

Supplement 1

ODEQ Site ID	USGS Site ID	USGS Station Name	Latitude (NAD83)	Longitude (NAD83)	OWRD site ID	Ammonium mg N/L
100	433756121335501	22S/10E-30DDD	43.632069	-121.566422	DESC053032	0.03
101	433836121342001	22S/10E-30ABC	43.643173	-121.573364	DESC053031	1.9
102	433845121342301	22S/10E-19DCC	43.645679	-121.574196	DESC053030	0.01
103	433820121310801	22S/10E-27BDC	43.638729	-121.520027	DESC053029	0.03
104	433845121301301	22S/10E-23CCC	43.645679	-121.504730	DESC053028	0.08
105	433850121302301	22S/10E-22DDD	43.647068	-121.507538	DESC053027	0.31
107	433957121322101	22S/10E-16CBA	43.665680	-121.540314	DESC052026	0.03
108	434009121331201	22S/10E-17ACB	43.669010	-121.554459	DESC053025	8.2
109	434005121301202	22.00S/10.00E-14BCC02	43.668045	-121.504677	DESC053024	0.01
110	434009121302201	22S/10E-15ADA01	43.669010	-121.507248	DESC053022	0.01
111	434013121301602	22.00S/10.00E-15ADA03	43.670120	-121.505585	DESC053113	0.02
117	434035121301101	22S/10E-11CCC	43.676228	-121.504181	DESC053112	0.01
118	434038121321001	22S/10E-09CDA	43.677067	-121.537247	DESC053110	0.03
119	434027121332601	22S/10E-17BAB	43.674011	-121.558357	DESC053116	0.01
121	434101121343901	22S/10E-07BDB	43.683453	-121.578629	DESC053115	0.02
122	434105121331101	22S/10E-08ACB	43.684563	-121.554192	DESC530165	0.02
123	434120121330501	22S/10E-05DCD	43.688728	-121.552521	DESC000156	0.04
125	434117121302901	22S/10E-10AAB	43.687893	-121.509193	DESC000648	4.7
127	434151121325901	22S/10E-05ACD	43.697342	-121.550858	DESC000805	0.03
128	434205121345601	22S/09E-01AAD	43.701237	-121.583359	DESC000973	
129	434230121331001	21S/10E-32DBC	43.708179	-121.553917	DESC001329	0.01
131	434234121311601	21S/10E-34CBA	43.709290	-121.522247	DESC001775	0.19
132	434231121300701	21S/10E-35CBD	43.708458	-121.503082	DESC006053	0.25
133	434307121303901	21S/10E-27DCD	43.718456	-121.511971	DESC006582	0.58
134	434325121324101	21S/10E-29DAA	43.723457	-121.545853	DESC006960	0.01
136	434356121311001	21S/10E-27BAB	43.732067	-121.520569	DESC007369	0.03
137	434411121315001	21S/10E-21DBD	43.736233	-121.531700	DESC007400	0.02
138	434426121322001	21S/10E-21BDC	43.740406	-121.540024	DESC007869	0.01
142	433941121290601	22S/10E-14DDD	43.661232	-121.486137	DESC007882	14.6
145	434202121294401	22S/10E-02BAD1	43.700680	-121.496429	DESC007948	0.03
148	434257121292001	21S/10E-35AAC	43.715679	-121.490021	DESC008078	0.03
151	434400121291401	21S/10E-23DDD	43.733173	-121.488350	DESC008116	0.03
156	434249121265601	21S/11E-31ADB	43.713455	-121.450012	DESC008134	0.01
157	434519121302901	21S/10E-15ADC	43.755123	-121.509193	DESC008210	0.05
163	434723121301601	21S/10E-02BBB	43.789562	-121.505585	DESC008298	4.6

164	434733121303001	20S/10E-34DDB	43.792339	-121.509468	DESC008329	3.8
166	434813121302801	20S/10E-34AAA	43.803448	-121.508911	DESC009512	0.01
167	434810121305201	20S/10E-34ABC	43.802620	-121.515579	DESC009889	0.03
168	434731121341001	20S/10E-31DDC	43.791782	-121.570572	DESC050457	0.01
182	433652121352701	23S/09E-01ABC	43.614288	-121.591972	DESC050729	0.01
183	443657121361601	23S/09E-02AAA	43.615685	-121.605591	DESC051397	0.03
185	434532121292201	21S/10E-14AAC	43.758732	-121.490562	DESC052219	5.9
186	434527121284901	21S/10E-13BDB	43.757347	-121.481422	DESC052295	1.4
187	434501121273001	21S/11E-18CDA2	43.750122	-121.459465	DESC052323	3.3
188	434500121272601	21S/11E-18CDA1	43.749844	-121.458351	DESC050649	0.03
191	434644121274101	21S/11E-06CCA	43.778728	-121.462524	DESC008038	20
192	434700121285701	21S/10E-01BCD	43.783173	-121.483627	DESC000937	0.16
193	434726121273501	20S/11E-31CDC	43.790398	-121.460854	DESC008363	0.49
194	434749121272101	20S/11E-31CAA	43.796787	-121.456963	DESC000033	3.5
195	434805121265501	20S/11E-31AAC	43.801479	-121.449821	DESC008356	0.02
196	434813121273401	20S/11E-31BAB	43.803448	-121.460579	DESC001742	2
197	434807121292101	20S/10E-35AAC	43.801788	-121.490295	DESC001450	39
198	434815121294801	20S/10E-35BAA	43.804005	-121.497803	DESC001346	2.8
199	434844121292401	20S/10E-26ADC	43.812065	-121.491135	DESC001135	9
200	434852121292101	20S/10E-26ADB	43.814285	-121.490295	DESC008145	10
201	434853121291301	20S/10E-26ADA	43.814556	-121.488091	DESC001635	0.04
204	434907121273901	20S/11E-30BBA	43.818447	-121.461967	DESC008171	14.6
207	434904121264101	20S/11E-29BBB	43.817616	-121.445854	DESC001024	4.1
208	434915121270701	20S/11E-19DCD	43.820675	-121.453064	DESC008081	2.8
210	434919121251601	20S/11E-21CCA	43.821789	-121.422241	DESC008270	0.03
211	434931121255501	20S/11E-20DBA	43.825119	-121.433075	DESC008048	0.02
212	434941121255701	20S/11E-20ACD	43.827892	-121.433624	DESC001205	0.03
213	434945121283401	20S/10E-24BDA	43.829006	-121.477242	DESC001709	0.49
214	434945121290701	20S/10E-24BCB	43.829006	-121.486435	DESC007920	1.43
216	435002121290401	20S/10E-24BBB	43.833725	-121.485580	DESC000748	3.2
222	435053121274101	20S/11E-18BBA	43.847889	-121.462524	DESC008047	0.11
223	435124121274701	20S/11E-07BCC	43.856506	-121.464188	DESC001327	2.5
224	435146121275501	20S/10E-12AAA	43.862617	-121.466431	DESC001108	0.03
226	435146121263401	20S/11E-08BBA	43.862617	-121.443916	DESC007460	0.46
227	435215121263801	20S/11E-05BCC	43.870670	-121.445038	DESC007105	0.21
236	433726121361401	22S/09E-35DAA	43.623734	-121.605026	DESC001598	0.37
243	435251121262801	19S/11E-32CCA1	43.881672	-121.442825		0.01

