UNITED ATES ENVIRONMENTAL PROTECTION ENCY

0530532

JAN 14 1980

Organic Analysis of Aqueous Samples

Alexandra B. Smith, Director
Air & Hazardous Materials Division

Gary o'Neal, Director
Surveillance and Analysis Division

We have received a request from the Washington Department of Ecology to have volitle organic analyses run on 25 well samples from the Colbert Landfill investigation. These are in addition to those samples that were analyzed during November and December, 1980.

Contamination of drinking water by a hazardous material has been documented and we are concerned about a potential imminent health hazard. We are requesting that laboratory resources be made available in January 1981 to support this investigation.

Please respond to Neil Thompson, Technical Operations Section (442-2850), so that we can coordinate with DOE and pursue this investigation in a timely manner.

00000190

USEPA SF
1503976

NET 1/5
NThompson:sar 1-5-81

CONCURRENCES

SYMBOL	JBarich	KFeigner						
SURNAME								
DATE	1/5/81	1/5/81						

EPA Form 1320-1 (12-70)

OFFICIAL FILE COPY

TABLE 1 - A tabulation of all water well records reviewed to develop a conceptual model of the geohydrology at the Colbert Landfill, Spokane County, Washington.

Well No.	Well Location	Current Ownership	Land Surface Elevation (ft.)	Date Well Drilled	Field Location Checked	Pump Test Data Available	Units Penetrated* (top-bottom)	Casing Schedule: length (ft.)	Casing Schedule: cased out units*	Casing Schedule: depth of seal (ft.)	Water Quality Data Avail.	Type of Water Use**
1	SE4SW4,27,28N,43E	(b) (6) [redacted]	1720	7/22/77	no	yes	US,UC,MS,LC	82	US,UC	20	no	A
2	SE4SE4,27,28N,43E		1718	4/12/77	no	yes	US,UC	134	US	20+	no	A
3	NE4NE4,27,28N,43E		1800	6/30/78	no	yes	US	42	--	20	no	A
4	W2NE4,27,28N,43E		1750	9/16/80	no	yes	US,UC,MS	172	US,UC	100	no	A
5	N2,SW4,27,28N,43E		1910	10/25/79	no	yes	US,UC/LC	72	US	40	no	A
6	SW4SE4,27,28N,43E		1700	7/77	no	yes	US	21	--	nd	no	A,D,F
7	SW4NE4,27,28N,43E		1840	12/10/72	no	yes	US	20	--	0	no	A,D
8	SE4,28,28N,43E		1840	9/12/79	no	yes	US/MS,G	90	--	40	no	A
9	SW4SW4,28,28N,43E		1880	11/12/77	no	yes	UC/LC,G	60	--	20	no	A
10	S2SE4,28,28N,43E		1870	6/29/78	no	yes	US,UC/LC	164	--	20	no	A
11	NW4NW4SE4,28,28N,43E		1850	11/30/77	no	yes	US	169	--	18	no	A
12	SW4SE4,28,28N,43E		1864	1/23/79	no	yes	US,UC,MS,LC,LS	242	US,UC, MS,LC	20	no	A
13	SW4SE4,28,28N,43E		1864	7/12/74	no	yes	US,UC,MS	175	US,UC	22	no	A
14	SW4SE4,28,28N,43E		1864	8/31/77	no	yes	US,UC,MS,LC	258	US,UC,MS	20	no	A
15	SE4NE4,28,28N,43E		1865	9/13/75	no	yes	US,UC,MS	200	US,UC	18	no	E
16	SW4,28,28N,43E		1885	11/28/77	no	no	US,UC/LC,G	168	US,UC/LC	18	no	A
17	N2NW4SW4SE4,28, 28N,43E		1885	7/21/75	no	yes	US	74	--	18	no	A
18	SW4NE4,28,28N,43E		1855	7/20/76	no	yes	US,B	110	US	50	no	A
19	N2SE4,29,28N,43E		1880	2/22/78	no	yes	UC,MS,LC	70	UC	25	no	A
20	SE4SE4,29,28N,43E		2000	2/4/77	no	no	B/C/B/C	40	B/C	nd	no	A
21	SE4SE4,29,28N,43E		2000	2/10/77	no	yes	B/C/B,UC,MS,G	278.25	B/C/B, UC,MS	80	no	A
22	SE4NE4,32,28N,43E		2060	10/18/55	no	no	infiltration trench	nd	nd	nd	no	nd
23	SW4SE4SW4,32,28N,43E		2080	7/10/73	no	yes	US,B,UC/LC	140	--	nd	no	A,D
24	SW4SE4,33,28N,43E		1760	7/29/74	no	yes	UC,MS	136.67	UC	136	no	A
25	SW4SW4,33,28N,43E		2000	9/23/76	no	yes	UC,B	89	UC	20	no	A
26	SW4SW4,33,28N,43E		2000	4/13/79	no	yes	--B,UC/LC	nd	nd	nd	no	A
27	NW4NW4,33,28N,43E		1720	4/28/79	no	yes	US,UC	118	US	25	no	A
28	NW4NE4,33,28N,43E		1850	2/21/78	no	no	US,B,UC/LC	25	--	18	no	A
29	NE4SW4,33,28N,43E		1850	6/24/76	no	yes	UC,B,UC/LC	21	UC	20	no	A
30	NW4NE4,33,28N,43E		1800	3/17/79	no	yes	US,UC,B,LC,G	203	US,UC,B	20	no	A
31	SE4SE4,33,28N,43E		1685	5/30/51	no	no	nd	nd	nd	nd	no	nd
32	SW4NE4,34,28N,43E		1805	9/18/78	no	yes	US,UC,MS	176	US,UC	20	no	A
33	NE4NE4,34,28N,43E		1805	6/12/79	no	no	US,G	174	US	18.5	no	A
34	SW4NE4,34,28N,43E		1805	9/18/78	no	yes	US,UC,MS	176	US,UC	20	no	A
35	SW4NE4,34,28N,43E		1805	8/29/77	no	no	US,B,UC/LC	171	US,B	18	no	A
36	S2S2,NE4SW4,34, 28N,43E		1815	5/10/77	no	yes	US	93.5	--	70	no	A
37	NE4SW4,35,28N,43E		1890	11/24/77	no	yes	US,UC/LC	239.5	US	20	no	A

