EUREKA ENERGY COMPANY

A SUBSIDIARY OF PACIFIC GAS AND ELECTRIC COMPANY

1010 KEARNS BUILDING • 136 SOUTH MAIN STREET • SALT LAKE CITY, UTAH 84101 • (801) 359-3811

November 15, 1979

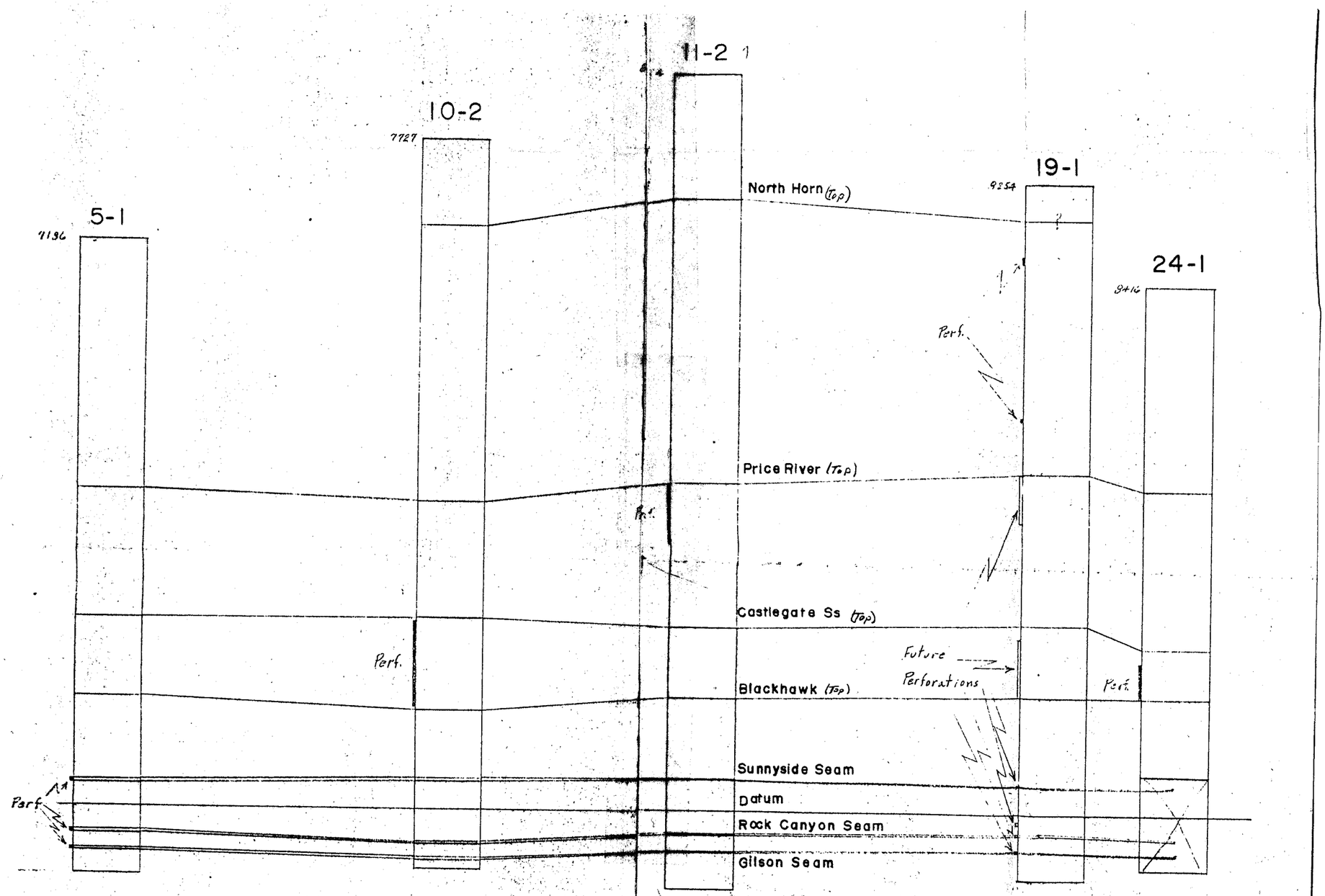
Mr. Tom Suchoski
Division of Oil, Gas and Mining
Salt Lake City, Utah

I am sending you a copy of a geologic map of the Pine Canyon Quadrangle on which is plotted the locations of five ground-water monitor holes. A stratigraphic section is included on the quadrangle sheet. A separate generalized cross section is included also that shows the locations of the perforations in each of the five holes.

Reed W Mower

Reed W. Mower
Hydrologist

cc Paul Anderson
enclosures



CROSS SECTION SHOWING LOCATION OF PERFORATED ZONES IN GROUND WATER MONITOR HOLES

EUREKA ENERGY COMPANY

1" = 200' vert.
1" = 2000' horiz.

File: ACT/007/009
Copy to Wayne & Dave D.

Scott M. Matheson
Governor

STATE OF UTAH
DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL HEALTH
150 West North Temple, P.O. Box 2500, Salt Lake City, Utah 84110-2500

August 5, 1982
(801) 533-6146

Marv H. Maxell, Ph.D., Acting Director
Room 474 801-533-6121

James O. Mason, M.D., Dr.P.H.
Executive Director
801-533-6111

DIVISIONS
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Mr. Steven Durham
Regional Administrator
Environmental Protection Agency
Region VIII (8E)
1860 Lincoln Street - Suite 103
Denver, Colorado 80295

RE: NPDES Permit Certification
Permit No. UT-0024031
Sunoco Energy Development

ATTENTION: Pat Godsil, Chief
Compliance Branch
Water Management Division

Dear Mr. Durham:

From our review of the above referenced draft permit and public notice dated July 6, 1982, it is hereby certified that the proposed conditions to be imposed for said permit should result in compliance with applicable State water quality standards.

However, we wish to emphasize that under state authority we must still receive additional wastewater treatment plans and information for our review and approval prior to construction of the wastewater treatment facilities. The proposed permit on page 13 pertains to compliance with state regulations.

It is further certified that to the best of our knowledge no other applicable effluent limiation or other limitation under Section 208e, 301, 302, 303, 306 and 307 of the Federal Water Pollution Control Act, as amended (33 U.S.C. 466 et. seq.) presently exist.

Sincerely,

UTAH WATER POLLUTION CONTROL COMMITTEE

Jay B. Pitkin

Calvin K. Sudweeks
Executive Secretary

SM:ddr
cc: Sunoco Energy Development
Southeastern Utah AOG
Southeast District Health Department
Oil, Gas and Mining

1508

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DIVISION OF
OIL, GAS & MINING

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File: ACT/007/009

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
1860 LINCOLN STREET
DENVER, COLORADO 80295

July 6, 1982

U.S. ENVIRONMENTAL PROTECTION AGENCY/STATE OF UTAH

PUBLIC NOTICE

PURPOSE OF PUBLIC NOTICE

THE PURPOSE OF THIS NOTICE IS TO STATE EPA'S FINDING OF NO SIGNIFICANT IMPACT AND INTENTION TO ISSUE A NEW SOURCE WASTE WATER DISCHARGE PERMIT UNDER THE AUTHORITY OF THE CLEAN WATER ACT OF 1977, AND THE INTENTION OF THE STATE OF UTAH TO CERTIFY COMPLIANCE OF THE APPLICANT WITH APPLICABLE PROVISIONS OF THE AFORESAID ACT.

IT IS EPA'S INTENTION TO ISSUE A PERMIT TO ONE (1) INDUSTRIAL FACILITY LOCATED IN THE STATE OF UTAH.

PERMIT INFORMATION

APPLICANT NAME:	SUNOCO ENERGY DEVELOPMENT COMPANY
MAILING ADDRESS:	12700 PARK CENTRAL PLAZA, SUITE 1500 DALLAS, TEXAS 75651
FACILITY LOCATION:	CARBON COUNTY, UTAH
TELEPHONE NUMBER:	214+385-5000
APPLICATION NUMBER:	UT-0024031

The Sunoco Energy Development Company's project is a new coal mine that will produce approximately 5,000,000 tons of coal per year. This facility was determined to be a "New Source" on November 23, 1981. An environmental review has been performed on the proposed EPA action of issuance of a New Source NPDES water discharge permit as required by EPA regulation, "Preparation of Environmental Impact Statements (EISs) for New Source NPDES Permits" (40 CFR Part 6.600). The environmental review indicates that no significant impacts are anticipated. A site-specific analysis of this project (then called the Sage Point-Dugout Canyon Project) was contained in a final environmental impact statement, "Development of Coal Resources in Central Utah", prepared under the leadership of the U.S. Geological Survey in 1979.

The outfalls planned for this operation will contain water discharged from sediment ponds designed to contain the runoff from a 10-year, 24-hour storm event. Any discharges from this facility will flow into Pace, Soldier, Fish and Dugout Creeks (classified 3C and 4).

EPA/STATE TENTATIVE DETERMINATIONS

Tentative determinations have been made by the EPA staff in cooperation with the State of Utah relative to effluent limitations and other conditions to be imposed on the permit. These limitations and conditions will assure that State Water Quality Standards and applicable provisions of the Clean Water Act will be protected. The recommended expiration date is June 30, 1987.

The aforementioned receiving waters are classified in the Utah Water Quality Standards for the following beneficial uses:

3C - protected for nongame fish and other aquatic life; and,

4 - protected for agricultural uses including irrigation of crops and stock watering.

PUBLIC COMMENTS

Public comments are invited anytime prior to August 6, 1982. Comments may be directed to the U.S. Environmental Protection Agency, Region VIII, Compliance Branch, Water Management Division, 1860 Lincoln Street, Denver, Colorado 80295. All comments received prior to August 6, 1982 will be considered in the formulation of final determinations to be imposed on the permit. This Agency will not take any administrative action on this project for at least thirty days from the above date.

If no objections are received within the specified thirty-day period, the Regional Administrator, EPA, will issue final determinations within sixty days of the date of this notice. A public hearing will be held if response to this notice indicates significant public interest.

FURTHER INFORMATION

Additional information may be obtained upon request by calling 303+837-4901, or by writing to the aforementioned address.

The complete application, Finding of No Significant Impact, and related documents are available for review and reproduction at the aforementioned address.

Public Notice Number: UT-82-009

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
1860 LINCOLN STREET, SUITE 103
DENVER, COLORADO 80203

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EPA 335

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4241 STATE OFFICE BLDG
SALT LAKE CITY UT 84114

CLEON FEIGHT-DIRECTOR
DIV OIL GAS & MINING
1588 W NORTH TEMPLE
SALT LAKE CITY UT 84116

SCOTT M. MATHESON
Governor

GORDON E. HARMSTON
Executive Director, NATURAL RESOURCES

CLEON B. FEIGHT
Director

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING
1588 West North Temple
Salt Lake City, Utah 84116
(801) 533-5771

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September 24, 1979

Mr. John C. Osmond
Pacific Gas & Electric Company
Coal Resources Development
245 Market Street
San Francisco, California 94106

RE: Sage Point-Dugout Creek Mine
PRO/007/009

Dear Mr. Osmond:

For those mines which have not upgraded their monitoring plans to comply with the permanent program, modification of the federal rules for the Interim Program have caused a change in the reporting schedule for water quality results. Those mines which have upgraded their monitoring programs should maintain the same schedules.

On June 22, 1979, the Office of Surface Mining (O.S.M.) modified its regulations requiring reporting of water quality information by surface and underground coal mines during the Initial Regulatory Program (Federal Register, Volume 22, No. 122, pages 36886-87). These modifications have been made to the rules (30 CFR 715.17 and 717.17) to make reporting time period requirements more consistent with similar requirements of the Environmental Protection Agency and to eliminate the filing of duplicate reports.

More specifically, the modified rules allow for two alternative reporting periods for sample measurements of discharges to surface waters. As one alternative, reports are to be made to the regulatory authority by the discharger within 60 days of the end of each 60-day sample collection period. (If the mining activity involves Federal coal, the regulatory authority includes the State and O.S.M.).

A second acceptable method is reporting through compliance with equivalent time period reporting requirements under the NPDES permit system of the Clean Water Act. Use of the second alternative is conditioned upon the discharges being subject to NPDES requirements. It should be noted that compliance with the second alternative may be achieved by either filing the NPDES reporting form with the regulatory authority, or by identifying the State or Federal government official with whom the NPDES reporting form was filed.

I should emphasize that the regulations require that in all cases in which analytical results of samples indicate a violation of a permit condition or applicable standard, the operator shall notify the regulatory authority immediately. I should also note that when the Permanent Regulatory Program becomes effective, the reporting requirements of 30 CFR 816.52 and 817.52 will apply.

If questions should arise with respect to these reporting requirements, please contact Thomas Suchoski on my staff. Thank you for your cooperation.

Sincerely,

Ronald W. Daniels

RONALD W. DANIELS
COORDINATOR OF MINED LAND DEVELOPMENT

RWD/te

Table IV-B.3. Water quality analyses from samples taken from abandoned mine workings and springs.

Location: See Section IV-B.1.2.3, page 11-70
Constituents: In milligrams per liter except manganese and iron, which are in micrograms per liter.
Specific conductance: Field determination.
pH: Field determination.

Site Number	Location	Date of Sample	Discharge (gal/min)	Temperature (deg. C)	Specific Conductance (Micromhos)	pH (Units)	Dissolved Solids: Sum of Constituents	Calcium Ca	Magnesium Mg	Sodium Na	Potassium K	Chloride Cl	Sulfate SO_4	Bicarbonate HCO_3	Iron Total Fe	Iron Dissolved Fe	Manganese Total Mn	Manganese Dissolved Mn
SPRINGS																		
2	(D-13-12) 4bdc-S1	76-07-14	2.4	14.0	540	8.6	----	48	32	35	1.0	4.5	26	306	---	---	---	---
8	5cbc-S1	76-07-14	2.1	11.5	880	7.8	---	36	32	140	2.6	12	110	472	---	40	---	---
8	"	76-08-24	3.4	8.0	---	---	980	27	19	206	3.3	6.0	124	593	---	300	---	38
30	9ddc-S1	76-07-15	4.3	7.7	545	7.4	---	72	28	12	1.8	4.4	24	315	---	30	---	---
30	"	76-08-26	3.9	8.0	---	---	540	9	23	104	1.0	2.0	56	349	---	285	---	4
30	"	77-06-06	1.1	7.0	510	---	465	53	37	13	.9	8.0	21	342	129	---	---	6
30	"	77-09-14	.6	9.5	465	---	---	66	25	23	1.0	6.0	30	342	---	38	---	8
30	"	78-08-02	10	8.5	500	8.0	310	75	24	11	1.0	4.0	20	349	106	---	---	23
30	"	78-10-19	2.7	9.0	480	7.4	330	54	11	62	.9	2.0	17	373	6	---	---	53
30	"	79-07-18	23	8.0	410	7.0	292	73	27	9	1.0	8.0	25	353	233	20	6	10
30	"	79-10-24	5	9.5	495	7.3	309	70	29	8	3	1.0	22	372	84	14	6	6
30	"	80-06-05	8.9	7.5	550	8.4	285	87	16	7	5	4	23	310	22	22	10	4
30	"	81-02-12	2.7	6.3	510	7.4	342	112	30	28	5	1	174	326	200	60	30	10
30	"	81-04-27	13.5	5.8	420	7.3	325	78	27	33	7	3.3	115	249	90	80	50	30
30	"	81-08-18	3.6	10.0	530	7.1	480	143	31	39	7	4.7	259	310	70	60	40	30
4	10abb-S1	76-07-14	11	16.5	540	8.4	---	69	28	17	.9	4.4	22	203	---	20	---	---
42	10adb-S1	76-07-14	3.0	6.5	600	7.1	371	110	27	11	1.4	4.6	25	376	---	30	---	---
41	11acd-S1	76-07-15	12	7.5	570	7.8	---	66	35	29	1.2	6.2	37	359	---	30	---	---
50	12adb-S1	76-07-14	11	9.2	585	7.8	---	44	42	24	1.1	4.5	56	338	---	30	---	---
49	12cbb-S1	76-07-14	2.0	8.9	580	7.8	---	76	35	21	.9	9.7	35	401	---	30	---	---
60	13aad-S1	76-07-20	3.5	10.0	400	7.4	282	67	25	10	.8	2.5	21	302	---	20	---	---
63	23cbb-S1	80-02-29	4.9	4.4	750	7.0	505	81	56	19	5	1	103	438	180	94	22	18
63	"	80-05-15	23	5.0	1,070	8.5	773	75	95	21	9	3	319	311	160	158	8	8
63	"	80-10-13	6.3	10.0	1,025	7.1	584	90	62	29	5	8	137	523	1,220	279	77	52
63	"	81-02-11	58	5.5	750	7.3	564	137	40	63	18	2	268	425	600	480	80	50
63	"	81-04-22	9.4	5.3	730	7.2	468	99	50	34	5.5	10	198	329	290	240	70	60
63	"	81-08-19	4.9	12.2	920	7.0	600	170	51	30	6	11	313	438	190	100	60	50
65	(D-13-13) 18bac-S1	76-07-20	38	16.0	500	8.3	350	63	34	29	1.6	3.7	54	310	---	10	---	---
MINES																		
74	(D-13-12) 23bda	79-06-06	7[1]	5.5	640	7.0	526	87	44	15	4	3	161	---	20	16	20	9
75	"	79-07-31	0[2]	17.2	770	7.0	513	84	44	32	11	3	63	---	20	16	41	41
76	"	79-07-31	0[3]	11.1	2,050	6.4	2,714	305	278	18	14	12	1,385	---	263	60	747	747

1 - Portal was opened on the previous afternoon and water allowed to drain. Water level in the mine had dropped 1.5 feet between the time the portal was opened and the time that the sample was taken.

