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RADON, CONDUCTIVITY, AND pH VALUES FOR 146 WATER SAMPLES FROM SNOWY RANGE, WYOMING

by

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One hundred and forty-six water samples were collected from the Snowy Range, Wyoming, during August and September of 1977, as part of a hydrogeochemical study of the area. The Snowy Range is located in southeastern Wyoming, approximately forty miles west of Laramie, Wyoming.

Water samples were collected from 98 springs, 19 wells, 14 streams, and 15 bogs. Each sample was measured for dissolved radon, specific conductance, and pH. All measurements were completed within twenty-four hours of sample collection.

Water samples were collected, without filtering, in one-liter glass bottles. The caps of these bottles were fitted with aluminum fold gaskets to prevent leakage of radon gas. All measurements were completed in the field. Radon was measured by using a portable alpha scintillometer (E.D.A. Electronics, Ltd., 1977) and specific conductance by conductivity bridge (Brown and others, 1970).

Table 1 is a list of sample locality numbers and sources. Analytical data for each sample locality, as well as latitude and longitude are also shown. The source column is coded 1=spring, 2= well, 3=stream, and 4=bog. Radon is reported in picocuries per liter. Table 2 is a summary of the measurements for the 146 water samples showing each constituent with its minimum and maximum values, mean, geometric mean, standard deviation, and geometric deviation.

Table 1. -- RADON, CONDUCTIVITY, AND pH MEASUREMENTS ON 146 WATER SAMPLES FROM SNOWY RANGE, WYOMING

Sample	LATITUDE	LONGITUDE	RN(pCi/L)	SP.COND. (μmhos/cm)	pH	SOURCE
WF1	41 21 53	106 18 2	1,576	13	6.50	1
WF2	41 21 52	106 18 12	220	9	6.45	1
WF3	41 21 45	106 18 20	22	6	7.85	1
WF4	41 21 39	106 18 21	3,511	12	6.50	1
WF5	41 21 15	106 18 39	2,042	39	6.55	1
WF6	41 21 0	106 19 7	47	10	7.40	3
WF7	41 20 48	106 18 58	139	15	6.35	1
WF8	41 21 0	106 18 28	366	21	6.40	1
WF9	41 24 28	106 16 57	935	31	6.60	1
WF10	41 24 54	106 16 58	3,196	16	6.15	1
WF11	41 24 44	106 17 49	2,500	34	6.15	1
WF12	41 24 9	106 18 1	93	18	5.80	1
WF13	41 24 19	106 17 38	2,116	21	5.75	1
WF14	41 23 53	106 17 20	58	75	7.00	1
WF15	41 23 50	106 16 48	107	15	6.25	1
WF16	41 24 1	106 16 3	1,055	30	6.75	1
WF17	41 23 50	106 15 8	19	42	6.65	1
WF18	41 21 39	106 18 21	3,283	12	6.35	1
WF19	41 23 32	106 14 22	6,118	111	6.85	1
WF20	41 23 44	106 14 11	1,335	60	7.00	1
WF21	41 23 11	106 14 23	187	12	6.50	1
WF22	41 19 10	106 9 43	809	86	7.60	1
WF23	41 20 34	106 9 48	385	157	7.70	1
WF24	41 23 15	106 11 29	431	85	7.15	1
WF25	41 26 34	106 12 3	89	20	6.75	1
WF26	41 27 31	106 16 26	673	130	7.00	2
WF27	41 28 12	106 13 34	3	29	7.15	1
JM42	41 21 46	106 17 3	248	12	6.60	1
JM43	41 21 54	106 16 32	9	13	7.25	3
JM44	41 21 54	106 16 41	488	65	7.35	1
JM45	41 22 21	106 16 18	1	15	7.00	3
JM46	41 22 30	106 16 3	15	15	6.20	1
JM47	41 22 44	106 15 32	46	5	5.85	1
JM48	41 22 18	106 15 31	75	40	6.45	1
JM49	41 21 40	106 15 58	125	165	7.75	1
JM50	41 21 25	106 20 5	558	14	6.25	1
JM51	41 21 45	106 19 55	1,765	10	5.90	1
JM52	41 22 6	106 20 12	546	16	5.80	1
JM53	41 22 8	106 19 37	653	7	6.25	1
JM54	41 22 27	106 19 27	4,821	24	6.00	1
JM55	41 22 31	106 19 19	105	14	6.45	1
JM56	41 22 53	106 19 38	20	26	6.95	3
JM57	41 22 54	106 19 43	119	48	6.45	1
JM58	41 22 54	106 20 15	38	87	7.30	1
JM59	41 22 59	106 20 18	103	42	6.85	1

