Legend

RED TEXT

Desert Botanical Gardens data questions, please contact Ron Tiller or Andrew Salywon

Assumed value
Unknown
no sample

Data Jennifer McIntosh has questions about (e.g. correct units?)

Table 1: Sample locations		
sample_name	data_source	source_type
Shinskey	UA/ McIntosh (unpublished)	well
Bunting	UA/ McIntosh (unpublished)	well
Bower	UA/ McIntosh (unpublished)	well
Empire Ranch	UA/ McIntosh (unpublished)	well
Kramp	UA/ McIntosh (unpublished)	well
Harris	UA/ McIntosh (unpublished)	well
Rogers/ Rasch	UA/ McIntosh (unpublished)	well
Tenpenny	UA/ McIntosh (unpublished)	well
Pennington	UA/ McIntosh (unpublished)	well
Clark	UA/ McIntosh (unpublished)	well
Suhay	UA/ McIntosh (unpublished)	well
Mennenoh	UA/ McIntosh (unpublished)	well
Buschard 1	UA/ McIntosh (unpublished)	well
Buschard 2	UA/ McIntosh (unpublished)	well
Mack	UA/ McIntosh (unpublished)	well
Hanna	UA/ McIntosh (unpublished)	well
Morris	UA/ McIntosh (unpublished)	well
Lekawa/Runyan	UA/ McIntosh (unpublished)	well
Davidson 1 (spring)	Pima Co. RFCD/ PAG	spring
Davidson 1 (spring)	Pima Co. RFCD/ PAG	spring
Davidson 1 (spring)	Pima Co. RFCD/ PAG	spring
Davidson 1 (spring)	Pima Co. RFCD/ PAG	spring
Davidson 3 (spring)	Pima Co. RFCD/ PAG	spring
Davidson 3 (spring)	Pima Co. RFCD/ PAG	spring
Davidson 3 (spring)	Pima Co. RFCD/ PAG	spring
Davidson 3 (spring)	Pima Co. RFCD/ PAG	spring
Davidson 3 (spring)	Pima Co. RFCD/ PAG	spring
Davidson 3 (spring)	Pima Co. RFCD/ PAG	spring
Davidson 3 (spring)	Pima Co. RFCD/ PAG	spring
Davidson 3 (spring)	Pima Co. RFCD/ PAG	spring
Davidson 3 (spring)	Pima Co. RFCD/ PAG	spring
Davidson 3 (spring)	Pima Co. RFCD/ PAG	spring
JUNGLE WELL	Pima Co. RFCD/ PAG	well
JUNGLE WELL	Pima Co. RFCD/ PAG	well
JUNGLE WELL	Pima Co. RFCD/ PAG	well
JUNGLE WELL	Pima Co. RFCD/ PAG	well
DAV BAR V WELL	Pima Co. RFCD/ PAG	well

DAV BAR V WELL	Pima Co. RFCD/ PAG	well
DAV BAR V WELL	Pima Co. RFCD/ PAG	well
DAV BAR V WELL	Pima Co. RFCD/ PAG	well
DAV BAR V WELL	Pima Co. RFCD/ PAG	well
Del Lago Well	Pima Co. RFCD/ PAG	well
NSS well	Gu et al. (2008) Groundwater	well
NSS well	Gu et al. (2008) Groundwater	well
NSS well	Gu et al. (2008) Groundwater	well
Patagonia town well	Gu et al. (2008) Groundwater	well
Patagonia town well	Gu et al. (2008) Groundwater	well
Patagonia town well	Gu et al. (2008) Groundwater	well
Patagonia town well	Gu et al. (2008) Groundwater	well
Windmill well	Gu et al. (2008) Groundwater	well
TNC well	Gu et al. (2008) Groundwater	well
TNC well	Gu et al. (2008) Groundwater	well
TNC well	Gu et al. (2008) Groundwater	well
Old TNC well	Gu et al. (2008) Groundwater	well
Old TNC well	Gu et al. (2008) Groundwater	well
Flux Canyon flowing well	Gu et al. (2008) Groundwater	well
Flux Canyon flowing well	Gu et al. (2008) Groundwater	well
WP-10	Desert Botanical Gardens (unpublished)	piezometer
WP-12	Desert Botanical Gardens (unpublished)	piezometer
WP-14	Desert Botanical Gardens (unpublished)	piezometer
WP-14	Desert Botanical Gardens (unpublished)	piezometer
WP-2	Desert Botanical Gardens (unpublished)	piezometer
WP-4	Desert Botanical Gardens (unpublished)	piezometer
WP-7	Desert Botanical Gardens (unpublished)	piezometer
WP-9	Desert Botanical Gardens (unpublished)	piezometer
Cienega Creek headwaters	Desert Botanical Gardens (unpublished)	spring
Cinco 5 - spring	Desert Botanical Gardens (unpublished)	spring
Cinco 5 - spring	Desert Botanical Gardens (unpublished)	spring
Coldwater Spring north	Desert Botanical Gardens (unpublished)	spring
Coldwater Spring south	Desert Botanical Gardens (unpublished)	spring
Empire 1 - spring	Desert Botanical Gardens (unpublished)	spring
Empire 1 - spring	Desert Botanical Gardens (unpublished)	spring
Empire 4 - spring	Desert Botanical Gardens (unpublished)	spring
Empire HQ spring	Desert Botanical Gardens (unpublished)	spring
Empire HQ spring	Desert Botanical Gardens (unpublished)	spring
Empire HQ spring	Desert Botanical Gardens (unpublished)	spring
Empire HQ Spring	Desert Botanical Gardens (unpublished)	spring
Empire HQ Spring	Desert Botanical Gardens (unpublished)	spring
Empire HQ Spring	Desert Botanical Gardens (unpublished)	spring

