

UNC TETON EXPLORATION DRILLING, INC. ~~CDR~~

PDR

Subsidiary of United Nuclear Corporation, P.O. Drawer A-1
A UNC RESOURCES Company Casper, Wyoming 82602

Telephone 307/265-4102

INC

April 9, 1981

Mr. Ross Scarano
Uranium Recovery Licensing Branch
Division of Waste Management
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

and

Ms. Rebecca Mathisen
Land Quality Division
Department of Environmental Quality
401 West Nineteenth Street
Cheyenne, WY 82001

RE: Source Material License SUA-1373
Docket Number 040-8728

and

Research and Development License 2RD

SUBJECT: Q1 Report - January 1, 1981 through March 31, 1981

Gentlemen:

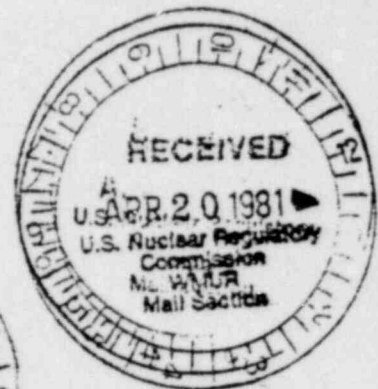
In accordance with the referenced licenses, SUA-1373, Condition Number 35, Teton-Nedco Joint Venture Partners herein presents the Fifth Quarterly report for its pilot in-situ uranium mining operation in the Powder River Basin area of Wyoming. This report covers the operational period from January 1, 1981 through March 31, 1981.

Operational Summary

1.1. Mining

During the first quarter of 1981, the stability surveillance phase for the restoration of the N-zone wellfield was completed by splitting the final monitoring samples with Becky Mathisen, D.E.Q. Land Quality Division of 3/16/81.

The mining of the M-zone field continued into February. On 2/17/81 mining was stopped and restoration commenced for the M-zone.



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The following table demonstrates the production of U_3O_8 from the M-zone wellfield.

| | <u>lbs. U_3O_8</u> | <u>mg/l</u> |
|----------|---------------------------------|-------------|
| January | 800 | 30.2 |
| February | 1,162 | 38.6 |
| March | 577 | 19.4 |

1.2. Process

The only U_3O_8 recovered during the first quarter was obtained from the M-zone. During this period, a total of 2,146 lbs. of U_3O_8 from six elutions were obtained. The following table shows the monthly breakdown:

| | <u>lbs. Eluted</u> | <u># of Elutions</u> |
|----------|--------------------|----------------------|
| January | 665 | 2 |
| February | 1,194 | 3 |
| March | 287 | 1 |

On 2/25/81 an eltro-dialysis unit manufactured by Ionics, Inc. was installed in the M-zone restoration circuit. The product produced from this unit has been low in T.D.S. and bicarbonate. This has greatly attributed to the M-zone reaching the half way point of restoration.

In January the second shipment of yellow cake was sent to Kerr-McGee's Sequoyah facility. Lot #2 left the mining property on 1/3/81 and was received in Gore, Oklahoma on 2/4/81. All monitoring and transporting of this shipment went smoothly.

1.3 Wellfields

1.3.1 Flow balance within the M-zone wellfield is listed in Table 1.3.1. The net wellfield flow balance for this reporting period is tabulated below:

| | <u>M-zone</u> |
|--------------------------|---------------|
| Injection (gallons) | 9,705,740 |
| Recovery (gallons) | 10,146,623 |
| Overrecovery (gallons) | 440,883 |
| Percent (%) Overrecovery | 4.35% |

1.4 Waste Generation Volume and Quality

The total volume of liquid waste effluent discharge from the process plant to the Solar Evaporation Ponds during the first quarter of 1981 was approximately 45,000 gallons.

Over half of this waste was generated by the M-zone restoration process now going on. The water quality data for this quarter of the waste in the Solar Ponds generated by the process is found in Tables 1.5.1. and 1.5.2. Tables 1.5.3. and 1.5.4. lists supplemental radiometric data for the pond water not available during the previous quarter.

1.5 Solar Evaporation Pond Leak Detection System

After finishing minor repairs on the Solar Ponds in January, no leakage has been detected in the Leak Detection System through the month of March.

2. Lixiviant Migration Control and Monitor Well Water Analysis

The excursion monitor wells were monitored every two weeks for the excursion parameters; Conductivity, Chloride, Sulfate, Uranium, Sodium and Alkalinity. The analytical results are tabulated and graphically presented in Appendix B.

No monitor wells reached excursion status during the quarter. The water analysis for monitor well MM-2 shows Alkalinity to exceed its Upper Control Limit on three consecutive occasions during this quarter. This type of behavior is not uncommon and suggests that the Upper Control Limit for Alkalinity at this well may have been set too low when the UCL's were modified by the DEQ during April, 1980. No other excursion parameters have reach their UCL.

The excursion monitor wells were also sampled for the full suite of D.E.Q. guideline #4 parameters, between January 1 and January 15. The data for these wells are found in Appendix A.

3. Hydrological Monitoring of Water Wells

The potentiometric levels of all monitor wells within the monitor well rings have been measured as required by the referenced Licenses. The results of the monitoring of these wells during this reporting period are listed in Appendix C. Barometric pressure for the monitoring periods is also listed in Appendix C. Net wellfield flow rates for the monitoring periods are listed in Table 1.3.1.

4. Radiation Safety

The radiological monitoring program is being conducted as outlined in the Environmental Report, Source Material License SUA-1373 Condition 30, and 10CFR20 regulations. Sampling points are those indicated in Figure III 2.1.02 of the Environmental Report and the Research and Development License application.

April 9, 1981

Beta and Gamma radiation levels were monitored this quarter using area Thermoluminescence Dosimeters (TLDs) and an Eberline "Rascal" with an HP-270 compensated hand probe. The highest beta/gamma radiation level was 0.25 mr/hr at the bottom of the ion-exchange column. The average radiation level in the plant was 0.13 mr/hr as compared to the TLD average readings of 0.15 mr/hr.

Swipe surveys to detect removable surface Alpha contamination were conducted on a monthly basis and all areas of the plant, office and laboratory were well within acceptable limits.

Radon daughter measurements were taken in all areas on a monthly basis using a modified Kusmetz method. All Radon daughters were below a minimum detectable limit of 0.0005 + 0.0004 working levels.

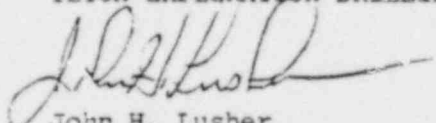
Radon-222 gas concentrations were monitored on a monthly schedule using the Eberline SAC-R5 system with SC-6 cells. The average Rn-222 concentration for the period was 7.4×10^{-9} uci/ml which was below the 25% level of the maximum permissible concentration.

TLD badges have been issued to all personnel and are read quarterly. The results of the beta/gamma readings indicate that all exposure levels are well below allowable levels.

All aspects of the radiation monitoring program indicate that levels of radiation exposure are well within acceptable limits and, are consistent with the N.R.C.'s ALARA guidelines.

Sincerely,

TETON EXPLORATION DRILLING, INC.



John H. Lusher
Radiation Safety Officer

By Joyce (by 2.4.)
Greg D. Joyce
Environmental Tech.

Report Reviewed: *Paul R. Hildenbrand (by D.H.)*
Paul R. Hildenbrand
Project Manager

Report Reviewed: *Dan Herlihy*
Dan Herlihy
Geohydrologist

TABLE 1.3.1.

WELL FIELD FLOW

| DATE | January | | | | | |
|------|---------|--------|---------|-----|-----|---------|
| | M-I | M-R | N-BLEED | N-1 | N-R | N-BLEED |
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | 485270 | 494638 | 9368 | 0 | 0 | 0 |
| 6 | | | | | | |
| 7 | | | | | | |
| 8 | | | | | | |
| 9 | | | | | | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | 682090 | 698780 | 16690 | 0 | 0 | 0 |
| 13 | | | | | | |
| 14 | | | | | | |
| 15 | | | | | | |
| 16 | | | | | | |
| 17 | | | | | | |
| 18 | | | | | | |
| 19 | 691560 | 709440 | 17880 | 0 | 0 | 0 |
| 20 | | | | | | |
| 21 | | | | | | |
| 22 | | | | | | |
| 23 | | | | | | |
| 24 | | | | | | |
| 25 | | | | | | |
| 26 | 792620 | 813000 | 20380 | 0 | 0 | 0 |
| 27 | | | | | | |
| 28 | | | | | | |
| 29 | | | | | | |
| 30 | | | | | | |
| 31 | | | | | | |

TABLE 1.3.1.

WELL FIELD FLOW

| DATE | March | | | | | |
|------|--------|--------|---------|-----|-----|---------|
| | M-I | M-R | M-BLEED | N-1 | N-R | N-BLEED |
| 1 | | | | | | |
| 2 | 799160 | 857830 | 58670 | 0 | 0 | 0 |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |
| 6 | | | | | | |
| 7 | | | | | | |
| 8 | | | | | | |
| 9 | 912190 | 990800 | 78610 | 0 | 0 | 0 |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | |
| 13 | | | | | | |
| 14 | | | | | | |
| 15 | | | | | | |
| 16 | 803300 | 866030 | 62730 | 0 | 0 | 0 |
| 17 | | | | | | |
| 18 | | | | | | |
| 19 | | | | | | |
| 20 | | | | | | |
| 21 | | | | | | |
| 22 | | | | | | |
| 23 | 300560 | 862172 | 61612 | 0 | 0 | 0 |
| 24 | | | | | | |
| 25 | | | | | | |
| 26 | | | | | | |
| 27 | | | | | | |
| 28 | | | | | | |
| 29 | | | | | | |
| 30 | 653550 | 693922 | 40372 | 0 | 0 | 0 |
| 31 | | | | | | |

NORTH SOLAR EVAPORATION POND

CHEMICAL CONSTITUENTS

TABLE 1.5.1.

| Date | 12-29-80 | 1-3-81 | 1-26-81 | 2-5-81 | 2-19-81 | 3-3-81 | 3-18-81 |
|--------------------------------------|----------|---------|---------|---------|---------|--------|---------|
| Calcium (ppm) | 34 | 49 | 44 | 38 | | 44.3 | .18 |
| Chloride (ppm) | 620 | 652 | 636 | 652 | 652 | 659 | 685 |
| Alkinity (as ppm CaCO ₃) | 520 | 507 | 520 | 540 | 504 | 504 | 528 |
| Sodium (ppm) | 770 | 675 | 660 | 704 | 655 | 820 | 719 |
| Sulfate (ppm) | 325 | 353 | 374 | 362 | 324 | 405 | 320 |
| Selenium (ppm) | .103 | .138 | .152 | .151 | .090 | .112 | .1348 |
| Arsenic (ppm) | .007 | .008 | .005 | .007 | .007 | .017 | |
| Total Dissolved Solids (ppm) | 2070 | 2084 | 2110 | 2186 | 2171 | 2163 | 2164 |
| Radium (pci/l) | 175 ± 8 | | 149 ± 8 | 128 ± 7 | | | |
| Gross Alpha | 336 + 5 | 276 + 5 | 262 + 5 | 231 + 4 | | | |
| Gross Beta | 214 + 5 | 280 + 5 | 308 + 5 | 301 + 5 | | | |
| Uranium (ppm) | 6.3 | 6.6 | 6.8 | 7.0 | 7.0 | | |

Analysis
not yet
received

SOUTH SOLAR EVAPORATION POND

CHEMICAL CONSTITUENTS

TABLE 1.5.2.

| Date | 1-13-81 | 1-26-81 | 2-5-81 | 2-19-81 | 3-3-81 | 3-18-81 | |
|---|---------|---------|--------|---------|--------|---------|--|
| Calcium (ppm) | 48 | 47 | 47 | | 22.9 | 231 | |
| Chloride (ppm) | 644 | 632 | 643 | 696 | 1103 | .979 | |
| Alkinity (as ppm CaCO ₃) | 516 | 560 | 610 | 932 | 896 | 632 | |
| Sodium (ppm) | 683 | 679 | 750 | 870 | 1493 | .523 | |
| Sulfate (ppm) | 364 | 374 | 367 | 350 | 681 | 747 | |
| Selenium (ppm) | .121 | .140 | .169 | .099 | .101 | .065 | |
| Arsenic (ppm) | .008 | <.005 | .009 | <.005 | .050 | .017 | |
| Total Dissolved Solids (ppm) | 2118 | 2134 | 2277 | 2742 | 4355 | 4892 | |
| Radium (pci/l) | | 153+8 | 207+9 | | | | |
| Gross Alpha | 294+5 | 285+5 | 315+5 | | | | |
| Gross Beta | 288+5 | 294+5 | 341+6 | | | | |
| Uranium (ppm) | 6.9 | 6.9 | 7.4 | 10.2 | | | |

Analysis not
yet received.