TABLE 1 - Continued

Well No.	Well Location	Current Ownership	Land Surface Elevation (ft.)	Date Well Drilled	Field Location Checked	Pump Test Data Available	Units Penetrated• (top-bottom)	Casing Schedule length (ft.)	Casing Schedule cased out units•	Casing Schedule depth of seal (ft.)	Water Quality Data Avail.	Type of Water Use••
38	SE4NW4,35,28N,43E	(b) (6) [redacted]	1875	6/15/77	no	yes	US,UC,B	99	US,UC	20	no	A
39	NW4NW4,35,28N,43E		1880	5/5/80	no	yes	US,B/C/B	71	US,B/C	40	no	A
40	SW4SW435,28N,43E		1890	7/25/77	no	yes	US,UC,MS,LC	264	US	20	no	A
41	35,28N,43E		1885	4/29/78	no	yes	US,C/B/C/B	86	US,C	20	no	A
42	NW4NW4,35,28N,43E		1880	7/5/79	no	yes	US,B/C/B	37	US	36	no	A
43	35,28N,43E		nd	6/26/72	no	yes	US,UC,MS,LC,LS	230	US,UC,MS	nd	no	A
44	NE4SW4,35,28N,43E		1890	11/6/74	no	no	US	113	--	20	no	A
45	nd		--	8/11/72	no	yes	US	124	--	15	no	A
46	SE4NE4,1,27N,43E		2380	9/29/77	no	yes	B,UC,MS,LC, LS,C,S, C,G	347	B,UC,MS, LC,LS,C,S	nd	no	A
47	SW4SE4,1,27N,43E		1945	3/13/78	no	no	C/S/C/S/C/S,G	150	C/S/C/ S/C/S	18	no	A
48	SW4SW4,1,27N,43E		1925	4/5/79	no	yes	US,UC/LC,G	151	US	20	no	A
49	SW4SE4,1,27N,43E		1940	3/16/78	no	no	C/S/C/S,G	140	C/S/C/S	18	no	A
50	NW4SW4,1,27N,43E		2040	7/25/73	no	yes	UC,B,UC,MS	287	UC,B	0	no	A,D
51	NE4SE4,2,27N,43E		2030	3/27/79	no	no	UC,B,UC/LC	186	UC,B	nd	no	A
52	SW4SE4,1,27N,43E		1940	3/21/78	no	yes	UC,MS,LC	135	UC	18	no	A
53	NW4SW4,2,27N,43E		±1878	7/13/77	yes	yes	US,UC,MS,LC,G	299	US,UC, MS,LC	30	no	A
53a	NE4SW4NW4SW4,2, 27N,43E		±1878	4/22/77	yes	yes	US,UC,B/C/B, MS,LC,G	174.5	US	18	no	A
54	SW4NW4,2,27N,43E		1881	4/18/78	no	yes	US,UC,MS,LC	222	US	20	no	A
55	NE4NW4,2,27N,43E		1890	5/19/78	no	yes	US	111	--	20	no	A
56	NW4NW4,2,27N,43E		1905	5/11/78	no	yes	US,UC,MS	251	US	20	no	A
57	NW4NW4,2,27N,43E		1905	2/20/78	no	yes	US,UC,MS,LC	259	US	20	no	A
58	SW4NW4,2,27N,43E		1881	6/30/77	no	yes	US,UC,MS	262	US	20	no	A
59	NE4NW4,2,27N,43E		1890	8/8/78	no	yes	US.UC	119	--	20	no	A
60	NW4,2,27N,43E		±1900	7/7/78	yes	yes	US,UC	133	--	20	no	A
61	NE4,NW4,2,27N,43E		1890	11/7/77	no	yes	US	118	--	20	no	A
62	NE4,NW4,2,27N,43E		1890	4/5/78	no	yes	US,B	94	--	20	no	A
63	NE4NW4,2,27N,43E		1890	11/2/77	no	yes	US,B/C/B	129	US,B/C	20	no	A
64	NW4,2,27N,43E		2140	5/28/78	no	yes	US,UC,MS,LC	277.25	US,UC	20	no	A
65	NE4NW4,2,27N,43E		1890	3/27/78	no	yes	US,UC,MS	265.5	US	20	no	A
66	SE4NW4,2,27N,43E		1885	10/7/77	yes	yes	US,UC,MS,LC	190	US	20	no	A
67	NE4NW4,2,27N,43E		1890	6/6/77	no	yes	US,UC,MS,LC	138	US,UC	20	no	A
68	SE4NW4,2,27N,43E		1885	12/27/77	no	yes	US,UC/LC,G	267	US,UC/LC	20	no	A
69	SE4NW4,2,27N,43E		1885	8/19/77	no	yes	US,UC,MS,LC	261	US	20	no	A
70	SE4NW4,2,27N,43E		±1885	9/27/77	yes	yes	US,UC,MS,LC	260	US	20	no	A
71	SE4NW4,2,27N,43E		1885	5/23/77	no	yes	US,UC,MS,LC	194	US	18	no	A
72	NE4SW4,2,27N,43E		1885	7/10/78	no	yes	US,UC/LC,G	198	US,UC/LC	18	no	A
73	SW4NW4,2,27N,43E		±1880	6/14/76	yes	yes	US	136	--	35	yes	A
73a	N2NW4NW4SW4,2 27N,43E		±1878	11/19/76	yes	yes	US,UC	186	US	20	no	A