Empire HQ Spring	Desert Botanical Gardens (unpublished)	spring
Finley Tank	Desert Botanical Gardens (unpublished)	spring
Finley Tank S	Desert Botanical Gardens (unpublished)	spring
Mattie Canyon headwater spring	Desert Botanical Gardens (unpublished)	spring
Oak Tree cienega - spring	Desert Botanical Gardens (unpublished)	spring
Oak Tree NW - spring	Desert Botanical Gardens (unpublished)	spring
Oak Tree NW - spring	Desert Botanical Gardens (unpublished)	spring
Oak Tree S - spring	Desert Botanical Gardens (unpublished)	spring
Springwater - spring	Desert Botanical Gardens (unpublished)	spring
Springwater South	Desert Botanical Gardens (unpublished)	spring
608606 Twin Wells - N (EP-1)	Desert Botanical Gardens (unpublished)	well
608609 Tree Well (E-3)	Desert Botanical Gardens (unpublished)	well
608612 Road Well (E-7)	Desert Botanical Gardens (unpublished)	well
608614 (E-9)	Desert Botanical Gardens (unpublished)	well
608617 Twin Wells - S (E-13)	Desert Botanical Gardens (unpublished)	well
608619 GAC-1 artesian	Desert Botanical Gardens (unpublished)	well
608623 Dike Well	Desert Botanical Gardens (unpublished)	well
608623 Dike Well	Desert Botanical Gardens (unpublished)	well
608623 Dike Well	Desert Botanical Gardens (unpublished)	well
608623 Dike Well	Desert Botanical Gardens (unpublished)	well
608628 Airstrip (GAC-2)	Desert Botanical Gardens (unpublished)	well
634295 Upper Hilton Well	Desert Botanical Gardens (unpublished)	well
634300 Cottonwood Windmill	Desert Botanical Gardens (unpublished)	well
634310 Mary Kane Well	Desert Botanical Gardens (unpublished)	well
Box Well	Desert Botanical Gardens (unpublished)	well
Box Well	Desert Botanical Gardens (unpublished)	well
Box Well	Desert Botanical Gardens (unpublished)	well
McDaniel Well	Desert Botanical Gardens (unpublished)	well
McDaniel Well	Desert Botanical Gardens (unpublished)	well
Post Canyon Well	Desert Botanical Gardens (unpublished)	well

date	latitude	longitude	elevation (ft)	well_depth (ft)	depth_to_water (ft)	screened_interval (ft)	
04/05/14	31.88057	-110.65711	4262	400	260	340-400	
04/05/14	31.76204	-110.70757	4987				
04/05/14	31.76826	-110.70389	5013				
04/05/14	31.78544	-110.64319	4606				
04/05/14	31.87628	-110.65826	4350				
06/27/14	31.87502	-110.66261	4300	324	275	284-324	
06/27/14	31.87921	-110.65299	4414	700	520	640-690	
06/27/14	31.88423	-110.65113	4344	330	285		
06/27/14	31.88496	-110.65636	4227	220	190		
06/27/14	31.882	-110.65453	4313				
06/27/14	31.89813	-110.66891	4127	500	345	384-484	
06/27/14	31.89969	-110.67043	4130				
06/28/14	31.88158	-110.66951	4305	500	270		
06/28/14	31.88628	-110.66953	4102				
06/28/14	31.87978	-110.66955	4241	400	150	360-400	
06/28/14	31.87631	-110.66702	4246	575	290		
06/28/14	31.88181	-110.65575	4304	460	211	200-280	
06/28/14	31.895	-110.66114	4123	706	214		
06/04/02	32.98490	-110.64781	3519				
08/02/02	32.98490	-110.64781	3519				
05/08/03	32.98490	-110.64781	3519				
09/30/14	32.98490	-110.64781	3519				
6/4/2002	32.98490	-110.64781	3519				
8/2/2002	32.98490	-110.64781	3519				
5/8/2003	32.98490	-110.64781	3519				
9/3/2008	32.98490	-110.64781	3519				
9/22/2009	32.98490	-110.64781	3519				
9/21/2010	32.98490	-110.64781	3519				
9/7/2011	32.98490	-110.64781	3519				
2/24/2012*	32.98490	-110.64781	3519				
9/10/2012	32.98490	-110.64781	3519				
11/20/2012	32.98490	-110.64781	3519				
9/30/2014	32.98490	-110.64781	3519				
05/20/14	31.99592	-110.57783	3544				
10/07/14	31.99592	-110.57783	3544				
02/18/15	31.99592	-110.57783	3544				
06/24/15	31.99592	-110.57783	3544				
05/27/14	31.98435	-110.65027	3652				

09/15/14	31.98435	-110.65027	3652				
02/20/15	31.98435	-110.65027	3652				
02/18/15	32.98435	-110.65027	3652				
06/24/15	32.98435	-110.65027	3652				
06/25/99	32.03399	-110.675927	3241				
06/23/99							
04/05/01							
11/14/03							
07/16/99							
03/29/01							
11/06/02							
12/05/03							
09/24/99							
10/08/98							
03/29/01							
12/05/03							
10/06/98							
01/14/99							
09/18/98							
09/24/99							
07/20/13	31.758	-110.588					
07/20/13	31.780	-110.590					
06/08/14	31.809	-110.591					
08/15/15	31.809	-110.591					
06/08/14	31.826	-110.587					
06/08/14	31.839	-110.584					
07/20/13	31.761	-110.615					
07/20/13	31.788	-110.638					
05/25/15	31.780	-110.590					
05/25/15	31.789	-110.584					
08/16/15	31.789	-110.584					
02/01/14	31.851	-110.578					
02/01/14	31.850	-110.579					
05/25/15	31.802	-110.590					
08/15/15	31.802	-110.590					
05/25/15	31.800	-110.589					
07/20/13	31.788	-110.639					
10/13/13	31.788	-110.639					
02/02/14	31.788	-110.639					
04/19/14	31.788	-110.639					
12/20/14	31.788	-110.639					
03/29/15	31.788	-110.639					

05/25/15	31.788	-110.639					
07/09/15	31.606	-110.493					
07/09/15	31.606	-110.494					
10/13/13	31.847	-110.578					
12/20/14	31.809	-110.592					
09/07/14	31.809	-110.592					
03/29/15	31.809	-110.592					
03/29/15	31.809	-110.591					
05/25/15	31.805	-110.586					
08/16/15	31.801	-110.586					
07/21/13	31.798	-110.601					
06/08/14	31.769	-110.629					
07/21/13	31.802	-110.611					
07/21/13	31.801	-110.597					
07/20/13	31.797	-110.600					
06/08/14	31.813	-110.592					
02/01/14	31.825	-110.585					
09/07/14	31.825	-110.585					
12/20/14	31.825	-110.585					
03/29/15	31.825	-110.585					
05/25/15	31.791	-110.630					
07/20/13	31.709	-110.590					
07/20/13	31.761	-110.619					
07/20/13	31.737	-110.674					
07/21/13	31.804	-110.589					
06/08/14	31.804	-110.589					
08/15/15	31.804	-110.589					
06/20/15	31.577	-110.499					
08/15/15	31.577	-110.499					
06/21/15	31.589	-110.506					