NORTH SOLAR EVAPORATION POND

CHEMICAL CONSTITUENTS

TABLE 1.5.3.

| Date | 12-3-80 | 12-16-80 | | | | | |
|-----------------|---------|----------|--|--|--|--|--|
| Radium pci/L | 114 ± 6 | 104 ± 6 | | | | | |
| Gross Alpha | 250 ± 5 | | | | | | |
| Gross Beta | 318 ± 5 | | | | | | |

SOUTH SOLAR EVAPORATION POND

CHEMICAL CONSTITUENTS

TABLE 1.5.4.

| Date | 12-3-80 | | | | | | |
|--------|---------|--|--|--|--|--|--|
| Radium | 166 ± 6 | | | | | | |
| Alpha | 271 ± 5 | | | | | | |
| Beta | 347 ± 6 | | | | | | |

APPENDIX A

TETON-NEDCO MONITOR
WELLS QUARTERLY ANALYSIS

WATER QUALITY
1st Quarter Report 1981

(Chemical units in mg/L except as noted)

| Well Name | 570 | 304 | 309 | 313 | 319 | 320 |
|---|---------|---------|---------|---------|---------|---------|
| Date Sampled | 1-13-81 | 1-15-81 | 1-20-81 | 1-12-81 | 1-15-81 | 1-15-81 |
| Alkalinity ppm as CaCO ₃ | 194 | 202 | 186 | 168 | 162 | 165 |
| pH (Units) | 7.32 | 7.41 | 7.52 | 7.33 | 7.61 | 7.48 |
| Conductivity (umhos/cm) | 800 | 870 | 860 | 715 | 615 | 670 |
| Ammonia (NH ₃ as N) | <0.10 | <.10 | .11 | 0.13 | <0.10 | .11 |
| Total NO ₂ /NO ₃ (as N) | 0.40 | <.10 | <.10 | <.10 | <0.10 | <.10 |
| Bicarbonate (HCO ₃) | 237 | 246 | 195 | 195 | 198 | 198 |
| Carbonate (CO ₃) | 0 | 0 | 0 | 0 | 0 | 0 |
| Calcium (Ca) | 118 | 136 | 96 | 67 | 90 | 95 |
| Chloride (Cl) | 6 | 4 | 9 | 5 | 4 | 5 |
| Boron (B) | <.25 | <.25 | <.25 | <.25 | <.25 | <.25 |
| Fluoride (F) | .44 | .58 | .47 | .31 | .42 | .29 |
| Magnesium (Mg) | 37.9 | 34.0 | 25.9 | 39.6 | 43.7 | 29.9 |
| Potassium (K) | 11.0 | 11.6 | 9.5 | 10.9 | 11.3 | 11.2 |
| Sodium (Na) | 36 | 34 | 41 | 38 | 36 | 34 |
| Sulfate (SO ₄) | 291 | 350 | 293 | 275 | 250 | 247 |
| Aluminum (Al) | <.05 | <.05 | .12 | <.5 | <.05 | <.05 |
| Arsenic (As) | <.005 | .006 | <.005 | <.005 | <.005 | <.005 |
| Barium (Ba) | .16 | <.10 | <.10 | .11 | .10 | .22 |
| Cadmium (Cd) | <.01 | <.01 | <.01 | <.01 | <.01 | <.01 |
| Chromium (Cr) | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 |
| Copper (Cu) | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 |
| Iron (Fe) | .06 | .09 | .14 | .59 | .24 | .34 |
| Lead (Pb) | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 |
| Manganese (Mn) | <.05 | <.05 | .09 | .07 | .06 | .07 |
| Mercury (Hg) | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 |
| Molybdenum (Mo) | <.10 | <.10 | <.1 | <.10 | <.10 | <.10 |
| Nickel (Ni) | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 |
| Radium 226 (Ra) pCi/L | 1.4±0.2 | 2.8±1.0 | 78±5 | 1.1±0.6 | 275±10 | 3.6±1.1 |
| Selenium (Se) | <.005 | .005 | <.005 | <.005 | <.005 | <.005 |
| Thorium 230 (Th) pCi/L | 5.2±1.4 | 0.7±0.5 | 3.9±1.3 | 3.0±1.0 | 11±2 | 1.6±0.9 |
| Uranium (U) | <.1 | <.10 | .06 | <.1 | <.10 | <.1 |
| Vanadium (V) | <.1 | <.1 | <.1 | <.1 | <.1 | <.1 |
| Zinc (Zn) | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 |
| TDS | 672 | 445 | 666 | 567 | 532 | 541 |
| Pb-210 pCi/L | | | | | | |

WATER QUALITY
1st Quarter Report 1981

(Chemical units in mg/L except as noted)

| Well Name | NM1 | 305 | 575 | 576 | NM1 | NM2 |
|---|---------|---------|---------|---------|---------|---------|
| Date Sampled | 1-13-81 | 1-13-81 | 1-13-81 | 1-14-81 | 1-13-81 | 1-12-81 |
| Alkalinity ppm as CaCO ₃ | 156 | 178 | 180 | 184 | 178 | 180 |
| pH (Units) | 7.52 | 7.24 | 7.48 | 7.60 | 7.51 | 7.46 |
| Conductivity (umhos/cm) | 700 | 485 | 485 | 490 | 490 | 480 |
| Ammonia (NH ₃ as N) | < .10 | < .10 | < .10 | < 0.10 | < 0.10 | 0.11 |
| Total NO ₂ /NO ₃ (as N) | < .10 | < .10 | < .10 | < 0.10 | < 0.10 | 0.10 |
| Bicarbonate (HCO ₃) | 190 | 217 | 220 | 224 | 217 | 220 |
| Carbonate (CO ₃) | 0 | 0 | 0 | 0 | 0 | 0 |
| Calcium (Ca) | 97 | 62 | 60 | 67 | 64 | 52 |
| Chloride (Cl) | 4 | 6 | 6 | 6 | 6 | 6 |
| Boron (B) | < .25 | < .25 | < .25 | < .25 | < .25 | < .25 |
| Fluoride (F) | .32 | .40 | .36 | .37 | .36 | .37 |
| Magnesium (Mg) | 21.9 | 21.1 | 19.4 | 15.3 | 14.1 | 22.6 |
| Potassium (K) | 10.8 | 9.2 | 9.4 | 9.2 | 9.3 | 9.3 |
| Sodium (Na) | 34 | 26 | 24 | 24 | 27 | 19 |
| Sulfate (SO ₄) | 264 | 102 | 104 | 106 | 104 | 96 |
| Aluminum (Al) | < .05 | < .05 | < .05 | < .05 | < .05 | < .05 |
| Arsenic (As) | < .005 | < .005 | < .005 | < .005 | < .005 | .023 |
| Barium (Ba) | .12 | .10 | .14 | .24 | .11 | < .1 |
| Cadmium (Cd) | < .01 | < .01 | < .01 | < .01 | < .01 | < .01 |
| Chromium (Cr) | < .05 | < .05 | < .05 | < .05 | < .05 | < .05 |
| Copper (Cu) | < .05 | < .05 | < .05 | < .05 | < .05 | < .05 |
| Iron (Fe) | .08 | .34 | .07 | .10 | .11 | .23 |
| Lead (Pb) | .07 | < .05 | .08 | < .05 | < .05 | < .05 |
| Manganese (Mn) | .07 | < .05 | .08 | .07 | < .05 | < .05 |
| Mercury (Hg) | < .001 | < .001 | < .001 | < .001 | < .001 | < .001 |
| Molybdenum (Mo) | < .01 | < .10 | < .10 | < .10 | < .10 | < .10 |
| Nickel (Ni) | < .05 | < .05 | < .05 | < .05 | < .05 | < .05 |
| Radium 226 (Ra) pCi/l | 1.7±0.8 | 2.3±1.0 | 4.9±1.4 | 4.2±1.2 | 1.8±0.9 | 0.8±0.5 |
| Selenium (Se) | < .005 | < .005 | < .005 | < .005 | .001 | < .005 |
| Thorium 230 (Th) pCi/l | 0.9±0.6 | 7.0±1.6 | 1.9±0.9 | 2.2±1.0 | 9.7±1.9 | 3.5±1.1 |
| Uranium (U) | < .1 | < .1 | < .1 | < .10 | < .01 | < .1 |
| Vanadium (V) | < .1 | < .1 | < .1 | < .1 | < .01 | < .1 |
| Zinc (Zn) | < .05 | < .05 | < .05 | < .05 | < .01 | < .05 |
| TDS | 56 | 348 | 352 | 353 | 353 | 341 |
| Th-210 pCi/L | | | | | | |

WATER QUALITY
1st Quarter Report 1981

(Chemical units in mg/L except as noted)

| | | | | |
|---|----------|--|--|--|
| Well Name | 314 | | | |
| Date Sampled | 1-13-81 | | | |
| Alkalinity ppm as CaCO ₃ | 184 | | | |
| pH (Units) | 7.70 | | | |
| Conductivity (umhos/cm) | 415 | | | |
| Ammonia (NH ₃ as N) | 0.16 | | | |
| Total NO ₂ /NO ₃ (as N) | <0.10 | | | |
| Bicarbonate (HCO ₃) | 224 | | | |
| Carbonate (CO ₃) | 0 | | | |
| Calcium (Ca) | 41 | | | |
| Chloride (Cl) | 6 | | | |
| Boron (B) | <.25 | | | |
| Fluoride (F) | .37 | | | |
| Magnesium (Mg) | 13.6 | | | |
| Potassium (K) | 8.4 | | | |
| Sodium (Na) | 39 | | | |
| Sulfate (SO ₄) | 55 | | | |
| Aluminum (Al) | <.05 | | | |
| Arsenic (As) | <.005 | | | |
| Barium (Ba) | .15 | | | |
| Cadmium (Cd) | <.01 | | | |
| Chromium (Cr) | <.05 | | | |
| Copper (Cu) | <.05 | | | |
| Iron (Fe) | .12 | | | |
| Lead (Pb) | <.05 | | | |
| Manganese (Mn) | .07 | | | |
| Mercury (Hg) | <.001 | | | |
| Molybdenum (Mo) | <.10 | | | |
| Nickel (Ni) | <.05 | | | |
| Radium 226 (Ra) pCi/l | 0.6±0.5 | | | |
| Selenium (Se) | <.005 | | | |
| Thorium 230 (Th) pCi/l | 7.7± 0.8 | | | |
| Uranium (U) | <.1 | | | |
| Vanadium (V) | <.1 | | | |
| Zinc (Zn) | <.05 | | | |
| TDS | 285 | | | |
| Pb-210 pCi/L | | | | |