244	435409121260601	19S/11E-29ACB	43.902340	-121.436134	DESC001789	0.01
245	435412121253001	19S/11E-29AAD	43.903168	-121.426147	DESC000191	0.01
252	433910121314401	22.00S/10.00E-21DAB2	43.652634	-121.529922	DESC008560	0.02
256	434033121331601	22.00S/10.00E-08DBC	43.678234	-121.553146	DESC000257	0.02
258	434253121320501	21.00S/10.00E-33ABC	43.714531	-121.535835	DESC007874	0.01
259	434005121315901	22S/10E-16ACD	43.668274	-121.532875	DESC007492	0.04
260	434019121322701	22.00S/10.00E-16BBD	43.671856	-121.541901	DESC006959	0.33
261	434137121322301	22.00S/10.00E-04CBD	43.693344	-121.540779	DESC007632	0.03
262	433951121285901	22.00S/10.00E-13CBC	43.664043	-121.484215	DESC001537	0.02
264	434404121282001	21S/10E-24DCA	43.734291	-121.473358	DESC006536	0.04
265	435145121284501	20.00S/10.00E-12BAB	43.862309	-121.480247	DESC006153	0.01
266	435047121282801	20.00S/10.00E-13ABC	43.846359	-121.475586	DESC001574	0.61
267	435121121285201	20.00S/10.00E-12BCD	43.855675	-121.482254	DESC000968	0.02
268	434535121302001	21.00S/10.00E-15AAD	43.759655	-121.506744	DESC001727	0.15
269	434535121322801	21.00S/10.00E-16CBD	43.752319	-121.542236	KLAM000289	0.01
270	435242121272101	19S/11E-31CDD1	43.878174	-121.456963	KLAM010779	0.01
271	434616121322201	21.00S/10.00E-09BDB	43.770988	-121.540596	DESC006592	0.25
273	434812121273201	20.00S/11.00E-31BAB02	43.803169	-121.460030	DESC006578	0.03
274	434751121341401	20.00S/10.00E-31DAB	43.797211	-121.571831	DESC007626	0.01
275	434735121343301	20.00S/10.00E-31DCB	43.792957	-121.577095	DESC007619	0.05
277	434737121341801	20.00S/10.00E-31DCA	43.793358	-121.572685	DESC001462	0.01
282	434444121321401	21.00S/10.00E-21BAA	43.745445	-121.538345	DESC001529	0.01
283	434448121310601	21.00S/10.00E-22BAA2	43.746273	-121.518700	DESC000192	0.04
284	434528121285001	21.00S/10.00E-13BAC	43.757545	-121.481583	DESC006435	5.8
285	434233121311701	21.00S/10.00E-34CBA2	43.709064	-121.522552	DESC006473	0.03
296	434619121320301	21S/10E-09ACB	43.771786	-121.535309	DESC006434	0.77
500	434433121322601	21.00S/10.00E-21BCA	43.742374	-121.541679	DESC001019	0.01
501	434236121285901	21.00S/10.00E-36CBA	43.709774	-121.484184	DESC001004	0.11
502	434229121283201	21.00S/10.00E-36DBC	43.707863	-121.476700	DESC001430	0.05
503	433813121354201	22.00S/09.00E-25CAA	43.636845	-121.595978	DESC001132	0.04
504	433803121354501	22S/09E-25CDB	43.634182	-121.597778	DESC000736	0.89
505	433732121361301	22.00S/09.00E-35ADD	43.625462	-121.604637	DESC006404	0.01
508	433957121295801	22.00S/10.00E-14CAB	43.665714	-121.500671	DESC006401	0.04
509	434400121281501	21.00S/10.00E-24DCC	43.733044	-121.471901	DESC006345	0.04
510	434159121305601	22.00S/10.00E-03BAD	43.699520	-121.516602	DESC006313	0.01
511	434126121312601	22.00S/10.00E-03CBC	43.690426	-121.525040	DESC001017	0.27
513	434527121312701	21.00S/10.00E-15BBC	43.757351	-121.525391	DESC001292	0.05

515	434035121310802	22.00S/10.00E-10CDB02	43.676254	-121.520126	DESC006068	0.64
516	434337121312601	21.00S/10.00E-27BCC	43.726921	-121.524948	DESC000771	0.03
517	434516121295101	21.00S/10.00E-14CDD	43.754417	-121.498619	DESC001578	0.04
518	434307121294401	21.00S/10.00E-26DCC	43.718338	-121.496651	DESC001532	0.03
519	434353121293701	21.00S/10.00E-26ABB	43.731346	-121.494843	DESC001200	0.06
520	434227121270101	21.00S/11.00E-31DDB	43.707279	-121.451340	DESC001479	0.01
521	434217121263801	21.00S/11.00E-32CCC	43.704681	-121.445129	DESC008484	0.02
523	434328121330901	21.00S/10.00E-29DBB	43.724419	-121.553528	DESC006199	0.01
524	435149121283001	20.00S/10.00E-01DBC03	43.863369	-121.476219	DESC007855	0.03
525	435104121282301	20.00S/10.00E-12DCB	43.851009	-121.474075	DESC005745	0.02
526	434819121284301	20.00S/10.00E-24CDA	43.821762	-121.479874	DESC005744	1.9
527	435140121271901	20.00S/11.00E-07BAD	43.861008	-121.457451	DESC050352	1.43
528	434534121323801	21.00S/10.00E-16BBB	43.759182	-121.544983	DESC008065	0.12
529	434452121314301	21.00S/10.00E-16DDC	43.747643	-121.529709	DESC007364	0.02
530	434423121311701	21.00S/10.00E-22CBA	43.739651	-121.522453	DESC008197	0.04
531	434453121294501	21.00S/10.00E-14CAD1	43.747967	-121.498062	DESC008216	0.12
532	434158121320801	22.00S/10.00E-04BDA	43.699326	-121.536766	DESC007952	0.01
533	433952121330401	22.00S/10.00E-17DBD01	43.664318	-121.552383	DESC008129	0.11
534	433830121324001	22.00S/10.00E-28BCB	43.641567	-121.545578	DESC007044	0.03
535	433742121345801	22.00S/9.00E-36AAA01	43.628201	-121.583946	DESC005830	0.01
536	433625121354401	23.00S/09.00E-01DAC	43.576546	-121.602310	DESC005826	0.02
537	433623121310001	23.00S/10.00E-03CDD02	43.606129	-121.517822	DESC005872	0.25
539	434027121294401	22.00S/10.00E-14BAA01	43.659164	-121.511971	DESC001452	0.01
540	434504121290501	21.00S/10.00E-13CCC	43.750996	-121.485825	DESC000971	4.7
541	434700121264201	21.00S/11.00E-05CBB	43.783039	-121.445625	DESC000562	2.4
542	434718121272101	21.00S/11.00E-06BAA	43.788250	-121.456909	DESC006569	0.04
543	434746121285101	20.00S/10.00E-36CBA	43.795826	-121.482025	DESC006472	10.6
544	434259121283301	21.00S/10.00E-36ABC	43.716103	-121.476868	DESC006127	0.03
545	434059121324801	22.00S/10.00E-08ADA	43.682762	-121.547691	DESC006104	0.04
546	434517121281201	21.00S/10.00E-13ADC	43.754566	-121.471024	DESC001348	0.04
547	434755121280801	20.00S/10.00E-36ADC	43.798363	-121.469933	DESC006747	13.4
550	434808121292101	20.00S/10.00E-35AAC2	43.801949	-121.490318	DESC001026	0.04
551	434534121305301	21.00S/10.00E-15BAD	43.759300	-121.515984	DESC000838	0.04
552	434520121313401	21.00S/10.00E-16ACD	43.755299	-121.527374	DESC007419	0.03
553	434419121293801	21.00S/10.00E-23DBC	43.738445	-121.495148	DESC006571	0.1
554	434321121311001	21.00S/10.00E-27CAC	43.722248	-121.520706	DESC001523	0.09
555	434253121313201	21.00S/10.00E-33AAD	43.714474	-121.526634	DESC001671	0.11

