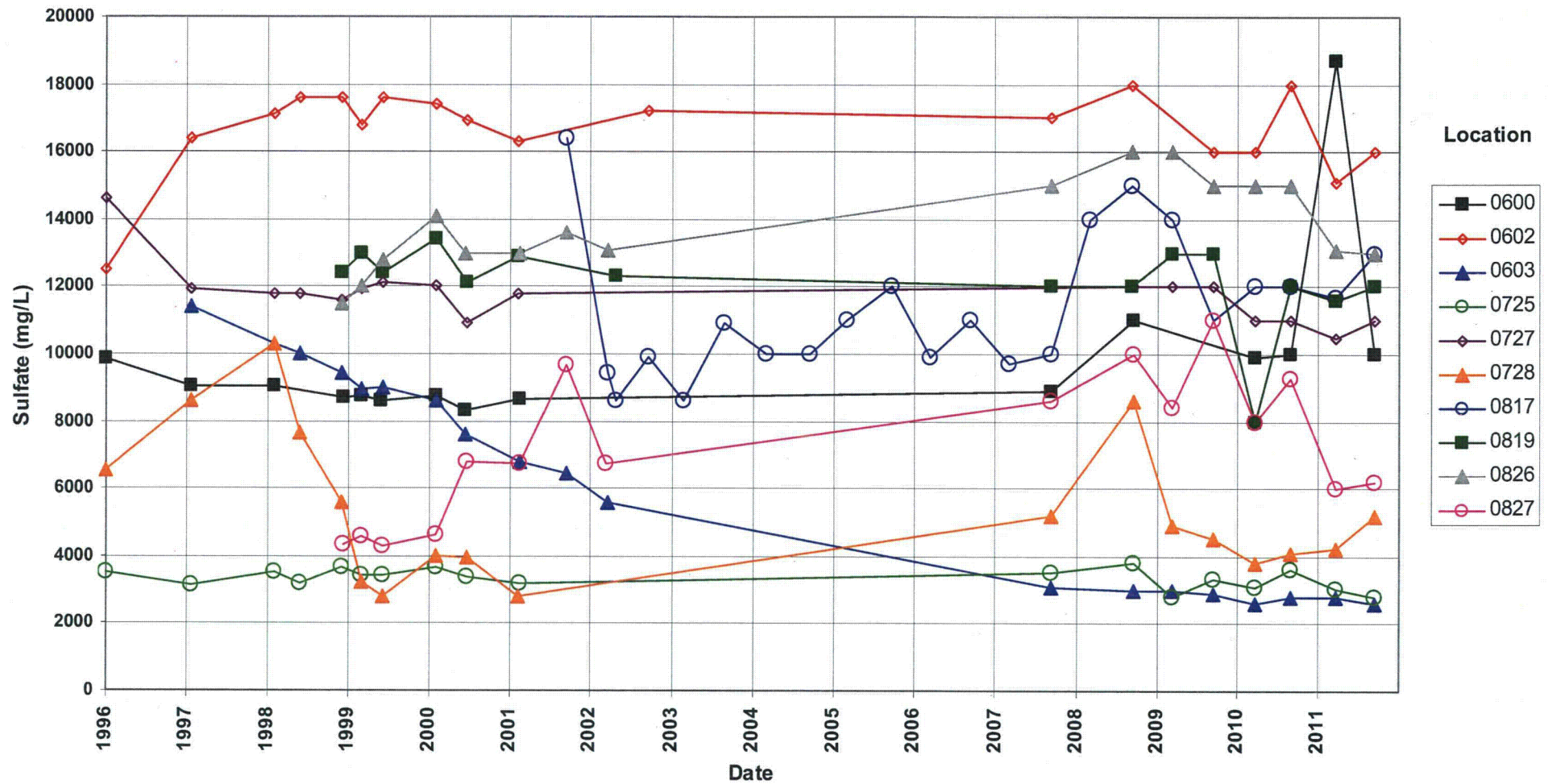
Shiprock Disposal Site (Terrace) Strontium Concentration



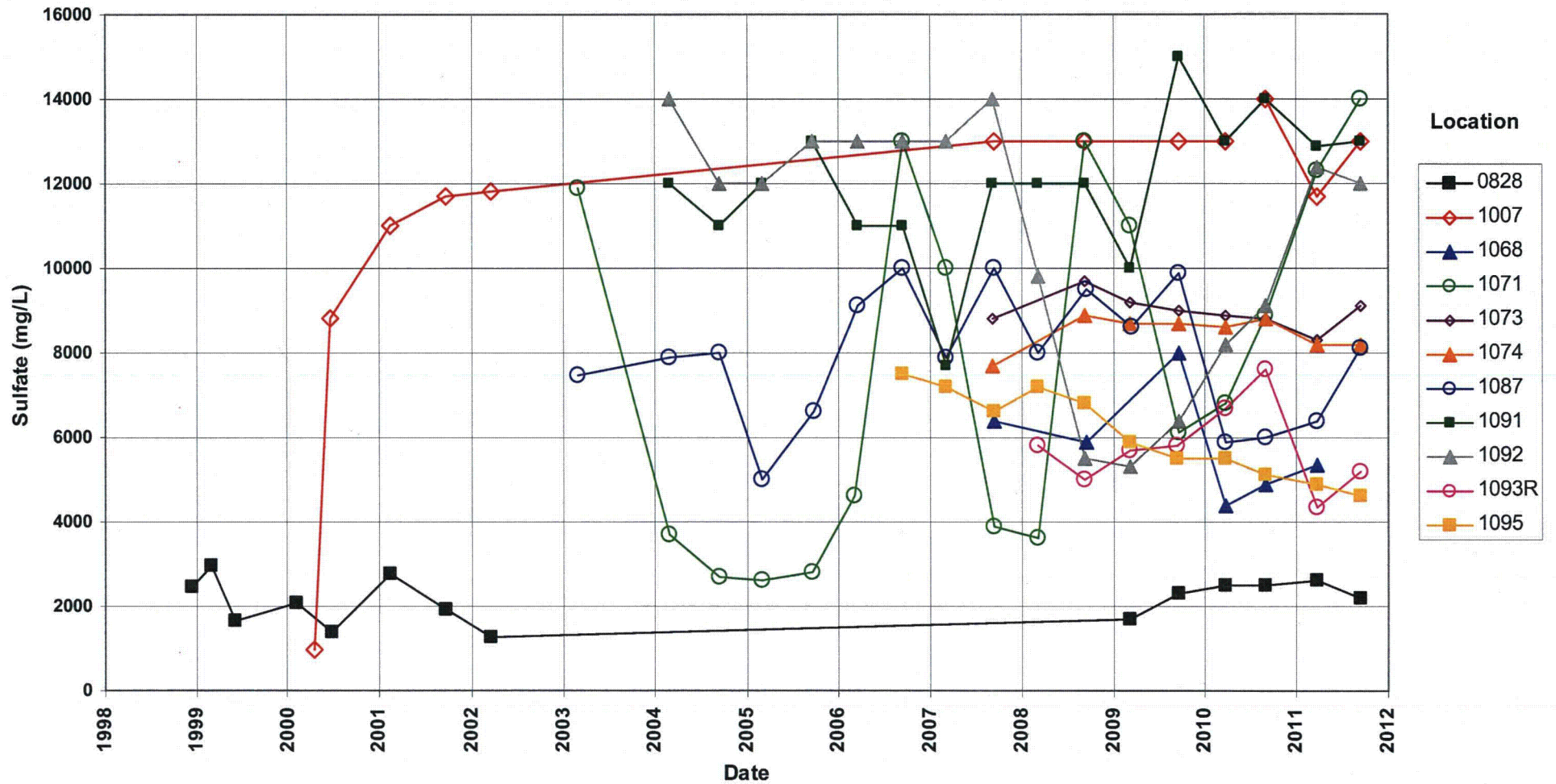
Shiprock Disposal Site (Terrace) Strontium Concentration