APPENDIX B

TETON-NEDCO MONITOR WELLS

BIWEEKLY WATER ANALYSIS

Bi-Weekly Water Quality
1st Quarter Report 1981

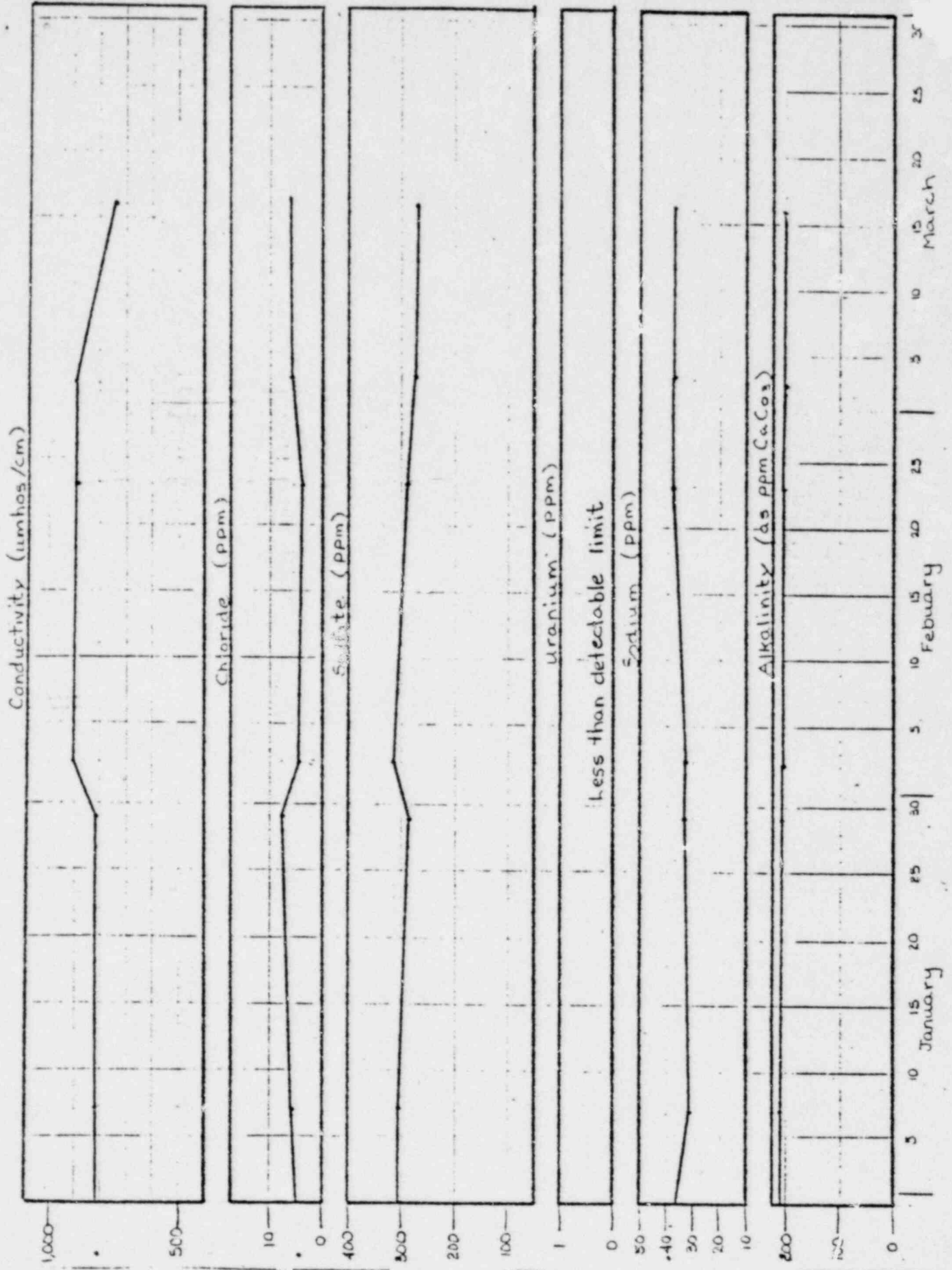
Well Name PN5-L570
Aquifer IDAHO

| UCL | 1,135 | 12 | 314 | 1 | 47 | 331 |
|-------------|--------------------------|--------------------------|---------------------------------------|------------|--------------------------|---|
| Sample Date | Conductivity umhos/cm | Cl ⁻ (ppm) | SO ₄ ⁼ (ppm) | U (ppm) | Na ⁺ (ppm) | Alkalinity (as ppm CaCO ₃) |
| 1-7-81 | 820 | 6 | 303 | < .1 | 31 | 204 |
| 1-29-81 | 815 | 8 | 289 | < .1 | 34 | 204 |
| 2-2-81 | 900 | 5 | 312 | < .1 | 34 | 202 |
| 2-23-81 | 890 | 4 | 290 | < .1 | 39 | 204 |
| 3-2-81 | 895 | 6 | 277 | < .1 | 38 | 200 |
| 3-16-81 | 740 | 6 | 275 | < .1 | 38 | 204 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Well Name PN5-L304
Aquifer IDAHO

| UCL | 1,141 | 12 | 523 | 1 | 62 | 273 |
|-------------|--------------------------|--------------------------|---------------------------------------|------------|--------------------------|---|
| Sample Date | Conductivity umhos/cm | Cl ⁻ (ppm) | SO ₄ ⁼ (ppm) | U (ppm) | Na ⁺ (ppm) | Alkalinity (as ppm CaCO ₃) |
| 1-15-81 | 870 | 4 | 350 | < .1 | 34 | 202 |
| 1-28-81 | 880 | 4 | 327 | < .1 | 34 | 204 |
| 2-11-81 | 845 | 6 | 344 | < .1 | 35 | 200 |
| 2-24-81 | 1085 | 6 | 364 | < .1 | 35 | 194 |
| 3-10-81 | 977 | 5 | 384 | < .1 | 33 | 182 |
| 3-24-81 | 970 | 4 | 362 | .1 | 33 | 189 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

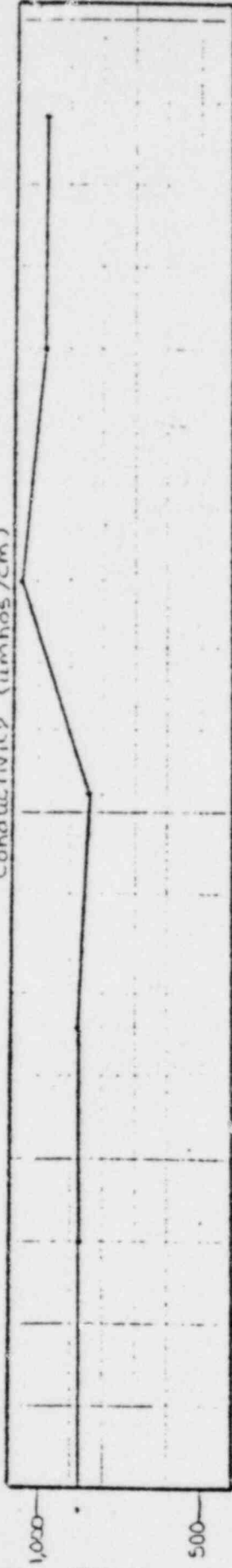
WATER QUALITY
Well () 570



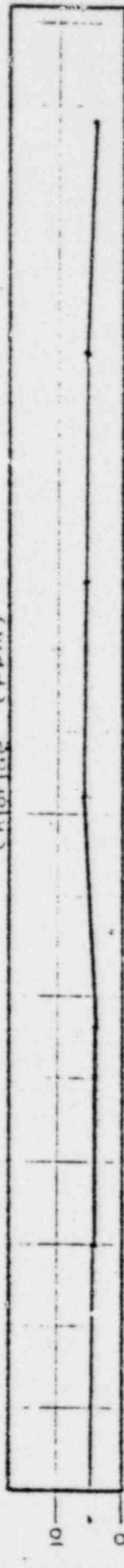
WATER QUALITY

Well name 304

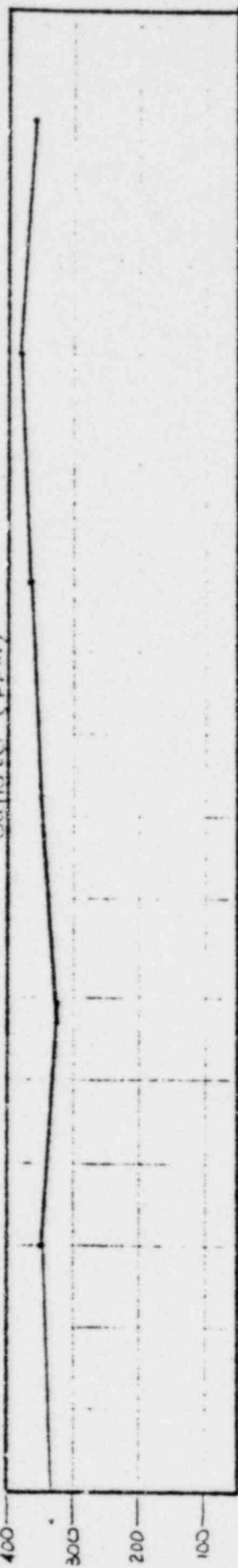
Conductivity (umhos/cm)



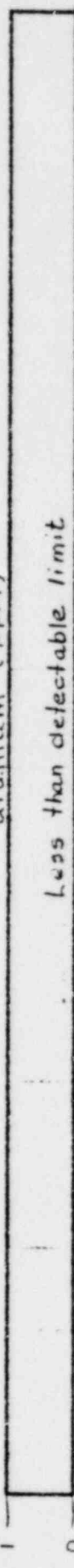
Chloride (ppm)



Sulfate (ppm)

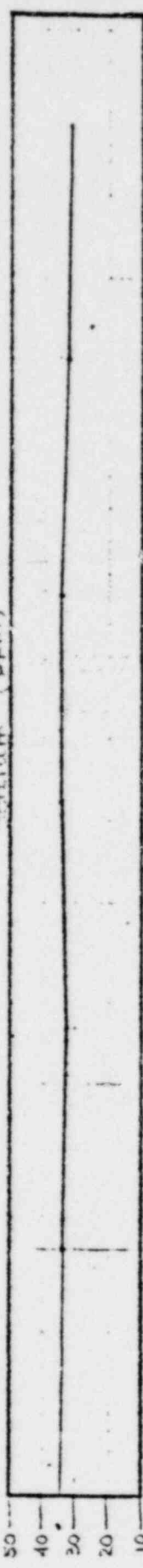


Uranium (ppm)

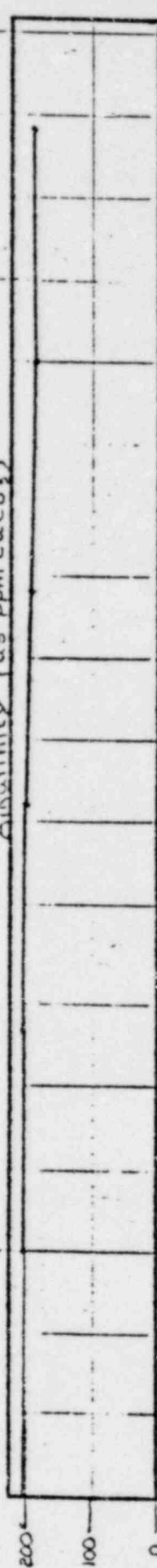


Less than detectable limit

Sodium (ppm)



Alkalinity (as ppm CaCO₃)



5 10 15 20 25 30
January February March

Bi-Weekly Water Quality
1st Quarter Report 1981

Well Name PN5-L309

Aquifer N

| UCL | 1,197 | 13 | 602 | 1 | 57 | 197 |
|-------------|--------------------------|--------------------------|---------------------------------------|------------|--------------------------|---|
| Sample Date | Conductivity umhos/cm | Cl ⁻ (ppm) | SO ₄ ⁼ (ppm) | U (ppm) | Na ⁺ (ppm) | Alkalinity (as ppm CaCO ₃) |
| 1-20-81 | 860 | 9 | 293 | .6 | 41 | 186 |
| 1-28-81 | 725 | 4 | 242 | <.1 | 30 | 196 |
| 2-3-81 | 815 | 4 | 241 | <.1 | 27 | 190 |
| 3-3-81 | 809 | 3 | 209 | <.1 | 31 | 188 |
| 3-19-81 | 800 | 3 | 241 | <.1 | 33 | 196 |
| | | | | | | |
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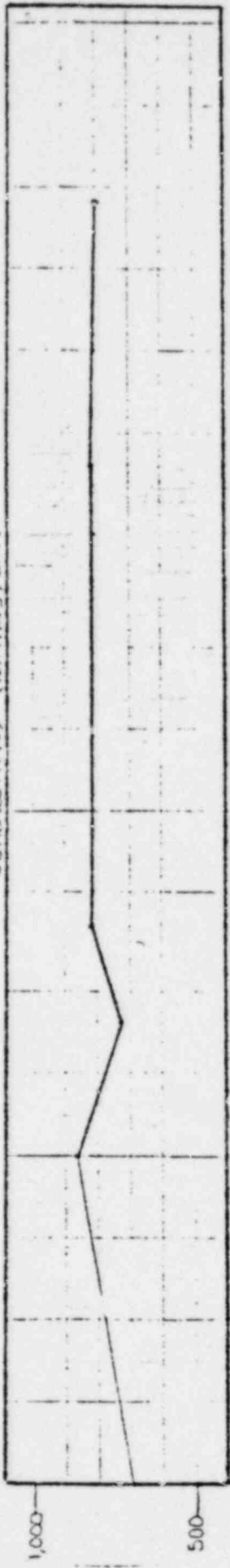
Well Name PN5-L313

