

INFORMATION SERIES 6

# Hydrogeological Data of Thermal Springs and Wells in Colorado

by  
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and  
Richard Howard Pearl



COLORADO GEOLOGICAL SURVEY  
DEPARTMENT OF NATURAL RESOURCES  
DENVER, COLORADO

1976

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INFORMATION SERIES 6

HYDROGEOLOGICAL DATA OF  
THERMAL SPRINGS AND WELLS IN COLORADO

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James K. Barrett and Richard Howard Pearl

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## TABLE OF CONTENTS

|              | Page |
|--------------|------|
| Introduction | 1    |

### ILLUSTRATIONS

|                                                 |   |
|-------------------------------------------------|---|
| Figure 1. Location of thermal springs and wells | 2 |
| Figure 2. Well-numbering system in Colorado     | 3 |

### TABLES

|                                                                                  |     |
|----------------------------------------------------------------------------------|-----|
| Table 1. Physical properties and chemical analyses of thermal waters in Colorado | 5   |
| Table 2. Spectrographic analyses of thermal waters in Colorado                   | 121 |
| Table 3. Radioactivity associated with thermal waters in Colorado                | 123 |

# HYDROGEOLOGICAL DATA OF THERMAL SPRINGS AND WELLS IN COLORADO

by

JAMES K. BARRETT and RICHARD HOWARD PEARL

## INTRODUCTION

The need for an appraisal of the geothermal resource potential of Colorado led to a two year cooperative investigation between the U.S. Geological Survey and the Colorado Geological Survey. This project, funded in part by U.S. Geological Survey Grant No. 14-08-0001-G-221, began in May 1975 and is scheduled for completion in May, 1977.

This report makes available to the public, information obtained during the data gathering phase of the investigation. Information presented includes: location of all thermal springs and wells, field measurements of temperature, discharge, specific conductance (a measure of the total amount of dissolved solids), pH, chemical and spectrographic analysis of dissolved mineral matter, and associated radioactivity in the thermal waters.

During the investigation, water samples were collected from most of the thermal springs and wells in Colorado and sent either to the U.S. Geological Survey, Water Resources Division's Salt Lake City, Utah laboratory or the Atlanta, Georgia laboratory for determination of dissolved mineral matter. These analytical results are presented in table 1. Samples of the thermal waters were also collected and sent to the U.S. Geological Survey, Water Resources Division's Denver Spectrographic Laboratory for analysis of trace elements (Table 2). Data presented in table 3, Radioactivity Associated with Thermal Waters In Colorado, were collected in cooperation with the U.S. Environmental Protection Agency, Office of Radiation Programs, Las Vegas, Nevada.

An index map showing the location of all thermal springs and wells in Colorado is included (Fig. 1).

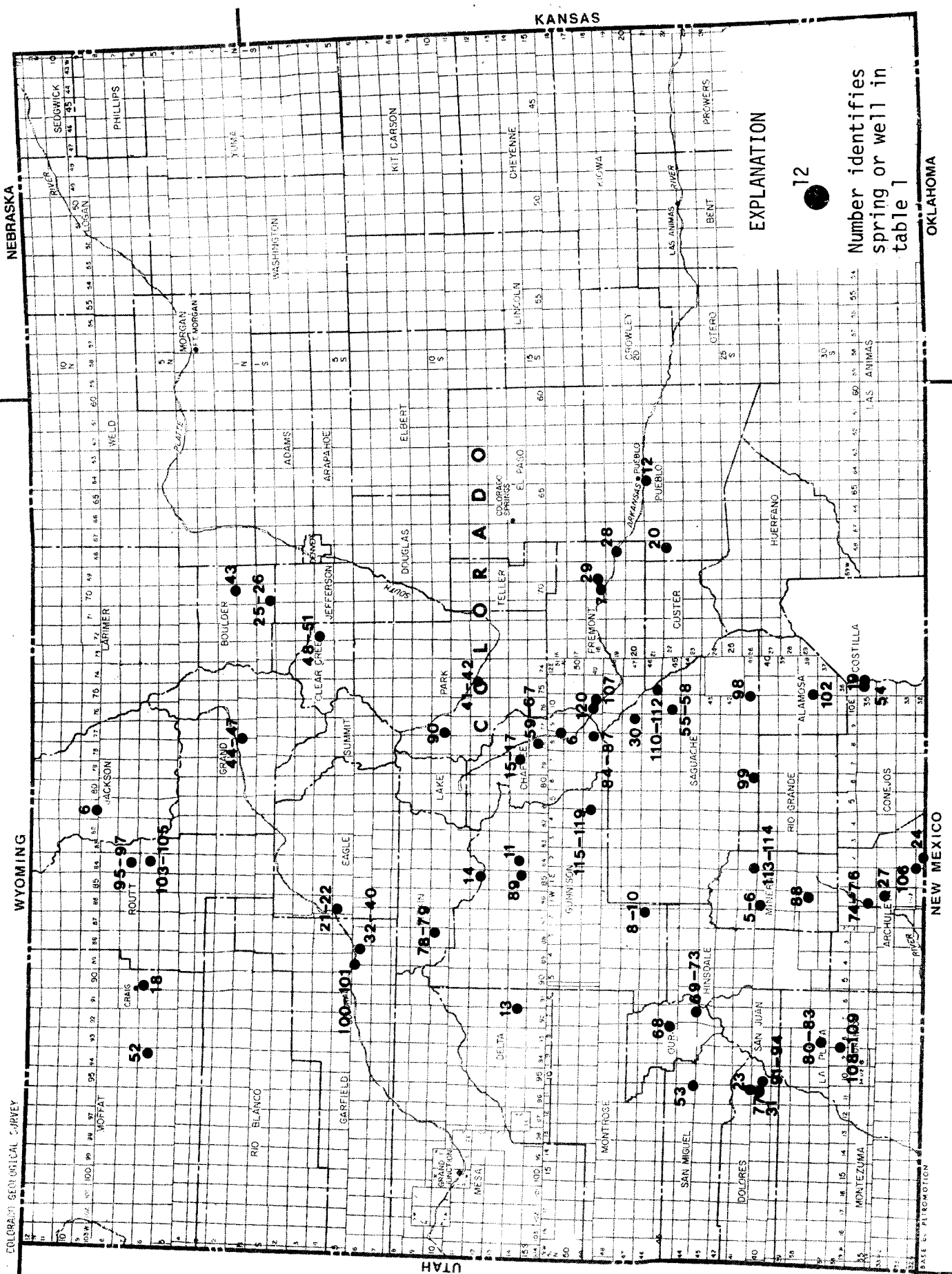


FIGURE 1. LOCATION OF THERMAL SPRINGS AND WELLS Scale approx. 1:2,600,000

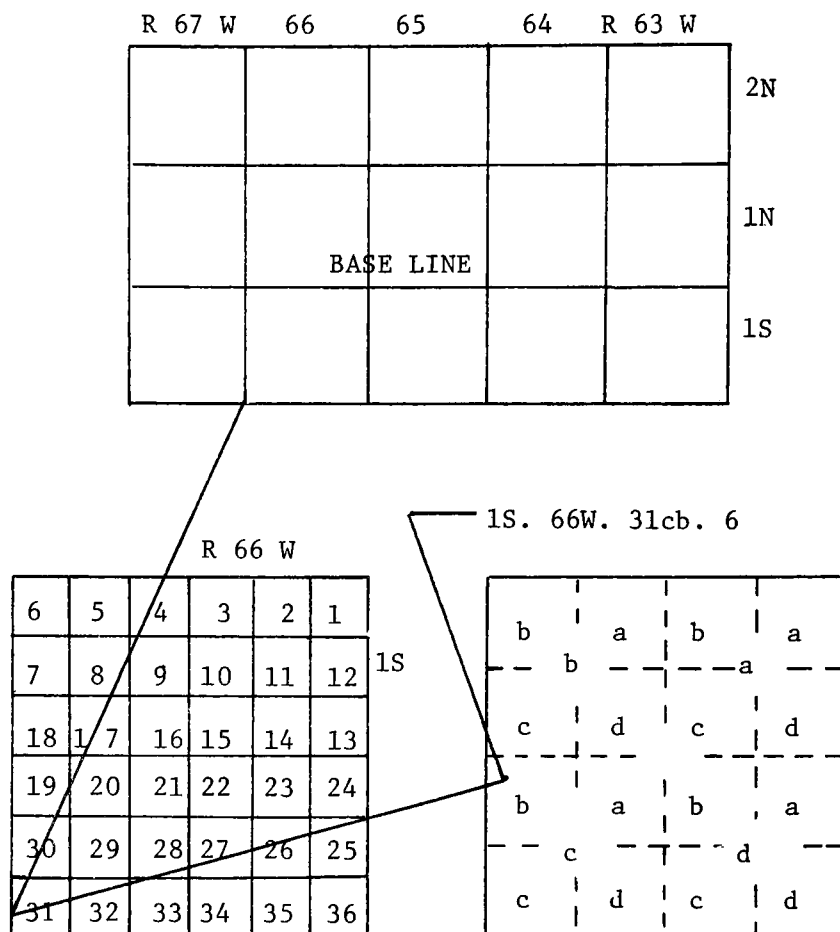


Figure 2. Well-numbering system in Colorado

The well numbering system used in this report is based on the U.S. Bureau of Land Management system of land subdivision, and shows the location of the spring or well by township, range, section, and position within the section. In this report all lands are referenced to the 6th Principal Meridian or the New Mexico Principal Meridian. The first two segments of the number designate the township and range, the third number designates the section. The letters following the section number locate the feature within the section. The first letter denotes the quarter section, the second the quarter-quarter section. These letters are assigned within the section in a counter-clockwise direction beginning with "a" in the northeast quarter. Letters are assigned within each quarter section and within each quarter-quarter section in the same manner. In the example above the spring is located in the NW $\frac{1}{4}$ , SW $\frac{1}{4}$ , Sec. 31, T. 1 S., R. 66 W., 6th Principal Meridian



Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Antelope Warm Spring

Location: 37°44'36"N. Latitude; 107°02'14"W. Longitude; T. 40 N., R. 2 W., Sec. 1 dd, N.M.P.M., Mineral County

|                                          | Date Sampled |        |
|------------------------------------------|--------------|--------|
|                                          | 8/75         | 10/75* |
| Arsenic (As), (UG/L):                    | 0            | 0      |
| Boron (B), (UG/L):                       | 130          | 130    |
| Cadium (Cd), (UG/L):                     | 0            | 0      |
| Calcium (Ca), (MG/L):                    | 4            | 1.7    |
| Chloride (Cl), (MG/L):                   | 2.8          | 3.5    |
| Fluoride (F), (MG/L):                    | 2.0          | 1.6    |
| Iron (Fe), (UG/L):                       | 20           | 60     |
| Lithium (Li), (UG/L):                    | 10           | 8      |
| Magnesium (Mg), (MG/L):                  | 0.3          | 0.6    |
| Manganese (Mn), (UG/L):                  | 0            | 0      |
| Mercury (Hg), (UG/L):                    | 0            | 0      |
| Nitrogen (N), (MG/L):                    | 0.08         | 0.02   |
| Phosphate (PO <sub>4</sub> )             |              |        |
| Ortho diss. as P, (MG/L):                | 0            | 0.01   |
| Ortho, (MG/L):                           | 0            | 0.03   |
| Potassium (K), (MG/L):                   | 0.1          | 0.3    |
| Selenium (Se), (UG/L):                   | 0            | 0      |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 41           | 39     |
| Sodium (Na), (MG/L):                     | 44           | 43     |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 2.2          | 3.2    |
| Zinc (Zn), (UG/L):                       | 30           | 0      |
| Alkalinity                               |              |        |
| As Calcium Carbonate, (MG/L):            | 90           | 95     |
| As Bicarbonate, (MG/L):                  | 110          | 77     |
| Hardness                                 |              |        |
| Noncarbonate, (MG/L):                    | 0            | 0      |
| Total, (MG/L):                           | 11           | 7      |
| Specific conductance<br>(Micromohs):     | 180          | 160    |
| Total dissolved<br>solids (TDS), (MG/L): | 151          | 150    |
| pH, Field                                | -            | 8.9    |
| Discharge (gpm):                         | 3E           | 3E     |
| Temperature (°C):                        | 32           | 32     |

\*Remarks: Contains 19 mg/l of carbonate.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Birdsie Warm Spring

Location: 37°44'36"N. Latitude; 107°02'14"W. Longitude; T. 40 N., R. 2 W., Sec. 14 abc, N.M.P.M., Mineral County

Temperature: 30°C

Discharge: 15 gpm

Specific Conductance: 200

pH: 8.6

Brands Ranch Artesian Well

Location: 40°42'17"N. Latitude; 106°32'05"W. Longitude; T. 9 N., R. 81 W., Sec. 31 dcd, 6th P.M., Jackson County

Temperature: 42°C

Discharge: 80 gpm (est.)