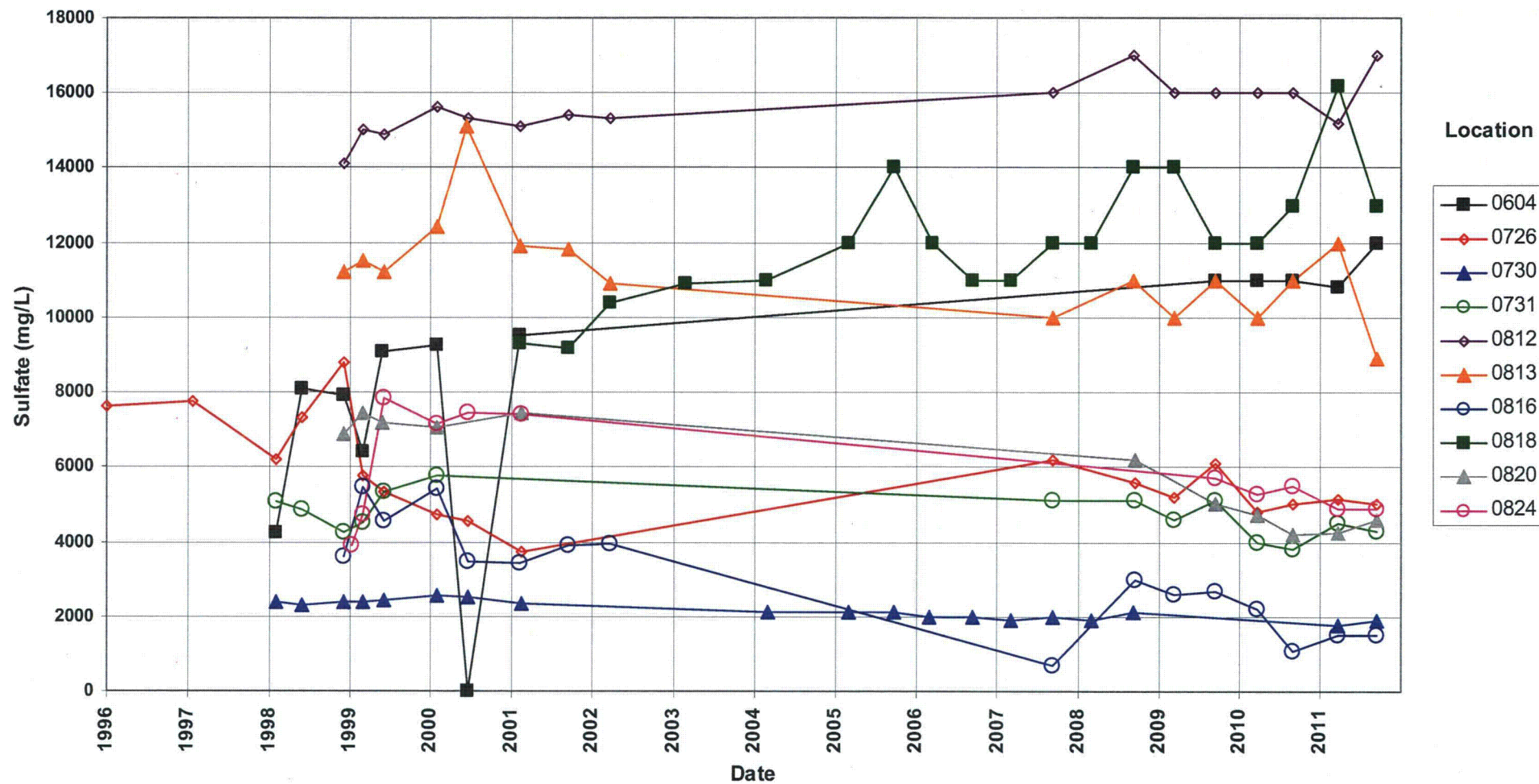
Shiprock Disposal Site (Terrace) Sulfate Concentration