556	434302121315601	21.00S/10.00E-33BAA	43.717335	-121.536110	DESC007554	0.01
557	434214121313801	21.00S/10.00E-33DDD	43.703773	-121.528351	DESC007839	0.02
558	434244121303701	21.00S/10.00E-34ACD	43.712196	-121.511398	DESC007832	0.15
559	434218121311801	21.00S/10.00E-34CCD	43.704945	-121.522812	DESC000682	0.03
560	434219121300701	21.00S/10.00E-35CCD	43.704742	-121.503662	DESC000255	0.05
561	434654121274501	21.00S/11.00E-06CBD	43.787125	-121.465759	DESC001302	0.05
562	434644121275601	21.00S/11.00E-06CCB	43.778782	-121.466644	DESC001393	3.9
563	434155121293501	22.00S/10.00E-02ACB	43.698311	-121.494110	DESC007918	0.02
564	434148121293301	22.00S/10.00E-02ACD	43.696613	-121.493744	DESC008114	0.02
565	434207121313401	22.00S/10.00E-04AAA	43.701904	-121.527252	DESC006561	0.01
566	434200121320001	22.00S/10.00E-04ABC	43.699982	-121.534523	DESC006593	0.01
567	434156121330201	22.00S/10.00E-05ACA	43.698616	-121.551735	DESC051117	0.02
568	434041121330701	22.00S/10.00E-08DCC	43.677879	-121.553078	DESC006973	0.03
569	434101121313201	22.00S/10.00E-09ADA01	43.683323	-121.526794	DESC050830	0.03
570	434118121320901	22.00S/10.00E-09BCA	43.688156	-121.536919	DESC007740	0.24
572	434040121323601	22.00S/10.00E-09CCB	43.677536	-121.544563	DESC007250	0.06
574	434047121290901	22.00S/10.00E-11DAC	43.679581	-121.487007	DESC000153	0.02
576	434053121285601	22.00S/10.00E-12CBB	43.681252	-121.483246	DESC050418	0.07
577	434019121313301	22.00S/10.00E-16AAD	43.671898	-121.526833	DESC050208	0.05
578	433958121313001	22.00S/10.00E-16DAA	43.665981	-121.526100	DESC009314	0.06
579	433850121335401	22.00S/10.00E-19DDD	43.644245	-121.565575	DESC052056	0.01
580	433904121300201	22.00S/10.00E-23CBA	43.650936	-121.501816	DESC001780	0.1
582			43.810829	-121.460541	DESC006599	13.1
583			43.649860	-121.519554	DESC050254	0.32
584			43.669872	-121.505211	DESC001260	0.1
585			43.666878	-121.506302	DESC010031	0.02
586			43.668373	-121.529900	DESC050967	0.01
587			43.670567	-121.501579	KLAM050729	0.01
776	434752121343101	20.00S/10.00E-31DBB	43.797882	-121.574875		0.01
1100	434158121313501	22.00S/10.00E-04ADA2	43.699638	-121.526398	DESC050412	0.02
1201	434910121271301	20.00S/11.00E-30ABB	43.819435	-121.453949	DESC006587	0.11
1202	434910121275101	20.00S/11.00E-30BCC	43.819351	-121.464149	DESC010024	0.04
1203	434909121281801	20.00S/10.00E-24ABA	43.819309	-121.471786	DESC050097	0.03
1204	434941121274401	20.00S/11.00E-19BCD	43.828209	-121.462158	DESC050961	0.01
1205	434940121272401	20.00S/11.00E-19BDD	43.827774	-121.456657	DESC051752	0.02
1206	434950121273601	20.00S/11.00E-19BAC	43.830612	-121.460144	DESC000247	0.01
1207	435004121275201	20.00S/10.00E-18CCC	43.834480	-121.464462		0.01

1208	435002121272701	20.00S/11.00E-18CDD1	43.833881	-121.457497		8.1
1209	435002121272702	20.00S/11.00E-18CDD2	43.833881	-121.457497	DESC008165	0.01
1210	435005121270601	20.00S/11.00E-18DCD	43.834793	-121.451599	DESC008141	0.01
1211	435020121272001	20.00S/11.00E-18DBC	43.838905	-121.455414	HAND---DUG	0.03
1212	435040121270801	20.00S/11.00E-18ACA	43.844318	-121.452164	KLAM051668	0.04
1213	435038121274201	20.00S/11.00E-18BCA	43.843887	-121.461594	HAND---DUG	0.02
1214	435110121283301	20.00S/10.00E-12CAD	43.852882	-121.475723	DESC006219	0.03
1215	435110121290001	20.00S/10.00E-12CBC	43.852703	-121.483261		0.04
1216	435047121283001	20.00S/10.00E-13ABC02	43.846256	-121.475052		0.05
1227	434210121313502	22.00S/10.00E-04AAA2	43.702892	-121.526268		0.07

An aquifer-scale understanding of water quality for the La Pine study area was provided by an Oregon Department of Environmental Quality (ODEQ) synoptic during June, 2000. Chemical analyses of ground water from a network of 193 existing (primarily domestic) wells provided the following data: dissolved oxygen (188 sites), nitrite-plus-nitrate (192 sites), ammonium (192 sites), and chloride (191 sites). ODEQ samples were collected following stabilization of field parameters. Dissolved oxygen was measured electrometrically in situ, or by iodometric titration on-site. Samples for chloride were filtered through 0.45-um nominal-pore-size capsule filters. Samples for nitrite-plus-nitrate and ammonium were unfiltered, and were preserved with sulfuric acid to pH < 2. Analytical techniques were as follows: nitrite-plus-nitrate, automated cadmium reduction; ammonium, automated phenate; and chloride, automated ferricyanide (Clesceri et al., 1998). Well construction data from U.S. Geological Survey (USGS) files.

Clesceri, L.S., Greenberg, A.E., Eaton, A.D., 1998. Standard Methods for the Examination of Water and Wastewater, 20th ed. American Public Health Association, Washington, DC, variously paged.

ODEQ, Oregon Department of Environmental Quality
USGS, U.S. Geological Survey
Latitude and longitude: in degrees and minutes (NAD83).
OWRD, Oregon Water Resources Department
mg N/L, milligrams nitrogen per liter
mg/L, milligrams per liter
us/cm, microsiemens per centimeter

Chloride mg/L	Nitrite-plus-nitrate mg N/L	Specific conductance us/cm	Dissolved oxygen mg/L	Temperature degrees Celsius	pH
0.7	0.102	79	2	7.4	7.0
0.7	0.0025	115	0.1	7.8	7.8
1.5	0.194	103	7.5	8.6	7.8
1	0.0025	106	0.05	7.6	7.7
9.2	1.88	171	0.4	8.7	7.6
4.5	1.72	209	2	8.4	7.3
4.1	1.38	129	0.3	7.8	7.3
2	0.0025	698	0.05	6.9	7.5
8.5	2.84	164	6.2	10.0	6.9
6.8	5.86	259	1.4	10.2	6.7
13	8.82	303	0.05	11.6	6.9
7.7	4.23	215	1.1	12.1	6.8
12	0.279	184	9	7.7	6.7
0.6	0.0456	97	2.5	7.6	6.2
2.4	0.076	82	5.6	10.2	8.0
1.4	0.194	123	1.7	7.5	7.7
0.6	0.006	94	0.05	7.2	7.5
0.7	0.0025	180	0.2	7.9	8.6
2.1	0.645	128	11	8.0	7.6
		82	7.8	8.6	8.0
0.6	0.0507	102	3.3	7.2	7.5
2.1	0.0025	120	0.05	8.7	7.4
1.2	0.117	121	0.1	7.6	7.6
0.6	0.0025	96	0.2	7.8	7.7
0.6	0.188	40	7.5	7.2	7.7
4.9	3.54	146	9.2	7.9	7.3
0.25	0.0025	86	0.1	7.0	7.7
0.6	0.13	83	6.7	7.3	7.6
1.1	0.0025	385	0.05	7.7	7.6
9.7	5.14	175	6.9	9.2	7.1
3.9	2.99	116		8.7	7.0
9.4	5.4	186	7.3	9.2	7.4
0.6	0.307	74	8.9	8.1	6.8
0.7	0.0025	72	0.05	7.5	7.6
1.3	0.0025	234	0.1	7.8	7.1