TABLE 1 - Continued

Well No.	Well Location	Current Ownership	Land Surface Elevation (ft.)	Date Well Drilled	Field Location Checked	Pump Test Data Available	Units Penetrated• (top-bottom)	Casing Schedule: length (ft.)	Casing Schedule: cased out units•	Casing Schedule: depth of seal (ft.)	Water Quality Data Avail.	Type of Water Use••
73b	N2NW4NW4SW4,2	(b) (6) [redacted]	1880	11/27/76	yes	yes	US	195	--	20+	no	A
74	NW4NW4NW4,2,27N,43E		1890	7/5/76	no	yes	US	160	--	30	no	A
75	NW4NW4NW4,2,27N,43E		1890	4/6/77	no	yes	--UC/LC,B,G	220	nd	nd	no	A
76	E2SW4SW4,2,27N,43E		±1870	7/14/76	yes	yes	US,B,UC	161	US,B	18	no	A
77	E2SW4SW4,2,27N,43E		±1870	7/21/76	yes	yes	US,UC,MS	281	US,UC	18+	no	A
78	NE4SE4,3,27N,43E		±1865	5/22/79	yes	yes	US,UC,MS,G	230	US,UC	20	no	A
79	NE4SE4,3,27N,43E		±1860	6/18/79	yes	yes	US,UC,MS,LC,LS	201	US,UC, MS,LC	18	yes	A
80	NW4NE4NE4,3,27N,43E		1860	10/8/77	no	no	--UC,B,LC	245	UC	nd	no	A
81	NE4NW4,4,27N,43E		1820	2/15/80	no	yes	B,UC/LC	20	B	18	no	A
82	NE4NW4,4,27N,43E		1820	8/29/77	no	yes	UC,B/C,UC, MS,LC,G	181	US,B/C,UC, UC,MS,LC	18	no	A
83	NW4NW4,4,27N,43E		1980	5/1/74	no	yes	US,UC,B	148	US,UC	20	no	A
84	NW4NW4,4,27N,43E		2080	4/27/74	no	yes	US,UC,B	115	US,UC	20	no	A
85	4,27N,43E		2077	4/26/74	no	yes	US,UC,B	115	US,UC	20	no	A
86	SE4NW4,4,27N,43E		1900	8/17/77	no	yes	UC,B	160	UC	40	no	A
87	SW4,4,27N,43E		1880	12/3/76	no	yes	UC,B,UC,B	76	UC,B,UC	20	no	A
88	NW4NW4,4,27N,43E		1980	8/16/77	no	yes	B/C/B/C/B/C	100	B/C/B	40	no	A
89	N2,4,27N,43E		nd	3/10/77	no	yes	UC,B,UC/LC	135	UC	20	no	A
90	SE4NW4,4,27N,43E		1840	3/24/78	no	yes	US,B,UC/LC	23	US	18	no	A
91	NW4NW4,4,27N,43E		1900	3/15/77	no	yes	UC,B/C/B	36	UC	20	no	A
92	SE4NW4,4,27N,43E		1840	8/28/78	no	yes	UC,B	50	UC	40	no	A
93	SE4NW4,4,27N,43E		1840	11/2/77	no	yes	B	20	--	19	no	A
94	SW4NE4,4,27N,43E		1800	3/76	no	yes	UC,B	48	UC	20	no	A
95	SE4NW4,4,27N,43E		1840	11/1/78	no	yes	B,UC/LC	98	B	80	no	A
96	NE4NW4,4,27N,43E		1980	8/12/77	no	yes	B/C,C	51	--	50	no	A
97	SE4NW4,4,27N,43E		±1840	12/24/76	no	yes	US,UC,MS,LC	76	US,UC,MS	18	no	A
98	NE4,4,27N,43E		1720	9/10/76	no	yes	US,UC,MS	39	--	18	no	A
99	NE4SW4,4,27N,43E		1840	8/28/76	no	yes	US/C,B	91	US/C	18	no	A
100	4,27N,43E		1800	12/22/78	no	yes	B,UC,MS,LC	171	B,UC	40	no	A
101	NE4,4,27N,43E		1700	12/14/78	no	yes	UC/LC,G	92	UC/LC	20	no	A
102	NW4,4,27N,43E		2000	3/1/77	no	no	US,UC,B	nd	nd	nd	no	nd
103	4,27N,43E		±1800	2/21/80	no	yes	US,UC	31	US	25	no	A
104	NE4SW4,4,27N,43E		1840	7/23/77	no	yes	B,UC/LC	19	--	18	no	A
105	SW4SW4,4,27N,43E		1920	6/14/78	no	yes	US,UC,B	145	US,UC	18	no	A
106	NW4NE4,4,27N,43E		1760	7/21/77	no	yes	UC,MS	120	UC	50	no	A
107	4,27N,43E		nd	1/5/77	no	yes	B,C	21	--	20	no	A
108	NE4NW4,5,27N,43E		2100+	12/12/78	no	yes	US,UC,B	132	US,UC	20	no	A
109	NE4,5,27N,43E		2160	7/25/73	no	no	US,UC,B	196	US	nd	no	A,D
110	NW4NW4,5,27N,43E		2160	10/30/73	no	yes	US,UC,B/C/B/ C/B/C	191	US,UC,B	nd	no	A
111	NE4SE4NE4,5,27N,43E		2100	4/68	no	yes	B,UC,B	84	B,UC	0	no	A,D
112	NE4NW45,27N,43E		2120	11/8/75	no	yes	US,UC,B/C/ B/C/B	141	US,UC	30	no	A
113	8,27N,43E		nd	1/8/76	no	yes	US,UC,B	43	US,UC	20+	no	A