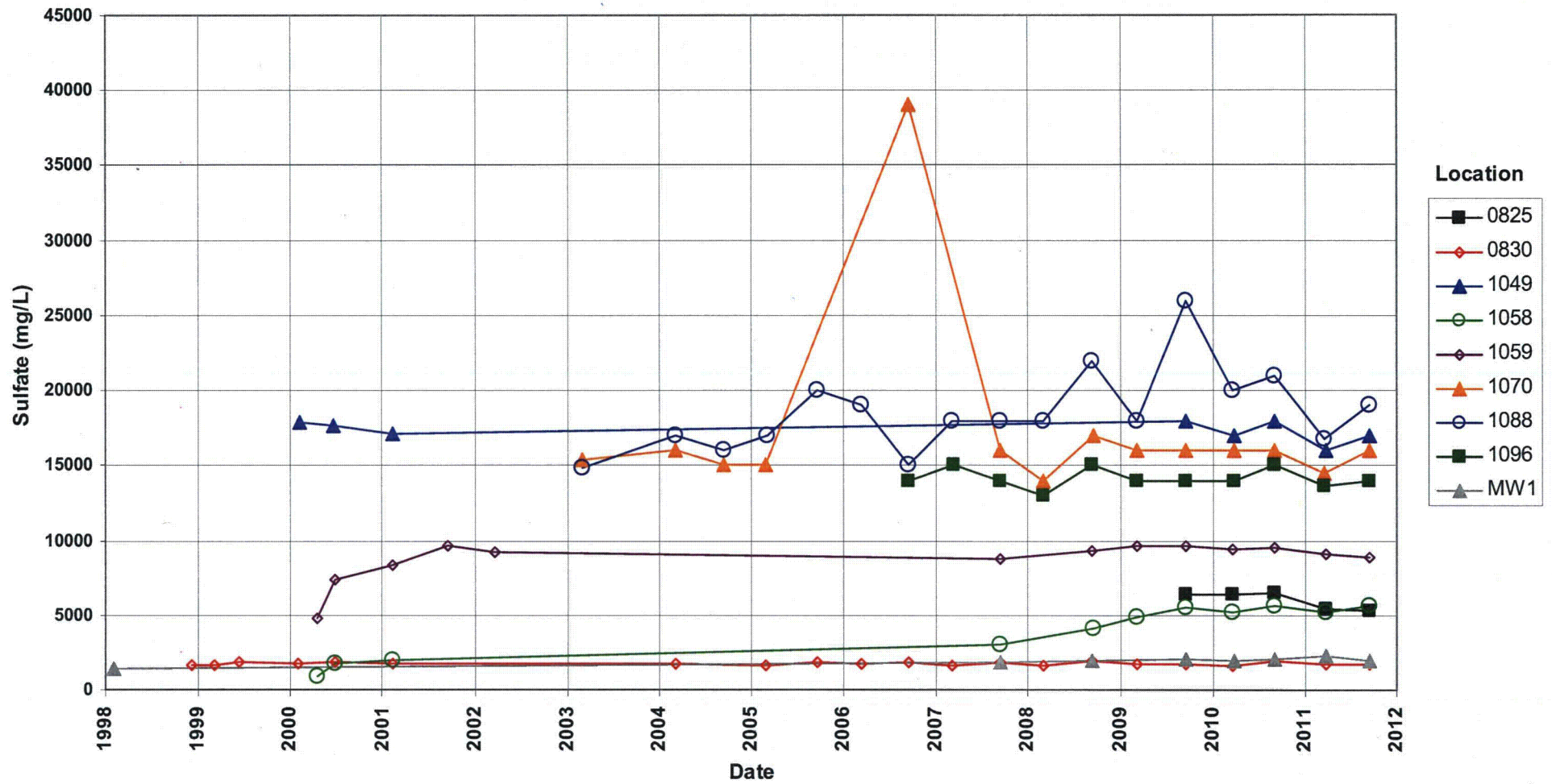
Shiprock Disposal Site (Terrace) **Sulfate Concentration**



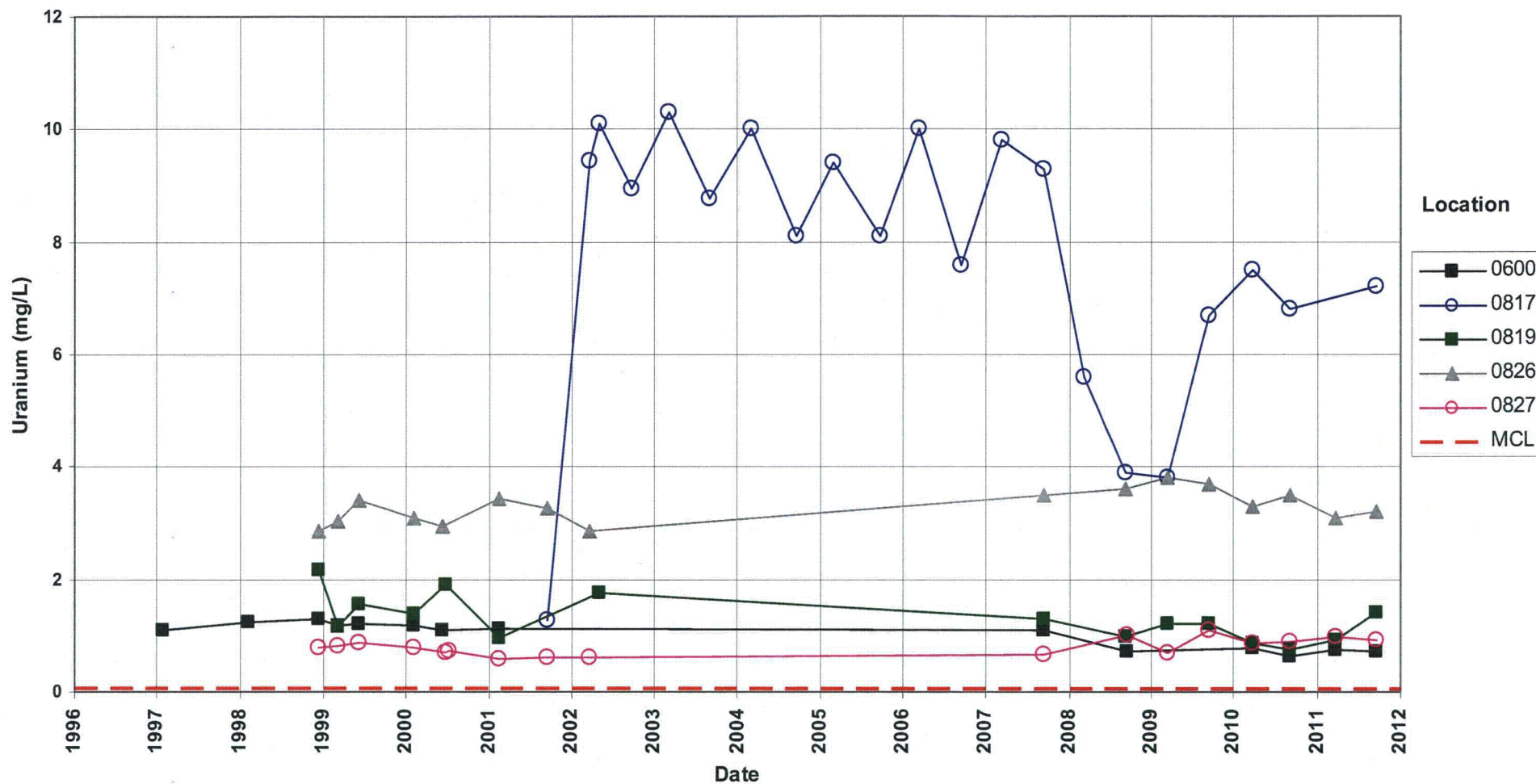
Shiprock Disposal Site (Terrace) Sulfate Concentration