Specific conductance: 405

pH: 6.0

Remarks: This is an old oil well, 800 feet deep.

Brown's Canon Warm Spring

Location: 38°38'14"N. Latitude; 106°04'17"W. Longitude; T. 51 N., R. 8 E., Sec. 23 cca, N.M.P.M., Chaffee County.

Temperature: 25°C

Discharge: 1 gpm (est.)

Specific conductance: 775

pH: 8.0

Brown's Grotto Warm Spring

Location: 38°37'50"N. Latitude; 106°04'10"W. Longitude; T. 51 N., R. 8 E., Sec. 34 bab, N.M.P.M., Chaffee County

Temperature: 23°C

Discharge: 5 gpm (est.)

Specific conductance: 720

pH: 7.0

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Canon City Hot Spring (Flowing hot water well)

Location: 38°25'57"N. Latitude; 105°15'46"W. Longitude; T. 18 S., R. 70 W., Sec. 31 d, 6th. P.M., Fremont County

|                                          | Date Sampled |       |       |
|------------------------------------------|--------------|-------|-------|
|                                          | 9/75         | 1/76  | 4/76  |
| Arsenic (As), (UG/L):                    | 11           | -     | -     |
| Boron (B), (UG/L):                       | 190          | 200   | 200   |
| Cadium (Cd), (UG/L):                     | 0            | -     | -     |
| Calcium (Ca), (MG/L):                    | 190          | 190   | 170   |
| Chloride (Cl), (MG/L):                   | 180          | 190   | 190   |
| Fluoride (F), (MG/L):                    | 1.5          | 1.5   | 1.5   |
| Iron (Fe), (UG/L):                       | 30           | 30    | 20    |
| Lithium (Li), (UG/L):                    | 230          | -     | -     |
| Magnesium (Mg), (MG/L):                  | 62           | 55    | 61    |
| Manganese (Mn), (UG/L):                  | 10           | 10    | 0     |
| Mercury (Hg), (UG/L):                    | 0            | -     | -     |
| Nitrogen (N), (MG/L):                    | 0.55         | 0.65  | 0.67  |
| Phosphate (PO <sub>4</sub> )             |              |       |       |
| Ortho diss. as P, (MG/L):                | 0.73         | 0.01  | 0.03  |
| Ortho, (MG/L):                           | 2.2          | 0.03  | 0.09  |
| Potassium (K), (MG/L):                   | 15           | 16    | 15    |
| Selenium (Se), (UG/L):                   | 1            | -     | -     |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 22           | 21    | 21    |
| Sodium (Na), (MG/L):                     | 190          | 180   | 190   |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 130          | 130   | 120   |
| Zinc (Zn), (UG/L):                       | 10           | -     | -     |
| Alkalinity                               |              |       |       |
| As Calcium Carbonate, (MG/L):            | 728          | 728   | 728   |
| As Bicarbonate, (MG/L):                  | 887          | 888   | 888   |
| Hardness                                 |              |       |       |
| Noncarbonate, (MG/L):                    | 2            | 0     | 0     |
| Total, (MG/L):                           | 730          | 700   | 680   |
| Specific conductance<br>(Micromohs):     | 1,900        | 2,010 | 1,980 |
| Total dissolved<br>solids (TDS), (MG/L): | 1,230        | 1,220 | 1,210 |
| pH, Field                                | 6.3          | 6.2   | 6.1   |
| Discharge (gpm):                         | 5            | 1     | 2     |
| Temperature (°C):                        | 40           | 40    | 40    |

Remarks:

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Cebolla Hot Springs: Spring A

Location: 30°16'26"N. Latitude; 107°05'54"W. Longitude; T. 46 N., R. 2 W., Sec. 4 ab, N.M.P.M., Gunnison County

|                                          | Date Sampled |       |       |       |
|------------------------------------------|--------------|-------|-------|-------|
|                                          | 7/75         | 10/75 | 1/76  | 4/76  |
| Arsenic (As), (UG/L):                    | 45           | 41    | -     | -     |
| Boron (B), (UG/L):                       | 1,100        | 1,100 | 1,100 | 1,100 |
| Cadium (Cd), (UG/L):                     | 0            | 0     | -     | -     |
| Calcium (Ca), (MG/L):                    | 120          | 120   | 120   | 120   |
| Chloride (Cl), (MG/L):                   | 120          | 120   | 120   | 120   |
| Fluoride (F), (MG/L):                    | 3.7          | 3.9   | 4.6   | 4.9   |
| Iron (Fe), (UG/L):                       | 50           | 50    | 0     | 20    |
| Lithium (Li), (UG/L):                    | 710          | 750   | -     | -     |
| Magnesium (Mg), (MG/L):                  | 50           | 47    | 48    | 51    |
| Manganese (Mn), (UG/L):                  | 50           | 50    | 50    | 100   |
| Mercury (Hg), (UG/L):                    | 0.5          | 0     | -     | -     |
| Nitrogen (N), (MG/L):                    | 0.08         | 0.04  | 0.06  | 0.03  |
| Phosphate (PO <sub>4</sub> )             |              |       |       |       |
| Ortho diss. as P, (MG/L):                | 0.11         | 0.03  | 0.06  | 0.10  |
| Ortho, (MG/L):                           | 0.34         | 0.09  | 0.18  | 0.31  |
| Potassium (K), (MG/L):                   | 63           | 64    | 58    | 66    |
| Selenium (Se), (UG/L):                   | 0            | 0     | -     | -     |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 74           | 66    | 85    | 92    |
| Sodium (Na), (MG/L):                     | 310          | 310   | 330   | 310   |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 130          | 120   | 130   | 120   |
| Zinc (Zn), (UG/L):                       | 30           | 8     | -     | -     |
| Alkalinity                               |              |       |       |       |
| As Calcium Carbonate, (MG/L):            | 960          | 968   | 960   | 968   |
| As Bicarbonate, (MG/L):                  | 1,170        | 1,180 | 1,170 | 1,180 |
| Hardness                                 |              |       |       |       |
| Noncarbonate, (MG/L):                    | 0            | 0     | 0     | 0     |
| Total, (MG/L):                           | 510          | 490   | 500   | 510   |
| Specific conductance<br>(Micromohs):     | 2,100        | 2,000 | 2,220 | 2,200 |
| Total dissolved<br>solids (TDS), (MG/L): | 1,450        | 1,440 | 1,470 | 1,450 |
| pH, Field                                | -            | 6.8   | 6.9   | 6.4   |
| Discharge (gpm):                         | -            | 3     | 3     | 3     |
| Temperature (°C):                        | 41           | 41    | 39    | 38    |

Remarks: Located in southern most of two cabins, approx. 300 feet south of road.  
Western pool in building.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Cebolla Hot Springs: Spring B

Location: 30°16'26"N. Latitude; 107°05'54"W. Longitude; T. 46 N., R. 2 W., Sec. 4 ab, N.M.P.M., Gunnison County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 7/75         |
| Arsenic (As), (UG/L):                    | 40           |
| Boron (B), (UG/L):                       | 1,100        |
| Cadium (Cd), (UG/L):                     | 1            |
| Calcium (Ca), (MG/L):                    | 120          |
| Chloride (Cl), (MG/L):                   | 120          |
| Fluoride (F), (MG/L):                    | 5.8          |
| Iron (Fe), (UG/L):                       | 50           |
| Lithium (Li), (UG/L):                    | 720          |
| Magnesium (Mg), (MG/L):                  | 50           |
| Manganese (Mn), (UG/L):                  | 50           |
| Mercury (Hg), (UG/L):                    | 0.2          |
| Nitrogen (N), (MG/L):                    | 0.08         |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.02         |
| Ortho, (MG/L):                           | 0.06         |
| Potassium (K), (MG/L):                   | 64           |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 77           |
| Sodium (Na), (MG/L):                     | 310          |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 130          |
| Zinc (Zn), (UG/L):                       | 20           |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 968          |
| As Bicarbonate, (MG/L):                  | 1,180        |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 0            |
| Total, (MG/L):                           | 510          |
| Specific conductance<br>(Micromohs):     | 2,050        |
| Total dissolved<br>solids (TDS), (MG/L): | 1,460        |
| pH, Field                                | -            |
| Discharge (gpm):                         | -            |
| Temperature (°C):                        | 38           |

Remarks: Located in same building as Spring A. Eastern pool in building.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Cebolla Hot Springs: Spring C

Location: 38°16'26"N. Latitude; 107°05'54"W. Longitude; T. 46 N., R. 2 W., Sec. 4 ab, N.M.P.M., Gunnison County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 7/75         |
| Arsenic (As), (UG/L):                    | 40           |
| Boron (B), (UG/L):                       | 1,100        |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 130          |
| Chloride (Cl), (MG/L):                   | 120          |
| Fluoride (F), (MG/L):                    | 4.6          |
| Iron (Fe), (UG/L):                       | 40           |
| Lithium (Li), (UG/L):                    | 710          |
| Magnesium (Mg), (MG/L):                  | 51           |
| Manganese (Mn), (UG/L):                  | 40           |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0.03         |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.05         |
| Ortho, (MG/L):                           | 0.15         |
| Potassium (K), (MG/L):                   | 63           |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 79           |
| Sodium (Na), (MG/L):                     | 300          |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 130          |
| Zinc (Zn), (UG/L):                       | 10           |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 960          |
| As Bicarbonate, (MG/L):                  | 1,170        |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 0            |
| Total, (MG/L):                           | 530          |
| Specific conductance<br>(Micromohs):     | 2,100        |
| Total dissolved<br>solids (TDS), (MG/L): | 1,460        |
| pH, Field                                | -            |
| Discharge (gpm):                         | -            |
| Temperature (°C):                        | 40           |

Remarks: Located in northern cabin, approx. 200 feet south of road and approx. 75 feet northwest of Springs A and B.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Cement Creek Warm Spring

Location: 38°50'06"N. Latitude; 106°49'34"W. Longitude; T. 14 S., R. 84 W., Sec. 18 cd, 6th P.M., Gunnison County

|                                          | Date Sampled |       |      |      |
|------------------------------------------|--------------|-------|------|------|
|                                          | 7/75         | 10/75 | 1/76 | 4/76 |
| Arsenic (As), (UG/L):                    | 10           | 10    | -    | -    |
| Boron (B), (UG/L):                       | 60           | 60    | 70   | 80   |
| Cadium (Cd), (UG/L):                     | 0            | 0     | -    | -    |
| Calcium (Ca), (MG/L):                    | 75           | 69    | 73   | 68   |
| Chloride (Cl), (MC/L):                   | 11           | 10    | 11   | 11   |
| Fluoride (F), (MG/L):                    | 1.9          | 1.4   | 1.9  | 1.5  |
| Iron (Fe), (UG/L):                       | 10           | 30    | 0    | 10   |
| Lithium (Li), (UG/L):                    | 90           | 90    | -    | -    |
| Magnesium (Mg), (MG/L):                  | 22           | 18    | 18   | 20   |
| Manganese (Mn), (UG/L):                  | 10           | 0     | 0    | 0    |
| Mercury (Hg), (UG/L):                    | 0.2          | 0     | -    | -    |
| Nitrogen (N), (MG/L):                    | 0.14         | 0.11  | 0.15 | 0.15 |
| Phosphate (PO <sub>4</sub> )             |              |       |      |      |
| Ortho diss. as P, (MG/L):                | 0.01         | 0     | 0    | 0    |
| Ortho, (MG/L):                           | 0.03         | 0     | 0    | 0    |
| Potassium (K), (MG/L):                   | 5.8          | 6     | 6    | 6.4  |
| Selenium (Se), (UG/L):                   | 0            | 0     | -    | -    |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 19           | 17    | 17   | 18   |
| Sodium (Na), (MG/L):                     | 36           | 41    | 40   | 36   |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 81           | 74    | 80   | 69   |
| Zinc (Zn), (UG/L):                       | 10           | 0     | -    | -    |
| Alkalinity                               |              |       |      |      |
| As Calcium Carbonate, (MG/L):            | 248          | 253   | 250  | 251  |
| As Bicarbonate, (MG/L):                  | 302          | 308   | 305  | 306  |
| Hardness                                 |              |       |      |      |
| Noncarbonate, (MG/L):                    | 30           | 0     | 6    | 1    |
| Total, (MG/L):                           | 280          | 250   | 260  | 250  |
| Specific conductance<br>(Micromohs):     | 640          | 540   | 650  | 625  |
| Total dissolved<br>solids (TDS), (MG/L): | 401          | 389   | 398  | 382  |
| pH, Field                                | -            | 7.2   | 7.0  | 7.2  |
| Discharge (gpm):                         | -            | 80    | 60   | 60   |
| Temperature (°C):                        | 26           | 25    | 25   | 26   |