2 - Portal opened on this date, but there was no flow from the mine. Mine nearly full of water. Sampled near the entrance.

3 - Portal opened on this date, but there was no flow from the mine. Sample taken at a small stagnant pool several hundred feet inside the mine.

10/20/81

TABLE IV-B.14 - Surface Water Quality Data

Constituents: In milligrams per liter except manganese and iron which are in microgams per liter.
Specific Conductance: Field determination.
pH: Field determination.

Site Number	Stream	Date of Sample	Specific Conductance (micromhos)	pH (Units)	Temperature (deg. C)	Dissolved Solids Residue at 180°C	Calcium Ca	Magnesium Mg	Sodium Na	Potassium K	Chloride Cl	Sulfate SO_4	Bicarbonate HCO_3	Iron Total Fe	Iron Dissolved Fe	Manganese Total Mn	Manganese Dissolved Mn	Suspended Sediment
5	Dugout Creek	76-07-21	570	8.5	16.5	344	42	40	23	2.0	7.5	67	278	---	70	---	---	---
		76-08-24	---	---	10.0	493	37	32	45	3.0	4.0	81	295	---	157	---	6	---
		77-05-18	710	---	2.0	880	70	95	29	5.1	8.0	260	420	---	198	---	46	---
		77-09-25	690	---	17.0	498	81	52	35	6.7	8.0	108	456	---	106	---	17	---
		78-04-13	505	8.1	2.0	360	57	36	39	2.0	2.0	74	320	---	30	---	48	526
		78-08-02	500	8.6	11.0	360	55	36	23	2.4	2.0	66	349	132	---	---	14	3.0
		78-10-20	560	8.6	8.0	400	47	43	45	2.8	2.0	75	388	40	---	---	22	1.0
		79-04-18	480	8.4	3.0	360	27	59	17	2.0	5.0	70	307	5006	<50	215	<20	343
		79-07-19	500	8.4	20.0	345	73	29	19	2.0	1.0	81	310	<16	<20	<6	<10	4.5
		79-10-24	590	8.2	6.5	447	67	43	14	<3	4.0	86	387	53	53	<6	<6	6
		80-02-29	650	8.1	2.2	465	88	38	17	4	1	96	374	168	25	13	<5	5
		80-05-13	---	---	6.7	317	84	13	11	6	3	43	305	3200	54	95	<5	254
		80-08-06	580	8.6	18.3	348	63	38	21	2	4	79	309	<50	<50	<6	<6	6
		80-10-13	620	8.4	8.9	368	70	46	24	4	6	73	346	39	34	31	22	4
		81-02-11	670	8.2	0.0	405	118	62	41	6	2	274	385	300	3	60	20	3
		81-04-22	545	8.3	8.3	369	71	42	31	4	6.7	156	263	90	70	30	20	7.5
		81-08-19	650	7.5	12	424	104	41	28	4	7.9	140	315	100	80	40	20	5
7	Dugout Creek left fork	78-04-13	505	8.5	3.5	418	56	40	47	2.4	2.0	82	329	---	53	---	12	733
		78-08-03	570	8.9	10.5	375	49	44	28	1.9	2.0	82	339	43	---	---	16	2.0
		78-10-20	600	8.6	6.0	418	43	55	34	2.5	4.0	94	383	11	---	---	5	2.0
		79-07-19	620	8.5	19.0	401	58	41	24	2.0	2.0	68	340	<16	<20	<6	<10	.2
		79-10-25	620	8.4	6.0	476	65	51	16	<3	3.0	65	380	72	66	8	<6	4.0
		80-05-15	540	---	7.2	314	83	20	14	12	3	46	320	3200	32	72	5	210
		80-07-08	600	8.7	17.8	374	54	46	26	3	3	100	314	<50	<50	<6	<6	4
		80-10-13	700	8.7	0.0	434	53	47	32	4	4	99	376	27	23	7	5	2
		81-04-21	580	8.5	5.6	395	182	6	16	2	6	189	258	360	320	100	60	4
		81-08-19	700	7.9	17.8	412	182	5	17	3	8	173	290	320	300	90	60	21
21	Fish Creek	76-08-24	---	---	19.5	430	42	34	31	2.7	4.0	87	271	---	134	---	7	---
		78-04-27	470	8.6	4.0	285	64	34	13	.2	12.0	48	322	---	40	---	13	186
		78-08-03	490	8.8	14.5	338	44	42	21	2.0	4.0	50	346	47	---	---	12	<1
		78-10-19	500	8.2	8.5	328	37	50	14	2.2	4.0	63	325	8	---	---	4	2.0
		79-07-19	510	---	10.5	322	66	36	9	1.0	2.0	39	365	<16	<20	<6	<10	1.1
		79-10-25	510	8.4	7.0	424	64	44	10	<3	1.0	86	358	117	<14	<6	<6	6
		80-05-16	560	---	7.2	337	40	35	8	7	2	52	301	1200	<12	22	<5	134
		80-07-08	580	8.6	10.0	295	62	36	10	3	3	60	329	<50	<50	<6	<6	10
		80-10-24	660	8.5	0.6	481	85	40	15	3	5	167	330	71	<11	6	<4	4
		81-04-21	500	8.4	5	349	139	7	6	1.5	4.7	198	236	200	150	80	30	2

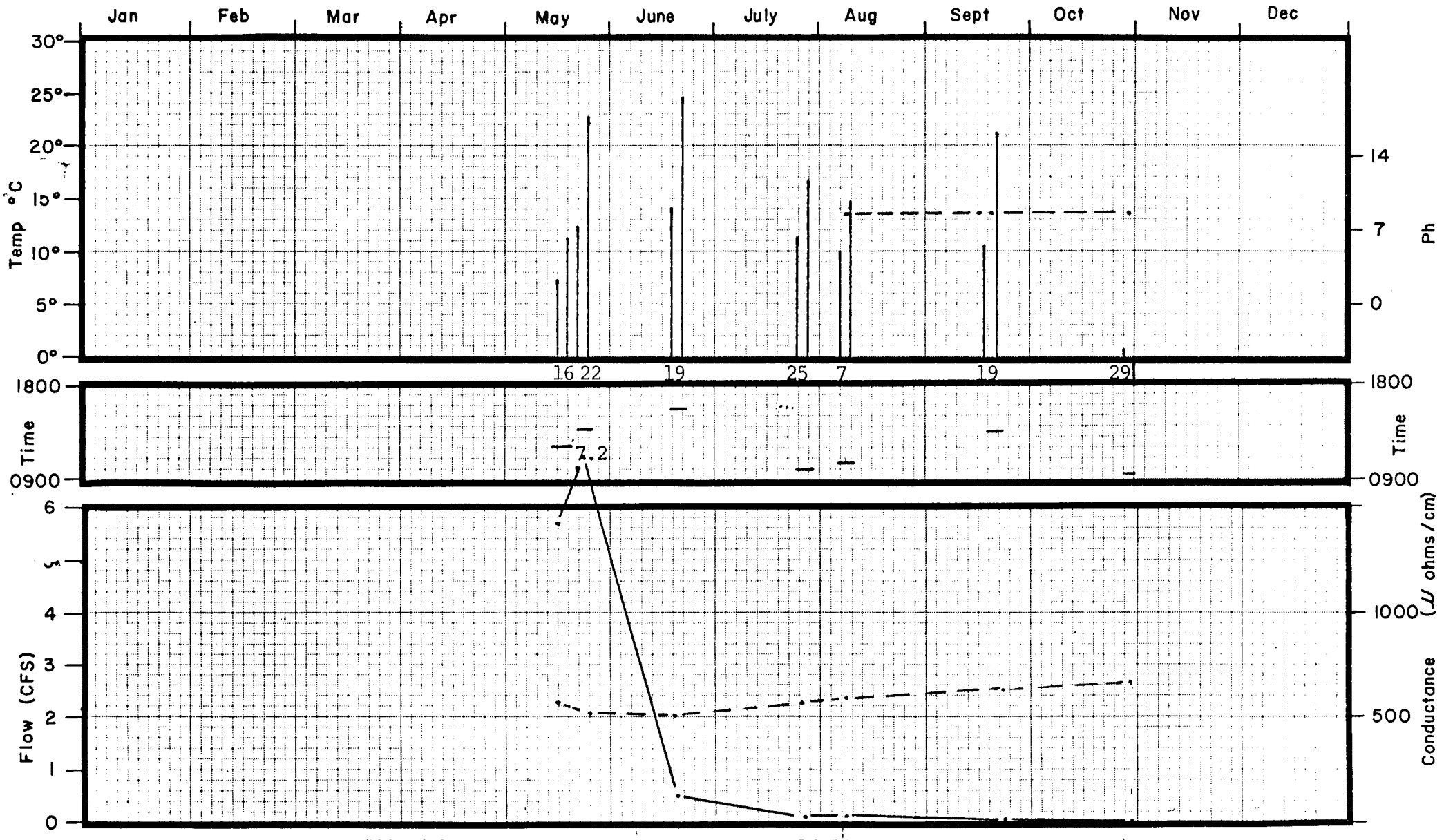
TABLE IV-B.14 - Surface Water Quality Data, Contd.
Page 2.

Site Number	Stream	Date of Sample	Specific Conductance (Micromhos)	pH (Units)	Temperature (deg. C)	Dissolved Solids Residue at 180 deg. C	Calcium Ca	Magnesium Mg	Sodium Na	Potassium K	Chloride Cl	Sulfate SO_4	Bicarbonate HCO_3	Iron Total Fe	Iron Dissolved Fe	Manganese Total Mn	Manganese Dissolved Mn	Suspended Sediment
22	Soldier Creek	76-07-21	750	8.4	16.0	421	43	35	64	2.5	12	90	332	---	10	---	---	---
		76-08-25	---	---	16.0	690	29	30	118	4.1	14	130	368	---	197	---	14	---
		77-05-18	850	---	11.3	860	29	62	134	2.3	16	190	478	---	385	---	119	---
		77-09-18	810	---	15.5	---	32	35	112	3.8	12	114	415	---	76	---	9	12
		78-04-13	440	8.4	.0	---	38	29	95	1.8	10	72	307	---	110	---	18	968
		78-08-02	595	8.7	19.0	412	32	37	71	1.4	12	67	388	37	---	---	18	11
		78-10-19	690	8.6	13.0	512	26	44	110	1.9	16	92	459	45	---	---	48	1
		79-04-19	460	8.1	8.5	374	45	30	60	3.0	12	72	365	39,500	<50	1,343	<20	8,353
		79-07-18	600	8.6	20.0	415	50	31	65	2.0	7	94	332	66	66	<6	<10	12
		79-10-23	795	8.5	10.0	551	39	48	55	<3.0	11	81	452	92	48	10	<6	16
		80-02-28	740	8.3	0.3	535	73	32	84	3.0	1	68	514	254	129	41	35	800
		80-05-14	---	---	5.6	310	25	64	23	6.0	20	48	299	16,000	13	295	5	671
		80-08-06	740	8.6	12.8	413	13	59	77	2.0	<1	78	396	98	<50	<6	<6	8
		80-10-21	900	8.4	0.0	542	53	44	102	3.0	12	157	455	1,543	22	37	30	57
		81-02-11	850	8.2	0.3	611	108	55	114	7.0	4	366	481	1,200	120	110	70	78
		81-04-22	670	8.6	11.1	409	82	42	79	4.5	16	123	389	3,190	600	350	330	397
		81-08-18	830	8.4	25.0	720	161	40	81	3.6	24	395	338	2,090	390	210	170	16
23	Pine Creek	76-07-21	450	8.6	11.0	291	50	26	19	1.1	6.2	35	296	---	60	---	---	---
		76-08-25	---	---	15.0	---	39	29	55	1.5	4.0	75	315	---	310	---	10	---
		77-05-18	640	---	10.0	765	50	80	36	10.1	8.0	210	378	---	137	---	15	---
		78-04-13	500	8.2	3.5	310	57	26	3.2	1.4	6.0	32	305	---	123	---	11	455
		78-08-02	470	8.7	18.0	305	44	35	23	1.0	4.0	44	310	149	---	---	25	6
		78-10-19	540	8.4	9.5	385	40	35	60	1.2	4.0	55	386	87	---	---	35	4
		79-04-19	420	8.4	8.5	285	18	17	18	1.0	5.0	25	306	1,630	<50	73	<20	55
		79-07-18	520	8.0	16.5	215	43	37	18	1.0	5.0	38	384	77	77	<6	<10	5.9
		79-10-24	580	8.2	7.0	393	47	53	15	<3.0	3.0	58	402	135	36	16	16	8
		80-02-28	580	8.3	1.7	356	79	26	18	3.0	1.0	51	349	174	31	32	<5	59
		80-05-14	---	---	6.7	283	73	9	10	6.0	3.0	23	307	5,800	13	161	<5	461
		80-06-08	550	8.5	13.3	290	14	65	19	2.0	4.0	41	329	<50	<50	14	<6	16
		80-10-21	565	8.4	4.5	468	67	36	25	2.0	2.0	56	358	419	<11	17	15	8
		81-02-13	720	8.0	0.0	429	160	26	60	17.0	1.3	249	378	400	100	60	20	6
		81-04-21	640	8.4	6.1	382	150	12	17	2.0	4.0	198	246	1,200	580	190	140	27
		81-08-21	540	7.7	13.9	332	90	40	28	4.0	6.3	139	295	5,000	4,430	2,000	1,890	57
67	Anderson Reservoir	78-04-13	950	8.4	---	740	68	55	143	3.8	18.0	320	271	---	107	---	2	10
		78-08-01	830	8.9	25.5	560	33	69	59	4.1	38.0	240	200	67	---	---	22	7.0
		78-10-20	1,200	10.0	11.5	1,040	25	97	190	4.2	24.0	600	71	91	---	---	23	5.0
		79-04-19	900	8.2	10.5	857	81	68	93	4.0	25.0	355	265	109	<50	33	23	46
		79-07-19	1,050	8.8	23.5	922	43	65	96	4.0	21.0	454	176	139	<20	<6	<10	4.9
		79-10-23	1,250	9.4	11.5	900	23	121	91	<3.0	32.0	452	115	<19	15	<6	<6	2.0
		80-05-15	1,200	---	15.0	1,034	169	32	146	8.0	29.0	455	296	30	<12	<7	<5	2
		80-08-05	1,500	9.5	26.1	1,149	45	108	164	5.0	37.0	662	217	102	<50	13	<6	10
		80-10-22	1,200	8.2	10.1	1,261	90	156	164	7.0	40.0	545	336	244	29	28	22	1
		81-08-21	1,450	8.7	22.2	1,064	164	66	93	11.0	45.0	584	87	4,500	4,000	1,500	960	7