Aquifer N

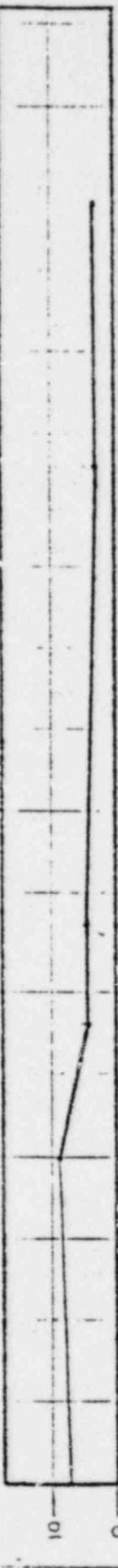
| UCL | 865 | 8 | 307 | 1 | 48 | 201 |
|-------------|--------------------------|--------------------------|---------------------------------------|------------|--------------------------|---|
| Sample Date | Conductivity umhos/cm | Cl ⁻ (ppm) | SO ₄ ⁼ (ppm) | U (ppm) | Na ⁺ (ppm) | Alkalinity (as ppm CaCO ₃) |
| 1-12-81 | 715 | 5 | 275 | <.1 | 38 | 160 |
| 1-27-81 | 715 | 4 | 267 | <.1 | 36 | 164 |
| 2-9-81 | 785 | 4 | 260 | <.1 | 37 | 162 |
| 2-24-81 | 865 | 3 | 263 | <.1 | 38 | 162 |
| 3-10-81 | 802 | 4 | 301 | <.1 | 35 | 151 |
| 3-24-81 | 810 | 1 | 274 | <.1 | 34 | 155 |
| | | | | | | |
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WATER QUALITY
Well name 309

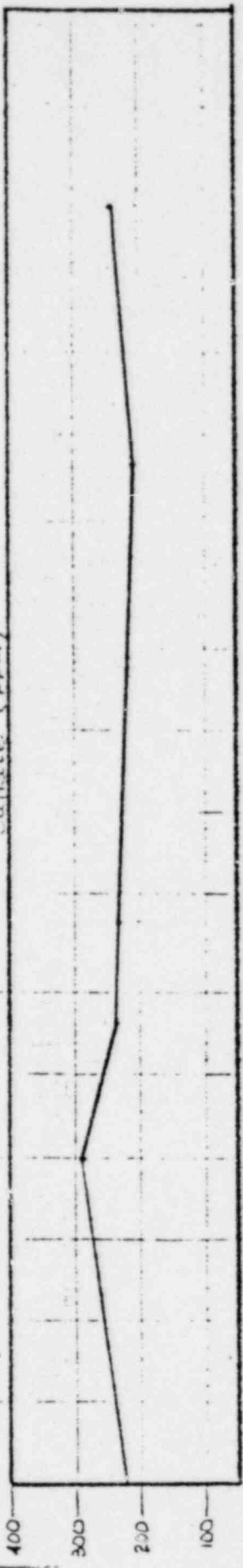
Conductivity (umhos/cm)



Chloride (ppm)



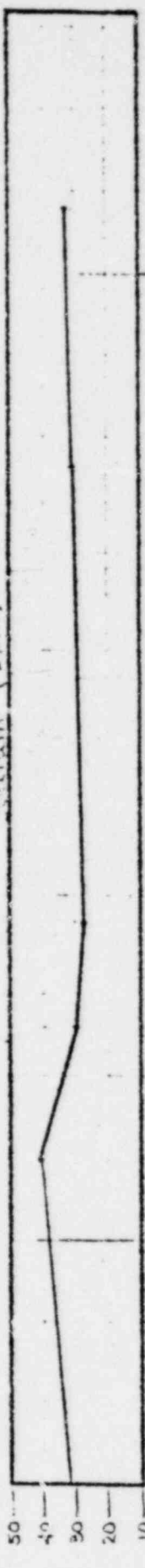
Sulfate (ppm)



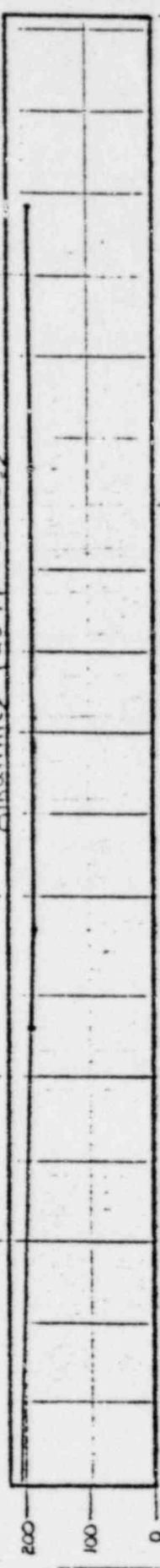
Uranium (ppm)

All Less than detectable limit except 1/20/80 sample

Sodium (ppm)

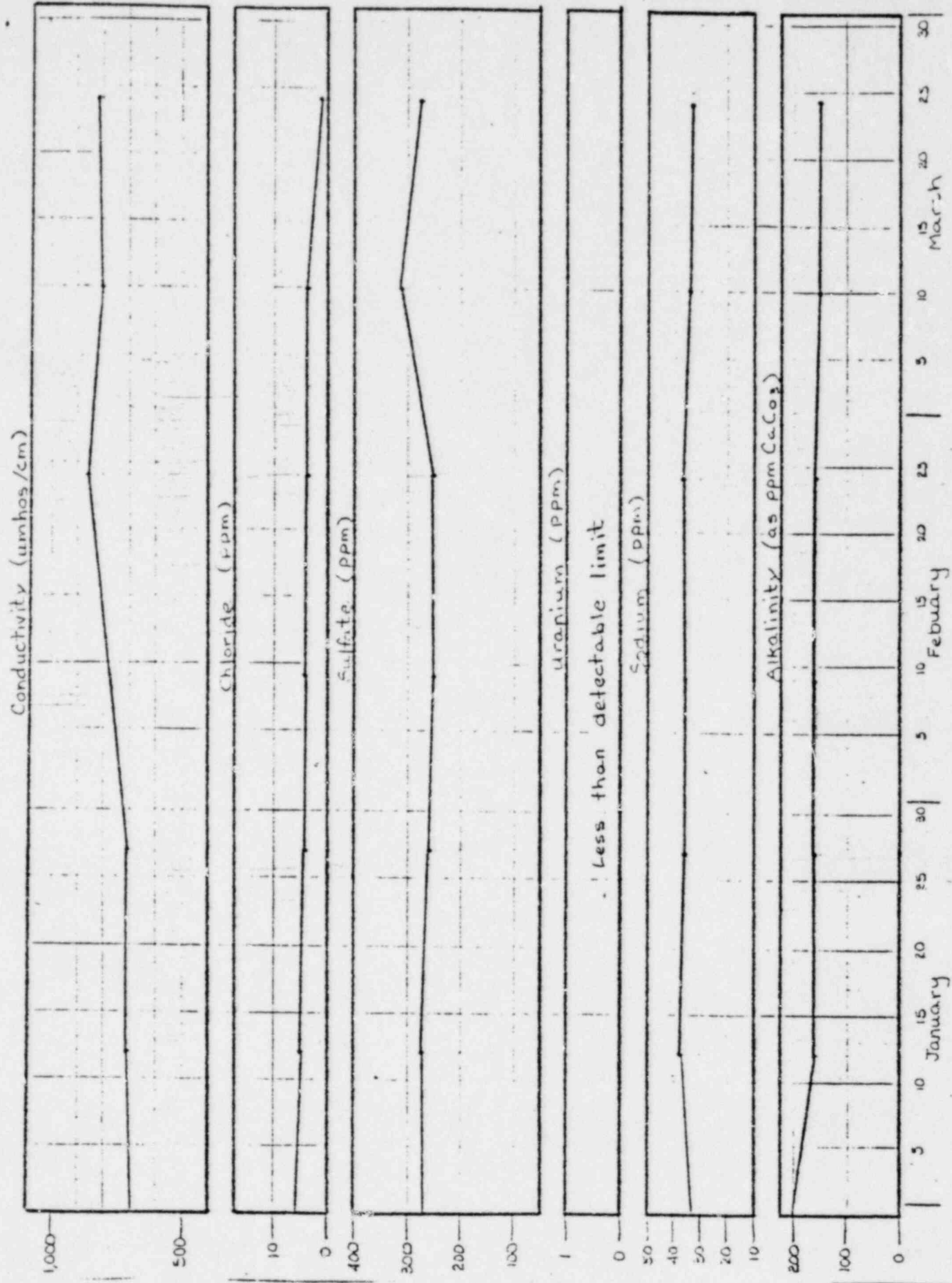


Alkalinity (as ppm CaCO3)



5 10 15 20 25 30
January February March

WATER QUALITY
Well n° 313



Bi-Weekly Water Quality
1st Quarter Report 1981

Well Name PN5-319

Aquifer N

| UCL | 1,095 | 22 | 459 | 1 | 50 | 172 |
|-------------|--------------------------|--------------------------|---------------------------------------|------------|--------------------------|---|
| Sample Date | Conductivity umhos/cm | Cl ⁻ (ppm) | SO ₄ ⁼ (ppm) | U (ppm) | Na ⁺ (ppm) | Alkalinity (as ppm CaCO ₃) |
| 1-15-81 | 675 | 4 | 250 | <.1 | 34 | 162 |
| 1-28-81 | 695 | 3 | 244 | <.1 | 33 | 172 |
| 2-11-81 | 765 | 6 | 248 | <.1 | 38 | 164 |
| 2-24-81 | 840 | 6 | 246 | <.1 | 37 | 160 |
| 3-10-81 | 760 | 5 | 278 | <.1 | 35 | 151 |
| 3-23-81 | 760 | 11 | 217 | .12 | 27 | 162 |
| | | | | | | |
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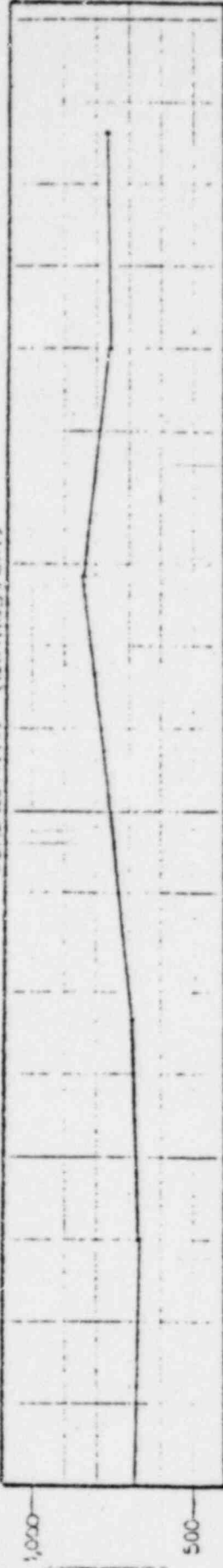
Well Name PN5-320

Aquifer N

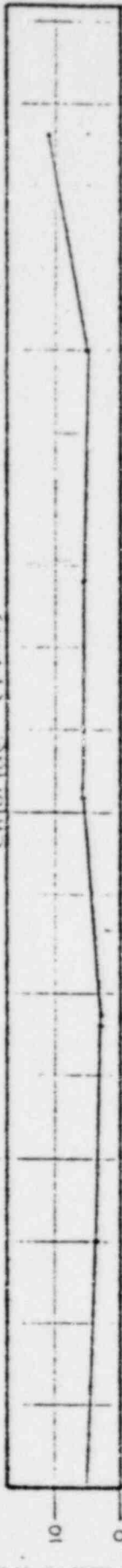
| UCL | 899 | 22 | 271 | 1 | 52 | 225 |
|-------------|--------------------------|--------------------------|---------------------------------------|------------|--------------------------|---|
| Sample Date | Conductivity umhos/cm | Cl ⁻ (ppm) | SO ₄ ⁼ (ppm) | U (ppm) | Na ⁺ (ppm) | Alkalinity (as ppm CaCO ₃) |
| 1-14-81 | 670 | 5 | 247 | <.1 | 34 | 162 |
| 1-27-81 | 685 | 4 | 241 | <.1 | 35 | 160 |
| 2-10-81 | 765 | 6 | 241 | <.1 | 35 | 160 |
| 2-24-81 | 835 | 6 | 240 | <.1 | 37 | 166 |
| 3-10-81 | 760 | 5 | 278 | <.1 | 35 | 151 |
| 3-23-81 | 780 | 3 | 209 | <.1 | 37 | 163 |
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WATER QUALITY
Well # 319