Table 1. -- RADON, CONDUCTIVITY, AND pH MEASUREMENTS ON 146 WATER SAMPLES FROM SNOWY RANGE, WYOMING--continued

Sample	LATITUDE	LONGITUDE	RN(pCi/L)	SP.COND. (μmhos/cm)	pH	SOURCE
JM60	41 23 0	106 18 52	425	12	6.00	1
JM61	41 23 4	106 18 17	14	8	5.85	3
JM62	41 23 26	106 18 30	46	16	6.25	1
JM63	41 24 34	106 15 22	25	18	6.90	1
JM64	41 24 45	106 15 25	200	10	6.75	1
JM65	41 24 48	106 15 27	188	9	6.90	1
JM66	41 25 0	106 15 17	2,784	15	5.65	1
JM67	41 24 24	106 16 19	142	16	7.15	1
JM68	41 23 23	106 16 44	2,347	24	6.00	1
JM69	41 23 15	106 16 42	2,373	36	6.85	1
JM70	41 23 3	106 17 10	180	15	6.70	1
JM71	41 22 56	106 17 21	93	15	5.95	1
JM72	41 21 45	106 17 32	2,860	23	6.85	1
WM1	41 19 56	106 19 34	2,814	92	8.05	2
WM2	41 19 57	106 19 31	3,663	95	8.00	2
WM3	41 20 17	106 19 16	1,026	22	6.35	2
WM4	41 21 1	106 18 27	524	20	7.00	1
WM5	41 20 59	106 18 27	340	30	6.95	1
WM6	41 21 28	106 17 39	479	140	8.00	2
WM7	41 21 15	106 17 45	511	130	7.55	2
WM8	41 20 57	106 17 32	234	130	7.80	3
WM9	41 21 20	106 15 35	206	230	7.40	1
WM10	41 21 37	106 17 30	7,982	18	5.90	1
WM11	41 22 11	106 17 50	1	13	6.05	4
WM12	41 22 26	106 17 41	1	21	6.55	3
WM13	41 22 32	106 17 40	47	10	6.15	3
WM14	41 22 58	106 17 42	349	9	6.50	1
WM15	41 23 27	106 17 25	802	25	6.30	1
WM16	41 23 30	106 17 34	39	12	6.30	3
WM17	41 23 22	106 17 38	5,983	15	5.70	1
WM18	41 23 17	106 17 50	1,347	14	5.75	4
WM19	41 23 7	106 17 48	942	10	6.80	1
WM20	41 21 48	106 17 30	1,127	9	5.85	1
WM21	41 26 45	106 16 22	1,401	180	7.40	1
WM22	41 26 32	106 16 38	1,238	160	6.45	1
WM23	41 26 5	106 16 44	1	29	6.55	1
WM24	41 26 3	106 16 52	239	18	6.45	1
WM25	41 26 2	106 17 13	77	10	6.35	3
WM26	41 26 6	106 17 29	3,331	18	5.70	1
WM27	41 25 36	106 17 55	482	35	6.05	4
WM28	41 25 34	106 17 18	817	38	6.15	4
WM29	41 25 12	106 16 58	2,737	16	5.95	1
WM30	41 25 17	106 16 37	3,511	23	5.75	4
WM31	41 25 48	106 16 37	1	17	6.60	3
WM32	41 26 17	106 16 17	9	34	7.20	4