Table 2: Field Parameters						Table 3: Isotopes	
Temp (°C)	pH	Conductivity (µs/cm)	Alkalinity (mg/L)	TDS (mg/L)		**δ18O ‰**	**δD ‰**
19.7	7.2	546	256			-7.7	-54
21.5	7.3	356	209			-8.7	-62
19.9	7.4	365	217			-8.4	-61
18.6	7.8	472	190			-9.4	-66
18.4	7.3	636	305			-8.0	-58
23.1	7.0	684	307			-7.9	-57
29.0	7.5	627	240			-8.1	-57
33.0	7.2	488	191			-8.3	-59
23.7	6.9	598	294			-8.0	-57
22.9	7.1	621	221			-8.3	-58
33.2	8.1	1062	468			-8.9	-67
31.6	7.7	1111	565			-6.4	-52
23.8	7.3	1011	309			-8.5	-66
24.4	7.4	812	395			-8.2	-60
24.2	7.1	966	299			-8.3	-64
23.2	7.0	681	365			-7.7	-58
24.6	7.0	560	259			-8.1	-58
30.1	7.8	1368	501			-8.3	-62
						-7.2	-51
						-7.2	-51
						-6.9	-49
						-8.5	-60
20.4	7.9	727					
28.0	7.9	723					
17.8	7.4	778					
30.6	7.9	610		415			
23.2	8.0	886		612			
23.7	7.3	704		472			
27.0	7.3	975		663			
15.9	7.6	720		491			
23.9	7.6	574		367			
20.4	7.4	693		450			
						-8.5	-60
				50		-8.3	-60
			250	50		-8.4	-58
			270			-8.3	-60
						-8.1	-58
15.9	7.5	903		622		-8.8	-68

		No Sample	320	No Sample		-8.3	-64
23.3	7.8	710	290	475			
						-8.0	-61
						-7.7	-61
						-8.1	-56
	7.0					-8.8	-59
	7.1					-9.1	-63
	7.1		205			-8.2	-59
	6.8					-9.0	-64
	7.1					-8.6	-61
	7.1		185			-8.2	-59
	7.4					-8.2	-58
	7.0					-8.3	-61
	7.2		225			-8.8	-63
	7.2					-8.8	-62
	7.7					-8.4	-60
	4.5					-8.3	-60
	4.6					-8.3	-58
	7.7		78			-10.5	-73
	6.9					-9.2	-72
						-9.6	-55
						-11.9	-65
						-7.5	-61
						-9.3	-66
						-7.6	-59
						-7.1	-53
						-10.1	-60
						-11.0	-56
						-7.9	-56
						-5.0	-43
						-6.7	-52
						-11.3	-61
						-9.2	-55
						-9.8	-63
						-1.7	-29
						-7.7	-54
						-10.3	-61
						-9.6	-55
						-9.4	-55
						-7.1	-58
						-8.0	-59
						-8.4	-59

						-8.5	-58
						-6.5	-49
						-6.4	-49
						-9.4	-57
						-8.0	-59
						1.3	-7
						9.6	15
						-8.8	-58
						-6.5	-46
						-5.3	-48
						-11.5	-73
						-6.8	-58
						-11.1	-70
						-12.4	-81
						-12.3	-75
						-9.8	-79
						-11.2	-59
						-7.1	-56
						-7.6	-58
						-9.8	-60
						-11.0	-76
						-7.8	-46
						-10.2	-58
						-10.1	-60
						-10.3	-54
						-6.3	-55
						-8.6	-59
						-6.1	-50
						-6.3	-53
						-8.8	-73

δ13C ‰	δ34S ‰	δ18O ‰ Sulfate	Tritum TU	C 14 (DIC) - should this be d13C?	
-2.8	0.5		<1.0 (Apparent .5)		
-4.4	5.2		<.9 (Apparent .4)		
-6.3	5.8		0.8		
-7.0	-0.9		<0.7		
-5.7	4.5		<.9 (Apparent .3)		
-10.2	2.0	7.0			
-6.6	2.6	2.3			
-6.2	0.4	3.8			
-10.2	1.4	6.9			
-8.6	2.0	4.5			
-8.3	15.0	8.9	<.8 (Apparent .3)		
-11.5	1.8	6.7	2.2		
-8.5	2.2	9.2	<1.1 (Apparent .5)		
-12.1	-0.0	5.6	1.7		
-8.5	0.6	6.0			
-10.1	0.9	6.1	1.3		
-7.5	2.2	5.1			
-4.0	16.1	7.4			
	13		1.2	-10.2	

	9.2		0.5	-6.6	
	11.7	10.5	2.3		
	13.3	12.2	4.6		
	13.8	13.7	1.3		
	10.8	10.8	2.2		
	-0.4	5.6	2.6		
	6.9	9.8	3.5		
	12.6	12.8	1.3		
	-6.8	2.6			
			2		
	10.3	10.7	1.8		
	11.5	12.8	1.4		
			<1		
			<1		
	1.7	3.4			

Table 4: Water Chemistry						
Na^+ (mg/L)	Ca^{2+} (mg/L)	Mg^{2+} (mg/L)	Fe (mg/L)	K^+ (mg/L)	Sr^{2+} (mg/L)	Si (mg/L)
X	X	X	X	X	X	X
X	X	X	X	X	X	X
X	X	X	X	X	X	X
X	X	X	X	X	X	X
X	X	X	X	X	X	X
X	X	X	X	X	X	X
X	X	X	X	X	X	X
X	X	X	X	X	X	X
X	X	X	X	X	X	X
X	X	X	X	X	X	X
X	X	X	X	X	X	X
X	X	X	X	X	X	X
X	X	X	X	X	X	X
X	X	X	X	X	X	X
X	X	X	X	X	X	X
X	X	X	X	X	X	X
X	X	X	X	X	X	X
X	X	X	X	X	X	X
48	81	21		< 5.0		
50	87	20		< 5.0		
44	99	25		< 5.0		
28	86	14		5.4		
44	120	26		3.2		
39	90	17		3.2		
No Sample	No Sample	No Sample		No Sample		
33	86	20		2.4		
25	98	18		2.1		
25	100	18		2.2		
20	87	15		2.6		
39	150	35		3.4		
40	150	34		3.6		
40	160	38		3.7		

