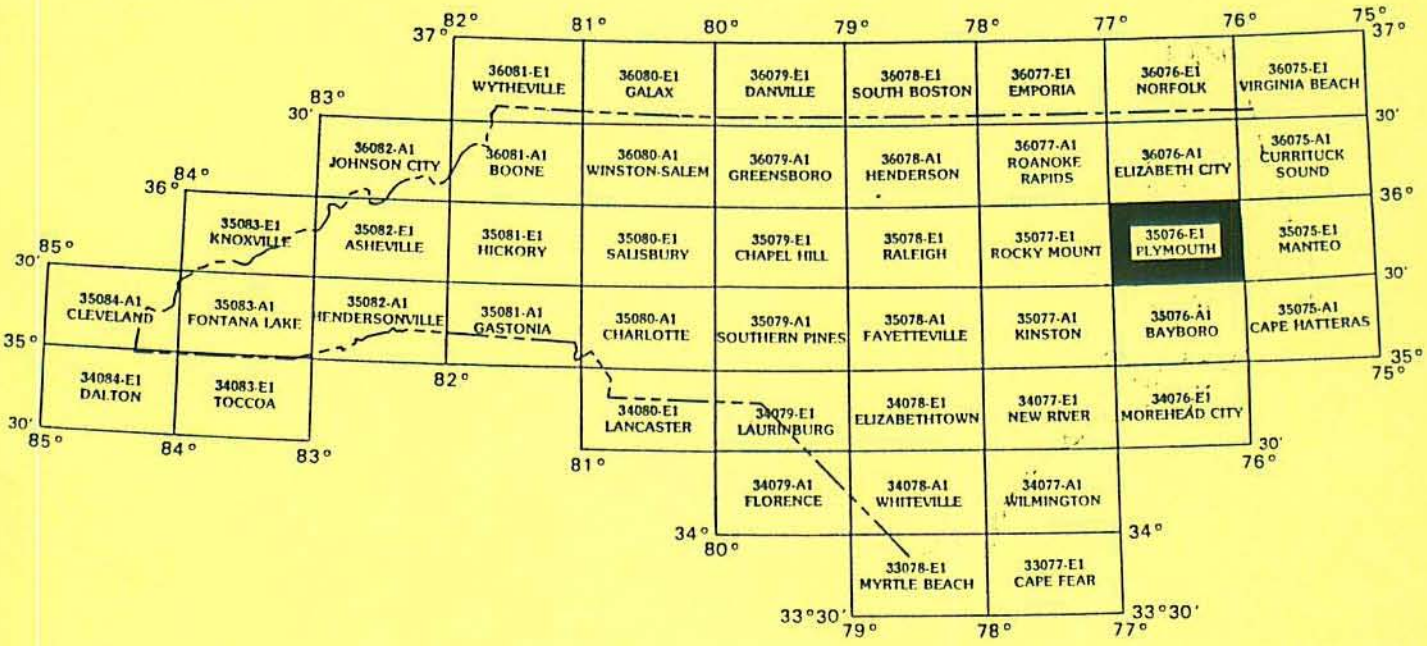
Listing of Concentrations of Variables of Stream Sediment, Stream Water, and Groundwater for the Plymouth 30 x 60 - Minute Quadrangle -NURE Database

by
Robert H. Carpenter and Jeffrey C. Reid



NORTH CAROLINA GEOLOGICAL SURVEY
OPEN-FILE REPORT 93-31

State of North Carolina
James B. Hunt, Jr., Governor

Department of Environment, Health and Natural Resources
Jonathan B. Howes, Secretary
Division of Land Resources
Charles H. Gardner,
Director and State Geologist

July, 1993

GEOLOGICAL SURVEY SECTION

The Geological Survey Section examines, surveys and maps the geology, mineral resources, and topography of the State to encourage the wise conservation and use of these resources by industry, commerce, agriculture and government agencies for the general welfare of the citizens of North Carolina.

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Jeffrey C. Reid
Chief Geologist

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INTRODUCTION

This report is a compilation of geochemical data for stream sediment and groundwater for the Plymouth 30 x 60 - minute quadrangle (Figure 1). Maps and tables were prepared from statewide data obtained by the Savannah River Laboratory under sponsorship of the U.S. Dept. of Energy in its National Uranium Resources Evaluation (NURE) program (Sargent and others, 1982). Sampling and analysis were performed during the period 1976 - 1980.

Because of the large size of the database, the North Carolina Geological Survey is presenting the database in both statewide and 30 x 60 - minute quadrangle formats. Statewide formats currently available include atlases of stream sediment and hydrogeochemical data which contain maps showing quartile distribution of concentrations of variables (Reid, 1991; Reid, 1993). Reid and Carpenter (1993a, 1993b) present listings of concentrations of variables which equal or exceed the 90th percentile (and pH and conductivity below the 10th percentile) for stream sediment and groundwater-stream water.

This open-file report is part of a series of reports that present sample-location maps and listings of analyses of all variables in all of the 30 x 60 - minute quadrangles that comprise the state of North Carolina. Subsequent reports will review the NURE data for individual 30 x 60 - minute quadrangles. These reviews will contain the following: 1) maps showing concentrations of all the variables in up to eight class intervals; 2) geologic review of the quadrangle and discussion of relationship of geochemical variables to rock units and structural features; 3) review of mineral resources and discussion of relationship of geochemical variables to mineral occurrences; and 4) discussion of outliers that may relate to anthropogenic contamination.

In this report, site-location maps use state boundaries, county boundaries and 7-1/2 - minute quadrangle boundaries as references to site-locations. The North Carolina Index to Topographic and Other Map Coverage, prepared by the U.S. Geological Survey, is a useful reference document. The List of Publications of the North Carolina Geological Survey indicates areas within the state for which some geologic and geophysical maps, and reports, are available.

Listings in this report are in the same basic format as those presented in microfiche by Sargent

and others (1982). Column 1 lists the laboratory numbers applied to each analyzed sample. Column 2 lists site identification codes. The first two characters are the codes for the county name. The next three digits are sample numbers. They are listed sequentially for each county in the order they were collected. The next two columns list the latitude and longitude of the sampling sites in decimal degree format. The remaining columns are data columns and analyses are given in parts per million (stream sediment) and parts per billion (groundwater). In these columns, a minus (-) sign indicates that a value is below the detection limit. If background is high, and an accurate estimate of minimum detection limit could not be made, a period (.) indicates that the element was not detected and that the detection limit is unusually high. Missing data are denoted by the letter "M". For gold, analyses are listed only for those samples in which gold was detected. For arsenic, a value of 0 is assigned for samples in which arsenic was analyzed, but not detected.

For stream sediment, two listings are presented. The first listing is for elements analyzed by neutron activation as well as field measurements for pH and conductivity of stream water. Variables included in this listing are pH, conductivity, uranium (U), thorium (Th), hafnium (Hf), cerium (Ce), iron (Fe), manganese (Mn), sodium (Na), scandium (Sc), titanium (Ti), vanadium (V), aluminum (Al), dysprosium (Dy), europium (Eu), lanthanum (La), samarium (Sm), ytterbium (Yb), and lutetium (Lu). The second listing is for supplemental elements analyzed by a variety of techniques. These include extractable uranium (Ux), silver (Ag), arsenic (As), barium (Ba), beryllium (Be), calcium (Ca), cobalt (Co), chromium (Cr), copper (Cu), potassium (K), lithium (Li), magnesium (Mg), molybdenum (Mo), niobium (Nb), nickel (Ni), phosphorous (P), lead (Pb), selenium (Se), tin (Sn), strontium (Sr), tungsten (W), yttrium (Y), and zinc (Zn). Stream sediment analyses are for the minus 100 mesh fraction (< 149 microns) unless otherwise noted.