1.1	0.0025	228	0.05	7.3	7.8
1.1	0.0863	91	6.4	7.6	7.5
0.9	0.0691	82	6.2	8.2	7.5
1.2	0.334	101	6	7.2	7.4
2.4	0.637	110	5.3	7.7	7.2
1.1	0.061	101	1.6	8.0	7.1
2	0.0025	423		12.0	8.0
2.3	0.0025	456	0.3	9.1	7.7
2.4	0.0025	452	0.05	8.4	7.4
3.8	0.25	552	2.7	9.6	7.6
3.3	0.0025	649	0.05	7.5	7.0
0.7	0.0186	74	2.8	7.7	8.7
1.4	0.0056	234	0.1	11.4	7.4
1.3	0.0025	176	0.05	7.9	7.5
1.9	0.207	257	8.5	8.7	7.6
2	0.0025	273	0.05	14.0	7.7
3.3	0.0025	1259	0.05	7.6	7.6
1.9	0.0025	334	0.05	7.5	8.1
3.2	0.0025	530	0.05	8.0	8.1
3.5	0.0025	401	0.05	7.5	7.4
2	0.068	111	8	9.6	8.3
3.4	0.0025	481	0.2	7.3	7.7
3.4	0.0025	312	0.05	7.7	7.7
1.7	0.114	203	2.8	9.0	7.4
1.9	0.214	379	13.7	11.4	8.0
1.4	0.559	195	6	7.4	7.6
2.2	1.05	175	1.5	7.5	7.3
2.7	0.0025	108	0.05	7.9	8.2
2.2	0.0025	248	0.05	8.2	8.0
1.3	0.0025	189	0.05	7.5	7.3
2.2	0.0025	112	0.05	8.0	8.5
1.7	0.0025	144	0.05	7.6	7.4
2.7	0.0657	105	5.5	8.5	7.9
1.3	0.0025	163	0.9	7.8	8.3
3	0.0619	173	0.3	8.8	7.8
0.6	0.0093	79	0.3	7.4	8.2
2.5	0.125	110	6.9	8.2	8.0

	0.369	83		8.0	6.9
3.1	0.0582	132	8	8.8	7.5
1.5	0.0293	110	0.3	7.5	7.4
1.1	0.0145	109	2.2	7.6	7.4
14	3.74	223	8.7	8.4	7.4
1.3	0.0059	98	0.05	8.2	7.4
6.6	0.0087	162	3.6	8.1	7.0
11	2.04	164	14.1	8.5	7.6
2.3	0.911	397	6.7	8.8	6.8
3.4	2.34	334	7.9	8.5	7.4
2.5	0.0697	103	8.6	8.1	8.1
0.6	0.0025	101	0.05	7.5	7.4
10	2.93	200	3.5	7.1	7.0
0.8	0.0701	96	1.8	7.7	7.5
1.3	0.071	102	2.11	7.2	7.0
2.4	0.0391	96	7.7	8.9	7.9
3	0.0145	106	3.6	8.1	8.2
1.4	0.0223	152		8.5	7.3
0.25	0.0122	121	0.05	7.6	7.4
0.7	0.0025	91	0.05	7.2	7.2
1.1	0.143	88	5.7	6.9	7.4
0.6	0.207	72	7.5	7.2	6.5
1.6	1.16	110	5.4	7.9	7.4
0.8	0.0025	157	0.1	8.3	7.6
16	4.65	246	6.9	8.5	7.0
0.25	0.007	101	0.1	7.5	7.5
0.25	0.218	80	8.9	8.0	7.2
5.5	0.33	120	0.3	9.2	7.6
6.2	0.668	153	3.5	9.1	7.5
2.5	0.0025	263	0.3	8.7	7.3
0.8	0.0054	116	0.2	8.3	7.8
6.4	4.58	180	8.5	8.3	6.9
1.9	0.542	96	6.1	7.7	6.8
3.1	1.82	255	9.6	7.7	7.5
8	3.08	188	5.7	7.9	7.0
1.7	0.457	108	2.4	8.2	6.7
1	0.0025	85	0.05	7.3	7.3

1.2	0.0025	104	0.05	8.4	7.3
0.7	0.411	80	5.7	8.2	7.6
2.2	4.04	101	9.4	8.9	8.0
1.3	0.282	103	4.3	7.0	7.2
1.2	0.0025	114	0.2	8.4	7.2
0.5	0.325	79	9.7	8.4	7.7
0.8	0.186	97	9.7	8.8	7.6
1.1	0.778	96	9.4	7.5	7.5
2.6	0.0528	104	6.2	8.6	8.1
0.7	0.0502	99	7.3	6.8	7.3
2.4	0.0025	300	0.05	7.7	7.8
2.7	0.0025	107	0.05	8.5	7.6
0.7	0.0025	113	0.05	7.2	7.4
0.9	0.0771	86	10.2	7.3	6.9
1.2	0.591	92	6.8	8.2	7.4
1	0.0025	114	0.1	8.1	7.4
1	0.119	92	4.1	7.6	7.3
1.2	0.0025	101	0.05	7.8	7.0
0.7	0.0025	93	0.2	7.2	7.5
0.25	0.0476	82	4.5	8.0	7.7
1.1	0.169	84	4.3	8.2	7.4
0.6	0.0025	91	0.05	7.9	7.9
2.7	2.23	182	4.3	8.9	6.9
1.4	0.0025	176	0.05	8.1	7.7
0.9	0.0025	138	0.05	10.2	7.1
0.6	0.256	85	7.3	7.1	6.9
2.7	0.0025	848	0.05	7.3	7.9
1.2	0.622	85	8.9	8.1	7.6
7.9	0.95	164	3.4	8.4	7.6
4.3	0.0025	721	0.2	9.3	8.0
4.4	0.0025	455	0.05	7.2	7.5
0.5	0.0413	76	2	9.3	7.4
0.7	0.313	51	9.9	8.5	7.4
11	7.83	213	6.1	7.5	7.0
1.8	0.0025	141	0.05	9.5	7.2
1.1	0.311	98	0.9	7.7	7.9
0.9	0.0857	108	0.3	7.9	8.4