Remarks:

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Clark Spring Warm Water Well

Location: 38°15'29". Latitude; 104°36'35"W. Longitude; T. 21 S., R. 65 W., Sec. 1 aa, 6th. P.M., Pueblo County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 9/75         |
| Arsenic (As), (UG/L):                    | 0            |
| Boron (B), (UG/L):                       | 100          |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 75           |
| Chloride (Cl), (MG/L):                   | 28           |
| Fluoride (F), (MG/L):                    | 1.4          |
| Iron (Fe), (UG/L):                       | 2,700        |
| Lithium (Li), (UG/L):                    | 220          |
| Magnesium (Mg), (MG/L):                  | 45           |
| Manganese (Mn), (UG/L):                  | 40           |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0            |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0            |
| Ortho, (MG/L):                           | 0            |
| Potassium (K), (MG/L):                   | 18           |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 11           |
| Sodium (Na), (MG/L):                     | 250          |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 620          |
| Zinc (Zn), (UG/L):                       | 10           |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 265          |
| As Bicarbonate, (MG/L):                  | 323          |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 110          |
| Total, (MG/L):                           | 370          |
| Specific conductance<br>(Micromohs):     | 1,650        |
| Total dissolved<br>solids (TDS), (MG/L): | 1,210        |
| pH, Field                                | 6.8          |
| Discharge (gpm):                         | 12           |
| Temperature (°C):                        | 25           |
| Remarks:                                 |              |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Colonel Chinn Hot Water Well

Location: 38°52'23"N. Latitude; 107°38'04"W. Longitude; T. 14 S., R. 92 W., Sec. 14 adc, 6th P.M., Delta County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 4/76*        |
| Arsenic (As), (UG/L):                    | -            |
| Boron (B), (UG/L):                       | 1,700        |
| Cadium (Cd), (UG/L):                     | -            |
| Calcium (Ca), (MG/L):                    | 110          |
| Chloride (Cl), (MG/L):                   | 400          |
| Fluoride (F), (MG/L):                    | 2.5          |
| Iron (Fe), (UG/L):                       | 100          |
| Lithium (Li), (UG/L):                    | -            |
| Magnesium (Mg), (MG/L):                  | 32           |
| Manganese (Mn), (UG/L):                  | 880          |
| Mercury (Hg), (UG/L):                    | -            |
| Nitrogen (N), (MG/L):                    | 0            |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.02         |
| Ortho, (MG/L):                           | 0.06         |
| Potassium (K), (MG/L):                   | 41           |
| Selenium (Se), (UG/L):                   | -            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 25           |
| Sodium (Na), (MG/L):                     | 570          |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | -            |
| Zinc (Zn), (UG/L):                       | -            |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 896          |
| As Bicarbonate, (MG/L):                  | 764          |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 0            |
| Total, (MG/L):                           | 410          |
| Specific conductance<br>(Micromohs):     | 3,560        |
| Total dissolved<br>solids (TDS), (MG/L): | -            |
| pH, Field                                | 6.5          |
| Discharge (gpm):                         | -            |
| Temperature (°C):                        | 42           |

\*Remarks: Contains 162 mg/l of carbonate.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Conundrum Hot Spring

Location: 39°00'44"N. Latitude; 106°53'26"W. Longitude; T. 12 S., R. 85 W., Sec. 16, 6th P.M., Pitkin County

|                                                                           | Date Sampled |
|---------------------------------------------------------------------------|--------------|
|                                                                           | 9/75         |
| Arsenic (As), (UG/L):                                                     | 1            |
| Boron (B), (UG/L):                                                        | 30           |
| Cadium (Cd), (UG/L):                                                      | 0            |
| Calcium (Ca), (MG/L):                                                     | 500          |
| Chloride (Cl), (MG/L):                                                    | 8.6          |
| Fluoride (F), (MG/L):                                                     | 2.3          |
| Iron (Fe), (UG/L):                                                        | 50           |
| Lithium (Li), (UG/L):                                                     | 10           |
| Magnesium (Mg), (MG/L):                                                   | 1.4          |
| Manganese (Mn), (UG/L):                                                   | 140          |
| Mercury (Hg), (UG/L):                                                     | 0            |
| Nitrogen (N), (MG/L):                                                     | 0.01         |
| Phosphate (PO <sub>4</sub> )                                              |              |
| Ortho diss. as P, (MG/L):                                                 | 0            |
| Ortho, (MG/L):                                                            | 0            |
| Potassium (K), (MG/L):                                                    | 3.4          |
| Selenium (Se), (UG/L):                                                    | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):                                       | 38           |
| Sodium (Na), (MG/L):                                                      | 44           |
| Sulfate (SO <sub>4</sub> ), (MG/L):                                       | 1,300        |
| Zinc (Zn), (UG/L):                                                        | 10           |
| Alkalinity                                                                |              |
| As Calcium Carbonate, (MG/L):                                             | 15           |
| As Bicarbonate, (MG/L):                                                   | 18           |
| Hardness                                                                  |              |
| Noncarbonate, (MG/L):                                                     | 1,200        |
| Total, (MG/L):                                                            | 1,300        |
| Specific conductance<br>(Micromohs):                                      | 2,400        |
| Total dissolved<br>solids (TDS), (MG/L):                                  | 1,910        |
| pH, Field                                                                 | -            |
| Discharge (gpm):                                                          | 50           |
| Temperature (°C):                                                         | 38           |
| Remarks: Two springs within 100 feet of each other. Lower spring sampled. |              |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Cottonwood Hot Spring

Location: 38°48'48"N. Latitude; 106°13'21"W. Longitude; T. 14 S., R. 79 W., Sec. 21 dc. 6th P.M., Chaffee County

|                                         | Date Sampled |
|-----------------------------------------|--------------|
|                                         | 6/75         |
| Arsenic (As), (UG/L):                   | 2            |
| Boron (B), (UG/L):                      | 90           |
| Cadium (Cd), (UG/L):                    | 0            |
| Calcium (Ca), (MG/L):                   | 6.2          |
| Chloride (Cl), (MG/L):                  | 30           |
| Fluoride (F), (MG/L):                   | 14           |
| Iron (Fe), (UG/L):                      | 20           |
| Lithium (Li), (UG/L):                   | 160          |
| Magnesium (Mg), (MG/L):                 | 0.5          |
| Manganese (Mn), (UG/L):                 | 0            |
| Mercury (Hg), (UG/L):                   | 0            |
| Nitrogen (N), (MG/L):                   | 0.08         |
| Phosphate (PO <sub>4</sub> )            |              |
| Ortho diss. as P, (MG/L):               | 0.04         |
| Ortho, (MG/L):                          | 0.12         |
| Potassium (K), (MG/L):                  | 2.8          |
| Selenium (Se), (UG/L):                  | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):     | 60           |
| Sodium (Na), (MG/L):                    | 110          |
| Sulfate (SO <sub>4</sub> ), (MG/L):     | 110          |
| Zinc (Zn), (UG/L):                      | 10           |
| Alkalinity                              |              |
| As Calcium Carbonate, (MG/L):           | 60           |
| As Bicarbonate, (MG/L):                 | 73           |
| Hardness                                |              |
| Noncarbonate, (MG/L):                   | 0            |
| Total, (MG/L):                          | 18           |
| Specific conductance<br>(Micromohs):    | 510          |
| Total dissolved<br>solids (TDS) (MG/L): | 370          |
| pH, Field                               | -            |
| Discharge (gpm):                        | 10E          |
| Temperature (°C):                       | 58           |
| Remarks:                                |              |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Cottonwood Hot Spring Area: Jump Steady Hot Spring

Location: 38°48'40"N. Latitude; 106°13'20"W. Longitude; T. 14 S., R. 79 W., Sec. 21 dd, 6th P.M., Chaffee County

|                                          | Date Sampled |       |      |       |
|------------------------------------------|--------------|-------|------|-------|
|                                          | 6/75         | 10/75 | 1/76 | 4/76* |
| Arsenic (As), (UG/L):                    | 4            | 5     | -    | -     |
| Boron (B), (UG/L):                       | 90           | 90    | 110  | 80    |
| Cadium (Cd), (UG/L):                     | 0            | 0 *   | -    | -     |
| Calcium (Ca), (MG/L):                    | 6.4          | 5.6   | 5.9  | 5.8   |
| Chloride (Cl), (MG/L):                   | 28           | 30    | 30   | 32    |
| Fluoride (F), (MG/L):                    | 14           | 13    | 14   | 1.7   |
| Iron (Fe), (UG/L):                       | 10           | 0     | 0    | 10    |
| Lithium (Li), (UG/L):                    | 150          | 160   | -    | -     |
| Magnesium (Mg), (MG/L):                  | 0.6          | 0.3   | 0.3  | 0     |
| Manganese (Mn), (UG/L):                  | 10           | 10    | 0    | 0     |
| Mercury (Hg), (UG/L):                    | 0            | 0     | -    | -     |
| Nitrogen (N), (MG/L):                    | 0.12         | 0.12  | 0.10 | 0.12  |
| Phosphate (PO <sub>4</sub> )             |              |       |      |       |
| Ortho diss. as P, (MG/L):                | 0            | 0     | 0.01 | 0     |
| Ortho, (MG/L):                           | 0            | 0     | 0.03 | 0     |
| Potassium (K), (MG/L):                   | 2.6          | 2.7   | 2.7  | 2.7   |
| Selenium (Se), (UG/L):                   | 0            | 0     | -    | -     |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 58           | 54    | 58   | 13    |
| Sodium (Na), (MG/L):                     | 100          | 110   | 110  | 100   |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 110          | 110   | 110  | 110   |
| Zinc (Zn), (UG/L):                       | 20           | 10    | -    | -     |
| Alkalinity                               |              |       |      |       |
| As Calcium Carbonate, (MG/L):            | 60           | 62    | 61   | 61    |
| As Bicarbonate, (MG/L):                  | 73           | 76    | 74   | 56    |
| Hardness                                 |              |       |      |       |
| Noncarbonate, (MG/L):                    | 0            | 0     | 0    | 0     |
| Total, (MG/L):                           | 18           | 15    | 16   | 14    |
| Specific conductance<br>(Micromohs):     | 500          | 510   | 547  | 540   |
| Total dissolved<br>solids (TDS), (MG/L): | 356          | 364   | 368  | 302   |
| pH, Field                                | -            | 6.0   | 8.2  | 8.5   |
| Discharge (gpm):                         | -            | 90    | 50   | 50    |
| Temperature (°C):                        | 54           | 52    | 53   | 53    |

\* Remarks: Contains 9 mg/l of carbonate

Table 1. ~~Physical Properties~~ and Chemical Analysis of Thermal Waters in Colorado.

