DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

PREPARED IN COOPERATION WITH THE SHOSHONE–BANNOCK TRIBES,
FORT HALL INDIAN RESERVATION

OPEN–FILE REPORT 89–594
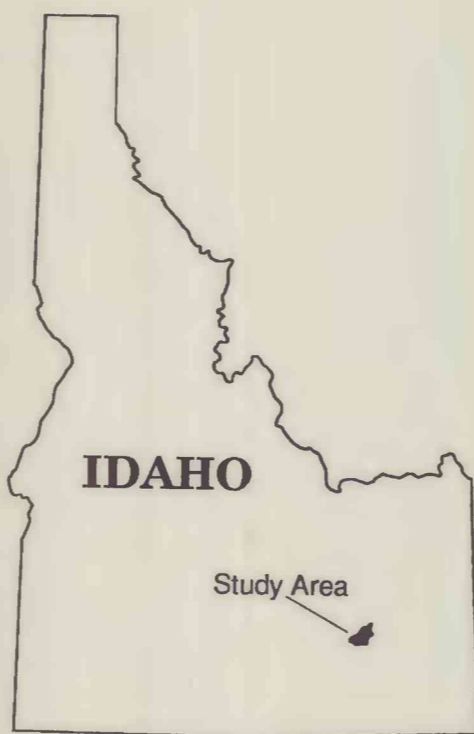SHEET 1 OF 1

WELL–NUMBERING SYSTEM

The well-numbering system used by the U.S. Geological Survey in Idaho indicates the location of wells within the official rectangular subdivision of public lands, with reference to the Boise base line and Meridian. The first two segments of the number designate the township (north or south) and range (east or west). The third segment gives the section number; four letters, which indicate the 1/4 section (160-acre tract), 1/4-1/4 section (40-acre tract), and 1/4-1/4-1/4 section (10 acre tract); and serial number of the well within the tract. Some wells are located to the 1/4-1/4-1/4-1/4 section (2 1/2-acre tract).

Quarter sections are designated by the letters A, B, C, and D in counterclockwise order from the northeast quarter of each section. Forty-acre, 10-acre, and 2 1/2-acre tracts within each quarter section are lettered in the same manner. Well 4S-34E-26DAD1 (example at left) is in the SE 1/4NE 1/4SE 1/4 sec. 26, T. 4 S., R. 34 E., and was the first well inventoried in that tract.

The purpose of this report is to define the areal extent of anomalously high dissolved nitrogen concentrations in ground water near Fort Hall on the Fort Hall Indian Reservation. The study area includes that part of the reservation west of the Fort Hall Main Canal in townships 3, 4, and 5 south, ranges 34 and 35 east. Onsite determinations of specific conductance, pH, water temperature, and concentrations of total alkalinity, dissolved chloride, and dissolved nitrite plus nitrate (as nitrogen) were made at 71 sites during June 1989. When onsite nitrite plus nitrate concentrations exceeded about 6 mg/L nitrogen, ground-water samples were collected for nitrite nitrate (as nitrogen) ammonia, and ammonia plus organic nitrogen (as nitrogen) analyses at the U.S. Geological Survey National Water Quality Laboratory.

Locations of wells and concentrations of nitrite plus nitrate (as nitrogen) are shown on the map at lower left. Selected well-inventory and water-quality data for the 71 wells sampled during this study are shown in the table at right. A statistical summary of selected water-quality data is shown in the table at lower right. Reference numbers in the last column of the table at right are for wells that were measured during July 1988. Analyses for those wells were published in the following report: Parliman, D.J., and Young, H.W., 1988, Selected water-quality data for the Fort Hall Indian Reservation, southeastern Idaho, July 1988: U.S. Geological Survey Open-File Report 88-496, scale 1:100,000.

EXPLANATION

2.8 / 38 — NITRITE PLUS NITRATE AS NITROGEN, IN MILLIGRAMS PER LITER; LABORATORY VALUES GIVEN WHEN AVAILABLE (Rounded to the nearest 0.1 per liter)

WELL

REFERENCE NUMBER (See table at right)

BOUNDARY OF STUDY AREA

INDEX MAP OF IDAHO

IDAHO

Study Area

CONVERSION FACTORS

For readers who prefer to use metric units, conversion factors for inch-pound units used in this report are listed below. Constituent concentrations are given in mg/L (milligrams per liter), which is equal to parts per million. Specific conductance is expressed as µS/cm (microsiemens per centimeter) at 25 degrees Celsius.

Multiply	By	To obtain
acre	4,047	square meter
foot (ft)	0.3048	meter
mile (mi)	1.609	kilometer

Temperature in °C (degrees Celsius) can be converted to °F (degrees Fahrenheit) as follows:

$$°F = (1.8)(°C) + 32$$

Water temperatures are reported to the nearest 0.5 °C.