110	59	37	9			
91	30	31	5.5			
93	37	36		7.6		
11	176					
12	138					
14	154					
13	141					
18	144					
18	148					
27	188					
16	141					
15	155					
43	67					
58	69					
144	102					
	116					

Al (mg/L)	Trace metals	Cl (mg/L)	SO4 (mg/L)	NO3 (mg/L)	F (mg/L)	Br (mg/L)	NO2 (mg/L)	Anions (meq/L)	Cations (meq/L)
X	X	9.3	74.2	0.2	2.2	0.2	0.0		
X	X	9.0	7.1	4.2	0.4	ND	0.4		
X	X	7.0	6.9	3.2	0.5	0.1	0.4		
X	X	6.4	79.5	3.4	0.6	0.1	0.0		
X	X	8.8	84.9	6.4	1.7	0.1	0.0		
X	X	8.9	77.8	4.9	0.8	0.1	0.0		
X	X	37.1	91.4	N/A	2.1	0.2			
X	X	14.5	66.8	5.6	1.2	0.2	0.0		
X	X	8.7	20.6	N/A	0.8	0.2	0.0		
X	X	13.1	88.5	6.6	1.2	0.2	0.0		
X	X	35.9	91.3	0.6	1.8	0.3	0.0		
X	X	36.3	52.5	0.6	1.1	0.3			
X	X	23.0	168.1	0.3	4.0	0.3	0.0		
X	X	10.8	69.9	0.3	1.3	0.2	0.0		
X	X	20.4	163.1	0.4	3.7	0.3			
X	X	8.1	24.8	4.2	1.8	0.2	0.0		
X	X	10.5	69.7	7.7	2.4	0.2	0.0		
X	X	76.7	165.1	1.0	6.8	0.4	0.0		
< 2.0		17	79						
< 2.0		15	91						
< 2.0		15	84						
< 0.20		6.5	42						
< 0.20		13	120						
< 0.20		7.2	59						
No Sample		No Sample	No Sample						
< 0.20		6.2	70						
< 0.20		4.4	46						
No Sample		4.5	43						
0.17		2.6	30						
		9.1	360					11.9	12.1
		8.2	330					11.5	12.1
		8.6	390						

		41	51						
		43	43						
			42						
		6	295						
			300						
		6	307					9.9	8.3
		7	216						
		8	228						
		8	252					8.5	8.2
			309						
		9	413						
		6	269					9.5	7.7
		7	222						
			256						
		10	397						
		27	404						
		7	520					12.3	11.4
		10	372						

Charge Balance
-1.2
-2.5

8.9
2.0
10.0
4.0

Table 1: Sample locations	
sample_name	data_source
Canelo Cienega	Desert Botanical Gardens (unpublished)
Cieneguita E end	Desert Botanical Gardens (unpublished)
Cieneguita E end	Desert Botanical Gardens (unpublished)
Cieneguita E exclosure	Desert Botanical Gardens (unpublished)
Cieneguita E exclosure	Desert Botanical Gardens (unpublished)
Cieneguita NW Exclosure	Desert Botanical Gardens (unpublished)
Cieneguita NW exclosure	Desert Botanical Gardens (unpublished)
Cieneguita NW Exclosure	Desert Botanical Gardens (unpublished)
Cieneguita NW exclosure	Desert Botanical Gardens (unpublished)
Cieneguita NW exclosure	Desert Botanical Gardens (unpublished)
Cieneguita SW Exclosure	Desert Botanical Gardens (unpublished)
Cieneguita SW Exclosure	Desert Botanical Gardens (unpublished)
Cieneguita SW Exclosure	Desert Botanical Gardens (unpublished)
Cieneguita SW exclosure	Desert Botanical Gardens (unpublished)
Cieneguita wildlife dig out	Desert Botanical Gardens (unpublished)
Cieneguita wildlife dig out	Desert Botanical Gardens (unpublished)
Cieneguita wildlife dig out	Desert Botanical Gardens (unpublished)
Cinco 1 - N pool	Desert Botanical Gardens (unpublished)
Cinco 1 - N pool	Desert Botanical Gardens (unpublished)
Cinco 1 - N pool	Desert Botanical Gardens (unpublished)
Cinco 1 - S pool	Desert Botanical Gardens (unpublished)
Cinco 2 exclosure	Desert Botanical Gardens (unpublished)
Cinco 2 exclosure	Desert Botanical Gardens (unpublished)
Cinco 2 exclosure	Desert Botanical Gardens (unpublished)
Cinco 5 - cienega	Desert Botanical Gardens (unpublished)
Empire 1 - cienega	Desert Botanical Gardens (unpublished)
Empire 1 - cienega	Desert Botanical Gardens (unpublished)
Empire 1 - cienega	Desert Botanical Gardens (unpublished)
Empire 1 - cienega	Desert Botanical Gardens (unpublished)
Empire 1 - cienega	Desert Botanical Gardens (unpublished)
Empire 1 - cienega	Desert Botanical Gardens (unpublished)
Empire 1 - cienega	Desert Botanical Gardens (unpublished)
Empire 1 - cienega	Desert Botanical Gardens (unpublished)
Empire 1 - cienega	Desert Botanical Gardens (unpublished)
Empire 2 - cienega	Desert Botanical Gardens (unpublished)
Empire 3 - cienega	Desert Botanical Gardens (unpublished)
Empire 4 - cienega	Desert Botanical Gardens (unpublished)
Empire 4 - cienega	Desert Botanical Gardens (unpublished)
Empire 4 - cienega	Desert Botanical Gardens (unpublished)
Empire 5 - cienega	Desert Botanical Gardens (unpublished)