Table 1. -RADON, CONDUCTIVITY, AND pH MEASUREMENTS ON 146 WATER SAMPLES FROM SNOWY RANGE, WYOMING--continued

Sample	LATITUDE	LONGITUDE	RN(pCi/L)	SP.COND. (μmhos/cm)	pH	SOURCE
WM33	41 26 38	106 15 56	4	65	8.35	4
WM34	41 26 22	106 15 51	572	145	6.90	3
WM35	41 26 9	106 15 30	2,939	29	5.95	4
WM36	41 26 8	106 15 23	1,013	17	5.50	1
WM37	41 25 59	106 15 17	1,756	27	5.85	1
WM38	41 25 47	106 15 14	1	13	6.35	4
WM39	41 25 43	106 15 18	850	22	5.70	1
WM40	41 25 30	106 15 45	8,065	110	7.05	1
WM41	41 25 16	106 15 56	2,570	14	5.65	1
WM42	41 25 44	106 15 51	625	48	5.95	4
WM43	41 25 54	106 15 43	20,605	51	5.90	1
WM44	41 21 37	106 17 36	419	68	6.80	4
WM45	41 21 43	106 17 23	4,059	19	6.15	1
WM46	41 21 45	106 17 24	9,239	25	6.75	1
WM47	41 21 53	106 17 24	101	12	6.35	1
WM48	41 21 44	106 17 40	5,227	90	7.00	1
WM49	41 21 33	106 17 57	1,361	65	6.60	1
WM50	41 21 28	106 17 53	1,023	16	6.80	1
WM51	41 21 28	106 17 53	1,001	15	6.50	1
WM52	41 19 56	106 19 34	2,344	105	7.55	2
WM53	41 19 56	106 19 34	2,180	105	7.60	2
WM54	41 19 57	106 19 31	3,636	110	7.60	2
WM60	41 13 3	106 16 22	6,437	45	7.00	1
WM61	41 13 33	106 28 50	4,686	170	6.95	2
WM62	41 20 54	106 12 58	713	170	7.50	2
WM63	41 19 26	106 10 33	763	175	7.05	2
WM64	41 19 8	106 9 38	982	85	7.10	2
WM65	41 20 32	106 17 15	309	250	7.45	1
WM66	41 19 48	106 18 12	753	205	7.55	1
WM67	41 19 34	106 18 19	772	105	7.20	1
WM68	41 19 33	106 18 11	840	170	7.60	1
WM69	41 18 49	106 17 8	134	40	7.35	4
WM70	41 18 58	106 16 49	1	31	6.30	4
WM71	41 19 57	106 16 33	2,641	165	6.95	1
WM72	41 19 56	106 15 34	739	135	6.25	1
WM73	41 20 2	106 15 42	1	48	6.55	4
WM74	41 20 5	106 17 0	42	140	6.95	4
WM75	41 21 15	106 14 42	1,997	165	7.15	1
WM76	41 22 26	106 14 48	602	10	5.90	2
WM77	41 22 26	106 14 45	574	14	6.85	2
WM78	41 19 20	106 23 38	1,040	85	6.45	1
WM79	41 19 36	106 25 50	55	21	7.40	1
WM80	41 19 36	106 29 32	778	48	--	2
WM81	41 18 49	106 31 40	675	111	7.15	1
WM82	41 18 37	106 31 53	136	48	7.35	3

Table 1.-- RADON, CONDUCTIVITY, AND pH MEASUREMENTS ON 146 WATER SAMPLES FROM SNOWY RANGE, WYOMING--continued

Sample	LATITUDE	LONGITUDE	RN(pCi/L)	SP.COND. (μmhos/cm)	pH	SOURCE
WM83	41 22 26	106 30 47	2,048	173	7.45	2
WM84	41 22 32	106 30 50	28	370	7.45	1
WM85	41 20 40	106 30 9	1,237	45	6.65	2
WM86	41 21 4	106 37 27	229	255	8.05	1
WM87	41 19 25	106 32 7	1,345	68	6.55	1
WM88	41 21 29	106 14 0	386	250	7.60	2
WM89	41 10 57	106 8 1	280	245	7.60	3
WM90	41 10 39	106 8 49	195	260	7.30	1
WM91	41 12 43	106 12 57	536	22	7.20	1
WM92	41 13 28	106 13 14	1,862	36	6.65	1
WM93	41 14 3	106 14 24	108	48	6.75	1

Table 2. -- Summary of analytical data for 146 water samples, Snowy Range, Wyo.

[Leaders (--) indicates no data]

Constituent	Minimum	Maximum	Mean	Geometric mean	Standard deviation	Geometric deviation
Rn (pCi/L)	1.0	20605.	1360.	341.	2352.	9.08
pH	5.50	8.35	6.67	--	0.839	--
Sp. Cond. (μmhos/cm)	5.0	370.	61.3	35.7	68.4	2.81

References cited

Brown, Eugene, Skougstad, M. W., and Fishman, M. J., 1970, Methods for collection and analysis of water samples for dissolved minerals and gases: U.S. Geological Survey Techniques of Water Resources Investigation TWI5-AL, 160 p.

E. D. A. Electronics, Ltd., 1977, Radon by E. D. A., Ottawa, Canada, 16 p.