Groundwater, normally samples of water from wells, was also analyzed by neutron activation. Field measurements were made of pH and conductivity. Variables included in listings of groundwater analyses include pH, conductivity, uranium (U), bromine (Br), chlorine (Cl), fluorine (F), magnesium (Mg), manganese (Mn), sodium (Na), vanadium (V), uranium/conductivity, aluminum (Al), and dysprosium (Dy). Stream water was also analyzed for these variables at 295 sites in North Carolina. Listings for stream water are included for areas in which these sites are located.

Although the data was acquired with considerable attention to quality control, some errors exist. These include uncertainties of sample locations due to the use of county road maps as base maps for field use and digitizing sampling sites. Malfunction of field equipment used in measurement of pH and conductivity has also been recognized in some areas. Some of the analyses are also in error. Some of these errors are apparent when concentrations show systematic "breaks" at county boundaries. This suggests that conditions of analysis for different batches of samples were not uniform. In general, analyses of stream sediment by neutron activation are more reliable than analyses of sediment by other supplemental methods.

For a number of counties, supplemental analyses were not made. Thus elements of interest for mineral exploration and environmental geochemistry are lacking for large areas.

REFERENCES

Reid, Jeffrey C., 1991 (revised 1993), A geochemical atlas of North Carolina: North Carolina Geological Survey, Bulletin 93, text plus 45 plates.

Reid, Jeffrey C., 1993, A hydrogeochemical atlas of North Carolina: North Carolina Geological Survey, Bulletin 94, text plus 26 plates.

Reid, Jeffrey C., and Carpenter, Robert H.,1993a, Listings of concentrations (stream sediments) of variables which equal or exceed the 90th percentile, and pH and conductivity below the 10th percentile in the North Carolina portion of the NURE database: North Carolina Geological Survey, Open-File Report 93-1, introductory text plus 178 pages of data.

Reid, Jeffrey C., and Carpenter, Robert H., 1993b, Listing of concentrations (groundwater and stream water) of variables which equal or exceed the 90th percentile, and pH and conductivity below the 10th percentile in the North Carolina portion of the NURE data base: North Carolina Geological Survey, Open-File Report 93-2, introductory text plus 162 pages of data.

Sargent, K.A., Cook, J.R., and Fay, W.M., 1982, Data report: North and South Carolina, National Uranium Resource Evaluation Program, Hydrochemical and stream sediment reconnaissance: E.I. du Pont de Nemours & Co., Savannah River Laboratory, Aiken, S.C., under contract to the U.S. Dept of Energy, contract DE-AC09-76SR000001 (DPST-81-146-22; GBJX-102), 45 p. plus microfiche.

CONTENTS

COUNTY CODES

Code	County
BE	Beaufort
BR	Bertie
HD	Hyde
MR	Martin
TY	Tyrell
WS	Washington

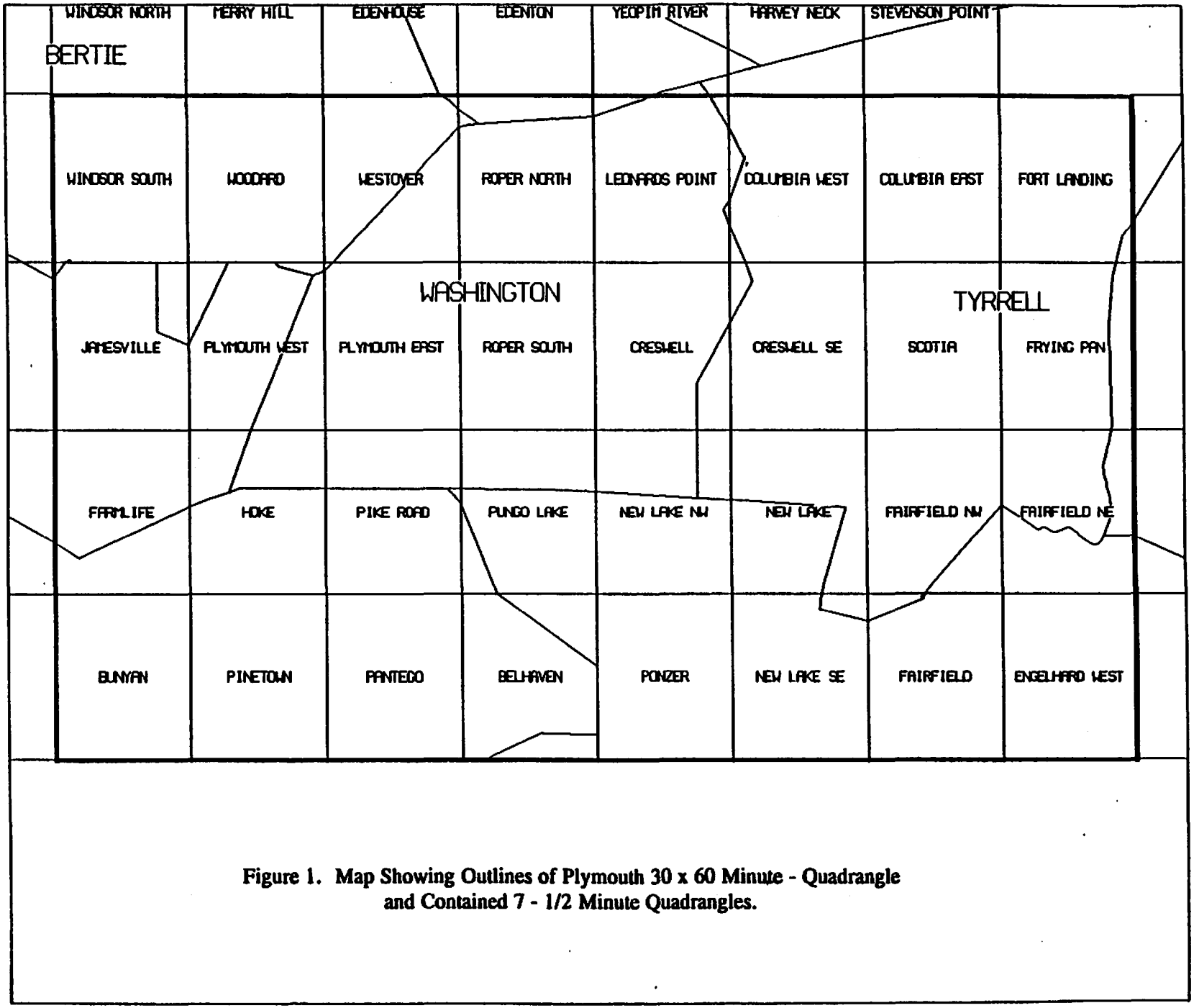

Figure 1. Map Showing Outlines of Plymouth 30 x 60 Minute - Quadrangle and Contained 7 - 1/2 Minute Quadrangles.