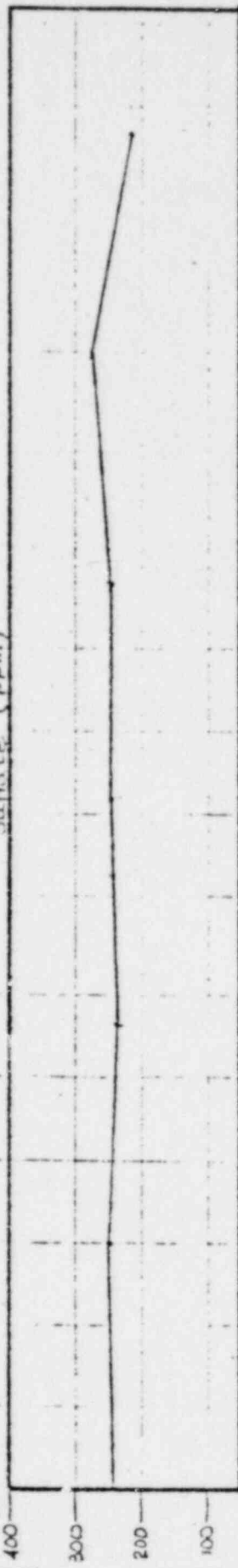
Conductivity (umhos/cm)



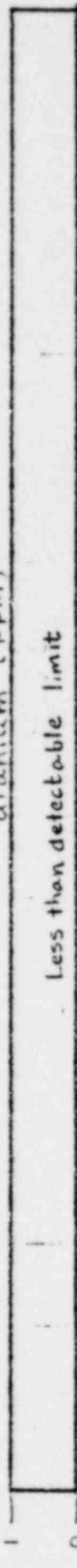
Chloride (ppm)



Sulfate (ppm)

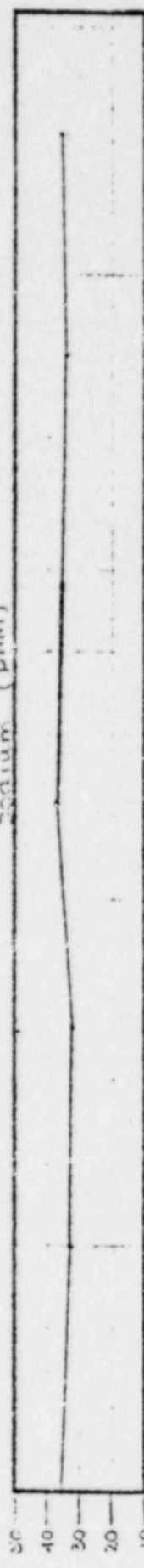


Uranium (ppm)

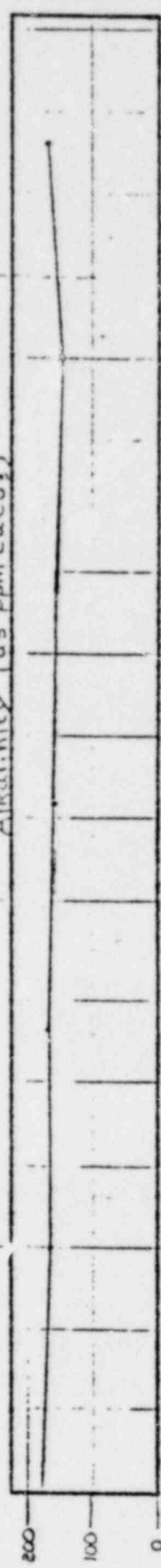


Less than detectable limit

Sodium (ppm)



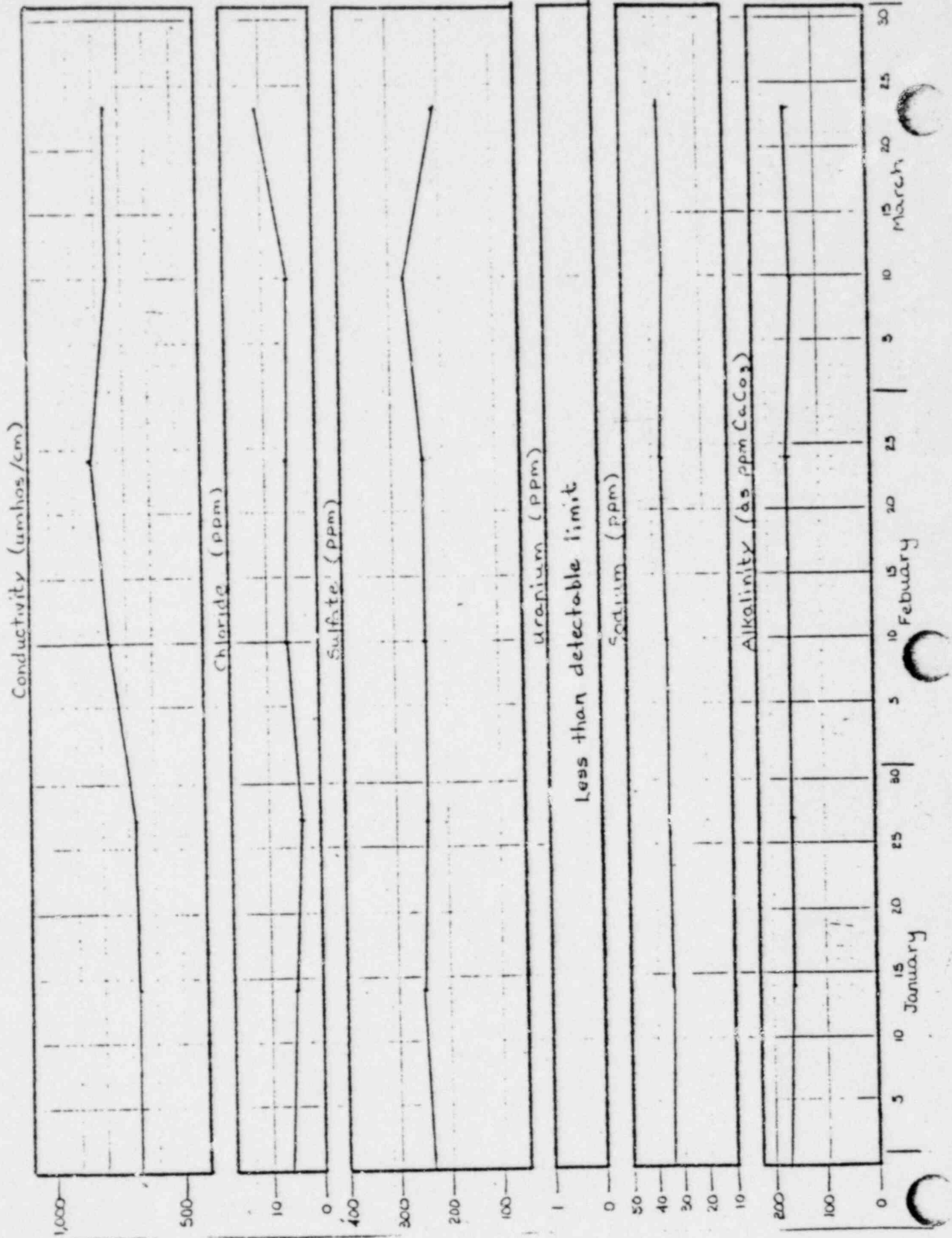
Alkalinity (as ppm CaCO3)



5 10 15 20 25 30
January
5 10 15 20 25 30
February
5 10 15 20 25 30
March

WATER QUALITY

Well name 32Q



Well Name PN5-LNML

Aquifer N

| UCL | 887 | 22 | 462 | 1 | 43 | 187 |
|-------------|-----------------------|-----------------------|------------------------------------|---------|-----------------------|--|
| Sample Date | Conductivity umhos/cm | Cl ⁻ (ppm) | SO ₄ ⁼ (ppm) | U (ppm) | Na ⁺ (ppm) | Alkalinity (as ppm CaCO ₃) |
| 1-13-81 | 700 | 4 | 264 | <.1 | 34 | 156 |
| 1-28-81 | 710 | 3 | 250 | <.1 | 33 | 164 |
| 2-11-81 | 780 | 4 | 254 | <.1 | 37 | 160 |
| 2-23-81 | 775 | 4 | 254 | <.1 | 36 | 164 |
| 3-9-81 | 750 | 1 | 227 | <.1 | 36 | 144 |
| 3-23-81 | 790 | 10 | 237 | <.1 | 35 | 162 |
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Well Name PN 5-L105

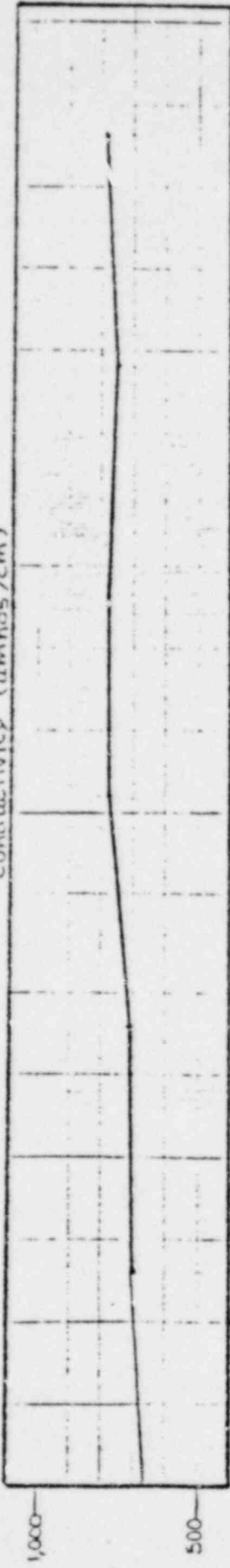
Aquifer M

| UCL | 636 | 32 | 344 | 1 | 51 | 496 |
|-------------|-----------------------|-----------------------|------------------------------------|---------|-----------------------|--|
| Sample Date | Conductivity umhos/cm | Cl ⁻ (ppm) | SO ₄ ⁼ (ppm) | U (ppm) | Na ⁺ (ppm) | Alkalinity (as ppm CaCO ₃) |
| 1-13-81 | 485 | 6 | 102 | <.1 | 26 | 178 |
| 1-27-81 | 490 | 6 | 93 | <.1 | 27 | 184 |
| 2-9-81 | 540 | 3 | 96 | <.1 | 27 | 184 |
| 2-23-81 | 550 | 6 | 101 | <.1 | 28 | 182 |
| 3-9-81 | 520 | 7 | 94 | <.1 | 27 | 173 |
| 3-23-81 | 500 | 6 | 94 | .12 | 28 | 185 |
| | | | | | | |
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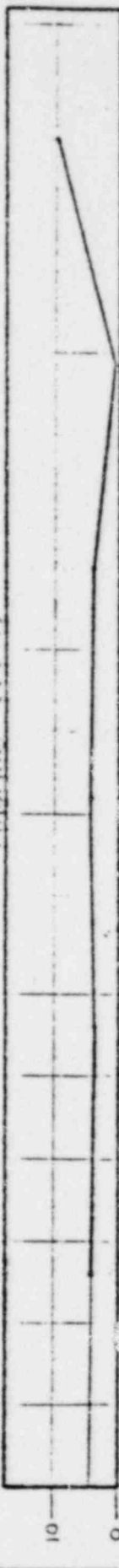
WATER QUALITY

Well name NMI

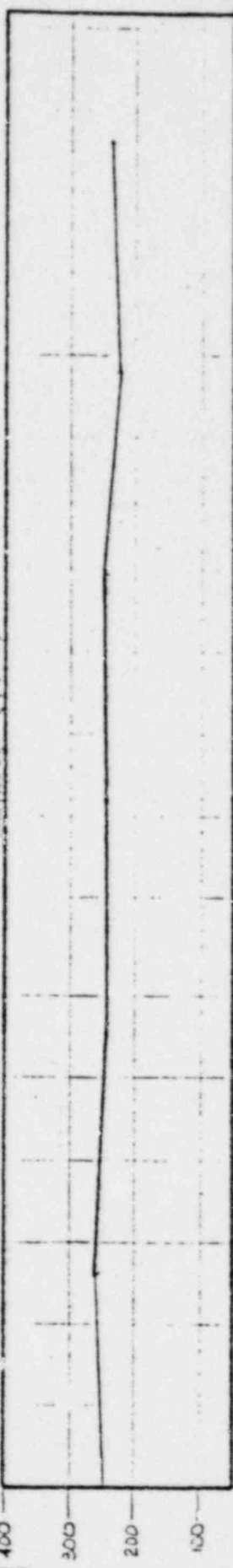
Conductivity (umhos/cm)



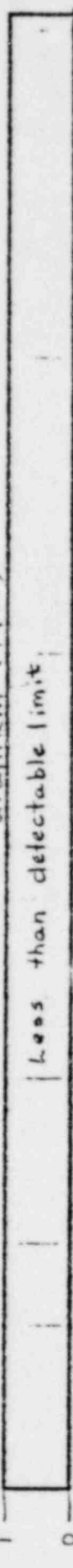
Chloride (ppm)