0.6	0.028	99	4.2	7.5	7.9
4	2.55	131	6.9	8.9	8.9
2.6	0.0025	117	0.05	8.7	8.0
8.8	2.29	168	7.9	8.4	7.2
1.3	0.131	139	1.1	8.3	7.6
3	1.3	717	5.8	9.0	7.0
1.9	0.0025	2420	0.3	7.5	7.3
4.4	1.85	127	8.3	8.2	7.4
2.1	0.218	99	3.6	8.4	7.5
16	8.59	240	9	7.9	7.0
2.2	0.721	113	5.6	8.2	7.3
2.7	2.28	121	9.9	8.1	7.1
1.2	0.104	106	5.7	7.6	7.6
1.1	0.0025	103	0.05	8.8	6.9
0.6	0.0025	102	0.05	7.2	8.2
1	0.0025	108	0.3	7.5	6.7
17	3.16	233	6.3	8.5	6.8
4.7	2.3	181	4.4	9.1	6.9
1.7	0.0025	96	0.05	8.3	7.4
2.2	0.0025	123	0.4	7.8	7.4
0.5	0.0067	78	0.7	8.9	7.8
1.2	0.096	105	0.05	8.6	7.6
5	0.0025	398	0.1	7.7	7.2
0.9	0.0025	100	0.05	8.0	7.9
4.6	0.422	129	0.05	12.3	7.4
7.3	2.96	141	4.3	10.4	6.6
32	7.56	286	0.8	7.5	6.8
4.7	1.1	118	6.4	9.6	7.0
2	0.0618	87	8.3	7.9	8.2
29	17.9	362	8.4	8.2	6.8
9.7	0.0025	297	0.4	7.6	7.3
7.4	7.25	190	7.1	7.8	6.9
1	0.0986	108		9.9	6.9
5.4	1.82	168	1	9.2	6.9
6.5	3.92	192	4.2	9.3	7.0
1.5	0.766	92	7	10.1	7.2
0.6	0.362	122	6.9	10.4	6.7

2.4	0.0025	316	0.3	8.7	7.1
6.5	0.0025	208	0.3	9.4	7.0
1.6	0.0605	132	3.3	8.6	7.1
3.2	1.07	178	1.5	7.7	6.9
8.4	1.27	200	2.8	7.1	6.8
1	0.032	221	4.7	9.4	6.8
1.2	0.0025	113	2.4	6.8	7.2
1.6	0.0051	121	1.3	5.8	7.1
2.5	0.0315		0.6	6.6	6.9
34	25.9	533	7	8.6	6.6

Department of Environmental Quality

Geological Survey

Angle: in degrees, relative to the North American Datum of 1983

Water Resources Department

Micrograms per liter

per liter

per centimeter at 25 degrees Celsius

Supplement 2

USGS Site Identification Number	Transect Number	ODEQ Site Number	Latitude NAD83	Longitude NAD83	Land Surface Elevation Meters above MSL	Water Table Elevation Meters above MSL
434219121313401	p01.1	deq1018	434218.86	1213133.99	1292.10	1287.99
434219121313402	p01.2	deq1019	434218.86	1213133.99	1292.10	1287.99
434219121313403	p01.3	deq1020	434218.86	1213133.99	1292.10	1287.99
434219121313404	p01.4	deq1021	434218.86	1213133.99	1292.10	1287.99
434217121313401	p02.1	deq1022	434216.96	1213133.99	1291.87	1288.09
434217121313402	p02.2	deq1023	434216.96	1213133.99	1291.87	1288.09
434212121313401	p03.1	deq1033	434212.33	1213134.10	1291.23	1288.15
434212121313402	p03.2	deq1024	434212.33	1213134.10	1291.23	1288.15
434212121313403	p03.3	deq1025	434212.33	1213134.10	1291.23	1288.15
434212121313501	p04.1	deq1059	434211.71	1213134.64	1291.36	1288.15
434210121313501	p05.1	deq1026	434210.43	1213134.56	1291.55	1288.17
434210121313503	p05.2	deq1027	434210.43	1213134.56	1291.55	1288.17
434210121313504	p05.3	deq1028	434210.43	1213134.56	1291.55	1288.17
434210121313505	p06.1	deq1058	434209.58	1213134.64	1291.69	1288.14
434209121313401	p07.1	deq1029	434208.69	1213134.26	1291.85	1288.15
434209121313402	p07.2	deq1030	434208.69	1213134.26	1291.85	1288.15
434209121313403	p07.3	deq1031	434208.69	1213134.26	1291.85	1288.15
434209121313404	p07.4	deq1032	434208.69	1213134.26	1291.85	1288.15
434206121313401	p08.1	deq1044	434206.24	1213134.26	1291.88	1288.13
434206121313402	p08.2	deq1045	434206.24	1213134.26	1291.88	1288.13
434206121313403	p08.3	deq1046	434206.24	1213134.26	1291.88	1288.13
434204121313401	p09.1	deq1047	434204.25	1213134.03	1291.61	1288.12
434204121313402	p09.2	deq1048	434204.25	1213134.03	1291.61	1288.12
434202121313401	p10.1	deq1049	434201.55	1213134.18	1291.94	1288.20
434202121313402	p10.2	deq1050	434201.55	1213134.18	1291.94	1288.20
434202121313403	p10.3	deq1051	434201.55	1213134.18	1291.94	1288.20
434159121313401	p11.1	deq1052	434159.20	1213134.10	1292.27	1288.15
434159121313402	p11.2	deq1053	434159.20	1213134.10	1292.27	1288.15
434159121313403	p11.3	deq1054	434159.20	1213134.10	1292.27	1288.15
434155121313401	p12.1	deq1055	434155.26	1213133.87	1291.61	1288.16
434155121313402	p12.2	deq1056	434155.26	1213133.87	1291.61	1288.16
434155121313403	p12.3	deq1057	434155.26	1213133.87	1291.61	1288.16
434155121313404	p12.4	(--)	434155.26	1213133.87	1291.61	1288.16

Oregon Department of Environmental Quality (ODEQ) installed 33 temporary wells in a dense array occupying a plane 730 m long and 6.4 m deep. These wells were installed by direct

USGS, U.S. Geological Survey

Oregon Department of Environmental Quality (ODEQ) installed 55 temporary wells in a dense array occupying a plane 730 m long and 6.4 m deep. These wells were installed by direct push of a 0.61-meter-long stainless steel screen. Development of these wells was done by peristaltic pump until ground water was visibly clear. These wells were sampled by ODEQ for nitrite-plus-nitrate, ammonium, and chloride (32 wells each constituent) and dissolved oxygen (33 wells) to provide information on solute dispersion. This network of wells is referred to as the dispersion array. Samples were collected following stabilization of field parameters. Dissolved oxygen was measured electrometrically in situ. Samples for nitrite-plus-nitrate, ammonium, and chloride were filtered through 0.45-um nominal-pore-size capsule filters. Samples for nitrite-plus-nitrate and ammonium were preserved with sulfuric acid to pH < 2. Analytical techniques were as follows: nitrite-plus-nitrate, automated cadmium reduction; ammonium, automated phenate; and chloride, automated ferricyanide (Clesceri et al., 1998).

Clesceri, L.S., Greenberg, A.E., Eaton, A.D., 1998. Standard Methods for the Examination of Water and Wastewater, 20th ed. American Public Health Association, Washington, DC, variously paged.