TABLE 1 - Continued

Well No.	Well Location	Current Ownership	Land Surface Elevation (ft.)	Date Well Drilled	Field Location Checked	Pump Test Data Available	Units Penetrated• (top-bottom)	Casing Schedule: length (ft.)	Casing Schedule: cased out units•	Casing Schedule: depth of seal (ft.)	Water Quality Data Avail.	Type of Water Use••
114	SW4NE4SE4,8,27N,43E	(b) (6) [redacted]	1945	1967	no	no	nd	nd	nd	nd	no	A,D
115	8,27N,43E	[redacted]	nd	10/19/76	no	yes	US,UC,B,C	47	US	20+	no	A
116	NW4SW4,8,27N,43E	[redacted]	2080	5/13/76	no	yes	UC,MS,C,S,LC,B	80	UC,MS,C,S	18	no	A
117	W2SW4,9,27N,43E	[redacted]	±1880	4/8/75	no	no	US,UC,MS,LC,B	207	US,UC, MS,LC	20	no	A
118	SW4SE4,9,27N,43E	[redacted]	1745	3/3/76	no	no	US,UC,MS,LC	63	US	nd	no	A
119	SW4SW4,9,27N,43E	[redacted]	1880	9/23/76	no	yes	US,UC	116	US	18	no	A
120	SW4NW4,9,27N,43E	[redacted]	1880	6/17/74	no	yes	US,UC,B	98	US,UC	20	no	A
121	SE4NW4,9,27N,43E	[redacted]	1800	4/5/79	no	yes	UC,MS,LC	124	UC	18	no	A
122	SE4NW4,9,27N,43E	[redacted]	1800	4/2/79	no	no	abandoned and filled	101 pulled	--	18	no	A
123	SW4SW4,10,27N,43E	[redacted]	1685	2/9/78	no	yes	US,UC,MS,C, B,LC,LS	190	US,UC,MS, C,B,LC	18	no	A
124	SW4SW4,10,27N,43E	[redacted]	1680	5/19/78	no	yes	US,UC,MS	76	US,UC	18	no	A
125	SW4SW4,10,27N,43E	[redacted]	1685	7/30/77	no	yes	US,UC/LC,G	57	US,UC/LC	20	no	A
126	NW4NE4,10,27N,43E	[redacted]	1855	7/9/64	no	yes	US,UC	84	--	6	no	D
127	10,27N,43E	[redacted] ict	±1860	8/22/72	yes	yes	US,UC,MS	214	US,UC	nd	no	C
128	SW4SW4,10,27N,43E	[redacted]	1885	2/9/78	no	yes	US,UC,MS,C, B,LC,LS	190	US,UC,MS, C,B,LC	18	no	A
129	NW4NW4,10,27N,43E	[redacted]	1678	5/20/77	no	yes	US,UC,MS	59	US,UC	25	no	A
130	SE4SE4SE4,10,27N,43E	[redacted]	1859	4/15/77	no	yes	US,UC,MS	245	US	nd	no	nd
131	SE4SE4SE4,10,27N,43E	[redacted]	1855	7/11/74	no	yes	US,UC,MS,LC,	282	US,UC,MS LS,DG	18	no	A
132	SW4NW410,27N,43E	[redacted]	1670	10/20/76	no	yes	US,UC	40	--	20	no	A
133	SE4SW4,11,27N,43E	[redacted]	1850	9/7/76	no	yes	--UC/LC,MS/LS	176	--	nd	no	A
134	SE4NW4,11,27N,43E	[redacted]	±1860	11/56	yes	no	US	170	--	nd	no	nd
135	NE4SE4,12,27N,43E	[redacted]	1875	6/20/78	no	yes	US,G	27	US	18	no	A
136	W2SW4,12,27N,43E	[redacted]	1880	10/26/77	no	yes	US,UC/LC,G	67.5	US,UC/LC	20	no	A
137	NW4NE4,12,27N,43E	[redacted]	1910	7/27/73	no	yes	UC,MS,LC,S,B	144	UC,MS	18	no	A
138	NW4NW4,13,27N,43E	[redacted]	1846	6/10/76	no	yes	US,UC,MS	230	US,UC	20	no	A
139	SW4NW4,13,27N,43E	[redacted]	1860	6/20/75	no	yes	G	19	--	20	no	A
140	E3/4NE4NW4,14,27N,43E	[redacted]	1857	8/30/75	no	no	US	194	--	20	no	A
141	SW4NW4NW4,14,27N,43E	[redacted]	1855	10/8/75	no	yes	US	100	--	20	no	A
142	NW4SW4,14,27N,43E	[redacted]	1845	7/6/76	no	yes	US,UC,MS	238	US,UC	18	no	A
143	NE4NW4,14,27N,43E	[redacted]	1855	8/2/76	no	yes	US,UC,MS	231	US,UC	18	no	A
144	NE4NE4,15,27N,43E	[redacted]	1852	5/27/77	no	yes	US,UC,MS	246	US,UC	84	no	A
145	N2,15,27N,43E	[redacted]	1850	12/29/76	no	yes	US,UC,MS,LC,G	305	US,UC	18	no	A
146	N2,15,27N,43E	[redacted]	1850	12/29/76	no	yes	US,UC,MS,LC,G	305	US,UC	18	no	A
147	SE4NW4,15,27N,43E	[redacted]	1842	5/31/78	no	yes	US,UC,MS	241	US,UC	18	no	A
148	SE4NW4,15,27N,43E	[redacted]	1842	2/24/78	no	yes	US,UC,MS	197	US,UC	18	no	A
149	SW4NW4,15,27N,43E	[redacted]	1793	10/10/73	no	yes	US,UC	170	US	20	no	A
150	S2,15,27N,43E	[redacted]	1842	7/17/79	no	yes	US,UC,MS	224	US	20	no	A
151	NE4NW415,27N,43E	[redacted]	1849	6/24/76	no	yes	US	80	--	20	no	A
152	NE4SE4,15,27N,43E	[redacted]	1847	12/28/70	no	yes	US,UC	92	--	nd	no	A