SELECTED WELL-INVENTORY AND WATER-QUALITY DATA

Reference number	Well location	Total depth of well (feet)	Sample date (1989)	Specific conductance (µS/cm)	pH (standard units)	Water temperature (°C)	Alkalinity, total, (mg/L as CaCO₃)	Chloride, dissolved (mg/L as Cl)	Onsite Nitrogen, NO₂+NO₃, dissolved (mg/L as N)	Laboratory Nitrogen, NO₂+NO₃, dissolved (mg/L as N)	Nitrogen, ammonia, dissolved (mg/L as N)	Nitrogen, ammonia plus organic, dissolved (mg/L as N)	Reference number (OFR 88-496)
1	3S–34E–36BCC2	--	6-28	499	7.5	13.0	203	15	2.6	--	--	--	--
2	4S–34E– 2CAA1	--	6-28	594	7.4	15.0	--	15	2.4	--	--	--	--
3	2DBB1	79	6-28	676	7.3	14.5	277	15	2.2	--	--	--	--
4	11BAC1	80	6-28	623	7.4	14.0	286	14	1.6	--	--	--	--
5	11BBA1	84	6-28	960	7.3	12.5	310	58	9.2	--	--	0.30	--
6	11CADD1	--	6-23	608	7.7	13.0	240	20	4.3	--	--	--	30
7	12BDA1	475	6-20	570	7.7	12.5	220	18	3.1	--	--	--	31
8	12DCB1	270	6-19	549	7.7	13.0	212	17	2.8	3.8	--	.40	--
9	13ADA1	400	6-20	640	7.7	12.0	197	23	8.3	12	--	.30	--
10	13BBD1	290	6-19	525	7.7	12.5	207	19	5.7	4.7	--	<.20	32
11	13CAC1	340	6-19	682	7.7	11.5	190	26	15	18	--	.40	--
12	13DDB1	324	6-20	563	7.6	13.0	194	24	4.8	6.4	--	.30	--
13	14BAD1	375	6-21	633	7.8	12.0	226	20	8.8	11	--	.40	--
14	14CAD1	305	6-21	587	7.8	12.5	204	21	9.9	10	--	.50	--
15	15CDC1	94	6-28	589	7.7	12.0	200	16	11	11	0.01	.70	33
16	16BBB1	83	6-28	650	7.5	12.0	280	18	3.2	--	--	--	34
17	16CBCC1	--	6-28	845	7.6	12.0	290	42	15	15	.01	.50	35
18	17CBD1	--	6-28	720	7.5	12.0	244	26	8.5	8.1	--	.50	--
19	20DDD1	210	6-22	679	7.7	11.5	204	23	10	15	--	.50	--
20	21CAD1	380	6-22	573	7.7	12.0	230	16	4.2	--	--	--	--
21	21CBB1	--	6-22	852	7.4	13.0	218	40	16	24	--	.30	37
22	21DAA1	370	6-22	599	7.7	15.5	225	17	5.2	6.2	--	.40	--
23	22AAC1	355	6-21	577	7.8	12.5	232	18	6.3	5.0	--	.60	--
24	23BACD1	320	6-21	559	7.8	12.5	189	19	9.5	11	--	.60	38
25	23CAC1	330	6-21	566	7.8	13.0	197	21	7.7	8.6	--	.40	39
26	23DAC1	265	6-20	747	7.8	12.5	181	53	14	19	--	.40	--
27	24ABD1	270	6-20	605	7.7	13.5	176	31	7.8	9.4	--	.60	40
28	24BDCC1	300	6-21	566	7.8	13.5	184	21	8.4	9.3	--	.40	41
29	25DCC1	120	6-27	531	7.4	14.5	223	17	2.3	--	--	--	--
30	26BAC1	--	6-21	501	7.7	15.5	161	21	6.5	7.1	--	.30	--
31	26CCB1	101	6-21	568	7.8	13.5	178	23	8.1	11	--	.30	43
32	26DAB1	--	6-27	496	8.1	14.5	190	14	5.0	5.0	--	.30	--
33	26DAD1	--	6-28	745	7.8	13.0	188	21	17	24	.02	.40	--
34	27AAB1	330	6-21	552	7.8	13.5	213	17	3.9	--	--	--	--
35	27BCB1	--	6-22	555	7.9	13.5	--	--	4.4	--	--	--	--
36	27CCAA1	347	6-22	564	7.8	12.5	228	19	3.7	--	--	--	44
37	27DAC1	308	6-22	635	7.7	12.5	187	30	7.1	11	--	.80	--
38	28BAD1	368	6-22	572	7.5	12.0	216	18	4.3	--	--	--	45
39	28CACC1	296	6-22	554	8.1	12.0	218	18	3.2	--	--	--	45
40	32ADA1	250	6-22	553	7.9	11.5	212	23	2.5	--	--	--	47
41	33AADD1	--	6-22	831	7.4	12.5	250	38	13	20	.03	.40	48
42	33ADC1	115	6-22	556	7.7	12.0	216	19	3.1	--	--	--	--
43	33CCB1	--	6-22	530	8.0	11.5	204	19	2.0	--	--	--	--
44	34CAB1	--	6-22	546	7.8	12.5	200	19	3.9	--	--	--	--
45	35BAA1	--	6-28	535	7.7	14.0	212	17	5.0	--	--	--	--
46	35BCD1	--	6-22	550	7.9	14.0	189	25	5.4	6.6	--	--	--
47	35CCC1	27	6-28	709	7.3	12.5	316	23	2.0	--	--	1.4	--
48	35DDC1	--	6-28	662	7.2	13.0	280	32	2.6	--	--	--	--
49	36AAAB1	--	6-27	591	7.4	15.0	264	14	2.7	--	--	--	--
50	4S–35E– 5BBA1	--	6-20	515	7.6	13.0	196	19	2.2	--	--	--	50
51	6DCB1	--	6-20	547	7.6	13.0	219	18	2.1	--	--	--	--
52	7ACA1	105	6-20	561	7.7	13.5	200	15	3.1	--	--	--	--
53	7BCA1	228	6-20	551	7.6	13.0	220	17	2.6	--	--	--	--
54	7CCBB1	535	6-20	546	7.7	12.5	214	19	4.1	--	--	--	51
55	7DCB1	228	6-20	545	7.7	12.5	212	20	2.8	--	--	--	--
56	8CAB1	80	6-21	487	7.8	14.0	180	21	1.9	--	--	--	--
57	17BDB1	--	6-21	450	7.8	14.5	174	18	2.7	--	--	--	--
58	17DCCC1	--	6-21	463	8.0	14.5	178	18	4.1	--	--	--	52
59	17DDA1	87	6-21	462	8.2	15.0	167	25	2.6	--	--	--	--
60	18ACB1	466	6-20	551	7.7	13.0	200	22	4.6	--	--	--	--
61	18CDA1	265	6-23	542	7.7	13.0	190	21	4.7	6.1	--	.30	53
62	18DABC1	--	6-23	655	7.7	13.0	180	29	11	16	--	.50	54
63	19BDB1	310	6-20	820	7.6	12.0	200	48	13	18	--	.60	--
64	19DDBA1	--	6-23	807	7.7	11.5	190	43	11	19	--	.50	55
65	20ABD1	--	6-23	505	8.1	14.5	170	28	3.4	--	--	--	--
66	20BCB1	210	6-23	547	7.9	13.0	181	25	5.1	7.2	--	.30	56
67	29ADB1	110	6-23	572	7.7	14.0	192	48	3.6	--	--	--	--
68	30ACC1	--	6-27	522	7.7	13.5	184	22	4.0	4.9	--	.30	--
69	30CBA1	125	6-27	702	7.8	12.5	224	22	11	13	.01	.50	--
70	31CBBB1	125	6-28	549	7.4	15.0	218	22	2.2	--	--	--	59
71	5S–34E– 4BDA1	--	6-22	528	8.0	12.0	210	22	1.9	--	--	--	--