USGS, U.S. Geological Survey

ODEQ, Oregon Department of

Latitude and longitude: in degrees
American Datum of 1983 (NAD83)

mg N/L, milligrams nitrogen per liter

mg/L, milligrams per liter

us/cm, microsiemens per centimeter

Center of Screen Meters above MSL	Date	Time	Nitrite-plus-nitrate mg N/L	Ammonium mg N/L	Chloride mg/L	Dissolved Oxygen mg/L	Specific Conductance uS/cm
1287.04	4/20/2000	10:30	0.78	<0.02	3.3	9.68	101
1286.17	4/20/2000	12:10	2.11	0.03	4.7	7.47	133
1284.65	4/20/2000	13:20	2.58	0.03	14.0	6.80	122
1283.42	4/20/2000	14:20	3.07	0.02	4.1	6.72	130
1286.95	4/20/2000	15:40	0.83	<0.02	1.5	8.06	107
1284.44	4/20/2000	16:50	1.52	0.05	2.8	3.80	115
1286.95	4/25/2000	12:00	0.20	<0.02	3.7	6.89	138
1285.17	4/20/2000	18:00	11.00	0.07	20.0	6.10	369
1282.05	4/20/2000	20:00	0.0025	0.05	3.0	0.12	122
1286.65	4/27/2000	18:10	1.09	0.05	5.9	7.73	109
1286.74	4/24/2000	17:00	28.10	0.02	32.0	6.28	575
1285.28	4/24/2000	15:10	12.10	0.04	18.0	6.91	302
1283.92	4/24/2000	16:00	1.79	0.03	2.2	4.91	126
1286.84	4/27/2000	17:10	0.29	<0.02	2.3	5.57	127
1286.89	4/24/2000	18:10	0.30	<0.02	4.0	7.75	105
1285.43	4/24/2000	19:10	5.76	0.05	7.4	7.80	176
1283.96	4/25/2000	9:20	12.20	0.03	11.0	3.67	246
1282.63	4/25/2000	10:20	5.60	0.03	5.8	1.67	166
1286.69	4/25/2000	13:30	0.71	0.03	13.0	7.12	182
1284.59	4/25/2000	15:00	4.29	0.02	0.6	7.18	206
1283.39	4/25/2000	15:50	1.36	0.02	2.6	5.38	110
1286.38	4/25/2000	17:10	0.11	<0.02	0.8	7.91	56
1284.30	4/25/2000	17:50	1.78	0.04	3.8	5.59	112
1287.70	4/26/2000	10:40	0.10	<0.02	1.3	7.71	76
1285.59	4/26/2000	11:50	1.44	0.02	1.8	7.26	83
1283.47	4/26/2000	12:50	3.69	0.02	4.9	5.39	162
1287.41	4/27/2000	9:30	0.02	<0.02	1.7	8.05	92
1285.18	4/27/2000	10:10	3.30	<0.02	5.2	7.48	136
1282.54	4/27/2000	10:50	2.57	0.03	5.1	4.74	142
1285.90	4/27/2000	12:30	0.37	0.02	3.2	7.47	97
1284.32	4/27/2000	13:20	0.76	0.02	4.7	4.17	133
1281.29	4/27/2000	14:20	2.82	<0.02	3.5	4.14	154
1279.16	4/27/2000	15:40	(--)	(--)	(--)	< or = 0.08	(--)

urvey

nt of Environmental Quality

degrees, minutes, and seconds, relative to the North
(NAD83).

n per liter

centimeter at 25 degrees Celsius

Supplement 3

Name	USGS Site Number	Latitude (degrees, minutes, seconds)	Longitude NAD83 (degrees, minutes, seconds)	Sample date	Altitude NGVD29 (meters)	Depth to top of open interval (meters)	Depth to bottom of open interval (meters)	Depth to water (meters)	Dissolved oxygen mg/L	pH	Temperature (degrees Celsius)
Burgess 1.1	434213121324101	434212	1213246	10/14/1999	1297.68	9.41	10.01	7.94	10.7	7.1	9.5
Burgess 1.2	434213121324102	434212	1213246	10/18/1999	1297.64	13.83	14.42	7.90	9.3	7.7	9.1
Burgess 2.1	434206121312901	434205	1213133	10/18/1999	1292.05	5.91	6.52	4.03	7.5	6.9	10.9
Burgess 2.2	434206121312902	434205	1213133	10/18/1999	1291.99	8.01	8.62	4.00	2.4	7.1	10.1
Burgess 2.3	434206121312903	434205	1213133	10/15/1999	1291.99	9.94	10.55	3.98	0.2	7.4	10.4
Burgess 2.4	434206121312904	434205	1213133	10/15/1999	1291.99	14.53	15.12	3.95	0.3	7.5	10.2
Burgess 3.1	434206121311701	434205	1213121	10/16/1999	1290.29	5.74	6.33	2.74	3.9	7.0	10.1
Burgess 3.2	434206121311702	434205	1213121	10/16/1999	1290.26	7.72	8.31	2.72	5.1	7.2	9.6
Burgess 3.3	434206121311703	434205	1213121	10/16/1999	1290.29	10.64	11.23	2.58	0.2	7.3	8.8
Burgess 4.1	434203121305401	434202	1213058	10/17/1999	1287.30	6.50	7.09	3.67	0.4	7.1	9.3
Burgess 4.2	434203121305402	434202	1213058	10/17/1999	1287.21	9.02	9.61	3.58	0.2	7.1	10.5
Burgess 4.3	434203121305403	434202	1213058	10/17/1999	1287.19	13.90	14.50	3.52	0.3	7.4	8.1
Burgess 5.1	434202121301501	434202	1213020	10/19/1999	1283.43	5.71	6.31	4.07	0.7	7.1	9.0
Burgess 5.2	434202121301502	434202	1213020	10/19/1999	1283.49	9.69	10.29	4.09	0.2	7.5	8.7
Burgess 5.3	434202121301503	434202	1213020	10/19/1999	1283.42	13.84	14.43	3.79	0.3	8.2	9.9
Burgess 6.1	434213121295901	434212	1213000	7/11/2000	1279.68	3.38	3.97	1.98	0.2	7.1	14.2
Burgess 6.2	434213121295902	434212	1213000	7/11/2000	1279.71	12.14	12.73	1.97 <	0.1	7.6	14.4
Century 1.1	434910121275501	434910	1212756	7/14/2000	1273.46	2.65	3.23	1.85	4.1	6.8	13.2
Century 1.2	434910121275502	434910	1212756	7/14/2000	1273.39	19.23	19.81	1.85	0.1	7.5	11.9
Century 2	434945121273501	434944	1212736	7/12/2000	1272.58	2.29	2.86	1.05 <	0.1	7.1	8.3
Century 3	435007121272701	435007	1212728	7/13/2000	1272.14	1.62	2.19	1.15	0.2	7.5	13.0
Century 4	435026121272101	435026	1212720	7/12/2000	1272.19	2.16	2.77	1.72	1.9	6.8	14.6
Century 5	435030121271401	435030	1212714	7/14/2000	1271.83	2.47	3.05	1.62	0.2	6.9	9.1
Century 6.1	435035121270801	435034	1212708	7/13/2000	1271.53	2.16	2.74	1.72	4.0	6.8	13.4
Century 6.2	435035121270802	435034	1212708	7/13/2000	1271.49	17.92	18.50	2.26	0.2	7.1	12.1
DEQ191	434644121274101	434643	1212745	6/6/2000	1278	59	62	5.16 <	0.1	7.0	7.5
DEQ197	434807121292101	434806	1212925	6/6/2000	1277	101	102	7.03 <	0.1	7.6	7.6
DEQ204	434907121273901	434906	1212743	6/6/2000	1275	98	98	3.01	0.2	7.7	7.3
DEQ142	433941121290601	433940	1212910	6/7/2000	1292	134	140	15.45 <	0.1	7.6	7.7
DEQ540	434504121290501	434504	1212909	6/7/2000	1275	8	11	2.97; note 1 <	0.1	7.9	8.1
DEQ108	434009121331201	434008	1213316	6/8/2000	1289	104	113	2.47 <	0.1	7.5	6.9
DEQ284	434528121285001	434527	1212854	6/8/2000	1278	41	43	2.38	0.1	7.6	8.3
DEQ186	434527121284901	434526	1212853	6/8/2000	1278	11	13	3.78	0.3	7.7	9.1
DEQ216	435002121290401	435001	1212908	6/8/2000	1276	27	30	2.97 <	0.1	7.3	7.5
DEQ214	434945121290701	434944	1212911	6/9/2000	1273	37	40	3.08 <	0.1	8.0	8.2
DEQ146	434203121294301	434202	1212947	7/11/2000	1286	84	126	7; note 2 <	0.1	7.2	7.6
Septic plume 1 (DEQ1227)	434210121313502	434210	1213134	5/15/2000	1291.62	4.45	5.30	3.48	8.3	6.7	9.2
Septic plume 2 (DEQ2046)	435012121285101	435012	1212851	11/30/2000	1274.92	1.19	3.05	2.10			
Septic plume 3 (DEQ2091)	433950121323401	433950	1213234	5/14/2001	1294.73	2.44	3.05	2.13			
Little Deschutes River at Burgess Road	434212121295700	434212	1212956	7/14/2000							