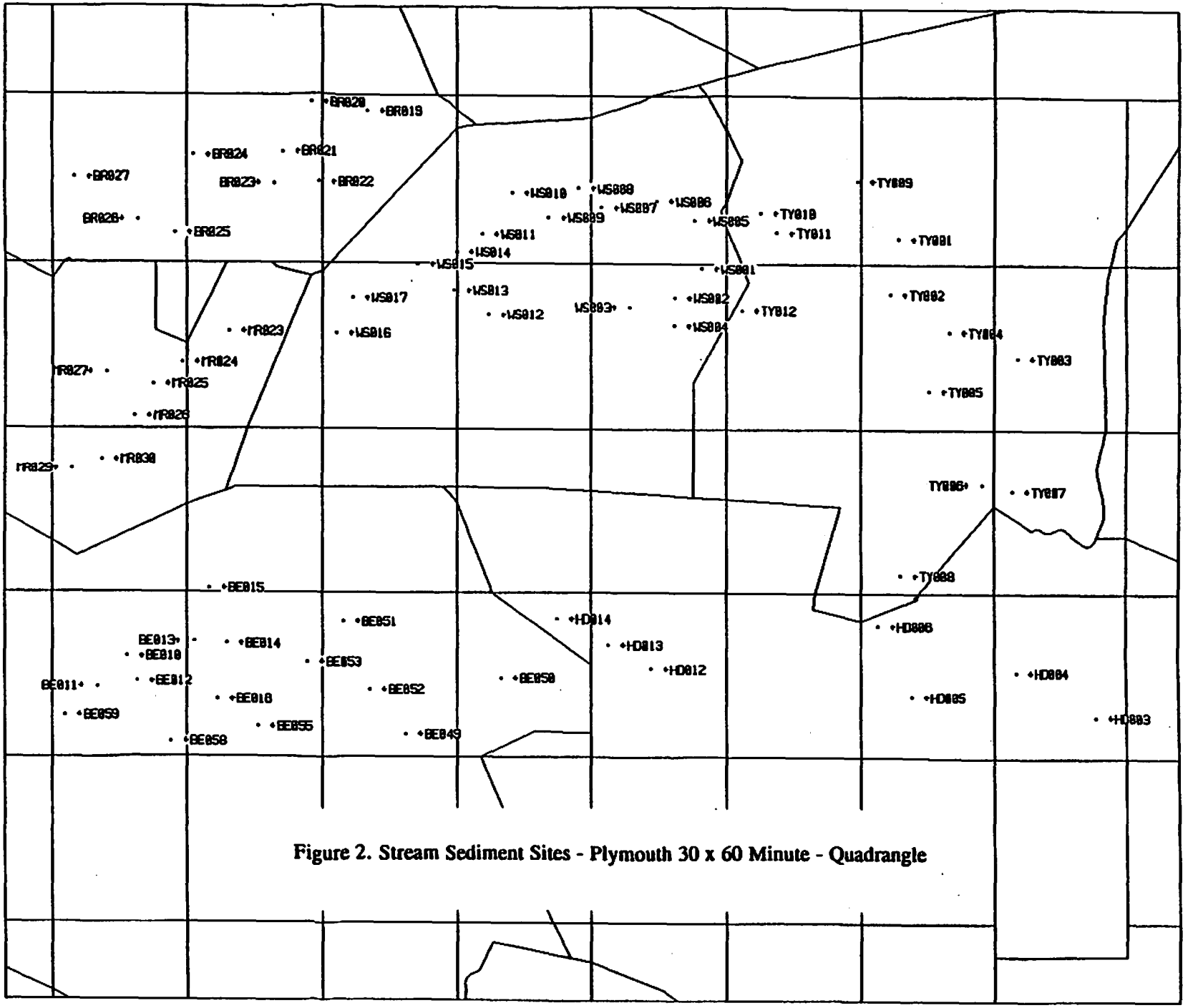

Figure 2. Stream Sediment Sites - Plymouth 30 x 60 Minute - Quadrangle

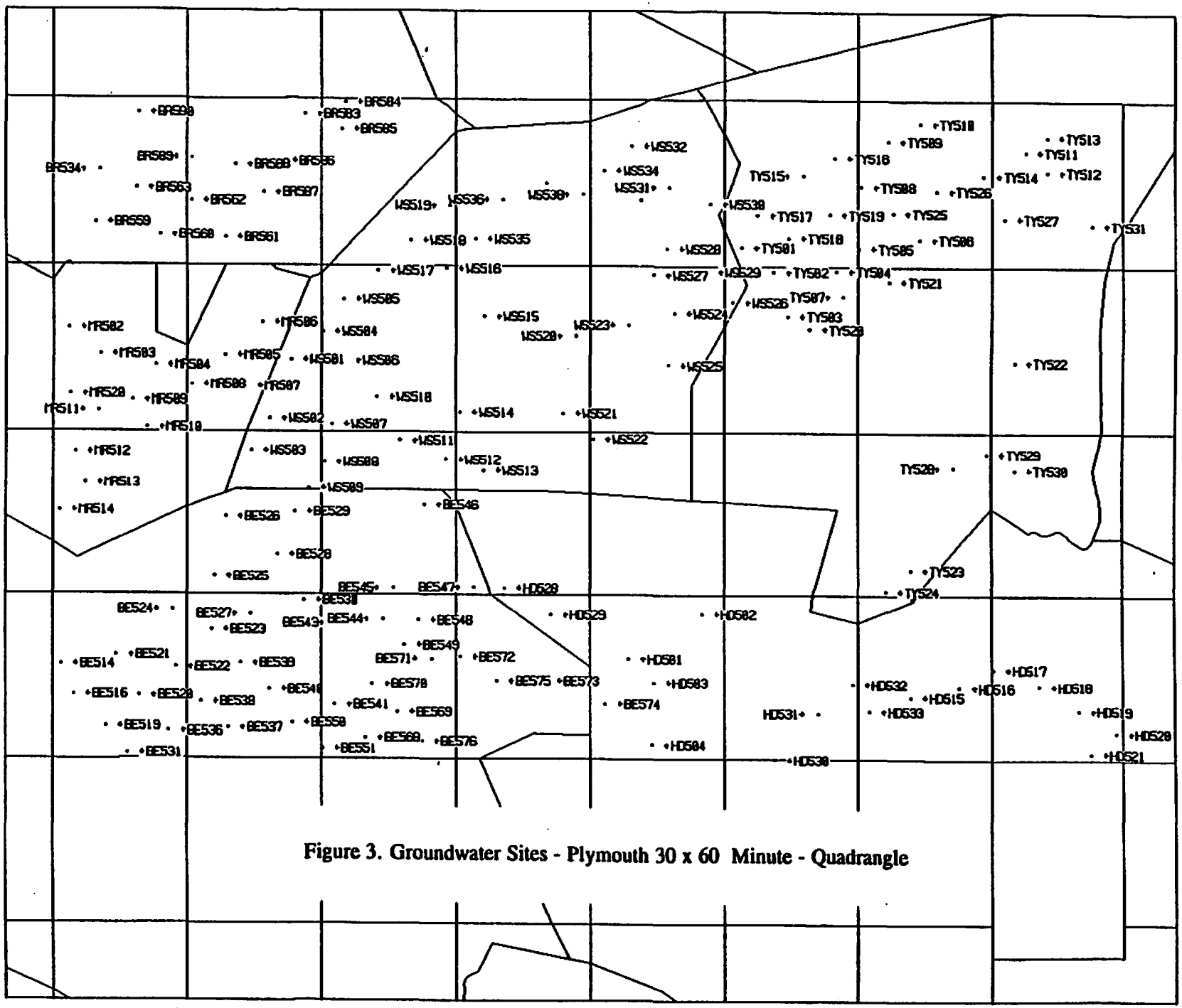

Figure 3. Groundwater Sites - Plymouth 30 x 60 Minute - Quadrangle

PLYMOUTH 100K QUADRANGLE - STREAM SEDIMENT

Lab #	County ID	Lat	Long	pH	Cond	U	Th	Hf	Al	Ce	Fe	Mn	Na	Sc	Ti	V	Dy	Eu	La	Sm	Yb	Lu	Au
					um/cm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
384	BE010	35.5764	76.9305	5.1	30	3.4	9	61	12500	44	14800	540	2400	3.4	17700	50	3.5	-1.0	33	4	N	0.5	
385	BE011	35.5532	76.9583	5.6	80	2.8	10	8	57200	21	12900	80	1900	7.8	6200	70	N	-1.0	21	2	N	0.2	
386	BE012	35.5574	76.9209	5.8	45	1.8	6	28	18900	23	12600	270	5400	2.5	7900	20	N	-1.0	20	4	N	0.3	
387	BE013	35.5876	76.8686	6.0	80	2.3	7	36	21200	46	12000	240	6600	1.5	6300	20	4.2	1.1	25	4	N	N	
388	BE014	35.5862	76.8390	4.1	62	1.8	6	28	17500	27	16500	310	3200	4.1	8700	30	1.9	-1.0	13	3	N	0.3	
389	BE015	35.6282	76.8548	5.1	32	5.2	15	104	19000	94	29500	1000	3600	4.5	30500	80	0.3	-1.0	58	4	3.7	0.5	
390	BE016	35.5436	76.8473	5.2	81	2.4	7	34	16000	45	13200	430	3300	3.0	12000	40	2.5	-1.0	24	5	N	0.2	
423	BE049	35.5176	76.6726	6.3	2000	2.3	7	13	40900	44	18000	210	6600	4.3	6300	40	3.2	0.7	16	3	9.7	0.5	
424	BE050	35.5601	76.5843	6.6	875	3.4	13	65	36300	71	30100	760	7100	5.3	20800	60	N	-1.0	36	5	N	0.7	
425	BE051	35.6029	76.7306	6.8	265	3.5	17	50	40600	81	38000	970	7000	8.2	25600	100	0.3	-1.0	40	8	N	0.4	
426	BE052	35.5513	76.7059	7.1	250	3.2	7	7	65100	80	23100	210	4600	7.6	5800	90	N	-1.0	37	4	N	0.2	
427	BE053	35.5723	76.7637	6.6	110	5.6	23	96	33100	130	40100	1110	11000	6.1	27500	90	N	-1.0	53	8	4.3	0.6	
429	BE055	35.5233	76.8095	6.7	145	2.7	13	43	18300	52	18100	480	4700	3.1	12900	40	N	N	23	4	2.6	0.6	
432	BE058	35.5118	76.8896	4.4	90	1.6	8	18	13400	-24	16000	130	3000	2.0	4500	20	0.5	-1.0	18	2	N	N	
433	BE059	35.5312	76.9884	5.8	149	3.9	12	15	39100	55	15700	160	2900	4.2	8100	50	2.5	0.7	31	3	N	0.4	
738	BR019	35.9884	76.7078	5.6	80	3.4	12	39	25800	111	42100	600	4400	3.1	11800	60	4.2	1.4	60	5	N	0.5	
739	BR020	35.9945	76.7602	4.8	41	3.3	10	19	32900	55	12800	130	2400	4.5	6300	50	4.3	-1.0	45	1	N	0.5	