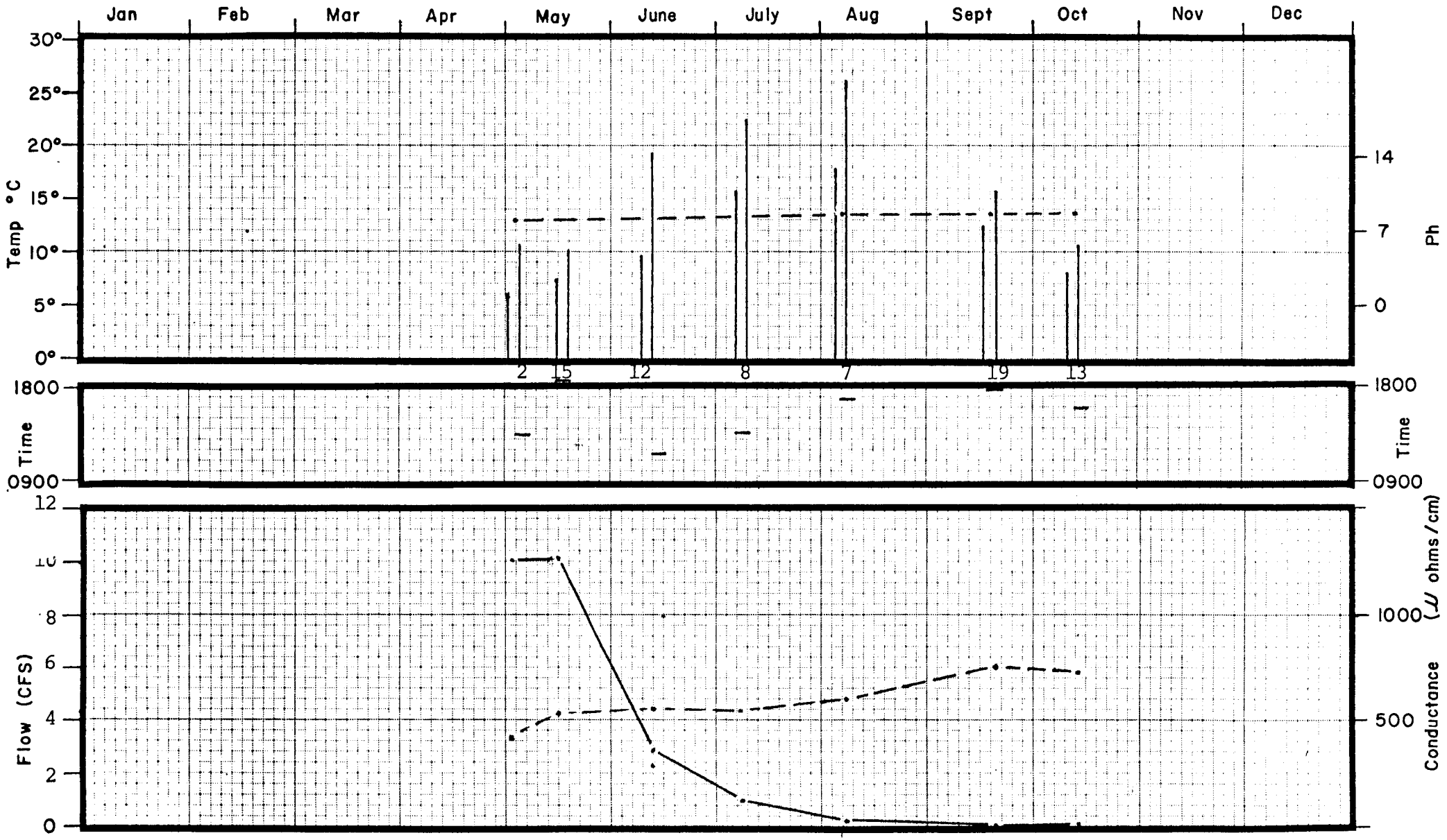
10/19/81

TABLE IV-B.14 - Surface Water Quality Data Continued
Page 3

Site Number	Stream	Date of Sample	Specific Conductance (micromhos)	pH (Units)	Temperature (deg. C)	Dissolved Solids Residue at 180°C	Calcium Ca	Magnesium Mg	Sodium Na	Potassium K	Chloride Cl	Sulfate SO_4	Bicarbonate HCO_3	Iron Total Fe	Iron Dissolved Fe	Manganese Total Mn	Manganese Dissolved Mn	Suspended Sediment
68	Soldier Creek	78-10-20	2850	8.6	10.0	3140	168	245	480	6	62	1825	437	26	---	---	10	2
		79-10-26	3400	8.5	11.0	3375	188	237	563	9.6	65	1980	405	<19	<14	9	9	20
		80-05-15	610	---	13.3	470	66	51	28	7	7	183	299	7500	34	166	<5	480
		80-10-22	2700	8.3	14.0	1666	160	54	248	6	46	533	419	218	12	10	6	1
69	Dugout Creek	79-04-18	710	8.4	6.0	724	34	103	51	6	10	285	282	5890	<50	14	<20	1357
		79-10-22	1290	---	10.5	1010	73	97	8	4	10	347	400	450	<14	65	<6	2
		80-05-16	690	---	27.2	428	44	68	16	7	6	111	318	4700	<12	98	<5	318
		80-08-05	1160	8.8	22.2	864	23	122	864	4	14	400	298	<50	<50	8	<6	17
		80-10-23	1300	8.4	9.5	1158	128	91	80	5	15	508	330	206	<11	18	11	11
70	Pace Creek	79-04-18	1030	8.4	8.0	1210	89	108	146	5	13	577	325	5100	<50	160	<20	3025
		79-10-22	1110	---	11.5	967	82	97	61	4	5	467	311	19	<14	9	9	4
		80-05-16	980	---	6.7	729	164	19	50	7	3	223	351	4300	<12	104	<5	333
		80-08-05	1110	8.9	22.2	784	32	109	88	4	11	354	323	<50	<50	<6	<6	15
		80-10-23	2000	8.2	4.5	1387	111	143	197	6	29	902	345	88	<11	8	4	10
72	Corbula Creek	78-04-13	1900	7.9	12.0	2600	200	26	537	7.4	40	1620	342	----	78	---	23	9
73	Soldier Creek	79-10-26	----	---	---	729	24	80	41	<3	1	119	443	306	18	60	60	22
		80-08-06	730	8.7	11.0	427	15	71	61	2	10	107	376	<50	<50	13	9	7
		80-10-21	900	8.7	9.4	615	56	58	85	3	15	171	380	910	33	57	43	62
PC 1	Pace Creek	78-04-26	670	8.4	4.5	525	58	56	53	.3	16	150	390	----	25	---	24	101
		78-08-01	700	---	21.0	490	42	60	44	2.9	6	160	351	1926	---	---	25	84
		78-10-20	750	8.2	5.0	610	91	49	58	3.0	8	178	451	19	---	---	18	1.0
		81-04-24	750	8.5	7.8	523	88	57	47	4.5	8	221	314	2190	940	140	130	183
		81-08-20	875	7.5	17.2	581	123	53	41	5.5	9	230	358	1500	1250	2500	1930	11
PC 2	Pace Creek	78-04-14	770	8.6	1.5	----	57	55	82	2.8	6	176	381	----	18	---	13	82
		78-08-01	700	---	24.0	525	48	63	46	3.3	6	185	349	33	---	---	18	17
		78-10-20	790	8.4	6.0	642	98	50	61	3.3	8	213	432	13	---	---	26	2.0
		79-04-18	650	8.4	3.0	491	30	72	45	3	6	131	355	11,530	<50	313	<20	429
		79-07-21	700	8.2	12.0	572	89	36	51	2	3	155	365	497	<20	<6	<10	42
		79-10-24	800	8.7	3.5	619	69	70	23	3	12	192	401	171	30	<6	<6	2
		80-02-28	825	8.4	0.6	585	89	52	34	4	3	159	360	193	66	7	<5	9
		80-05-14	---	8.5	6.1	496	120	14	26	7	2	130	367	4800	32	108	<5	328
		80-08-05	820	8.9	19.4	517	61	60	48	3	11	222	360	923	<50	9	<6	26
		80-10-23	920	8.4	3.4	674	74	81	52	4	14	367	380	245	32	30	22	15.5
		81-02-12	860	8.6	0.0	607	1325	52	63	11	2	360	407	300	100	50	10	6.6
		81-04-22	750	8.5	5	500	77	57	47	5	8	247	296	500	270	20	10	43
		81-08-20	850	7.8	22.8	558	107	525	41	6	9	240	312	5000	4350	2000	1910	26.5