Cottonwood Hot Springs Area: Merrifield Hot Water Well

Location: 38°48'40"N. Latitude; 106°13'21"W. Longitude; T. 14 S., R. 79 W., Sec. 21 dd, 6th P.M., Chaffee County

|                                          | Date Sampled<br>6/75* |
|------------------------------------------|-----------------------|
| Arsenic (As), (UG/L):                    | 4                     |
| Boron (B), (UG/L):                       | 80                    |
| Cadium (Cd), (UG/L):                     | 0                     |
| Calcium (Ca), (MG/L):                    | 9.5                   |
| Chloride (Cl), (MG/L):                   | 23                    |
| Fluoride (F), (MG/L):                    | 12                    |
| Iron (Fe), (UG/L):                       | 10                    |
| Lithium (Li), (UG/L):                    | 110                   |
| Magnesium (Mg), (MG/L):                  | 0.8                   |
| Manganese (Mn), (UG/L):                  | 10                    |
| Mercury (Hg), (UG/L):                    | 0                     |
| Nitrogen (N), (MG/L):                    | 0.09                  |
| Phosphate (PO <sub>4</sub> )             |                       |
| Ortho diss. as P, (MG/L):                | 0                     |
| Ortho, (MG/L):                           | 0                     |
| Potassium (K), (MG/L):                   | 2.5                   |
| Selenium (Se), (UG/L):                   | 0                     |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 48                    |
| Sodium (Na), (MG/L):                     | 81                    |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 87                    |
| Zinc (Zn), (UG/L):                       | 20                    |
| Alkalinity                               |                       |
| As Calcium Carbonate, (MG/L):            | 62                    |
| As Bicarbonate, (MG/L):                  | 71                    |
| Hardness                                 |                       |
| Noncarbonate, (MG/L):                    | 0                     |
| Total, (MG/L):                           | 27                    |
| Specific conductance<br>(Micromohs):     | 440                   |
| Total dissolved<br>solids (TDS), (MG/L): | 301                   |
| pH, Field                                | 8.8                   |
| Discharge (gpm):                         | -                     |
| Temperature (°C):                        | 46                    |

\* Remarks: Contains 23 mg/l of carbonate

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Craig Warm Water Well

Location: 40°30'06"N. Latitude; 107°33'04"W. Longitude; T. 6 N., R. 91 W., Sec. 1 dcb, 6th P.M., Moffat County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 1/76         |
| Arsenic (As), (UG/L):                    | -            |
| Boron (B), (UG/L):                       | 210          |
| Cadium (Cd), (UG/L):                     | -            |
| Calcium (Ca), (MG/L):                    | 5.8          |
| Chloride (Cl), (MG/L):                   | 4.1          |
| Fluoride (F), (MG/L):                    | 3.1          |
| Iron (Fe), (UG/L):                       | 60           |
| Lithium (Li), (UG/L):                    | -            |
| Magnesium (Mg), (MG/L):                  | 0.9          |
| Manganese (Mn), (UG/L):                  | 0            |
| Mercury (Hg), (UG/L):                    | -            |
| Nitrogen (N), (MG/L):                    | 0.04         |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.04         |
| Ortho, (MG/L):                           | 0.12         |
| Potassium (K), (MG/L):                   | 4.1          |
| Selenium (Se), (UG/L):                   | -            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 19           |
| Sodium (Na), (MG/L):                     | 360          |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 6.7          |
| Zinc (Zn), (UG/L):                       | -            |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 819          |
| As Bicarbonate, (MG/L):                  | 998          |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 0            |
| Total, (MG/L):                           | 18           |
| Specific conductance<br>(Micromohs):     | 1,440        |
| Total dissolved<br>solids (TDS), (MG/L): | 896          |
| pH, Field                                | 8.2          |
| Discharge (gpm):                         | 24           |
| Temperature (°C):                        | 39           |
| Remarks:                                 |              |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Dexter Warm Spring

Location: 37°17'41"N. Latitude; 105°47'05"W. Longitude; T. 35 N., R. 11 E., Sec. 8 ada, N.M.P.M., Conejos County

Temperature: 20°C

Discharge: 50 gpm (est.)

Specific conductance: 340

pH: 7.9

Remarks: Several springs and seeps in marshy area, flow difficult to estimate, each spring has a discharge over 5 gpm.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Don K Ranch Artesian Well

Location: 38°10'20"N. Latitude; 105°00'32"W. Longitude; T. 22 S., R. 68 W., Sec. 5 a, 6th P.M., Fremont County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 9/75         |
| Arsenic (As), (UG/L):                    | 140          |
| Boron (B), (UG/L):                       | 560          |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 160          |
| Chloride (Cl), (MG/L):                   | 150          |
| Fluoride (F), (MG/L):                    | 1.9          |
| Iron (Fe), (UG/L):                       | 1,100        |
| Lithium (Li), (UG/L):                    | 520          |
| Magnesium (Mg), (MG/L):                  | 66           |
| Manganese (Mn), (UG/L):                  | 870          |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0.01         |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.02         |
| Ortho, (MG/L):                           | 0.06         |
| Potassium (K), (MG/L):                   | 50           |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 40           |
| Sodium (Na), (MG/L):                     | 400          |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 64           |
| Zinc (Zn), (UG/L):                       | 10           |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 1,300        |
| As Bicarbonate, (MG/L):                  | 1,580        |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 0            |
| Total, (MG/L):                           | 670          |
| Specific conductance<br>(Micromohs):     | 2,300        |
| Total dissolved<br>solids (TDS), (MG/L): | 1,710        |
| pH, Field                                | 6.5          |
| Discharge (gpm):                         | 25           |
| Temperature (°C):                        | 28           |
| Remarks:                                 |              |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Dotsero Warm Springs

Location: 39°37'39"N. Latitude; 107°06'22"W. Longitude; T. 5 S., R. 87 W., Sec. 12 bd, 6th. P.M., Eagle County

|                                          | Date Sampled |        |        |
|------------------------------------------|--------------|--------|--------|
|                                          | 9/75         | 1/76   | 4/76   |
| Arsenic (As), (UG/L):                    | 0            | -      | -      |
| Boron (B), (UG/L):                       | 210          | 210    | 220    |
| Cadium (Cd), (UG/L):                     | 2            | -      | -      |
| Calcium (Ca), (MG/L):                    | 230          | 260    | 240    |
| Chloride (Cl), (MG/L):                   | 5,400        | 5,800  | 5,400  |
| Fluoride (F), (MG/L):                    | -            | 0.8    | 0.3    |
| Iron (Fe), (UG/L):                       | 20           | 0      | 40     |
| Lithium (Li), (UG/L):                    | 100          | -      | -      |
| Magnesium (Mg), (MG/L):                  | 62           | 79     | 65     |
| Manganese (Mn), (UG/L):                  | 20           | 0      | 20     |
| Mercury (Hg), (UG/L):                    | 0.1          | -      | -      |
| Nitrogen (N), (MG/L):                    | -            | 0.06   | 0.06   |
| Phosphate (PO <sub>4</sub> )             |              |        |        |
| Ortho diss. as P, (MG/L):                | -            | 0.02   | 0.01   |
| Ortho, (MG/L):                           | -            | 0.06   | 0.03   |
| Potassium (K), (MG/L):                   | 44           | 95     | 44     |
| Selenium (Se), (UG/L):                   | 0            | -      | -      |
| Silica (SiO <sub>2</sub> ), (MG/L):      |              | 13     | 13     |
| Sodium (Na), (MG/L):                     | 3,500        | 3,500  | 3,500  |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 420          | 430    | 450    |
| Zinc (Zn), (UG/L):                       | 10           | -      | -      |
| Alkalinity                               |              |        |        |
| As Calcium Carbonate, (MG/L):            | 372          | 370    | 372    |
| As Bicarbonate, (MG/L):                  | 454          | 451    | 454    |
| Hardness                                 |              |        |        |
| Noncarbonate, (MG/L):                    | 460          | 600    | 490    |
| Total, (MG/L):                           | 830          | 970    | 870    |
| Specific conductance<br>(Micromohs):     | 20,000       | 17,000 | 18,500 |
| Total dissolved<br>solids (TDS), (MG/L): |              | 10,400 | 9,940  |
| pH, Field                                | -            | 7.2    | 7.0    |
| Discharge (gpm):                         | 500E         | 525E   | 800E   |
| Temperature (°C):                        | 31           | 31     | 32     |

Remarks: This spring located on north side of Colorado River. See also page

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Dotsero Warm Springs, South

Location: 39°37'37"N. Latitude; 107°06'00"W. Longitude; T. 5 S., R. 87 W., Sec. 12 b, 6th. P.M. Eagle County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 12/75        |
| Arsenic (As), (UG/L):                    | 1            |
| Boron (B), (UG/L):                       | 190          |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 250          |
| Chloride (Cl), (MG/L):                   | 4,900        |
| Fluoride (F), (MG/L):                    | 0.3          |
| Iron (Fe), (UG/L):                       | 10           |
| Lithium (Li), (UG/L):                    | 80           |
| Magnesium (Mg), (MG/L):                  | 54           |
| Manganese (Mn), (UG/L):                  | 20           |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0.09         |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.02         |
| Ortho, (MG/L):                           | 0.06         |
| Potassium (K), (MG/L):                   | 37           |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 13           |
| Sodium (Na), (MG/L):                     | 3,100        |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 480          |
| Zinc (Zn), (UG/L):                       | 10           |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 345          |
| As Bicarbonate, (MG/L):                  | 421          |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 500          |
| Total, (MG/L):                           | 850          |
| Specific conductance<br>(Micromohs):     | 15,000       |
| Total dissolved<br>solids (TDS), (MG/L): | 9,040        |
| pH, Field                                | 7.0          |
| Discharge (gpm):                         | 1,000E       |
| Temperature (°C):                        | 32           |

Remarks: This spring located on south side of Colorado River. See also page

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Dunton Hot Spring

Location: 37°46'18"N. Latitude; 108°05'38"W. Longitude; T. 41 N., R. 11 W., Sec. 32 N.M.P.M., Dolores County

|                                          | Date Sampled |       |       |
|------------------------------------------|--------------|-------|-------|
|                                          | 9/75         | 1/76  | 4/76  |
| Arsenic (As), (UG/L):                    | 5            | -     | -     |
| Boron (B), (UG/L):                       | 90           | 110   | 90    |
| Cadium (Cd), (UG/L):                     | 0            | -     | -     |
| Calcium (Ca), (MG/L):                    | 330          | 360   | 340   |
| Chloride (Cl), (MG/L):                   | 6.6          | 6.3   | 7.0   |
| Fluoride (F), (MG/L):                    | 0.6          | 0.4   | 0.7   |
| Iron (Fe), (UG/L):                       | 2,300        | 830   | 1,100 |
| Lithium (Li), (UG/L):                    | 100          | -     | -     |
| Magnesium (Mg), (MG/L):                  | 45           | 43    | 45    |
| Manganese (Mn), (UG/L):                  | 1,800        | 1,700 | 1,900 |
| Mercury (Hg), (UG/L):                    | 0            | -     | -     |
| Nitrogen (N), (MG/L):                    | 0.06         | 0.01  | 0.02  |
| Phosphate (PO <sub>4</sub> )             |              |       |       |
| Ortho diss. as P, (MG/L):                | 0.03         | 0.05  | 0.01  |
| Ortho, (MG/L):                           | 0.09         | 0.15  | 0.03  |
| Potassium (K), (MG/L):                   | 19           | 21    | 21    |
| Selenium (Se), (UG/L):                   | 0            | -     | -     |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 34           | 32    | 33    |
| Sodium (Na), (MG/L):                     | 35           | 34    | 34    |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 350          | 340   | 310   |
| Zinc (Zn), (UG/L):                       | 0            | -     | -     |
| Alkalinity                               |              |       |       |
| As Calcium Carbonate, (MG/L):            | 719          | 828   | 837   |
| As Bicarbonate, (MG/L):                  | 877          | 1,010 | 1,020 |
| Hardness                                 |              |       |       |
| Noncarbonate, (MG/L):                    | 290          | 250   | 200   |
| Total, (MG/L):                           | 1,000        | 1,100 | 1,000 |
| Specific conductance<br>(Micromohs):     | 1,850        | 1,890 | 1,860 |
| Total dissolved<br>solids (TDS), (MG/L): | 1,260        | 1,340 | 1,300 |
| pH, Field                                | -            | 7.0   | 6.4   |
| Discharge (gpm):                         | 26           | 25    | 25    |
| Temperature (°C):                        | 44           | 42    | 42    |

Remarks:

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Dutch Crowley Artesian Well

Location: 37°00'01"N. Latitude; 106°47'03"W. Longitude; T. 32 N., R. 2 E., Sec. 19 cbb, N.M.P.M., Archuleta County

Temperature: 70°C

Discharge: 75 gpm (est.)