Geochemical and isotopic data from ground water transects, elevated-ammonium network, and plumes of septic tank effluent; also, a grab sample for stable isotopes of water for the Little Deschutes River is provided. ("E", estimated.)

note 1: swl measured 6/6/2000; no measurement with sample

note 2: swl measured by driller 10/21/66; no measurement with sample

Alkalinity equivalent mg CaCO3/L	Nitrite-plus-nitrate mg N/L	Ammonium mg N/L	Kjeldahl nitrogen mg N/L	Nitrite mg N/L	Phosphorus mg/L	Ortho-phosphate mg P/L	Calcium mg/L	Magnesium mg/L	Sodium mg/L	Potassium mg/L	Chloride mg/L	Sulfate mg SO4/L	Bicarbonate mg HCO3/L	Iron ug/L
48.8	1.3 <	0.02 <	0.1 <	0.01	0.12	0.12	7.8	5.3	6.8	3.4	2.7	3.9	59.5	17 E
50.0	0.045 <	0.02 E	0.06 <	0.01	0.16	0.16	5.8	4.8	6.5	2.5	0.97 <	0.3	61.0	18 E
33.9	1.4 <	0.02 E	0.07 <	0.01	0.25	0.28	5.1	3.8	6.5	2.8	3.0	3.3	41.4	350
47.8	1.1	0.02 E	0.07	0.01	0.20	0.23	6.5	5.3	7.7	2.5	3.2	3.1	58.3	310
45.2 <	0.005	0.02 <	0.1 <	0.01	0.34	0.37	5.0	4.2	7.6	2.0	1.2	1.4	55.1	510
45.0 <	0.005 <	0.02 E	0.05 <	0.01	0.25	0.28	4.4	4.2	7.1	1.9	1.1	0.5	54.9	1300
46.0	1.5 <	0.02 E	0.09 <	0.01	0.23	0.25	6.0	5.1	7.4	2.8	1.5	3.1	56.1	22
33.0	1.2 <	0.02 E	0.07 <	0.01	0.25	0.31	4.4	3.8	6.4	2.4	2.4	2.6	40.3	65
43.1 <	0.005	0.05 E	0.08 <	0.01	0.14	0.14	4.0	5.2	7.1	1.9	1.8	4.1	52.6	750
64.0	0.031 <	0.02 E	0.07 <	0.01	0.23	0.26	8.1	8.2	9.1	4.1	2.9	9.3	78.1	24 <
67.3	0.013	0.03	0.1 <	0.01	0.17	0.17	8.1	9.9	9.7	3.7	3.8	13	82.1	800
47.0 <	0.005	0.08	0.1	0.01	0.24	0.29	5.7	6.6	7.5	2.2	4.2	7.0	57.3	1300
46.0 <	0.005 <	0.02 E	0.06 <	0.01	0.17	0.21	5.1	4.0	7.5	2.6	1.3	1.6	56.1 E	5
57.6 <	0.005	0.08	0.1 <	0.01	0.21	0.24	6.7	6.7	8.5	2.2	1.1	5.4	70.2	230
59.3 <	0.005	0.30	0.3 <	0.01	0.50	0.54	6.8	6.6	7.7	1.2	0.95	2.9	72.3	150
68.4 <	0.005	0.08	0.2 <	0.01	0.35	0.33	5.8	6.2	4.9	1.7	0.78 <	0.3	83.4	12300
131 <	0.005	4.5	5.0 <	0.01	1.1	1.1	12	11	13	3.6	1.3 <	0.3	159	4600
46.5	3.6 <	0.02 E	0.09	0.03	0.05	0.05	9.1	7.7	7.1	2.8	8.1	2.1	56.7 E	8
167 <	0.005	5.5	6.2 <	0.01	2.1	2.0	9.7	7.5	44	3.1	2.0	2.0	204	220
100	0.80	0.03 E	0.1	0.01	0.04	0.04	12	17	11	2.7	13	5.7	122	91
130	0.009	0.03	0.1 <	0.01	0.08	0.08	9.9	21	13	2.8	6.5	5.1	158	42
95.3	6.7	0.08	0.3 <	0.01	0.06	0.06	14	15	16	3.9	7.4	9.0	116	12
99.2	5.6	0.08	0.2 <	0.01	0.04	0.04	16	17	13	2.8	11	5.9	121	11
100	4.1 <	0.02 E	0.06 <	0.01	0.10	0.09	13	16	12	3.2	7.5	3.5	122 E	7
85.4 <	0.005	2.3	2.7 <	0.01	0.90	0.84	6.0	4.5	20	2.3	3.0	0.6	104	950
336 <	0.005	21	23	0.02	2.2	2.0	24	16	42	4.1	3.1 <	0.3	410	10600
703 <	0.005	38	43 <	0.01	1.6	1.4	46	52	70	10	2.0 <	0.3	858	5300
240 <	0.005	15	15 <	0.01	2.2	1.8	16	13	38	4.3	3.2	1.6	293	1600
186 <	0.005	15	16 <	0.01	2.3	2.5	12	9.7	28	3.6	2.2	2.2	227	1600
84.0	0.073	4.5	4.8 <	0.01	0.96	0.91	5.6	4.1	16	3.7	1.6	1.0	102	370
369 <	0.005	8.1	9.3 <	0.01	2.1	2.4	29	21	72	6.3	1.8	1.4	450	2700
71.2 <	0.005	5.8	5.9 <	0.01	2.2	2.1	4.4	4.4	11	1.0	0.58	1.9	86.9	790
242 <	0.005	1.3	1.4 <	0.01	0.17	0.20	28	24	25	3.2	2.0	3.1	295	410
92.2 <	0.005	3.1	3.5 <	0.01	1.2	1.1	8.3	5.1	15	2.3	1.3 E	0.2	112	3000
124 <	0.005	1.5	1.6 <	0.01	1.2	1.1	12	9.6	21	2.6	2.1	0.8	152	890
616 <	0.005	32	35 <	0.01	2.1	2.0	44	39	90	4.5	2.3 <	0.3	752	5600
84.4	26	0.09	0.4 <	0.01	0.10	0.12	28	21	33	7.3	32	19	103	52
	38 <	0.04	0.2	0.01	0.02 E	0.01					110			
	49 <	0.04	0.3 E	0.003	0.08	0.07					110			