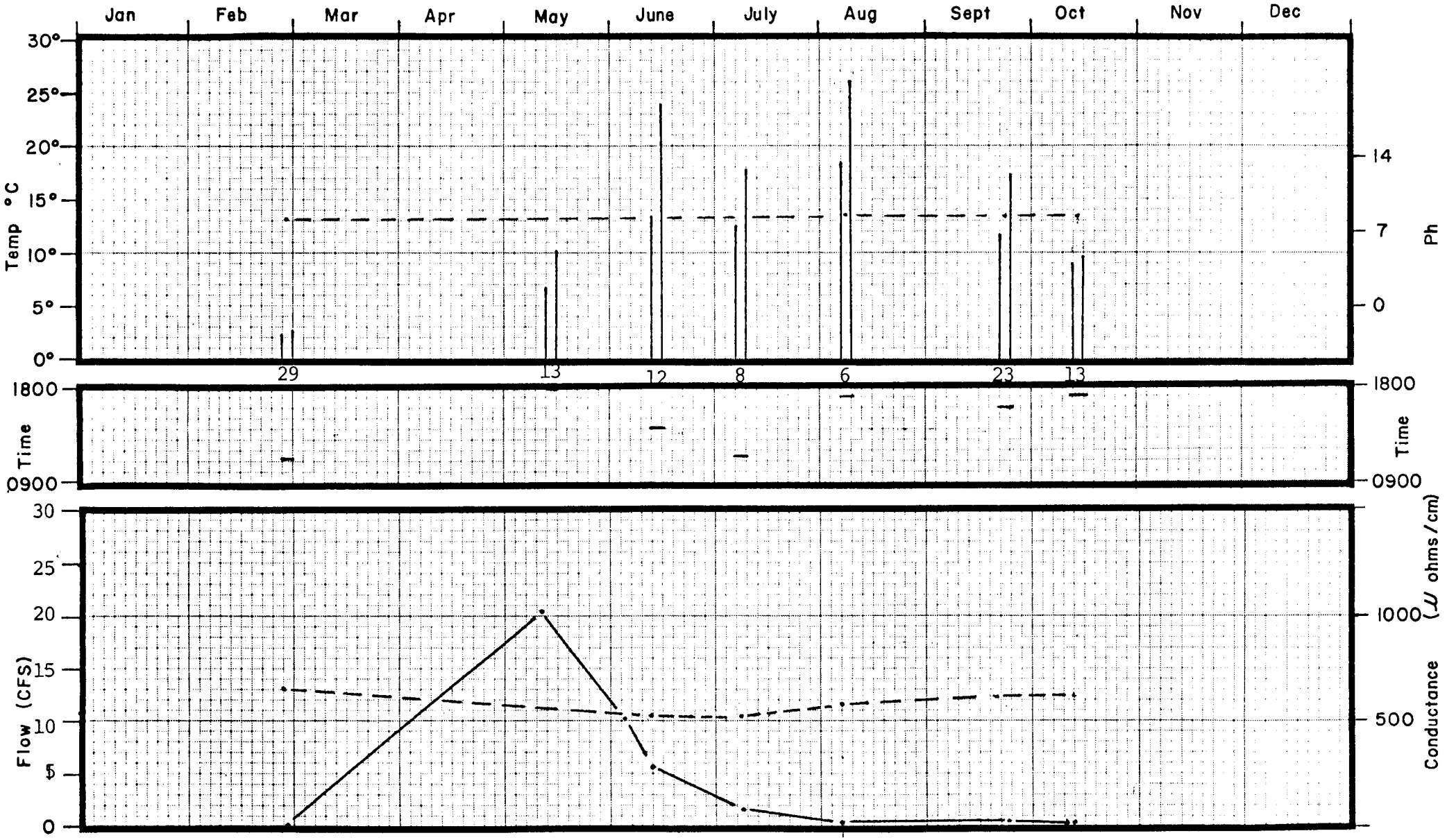


YEAR 1980 STATION #21 Fish Creek LOCATION NE NE NW SE 16-13S-12E

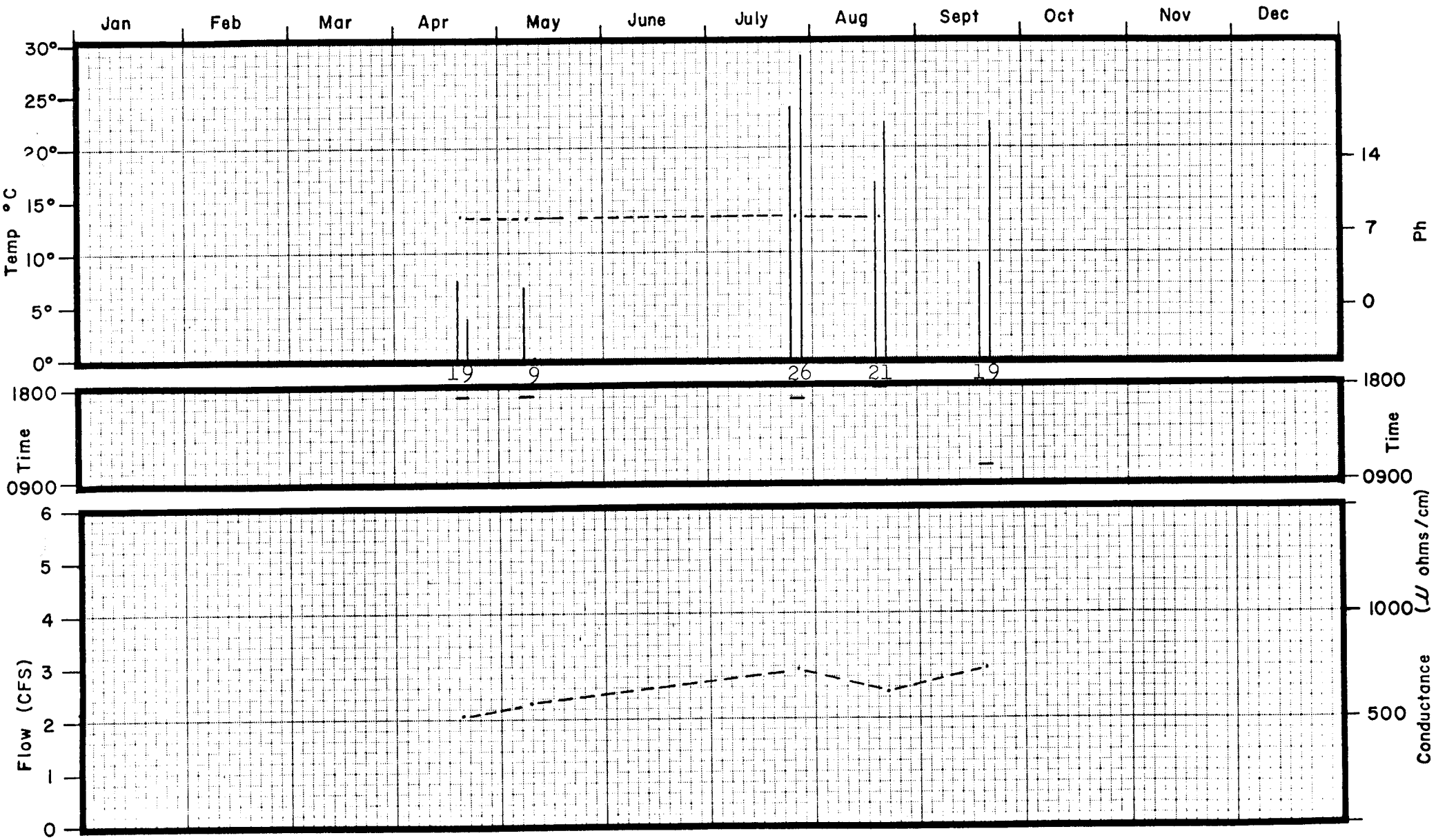


YEAR 1980 STATION Left Fork Dugout LOCATION NW NE SE NW 23-13S-12E

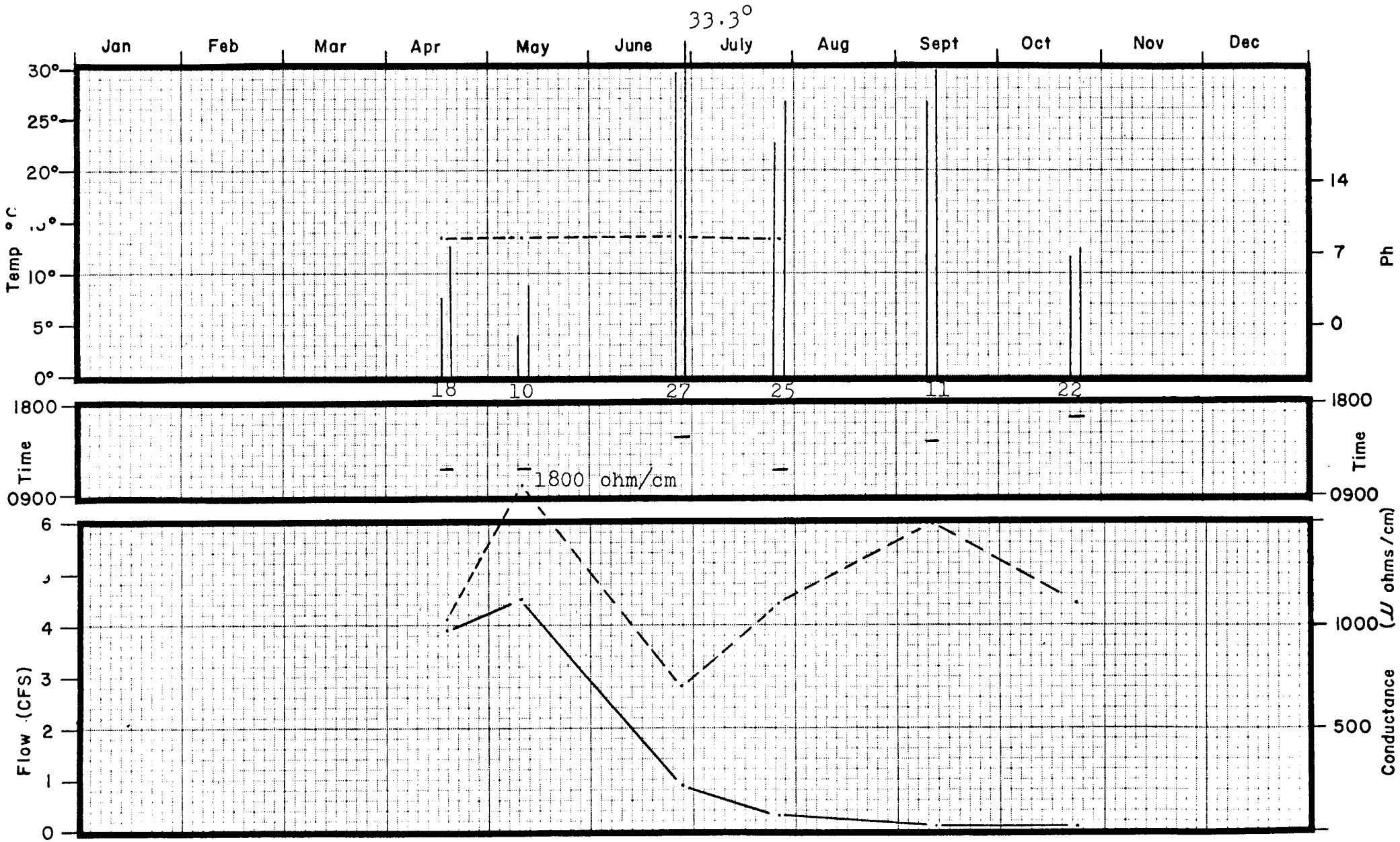
#7



YEAR 1980 STATION #5 Dugout Creek LOCATION NE NW SW 23-13S-12E

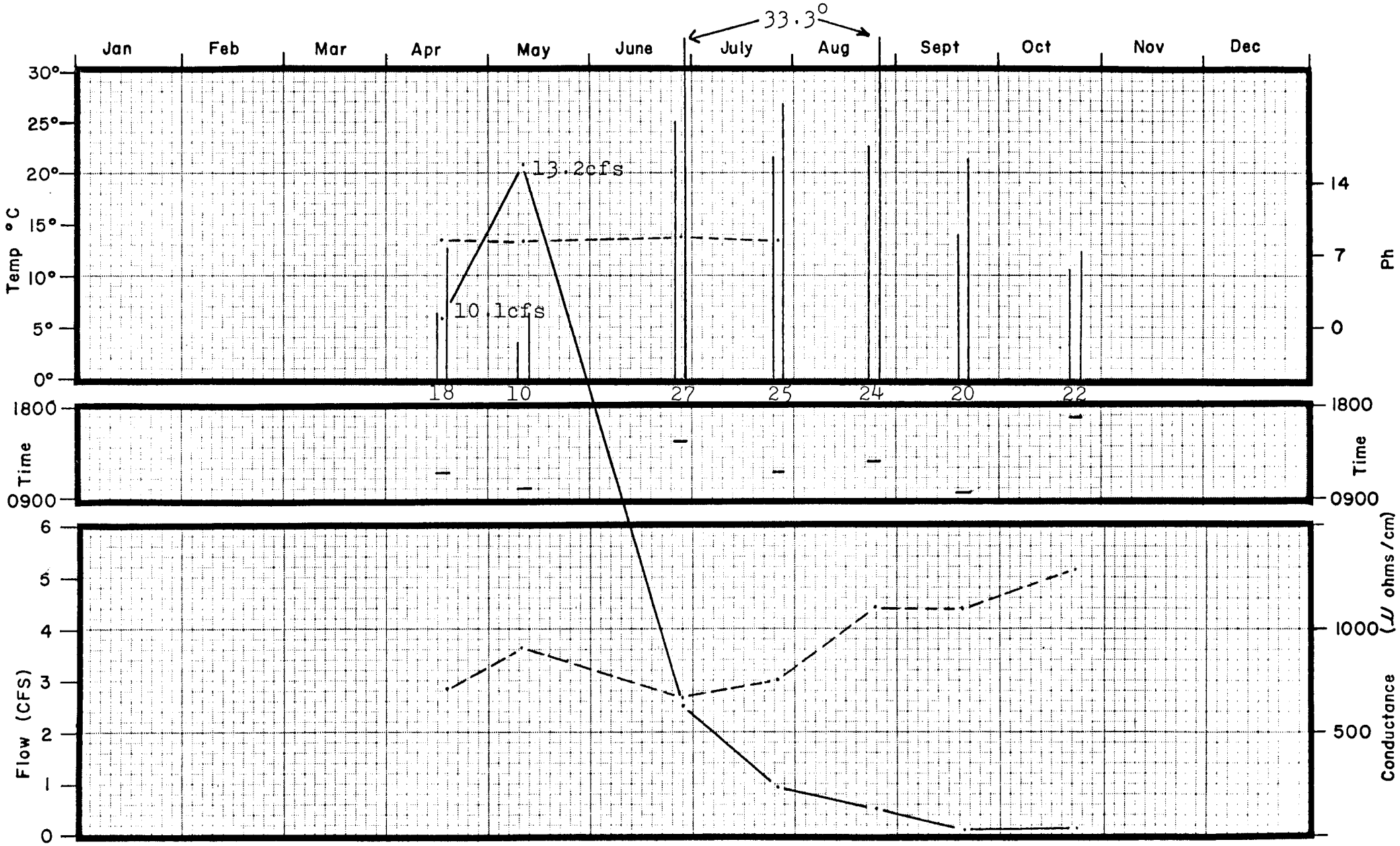


YEAR 1979 STATION #51 Coal Creek U.S.G.S. LOCATION _____

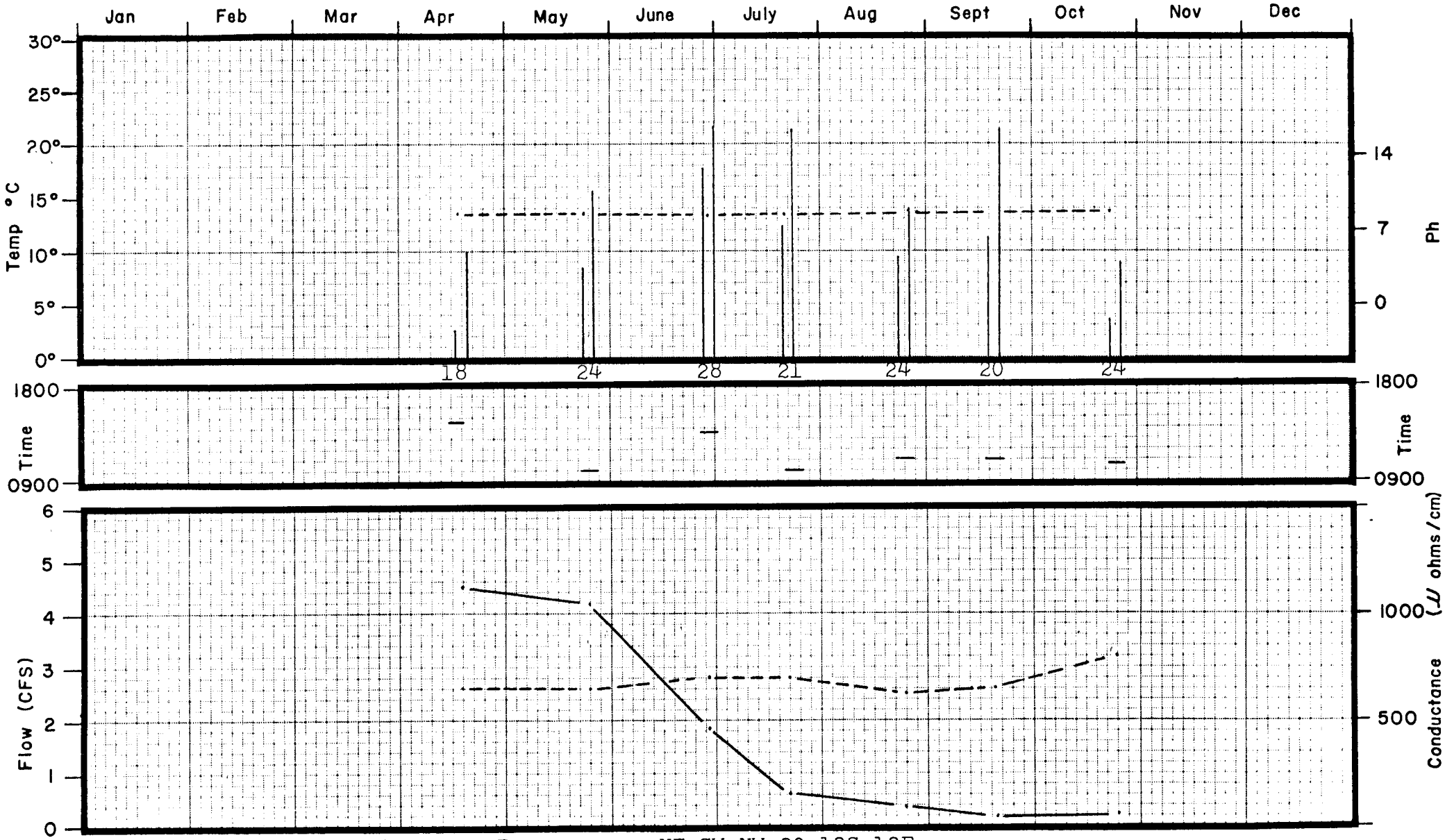


YEAR 1979 STATION #50 Pace Creek LOCATION SE SW SW 32-14S-12E

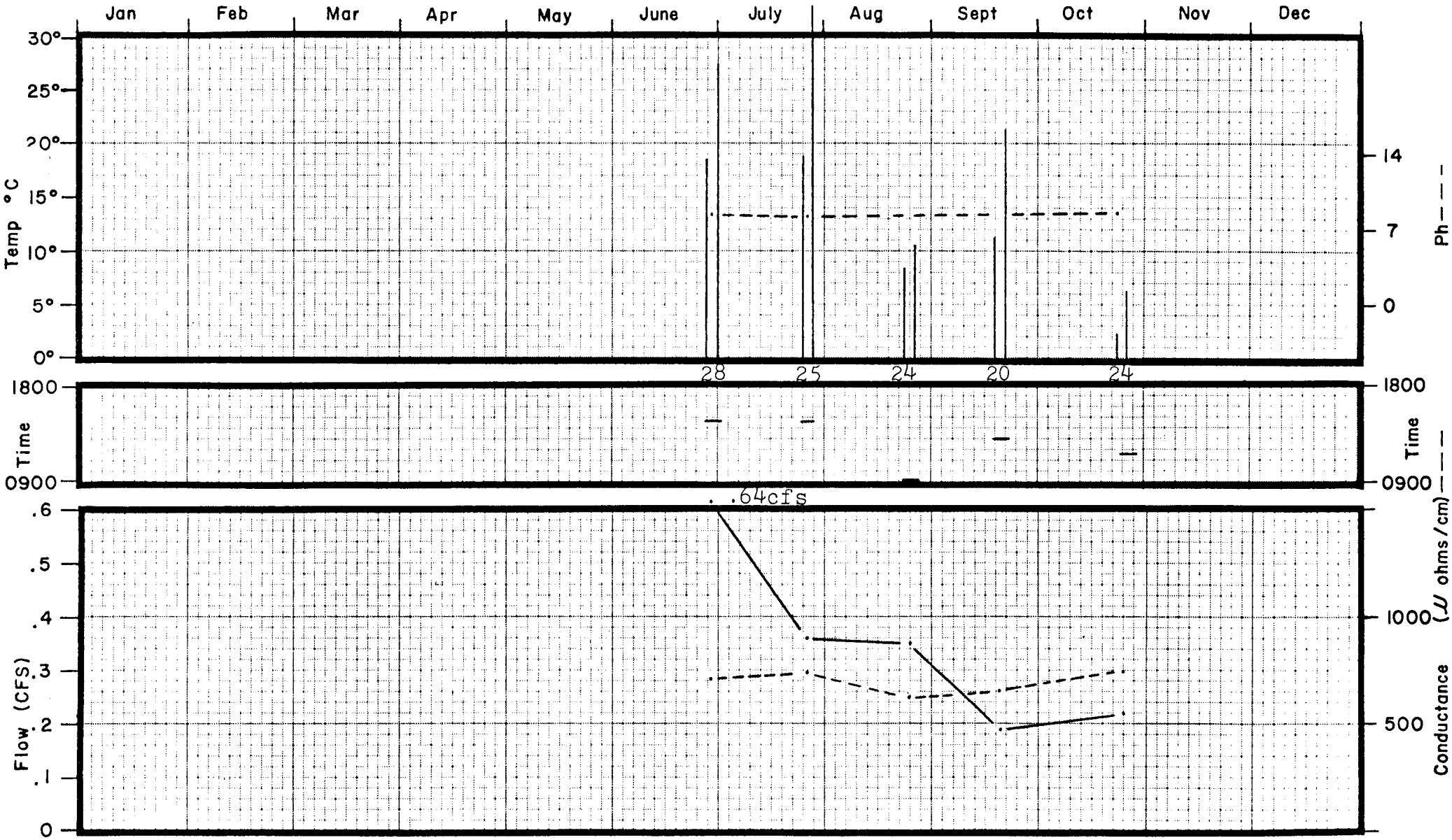
Marakis



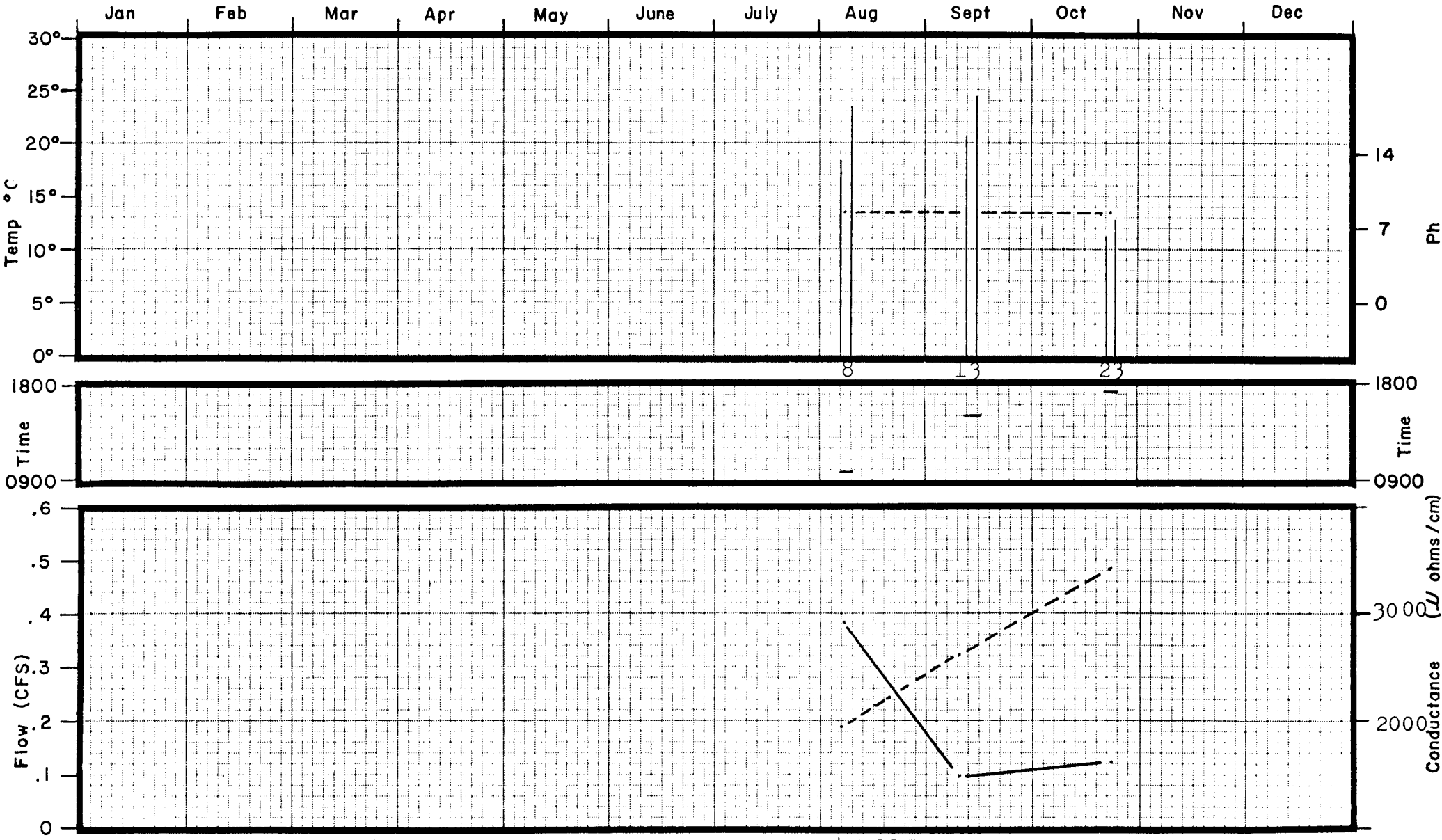
YEAR 1979 STATION #49 Dugout Crk LOCATION SE SW SW 32-14S-12E
Marakis Ranch