Empire Cienega nr confl Cienega Cr	Desert Botanical Gardens (unpublished)
Empire Creek - 0.23 below Cieneguita confluence	Desert Botanical Gardens (unpublished)
Empire Creek - 0.27 mi below Cieneguita confluence	Desert Botanical Gardens (unpublished)
Empire Creek above Cienega Creek confluence	Desert Botanical Gardens (unpublished)
Empire Creek below Rattlesnake-Cieneguita confluence	Desert Botanical Gardens (unpublished)
Empire Creek road crossing	Desert Botanical Gardens (unpublished)
Empire Creek road crossing	Desert Botanical Gardens (unpublished)
Empire Creek road crossing	Desert Botanical Gardens (unpublished)
Empire Creek road crossing	Desert Botanical Gardens (unpublished)
Empire Creek road crossing	Desert Botanical Gardens (unpublished)
Empire Creek road crossing	Desert Botanical Gardens (unpublished)
Empire Creek road crossing	Desert Botanical Gardens (unpublished)
Empire Creek road crossing	Desert Botanical Gardens (unpublished)
Oak Tree cienega - S pool	Desert Botanical Gardens (unpublished)
Oak Tree N - cienega	Desert Botanical Gardens (unpublished)
Panama Canal E of Ag field cienega	Desert Botanical Gardens (unpublished)
Rattlesnake above Cieneguita confluence	Desert Botanical Gardens (unpublished)
Springwater - cienega	Desert Botanical Gardens (unpublished)
Springwater - cienega	Desert Botanical Gardens (unpublished)
Springwater - cienega	Desert Botanical Gardens (unpublished)
Springwater cienega - W end	Desert Botanical Gardens (unpublished)
Springwater South central	Desert Botanical Gardens (unpublished)
Stevenson cienega	Desert Botanical Gardens (unpublished)
Cienega Creek E of Cieneguita - pool	Desert Botanical Gardens (unpublished)
Cienega Creek & Empire Creek - combined flow	Desert Botanical Gardens (unpublished)
Cienega Creek above confluence Empire Creek	Desert Botanical Gardens (unpublished)
Cienega Creek above Empire Creek confluence	Desert Botanical Gardens (unpublished)
Cienega Creek above Mattie Canyon confluence	Desert Botanical Gardens (unpublished)
Cienega Creek adj Ag field cienega	Desert Botanical Gardens (unpublished)
Cienega Creek adj Empire 1 - flow	Desert Botanical Gardens (unpublished)
Cienega Creek adj Empire 1 - pool	Desert Botanical Gardens (unpublished)
Cienega Creek adj Empire 1 - pool	Desert Botanical Gardens (unpublished)
Cienega Creek adj Empire 1 - pool	Desert Botanical Gardens (unpublished)
Cienega Creek adj Empire 4	Desert Botanical Gardens (unpublished)
Cienega Creek adj WP-14	Desert Botanical Gardens (unpublished)
Cienega Creek at USGS gage	Desert Botanical Gardens (unpublished)
Cienega Creek E of Box Well	Desert Botanical Gardens (unpublished)
Cienega Creek E of Box Well	Desert Botanical Gardens (unpublished)
Empire Creek nr WP-14	Desert Botanical Gardens (unpublished)
O'Donnell Creek Canelo Hills	Desert Botanical Gardens (unpublished)
O'Donnell Creek Canelo Hills	Desert Botanical Gardens (unpublished)
CC at Narrows	Dr. Eastoe (unpublished)
Marsh Stn. Rd.	Dr. Eastoe (unpublished)

Marsh Stn. Rd.	Dr. Eastoe (unpublished)
Marsh Stn. Rd.	Dr. Eastoe (unpublished)
Marsh Stn. Rd.	Dr. Eastoe (unpublished)
Flux Canyon	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Sonoita Cr	Gu et al. (2008) Groundwater
Temporal Gulch	Gu et al. (2008) Groundwater
Temporal Gulch	Gu et al. (2008) Groundwater
Bedrock outcrop	Pima Co. RFCD/ PAG
Cienega 1	Pima Co. RFCD/ PAG
Cienega 1	Pima Co. RFCD/ PAG

Cienega 1	Pima Co. RFCD/ PAG
Cienega 1	Pima Co. RFCD/ PAG
Cienega 1	Pima Co. RFCD/ PAG
Cienega 1	Pima Co. RFCD/ PAG
Cienega 1	Pima Co. RFCD/ PAG
Cienega 1	Pima Co. RFCD/ PAG
Cienega 1	Pima Co. RFCD/ PAG
Cienega 1	Pima Co. RFCD/ PAG
Cienega 1	Pima Co. RFCD/ PAG
Cienega 1	Pima Co. RFCD/ PAG
Cienega 1	Pima Co. RFCD/ PAG
Cienega 1	Pima Co. RFCD/ PAG
Cienega 1	Pima Co. RFCD/ PAG
Cienega 1	Pima Co. RFCD/ PAG
Cienega 1	Pima Co. RFCD/ PAG
Cienega 1	Pima Co. RFCD/ PAG
Cienega 1	Pima Co. RFCD/ PAG
Cienega 1	Pima Co. RFCD/ PAG
Cienega 1	Pima Co. RFCD/ PAG
Cienega 1	Pima Co. RFCD/ PAG
Cienega 1	Pima Co. RFCD/ PAG
Cienega 2	Pima Co. RFCD/ PAG
Cienega 2	Pima Co. RFCD/ PAG
Cienega 2	Pima Co. RFCD/ PAG
Cienega 2	Pima Co. RFCD/ PAG
Cienega 2	Pima Co. RFCD/ PAG
Cienega 2	Pima Co. RFCD/ PAG
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Cienega 2	Pima Co. RFCD/ PAG
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Cienega 2	Pima Co. RFCD/ PAG
Cienega 2	Pima Co. RFCD/ PAG
Cienega 2	Pima Co. RFCD/ PAG
Cienega 2	Pima Co. RFCD/ PAG

Cienega 2	Pima Co. RFCD/ PAG
Cienega 2	Pima Co. RFCD/ PAG
Cienega 2	Pima Co. RFCD/ PAG
Cienega 3	Pima Co. RFCD/ PAG
Davidson 2	Pima Co. RFCD/ PAG
Davidson 2	Pima Co. RFCD/ PAG
Davidson 2	Pima Co. RFCD/ PAG
Davidson 2	Pima Co. RFCD/ PAG
Cienega Dam	UA/ McIntosh (unpublished)
Davidson Canyon	UA/ McIntosh (unpublished)
Davidson/ Cienega Confluence	UA/ McIntosh (unpublished)
Maddie Canyon	UA/ McIntosh (unpublished)
Maddie/ Cienega Confluence	UA/ McIntosh (unpublished)
Marsh Station	UA/ McIntosh (unpublished)
Marsh Station	UA/ McIntosh (unpublished)