TABLE 1 - Continued

Well No.	Well Location	Current Ownership	Land Surface Elevation (ft.)	Date Well Drilled	Field Location Checked	Pump Test Data Available	Units Penetrated* (top-bottom)	Casing Schedule: length (ft.)	Casing Schedule: cased out units*	Casing Schedule: depth of seal (ft.)	Water Quality Data Avail.	Type of Water Use**
153	NE4SW4NW4,16,27N,43E	(b) (6) [redacted]	1890	nd	no	no	B	nd	nd	nd	no	A,D
154	SW4NE4,16,27N,43E		1700	6/8/59	no	yes	nd	nd	nd	nd	no	nd
155	SW4NW4,16,27N,43E		1800	8/17/73	no	no	B,UC	55	B	20	no	A
156	NE4SE4,16,27N,43E		1780	4/22/77	no	yes	UC	72	--	70	no	A
157	NW4NE4,16,27N,43E		1680	9/8/77	no	yes	US,UC,MS,LC	192	US,UC	18	no	A
158	NE4SW4,16,27N,43E		1764	7/5/78	no	yes	US,UC,MS	156	US	40	no	A
159	SW4SE4,16,27N,43E		1680	7/25/78	no	yes	B/C/B	20	B/C	20	no	A
160	SW4SE4,16,27N,43E		1630	8/21/78	no	yes	UC/LC,G	74	UC/LC	18	no	A
161	SW4NW4,16,27N,43E		1800	8/17/73	no	no	B,UC	55	B	20	no	A
162	NE4SW4,16,27N,43E		1700	4/21/75	no	no	US,C/B	53	--	20	no	A
163	NW4NE4,16,27N,43E		1680	4/22/75	no	yes	US,UC,MS	115	US,UC	nd	no	A
164	NW4SW4,17,27N,43E		2060	6/10/80	no	yes	--G	140	--	nd	no	A
165	NE4NE4,17,27N,43E		1905	8/16/73	no	no	US,UC,MS	83	US,UC	20	no	A
166	S2,NE4,17,27N,43E		1935	11/30/63	no	yes	UC	10	--	nd	no	A,D
167	SE4,17,27N,43E		2000	5/21/65	no	no	UC,B,LC,MS/LS	323.5	UC,B	0	no	A
168	NE4SW4,17,27N,43E		1975	2/1/74	no	yes	US,UC,MS	42	US	20	no	A
169	SE4,17,27N,43E		2000	5/21/65	no	no	UC,B,LC,MS/LS	323.5	UC,B	0	no	A
170	SW4SW4,17,27N,43E		2020	10/31/75	no	yes	US,G	74	US	18	no	A
171	NW4NE4,17,27N,43E		1970	7/10/73	no	no	US	11	--	nd	no	A
172	17,27N,43E		nd*	5/23/69	no	yes	US,B	65	US	nd	no	A
173	NE4NE4,17,27N,43E		1905	8/16/73	no	no	US,UC,MS	83	US,UC	20	no	A
174	17,27N,43E		1987	2/5/74	no	yes	US,B,S,B	85	US,B,S	18	no	A
175	SW4SW4,17,27N,43E		2020	10/31/75	no	yes	US,G	74	US	18	no	A
176	SW4SW4,17,27N,43E		2020	6/15/76	no	yes	US,UC,MS,LC, LS,G	261	US,UC,MS, LC,LS	20	no	A
177	W2NW4NE4SW4,17, 27N,43E		1990	11/2/76	no	yes	US,B,G	60	US	40	no	A
178	NE4NE4,17,27N,43E		1905	1/9/78	no	yes	US,UC,B	61	US,UC	18	no	A
179	NW4NE4,17,27N,43E		1975	5/26/77	no	yes	UC,B,UC/LC,B	51	UC	18	no	A
180	NE4NE4,17,27N,43E		1905	8/3/78	no	yes	US,G	20	US	18.5	no	A
181	NW4SW4,17,27N,43E		2060	10/79	no	yes	US,UC,MS,B	65	US	20	no	A
182	NW4SW4,17,27N,43E		2060	10/79	no	yes	US,UC,MS,B	65	US	20	no	A
183	NE4NE4,17,27N,43E		1905	1/7/78	no	yes	US,UC,B	76	US	18	no	A
184	NE4SW4,17,27N,43E		1960	3/23/77	no	yes	B	24	--	24	no	A
185	E2E2,3,27N,43E(h)		±1878	nd	yes	nd	nd	nd	nd	nd	yes	A
186	N2NE4SE4,3,27N,43E(g)		1878	3/20/78	no	yes	US,UC,MS	198.5	US,UC	20	no	A
187	E2W2,3,27N,43E		±1700	nd	yes	nd	surface	nd	nd	nd	yes	surface
188*	N2SE4NE4,3,27N,43E		±1878	nd	no	nd	nd	nd	nd	nd	yes	A
189*	NW4SW4,2,17N,43E		±1878	nd	no	nd	nd	nd	nd	nd	yes	A
190*	NE4SW4,2,27N,43E		±1880	nd	no	nd	nd	nd	nd	nd	yes	A
191*	W2SE4,10,27N,43E		±1850	nd	no	nd	nd	nd	nd	nd	yes	A
192*	SW4SW4,2,27N,43E		±1865	nd	yes	nd	nd	nd	nd	nd	yes	A
193*	NW4,10,27N,43E		±1700	nd	no	nd	nd	nd	nd	nd	yes	nd
194*	SW4NE4,10,27N,43E		±1820	nd	no	nd	nd	nd	nd	nd	yes	A
195*	NE4SW4,10,27N,43E		±1800	nd	nd	nd	nd	nd	nd	nd	yes	A