Manganese ug/L	DOC mg/L	CH4 mg/L	N2 mg/L	Ar mg/L	Ne ug/kg	Delta-deuterium per mil (VSMOW)	Delta-18O per mil (VSMOW)	Delta-15N-NH4 per mil (AIR)	Delta-15N-NO3 per mil (AIR)	Delta-15N-N2 per mil (AIR)
1	1.3	0.00	20.684	0.7124		-107.8	-14.17		4.0	
2	1.2	0.00	19.385	0.6879		-120.8	-15.82			0.54
6	0.8	0.00	18.224	0.6581		-117.0	-15.50		6.2	0.51
43	1.1	0.00	19.286	0.6813		-119.0	-15.91		8.7	0.68
12	1.3	0.13	19.336	0.6842		-122.1	-16.02			
80	0.6	0.21	19.245	0.6819		-122.2	-16.06			
4	0.7	0.00	17.902	0.6436		-116.0	-15.20		3.3	0.42
4	0.8	0.00	18.373	0.6604		-118.0	-15.40		5.7	0.60
79	0.7	0.01	19.784	0.6812		-120.5	-15.90			0.77
2	2.1	0.00	20.457	0.6783		-115.9	-15.24			
100	2.1	0.00	21.017	0.6688		-116.7	-15.35			1.49
130	1.2	0.07	21.009	0.6840		-119.1	-15.70			1.03
3	1.9	0.00	19.928	0.7050		-118.9	-15.59			0.51
120	1.6	0.01	20.570	0.7054		-121.2	-15.82			0.91
78	1.2	0.23	19.647	0.6961	0.1973	-122.6	-16.00			
250	2.8	1.07	18.113	0.6698	0.1789	-97.0	-12.91			
360	3.6					-120.8	-16.08	2.6		
86	2.2	0.00	19.363	0.6930	0.1905	-114.2	-15.27		7.1	0.34
87	6.1					-119.0	-15.94	2.5		
130	3.0	0.00	22.474	0.7229	0.1915	-110.5	-14.77		11.5	1.20
170	4.3	0.00	21.093	0.7032	0.2082	-112.8	-15.16			1.34
260	2.3	0.00	20.505	0.7115		-113.9	-15.24		9.5	0.31
260	1.7	0.00	21.051	0.7199		-109.7	-14.74		12.8	0.69
6	2.5	0.01	18.754	0.6702	0.1887	-114.4	-15.21		6.4	0.45
390	2.2					-109.6	-14.81	3.8		
360	6.2	89.99	11.395	0.4309		-120.0	-15.54	3.2		
110	18	113.90	6.810	0.2865		-122.1	-16.06	3.6		
200	3.0	65.25	17.220	0.5947		-116.1	-15.30	3.9		
99	5.9	44.89	15.921	0.5516		-124.3	-16.19	2.7		
56	1.5					-115.4	-15.12	3.2		
160	9.9	82.54	14.187	0.5078		-121.8	-16.19	3.3		
46	1.2					-121.1	-16.08	2.6		
330	0.8					-100.9	-12.84	3.2		
260	3.3	25.80	20.890	0.7132		-117.0	-15.56	3.4		
240	1.3	23.74	16.888	0.6104		-111.3	-14.99	3.9		
180	12	85.53	6.085	0.2497		-119.7	-15.78	3.7		
87	2.2								8.3	
									7.0	
									11.8	
						-92.0	-11.74			

Sediment Data Collected and Analyzed for Nitrogen Concentrations and Nitrogen Isotopic Ratios

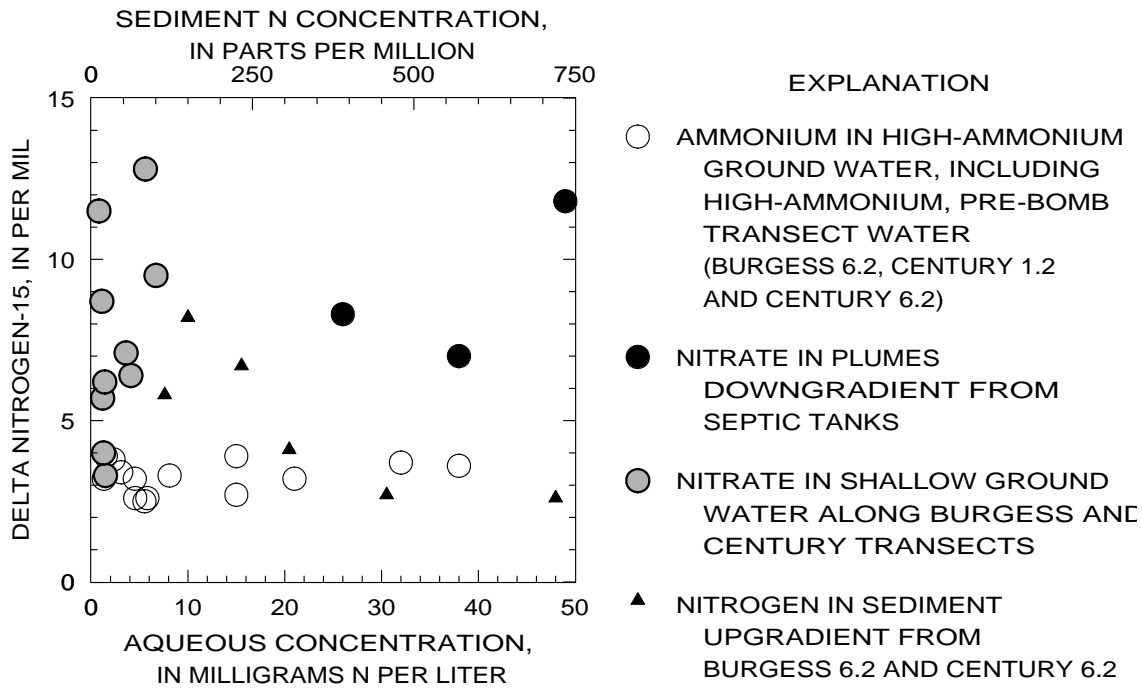
Split spoon sediment cores were collected from two transect sites. One core each from the deep well at the furthest downgradient nest in the Burgess transect (Burgess 6.2) and the Century transect (Century 6.2) were collected for analysis of isotopes of nitrogen in sediment ($\delta^{15}\text{N}$ -sediment) and nitrogen concentration. Samples were processed by freeze drying (Portland USGS laboratory) and analyzed at the USGS Reston Stable Isotope Laboratory. Analytical methods were those of McMahon et al. (1999). Reported values represent means of 1-4 (average 2.5) analyses per sample (Table 1).

Table 1. Table showing nitrogen concentration and isotopic data for sediment collected and analyzed as part of the La Pine study.

Site	Depth (meters)	Sediment N concentration (parts per million)	Sediment $\delta^{15}\text{N}$ value (‰)
Burgess 6.2	15.8	114	5.8
Burgess 6.2	18.5	233	6.7
Burgess 6.2	21.7	306	4.1
Burgess 6.2	24.9	150	8.2
Century 6.2	13.7	720	2.6
Century 6.2	16.8	458	2.7

Sediment $\delta^{15}\text{N}$ values are inversely related to sediment nitrogen concentrations (Figure 1). The $\delta^{15}\text{N}$ -sediment values of the high-nitrogen sediment are similar to the $\delta^{15}\text{N}$ - NH_4^+ values of ground-water samples. The sediment analyzed for nitrogen isotopes, although collected from locations hydraulically upgradient (in a vertical context) from the screened intervals of the two wells (Burgess 6.2 and Century 6.2) that produced ground water with elevated concentrations of NH_4^+ , was alluvial rather than lacustrine, and thus may not be representative of lacustrine sediment that is found beneath the shallow sandy aquifer and that tends to contain the most NH_4^+ -rich ground water.

Figure 1. Sediment and ground-water samples from La Pine study.



Literature Cited

McMahon, P.B., J.K. Böhlke, and B.W. Bruce, 1999, Denitrification in marine shales in northeastern Colorado: *Water Resources Research*, v. 35, pp. 1629-1642.