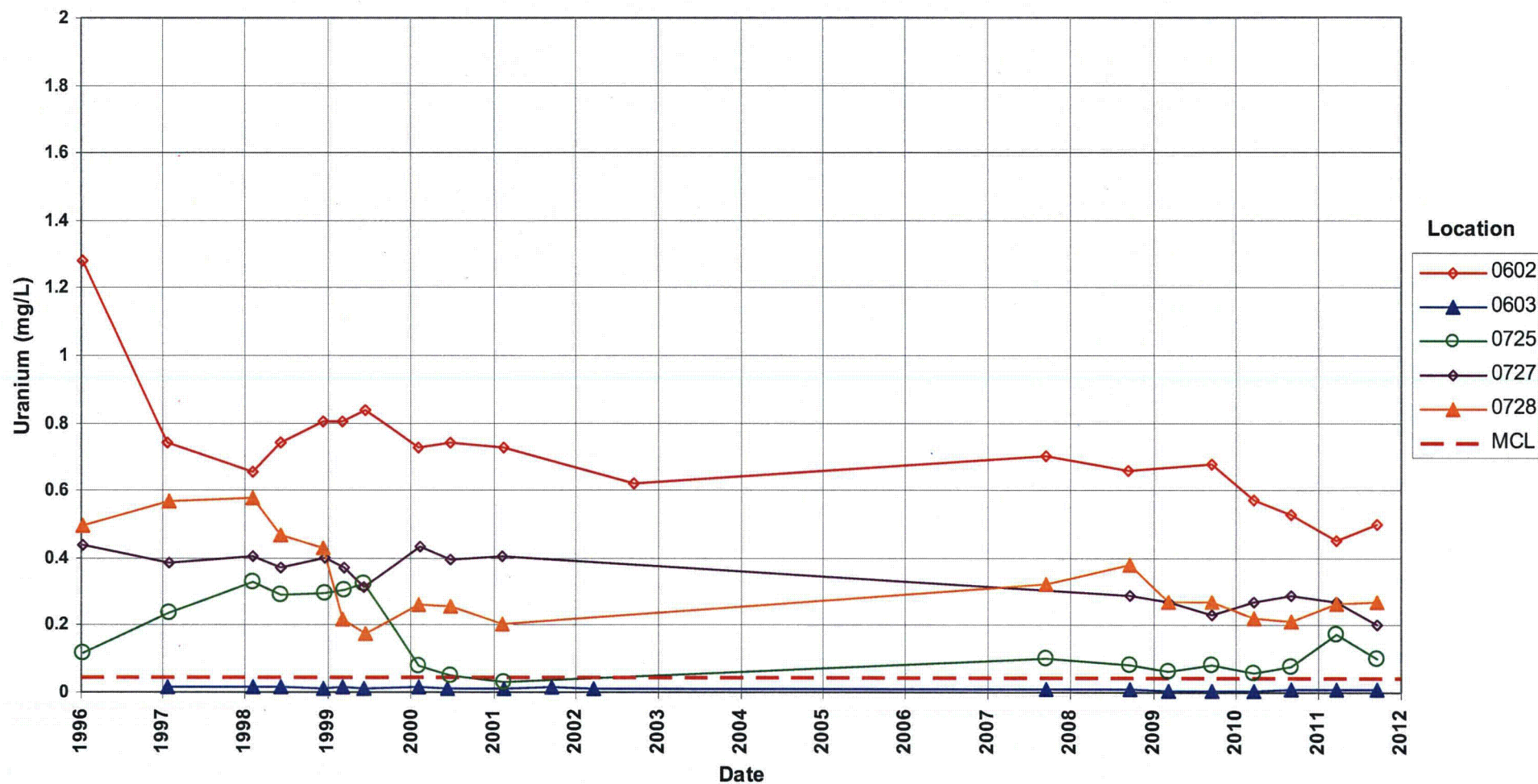
Shiprock Disposal Site (Terrace) Sulfate Concentration



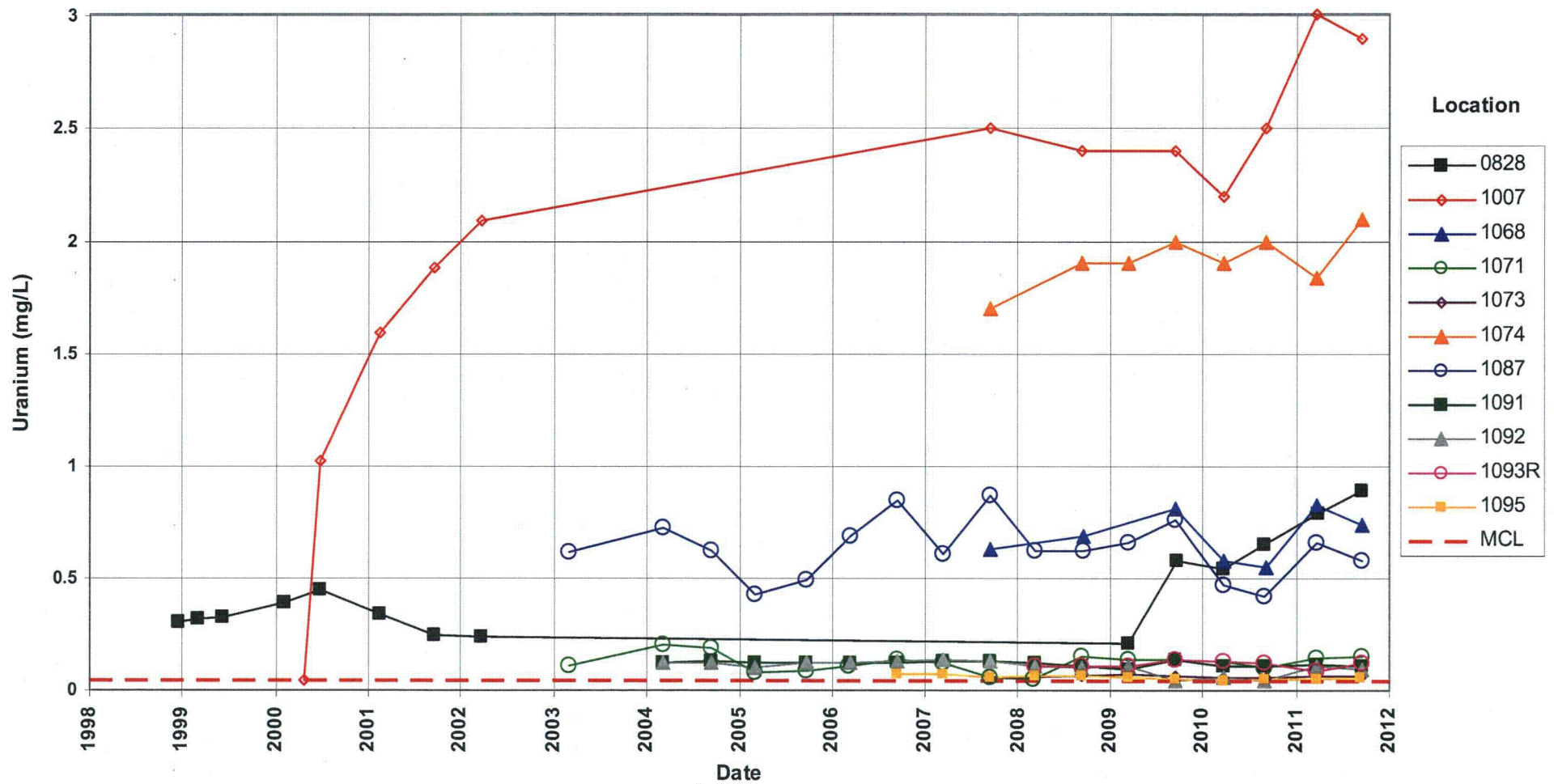
Shiprock Disposal Site (Terrace)
Uranium Concentration
Maximum Contaminant Level (MCL) = 0.044 mg/L