740	BR021	35.9580	76.7861	4.7	45	3.5	14	13	34500	96	63300	660	4200	4.8	5000	40	N	-1.0	25	9	N	0.6	
741	BR022	35.9354	76.7525	5.7	50	2.7	9	25	29700	46	21900	240	3000	3.9	8500	40	2.4	-1.0	22	4	N	0.4	
742	BR023	35.9345	76.7938	4.8	41	2.5	12	34	13700	37	14600	240	2500	2.6	6400	20	4.2	2.4	23	2	4.3	0.4	
743	BR024	35.9555	76.8691	6.0	91	2.9	11	24	24700	55	19100	300	2100	3.4	5700	40	2.6	N	26	1	N	0.4	
744	BR025	35.8977	76.8861	6.0	71	5.8	26	73	31600	96	34400	1300	7500	6.7	23500	70	0.4	-1.0	54	11	N	0.8	
745	BR026	35.9072	76.9204	6.0	101	6.6	36	82	50100	201	52400	1440	5600	10.8	25200	80	5.5	-1.0	86	13	N	0.7	
746	BR027	35.9384	76.9794	5.2	38	3.0	8	22	43800	71	30600	480	6200	7.2	8100	60	0.6	0.8	29	N	N	0.8	
2704	HD003	35.5313	76.0288	5.9	140	1.9	4	8	50300	39	16500	190	15900	4.7	4800	40	2.8	0.6	18	4	N	0.2	
2705	HD004	35.5654	76.1049	4.1	90	1.1	6	8	46000	31	7500	170	16100	2.7	2800	10	N	-1.0	11	2	N	0.2	
2706	HD005	35.5466	76.2031	5.7	245	1.5	4	7	39700	21	11300	210	11500	3.3	3200	50	3.9	-1.0	17	5	N	N	
2707	HD006	35.6002	76.2346	4.4	100	1.8	10	31	44900	54	26100	480	17200	3.9	8300	30	N	-1.0	24	6	N	0.4	
2713	HD012	35.5673	76.4451	4.0	90	1.7	5	20	26000	28	15100	360	8400	2.9	6800	30	N	-1.0	15	2	2.8	0.3	
2714	HD013	35.5854	76.4849	3.8	90	1.9	7	26	46300	47	22400	610	20200	4.9	13300	60	N	N	23	5	N	0.2	
2715	HD014	35.6051	76.5322	5.9	100	1.6	6	30	30100	38	20000	400	8700	2.3	9200	30	N	-1.0	20	2	4.2	0.3	
4150	MR023	35.8237	76.8365	6.5	90	2.2	6	15	24700	31	16400	120	3200	3.5	4700	30	N	-1.0	17	2	N	0.2	
4151	MR024	35.8004	76.8792	5.0	32	4.1	10	9	55100	70	20800	80	1100	11.2	6800	80	2.6	-1.0	37	6	1.8	0.4	
4152	MR025	35.7841	76.9063	5.2	32	3.8	9	6	54400	62	21600	100	1700	9.8	6700	80	N	0.8	34	9	N	0.3	
4153	MR026	35.7595	76.9236	4.6	40	1.7	5	27	19600	43	8500	140	3900	3.2	5200	20	0.2	N	24	6	N	0.7	
4154	MR027	35.7928	76.9495	5.3	40	2.4	8	15	23400	32	11700	110	3100	3.1	4800	30	2.9	-1.0	18	3	1.6	0.2	
4156	MR029	35.7189	76.9818	4.4	47	2.6	7	13	40200	77	19300	130	1900	5.2	6900	70	2.9	-1.0	23	1	N	0.4	
4157	MR030	35.7261	76.9543	4.1	58	2.1	5	13	34800	41	12400	100	5000	4.1	5300	50	3.5	1.3	18	2	1.3	0.3	