YEAR 1979 STATION PC2 Lower Pace Creek LOCATION NE SW NW 30-13S-13E

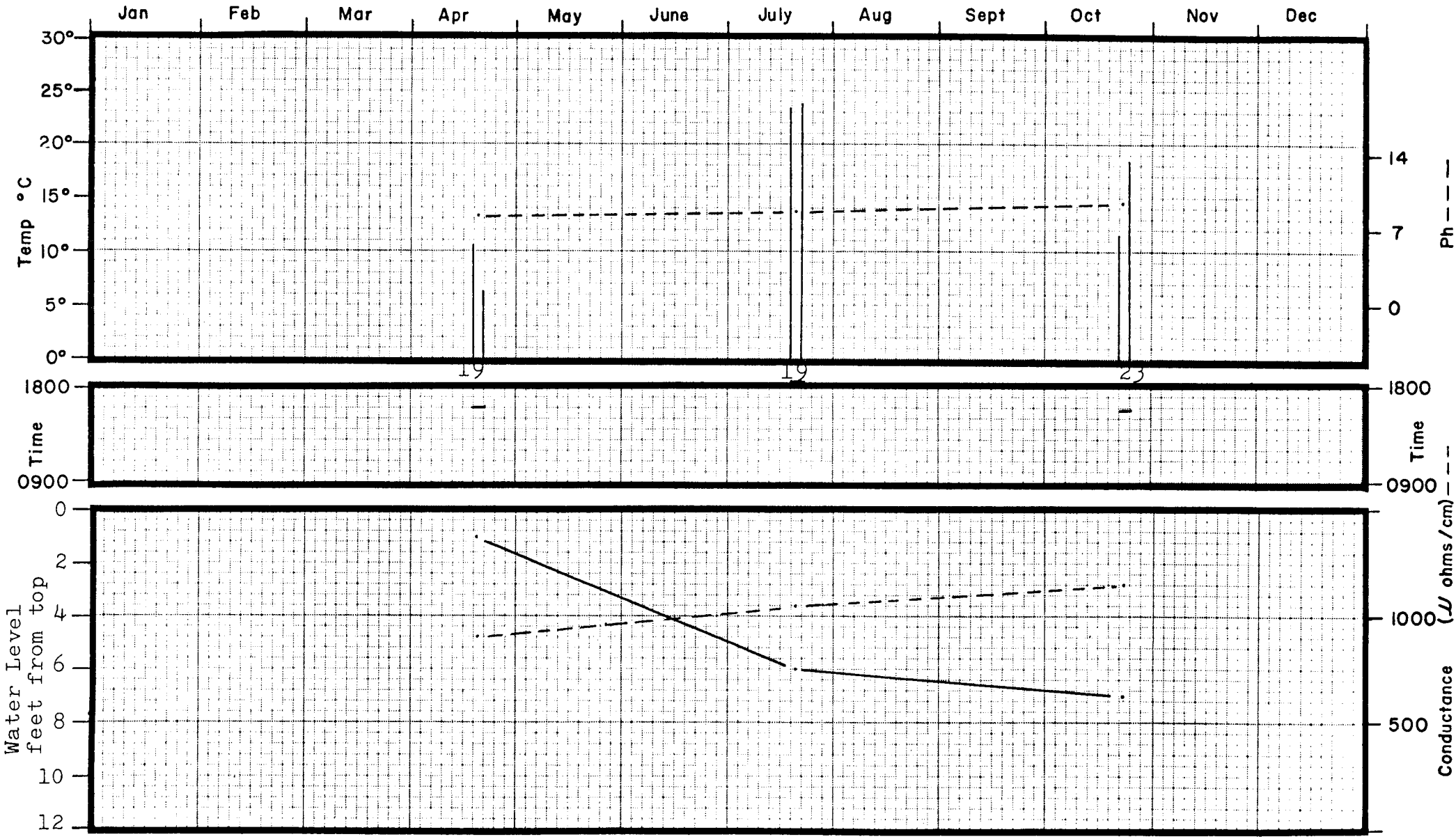


YEAR 1979 STATION PC1 Upper Pace Creek LOCATION NW SW SW 19-13S-13E

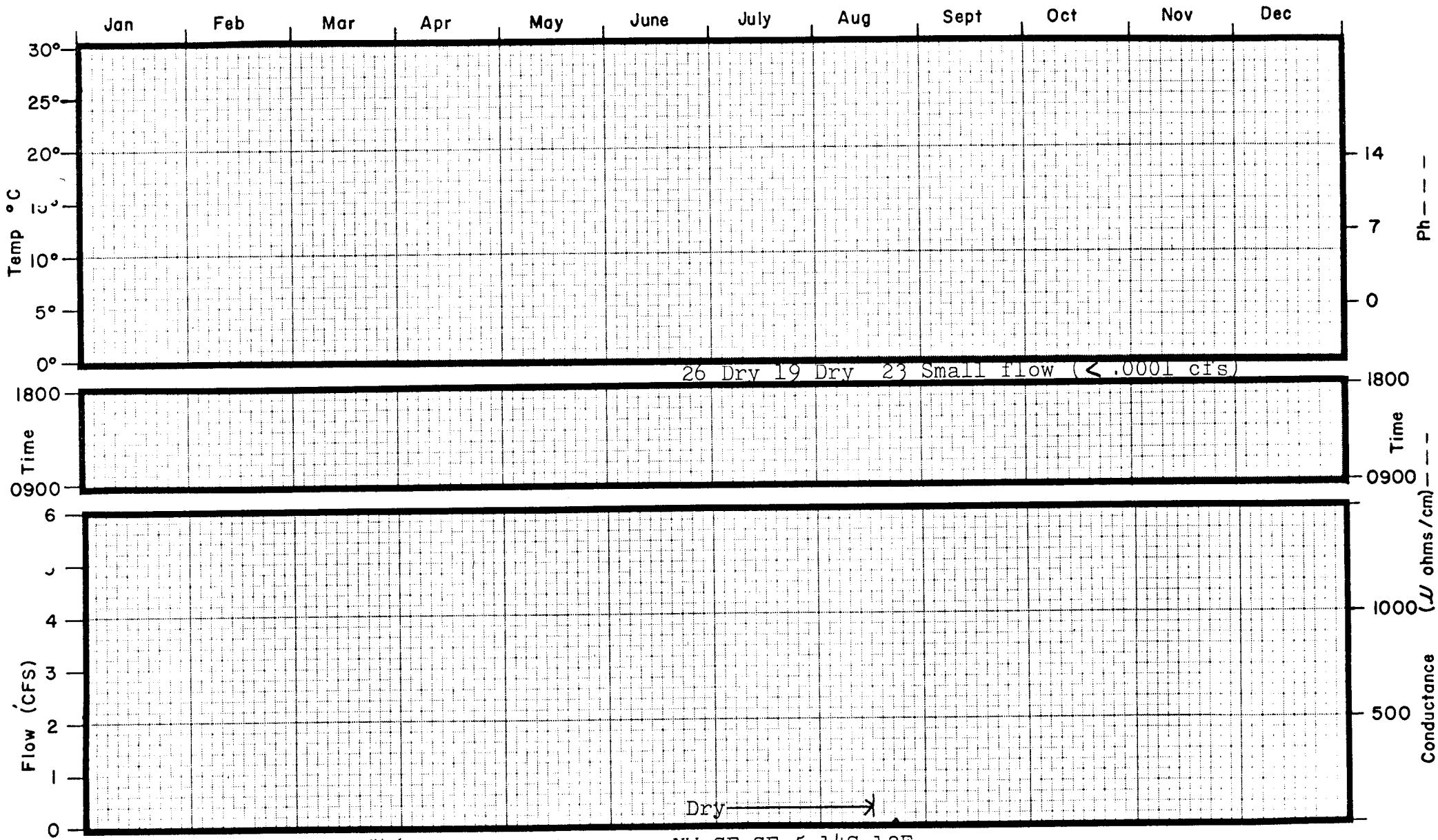


YEAR 1979 STATION #48 Soldier Crk LOCATION SE SW SE 12-14S-11E

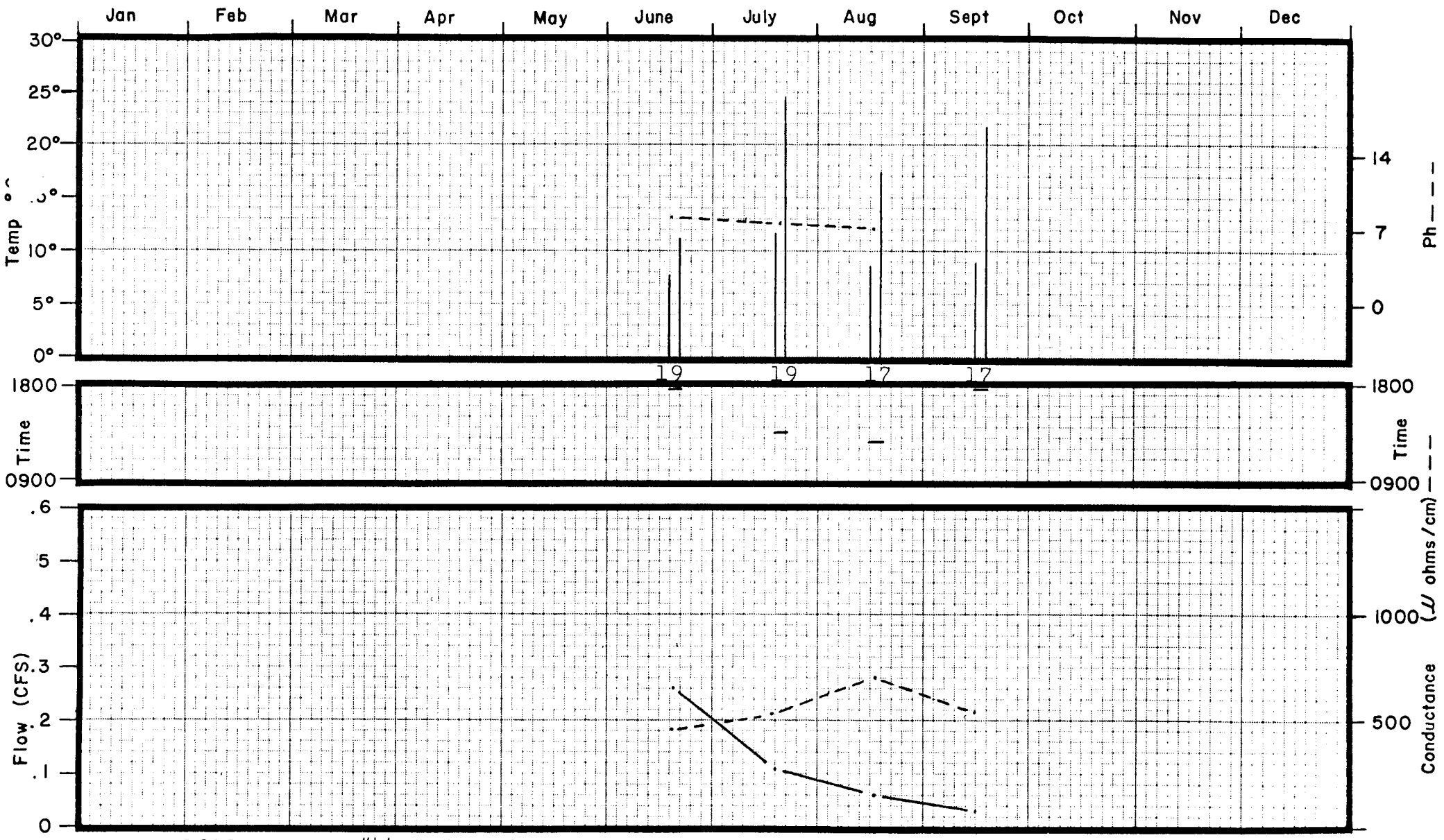
Edward's Ranch (irrigation return)



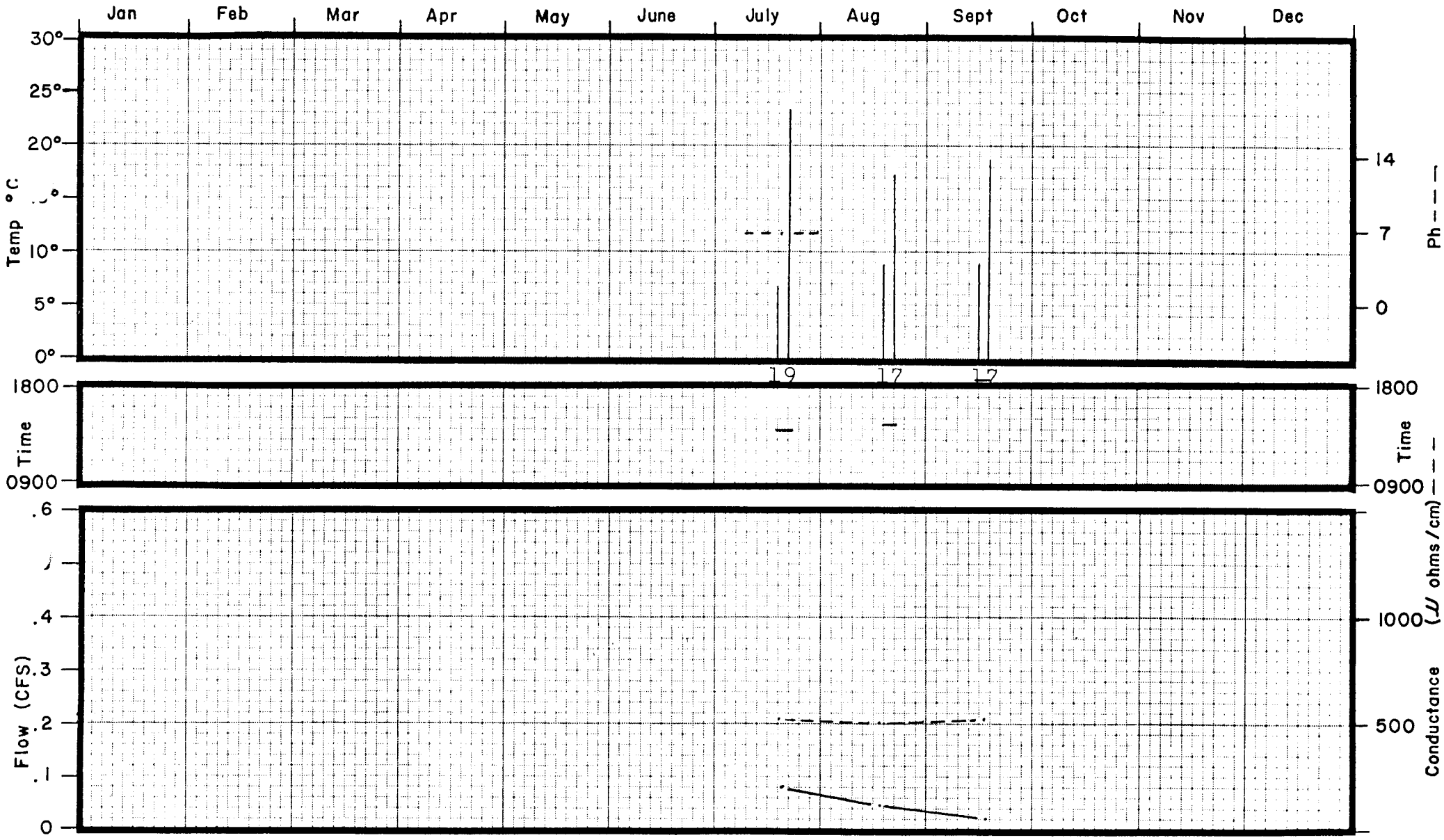
YEAR 1979 STATION #47 Anderson Reservoir LOCATION SW NW 36-13S-11E