						Table 2: Field Parameters	
source_type	date	latitude	longitude	elevation (ft)		Temp (°C)	pH
cienega	07/08/15	31.564	-110.528				
cienega	04/14/13	31.796	-110.593				
cienega	05/25/15	31.796	-110.593				
cienega	05/25/15	31.795	-110.597				
cienega	08/16/15	31.795	-110.597				
cienega	02/02/14	31.796	-110.598				
cienega	04/19/14	31.796	-110.598				
cienega	06/08/14	31.795	-110.598				
cienega	05/25/15	31.796	-110.598				
cienega	08/16/15	31.796	-110.598				
cienega	04/19/14	31.795	-110.598				
cienega	06/08/14	31.795	-110.598				
cienega	05/25/15	31.795	-110.598				
cienega	08/16/15	31.795	-110.598				
cienega	02/02/14	31.794	-110.599				
cienega	12/20/14	31.794	-110.599				
cienega	05/25/15	31.794	-110.599				
cienega	06/09/13	31.793	-110.584				
cienega	05/25/15	31.793	-110.584				
cienega	08/16/15	31.793	-110.584				
cienega	08/16/15	31.791	-110.584				
cienega	06/09/13	31.790	-110.585				
cienega	05/25/15	31.790	-110.585				
cienega	08/16/15	31.790	-110.585				
cienega	05/25/15	31.789	-110.584				
cienega	04/14/13	31.802	-110.590				
cienega	02/01/14	31.802	-110.590				
cienega	04/19/14	31.802	-110.590				
cienega	06/08/14	31.802	-110.590				
cienega	09/07/14	31.802	-110.590				
cienega	12/20/14	31.802	-110.590				
cienega	03/29/15	31.802	-110.590				
cienega	05/25/15	31.802	-110.590				
cienega	08/15/15	31.802	-110.590				
cienega	05/25/15	31.801	-110.590				
cienega	04/14/13	31.800	-110.590				
cienega	04/14/13	31.801	-110.590				
cienega	05/25/15	31.800	-110.589				
cienega	08/15/15	31.800	-110.589				
cienega	04/14/13	31.802	-110.590				

cienega	07/21/13	31.809	-110.590				
cienega	06/08/14	31.799	-110.591				
cienega	04/19/14	31.799	-110.591				
cienega	09/07/14	31.809	-110.590				
cienega	02/02/14	31.798	-110.593				
cienega	04/14/13	31.803	-110.591				
cienega	04/19/14	31.803	-110.591				
cienega	06/08/14	31.803	-110.591				
cienega	09/07/14	31.803	-110.591				
cienega	12/20/14	31.803	-110.591				
cienega	03/29/15	31.803	-110.591				
cienega	05/25/15	31.803	-110.591				
cienega	08/15/15	31.803	-110.591				
cienega	03/29/15	31.809	-110.592				
cienega	09/07/14	31.809	-110.591				
cienega	03/29/15	31.825	-110.585				
cienega	04/19/14	31.798	-110.594				
cienega	04/19/14	31.806	-110.586				
cienega	05/25/15	31.806	-110.586				
cienega	08/16/15	31.806	-110.586				
cienega	04/14/13	31.806	-110.587				
cienega	08/16/15	31.802	-110.587				
cienega	02/01/14	31.855	-110.577				
stream	08/16/15	31.795	-110.589				
stream	03/29/15	31.809	-110.590				
stream	04/19/14	31.809	-110.590				
stream	03/29/15	31.809	-110.590				
stream	10/13/13	31.858	-110.575				
stream	03/29/15	31.825	-110.586				
stream	04/19/14	31.802	-110.589				
stream	06/08/14	31.802	-110.589				
stream	05/25/15	31.802	-110.589				
stream	08/15/15	31.802	-110.589				
stream	05/25/15	31.800	-110.589				
stream	12/20/14	31.809	-110.591				
stream	10/13/13	31.866	-110.570				
stream	12/20/14	31.804	-110.588				
stream	03/29/15	31.804	-110.588				
stream	03/29/15	31.809	-110.590				
stream	07/08/15	31.564	-110.528				
stream	08/15/15	31.564	-110.528				
stream		31.85462	-110.55379	4232			
stream		32.01983	-110.64613	6604			

stream		32.01983	-110.64613	6604			
stream		32.01983	-110.64613	6604			
stream		32.01983	-110.64613	6604			
stream	05/05/01						3.5
stream	09/18/98						7.8
stream	09/18/98						7.8
stream	09/22/98						8.4
stream	09/22/98						8.5
stream	01/14/99						6.8
stream	01/14/99						6.9
stream	01/14/99						7.5
stream	01/14/99						7.1
stream	01/14/99						7.8
stream	01/14/99						
stream	07/16/99						7.1
stream	07/16/99						7.7
stream	07/21/99						7.6
stream	07/21/99						7.8
stream	02/27/00						7.5
stream	02/27/00						7.6
stream	02/27/00						7.9
stream	02/27/00						7.9
stream	02/27/00						7.9
stream	04/22/00						7.5
stream	04/22/00						7.7
stream	04/22/00						7.7
stream	05/05/01						7.2
stream	05/05/01						7.5
stream	05/05/01						7.2
stream	11/06/02						6.8
stream	11/06/02						7.9
stream	11/06/02						7.9
stream	03/15/03						7.4
stream	03/15/03						7.6
stream	11/14/03						7.2
stream	11/14/03						7.4
stream	11/14/03						7.5
stream	11/14/03						7.5
stream	07/21/99						7.7
stream	05/05/01						6.8
stream		32.01215	-110.62240	3366			
stream	09/28/98	32.01850	-110.64200	3338			
stream	11/19/98	32.01850	-110.64200	3338			