PLYMOUTH 100K QUADRANGLE - STREAM SEDIMENT

Lab #	County ID	Lat	Long	pH	Cond us/cm	U ppm	Th ppm	Hf ppm	Al ppm	Ce ppm	Fe ppm	Mn ppm	Na ppm	Sc ppm	Ti ppm	V ppm	Dy ppm	Eu ppm	La ppm	Sm ppm	Yb ppm	Lu ppm	Au ppm
5902	TY001	35.8945	76.2151	5.5	109	5.1	17	83	45500	111	38700	950	6300	7.5	21100	70	8.4	-1.6	51	5	5.5	0.6	
5903	TY002	35.8530	76.2234	4.2	48	1.5	5	8	33300	-20	10300	90	4900	3.9	4000	40	N	-1.0	15	2	N	N	
5904	TY003	35.8048	76.1032	5.3	125	1.6	6	6	60700	47	19900	210	17800	6.6	5300	60	N	0.7	25	5	N	0.2	
5905	TY004	35.8242	76.1675	5.4	82	1.7	2	18	47700	31	16700	290	15100	4.4	6100	40	3.5	2.4	18	4	N	0.4	
5906	TY005	35.7800	76.1867	6.5	128	2.3	5	7	58200	92	24100	190	8300	8.1	3800	50	3.3	1.5	32	4	1.8	0.5	
5907	TY006	35.7085	76.1357	6.4	251	1.3	5	9	44800	49	14500	180	17400	3.3	3000	30	N	0.7	15	4	N	0.4	
5908	TY007	35.7037	76.1082	6.9	488	1.9	7	9	45600	78	24000	190	9200	5.6	4700	40	N	1.2	24	4	N	0.3	
5909	TY008	35.6387	76.2138	5.7	130	3.1	8	8	55100	53	27400	230	4700	7.1	4300	60	N	-1.0	25	5	N	0.3	
5910	TY009	35.9371	76.2534	4.7	70	1.7	2	5	29700	31	12200	90	3500	4.6	2900	40	N	-1.0	14	3	N	N	
5911	TY010	35.9132	76.3430	5.9	101	1.3	3	13	27600	17	10000	210	8400	2.8	6100	30	N	-1.0	13	2	N	0.2	
5912	TY011	35.8989	76.3284	5.2	42	3.4	9	27	43900	77	26500	290	4500	6.2	9000	70	3.1	N	36	4	N	N	
5913	TY012	35.8405	76.3605	6.0	110	1.7	5	12	N	33	11300	N	N	2.7	N	N	N	N	15	3	N	N	
6471	WS001	35.8717	76.3979	5.6	83	1.4	6	23	14000	34	10000	170	3000	1.4	5400	20	N	1.4	16	2	N	N	
6472	WS002	35.8498	76.4233	6.0	201	1.8	9	24	21500	51	10000	240	6600	2.5	7800	30	6.8	0.8	21	3	N	0.3	
6473	WS003	35.8422	76.4644	5.8	132	1.9	6	24	15600	38	10600	170	3600	1.4	5000	20	2.5	0.6	21	3	N	N	
6474	WS004	35.8283	76.4240	6.2	170	3.1	N	6	48300	N	N	80	1800	6.1	6200	80	3.0	N	N	N	N	N	
6475	WS005	35.9080	76.4049	6.2	92	17.1	88	320	13100	402	68300	2320	2800	10.8	64200	140	0.3	3.5	176	28	22.1	3.0	
6476	WS006	35.9217	76.4402	6.1	70	2.9	8	6	47200	56	16200	90	1400	6.6	5100	60	3.9	1.3	30	1	N	0.5	
6477	WS007	35.9172	76.4911	5.9	50	3.4	11	48	24200	45	16900	350	3500	4.3	7600	30	3.2	0.8	26	4	3.7	0.3	
6478	WS008	35.9314	76.5119	5.7	48	2.5	7	41	12600	46	20400	290	3300	3.6	7200	20	0.2	1.3	13	2	3.9	0.3	
6479	WS009	35.9095	76.5397	5.5	42	1.9	10	29	20000	44	17400	370	7800	2.2	8900	30	N	N	23	4	N	N	
6480	WS010	35.9279	76.5735	5.8	62	2.0	5	8	62700	58	19600	100	2900	6.2	3100	50	0.2	0.8	28	5	N	N	
6481	WS011	35.8973	76.6021	6.2	101	2.9	N	47	28800	N	N	500	5000	2.6	14800	50	N	N	N	5	N	N	
6482	WS012	35.8367	76.5954	4.2	100	4.6	5	19	41200	50	24100	260	6300	5.5	6700	40	0.3	0.9	23	4	N	N	
6483	WS013	35.8547	76.6281	4.8	66	3.3	7	13	42700	34	16000	120	6400	4.8	4400	40	N	-1.0	23	3	N	N	
6484	WS014	35.8833	76.6254	5.8	86	3.8	8	4	73600	58	34400	260	1900	7.9	8000	110	3.6	-1.0	38	5	N	0.4	
6485	WS015	35.8743	76.6612	5.7	99	8.8	49	145	29000	194	52500	1440	6500	8.0	34400	90	2.2	2.7	114	11	16.4	1.8	
6486	WS016	35.8221	76.7365	4.2	36	3.0	9	44	19700	76	22900	420	3000	3.5	11300	40	N	-1.0	23	4	5.6	0.5	
6487	WS017	35.8493	76.7214	5.4	70	7.1	31	101	29100	128	27900	1330	7800	7.9	30700	90	N	1.6	72	7	10.6	0.8	