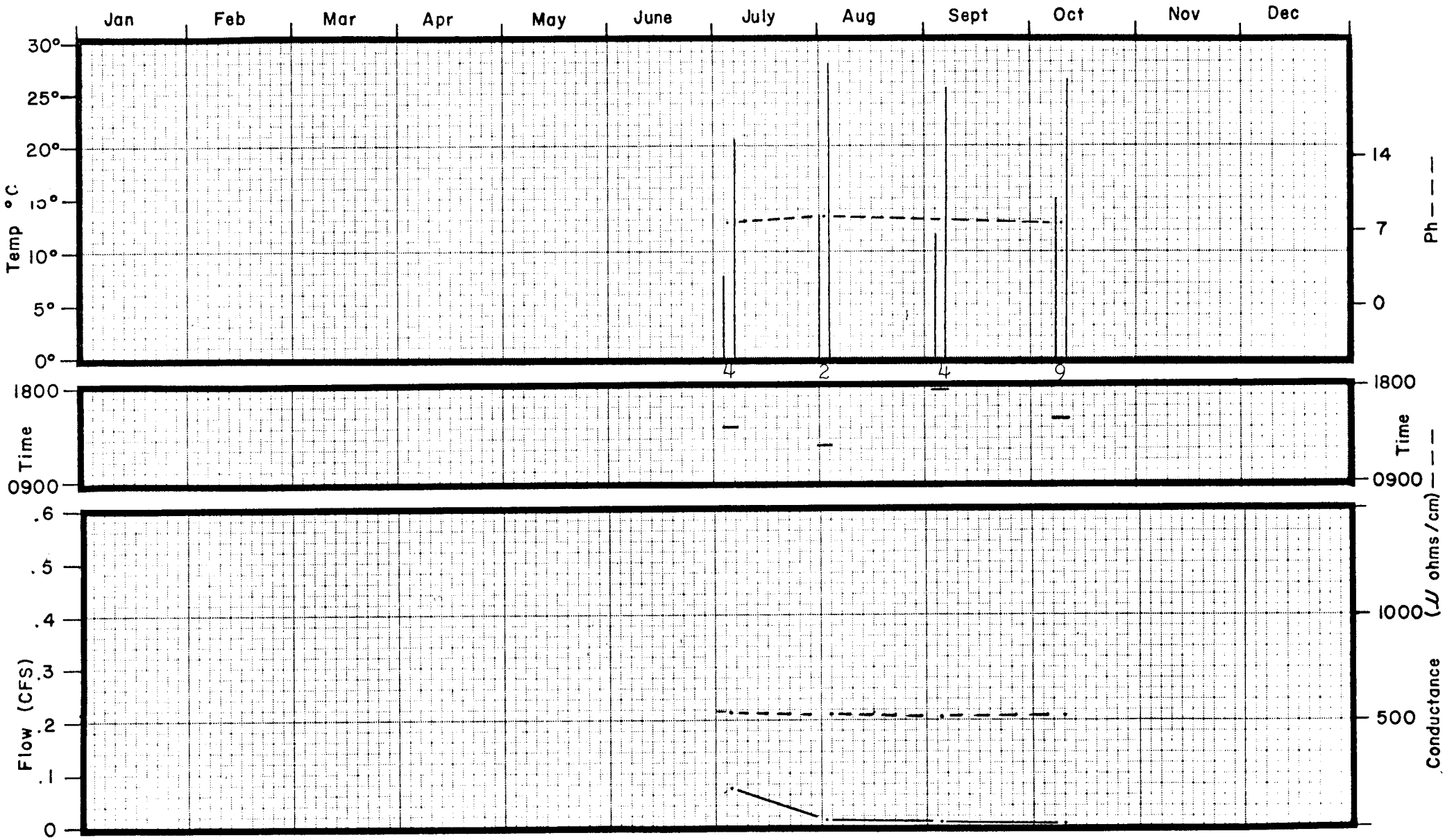
YEAR 1979 STATION #46 West Dugout Creek LOCATION NW SE SE 5-14S-12E



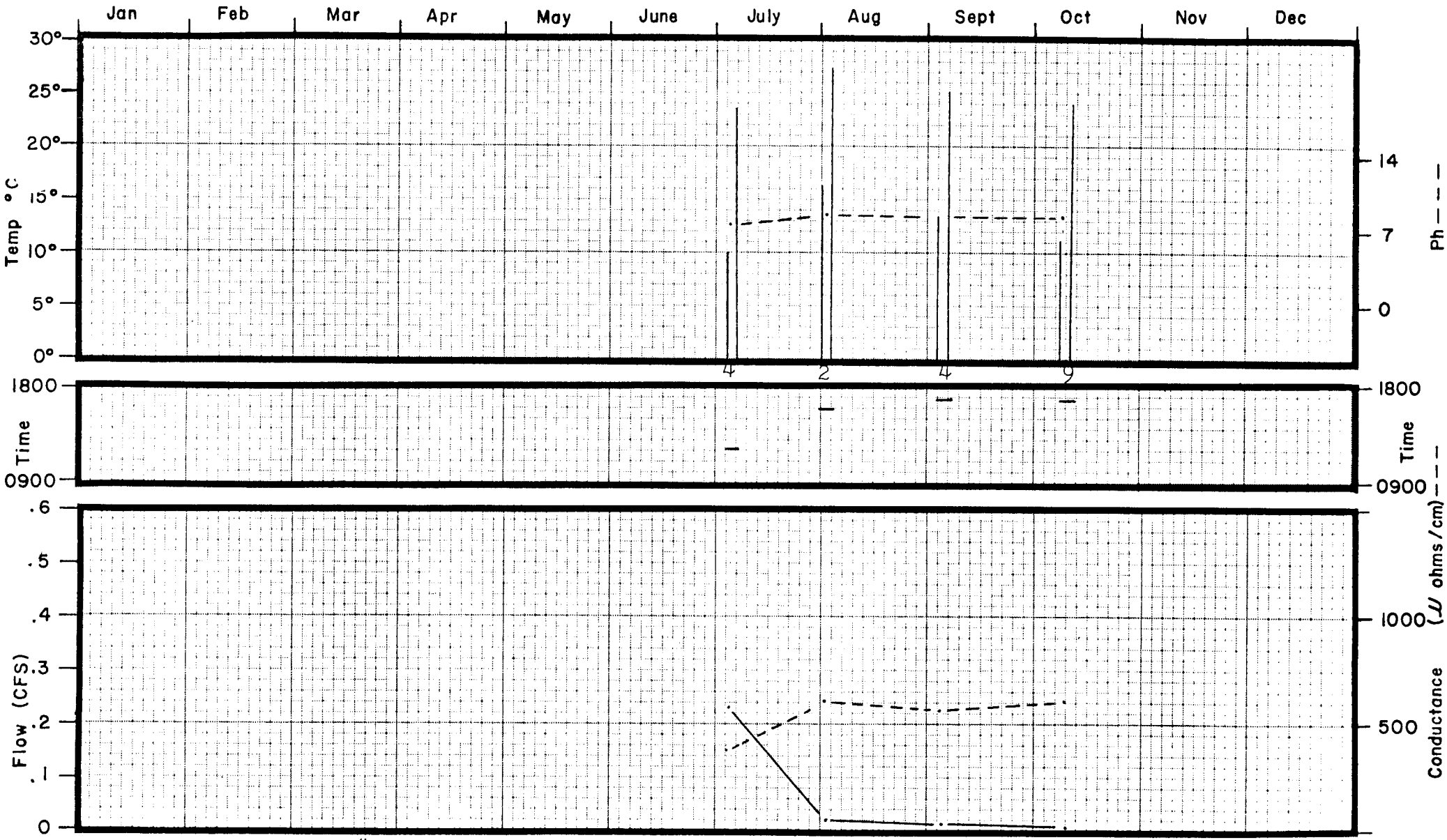
YEAR 1979 STATION #44 "Y" Spring LOCATION SW SE SW NE 11-13S-12E



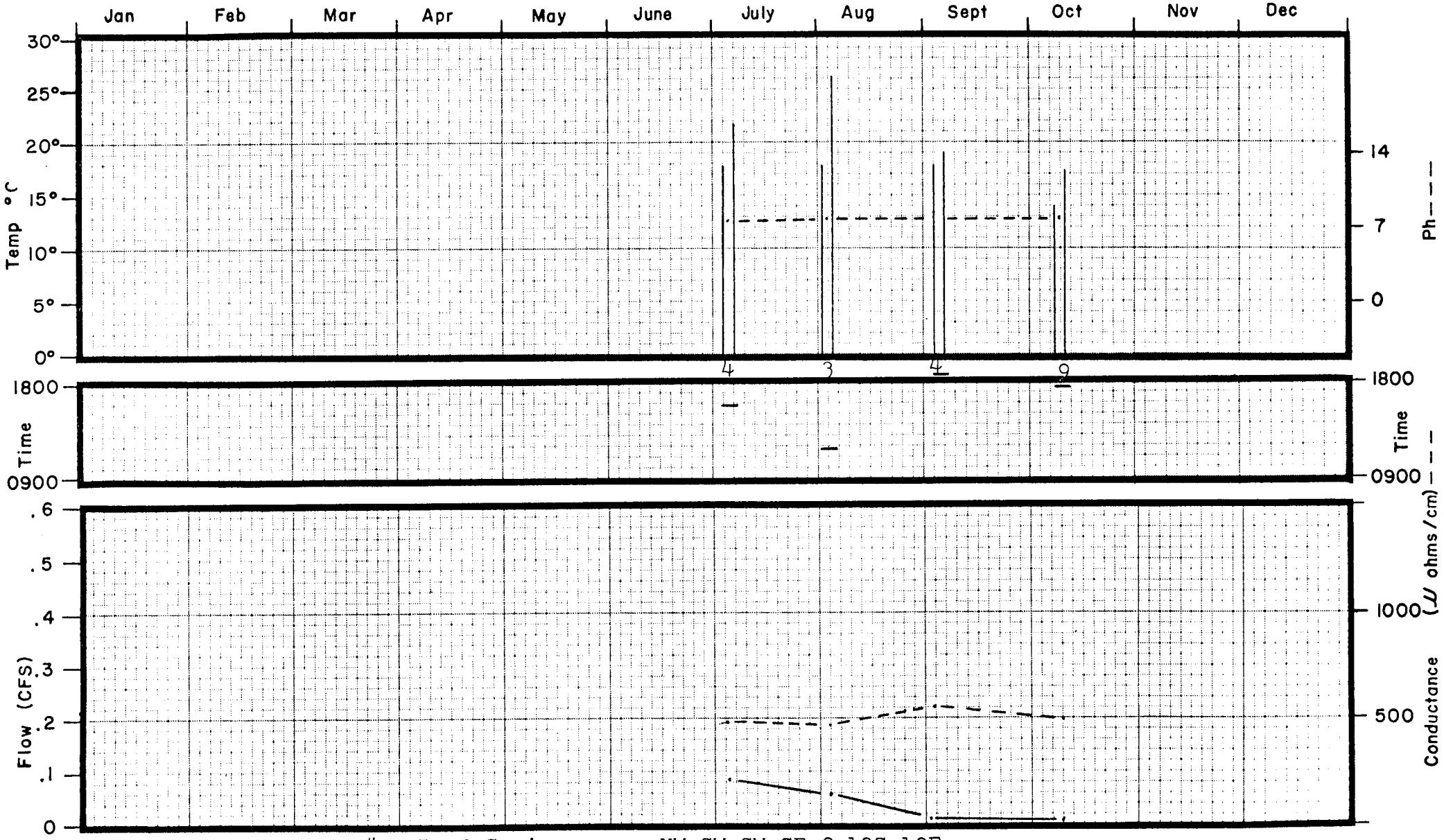
YEAR 1979 STATION #42 Pine Spr. LOCATION SE NW SE NE 10-13S-12E



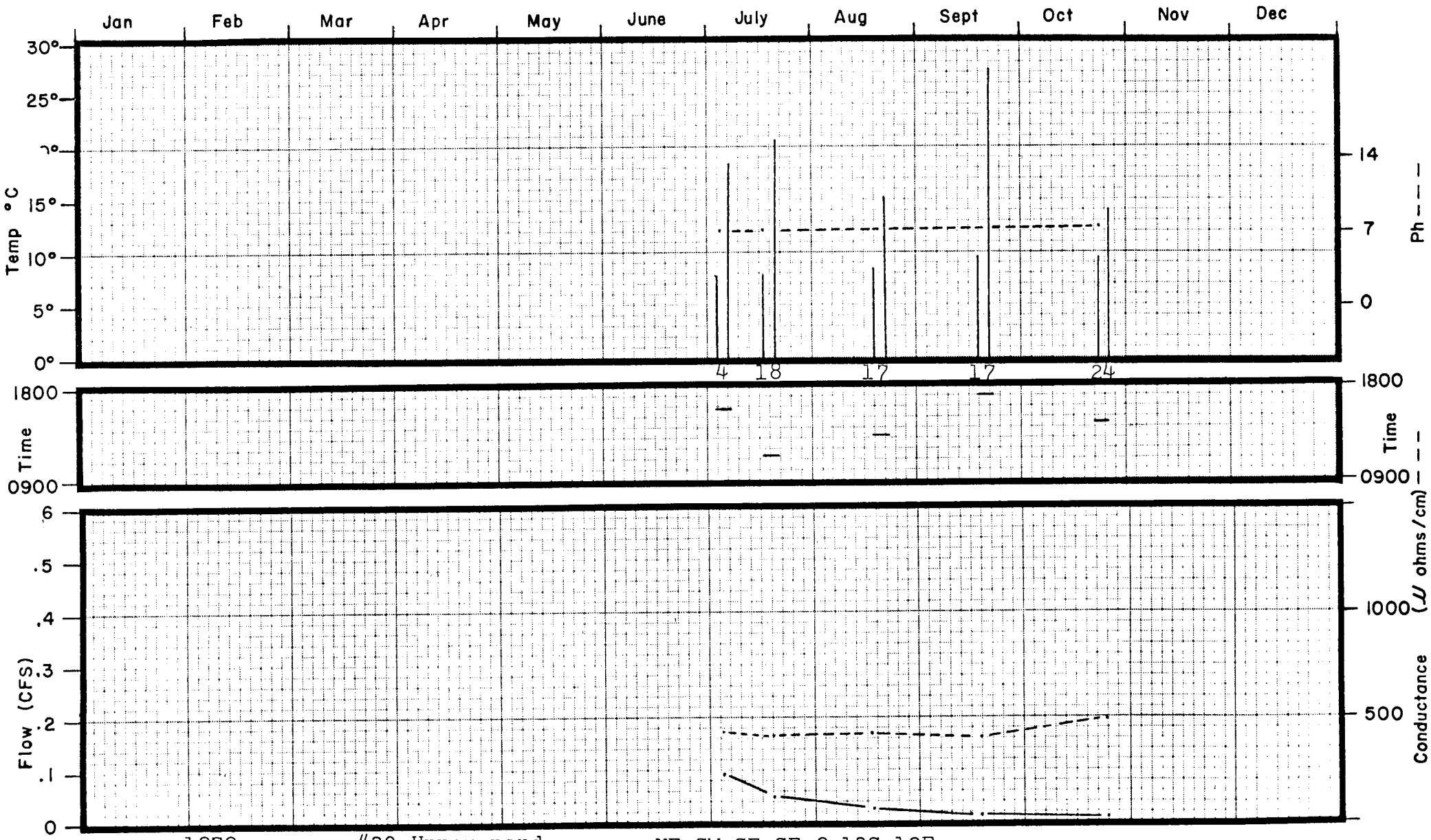
YEAR 1979 STATION #39 Little Pine Spring LOCATION SW NW NW SW 9-13S-12E