stream	06/17/99	32.01850	-110.64200	3338			
stream	08/24/99	32.01850	-110.64200	3338			
stream	11/19/99	32.01850	-110.64200	3338			
stream	03/31/00	32.01850	-110.64200	3338			
stream	06/04/02	32.01850	-110.64200	3338			
stream	08/02/02	32.01850	-110.64200	3338			
stream	10/03/02	32.01850	-110.64200	3338			
stream	01/03/03	32.01850	-110.64200	3338		16.6	7.5
stream	05/08/03	32.01850	-110.64200	3338			
stream	03/16/10	32.01850	-110.64200	3338		17.1	7.3
stream	03/08/11	32.01850	-110.64200	3338		16.6	7.5
stream	09/07/11	32.01850	-110.64200	3338		22.6	7.5
stream	09/27/12	32.01850	-110.64200	3338		20.4	7.7
stream	02/26/13	32.01850	-110.64200	3338		15.9	7.4
stream	09/24/13	32.01850	-110.64200	3338		20.2	7.3
stream	03/11/14	32.01850	-110.64200	3338			
stream	05/20/14	32.01850	-110.64200	3338			
stream	09/30/14	32.01850	-110.64200	3338			
stream	02/18/15	32.01850	-110.64200	3338			
stream	06/15/15	32.01968	-110.64200	3338		21.17	7.7
stream	04/29/99	32.01850	-110.64200	3338			
stream	09/28/98	32.01968	-110.64517	3311			
stream	11/19/98	32.01968	-110.64517	3311			
stream	04/29/99	32.01968	-110.64517	3311			
stream	06/17/99	32.01968	-110.64517	3311			
stream	08/24/99	32.01968	-110.64517	3311			
stream	11/19/99	32.01968	-110.64517	3311			
stream	03/31/00	32.01968	-110.64517	3311			
stream	06/04/02	32.01968	-110.64517	3311			
stream	08/02/02	32.01968	-110.64517	3311			
stream	10/03/02	32.01968	-110.64517	3311			
stream	1/3/2003	32.01968	-110.64517	3311			7.6
stream	05/08/03	32.01968	-110.64517	3311			
stream	3/16/2010	32.01968	-110.64517	3311		16.5	7.7
stream	9/21/2010	32.01968	-110.64517	3311		22.4	7.4
stream	3/8/2011	32.01968	-110.64517	3311		16.9	7.7
stream	9/7/2011	32.01968	-110.64517	3311		23.5	7.4
stream	2/24/2012	32.01968	-110.64517	3311		16	7.8
stream	9/10/2012	32.01968	-110.64517	3311		24.2	7.6
stream	11/20/2012	32.01968	-110.64517	3311		17.9	7.5
stream	2/27/2013	32.01968	-110.64517	3311		15.03	7.6
stream	4/18/2013	32.01968	-110.64517	3311		18	7.7
stream	9/24/2013	32.01968	-110.64517	3311		21.1	7.3

stream	3/11/2014	32.01968	-110.64517	3311			
stream	05/20/14	32.01968	-110.64517	3311			
stream	06/15/15	32.01968	-110.64517	3311		22.61	8.0
stream		32.01286	-110.62142	3370			
stream	06/04/02	32.01599	-110.64287	3334		23.3©	7.6
stream	10/03/02	32.01599	-110.64287	3334		19.8©	7.5
stream	01/03/03	32.01599	-110.64287	3334		17.6©	7.5
stream	02/18/15	32.01599	-110.64287	3334			
stream	09/26/14	32.035917	-110.676639	3206		22.63	6.3
stream	09/30/14	31.985306	-110.647	3519		23.9	7.2
stream	09/30/14	32.018222	-110.643	3327		19.5	7.5
stream	06/12/15					21.2	7.5
stream	06/12/15					18	7.5
stream	09/26/14	32.019639	-110.645611	3318		22.01	6.4
stream	09/30/14	32.019611	-110.645611	3319		19.7	7.7

					Table 3: Isotopes			
% DO	Conductivity (µs/cm)	Alkalinity (mg/L)	TDS (mg/L)		**δ18O ‰**	**δD ‰**	**δ13C ‰**	**δ34S ‰**
					-6.4	-52		
					-1.6	-26		
					-2.4	-34		
					-8.1	-56		
					-5.9	-49		
					-9.8	-52		
					-1.2	-36		
					0.7	-26		
					-2.9	-36		
					-5.5	-46		
					-5.4	-52		
					-8.7	-71		
					-4.0	-41		
					-1.2	-29		
					-9.0	-55		
					-8.0	-59		
					-6.7	-54		
					-1.7	-23		
					-1.5	-28		
					1.2	-19		
					-6.0	-50		
					-8.9	-51		
					-6.9	-51		
					3.0	-5		
					8.6	14		
					-4.7	-40		
					-10.4	-57		
					-6.4	-57		
					-6.1	-54		
					-7.9	-59		
					-8.0	-58		
					-6.7	-55		
					-5.2	-44		
					-5.8	-45		
					8.3	11		
					1.9	-13		
					-6.9	-44		
					-3.2	-39		
					-6.0	-45		
					-5.4	-43		

					-5.8	-41		
					1.0	-27		
					-5.8	-51		
					-8.1	-61		
					-8.2	-55		
					-7.5	-49		
					-6.2	-52		
					-3.5	-45		
					-4.3	-33		
					-8.0	-60		
					-7.0	-54		
					-7.0	-55		
					-5.8	-49		
					-9.2	-60		
					-2.0	-18		
					-6.7	-53		
					-6.2	-52		
					-5.3	-50		
					-6.3	-48		
					-5.8	-50		
					-3.5	-27		
					2.4	-12		
					-8.2	-52		
					-5.1	-42		
					-7.9	-55		
					-4.2	-48		
					-7.5	-55		
					-10.3	-61		
					-7.6	-60		
					-5.9	-55		
					-4.4	-47		
					-7.2	-52		
					-5.4	-36		
					-6.8	-53		
					-7.5	-57		
					-9.9	-59		
					-7.6	-57		
					-7.6	-56		
					-7.8	-56		
					-7.8	-52		
					-7.1	-57		
					-7.7	-56	-9.1	

					-9.1	-61		
					-8.1	-57	-9.9	
					-8.0	-57		
					-8.8	-62		-2.7
		238			-9.0	-63		
		237			-8.8	-64		
		205			-8.6	-61		
		192			-8.4	-61		
					-9.0	-62		
		216			-9.2	-64		
		210			-9.1	-64		
					-8.9	-63		
		180			-8.9	-64		
					-8.8	-62		
					-12.0	-86		6.4
					-9.6	-69		7.3
					-10.0	-72		6.4
					-10.2	-72		5.9
					-8.9	-63		9.4
					-9.1	-63		9.8
					-8.9	-63		9.1
					-8.9	-63		8.4
					-8.8	-62		8
					-8.8	-62		9.7
					-8.9	-63		10.5
					-8.9	-62		8.3
					-8.7	-61		7.1
					-8.7	-61		7.1
					-8.6	-61		5.4
		222			-8.8	-62		12
		236			-8.5	-60		7.1
		259			-8.4	-60		6.7
								7.4
								7.1
					-8.3	-59		8.5
					-8.4	-59		9.2
					-8.5	-59		8.4
					-8.3	-59		7.1
					-11.1	-81		-1.6
					-8.8	-61		-1.2
					-7.8	-55		
					-7.9	-56		