PLYMOUTH 100K QUADRANGLE - GROUNDWATER

Lab #	County ID	Lat	Long	pH	Cond um/cm	U ppb	Br ppb	Cl ppb	F ppb	Mg ppb	Mn ppb	Na ppb	V ppb	U/cond x 1000	Al ppb	Dy ppb
234	BE514	35.5717	76.9922	7.2	385	0.004	21	4700	183	2180	70	19810	-0.1	0.0	64	-0.001
236	BE516	35.5484	76.9806	6.1	69	0.012	.	9200	.	.	45	18240	-0.1	0.1	168	-0.001
239	BE519	35.5244	76.9504	7.2	430	0.007	22	6200	104	8430	85	20120	-0.1	0.0	34	-0.001
240	BE520	35.5475	76.9196	7.4	480	-0.002	.	5300	436	19540	34	18070	0.6	0.0	72	-0.001
241	BE521	35.5781	76.9406	7.2	420	0.003	.	5400	138	4140	83	18240	-0.1	0.0	51	-0.001
242	BE522	35.5694	76.8854	7.2	480	0.014	.	5700	129	8750	52	22440	-0.1	0.0	70	-0.001
243	BE523	35.5981	76.8520	7.2	700	-0.002	76	31800	190	19290	.	58520	-0.1	0.0	165	-0.001
244	BE524	35.6130	76.8883	7.3	810	-0.002	99	26800	279	25940	.	54000	-0.1	0.0	138	-0.001
245	BE525	35.6384	76.8497	7.4	420	-0.002	.	5400	232	16250	18	20440	-0.1	0.0	37	-0.001
246	BE526	35.6844	76.8390	7.2	580	-0.002	.	8300	150	9070	88	33580	-0.1	0.0	38	-0.001
247	BE527	35.6097	76.8153	7.3	690	0.014	29	10800	377	25580	72	39880	-0.1	0.0	262	-0.001
248	BE528	35.6551	76.7911	7.3	380	0.020	.	4400	62	9030	48	17430	-0.1	0.0	212	-0.001
249	BE529	35.6884	76.7742	7.2	590	-0.002	38	9000	249	16730	113	30380	-0.1	0.0	329	0.020
250	BE530	35.6206	76.7659	7.2	600	-0.002	.	13700	316	16100	77	38980	-0.1	0.0	280	-0.001
251	BE531	35.5043	76.9303	7.5	335	0.005	26	8400	92	2910	68	16450	-0.1	0.0	164	-0.001
256	BE536	35.5208	76.8922	7.4	340	0.007	44	5400	258	.	57	16950	-0.1	0.0	153	-0.001
257	BE537	35.5236	76.8367	7.5	360	-0.002	11	4600	442	4930	34	16560	-0.1	0.0	187	-0.001
258	BE538	35.5431	76.8619	7.2	490	0.012	.	5700	283	11060	48	19850	-0.1	0.0	155	-0.001
259	BE539	35.5726	76.8251	7.2	700	-0.002	112	25400	229	18220	132	53640	-0.1	0.0	347	-0.001
260	BE540	35.5526	76.7984	7.3	650	-0.002	127	41000	191	34420	121	54540	-0.1	0.0	286	-0.001
261	BE541	35.5412	76.7372	7.3	740	-0.002	.	31900	384	17200	244	66760	-0.1	0.0	236	-0.001
263	BE543	35.6027	76.7344	7.0	700	0.017	.	12700	182	10670	210	34680	-0.1	0.0	93	-0.001
264	BE544	35.6058	76.6926	7.4	600	0.014	.	11900	446	15490	136	48640	-0.1	0.0	272	-0.001
265	BE545	35.6297	76.6831	7.4	610	-0.002	.	9700	516	19910	142	44780	-0.1	0.0	146	-0.001
266	BE546	35.6938	76.6548	7.4	600	-0.002	98	14500	444	.	124	48540	-0.1	0.0	168	-0.001
267	BE547	35.6304	76.6089	7.3	700	0.010	120	20400	486	23060	118	56480	-0.1	0.0	193	-0.001
268	BE548	35.6056	76.6598	7.4	600	0.045	91	26500	463	30360	59	53080	-0.1	0.0	82	-0.001
269	BE549	35.5866	76.6728	7.1	700	-0.002	.	12700	215	5920	174	42500	-0.1	0.0	81	-0.001
270	BE550	35.5275	76.7771	7.3	610	0.020	136	24600	514	19950	123	49640	-0.1	0.0	29	-0.001
271	BE551	35.5080	76.7486	7.2	640	0.024	.	22900	561	27560	47	46400	-0.1	0.0	66	-0.001
288	BE568	35.5159	76.7088	7.4	1900	0.010	1351	318900	.	24950	212	240880	-0.1	0.0	361	0.120
289	BE569	35.5358	76.6793	7.1	800	0.010	131	67200	340	19500	.	86080	-0.1	0.0	267	-0.001
290	BE570	35.5568	76.7023	7.4	700	0.002	139	22900	500	24620	90	60780	-0.1	0.0	158	-0.001
291	BE571	35.5760	76.6479	7.4	650	0.029	103	32300	604	24620	56	64080	-0.1	0.0	286	-0.001
292	BE572	35.5777	76.6210	7.4	800	-0.002	.	51000	423	28400	126	71660	-0.1	0.0	277	-0.001
293	BE573	35.5596	76.5423	7.6	265	0.009	.	10000	61	2230	81	18560	-0.1	0.0	148	-0.001
294	BE574	35.5419	76.4863	7.3	900	0.022	.	33100	368	32800	66	67060	-0.1	0.0	294	0.040
295	BE575	35.5594	76.5874	7.4	680	0.041	.	10400	208	16250	45	45600	-0.1	0.0	234	0.020

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Lab #	County ID	Lat	Long	pH	Cond um/cm	U ppb	Br ppb	Cl ppb	F ppb	Mg ppb	Mn ppb	Na ppb	V ppb	U/cond x 1000	Al ppb	Dy ppb
296	BE576	35.5133	76.6566	7.3	400	-0.002	.	11000	311	3050	127	25910	-0.1	0.0	20	-0.001
620	BR534	35.9460	76.9558	7.6	445	0.002	.	5900	376	15650	.	27300	-0.1	0.0	144	-0.001
645	BR559	35.9073	76.9597	5.8	160	0.020	.	9500	.	4910	.	15410	1.0	0.1	218	-0.001
646	BR560	35.8977	76.9002	5.7	130	-0.002	50	6900	148	5800	.	14090	-0.1	0.0	205	-0.001
647	BR561	35.8961	76.8391	5.6	170	0.017	171	9800	39	2010	23	13470	0.8	0.1	172	-0.001
648	BR562	35.9238	76.8708	6.2	140	0.002	43	9300	.	2630	60	16830	-0.1	0.0	134	-0.001
649	BR563	35.9327	76.9220	5.9	110	0.010	63	11600	67	3540	67	17690	-0.1	0.0	153	-0.001
669	BR583	35.9888	76.7652	7.4	750	-0.002	.	7000	164	22000	.	52920	-0.1	0.0	80	-0.001
670	BR584	35.9978	76.7270	7.8	1150	-0.002	901	76400	765	8800	.	214350	-0.1	0.0	156	-0.001
671	BR585	35.9777	76.7303	5.4	90	0.037	35	11700	.	1130	27	17340	-0.1	0.4	74	-0.001
672	BR586	35.9533	76.7880	7.2	875	0.037	412	7700	240	24560	60	56600	-0.1	0.0	92	-0.001
673	BR587	35.9297	76.8032	7.6	1200	0.119	.	36800	623	21170	82	204050	-0.1	0.1	117	-0.001
674	BR588	35.9504	76.8297	7.6	1000	0.050	.	18600	802	34480	104	169150	-0.1	0.0	198	-0.001
675	BR589	35.9556	76.8702	5.8	100	0.021	46	12700	.	.	26	21470	-0.1	0.2	67	-0.001
676	BR590	35.9893	76.9201	7.9	900	0.036	.	46300	999	.	65	123740	-0.1	0.0	121	-0.001
2465	HD501	35.5764	76.4648	7.0	700	0.041	41	16400	.	13500	48	47080	-0.1	0.0	351	-0.001
2466	HD502	35.6105	76.3956	7.9	700	0.028	.	28000	.	39720	65	92700	-0.1	0.0	339	-0.001
2467	HD503	35.5584	76.4414	7.4	700	0.006	.	17500	220	22260	82	72780	-0.1	0.0	231	-0.001
2468	HD504	35.5109	76.4433	7.7	1600	0.097	136	135900	198	34680	.	255900	-0.1	0.0	250	0.220
2479	HD515	35.5476	76.2009	8.0	2630	0.345	471	397200	.	.	597	650800	-0.1	0.1	2042	-0.001
2480	HD516	35.5548	76.1547	7.9	1100	0.047	.	39400	221	.	229	212450	-0.1	0.0	237	-0.001
2481	HD517	35.5687	76.1235	7.8	950	-0.002	38	30200	188	16960	178	174160	-0.1	0.0	103	-0.001
2482	HD518	35.5560	76.0796	7.6	650	0.021	.	10300	131	24580	176	59300	1.5	0.0	236	-0.001
2483	HD519	35.5373	76.0419	7.3	600	0.017	.	21100	110	11320	483	43980	0.8	0.0	98	-0.001
2484	HD520	35.5204	76.0062	8.0	1000	0.057	121	28400	456	33140	55	119340	-0.1	0.0	86	-0.001
2485	HD521	35.5049	76.0303	7.8	700	0.015	.	37500	187	18460	.	56400	-0.1	0.0	241	-0.001
2492	HD528	35.6300	76.5802	7.8	650	0.068	124	27500	641	26600	54	85300	-0.1	0.1	360	-0.001
2493	HD529	35.6096	76.5366	7.3	670	-0.002	46	15500	152	15940	309	46040	-0.1	0.0	260	-0.001
2494	HD530	35.5000	76.3281	7.8	950	0.021	219	44000	56	11040	.	145600	-0.1	0.0	292	-0.001
2495	HD531	35.5352	76.2874	7.5	770	0.020	.	37500	140	3410	97	86260	-0.1	0.0	338	-0.001
2496	HD532	35.5574	76.2552	7.9	1900	0.021	.	216300	.	52150	.	263000	-0.1	0.0	537	-0.001
2497	HD533	35.5367	76.2398	7.8	1720	0.015	415	173200	.	10310	222	266750	-0.1	0.0	592	-0.001
3454	MR502	35.8282	76.9852	7.6	670	0.025	96	13400	800	15960	67	82120	-0.1	0.0	246	-0.001
3455	MR503	35.8085	76.9559	7.4	510	0.008	.	4900	235	6560	.	22110	-0.1	0.0	74	-0.001
3456	MR504	35.8003	76.9041	7.8	335	0.037	.	4800	214	.	16	74950	-0.1	0.1	146	-0.001
3457	MR505	35.8080	76.8394	7.4	432	0.009	129	4500	215	8170	17	23590	-0.1	0.0	161	-0.001
3458	MR506	35.8326	76.8044	7.6	370	0.014	56	9900	374	12620	29	24310	0.4	0.0	180	-0.001
3459	MR507	35.7847	76.8202	7.3	448	0.002	.	4900	245	8160	.	21490	-0.1	0.0	240	-0.001