Specific conductance: 960

pH: 7.0

Remarks: This is an old oil test well, 1725 feet deep.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Eldorado Springs: Spring A

Location: 39°55'52"N. Latitude; 105°16'46"W. Longitude; T. 1 S., R. 71 W., Sec. 25 da, 6th. P.M., Boulder County

Date Sampled  
9/75

|                                          |      |
|------------------------------------------|------|
| Arsenic (As), (UG/L):                    | 14   |
| Boron (B), (UG/L):                       | 20   |
| Cadium (Cd), (UG/L):                     | 1    |
| Calcium (Ca), (MG/L):                    | 15   |
| Chloride (Cl), (MG/L):                   | 1    |
| Fluoride (F), (MG/L):                    | 0.2  |
| Iron (Fe), (UG/L):                       | 10   |
| Lithium (Li), (UG/L):                    | 10   |
| Magnesium (Mg), (MG/L):                  | 4.8  |
| Manganese (Mn), (UG/L):                  | 0    |
| Mercury (Hg), (UG/L):                    | 0    |
| Nitrogen (N), (MG/L):                    | 0.54 |
| Phosphate (PO <sub>4</sub> )             |      |
| Ortho diss. as P, (MG/L):                | 0.03 |
| Ortho, (MG/L):                           | 0.09 |
| Potassium (K), (MG/L):                   | 3.2  |
| Selenium (Se), (UG/L):                   | 1    |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 16   |
| Sodium (Na), (MG/L):                     | 6.9  |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 20   |
| Zinc (Zn), (UG/L):                       | 30   |
| Alkalinity                               |      |
| As Calcium Carbonate, (MG/L):            | 52   |
| As Bicarbonate, (MG/L):                  | 63   |
| Hardness                                 |      |
| Noncarbonate, (MG/L):                    | 6    |
| Total, (MG/L):                           | 57   |
| Specific conductance<br>(Micromohs):     | 152  |
| Total dissolved<br>solids (TDS), (MG/L): | 101  |
| pH, Field                                | 6.9  |
| Discharge (gpm):                         | -    |
| Temperature (°C):                        | 24   |

Remarks: Actually a well located on the south side of the creek, approx. 100 feet east of the bridge.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Eldorado Springs: Spring B

Location: 39°55'53"N. Latitude; 105°16'47"W. Longitude;; T. 1 S., R. 71 W., Sec. 25 da, 6th. P.M., Boulder County

|                                          | Date Sampled |      |      |
|------------------------------------------|--------------|------|------|
|                                          | 9/75         | 2/76 | 4/76 |
| Arsenic (As), (UG/L):                    | 8            | -    | -    |
| Boron (B), (UG/L):                       | 20           | 10   | 30   |
| Cadium (Cd), (UG/L):                     | 2            | -    | -    |
| Calcium (Ca), (MG/L):                    | 12           | 11   | 11   |
| Chloride (Cl), (MG/L):                   | 0.8          | 1.5  | 0.8  |
| Fluoride (F), (MG/L):                    | 0.2          | 0.4  | 0.3  |
| Iron (Fe), (UG/L):                       | 20           | 0    | 0    |
| Lithium (Li), (UG/L):                    | 10           | -    | -    |
| Magnesium (Mg), (MG/L):                  | 2.9          | 3.3  | 3.0  |
| Manganese (Mn), (UG/L):                  | 0            | 0    | 0    |
| Mercury (Hg), (UG/L):                    | 0            | -    | -    |
| Nitrogen (N), (MG/L):                    | 0.63         | 0.78 | 0.76 |
| Phosphate (PO <sub>4</sub> )             |              |      |      |
| Ortho diss. as P, (MG/L):                | 0.07         | 0.06 | 0.06 |
| Ortho, (MG/L):                           | 0.21         | 0.18 | 0.18 |
| Potassium (K), (MG/L):                   | 3.1          | 3.3  | 3.0  |
| Selenium (Se), (UG/L):                   | 1            | -    | -    |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 15           | 15   | 15   |
| Sodium (Na), (MG/L):                     | 6.3          | 7.3  | 6.7  |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 19           | 23   | 19   |
| Zinc (Zn), (UG/L):                       | 20           | -    | -    |
| Alkalinity                               |              |      |      |
| As Calcium Carbonate, (MG/L):            | 35           | 38   | 35   |
| As Bicarbonate, (MG/L):                  | 43           | 46   | 43   |
| Hardness                                 |              |      |      |
| Noncarbonate, (MG/L):                    | 7            | 3    | 5    |
| Total, (MG/L):                           | 42           | 41   | 40   |
| Specific conductance<br>(Micromohs):     | 122          | 130  | 135  |
| Total dissolved<br>solids (TDS), (MG/L): | 84           | 91   | 84   |
| pH, Field                                | 6.7          | 6.6  | 6.6  |
| Discharge (gpm):                         | -            | -    | -    |
| Temperature (°C):                        | 25           | 26   | 24   |

Remarks: Located within the stone building approx. 175 feet north of creek and 200 feet northwest of bridge.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Eoff Artesian Well

Location: 37°11'26"N. Latitude; 106°59'36"W. Longitude; T. 34 N., R. 1 W., Sec. 7 cdc, N.M.P.M., Archuleta County

Temperature: 39°C

Discharge: 50 gpm (est.)

Specific conductance: 2,500

pH: 7.0

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Florence Artesian Well

Location: 38°24'53"N. Latitude; 105°02'43"W. Longitude; T. 19 S., R. 68 W., Sec. 7 ba, 6th. P.M., Fremont County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 9/75         |
| Arsenic (As), (UG/L):                    | 1            |
| Boron (B), (UG/L):                       | 160          |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 180          |
| Chloride (Cl), (MG/L):                   | 98           |
| Fluoride (F), (MG/L):                    | 1.1          |
| Iron (Fe), (UG/L):                       | 500          |
| Lithium (Li), (UG/L):                    | 240          |
| Magnesium (Mg), (MG/L):                  | 78           |
| Manganese (Mn), (UG/L):                  | 50           |
| Mercury (Hg), (UG/L):                    | 0.           |
| Nitrogen (N), (MG/L):                    | 0.01         |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.01         |
| Ortho, (MG/L):                           | 0.03         |
| Potassium (K), (MG/L):                   | 32           |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 21           |
| Sodium (Na), (MG/L):                     | 270          |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 210          |
| Zinc (Zn), (UG/L):                       | 10           |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 984          |
| As Bicarbonate, (MG/L):                  | 1,200        |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 0            |
| Total, (MG/L):                           | 770          |
| Specific conductance<br>(Micromohs):     | 2,200        |
| Total dissolved<br>solids (TDS), (MG/L): | 1,480        |
| pH, Field                                | 6.3          |
| Discharge (gpm):                         | 130          |
| Temperature (°C):                        | 28           |
| Remarks:                                 |              |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Fremont Natatorium Hot Spring

Location: 38°27'38"N. Latitude; 105°11'46"W. Longitude; T. 18 S., R. 70 W., Sec. 26 6th. P.M., Fremont County

|                                          | Date Sampled |       |       |
|------------------------------------------|--------------|-------|-------|
|                                          | 9/75         | 1/76  | 4/76  |
| Arsenic (As), (UG/L):                    | 0            | -     | -     |
| Boron (B), (UG/L):                       | 90           | 80    | 90    |
| Cadium (Cd), (UG/L):                     | 1            | -     | -     |
| Calcium (Ca), (MG/L):                    | 150          | 140   | 140   |
| Chloride (Cl), (MG/L):                   | 36           | 30    | 30    |
| Fluoride (F), (MG/L):                    | 0.5          | 0.5   | 0.5   |
| Iron (Fe), (UG/L):                       | 880          | 980   | 990   |
| Lithium (Li), (UG/L):                    | 120          | -     | -     |
| Magnesium (Mg), (MG/L):                  | 70           | 67    | 67    |
| Manganese (Mn), (UG/L):                  | 50           | 50    | 40    |
| Mercury (Hg), (UG/L):                    | 0.1          | -     | -     |
| Nitrogen (N), (MG/L):                    | 0.03         | 0.01  | 0.01  |
| Phosphate (PO <sub>4</sub> )             |              |       |       |
| Ortho diss. as P, (MG/L):                | 0            | 0     | 0.01  |
| Ortho, (MG/L):                           | 0            | 0     | 0.03  |
| Potassium (K), (MG/L):                   | 13           | 13    | 12    |
| Selenium (Se), (UG/L):                   | 0            | -     | -     |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 16           | 15    | 15    |
| Sodium (Na), (MG/L):                     | 220          | 210   | 210   |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 550          | 510   | 540   |
| Zinc (Zn), (UG/L):                       | 10           | -     | -     |
| Alkalinity                               |              |       |       |
| As Calcium Carbonate, (MG/L):            | 515          | 519   | 519   |
| As Bicarbonate, (MG/L):                  | 628          | 633   | 633   |
| Hardness                                 |              |       |       |
| Noncarbonate, (MG/L):                    | 150          | 110   | 110   |
| Total, (MG/L):                           | 660          | 630   | 630   |
| Specific conductance<br>(Micromohs):     | 1,900        | 1,900 | 1,850 |
| Total dissolved<br>solids (TDS), (MG/L): | 1,370        | 1,300 | 1,330 |
| pH, Field                                | 6.9          | 6.8   | 6.7   |
| Discharge (gpm):                         | 20           | 20    | 18    |
| Temperature (°C):                        | 35           | 36    | 35    |
| Remarks:                                 |              |       |       |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Fullinwider Warm Spring

Location: 38°18'18"N. Latitude; 105°58'55"W. Longitude; T. 47 N., R. 9 E., Sec. 21 dc, N.M.P.M., Saguache County

|                                          | Date Sampled<br>10/75 |
|------------------------------------------|-----------------------|
| Arsenic (As), (UG/L):                    | 1                     |
| Boron (B), (UG/L):                       | 50                    |
| Cadium (Cd), (UG/L):                     | 0                     |
| Calcium (Ca), (MG/L):                    | 21                    |
| Chloride (Cl), (MG/L):                   | 15                    |
| Fluoride (F), (MG/L):                    | 4.4                   |
| Iron (Fe), (UG/L):                       | 10                    |
| Lithium (Li), (UG/L):                    | 100                   |
| Magnesium (Mg), (MG/L):                  | 4.2                   |
| Manganese (Mn), (UG/L):                  | 5                     |
| Mercury (Hg), (UG/L):                    | 0                     |
| Nitrogen (N), (MG/L):                    | 0.29                  |
| Phosphate (PO <sub>4</sub> )             |                       |
| Ortho diss. as P, (MG/L):                | 0.02                  |
| Ortho, (MG/L):                           | 0.06                  |
| Potassium (K), (MG/L):                   | 1.6                   |
| Selenium (Se), (UG/L):                   | 0                     |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 27                    |
| Sodium (Na), (MG/L):                     | 80                    |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 120                   |
| Zinc (Zn), (UG/L):                       | 8                     |
| Alkalinity                               |                       |
| As Calcium Carbonate, (MG/L):            | 95                    |
| As Bicarbonate, (MG/L):                  | 116                   |
| Hardness                                 |                       |
| Noncarbonate, (MG/L):                    | 0                     |
| Total, (MG/L):                           | 70                    |
| Specific conductance<br>(Micromohs):     | 530                   |
| Total dissolved<br>solids (TDS), (MG/L): | 332                   |
| pH, Field                                | 6.7                   |
| Discharge (gpm):                         | 11                    |
| Temperature (°C):                        | 18                    |
| Remarks:                                 |                       |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Geyser Warm Spring