Sulfate (ppm)

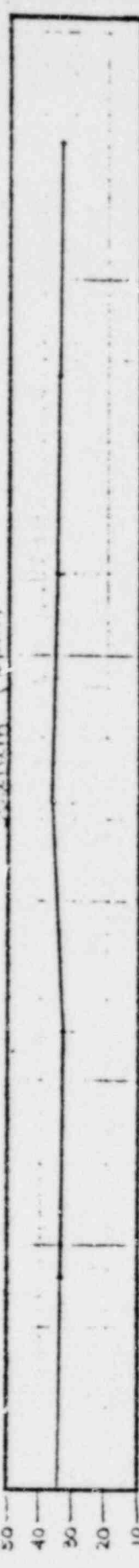


Uranium (ppm)

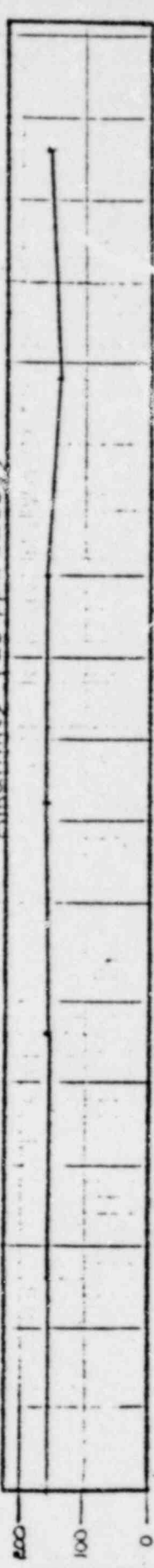


Less than detectable limit

Sodium (ppm)



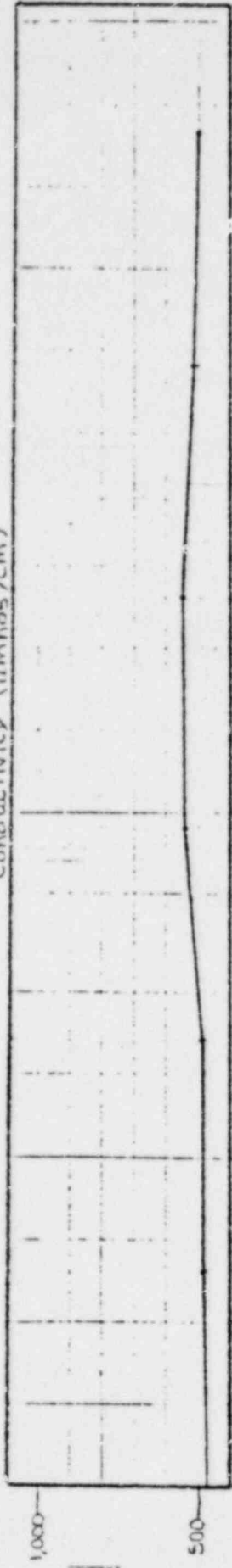
Alkalinity (as ppm CaCO3)



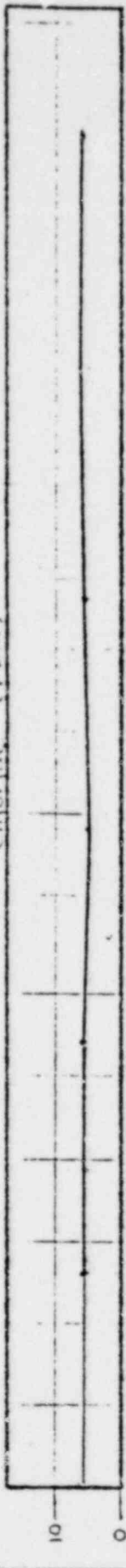
5 10 15 20 25 30
January 5 10 15 20 25 30
February 5 10 15 20 25 30
March 5 10 15 20 25 30

WATER QUALITY
Well # 305

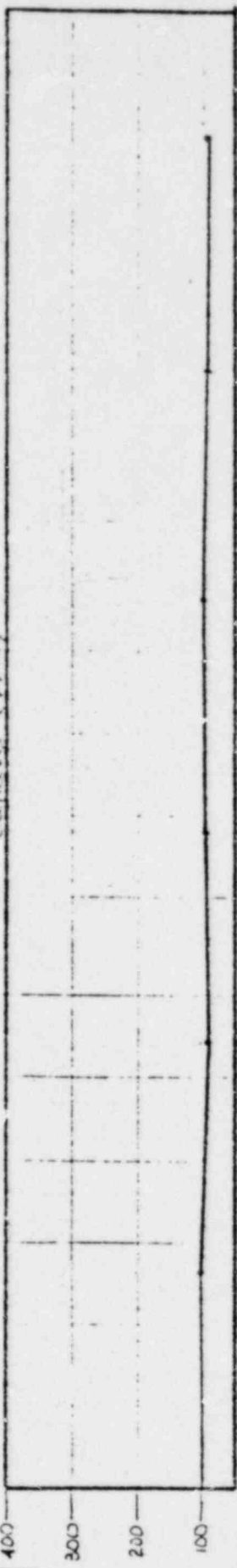
Conductivity (umhos/cm)



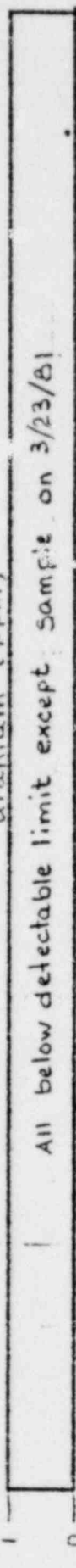
Chloride (ppm)



Sulfate (ppm)

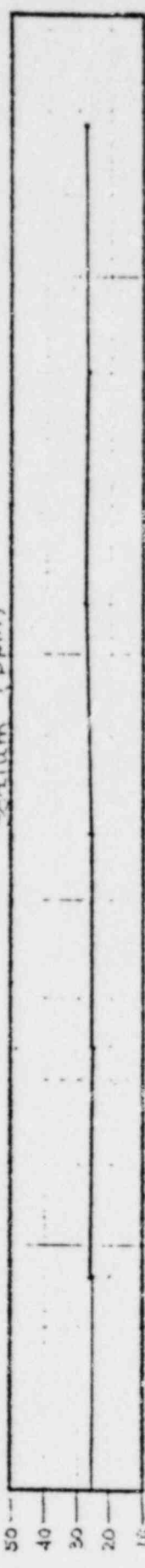


Uranium (ppm)

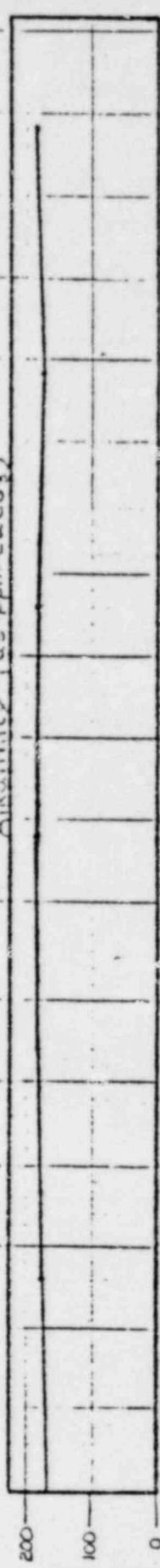


All below detectable limit except sample on 3/23/81

Sodium (ppm)



Alkalinity (as ppm CaCO3)



5 10 15 20 25 30
January
5 10 15 20 25 30
February
5 10 15 20 25 30
March

Bi-Weekly Water Quality
1st Quarter Report 1981

Well Name PN5-L575

Aquifer M

| UCL | 962 | 24 | 327 | 1 | 46 | 209 |
|-------------|--------------------------|--------------------------|---------------------------------------|------------|--------------------------|---|
| Sample Date | Conductivity umhos/cm | Cl ⁻ (ppm) | SO ₄ ⁼ (ppm) | U (ppm) | Na ⁺ (ppm) | Alkalinity (as ppm CaCO ₃) |
| 1-13-81 | 485 | 6 | 104 | <.1 | 24 | 180 |
| 1-28-81 | 490 | 7 | 101 | <.1 | 25 | 186 |
| 2-11-81 | 545 | 8 | 100 | <.1 | 27 | 184 |
| 2-23-81 | 545 | 7 | 101 | <.1 | 27 | 180 |
| 3-9-81 | 528 | 5 | 93 | <.1 | 27 | 169 |
| 3-23-81 | 550 | 13 | 99 | <.1 | 28 | 186 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

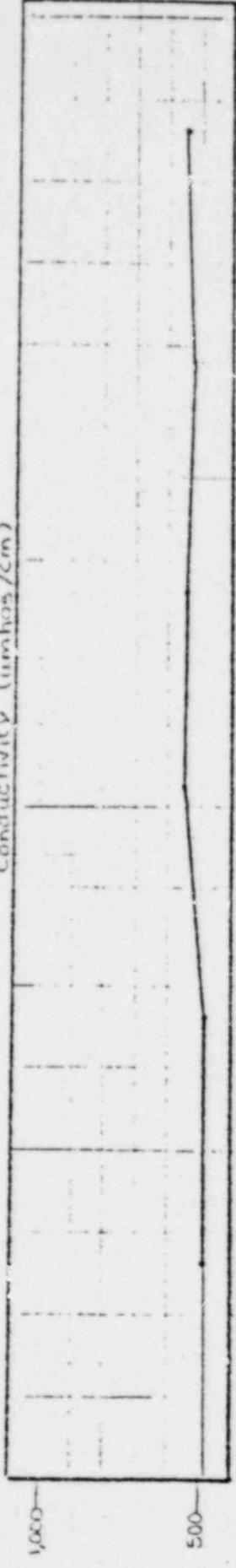
Well Name PN5-L576

Aquifer M

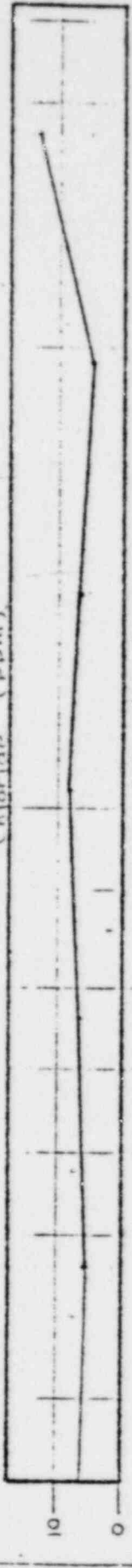
| UCL | 835 | 19 | 153 | 1 | 37 | 231 |
|-------------|--------------------------|--------------------------|---------------------------------------|------------|--------------------------|---|
| Sample Date | Conductivity umhos/cm | Cl ⁻ (ppm) | SO ₄ ⁼ (ppm) | U (ppm) | Na ⁺ (ppm) | Alkalinity (as ppm CaCO ₃) |
| 1-14-81 | 490 | 6 | 106 | <.1 | 24 | 184 |
| 1-27-81 | 495 | 7 | 103 | <.1 | 26 | 192 |
| 2-10-81 | 550 | 7 | 101 | <.1 | 26 | 186 |
| 2-24-81 | 600 | 8 | 95 | <.1 | 27 | 180 |
| 3-9-81 | 522 | 5 | 92 | <.1 | 27 | 169 |
| 3-23-81 | 500 | 13 | 106 | <.1 | 26 | 194 |
| | | | | | | |
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WATER QUALITY
Well # 575

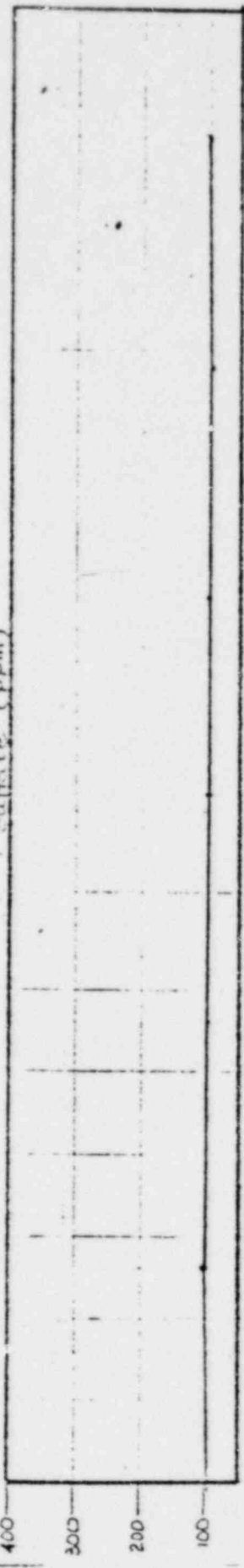
Conductivity (umhos/cm)