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Lab #	County ID	Lat	Long	pH	Cond um/cm	U ppb	Br, ppb	Cl ppb	F ppb	Mg ppb	Mn ppb	Na ppb	V ppb	U/cond x 1000	Al ppb	Dy ppb
3460	MR508	35.7859	76.8708	7.3	380	0.009	.	4900	185	2470	67	21760	-0.1	0.0	153	-0.001
3461	MR509	35.7736	76.9257	7.3	260	-0.002	.	3300	508	3540	36	50490	-0.1	0.0	143	-0.001
3462	MR510	35.7529	76.9120	7.5	248	-0.002	.	5500	225	5660	29	22490	0.4	0.0	187	-0.001
3463	MR511	35.7657	76.9570	7.4	451	-0.002	.	6100	324	12400	35	23540	-0.1	0.0	171	-0.001
3464	MR512	35.7343	76.9787	7.5	395	0.009	31	4800	186	8920	38	21330	-0.1	0.0	188	-0.001
3465	MR513	35.7101	76.9696	7.3	460	0.005	.	5200	151	15020	20	20860	-0.1	0.0	190	-0.001
3466	MR514	35.6892	76.9934	5.3	185	0.350	37	11100	29	.	94	20610	-0.1	1.8	568	0.190
3472	MR520	35.7783	76.9833	7.6	435	0.007	37	7000	507	19720	36	45500	-0.1	0.0	131	-0.001
5156	TY501	35.8894	76.3587	7.7	570	0.048	.	18800	217	.	59	139020	-0.1	0.0	357	-0.001
5157	TY502	35.8711	76.3290	6.3	430	0.011	.	32600	.	5820	384	57070	-0.1	0.0	142	-0.001
5158	TY503	35.8380	76.3162	7.4	485	0.007	.	9400	48	2490	100	23060	-0.1	0.0	190	-0.001
5159	TY504	35.8719	76.2703	7.8	355	-0.002	.	6200	155	3780	22	22140	-0.1	0.0	130	-0.001
5160	TY505	35.8890	76.2492	5.9	185	0.013	52	16500	.	6370	84	26750	-0.1	0.0	122	-0.001
5161	TY506	35.8958	76.1922	7.8	1220	0.057	189	113900	.	.	198	225800	-0.1	0.0	712	-0.001
5162	TY507	35.8530	76.2642	7.9	287	0.025	21	8500	108	2480	67	23280	-0.1	0.0	143	-0.001
5163	TY508	35.9354	76.2471	7.7	400	-0.002	23	9100	32	3630	145	25060	-0.1	0.0	170	-0.001
5164	TY509	35.9698	76.2219	8.0	310	0.031	24	7200	256	3200	50	24930	-0.1	0.1	175	-0.001
5165	TY510	35.9831	76.1913	7.7	620	-0.002	112	49700	.	9700	102	48980	-0.1	0.0	466	-0.001
5166	TY511	35.9620	76.0932	7.4	600	0.045	.	18700	126	.	151	56180	-0.1	0.0	447	-0.001
5167	TY512	35.9467	76.0720	7.6	495	0.002	61	18300	206	16280	259	31130	-0.1	0.0	161	-0.001
5168	TY513	35.9734	76.0725	7.6	650	0.079	.	21300	432	22540	292	65060	-0.1	0.1	268	-0.001
5169	TY514	35.9436	76.1322	7.3	570	-0.002	42	14700	179	13710	223	48480	-0.1	0.0	281	-0.001
5170	TY515	35.9435	76.3015	7.5	800	-0.002	.	104900	.	.	218	66020	-0.1	0.0	288	-0.001
5171	TY516	35.9569	76.2717	6.7	150	-0.002	47	15900	.	.	92	25160	-0.1	0.0	125	-0.001
5172	TY517	35.9138	76.3439	7.0	900	0.191	178	52600	143	18090	344	73840	-0.1	0.2	234	-0.001
5173	TY518	35.8966	76.3153	6.0	113	0.043	.	8700	82	4690	43	19590	0.2	0.3	112	-0.001
5174	TY519	35.9144	76.2769	6.9	320	0.022	165	30000	120	6390	260	27790	-0.1	0.0	172	-0.001
5175	TY520	35.8283	76.2956	7.5	700	0.011	26	6900	45	4070	129	36480	-0.1	0.0	376	-0.001
5176	TY521	35.8647	76.2210	7.6	650	0.036	.	19800	136	26900	136	46040	-0.1	0.0	295	-0.001
5177	TY522	35.8040	76.1034	7.5	630	0.006	75	16700	186	10760	230	54180	-0.1	0.0	324	-0.001
5178	TY523	35.6443	76.2010	7.4	950	0.035	.	70600	.	20140	304	83260	-0.1	0.0	344	-0.001
5179	TY524	35.6282	76.2242	7.4	650	-0.002	.	18400	227	28860	310	69820	-0.1	0.0	374	-0.001
5180	TY525	35.9157	76.2172	7.5	470	0.026	214	49100	63	.	128	34970	-0.1	0.0	127	-0.001
5181	TY526	35.9321	76.1759	6.9	203	0.004	.	10200	.	4740	66	16750	-0.1	0.0	63	0.020
5182	TY527	35.9117	76.1129	7.7	495	0.029	120	27400	72	5620	225	33950	-0.1	0.0	88	-0.001
5183	TY528	35.7235	76.1597	6.7	470	0.009	243	24000	180	7810	246	34640	1.4	0.0	172	-0.001
5184	TY529	35.7343	76.1290	7.3	730	0.002	83	51400	254	15780	204	77100	-0.1	0.0	328	-0.001
5185	TY530	35.7219	76.1029	7.5	950	0.018	.	92300	.	16770	164	140880	-0.1	0.0	275	-0.001