Location: 37°44'48"N. Latitude; 108°07'02"W. Longitude; T. 40 N, R. 11 W., Sec. 6, N.M.P.M., Dolores County

|                                          | Date Sampled            |
|------------------------------------------|-------------------------|
|                                          | 9/75                    |
| Arsenic (As), (UG/L):                    | 0                       |
| Boron (B), (UG/L):                       | 120                     |
| Cadium (Cd), (UG/L):                     | 0                       |
| Calcium (Ca), (MG/L):                    | 170                     |
| Chloride (Cl), (MG/L):                   | 2.4                     |
| Fluoride (F), (MG/L):                    | 0.4                     |
| Iron (Fe), (UG/L):                       | 20                      |
| Lithium (Li), (UG/L):                    | 280                     |
| Magnesium (Mg), (MG/L):                  | 40                      |
| Manganese (Mn), (UG/L):                  | 700                     |
| Mercury (Hg), (UG/L):                    | 0                       |
| Nitrogen (N), (MG/L):                    | 0.02                    |
| Phosphate (PO <sub>4</sub> )             |                         |
| Ortho diss. as P, (MG/L):                | 0.09                    |
| Ortho, (MG/L):                           | 0.28                    |
| Potassium (K), (MG/L):                   | 29                      |
| Selenium (Se), (UG/L):                   | 0                       |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 37                      |
| Sodium (Na), (MG/L):                     | 400                     |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 68                      |
| Zinc (Zn), (UG/L):                       | 0                       |
| Alkalinity                               |                         |
| As Calcium Carbonate, (MG/L):            | 1,450                   |
| As Bicarbonate, (MG/L):                  | 1,770                   |
| Hardness                                 |                         |
| Noncarbonate, (MG/L):                    | 0                       |
| Total, (MG/L):                           | 590                     |
| Specific conductance<br>(Micromohs):     | 2,500                   |
| Total dissolved<br>solids (TDS), (MG/L): | 1,620                   |
| pH, Field                                | -                       |
| Discharge (gpm):                         | 25-200 <sup>+</sup> -E* |
| Temperature (°C):                        | 28                      |

\*Remarks: Due to geyser like activity discharge varies. Were unable to make accurate measurement of discharge.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Wenwood Springs Area: Big Spring (feeds swimming pool)

Location: 39°32'59"N. Latitude; 107°19'18"W. Longitude; T. 6 S., R. 89 W., Sec. 9 ad, 6th. P.M., Garfield County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 7/75         |
| Arsenic (As), (UG/L):                    | 0            |
| Boron (B), (UG/L):                       | 890          |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 510          |
| Chloride (Cl), (MG/L):                   | 11,000       |
| Fluoride (F), (MG/L):                    | 2.3          |
| Iron (Fe), (UG/L):                       | 60           |
| Lithium (Li), (UG/L):                    | 800          |
| Magnesium (Mg), (MG/L):                  | 91           |
| Manganese (Mn), (UG/L):                  | 80           |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0.01         |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.04         |
| Ortho, (MG/L):                           | 0.12         |
| Potassium (K), (MG/L):                   | 180          |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 32           |
| Sodium (Na), (MG/L):                     | 6,900        |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 1,100        |
| Zinc (Zn), (UG/L):                       | 30           |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 634          |
| As Bicarbonate, (MG/L):                  | 773          |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 1,000        |
| Total, (MG/L):                           | 1,600        |
| Specific conductance<br>(Micromohs):     | 36,800       |
| Total dissolved<br>solids (TDS), (MG/L): | 20,200       |
| pH, Field                                | 6.3          |
| Discharge (gpm):                         | 2,263        |
| Temperature (°C):                        | 50           |

Remarks: Located on north side of Colorado River.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Glenwood Springs Area: Drinking Spring

Location: 39°32'59"N. Latitude; 107°19'19"W. Longitude; T. 6 S., R. 89 W., Sec. 9 ad, 6th P.M., Garfield County

|                                          | Date Sampled |        |        |        |
|------------------------------------------|--------------|--------|--------|--------|
|                                          | 7/75         | 10/75  | 1/76   | 4/76   |
| Arsenic (As), (UG/L):                    | 1            | 1      | -      | -      |
| Boron (B), (UG/L):                       | 910          | 880    | 920    | 870    |
| Cadium (Cd), (UG/L):                     | 0            | 0      | -      | -      |
| Calcium (Ca), (MG/L):                    | 510          | 530    | 500    | 480    |
| Chloride (Cl), (MG/L):                   | 11,000       | 11,000 | 11,000 | 10,000 |
| Fluoride (F), (MG/L):                    | 2.3          | 2.0    | 2.7    | 2.2    |
| Iron (Fe), (UG/L):                       | 20           | 150    | 20     | 40     |
| Lithium (Li), (UG/L):                    | 810          | 900    | -      | -      |
| Magnesium (Mg), (MG/L):                  | 90           | 88     | 82     | 13     |
| Manganese (Mn), (UG/L):                  | 80           | 90     | 70     | 60     |
| Mercury (Hg), (UG/L):                    | 0            | 0      | -      | -      |
| Nitrogen (N), (MG/L):                    | 0.01         | 0      | 0.01   | 0.01   |
| Phosphate (PO <sub>4</sub> )             |              |        |        |        |
| Ortho diss. as P, (MG/L):                | 0.03         | 0.05   | 0.06   | 0.05   |
| Ortho, (MG/L):                           | 0.09         | 0.15   | 0.18   | 0.15   |
| Potassium (K), (MG/L):                   | 180          | 170    | 380    | 180    |
| Selenium (Se), (UG/L):                   | 0            | 0      | -      | -      |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 32           | 29     | 30     | 30     |
| Sodium (Na), (MG/L):                     | 7,000        | 6,900  | 7,000  | 6,600  |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 1,100        | 1,100  | 1,100  | 1,100  |
| Zinc (Zn), (UG/L):                       | 20           | 10     | -      | -      |
| Alkalinity                               |              |        |        |        |
| As Calcium Carbonate, (MG/L):            | 638          | 637    | 634    | 633    |
| As Bicarbonate, (MG/L):                  | 778          | 777    | 773    | 772    |
| Hardness                                 |              |        |        |        |
| Noncarbonate, (MG/L):                    | 1,000        | 1,000  | 950    | 630    |
| Total, (MG/L):                           | 1,600        | 1,700  | 1,600  | 1,300  |
| Specific conductance<br>(Micromohs):     | 36,800       | 30,100 | 31,100 | 30,000 |
| Total dissolved<br>solids (TDS), (MG/L): | 20,300       | 20,200 | 20,500 | 18,800 |
| pH, Field                                | 6.3          | 6.5    | 6.4    | 6.4    |
| Discharge (gpm):                         | -            | -      | 161    | 140    |
| Temperature (°C):                        | 50           | 50     | 51     | 51     |

Remarks: Located approx. 100 feet east of pool.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Glenwood Springs Area: Vapor Caves, Mens Hot Spring

Location: 39°32'59"N. Latitude; 107°19'17"W. Longitude; T. 6 S., R. 89 W., Sec. 9 ad, 6th. P.M., Garfield County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 9/75         |
| Arsenic (As), (UG/L):                    | 1            |
| Boron (B), (UG/L):                       | 870          |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 440          |
| Chloride (Cl), (MG/L):                   | 9,600        |
| Fluoride (F), (MG/L):                    | 1.9          |
| Iron (Fe), (UG/L):                       | 80           |
| Lithium (Li), (UG/L):                    | 670          |
| Magnesium (Mg), (MG/L):                  | 40           |
| Manganese (Mn), (UG/L):                  | 70           |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0.01         |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.03         |
| Ortho, (MG/L):                           | 0.09         |
| Potassium (K), (MG/L):                   | 150          |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 28           |
| Sodium (Na), (MG/L):                     | 6,300        |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 1,100        |
| Zinc (Zn), (UG/L):                       | 20           |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 610          |
| As Bicarbonate, (MG/L):                  | 744          |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 650          |
| Total, (MG/L):                           | 1,300        |
| Specific conductance<br>(Micromohs):     | 31,000       |
| Total dissolved<br>solids (TDS), (MG/L): | 18,000       |
| pH, Field                                | 6.7          |
| Discharge (gpm):                         | 5E           |
| Temperature (°C):                        | 50           |

Remarks: Located on north side of Colorado River

Table 1. ~~Physical Properties~~ and Chemical Analysis of Thermal Waters in Colorado.

Glenwood Springs Area: Graves Spring

Location: 39°33'14"N. Latitude; 107°20'08"W. Longitude; T. 6 S., R. 89 W., Sec. 9 bb, 6th. P.M., Garfield County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 9/75         |
| Arsenic (As), (UG/L):                    | 0            |
| Boron (B), (UG/L):                       | 1,000        |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 770          |
| Chloride (Cl), (MG/L):                   | 11,000       |
| Fluoride (F), (MG/L):                    | 2.9          |
| Iron (Fe), (UG/L):                       | 70           |
| Lithium (Li), (UG/L):                    | 690          |
| Magnesium (Mg), (MG/L):                  | 150          |
| Manganese (Mn), (UG/L):                  | 50           |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0.04         |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.05         |
| Ortho, (MG/L):                           | 0.15         |
| Potassium (K), (MG/L):                   | 180          |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 32           |
| Sodium (Na), (MG/L):                     | 7,000        |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 2,000        |
| Zinc (Zn), (UG/L):                       | 20           |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 610          |
| As Bicarbonate, (MG/L):                  | 744          |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 1,900        |
| Total, (MG/L):                           | 2,500        |
| Specific conductance<br>(Micromohs):     | 33,500       |
| Total dissolved<br>solids (TDS), (MG/L): | 21,500       |
| pH, Field                                | 7.0          |
| Discharge (gpm):                         | 5            |
| Temperature (°C):                        | 46           |

Remarks: Located at 0281 164 Road in Glenwood Springs.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Glenwood Springs Area: Spring A\*

Location: 39°32'58"N. Latitude; 107°19'10"W. Longitude; T. 6 S., R. 89 W., Sec. 9 bb, 6th. P.M., Garfield County

|                                                                             | Date Sampled |
|-----------------------------------------------------------------------------|--------------|
|                                                                             | 7/75         |
| Arsenic (As), (UG/L):                                                       | 0            |
| Boron (B), (UG/L):                                                          | 800          |
| Cadium (Cd), (UG/L):                                                        | 0            |
| Calcium (Ca), (MG/L):                                                       | 410          |
| Chloride (Cl), (MG/L):                                                      | 9,600        |
| Fluoride (F), (MG/L):                                                       | 2.2          |
| Iron (Fe), (UG/L):                                                          | 40           |
| Lithium (Li), (UG/L):                                                       | 730          |
| Magnesium (Mg), (MG/L):                                                     | 88           |
| Manganese (Mn), (UG/L):                                                     | 70           |
| Mercury (Hg), (UG/L):                                                       | 0            |
| Nitrogen (N), (MG/L):                                                       | 0.01         |
| Phosphate (PO <sub>4</sub> )                                                |              |
| Ortho diss. as P, (MG/L):                                                   | 0.03         |
| Ortho, (MG/L):                                                              | 0.09         |
| Potassium (K), (MG/L):                                                      | 160          |
| Selenium (Se), (UG/L):                                                      | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):                                         | 30           |
| Sodium (Na), (MG/L):                                                        | 6,000        |
| Sulfate (SO <sub>4</sub> ), (MG/L):                                         | 980          |
| Zinc (Zn), (UG/L):                                                          | 20           |
| Alkalinity                                                                  |              |
| As Calcium Carbonate, (MG/L):                                               | 604          |
| As Bicarbonate, (MG/L):                                                     | 736          |
| Hardness                                                                    |              |
| Noncarbonate, (MG/L):                                                       | 780          |
| Total, (MG/L):                                                              | 1,400        |
| Specific conductance<br>(Micromohs):                                        | 31,000       |
| Total dissolved<br>solids (TDS), (MG/L):                                    | 17,600       |
| pH, Field                                                                   | 6.3          |
| Discharge (gpm):                                                            | 2-3E         |
| Temperature (°C):                                                           | 44           |
| *Remarks: Located on south side of Colorado River, 480 feet west of siphon. |              |

Table 1. ~~Physical Properties~~ and Chemical Analysis of Thermal Waters in Colorado.