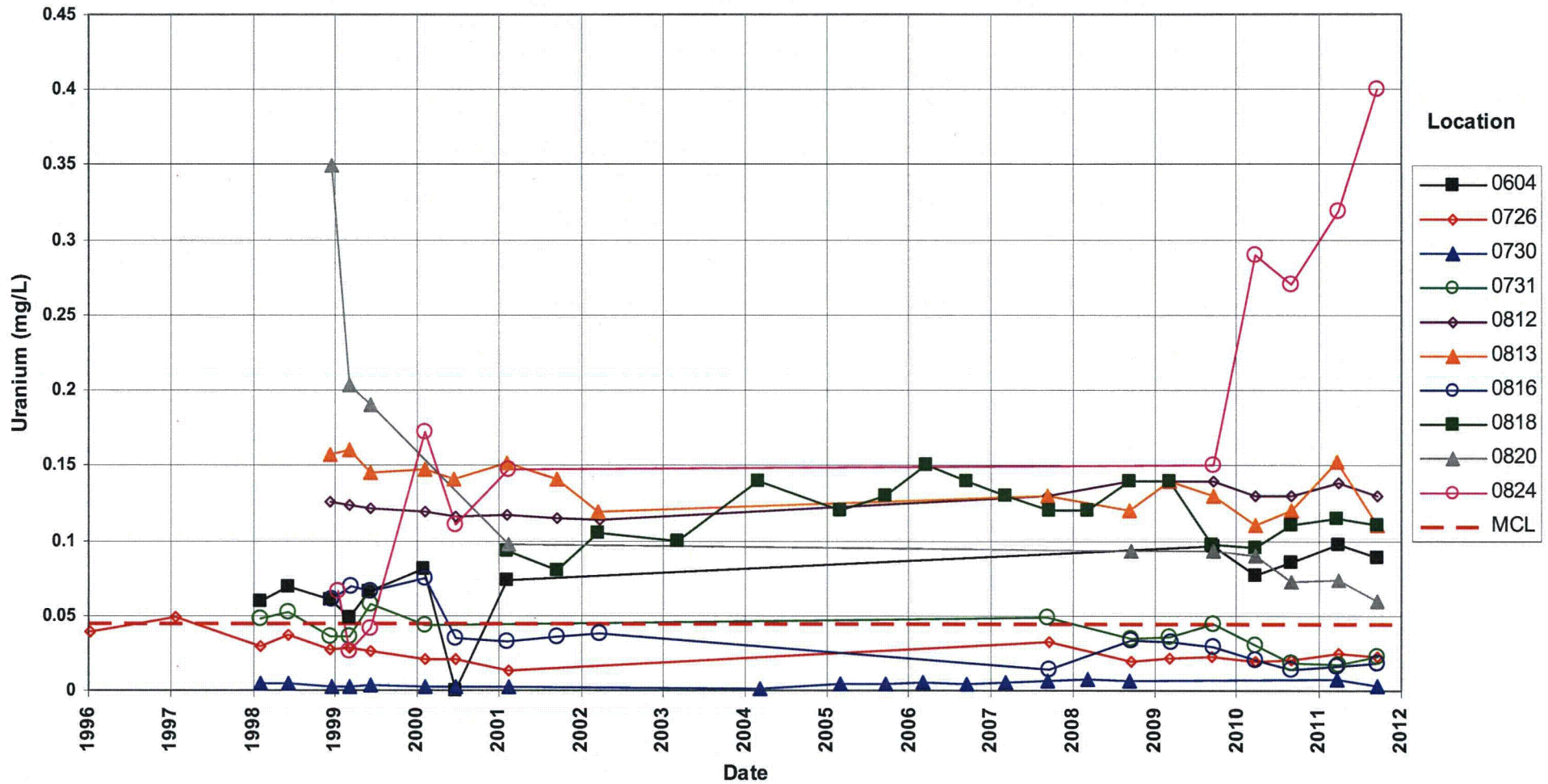
Shiprock Disposal Site (Terrace)
Uranium Concentration
Maximum Contaminant Level (MCL) = 0.044 mg/L



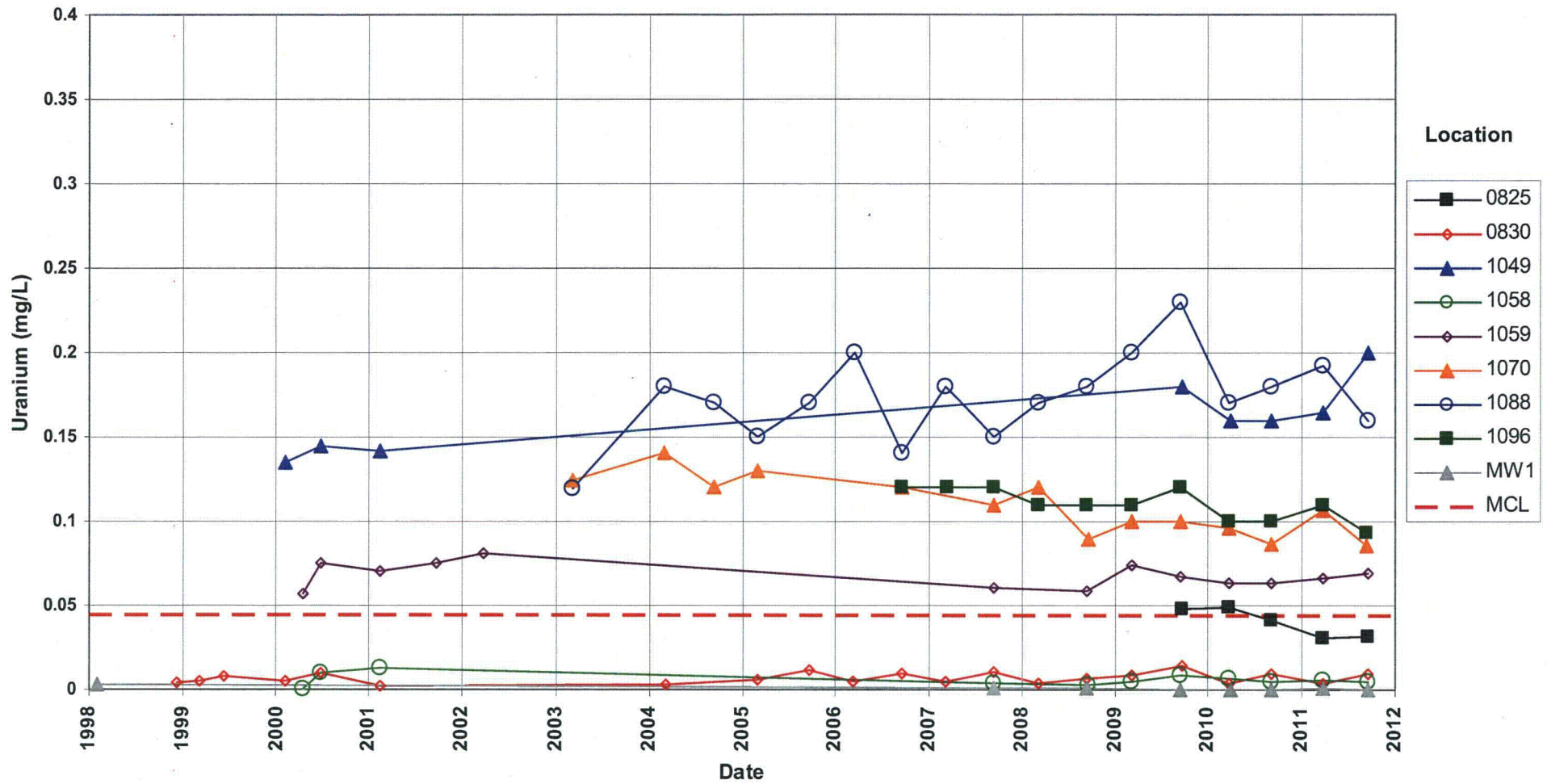
Shiprock Disposal Site (Terrace)
Uranium Concentration
Maximum Contaminant Level (MCL) = 0.044 mg/L