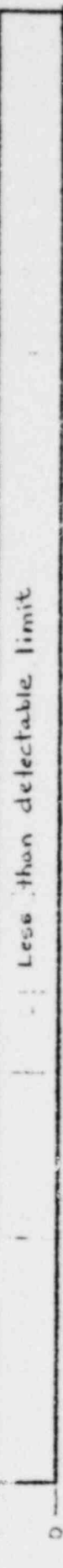
Chloride (ppm)



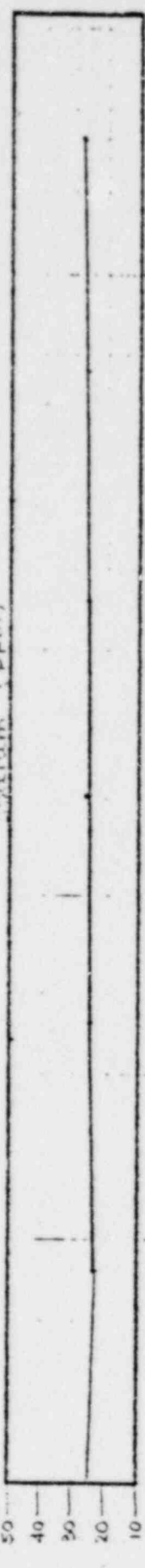
Sulfate (ppm)



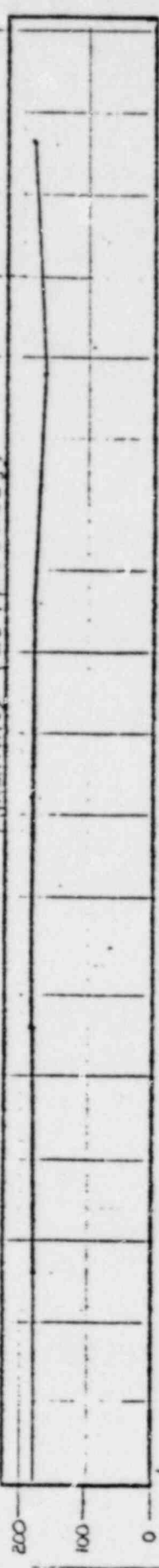
Uranium (ppm)



Sodium (ppm)



Alkalinity (as ppm CaCO₃)



5 10 15 20 25 30
January
5 10 15 20 25
February
5 10 15 20 25
March
5 10 15 20 25 30

WATER QUALITY

Well name 576

Conductivity (umhos/cm)

1,000

500

Chloride (ppm)

10

0

Sulfate (ppm)

400

300

200

100

Uranium (ppm)

Less than detectable limit

0

Sodium (ppm)

50

40

30

20

10

Alkalinity (as ppm CaCo₃)

200

100

0

5 10 15 20 25 30
January February March

Bi-Weekly Water Quality
1st Quarter Report 1981

Well Name PN5-LMM1

Aquifer M

| UCL | 727 | 10 | 140 | 1 | 28 | 250 |
|-------------|-----------------------|-----------------------|------------------------------------|---------|-----------------------|--|
| Sample Date | Conductivity umhos/cm | Cl ⁻ (ppm) | SO ₄ ⁼ (ppm) | U (ppm) | Na ⁺ (ppm) | Alkalinity (as ppm CaCO ₃) |
| 1-13-81 | 490 | 6 | 104 | < .1 | 27 | 178 |
| 1-27-81 | 495 | 6 | 102 | < .1 | 27 | 176 |
| 2-9-81 | 545 | 7 | 101 | < .1 | 27 | 182 |
| 2-23-81 | 545 | 6 | 101 | < .1 | 28 | 188 |
| 3-9-81 | 532 | 5 | 109 | < .1 | 27 | 169 |
| 3-23-81 | 515 | 6 | 99 | .11 | 28 | 186 |
| | | | | | | |
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| | | | | | | |

Well Name PN5-MM2

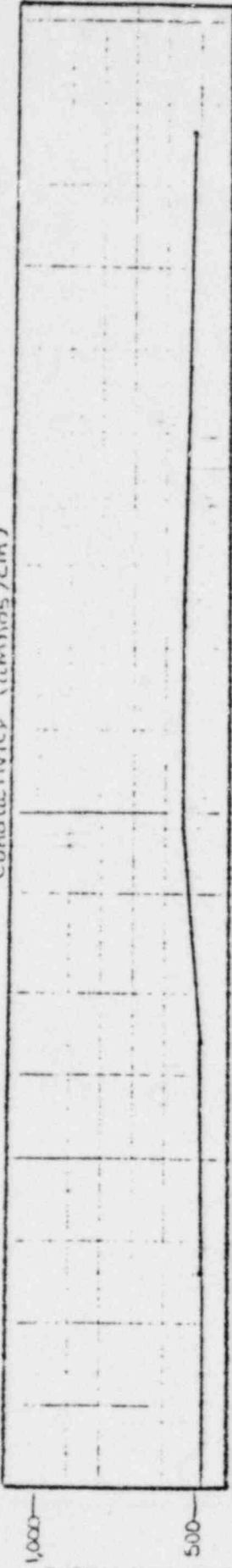
Aquifer M

| UCL | 585 | 12 | 105 | 1 | 31 | 181 |
|-------------|-----------------------|-----------------------|------------------------------------|---------|-----------------------|--|
| Sample Date | Conductivity umhos/cm | Cl ⁻ (ppm) | SO ₄ ⁼ (ppm) | U (ppm) | Na ⁺ (ppm) | Alkalinity (as ppm CaCO ₃) |
| 1-12-81 | 480 | 6 | 96 | < .1 | 19 | 180 |
| 1-27-81 | 485 | 6 | 92 | < .1 | 27 | 184 |
| 2-9-81 | 525 | 6 | 100 | < .1 | 27 | 184 |
| 2-18-81 | 535 | 6 | 97 | < .1 | 26 | 184 |
| 2-26-81 | 550 | 7 | 94 | < .1 | 27 | 178 |
| 3-10-81 | 528 | 5 | 105 | < .1 | 26 | 174 |
| 3-24-81 | 490 | 5 | 90 | .11 | 25 | 169 |
| | | | | | | |
| | | | | | | |
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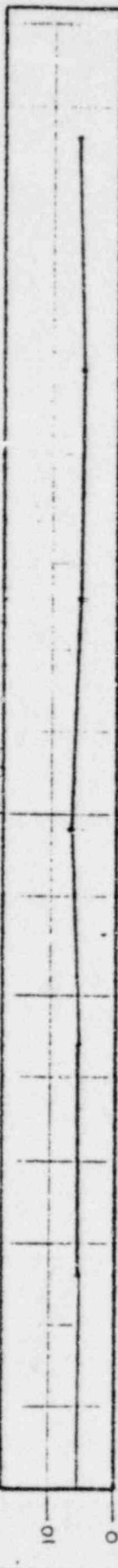
WATER QUALITY

Well name MM1

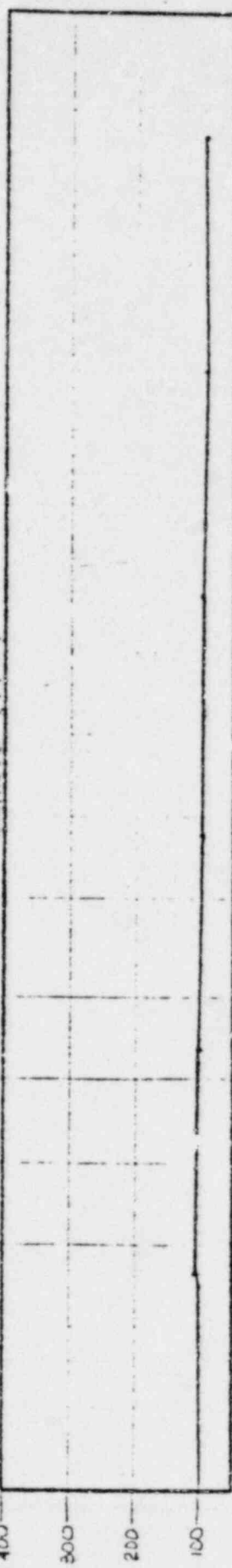
Conductivity ($\mu\text{mhos/cm}$)



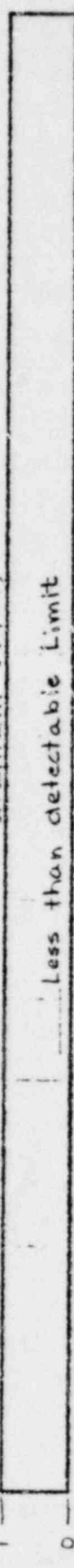
Chloride (ppm)



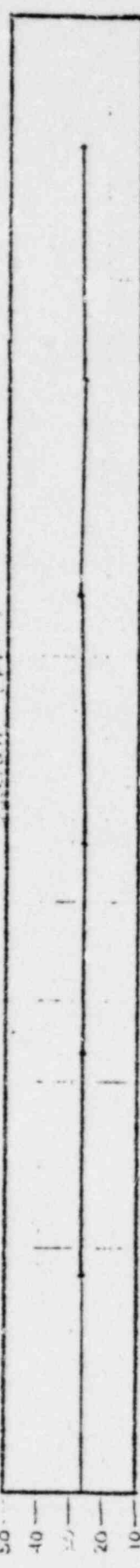
Sulfate (ppm)



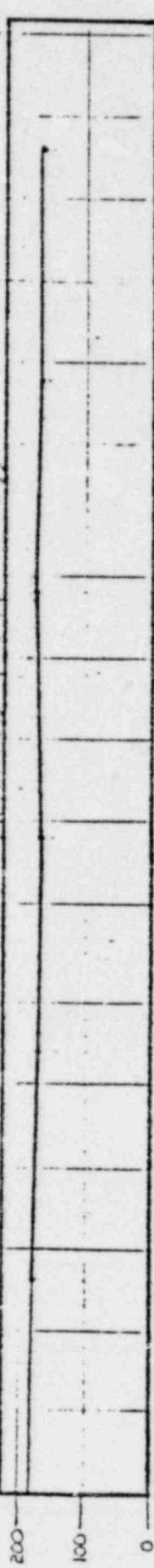
Uranium (ppm)



Sodium (ppm)



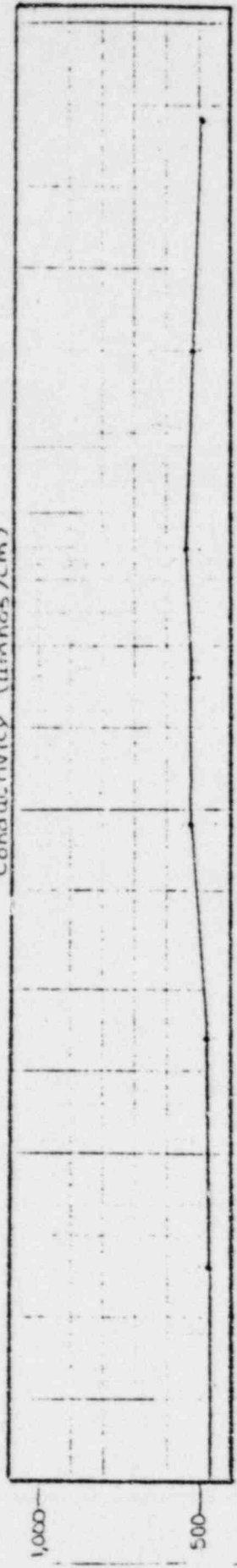
Alkalinity (as ppm CaCO_3)



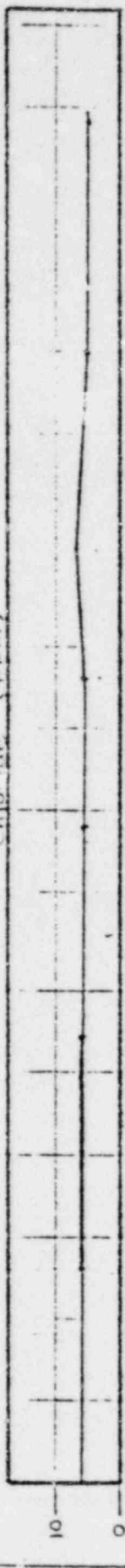
30
25
20
15
10
5
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10
5
20
15
10
5
15
10
5
January
February
March