Glenwood Springs Area: Spring B<sup>\*</sup>

Location: 39°33'02"N. Latitude; 107°19'04"W. Longitude; T. 6 S., R. 89 W., Sec. 10 cb, 6th. P.M., Garfield County

|                                          | Date Sampled |        |        |        |
|------------------------------------------|--------------|--------|--------|--------|
|                                          | 7/75         | 10/75  | 1/76   | 4/76   |
| Arsenic (As), (UG/L):                    | 0            | 1      | -      | -      |
| Boron (B), (UG/L):                       | 760          | 830    | 840    | 840    |
| Cadium (Cd), (UG/L):                     | 0            | 0      | -      | -      |
| Calcium (Ca), (MG/L):                    | 450          | 490    | 49     | 360    |
| Chloride (Cl), (MG/L):                   | 9,900        | 9,800  | 9,500  | 9,500  |
| Fluoride (F), (MG/L):                    | 2.1          | 2.3    | 2.1    | 2.1    |
| Iron (Fe), (UG/L):                       | 30           | 60     | 30     | 40     |
| Lithium (Li), (UG/L):                    | 800          | 860    | -      | -      |
| Magnesium (Mg), (MG/L):                  | 86           | 79     | 76     | 86     |
| Manganese (Mn), (UG/L):                  | 70           | 70     | 70     | 60     |
| Mercury (Hg), (UG/L):                    | 0            | 0      | -      | -      |
| Nitrogen (N), (MG/L):                    | 0.02         | 0.18   | 0.01   | 0      |
| Phosphate (PO <sub>4</sub> )             |              |        |        |        |
| Ortho diss. as P, (MG/L):                | 0.01         | 0.03   | 0.04   | 0.04   |
| Ortho, (MG/L):                           | 0.03         | 0.09   | 0.12   | 0.12   |
| Potassium (K), (MG/L):                   | 170          | 160    | 190    | 170    |
| Selenium (Se), (UG/L):                   | 0            | 0      | -      | -      |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 30           | 27     | 28     | 28     |
| Sodium (Na), (MG/L):                     | 6,300        | 6,400  | 6,500  | 6,300  |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 1,000        | 1,100  | 1,000  | 990    |
| Zinc (Zn), (UG/L):                       | 20           | 20     | -      | -      |
| Alkalinity                               |              |        |        |        |
| As Calcium Carbonate, (MG/L):            | 613          | 617    | 614    | 612    |
| As Bicarbonate, (MG/L):                  | 747          | 752    | 749    | 746    |
| Hardness                                 |              |        |        |        |
| Noncarbonate, (MG/L):                    | 870          | 930    | 0      | 640    |
| Total, (MG/L):                           | 1,500        | 1,600  | 440    | 1,300  |
| Specific conductance<br>(Micromohs):     | 35,000       | 31,000 | 29,100 | 29,700 |
| Total dissolved<br>solids (TDS), (MG/L): | 18,300       | 18,400 | 17,700 | 17,800 |
| pH, Field                                | 6.5          | 7.0    | 6.7    | 7.0    |
| Discharge (gpm):                         | 75           | 75     | 100    | 110    |
| Temperature (°C):                        | 51           | 50     | 51     | 51     |

\* Remarks: Located on south side of Colorado River 27 feet west of siphon.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Glenwood Springs Area: Spring D<sup>\*</sup>

Location: 39°33'05"N Latitude; 107°19'00"W. Longitude; T. 6 S., R. 89 W., Sec. 10 cb, 6th. P.M., Garfield County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 7/75         |
| Arsenic (As), (UG/L):                    | 0            |
| Boron (B), (UG/L):                       | 810          |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 450          |
| Chloride (Cl <sup>-</sup> ), (MG/L):     | 9,800        |
| Fluoride (F), (MG/L):                    | 2.1          |
| Iron (Fe), (UG/L):                       | 30           |
| Lithium (Li), (UG/L):                    | 800          |
| Magnesium (Mg), (MG/L):                  | 82           |
| Manganese (Mn), (UG/L):                  | 70           |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0.01         |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.03         |
| Ortho, (MG/L):                           | 0.09         |
| Potassium (K), (MG/L):                   | 160          |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 30           |
| Sodium (Na), (MG/L):                     | 89           |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 1,000        |
| Zinc (Zn), (UG/L):                       | 10           |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 611          |
| As Bicarbonate, (MG/L):                  | 745          |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 850          |
| Total, (MG/L):                           | 1,500        |
| Specific conductance<br>(Micromohs):     | 36,000       |
| Total dissolved<br>solids (TDS), (MG/L): | 18,000       |
| pH, Field                                | 6.4          |
| Discharge (gpm):                         | 74           |
| Temperature (°C):                        | 50           |

\* Remarks: Located on south side of Colorado River, 225 feet east of siphon

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Glenwood Springs Area: Railroad Spring\*

Location: 39°33'16"N. Latitude; 107°18'51"W. Longitude; T. 6 S., R. 88 W., Sec. 10 bab, 6th. P.M., Garfield County

|                                          | Date Sampled |        |
|------------------------------------------|--------------|--------|
|                                          | 1/76         | 4/76   |
| Arsenic (As), (UG/L):                    | -            | -      |
| Boron (B), (UG/L):                       | 850          | 890    |
| Cadium (Cd), (UG/L):                     | -            | -      |
| Calcium (Ca), (MG/L):                    | 460          | 460    |
| Chloride (Cl), (MG/L):                   | 10,000       | 10,000 |
| Fluoride (F), (MG/L):                    | 2.4          | 2.1    |
| Iron (Fe), (UG/L):                       | 20           | 40     |
| Lithium (Li), (UG/L):                    | -            | -      |
| Magnesium (Mg), (MG/L):                  | 80           | 86     |
| Manganese (Mn), (UG/L):                  | 70           | 80     |
| Mercury (Hg), (UG/L):                    | -            | -      |
| Nitrogen (N), (MG/L):                    | 0.01         | 0.01   |
| Phosphate (PO <sub>4</sub> )             |              |        |
| Ortho diss. as P, (MG/L):                | 0.04         | 0.04   |
| Ortho, (MG/L):                           | 0.12         | 0.12   |
| Potassium (K), (MG/L):                   | 200          | 180    |
| Selenium (Se), (UG/L):                   | -            | -      |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 29           | 29     |
| Sodium (Na), (MG/L):                     | 6,100        | 6,200  |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 1,100        | 880    |
| Zinc (Zn), (UG/L):                       | -            | -      |
| Alkalinity                               |              |        |
| As Calcium Carbonate, (MG/L):            | 636          | 627    |
| As Bicarbonate, (MG/L):                  | 775          | 764    |
| Hardness                                 |              |        |
| Noncarbonate, (MG/L):                    | 840          | 880    |
| Total, (MG/L):                           | 1,500        | 1,500  |
| Specific conductance<br>(Micromohs):     | 30,500       | 29,900 |
| Total dissolved<br>solids (TDS), (MG/L): | 18,400       | 18,200 |
| pH, Field                                | 7.1          | 6.5    |
| Discharge (gpm):                         | 75           | 75     |
| Temperature (°C):                        | 51           | 51     |

\* Remarks: Located on south side of Colorado River west of railroad tunnel.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Glenwood Springs Area: Spring C

Location:  $39^{\circ}32'02''$ N. Latitude;  $107^{\circ}19'02''$ W. Longitude; T. 6 S., R. 89 W., Sec. 10 cb, 6th P.M., Garfield County

Temperature:  $46^{\circ}\text{C}$

Discharge: 2-3 gpm

Specific conductance:--

Remarks: Located 170 feet east of siphon pipe on south side of Colorado River.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Hartsel Hot Springs: Spring A

Location: 39°01'05"N. Latitude; 105°47'40"W. Longitude; T. 12 S., R. 75 W., Sec. 8 da, 6th P.M., Park County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 6/75         |
| Arsenic (As), (UG/L):                    | 2            |
| Boron (B), (UG/L):                       | 560          |
| Cadium (Cd), (UG/L):                     | 1            |
| Calcium (Ca), (MG/L):                    | 120          |
| Chloride (Cl), (MG/L):                   | 820          |
| Fluoride (F), (MG/L):                    | 2.1          |
| Iron (Fe), (UG/L):                       | 170          |
| Lithium (Li), (UG/L):                    | 1,000        |
| Magnesium (Mg), (MG/L):                  | 20           |
| Manganese (Mn), (UG/L):                  | 150          |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0.22         |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.04         |
| Ortho, (MG/L):                           | 0.12         |
| Potassium (K), (MG/L):                   | 33           |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 41           |
| Sodium (Na), (MG/L):                     | 680          |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 320          |
| Zinc (Zn), (UG/L):                       | 10           |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 393          |
| As Bicarbonate, (MG/L):                  | 479          |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 0            |
| Total, (MG/L):                           | 380          |
| Specific conductance<br>(Micromohs):     | 3,780        |
| Total dissolved<br>solids (TDS), (MG/L): | 2,280        |
| pH, Field                                | -            |
| Discharge (gpm):                         | -            |
| Temperature (°C):                        | 52           |
| Remarks: Western most spring             |              |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Hartsel Hot Springs: Spring B

Location: 39°01'05"N. Latitude; 105°47'39"W. Longitude; T. 12 S., R. 75 W., Sec. 8 da, 6th P.M., Park County

|                                          | Date Sampled |       |       |       |
|------------------------------------------|--------------|-------|-------|-------|
|                                          | 6/75         | 10/75 | 1/76  | 4/76  |
| Arsenic (As), (UG/L):                    | 2            | 1     | -     | -     |
| Boron (B), (UG/L):                       | 550          | 540   | 510   | 380   |
| Cadium (Cd), (UG/L):                     | 1            | 0     | -     | -     |
| Calcium (Ca), (MG/L):                    | 120          | 110   | 120   | 120   |
| Chloride (Cl), (MG/L):                   | 780          | 820   | 820   | 820   |
| Fluoride (F), (MG/L):                    | 2            | 1.8   | 2.0   | 2.0   |
| Iron (Fe), (UG/L):                       | 520          | 570   | 450   | 420   |
| Lithium (Li), (UG/L):                    | 1,000        | 1,000 | -     | -     |
| Magnesium (Mg), (MG/L):                  | 20           | 20    | 19    | 21    |
| Manganese (Mn), (UG/L):                  | 180          | 210   | 180   | 170   |
| Mercury (Hg), (UG/L):                    | 0.1          | 0.1   | -     | -     |
| Nitrogen (N), (MG/L):                    | 0.03         | 0.03  | 0.03  | 0.06  |
| Phosphate (PO <sub>4</sub> )             |              |       |       |       |
| Ortho diss. as P, (MG/L):                | 0.03         | 0     | 0.01  | 0.01  |
| Ortho, (MG/L):                           | 0.09         | 0     | 0.03  | 0.03  |
| Potassium (K), (MG/L):                   | 32           | 33    | 34    | 33    |
| Selenium (Se), (UG/L):                   | 0            | 0     | -     | -     |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 38           | 35    | 36    | 37    |
| Sodium (Na), (MG/L):                     | 650          | 670   | 710   | 670   |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 260          | 320   | 320   | 380   |
| Zinc (Zn), (UG/L):                       | 10           | 10    | -     | -     |
| Alkalinity                               |              |       |       |       |
| As Calcium Carbonate, (MG/L):            | 397          | 413   | 410   | 403   |
| As Bicarbonate, (MG/L):                  | 484          | 503   | 500   | 491   |
| Hardness                                 |              |       |       |       |
| Noncarbonate, (MG/L):                    | 0            | 0     | 0     | 0     |
| Total, (MG/L):                           | 380          | 360   | 380   | 390   |
| Specific conductance<br>(Micromohs):     | 3,850        | 3,600 | 3,800 | 3,800 |
| Total dissolved<br>solids (TDS), (MG/L): | 2,140        | 2,260 | 2,310 | 2,330 |
| pH, Field                                | -            | 7.0   | 6.6   | 6.6   |
| Discharge (gpm):                         | -            | 40    | 48    | 50    |
| Temperature (°C):                        | 52           | 45    | 45    | 45    |

Remarks: Eastern most spring.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Haystack Butte Warm Water Well