					-7.6	-55		
					-8.5	-62		
					-7.8	-58		
					-7.8	-57		
					-8.0	-57		
					-7.9	-58		
					-7.7	-55		
	1234		760		-7.6	-54		
					-7.8	-56		
	1380	300	973					
	1320	300	928					
	1290	300	899					
	1302	310	911					
	1239	300	879					
	1223	310	863					
		320						
					-8.0	-58		
		310			-9.0	-64		
		310			-8.7	-62		
	1375		962		-8.4	-61		10.3
					-7.9	-55		
					-7.9	-56		
					-7.8	-55		
					-7.5	-53		
					-7.8	-54		
					-8.4	-61		
					-7.9	-60		
					-7.9	-57		
					-7.8	-56		
					-7.6	-54		
					-7.5	-53		
					-7.6	-55		
	1341	290	945					
	1217	280	839					
	1253	300	879					
	1153	280	798					
	1143	310	798					
58	1110	300	1710					
69	1010	300	656					
96	977	310	635					
58	1181	310	756					
	1157	310	814					

		310						
					-8.1	-58		
	1394	300	949		-8.3	-61		11.1
	794				-6.8	-48		
	793				-6.8	-48		
	791				-6.7	-46		
		310			-8.5	-60		
58	1063				-8.7	-62		
38	629				-9.9	-72		
67	1246				-8.4	-60		
88	433							
64	486							
49	1082				-9.0	-64		
66	1144				-8.9	-64		

				Table 4: Water Chemistry
δ18O ‰ Sulfate	**Tritum TU**	**C 14 (DIC) - should this be d13C?**		Na^{+} (mg/L)

	2.9			
	4.0			

	3.3			
-0.1				
	2.0			21
	2.5			19
	1.6			24
	2.8			22
	2.0			29
				17
				15
				8
				16
8.8	2.2			18
9	2.0			23
				17
				19
10				
11.4				
10.8				
9.6				
10.4				
8.4				
9.2				
8				
12.5	5.2			13
9.7	3.2			16
9	4.3			19
11.3	2.8			
11.1				
	2.3			
	2.4			
2.7				14
3.9				

				72
				76
				63
				70
				69
				64
				62
				66
				64
				60
	1.5	**-11.5**		65
				69
				74
				69
				63
				63
				55
				65
				54
				67
				66
				59

				65
	1.9	-11		66
				45
				43
				49
				34

Ca^{2+} (mg/L)	Mg^{2+} (mg/L)	Fe (mg/L)	K^{+} (mg/L)	Sr^{2+} (mg/L)	Si (mg/L)	Al (mg/L)	Trace Metals	Cl (mg/L)

146								10
145								7
133								7
130								7
194								28
147								13
138								9
97								5
128								9
141								10
174								10
131								9
122								9
132								8
149								8
151								8
80								7

150	43		6.1			<2.0		12
	52	0.075	4.6			< 0.20		11
160	44	< 0.05	4.4			< 0.20		9.8
160	42	< 0.05	5.6			< 0.20		10
170	46	< 0.10	4.7			< 0.20		10
170	46	< 0.10	4.4			< 0.20		10
160	42	0.14	5.6			< 0.20		9.4
170	47	< 0.10	4.4			< 0.20		11
150	43	< 0.1	4.3			< 0.1		9
170	46	0.12	4.4			< 0.1		9.8
200	51		4.7					13
140	40		5.7			< 2.0		12
	50	< 0.05	4.6			< 0.20		11
150	41	< 0.05	4.9			< 0.20		10
150	42	< 0.05	4.2			< 0.20		10
150	37	< 0.05	5.0			< 0.20		8.8
140	36	< 0.05	3.8			< 0.20		9.1
170	43		5.1					11
130	33		4.0					7.7
170	44	< 0.10	4.7			< 0.20		9.6
160	43		4.4					10
150	38	0.38	5.2			0.38		9.1

170	45	< 0.10	4.4			< 0.20		11
180	51		5					13
93	23		< 5.0			< 2.0		19
98	23		< 5.0			< 2.0		15
96	24		< 5.0			< 2.0		15
85	20		3.5			< 0.1		4.7

SO4 (mg/L)	NO3 (mg/L)	F (mg/L)	Br (mg/L)	NO2 (mg/L)	Anions (meq/L)	Cations (meq/L)	Balance

772							
299					10.4	8.2	11.9
294					10.2	8.1	11.7
283					9.5	7.7	10.3
284					9.3	7.4	10.9
421							
295					10.0	8.1	10.9
284					9.6	7.5	12.1
216							
291					9.3	7.1	13.3
176							
256							
198							
209							
233							
206							
245							
254							
265							
244							
217							
262							
250							
255							
284							
196					7.9	7.2	5.3
236					9.0	8.1	5.1
255					9.8	8.4	7.8
246							
251							
274							
278							
266							
270							
117							
142							

400		0.81					
510	< 0.40	0.57					
450	< 0.40	0.62			14.6	14.5	0.4
460	< 4.2	0.52			14.8	14.6	0.5
420	0.43	0.69			14.1	15.4	-4.3
430	< 0.40	0.48			14.2	15.2	-3.5
390	< 0.40	0.57			13.5	14.3	-2.9
430	< 0.40	0.53			14.5	15.3	-2.8
390	0.8	0.6			13.5	13.9	-1.7
430	0.14	0.63			14.3	15.0	-2.3
500		0.86					
360							
480							
400					13.2	14.0	-2.9
400					13.5	13.8	-1.0
380					12.8	13.4	-2.5
370					13.0	12.4	2.4
400					13.6	15.0	-5.0
270					10.8	11.7	-4.0
370					13.1	15.1	-7.4
400					13.7	14.5	-2.9
360					12.8	13.3	-1.8

420					14.1	15.1	-3.4
480					15.3	16.2	-2.9
100							
92							
90							
57					6.4	7.5	-7.6