Shiprock Disposal Site (Terrace)
Uranium Concentration
Maximum Contaminant Level (MCL) = 0.044 mg/L



Shiprock Disposal Site (Terrace)
Uranium Concentration
Maximum Contaminant Level (MCL) = 0.044 mg/L



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Attachment 3
Sampling and Analysis Work Order

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established 1959

Task Order LM00-501
Control Number 11-0932

August 16, 2011

U.S. Department of Energy
Office of Legacy Management
ATTN: Dr. April Gil
Site Manager
2597 Legacy Way
Grand Junction, CO 81503

SUBJECT: Contract No. DE-AM01-07LM00060, S.M. Stoller Corporation (Stoller)
September 2011 Environmental Sampling at Shiprock, New Mexico

REFERENCE: Task Order LM00-501-02-119-402, Shiprock, NM, Disposal Site

Dear Dr. Gil:

The purpose of this letter is to inform you of the upcoming sampling event at Shiprock, NM. Enclosed are the map and tables specifying sample locations and analytes for monitoring at the Shiprock Disposal Site. Water quality data will be collected at this site as part of the routine environmental sampling currently scheduled to begin the week of September 12, 2011.

Samples collected at the following SHP01 (floodplain) locations will be both filtered and unfiltered: 0501, 0897, 0898, 0899, 0940, 0956, 0965, 1203, and 1205.

The following lists show the monitoring wells (along with associated zone of completion) and surface locations scheduled for sampling during this event.

MONITORING WELLS

Floodplain

608 Km	623 AI	768 AI	798 AI	1009 AI	1113 AI	1136 AI
610 AI	625 AI	773 AI	850 AI	1089 AI	1114 AI	1137 AI
611 AI/Km	626 AI	775 AI	853 AI	1104 AI	1115 AI	1138 AI
612 AI	628 AI	779 AI	854 AI	1105 AI	1117 AI	1139 AI
614 AI	630 AI	782R AI	855 AI	1109 Nr	1128 AI	1140 AI
615 AI	734 AI	783R AI	856 AI	1110 Nr	1132 AI	1141 AI
618 AI	735 AI	792 AI	857 AI	1111 AI	1134 AI	1142 AI
619 AI	736 AI	793 AI	1008 AI	1112 AI	1135 AI	1143 AI
622 AI	766 AI	797 AI				

Terrace

600 Km	812 AI/Km	822 Km	833 AI	1002 Km	1060 AI/Km	1088 Nr
602 Km	813 AI/Km	823 Km	835 AI	1003 Km	1068 AI	1091 AI
603 AI/Km	814 AI/Km	824 Km	836 AI	1004 Km	1069 AI/Km	1092 AI
604 Km	815 AI/Km	825 Km	837 AI	1007 AI/Km	1070 AI/Km	1093R AI

The S.M. Stoller Corporation 2597 Legacy Way Grand Junction, CO 81503 (970) 248-6000 Fax (970) 248-6040

Dr. April Gil
Control Number 11-0932
Page 2

725 Al/Km	816 Al/Km	826 Al/Km	838 Al	1011 Al/Km	1071 Al/Km	1095 Al
726 Km	817 Km	827 Al/Km	841 Al	1048 Al/Km	1073 Al	1096 Al
727 Km	818 Al	828 Al/Km	843 Al	1049 Al/Km	1074 Al/Km	1120 Al
728 Al/Km	819 Km	829 Km	844 Al/Km	1057 Al/Km	1078 Al/Km	1122 Al
730 Al	820 Km	830 Km	846 Al	1058 Km	1079 Al	DM7 Km
731 Al/Km	821 Km	832 Al/Km	848 Al/Km	1059 Km	1087 Nr	MW1 Km

*NOTE: Al = Alluvium; Ju = Jurassic Morrison Formation; Km = Mancos Shale; Nr = No recovery of data for classifying

SURFACE LOCATIONS

Floodplain

501	897	937	939	956	965	1203
655	898	938	940	959	1118	1205
887	899					


Terrace

662	885	934	942	958	1218	1220
786	889	936	949	1215	1219	1221
884	933					

Water levels will be collected from additional (non-sampled) wells as shown in the attachment. All samples will be collected as directed in the *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites*.

Please contact me at (970) 248-6652 if you have any questions.

Sincerely,


for

David Miller
Site Lead

DM/lcg/lb

Enclosures (3)

cc: (electronic)

Deb Steckley, DOE
Steve Donovan, Stoller
Lauren Goodknight, Stoller
David Miller, Stoller
EDD Delivery
re-grand.junction
File: SHP 410.02(A)