WATER QUALITY
Well # MM2

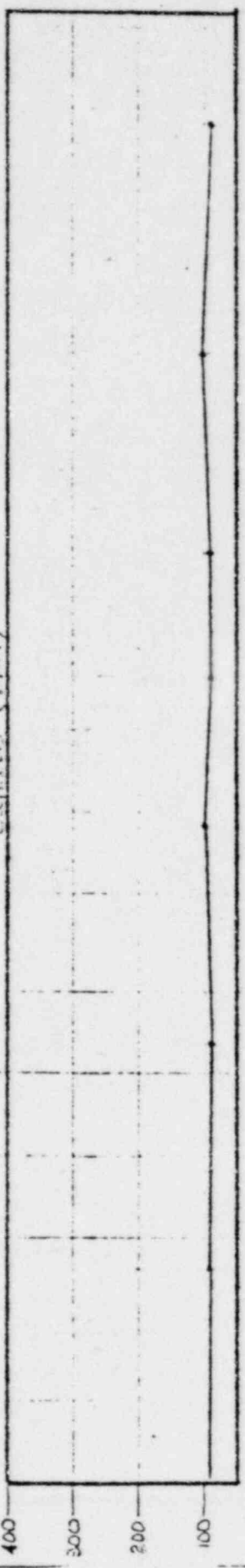
Conductivity (umhos/cm)



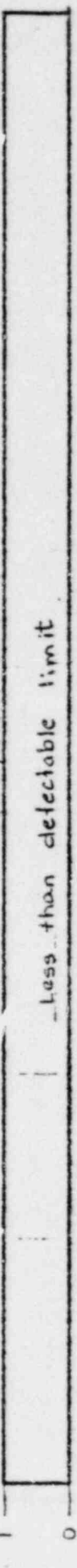
Chloride (ppm)



Sulfate (ppm)

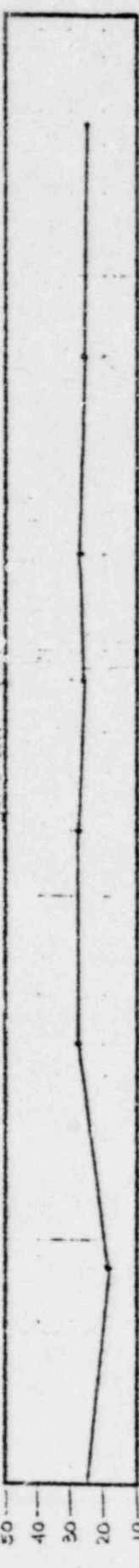


Uranium (ppm)

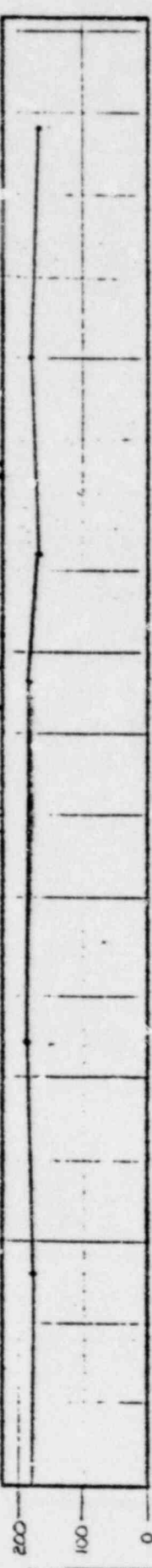


Less than detectable limit

Sodium (ppm)



Alkalinity (as ppm CaCO3)

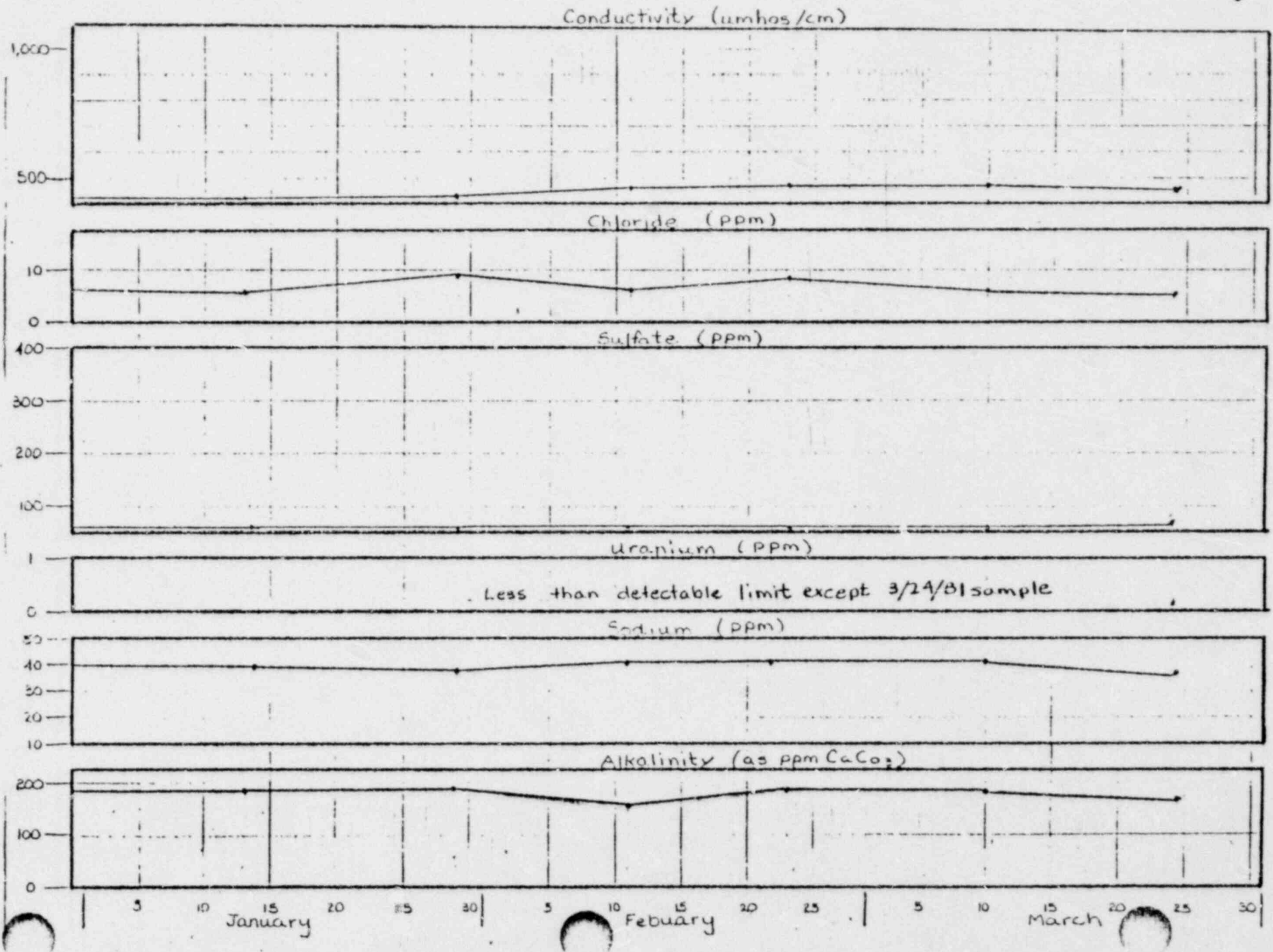


5 10 15 20 25 30
January February March

Well Name M-M-2
 Aquifer M

| Sample Date | pH | Cl ⁻ mg/l | Conductivity umhos/cm at 25°C | SO ₄ mg/l | Total Alkalinity mg/l CaCO ₃ | U mg/l | Na ⁺ mg/l | Ca mg/l | CO ₃ mg/l | HCO ₃ mg/l | mg/l |
|-------------|----|----------------------|-------------------------------|----------------------|---|--------|----------------------|---------|----------------------|-----------------------|------|
| ucl | | 12.0 | 585 | 105 | 181 | 1.0 | 31 | | | | |
| 1/17/80 | | 6.6 | 525 | 50 | 168 | <0.1 | 23 | | | | |
| 2/5/80 | | 8.4 | 350 | 55 | 79 | <0.1 | 31 | | | | |
| 2/19/80 | | 6.4 | 425 | 85 | 152 | <0.1 | 32 | | | | |
| 3/5/80 | | 5.2 | 500 | 55 | 126 | <0.1 | 28 | | | | |
| 3/18/80 | | 5.2 | 500 | 90 | 130 | <0.2 | 30 | | | | |
| 4/1/80 | | 4.0 | 390 | 70 | 152 | <0.2 | 29 | | | | |
| 4/10/80 | | 4.0 | 383 | 98 | 132 | <.1 | 28 | | | | |
| 4/29/80 | | 2.0 | 390 | 101 | 164 | <.1 | 29 | | | | |
| 5/13/80 | | 2.0 | 345 | 128 | 132 | <.1 | 41 | | | | |
| 6/2/80 | | 1.5 | 355 | 99 | 142 | <.1 | 28 | | | | |
| 6/19/80 | | 1.5 | 395 | 103 | 172 | <.1 | 29 | | | | |
| 7/2/80 | | 3.0 | 370 | 81 | 134 | <.1 | 30 | | | | |
| 7/16/80 | | 8.0 | 385 | 91 | 156 | <.1 | 31 | | | | |
| 7/31/80 | | 8.0 | 415 | 101 | 178 | <.1 | 26 | | | | |
| 8/13/80 | | 1.0 | 390 | 85 | 156 | <.1 | 27 | | | | |
| 8/26/80 | | 4.0 | 405 | 98 | 168 | <.1 | 29 | | | | |
| 9/9/80 | | 2.0 | 385 | 94 | 168 | <.1 | 28 | | | | |
| 9/15/80 | | 4.0 | 405 | 101 | 179 | <.1 | 26 | | | | |
| 9/23/80 | | 5.0 | 415 | 95 | 184 | <.1 | 26 | | | | |
| 10/7/80 | | 7.0 | 490 | 97 | 180 | <.1 | 28 | | | | |
| 10/21/80 | | 8.0 | 480 | 98 | 180 | <.1 | 20 | | | | |
| 11/5/80 | | 6.0 | 480 | 101 | 180 | <.1 | 26 | | | | |
| 11/18/80 | | 8.0 | 475 | 97 | 180 | <.1 | 27 | | | | |
| 12/2/80 | | 7.0 | 475 | 93 | 182 | <.1 | 26 | | | | |
| 12/15/80 | | 6.0 | 485 | 97 | 178 | <.1 | 28 | | | | |
| 12/29/80 | | 6.0 | 475 | 96 | 184 | <.1 | 20 | | | | |
| 1/12/81 | | 6.0 | 480 | 96 | 180 | <.1 | 19 | | | | |
| 1/27/81 | | 6.0 | 485 | 92 | 184 | <.1 | 27 | | | | |
| 2/9/81 | | 6.0 | 525 | 100 | 184 | <.1 | 27 | | | | |
| 2/18/81 | | 6.0 | 535 | 97 | 184 | <.1 | 26 | | | | |
| 2/26/81 | | 7.0 | 550 | 94 | 178 | <.1 | 27 | | | | |
| 3/10/81 | | 5.0 | 528 | 105 | 174 | <.1 | 26 | | | | |
| 3/24/81 | | 5.0 | 490 | 90 | 169 | .11 | 25 | | | | |

WATER QUALITY
Well name 314



APPENDIX C

TETON-NEDCO MONITOR WELLS
WEEKLY WATER LEVELS

BAROMETRIC PRESSURE TRENDS

| Day of Month | Pressure for Month of January | Pressure for Month of February | Pressure for Month of March | |
|--------------|-------------------------------|--------------------------------|-----------------------------|--|
| 1 | | | | |
| 2 | | | 29.73 | |
| 3 | | 30.05 | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | 29.50 | 30.10 | |
| 10 | | | | |
| 11 | | | | |
| 12 | 30.03 | | | |
| 13 | | | | |
| 14 | | | | |
| 15 | | | | |
| 16 | | | | |
| 17 | | | | |
| 18 | | 29.82 | 29.90 | |
| 19 | | | | |
| 20 | 29.95 | | | |
| 21 | | | | |
| 22 | | | | |
| 23 | | 29.85 | 29.90 | |
| 24 | | | | |
| 25 | | | | |
| 26 | 29.70 | | | |
| 27 | | | | |
| 28 | | | | |
| 29 | | | | |
| 30 | | | | |
| 31 | | | 29.90 | |

(Pressures were taken at 12:00 noon)