TABLE 1 - Continued

Well No.	Well Location	Current Ownership	Land Surface Elevation (ft.)	Date Well Drilled	Field Location Checked	Pump Test Data Available	Units Penetrated• (top-bottom)	Casing Schedule length (ft.)	Casing Schedule cased out units•	Casing Schedule depth of seal (ft.)	Water Quality Data Avail.	Type of Water Use••
196*	SW4SW4,2,27N,43E	(b) (6) [redacted]	±1865	8/24/81	yes	yes	US,UC,B, UC/LC,G	327	US,UC,B	±327	no	A,D
197*	SE4SW42,27N,43E		1865	4/3/81	no	yes	US,UC,B,C,B	139	US,UC,B,C	40	no	A
198*	SE4SW4,2,27N,43E		1865	3/13/81	no	yes	DG,G	380.6	--	nd	no	A
199*	NW4NW4,2,27N,43E		1900	5/11/76	no	yes	US,--,UC,B	135	US	19	no	A
200*	NW4,10,27N,43E	Lincoln Green of WA	1680	8/22/69	no	yes	US	75	--	13	no	C

LEGEND

• US = upper sand/gravel
UC = upper clay
MS = middle sand/gravel
LC = lower clay
LS = lower sand/gravel
DG = decomposed granite
G = granite
B = basalt
C = clay
S = sand

•• A = domestic
B = industrial
C = municipal
D = irrigation
E = test well
F = other

* not included in map of well locations from legal descriptions (fig. 1)

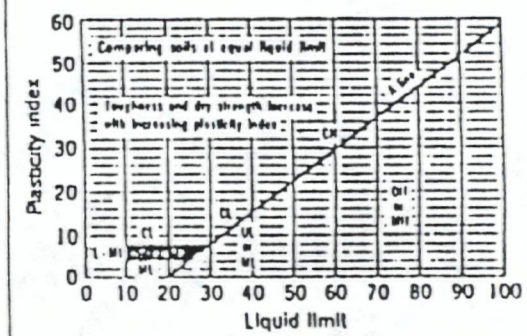
TABLE 2 - A tabulation of estimates of transmissivity of the three principal aquifers at the Colbert Landfill, Spokane County, Washington.

Well No.	Aquifer Tested	Estimated T* Value (gpd/ft.)	Well No.	Aquifer Tested	Estimated T* Value (gpd/ft.)
1	MS	11,000	71	MS	500
3	US	40,000	73	US	18,000
7	US	1,000	74	US	1,200
11	US	14,000	77	MS	100
15	MS	1,800	79	LS	21,000
17	US	5,000	119	US	300
23	US,B	1,000	123/128	LS	300
36	US	3,500	126	US	17,500
40	MS	33,500	127	MS	2,500
43	LS	1,000	129	MS	1,000
50	MS	800	130	MS	5,000
54	MS	2,000	131	LS	500
55	US	33,500	138	MS	37,000
56	MS	5,000	141	US	23,000
57	MS	4,000	142	MS	6,000
58	MS	800	145/146	MS	800
59	US	98,000	149	US	100
60	US	22,000	150	MS	1,000
61	US	33,500	151	US	100
64	MS	200	152	US	5,500
65	MS	28,000	154	US	1,000
66	MS	300	163	MS	2,100
67	MS	500	166	US	4,000
69	MS	200	168	MS	700
70	MS	100			

* Transmissivity estimated from specific capacity information according to the method developed by Theis, et al., 1963.

TABLE 3 - Unified Soil Classification System.