YEAR 1979 STATION #37 Little Pine Creek LOCATION NW NE SW SE 8-13S-12E

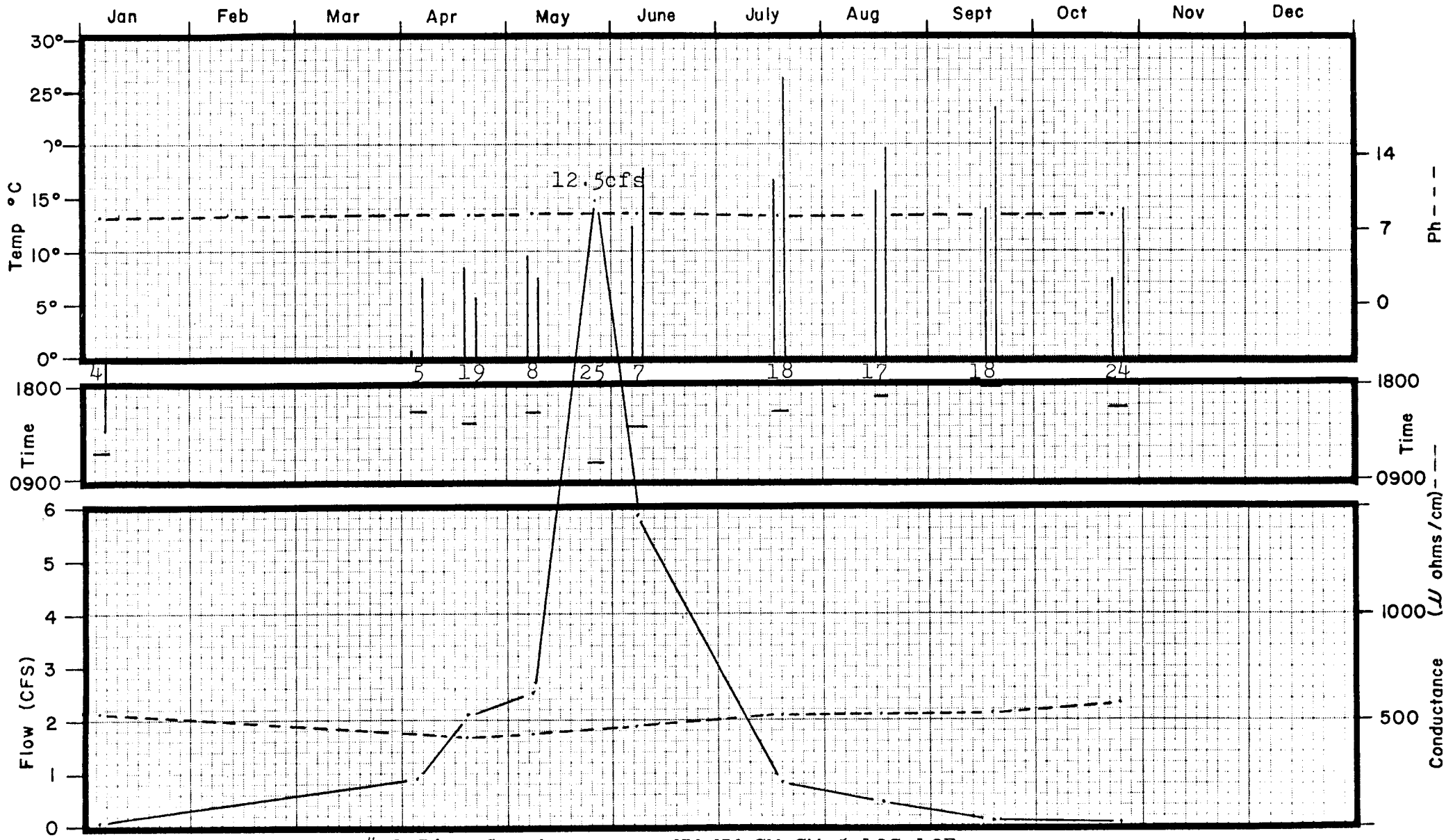


YEAR 1979 STATION #31 Pond Spring LOCATION NW SW SW SE 9-13S-12E

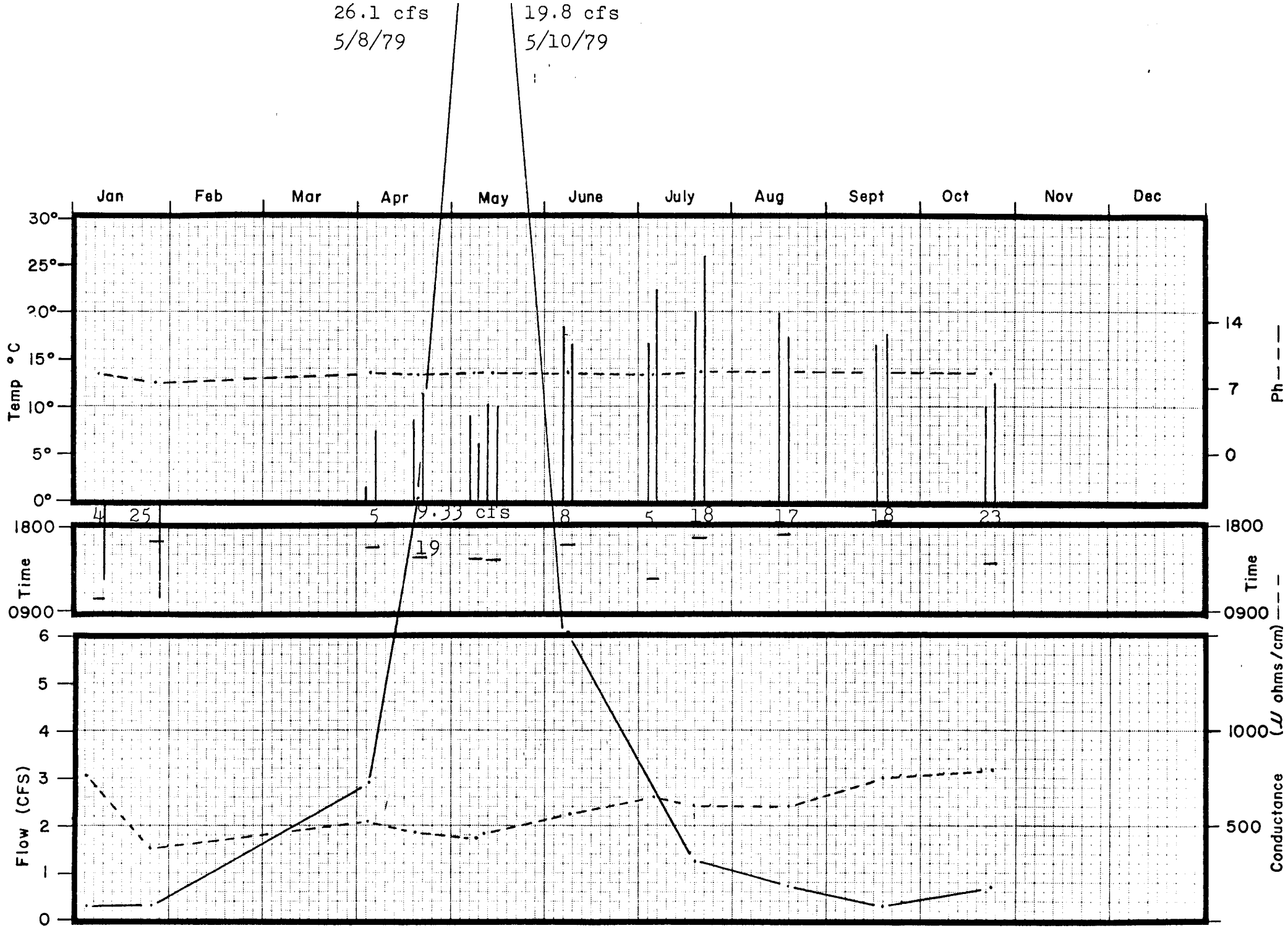


YEAR 1979 STATION #30 Upper pond LOCATION NE SW SE SE 9-13S-12E

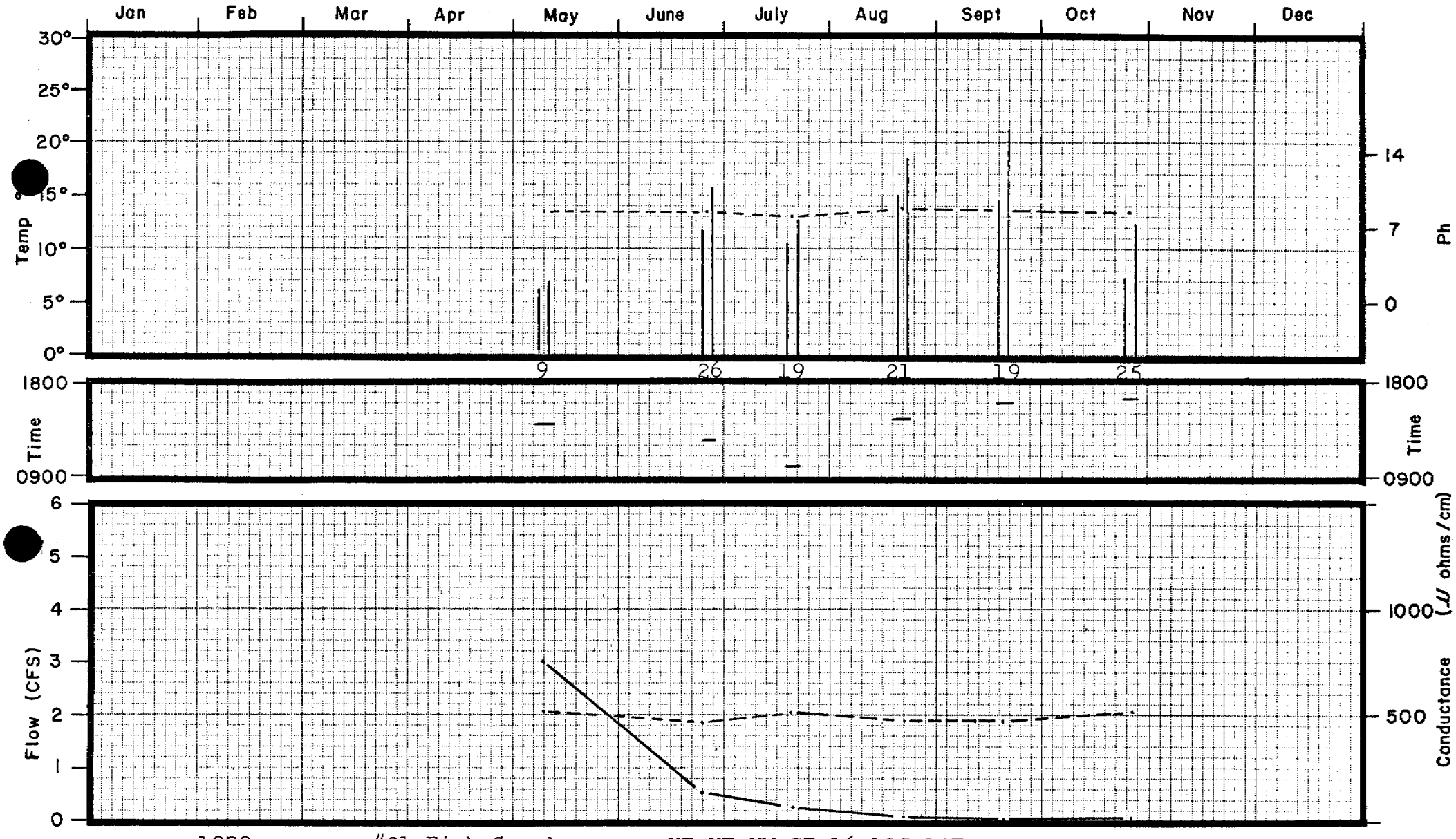
Spring (9-1)



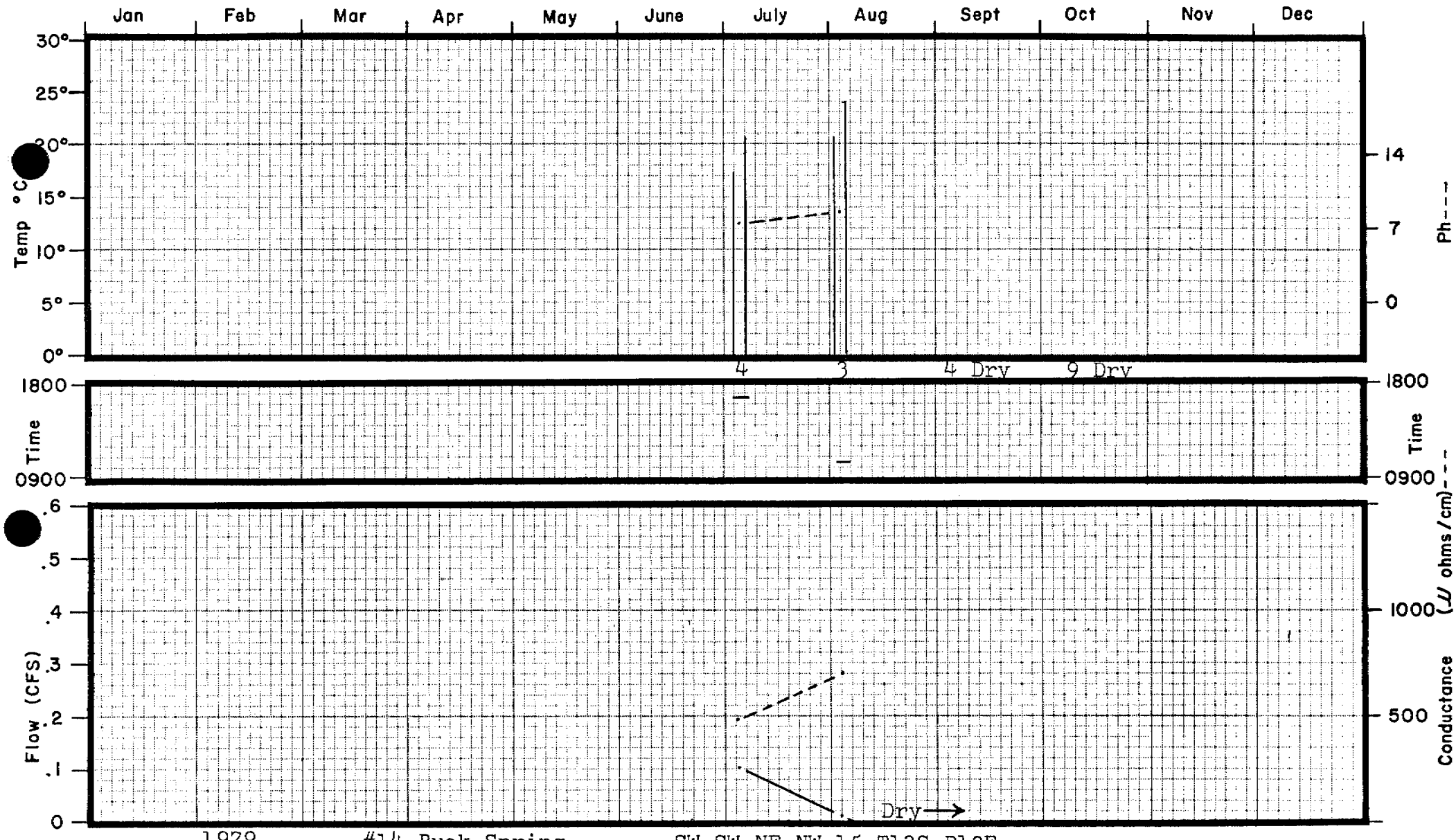
YEAR 1979 STATION #23 Pine Creek LOCATION NW NW SW SW 5-13S-12E



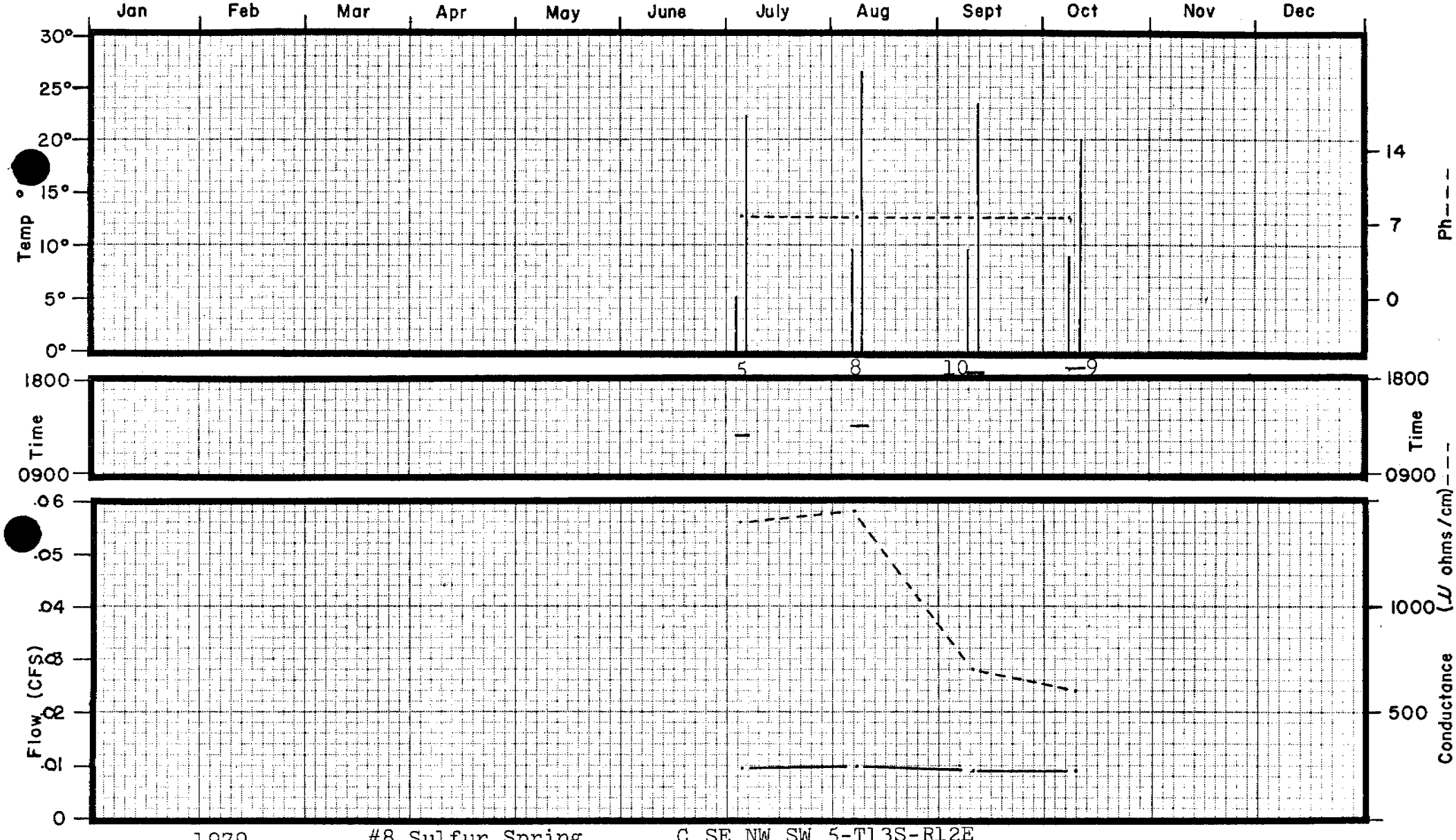
YEAR 1979 STATION #22 Soldier Creek LOCATION SE SE NW SW 5-13S-12E