STATISTICAL SUMMARY OF SELECTED WATER-QUALITY DATA

[*, onsite analysis; •, laboratory analysis; <, less than; ≥, greater than or equal to]

Water-quality constituent	Number of samples	Median (50 percent)	Mean	Range Minimum	Range Maximum	Number of samples with concentrations exceeding national drinking-water limits
*Specific conductance (µS/cm)	71	564	600	450	960	--
*pH (standard units)	71	7.7	7.2	7.2	8.2	--
*Temperature (°C)	71	13.0	13.0	11.5	15.5	--
*Alkalinity, total (mg/L as CaCO₃)	69	204	212	161	316	--
*Chloride, dissolved (mg/L as Cl)	71	21	24	14	58	--
*Nitrogen, nitrite + nitrate, dissolved (mg/L as N)	71	4.3	6.1	1.6	17	13 ≥ 10 mg/L[1]
•Nitrogen, nitrite + nitrate, dissolved (mg/L as N)	34	11	11	3.8	24	18 ≥ 10 mg/L[1]
•Nitrogen, ammonia + organic, dissolved (mg/L as N)	34	.4	.5	<.2	1.4	--

[1] U.S. Environmental Protection Agency, 1982, Maximum contaminant levels (Subpart B of Part 141, National interim primary drinking water regulations): U.S. Code of Federal Regulations, Title 40, parts 100-149, revised as of July 1, 1987, p. 530-532.

SELECTED GROUND-WATER QUALITY DATA FOR THE AREA NEAR FORT HALL, FORT HALL INDIAN RESERVATION, SOUTHEASTERN IDAHO, JUNE 1989

By
D.J. Parliman and H.W. Young
1989

Base from U.S. Geological Survey
1:100,000 quadrangles