Field Identification Procedures (Excluding particles larger than 3 in. and basing fractions on estimated weights)				Group Symbols[a]	Typical Names	Information Required for Describing Soils	Laboratory Classification Criteria	
Coarse-grained soils More than half of material is larger than No. 200 sieve size[b] (The No. 200 sieve size is about the smallest particle visible to naked eye)	**Gravels** More than half of coarse fraction is larger than No. 4 sieve size (For visual classification, the ¼ in. size may be used as equivalent to the No. 4 sieve size)	Clean gravel (Little or no fines)	Wide range in grain size and substantial amounts of all intermediate particle sizes	*GW*	Well graded gravels, gravel-sand mixtures, little or no fines	Give typical name; indicate approximate percentages of sand and gravel; maximum size; angularity, surface condition, and hardness of the coarse grains; local or geologic name and other pertinent descriptive information; and symbols in parentheses For undisturbed soils add information on stratification, degree of compactness, cementation, moisture conditions and drainage characteristics Example: *Silty sand*, gravelly; about 20% hard, angular gravel particles ½-in. maximum size; rounded and subangular sand grains coarse to fine, about 15% nonplastic fines with low dry strength; well compacted and moist in place; alluvial sand; (*SM*)	Determine percentages of gravel and sand from grain size curve Depending on percentage of fines (fraction smaller than No. 200 sieve size) coarse grained soils are classified as follows: Less than 5% *GW, GP, SW, SP* More than 12% *GM, GC, SM, SC* 5% to 12% *Borderline cases requiring use of dual symbols*	$C_u = \frac{D_{60}}{D_{10}}$ Greater than 4 $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3
			Predominantly one size or a range of sizes with some intermediate sizes missing	*GP*	Poorly graded gravels, gravel-sand mixtures, little or no fines			Not meeting all gradation requirements for *GW*
		Gravels with fines (appreciable amount of fines)	Nonplastic fines (for identification procedures see *ML* below)	*GM*	Silty gravels, poorly graded gravel-sand-silt mixtures			Atterberg limits below "A" line, or *PI* less than 4 — Above "A" line with *PI* between 4 and 7 are *borderline* cases requiring use of dual symbols
			Plastic fines (for identification procedures, see *CL* below)	*GC*	Clayey gravels, poorly graded gravel-sand-clay mixtures			Atterberg limits above "A" line, with *PI* greater than 7
	Sands More than half of coarse fraction is smaller than No. 4 sieve size	Clean sands (Little or no fines)	Wide range in grain sizes and substantial amounts of all intermediate particle sizes	*SW*	Well graded sands, gravelly sands, little or no fines			$C_u = \frac{D_{60}}{D_{10}}$ Greater than 6 $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3
			Predominantly one size or a range of sizes with some intermediate sizes missing	*SP*	Poorly graded sands, gravelly sands, little or no fines			Not meeting all gradation requirements for *SW*
		Sands with fines (appreciable amount of fines)	Nonplastic fines (for identification procedures, see *ML* below)	*SM*	Silty sands, poorly graded sand-silt mixtures			Atterberg limits below "A" line or *PI* less than 4 — Above "A" line with *PI* between 4 and 7 are *borderline* cases requiring use of dual symbols
			Plastic fines (for identification procedures, see *CL* below)	*SC*	Clayey sands, poorly graded sand-clay mixtures			Atterberg limits below "A" line with *PI* greater than 7
Fine-grained soils More than half of material is smaller than No. 200 sieve size (The No. 200 sieve size is about the smallest particle visible to naked eye)	Identification Procedures on Fraction Smaller than No. 40 Sieve Size						Use grain size curve in identifying the fractions as given under field identification	
		Dry Strength (crushing characteristics)	Dilatancy (reaction to shaking)	Toughness (consistency near plastic limit)				
	Silts and clays liquid limit less than 50	None to slight	Quick to slow	None	*ML*	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands with slight plasticity	Give typical name; indicate degree and character of plasticity, amount and maximum size of coarse grains; colour in wet condition, odour if any, local or geologic name, and other pertinent descriptive information, and symbol in parentheses For undisturbed soils add information on structure, stratification, consistency in undisturbed and remoulded states, moisture and drainage conditions Example: *Clayey silt*, brown; slightly plastic; small percentage of fine sand; numerous vertical root holes; firm and dry in place; loess; (*ML*)	
		Medium to high	None to very slow	Medium	*CL*	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays		
		Slight to medium	Slow	Slight	*OL*	Organic silts and organic silt-clays of low plasticity		
	Silts and clays liquid limit greater than 50	Slight to medium	Slow to none	Slight to medium	*MH*	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts		
		High to very high	None	High	*CH*	Inorganic clays of high plasticity, fat clays		
		Medium to high	None to very slow	Slight to medium	*OH*	Organic clays of medium to high plasticity		
Highly Organic Soils		Readily identified by colour, odour, spongy feel and frequently by fibrous texture			*Pt*	Peat and other highly organic soils		



Plasticity chart
for laboratory classification of fine grained soils

From Wagner, 1957.

[a] *Boundary classifications.* Soils possessing characteristics of two groups are designated by combinations of group symbols. For example *GW GC*, well graded gravel-sand mixture with clay binder.

[b] All sieve sizes on this chart are U.S. standard.

TABLE 4 - Water quality on October 3, 1980 at selected wells near the Colbert Landfill, Spokane County, Washington.