Constituent Sampling Breakdown

Site	Shiprock		Required Detection Limit (mg/L)	Analytical Method	Line Item Code
Analyte	Groundwater	Surface Water			
Approx. No. Samples/yr	244	56			
Field Measurements					
Alkalinity	X	X			
Dissolved Oxygen					
Redox Potential	X	X			
pH	X	X			
Specific Conductance	X	X			
Turbidity	X	X			
Temperature	X	X			
Laboratory Measurements					
Aluminum					
Ammonia as N (NH3-N)	X	X	0.1	EPA 350.1	WCH-A-005
Calcium	X	X	5	SW-846 6010	LMM-01
Chloride	X	X	0.5	SW-846 9056	MIS-A-039
Chromium					
Gross Alpha					
Gross Beta					
Iron					
Lead					
Magnesium	X	X	5	SW-846 6010	LMM-01
Manganese	X	X	0.005	SW-846 6010	LMM-01
Molybdenum					
Nickel					
Nickel-63					
Nitrate + Nitrite as N (NO3+NO2)-N	X	X	0.05	EPA 353.1	WCH-A-022
Potassium	X	X	1	SW-846 6010	LMM-01
Radium-226					
Radium-228					
Selenium	X	X	0.0001	SW-846 6020	LMM-02
Silica					
Sodium	X	X	1	SW-846 6010	LMM-01
Strontium	X	X	0.2	SW-846 6010	LMM-01
Sulfate	X	X	0.5	SW-846 9056	MIS-A-044
Sulfide					
Total Dissolved Solids					
Total Organic Carbon					
Uranium	X	X	0.0001	SW-846 6020	LMM-02
Vanadium					
Zinc					
Total No. of Analytes	12	12			

Note: All private well samples are to be unfiltered. The total number of analytes does not include field parameters.

**Sampling Frequencies for Locations at
Shiprock, New Mexico**

Location ID	Quarterly	Semiannually	Annually	Biennially	Not Sampled	Notes
Monitoring Wells						
SHP01						
608		X				Low flow
610		X				
611		X				
612		X				
614		X				Low flow
615		X				Low flow
617					X	Data logger only
618		X				Low flow
619		X				Low flow
622		X				
623		X				
625		X				
626		X				
628		X				
630		X				
734		X				Low flow
735		X				Low flow
736		X				Low flow; data logger
766		X				
768		X				
773		X				
775		X				
779		X				
782R		X				
783R		X				
792		X				
793		X				
797		X				Low flow
798		X				
850		X				Low flow
853		X				
854		X				Data logger
855		X				
856		X				
857		X				Data logger
862					X	WLs only
863					X	WLs only
1000					X	WLs only
1001					X	WLs only
1008		X				Data logger
1009		X				
1062					X	WLs only
1089		X				U, SO4, N as NO3 only at vault
1104		X				U, SO4, N as NO3 only at vault
1105		X				
1109		X				Trench 2; U, SO4, N as NO3 only at vault
1110		X				Trench 1; U, SO4, N as NO3 only at vault
1111		X				Well point; U, SO4, N as NO3 only. Purge 1 casing vol then sample

**Sampling Frequencies for Locations at
Shiprock, New Mexico**

Location ID	Quarterly	Semiannually	Annually	Biennially	Not Sampled	Notes
SHP01						
1112		X				Well point; U, SO4, N as NO3 only. Purge 1 casing vol then sample
1113		X				Well point; U, SO4, N as NO3 only. Purge 1 casing vol then sample
1114		X				Well point; U, SO4, N as NO3 only. Purge 1 casing vol then sample
1115		X				Well point; U, SO4, N as NO3 only. Purge 1 casing vol then sample
1117		X				Well point; U, SO4, N as NO3 only. Purge 1 casing vol then sample
1128		X				
1132		X				
1134		X				
1135		X				
1136		X				
1137		X				
1138		X				
1139		X				
1140		X				
1141		X				
1142		X				
1143		X				
SHP02						
600		X				
602		X				Data logger
603		X				
604		X				Data logger
648				Odd year		Measure flow rate semiannually; sample biennially; next in March 2013
725		X				Data logger
726		X				
727		X				
728		X				Data logger
730		X				Data logger
731		X				Data logger
800					X	WLs only
801					X	WLs only
802					X	WLs only
803					X	WLs only
812		X				
813		X				Data logger
814		X				
815		X				
816		X				
817		X				Low flow
818		X				Ext. well; U, SO4, N as NO3 only at vault
819		X				Data logger
820		X				
821		X				
822		X				
823		X				

**Sampling Frequencies for Locations at
Shiprock, New Mexico**

Location ID	Quarterly	Semiannually	Annually	Biennially	Not Sampled	Notes
SHP02						
824		X				
825		X				
826		X				Data logger
827		X				Data logger
828		X				Data logger
829		X				
830		X				Data logger
832		X				Low flow
833		X				
835		X				Low flow; data logger
836		X				Low flow; data logger
837		X				Data logger
838		X				Low flow
841		X				Low flow; data logger
843		X				Data logger
844		X				
846		X				Low flow; data logger
848		X				Data logger
1002		X				
1003		X				
1004		X				
1007		X				
1011		X				
1048		X				
1049		X				
1057		X				
1058		X				
1059		X				
1060		X				Low flow; data logger
1067					X	WL only; Bob Lee Wash
1068		X				Bob Lee Wash
1069		X				Bob Lee Wash; data logger
1070		X				Ext. well; U, SO4, N as NO3 only at vault
1071		X				Ext. well; U, SO4, N as NO3 only at vault
1073		X				Data logger
1074		X				
1078		X				Ext. well; U, SO4, N as NO3 only at vault
1079		X				Low flow
1087		X				SUMP-Bob Lee Wash
1088		X				SUMP-Many Devils Wash
1091		X				Ext. well; U, SO4, N as NO3 only at vault
1092		X				Ext. well; U, SO4, N as NO3 only at vault
1093R		X				Ext. well; U, SO4, N as NO3 only at vault
1095		X				Ext. well; U, SO4, N as NO3 only at vault
1096		X				Ext. well; U, SO4, N as NO3 only at vault
1120		X				
1122		X				
MW1		X				
DM7		X				

**Sampling Frequencies for Locations at
Shiprock, New Mexico**

Location ID	Quarterly	Semiannually	Annually	Biennially	Not Sampled	Notes
Surface Locations						
SHP01						
501		X				East of disposal cell
655		X				Drainage channel
887		X				Distributary channel
897		X				Just below mouth of Many Devils Wash
898		X				San Juan River upgradient
899		X				
937		X				
938		X				
939		X				
940		X				Just NE of 1004, San Juan River
956		X				San Juan River at intake
959		X				Distributary channel just below 1st wash
965		X				San Juan River about 1500' below dist. Channel
1118		X				Seep sump (423/426) U, SO4, N as NO3 only at vault
1203		X				East of disposal cell
1205		X				San Juan River E of well 853
SHP02						
662		X				Lower Bob Lee Wash
786		X				Seep below US Hwy 491 bridge; FLOW RATE
884		X				Irrigation return flow
885		X				Upper Bob Lee Wash; water level
889		X				Many Devils Wash
933		X				1st wash W of Highway 491
934		X				2nd wash W of Highway 491
936		X				Seep between 1st & 2nd washes
942		X				Pond NW of 847
949		X				
958		X				Helium lateral canal where water comes into canal at pump station
1215		X				
1218		X				
1219		X				
1220		X				
1221		X				

Sampling conducted in March and September

NOTE: All San Juan River locations will have both filtered and unfiltered samples collected

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Attachment 4
Trip Report

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Memorandum

DATE: October 12, 2011

TO: David Miller

FROM: Jeff Walters

SUBJECT: Trip Report

Site: Shiprock, NM- Floodplain (SHP01) and Terrace (SHP02)

Dates of Sampling Event: September 12-16, 2011

Team Members: Gretchen Baer, Heidi Frasure, David Miller, Kent Moe, Jeff Price, and Jeff Walters

Number of Locations Sampled: Samples were collected from 127 of the 161 locations identified on the sampling notification letter as follows:

	Locations Sampled	Locations Planned
SHP01 monitoring wells	59	59
SHP01 surface locations	10	16
SHP02 monitoring wells	52	70
SHP02 Surface locations	6	16

Locations Not Sampled/Reason: 34 locations were not sampled.