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Lab #	County ID	Lat	Long	pH	Cond um/cm	U ppb	Br ppb	Cl ppb	F ppb	Mg ppb	Mn ppb	Na ppb	V ppb	U/cond x 1000	Al ppb	Dy ppb
5186	TY531	35.9069	76.0289	8.2	1520	0.054	420	97400	263	.	179	275800	2.8	0.0	1389	0.070
5527	WS501	35.8049	76.7779	7.5	450	0.012	.	7800	1084	21340	.	21770	-0.1	0.0	130	-0.001
5528	WS502	35.7598	76.7980	7.3	420	-0.002	44	5200	178	7810	24	21690	-0.1	0.0	75	0.010
5529	WS503	35.7357	76.8151	5.8	105	0.008	28	9500	.	1640	97	15360	-0.1	0.0	164	-0.001
5530	WS504	35.8257	76.7484	5.8	63	0.005	.	8200	38	1930	70	17360	0.5	0.0	121	-0.001
5531	WS505	35.8500	76.7285	6.6	160	0.013	36	12500	57	2620	37	21550	-0.1	0.0	127	-0.001
5532	WS506	35.8040	76.7288	7.6	490	-0.002	73	16400	360	28630	42	34360	0.7	0.0	167	-0.001
5533	WS507	35.7557	76.7397	7.5	255	0.015	.	7200	148	4570	278	17690	-0.1	0.0	165	-0.001
5534	WS508	35.7265	76.7470	7.6	485	0.010	28	6700	393	19140	.	24650	0.4	0.0	179	-0.001
5535	WS509	35.7066	76.7614	7.7	443	0.021	.	6900	371	19330	20	24590	-0.1	0.0	160	-0.001
5536	WS510	35.7764	76.6978	7.5	570	0.030	.	18400	365	23120	59	48620	-0.1	0.0	305	-0.001
5537	WS511	35.7434	76.6767	7.5	495	0.007	.	8800	454	23170	27	34170	-0.1	0.0	137	-0.001
5538	WS512	35.7289	76.6341	7.7	530	0.046	.	12600	524	18810	.	59940	-0.1	0.0	335	-0.001
5539	WS513	35.7206	76.5993	7.7	630	0.043	.	25100	644	20280	.	79220	0.8	0.0	305	-0.001
5540	WS514	35.7653	76.6214	7.3	700	0.037	69	22800	350	12790	124	56540	0.9	0.0	277	-0.001
5541	WS515	35.8372	76.5986	7.9	850	-0.002	.	37800	650	22000	.	99260	-0.1	0.0	277	-0.001
5542	WS516	35.8732	76.6337	5.7	65	-0.002	69	8700	.	1310	300	18350	-0.1	0.0	164	0.050
5543	WS517	35.8713	76.6969	6.1	135	0.030	.	8100	.	.	62	19220	-0.1	0.2	145	-0.001
5544	WS518	35.8940	76.6667	5.7	325	0.002	.	33600	.	3720	74	30700	-0.1	0.0	165	0.080
5545	WS519	35.9202	76.6305	5.9	60	0.035	.	10100	.	2850	37	18920	-0.1	0.5	136	-0.001
5546	WS520	35.8229	76.5135	8.0	1000	-0.002	243	46900	657	22640	76	141000	-0.1	0.0	270	-0.001
5547	WS521	35.7647	76.5249	7.7	950	-0.002	.	20600	144	27560	.	113140	-0.1	0.0	279	-0.001
5548	WS522	35.7449	76.4975	7.7	820	0.027	50	33800	94	63940	65	49020	-0.1	0.0	273	-0.001
5549	WS523	35.8312	76.4646	7.3	700	0.035	71	12300	95	4730	132	37060	-0.1	0.0	270	-0.001
5550	WS524	35.8401	76.4222	7.5	750	0.041	126	32200	115	.	44	163420	-0.1	0.0	256	-0.001
5551	WS525	35.8012	76.4274	7.8	290	0.019	87	6700	185	4620	70	21580	-0.1	0.0	95	-0.001
5552	WS526	35.8486	76.3669	7.8	240	0.004	55	6300	34	.	42	19110	-0.1	0.0	85	-0.001
5553	WS527	35.8688	76.4416	7.4	600	0.022	.	13200	110	.	146	45660	-0.1	0.0	131	-0.001
5554	WS528	35.8885	76.4290	7.4	350	0.011	.	6000	124	2200	107	21400	-0.1	0.0	119	-0.001
5555	WS529	35.8711	76.3924	7.2	670	0.029	99	27300	.	.	81	44860	-0.1	0.0	326	-0.001
5556	WS530	35.9221	76.3879	6.7	125	-0.002	35	11200	.	2590	164	19940	-0.1	0.0	157	-0.001
5557	WS531	35.9340	76.4267	5.5	570	0.015	.	38600	.	.	129	71240	-0.1	0.0	250	-0.001
5558	WS532	35.9656	76.4614	6.0	60	-0.002	36	6800	.	.	51	16480	-0.1	0.0	150	0.020
5559	WS533	35.9249	76.4532	6.4	115	0.006	45	7800	.	3360	87	16590	-0.1	0.0	71	0.010
5560	WS534	35.9469	76.4875	6.7	150	-0.002	.	5000	.	4630	53	17190	0.4	0.0	129	-0.001
5561	WS535	35.8952	76.6068	5.7	285	0.020	.	44400	.	2150	79	37070	-0.1	0.0	167	0.040
5562	WS536	35.9250	76.5813	7.8	1540	0.063	952	174100	246	79800	330	256200	-0.1	0.0	615	-0.001
5563	WS537	35.9374	76.5408	6.5	97	0.012	34	13600	57	.	85	23780	-0.1	0.1	135	-0.001

PLYMOUTH 100K QUADRANGLE - GROUNDWATER

Lab #	County ID	Lat	Long	pH	Cond um/cm	U ppb	Br ppb	Cl ppb	F ppb	Mg ppb	Mn ppb	Na ppb	V ppb	U/cond x 1000	Al ppb	Dy ppb
5564	WS538	35.9289	76.5069	6.2	193	-0.002	95	14500	.	3270	69	15860	0.5	0.0	138	-0.001