Samples Collected: October 3, 1980
Laboratory: Washington State DSHS

Aquifer:		nd	LS	nd	surface	nd	nd	nd
Well Number:		#192	#79	#191		#194	#195	#193
		(b) (6)			King Spring	(b) (6)		N. Glen Estates
Tests:	MCL (μ/l)	(μ/l)	(μ/l)	(μ/l)	(μ/l)	(μ/l)	(μ/l)	(μ/l)
Arsenic	0.05P	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Barium	1.0P	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Cadmium	0.01P	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Chromium	0.05P	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Iron	0.3	0.5	0.05	0.05	0.05	0.05	0.05	0.05
Lead	0.05P	0.010	0.010	0.010	0.010	0.014	0.010	0.010
Manganese	0.05	0.205	0.010	0.010	0.010	0.054	0.010	0.010
Mercury	0.002P	0.0005	0.0005	0.0005	0.0005	0.0010	0.0005	0.0005
Selenium	0.01P	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Silver	0.05P	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Sodium		15	10	10	10	10	10	10
Hardness		130	320	280	180	140	220	120
Conductivity (Micromhos/cm @ 25°C)	700	7300	610	*	400	270	470	*
Turbidity	1.0P	1.8	0.3	0.2	0.1	0.2	0.1	0.1
Fluoride	2.0P	0.3	0.2	0.2	0.2	0.2	0.3	0.2
Nitrate	10.0P	0.5	1.3	3.4	0.2	0.4	2.4	1.2
Chloride	250							
Sulfate	250							

MCL = Maximum Contaminant Level Allowed
P = Primary Standard
* Data not readable

TABLE 5 - Water quality on November 24, 1980 at selected wells near the Colbert Landfill, Spokane County, Washington.

Samples collected: November 24, 1980
Laboratory: EPA, Seattle

Aquifer:	LS	LS	LS	LS	nd		nd	nd	nd	nd	LS
Well Number:	#79	#79	#79	#79	#185		#193	#191	#192	#186	#79
Owner:	(b) (6)				(b) (6)		North Glen	(b) (6)			(b) (6)
	[inside]	[inside]	[outside]	[outside]							[inside]
	(µg/l)	(µg/l)	(µg/l)	(µg/l)	(µg/l)		(µg/l)	(µg/l)	(µg/l)	(µg/l)	(µg/l)
Compound											
Chloroform	7.9	10	10	10	9.5	9.7	--	--	--	--	7.6
1,1-Dichloroethylene	230	230	250	220	36	38	--	--	--	--	180
1,2-Dichloroethylene	75	77	73	76	39	39	--	--	--	--	72
1,1,1-Trichloroethane	9100	9500	10300	9600	1460	1340	--	1.3	1.7	14	5200
Trichloroethylene	19	20	20	20	1	1	--	--	--	--	9.1

TABLE 6 - Water quality on December 5, 1980 at selected wells near the Colbert Landfill, Spokane County, Washington.

Samples Collected: December 5, 1980
Laboratory: EPA, Seattle

Aquifer	UC	US	nd	nd	nd	nd
Well Number	73a	73b	188	189	186	190
Owner	(b) (6)					
Compound	(µ/l)	(µ/l)	(µ/l)	(µ/l)	(µ/l)	(µ/l)
Methylene Chloride	nd	nd	trace	nd	nd	nd
Chloroform	8.5	7.3	--	--	6.9	--
1,1-Dichloroethylene	110	7.4	5.4	6.0	112	6.9
1,2-Trans-Dichloroethylene	trace	--	--	--	4.4	--
Trichloroethylene	--	--	--	--	--	--
1,1,1-Trichloroethane	1250 1110	44	1.1	1.5	1640 1520	1.4

TABLE 7 - Water quality on February 10 and 11, 1981 at selected wells near the Colbert Landfill, Spokane County, Washington.

Samples Collected: February 10 and 11, 1981
Laboratory: EPA, Seattle

Aquifer:	LS	surface	nd	nd	US	UC
Well Number:	#79		#186	#185	#73b	#73a
Owner:	(b) (6) [redacted]					
	Well (µ/l)	Spring (µ/l)	Well (µ/l)	Well (µ/l)	Well (µ/l)	Well (µ/l)
PESTICIDES						
PCB 1260	--	N/A	N/A	N/A	N/A	N/A
BASE NEUTRAL EXTRACTABLES						
Bis (2-Ethylhexyl) Phthalate	--	2	--	--	7	--
N-Butyl Benzyl Phthalate	--	--	--	--	--	--
Di-N-Butyl Phthalate	--	2	--	--	2	--
Di-N-Octyl Phthalate	--	1	--	--	--	--
Diethyl Phthalate	--	1	--	--	1	--
ACID COMPOUNDS	--	--	--	--	--	--
VOLATILE ORGANICS b/						
Tetrachloromethane (Carbon Tetrachloride)	--	--	--	--	3.3	--
1,2-Dichloroethane	3	--	--	5	3	4.3
1,1,1,-Trichloroethane	9400	33	1700	2100	53	1080
1,1-Dichloroethane	55	--	64	80	--	43
Trichloromethane (Chloroform)	1.3	--	--	--	--	--
1,1-Dichloroethylene	380	--	--	--	--	--
1,2-Trans-Dichloroethylene	--	--	--	--	--	--
Dichloromethane (Methylene Chloride)	34	--	--	--	--	--
Dichlorobromomethane (Bromodichloromethane)	--	--	--	--	--	--
Tetrachloroethylene	--	--	--	--	--	--
Trichloroethylene	12	--	--	--	--	--

a/ This table is based on analyses by the Region 10 EPA Laboratory for organic "priority pollutants".
b/ Volatile organics - Reported concentrations are gas chromatograph (GC) results.
-- Not detected - less than the detection limit.

NOTE: 5/1/81 telephone conversation with Carolyn Wilson, Region 10 EPA, indicated that none of the above compounds were detected in Santora's, Merritt's, Russell's or Bademian's wells. These wells were not included on the chart for that reason.