- SHP01 surface locations: 6 were dry (0655, 0887, 0937, 0938, 0939, and 0959)
- SHP02 monitoring wells: 18 wells not sampled. 14 were dry (0821, 0823, 0829, 0832, 0846, 1002, 1003, 1004, 1011, 1060, 1069, 1120, 1122, and DM7); 1 needs a small diameter pump (0822); 1 was damaged (0841); 1 well is missing (1048); and 1 well has a broken pump (1057)
- SHP02 surface locations: 10 were dry (0786, 0884, 0885, 0933, 0934, 0936, 0942, 0949, 0958, and 1218)

Location Specific Information:

Location ID's	Site	Comments
0501, 0897, 0898, 0899, 0940, 0956, 0965, 1203, 1205	SHP01	Filtered and unfiltered samples collected at all river locations.
0734	SHP01	Limited volume; metals only collected
0850, 1118	SHP01	Filtered Samples
0604, 0730, 0814, 0817, 0889, 1049, 1068, 1070, 1088, 1091, 1092, 1221, Duplicates 2812, 2813	SHP02	Filtered samples
0812	SHP02	Limited volume on all analytes
0814, 1068	SHP02	Limited volume; NO ₃ NO ₂ -N, NH ₃ -N and metals only collected

Quality Control Sample Cross Reference: The following are the false identifications assigned to the quality control samples:

Site	False ID	True ID	Ticket Number	Sample Type	Associated Matrix
SHP01	2210	1113	JKV 306	Duplicate	Groundwater
SHP01	2211	0779	JKV 380	Duplicate	Groundwater
SHP01	2212	1008	JKV 240	Duplicate	Groundwater
SHP01	2215	Associated with surface water samples: • SHP01-0501, 0897, 0898, 0899, 0956, 1089, 1104, 1109, 1110, 1118, 1203, 1205 • SHP02- 0786, 0889, 1088, 1215, 1221	JKV 305	Equipment Blank	Surface Water
SHP02	2810	1095	JKV 367	Duplicate	Groundwater
SHP02	2811	1215	JKV 368	Duplicate	Surface Water
SHP02	2812	0817	JKV 373	Duplicate	Groundwater
SHP02	2813	0889	JKV 403	Duplicate	Surface Water

RIN Number Assigned: All samples were assigned to RIN's 11094067 (SHP01) and 11094068 (SHP02). Field data sheets can be found in Condor\sms\11094067 and Condor\sms\11094068 in the FieldData folders.

Sample Shipment: Samples were shipped overnight via FedEx from Grand Junction to ALS Laboratory Group in Ft Collins, CO on September 19, 2011.

Water Level Measurements: Water levels collected in all sampled wells are in the Field Data Collection System (FDCS) Water Sampling Logs. Water levels in the 11 wells not sampled were collected using the PDAs. A water level data report for these 11 wells (SHP01_9162011.pdf) can be found in Condor\sms\FDCS\WATER LEVELS.

Well Inspection Summary: Inspections were performed at all wells accessed for sampling or water levels. All wells were in good condition unless otherwise noted in the FDCS Water Sampling Logs or PDA inspection reports. Monitoring well 0841 is damaged; monitoring well 1048 is missing; and monitoring well 1057 has a broken pump.

Field Variance:

Location ID's	Site	Comments
0662	SHP02	Turbidity 11.0 NTU's but not filtered per site lead *
0812, 0820, 1007	SHP02	No water level collected.
0850	SHP01	Category I well. Filtered due to turbidity > 10 NTU.

*As per site lead request, any non river surface water location with high turbidity will NOT be filtered. A Program Directive will be created for this requirement.

Equipment: Monitoring wells on the flood plain were sampled using a peristaltic pump and dedicated tubing. Extraction wells on the flood plain and terrace were sampled by spigot and/or a peristaltic pump and tubing reel with weight, from the extraction sump. Monitoring wells on the terrace were sampled with a peristaltic pump and dedicated tubing or a dedicated bladder pump.

David Miller
October 12, 2011
Page 3

Surface water locations were sampled with a peristaltic pump and tubing reel with stainless steel weight or container immersion. Multi-gas meters were used to verify air quality in the extraction well vaults prior to entry.

Institutional Controls:

Fences, Gates, Locks: All appeared in nominal working condition.

Trespassing/Site Disturbances: Some signs on the flood plain have been shot.

Site Issues:

Disposal Cell/Drainage Structure Integrity: None observed.

Vegetation/Noxious Weed Concerns: Some wells and surface water locations on the flood plain are overgrown and difficult to access.

Maintenance Requirements:

- Monitoring well 0822 needs a small diameter pump.
- Monitoring well 0841 is damaged. It appears to have been knocked over. Needs assessment and repair.
- Monitoring well 1048 is missing.
- Extraction well 1057 has a broken pump. Needs assessment, replacement, or repair.
- Monitoring wells 0835 and 0837 may need to have bladder pumps installed.

Access Issues: Some wells on the floodplain are only accessible by ATV due to sandy or muddy conditions.

Safety Issues: None.

Corrective Action Taken: Maintenance is scheduled for the week of October 3, 2011. Planned maintenance items:

- Install bladder pumps in 0822, 0835, and 0837.
- Repair well 0841.

(JW/lcg)

cc: (electronic)
April Gil, DOE
David Miller, Stoller
Steve Doniván, Stoller
EDD Delivery

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Data Validation Package for the Shiprock, New Mexico, Disposal Site, September 2011

The U.S. Department of Energy (DOE) has prepared a Data Validation Package containing the groundwater and surface water monitoring data generated from the September 2011 semi-annual sampling event at the Shiprock, New Mexico, Disposal Site. This package includes worksheets and reports that document the sampling activities and validation procedures conducted. **At your request, you are receiving a hard copy of the report.**

The report is also available for your review on the Internet at the DOE Office of Legacy Management (LM) website – www.lm.doe.gov. From the LM website home page, select the United States map icon titled Legacy Management Sites. Then select the Shiprock Site from the drop-down list. The report will be available on the Shiprock Disposal Site page of the LM website under Site Documents and Links.



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