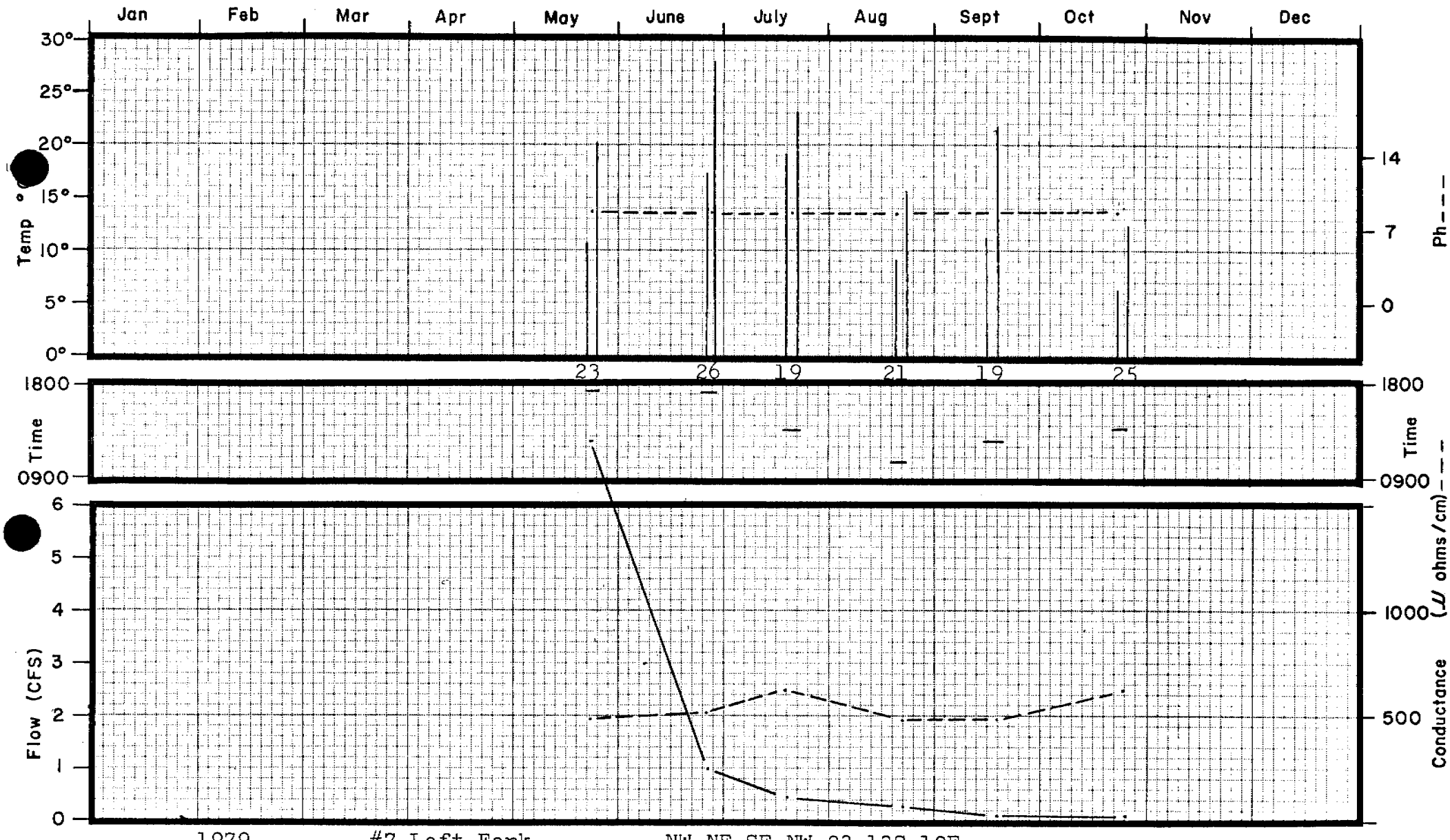
YEAR 1979 STATION #21 Fish Creek LOCATION NE NE NW SE 16-13S-12E



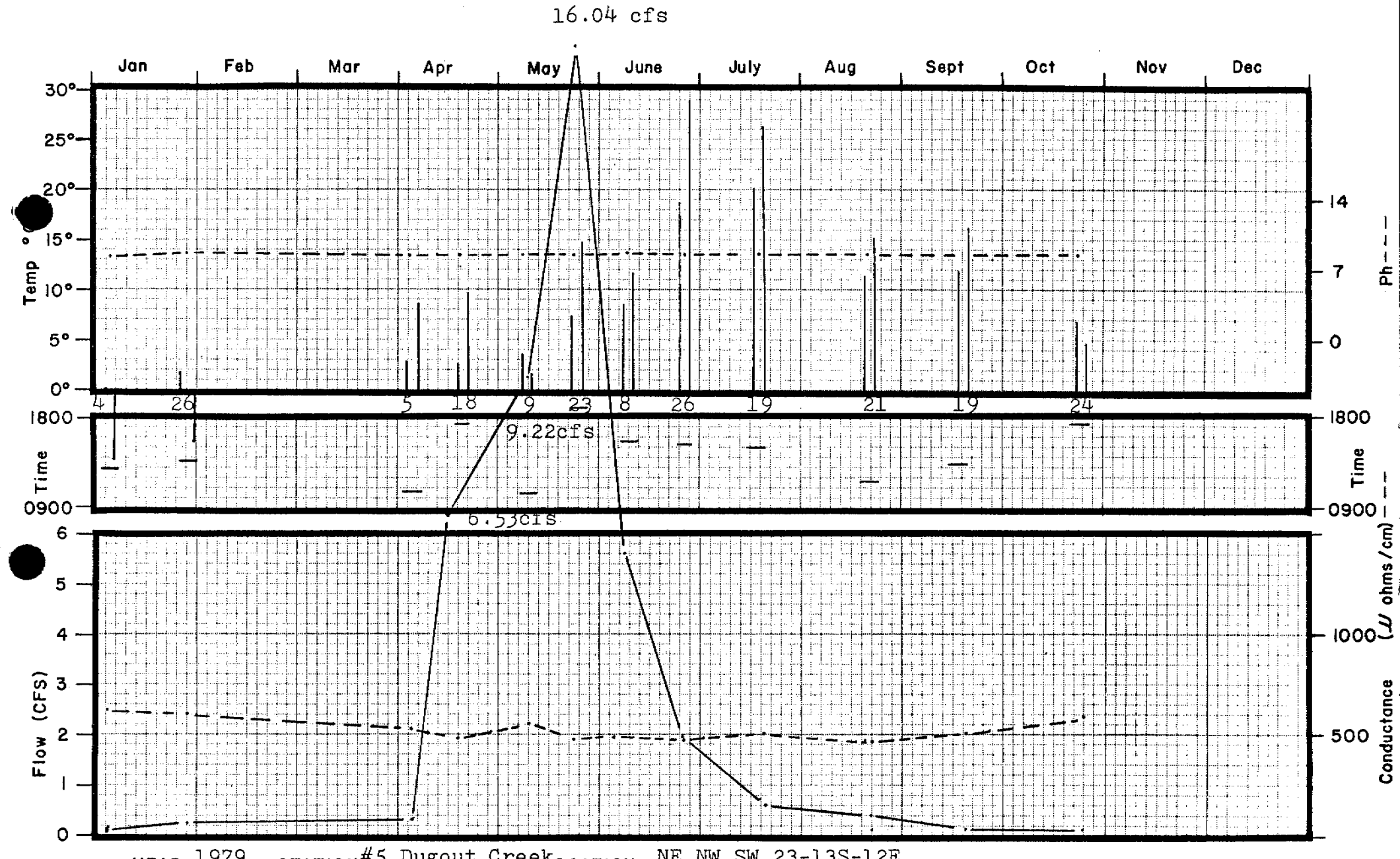
YEAR 1979 STATION #14 Buck Spring LOCATION SW SW NE NW 15-T13S-R12E



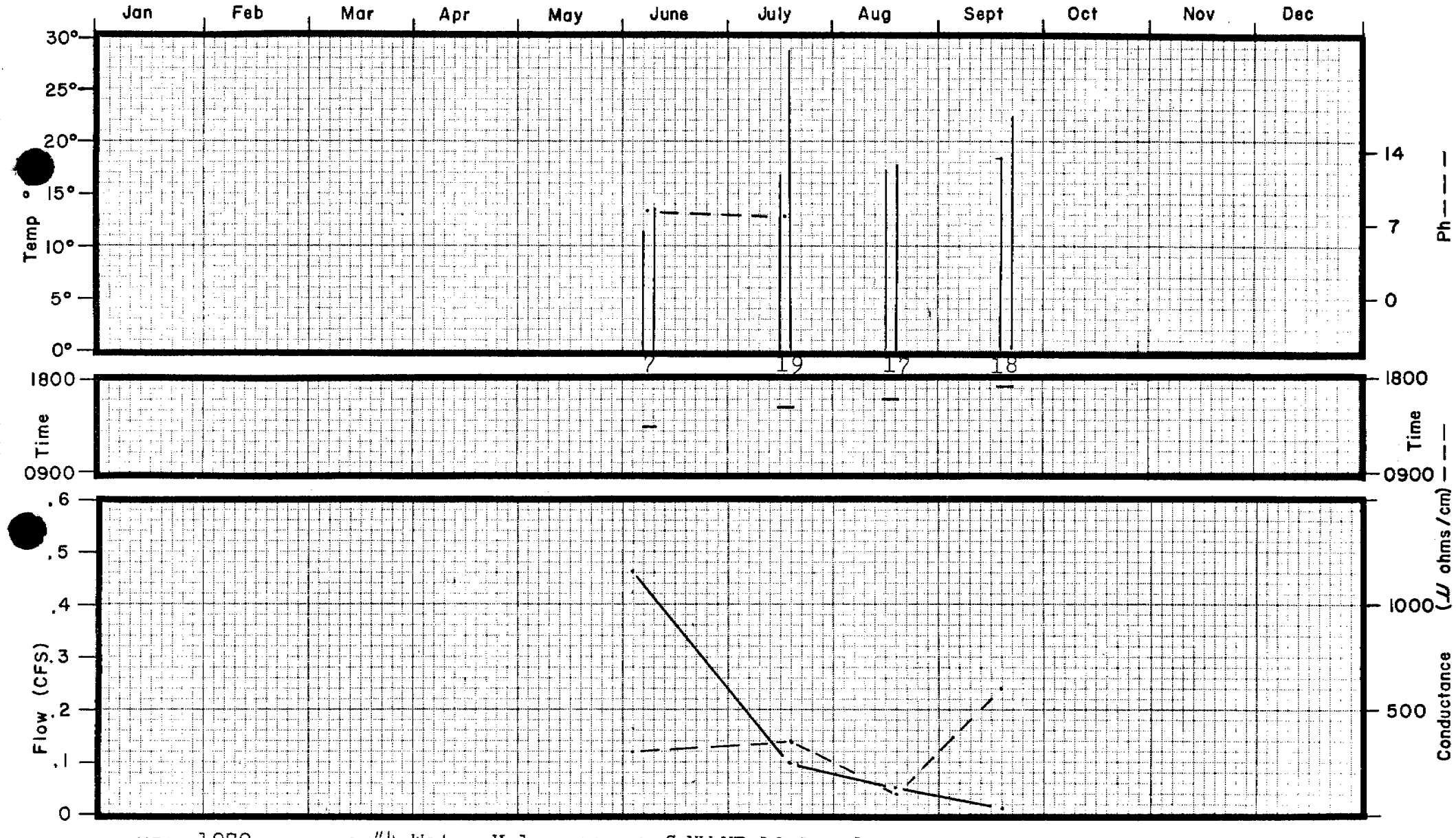
YEAR 1979 STATION #8 Sulfur Spring LOCATION C SE NW SW 5-T13S-R12E



YEAR 1979 STATION #7 Left Fork Dugout Creek LOCATION NW NE SE NW 23-13S-12E



YEAR 1979 STATION #5 Dugout Creek LOCATION NE NW SW 23-13S-12E



YEAR 1979 STATION #4 Water Hole Springs LOCATION C NW NE 10-13S-12E

TABLE IV-B.14 - Surface Water Quality Data Continued
Page 3

Site Number	Stream	Date of Sample	Specific Conductance (micromhos)	pH (Units)	Temperature (deg. C)	Dissolved Solids Residue at 180°C	Calcium Ca	Magnesium Mg	Sodium Na	Potassium K	Chloride Cl	Sulfate SO_4	Bicarbonate HCO_3	Iron Total Fe	Iron Dissolved Fe	Manganese Total Mn	Manganese Dissolved Mn	Suspended Sediment
68	Soldier Creek	78-10-20	2850	8.6	10.0	3140	168	245	480	6	62	1825	437	26	---	---	10	2
		79-10-26	3400	8.5	11.0	3375	188	237	563	9.6	65	1980	405	<19	<14	9	9	20
		80-05-15	610	---	13.3	470	66	51	28	7	7	183	299	7500	34	166	<5	480
		80-10-22	2700	8.3	14.0	1666	160	54	248	6	46	533	419	218	12	10	6	1
69	Dugout Creek	79-04-18	710	8.4	6.0	724	34	103	51	6	10	285	282	5890	<50	14	<20	1357
		79-10-22	1290	---	10.5	1010	73	97	8	4	10	347	400	450	<14	65	<6	2
		80-05-16	690	---	27.2	428	44	68	16	7	6	111	318	4700	<12	98	<5	318
		80-08-05	1160	8.8	22.2	864	23	122	864	4	14	400	298	<50	<50	8	<6	17
		80-10-23	1300	8.4	9.5	1158	128	91	80	5	15	508	330	206	<11	18	11	11
70	Pace Creek	79-04-18	1030	8.4	8.0	1210	89	108	146	5	13	577	325	5100	<50	160	<20	3025
		79-10-22	1110	---	11.5	967	82	97	61	4	5	467	311	19	<14	9	9	4
		80-05-16	980	---	6.7	729	164	19	50	7	3	223	351	4300	<12	104	<5	333
		80-08-05	1110	8.9	22.2	784	32	109	88	4	11	354	323	<50	<50	<6	<6	15
		80-10-23	2000	8.2	4.5	1387	111	143	197	6	29	902	345	88	<11	8	4	10
72	Corbula Creek	78-04-13	1900	7.9	12.0	2600	200	26	537	7.4	40	1620	342	----	78	---	23	9
73	Soldier Creek	79-10-26	----	---	---	729	24	80	41	<3	1	119	443	306	18	60	60	22
		80-08-06	730	8.7	11.0	427	15	71	61	2	10	107	376	<50	<50	13	9	7
		80-10-21	900	8.7	9.4	615	56	58	85	3	15	171	380	910	33	57	43	62
PC 1	Pace Creek	78-04-26	670	8.4	4.5	525	58	56	53	.3	16	150	390	----	25	---	24	101
		78-08-01	700	---	21.0	490	42	60	44	2.9	6	160	351	1926	---	---	25	84
		78-10-20	750	8.2	5.0	610	91	49	58	3.0	8	178	451	19	---	---	18	1.0
		81-04-24	750	8.5	7.8	523	88	57	47	4.5	8	221	314	2190	940	140	130	183
		81-08-20	875	7.5	17.2	581	123	53	41	5.5	9	230	358	1500	1250	2500	1930	11
PC 2	Pace Creek	78-04-14	770	8.6	1.5	----	57	55	82	2.8	6	176	381	----	18	---	13	82
		78-08-01	700	---	24.0	525	48	63	46	3.3	6	185	349	33	---	---	18	17
		78-10-20	790	8.4	6.0	642	98	50	61	3.3	8	213	432	13	---	---	26	2.0
		79-04-18	650	8.4	3.0	491	30	72	45	3	6	131	355	11,530	<50	313	<20	429
		79-07-21	700	8.2	12.0	572	89	36	51	2	3	155	365	497	<20	<6	<10	42
		79-10-24	800	8.7	3.5	619	69	70	23	3	12	192	401	171	30	<6	<6	2
		80-02-28	825	8.4	0.6	585	89	52	34	4	3	159	360	193	66	7	<5	9
		80-05-14	---	8.5	6.1	496	120	14	26	7	2	130	367	4800	32	108	<5	328
		80-08-05	820	8.9	19.4	517	61	60	48	3	11	222	360	923	<50	9	<6	26
		80-10-23	920	8.4	3.4	674	74	81	52	4	14	367	380	245	32	30	22	15.5
		81-02-12	860	8.6	0.0	607	1325	52	63	11	2	360	407	300	100	50	10	6.6
		81-04-22	750	8.5	5	500	77	57	47	5	8	247	296	500	270	20	10	43
		81-08-20	850	7.8	22.8	558	107	525	41	6	9	240	312	5000	4350	2000	1910	26.5