Location: 40°05'48"N. Latitude; 105°14'16"W. Longitude; T. 2 N., R. 70 W., Sec. 33 ba, 6th P.M., Boulder County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 9/75         |
| Arsenic (As), (UG/L):                    | 0            |
| Boron (B), (UG/L):                       | 740          |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 2.5          |
| Chloride (Cl), (MG/L):                   | 30           |
| Fluoride (F), (MG/L):                    | 4.4          |
| Iron (Fe), (UG/L):                       | 50           |
| Lithium (Li), (UG/L):                    | 240          |
| Magnesium (Mg), (MG/L):                  | 0.7          |
| Manganese (Mn), (UG/L):                  | 0            |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0.03         |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.03         |
| Ortho, (MG/L):                           | 0.09         |
| Potassium (K), (MG/L):                   | 1.3          |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 29           |
| Sodium (Na), (MG/L):                     | 510          |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 7.9          |
| Zinc (Zn), (UG/L):                       | 0            |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 1,030        |
| As Bicarbonate, (MG/L):                  | 1,250        |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 0            |
| Total, (MG/L):                           | 9            |
| Specific conductance<br>(Micromohs):     | 1,840        |
| Total dissolved<br>solids (TDS), (MG/L): | 1,200        |
| pH, Field                                | 8.0          |
| Discharge (gpm):                         | 4E           |
| Temperature (°C):                        | 28           |
| Remarks:                                 |              |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Hot Sulphur Springs: Spring A

Location: 40°04'33"N. Latitude; 106°06'43"W. Longitude; T. 1 N., R. 78 W., Sec. 3 dc, 6th P.M., Grand County

|                                          | Date Sampled |       |       |       |
|------------------------------------------|--------------|-------|-------|-------|
|                                          | 7/75         | 10/75 | 1/76  | 4/76  |
| Arsenic (As), (UG/L):                    | 6            | 5     | -     | -     |
| Boron (B), (UG/L):                       | 570          | 560   | 480   | 560   |
| Cadium (Cd), (UG/L):                     | 0            | 0     | -     | -     |
| Calcium (Ca), (MG/L):                    | 14           | 15    | 15    | 15    |
| Chloride (Cl), (MG/L):                   | 140          | 140   | 140   | 120   |
| Fluoride (F), (MG/L):                    | 12           | 9.4   | 13    | 12    |
| Iron (Fe), (UG/L):                       | 20           | 80    | 10    | 30    |
| Lithium (Li), (UG/L):                    | 1,100        | 1,500 | -     | -     |
| Magnesium (Mg), (MG/L):                  | 3.7          | 3.6   | 3.2   | 3.9   |
| Manganese (Mn), (UG/L):                  | 70           | 70    | 80    | 90    |
| Mercury (Hg), (UG/L):                    | 0            | 0     | -     | -     |
| Nitrogen (N), (MG/L):                    | 0.02         | 0     | 0.13  | 0.01  |
| Phosphate (PO <sub>4</sub> )             |              |       |       |       |
| Ortho diss. as P, (MG/L):                | 0.01         | 0.01  | 0.01  | 0.03  |
| Ortho, (MG/L):                           | 0.03         | 0.03  | 0.03  | 0.09  |
| Potassium (K), (MG/L):                   | 25           | 23    | 23    | 23    |
| Selenium (Se), (UG/L):                   | 0            | 0     | -     | -     |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 35           | 31    | 31    | 33    |
| Sodium (Na), (MG/L):                     | 430          | 440   | 450   | 420   |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 140          | 140   | 130   | 120   |
| Zinc (Zn), (UG/L):                       | 0            | 10    | -     | -     |
| Alkalinity                               |              |       |       |       |
| As Calcium Carbonate, (MG/L):            | 667          | 668   | 680   | 689   |
| As Bicarbonate, (MG/L):                  | 813          | 815   | 829   | 840   |
| Hardness                                 |              |       |       |       |
| Noncarbonate, (MG/L):                    | 0            | 0     | 0     | 0     |
| Total, (MG/L):                           | 50           | 52    | 51    | 54    |
| Specific conductance<br>(Micromohs):     | 1,920        | 1,800 | 1,930 | 1,900 |
| Total dissolved<br>solids (TDS), (MG/L): | 1,200        | 1,210 | 1,220 | 1,160 |
| pH, Field                                | 6.6          | 7.1   | 6.9   | 6.9   |
| Discharge (gpm):                         | --           | 12    | 12    | 13    |
| Temperature (°C):                        | 44           | 44    | 44    | 44    |

Remarks: Located approx. 250 feet north of lodge.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Hot Sulphur Springs: Spring B

Location: 40°04'33"N. Latitude; 106°06'44"W. Longitude; T. 1 N., R. 78 W., Sec. 3 dc, 6th P.M., Grand County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 7/75         |
| Arsenic (As), (UG/L):                    | 5            |
| Boron (B), (UG/L):                       | 570          |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 15           |
| Chloride (Cl), (MG/L):                   | 140          |
| Fluoride (F), (MG/L):                    | 12           |
| Iron (Fe), (UG/L):                       | 100          |
| Lithium (Li), (UG/L):                    | 1,100        |
| Magnesium (Mg), (MG/L):                  | 3.1          |
| Manganese (Mn), (UG/L):                  | 80           |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0            |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.04         |
| Ortho, (MG/L):                           | 0.12         |
| Potassium (K), (MG/L):                   | 24           |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 35           |
| Sodium (Na), (MG/L):                     | 430          |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 140          |
| Zinc (Zn), (UG/L):                       | 0            |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 670          |
| As Bicarbonate, (MG/L):                  | 817          |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 0            |
| Total, (MG/L):                           | 50           |
| Specific conductance<br>(Micromohs):     | 1,850        |
| Total dissolved<br>solids (TDS), (MG/L): | 1,200        |
| pH, Field                                | 6.7          |
| Discharge (gpm):                         | 1            |
| Temperature (°C):                        | 41           |

Remarks: Located approx. 75 feet northwest of Spring A in collection box.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Hot Sulphur Springs: Spring C

Location: 40°04'33"N. Latitude; 106°06'45"W. Longitude; T. 1 N., R. 78 W., Sec. 3 dc, 6th P.M., Grand County

|                                          | Date Sampled |       |
|------------------------------------------|--------------|-------|
|                                          | 7/75         | 10/75 |
| Arsenic (As), (UG/L):                    | 4            | 6     |
| Boron (B), (UG/L):                       | 530          | 560   |
| Cadium (Cd), (UG/L):                     | 0            | 0     |
| Calcium (Ca), (MG/L):                    | 15           | 15    |
| Chloride (Cl), (MG/L):                   | 140          | 140   |
| Fluoride (F), (MG/L):                    | 12           | 9.5   |
| Iron (Fe), (UG/L):                       | 60           | 120   |
| Lithium (Li), (UG/L):                    | 1,100        | 1,500 |
| Magnesium (Mg), (MG/L):                  | 3.5          | 3.2   |
| Manganese (Mn), (UG/L):                  | 90           | 70    |
| Mercury (Hg), (UG/L):                    | 0            | 0     |
| Nitrogen (N), (MG/L):                    | 0            | 0     |
| Phosphate (PO <sub>4</sub> )             |              |       |
| Ortho diss. as P, (MG/L):                | 0            | 0.01  |
| Ortho, (MG/L):                           | 0            | 0.03  |
| Potassium (K), (MG/L):                   | 25           | 22    |
| Selenium (Se), (UG/L):                   | 0            | 0     |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 35           | 31    |
| Sodium (Na), (MG/L):                     | 440          | 430   |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 140          | 130   |
| Zinc (Zn), (UG/L):                       | 0            | 10    |
| Alkalinity                               |              |       |
| As Calcium Carbonate, (MG/L):            | 668          | 679   |
| As Bicarbonate, (MG/L):                  | 814          | 828   |
| Hardness                                 |              |       |
| Noncarbonate, (MG/L):                    | 0            | 0     |
| Total, (MG/L):                           | 52           | 51    |
| Specific conductance<br>(Micromohs):     | 1,870        | 1,700 |
| Total dissolved<br>solids (TDS), (MG/L): | 1,210        | 1,190 |
| pH, Field                                | 6.8          | 7.1   |
| Discharge (gpm):                         | 3            | 15    |
| Temperature (°C):                        | 40           | 40    |

Remarks: Located at base of north wall of indoor swimming pool building.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Hot Sulphur Springs: Spring D

Location: 40°04'32"N. Latitude; 106°06'45"W. Longitude; T. 1 N., R. 78 W., Sec. 3 dc, 6th P.M., Grand County

Date Sampled

10/75

|                                          |       |
|------------------------------------------|-------|
| Arsenic (As), (UG/L):                    | 9     |
| Boron (B), (UG/L):                       | 570   |
| Cadium (Cd), (UG/L):                     | 0     |
| Calcium (Ca), (MG/L):                    | 16    |
| Chloride (Cl), (MG/L):                   | 140   |
| Fluoride (F), (MG/L):                    | 9.1   |
| Iron (Fe), (UG/L):                       | 200   |
| Lithium (Li), (UG/L):                    | 1,500 |
| Magnesium (Mg), (MG/L):                  | 3.0   |
| Manganese (Mn), (UG/L):                  | 90    |
| Mercury (Hg), (UG/L):                    | 0.1   |
| Nitrogen (N), (MG/L):                    | 0.02  |
| Phosphate (PO <sub>4</sub> )             |       |
| Ortho diss. as P, (MG/L):                | 0     |
| Ortho, (MG/L):                           | 0     |
| Potassium (K), (MG/L):                   | 23    |
| Selenium (Se), (UG/L):                   | 0     |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 30    |
| Sodium (Na), (MG/L):                     | 430   |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 150   |
| Zinc (Zn), (UG/L):                       | 20    |
| Alkalinity                               |       |
| As Calcium Carbonate, (MG/L):            | 648   |
| As Bicarbonate, (MG/L):                  | 790   |
| Hardness                                 |       |
| Noncarbonate, (MG/L):                    | 0     |
| Total, (MG/L):                           | 52    |
| Specific conductance<br>(Micromohs):     | 1,800 |
| Total dissolved<br>solids (TDS), (MG/L): | 1,190 |
| pH, Field                                | 7.1   |
| Discharge (gpm):                         | 23    |
| Temperature (°C):                        | 40    |

Remarks: Located approx. 50 feet south of pool building in marshy area.

**Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.**

Idaho Hot Springs: Spring A

Location: 39°44'20"N. Latitude; 105°30'43"W. Longitude; T. 4 S., R. 73 W., Sec. 1 ba, 6th P.M., Clear Creek County

|                                          | Date Sampled |       |       |       |
|------------------------------------------|--------------|-------|-------|-------|
|                                          | 7/75         | 10/75 | 2/76  | 4/76  |
| Arsenic (As), (UG/L):                    | 20           | 19    | -     | -     |
| Boron (B), (UG/L):                       | 350          | 360   | 300   | 470   |
| Cadium (Cd), (UG/L):                     | 0            | 1     | -     | -     |
| Calcium (Ca), (MG/L):                    | 140          | 150   | 130   | 130   |
| Chloride (Cl), (MG/L):                   | 66           | 66    | 64    | 66    |
| Fluoride (F), (MG/L):                    | 4.8          | 3.7   | 4.1   | 4.1   |
| Iron (Fe), (UG/L):                       | 20           | 70    | 10    | 110   |
| Lithium (Li), (UG/L):                    | 640          | 900   | -     | -     |
| Magnesium (Mg), (MG/L):                  | 36           | 40    | 34    | 36    |
| Manganese (Mn), (UG/L):                  | 40           | 40    | 70    | 60    |
| Mercury (Hg), (UG/L):                    | 0            | 0.2   | -     | -     |
| Nitrogen (N), (MG/L):                    | 0.13         | 0.05  | 0.20  | 0.15  |
| Phosphate (PO <sub>4</sub> )             |              |       |       |       |
| Ortho diss. as P, (MG/L):                | 0.11         | 0.03  | 0.02  | 0.06  |
| Ortho, (MG/L):                           | 0.34         | 0.09  | 0.06  | 0.18  |
| Potassium (K), (MG/L):                   | 80           | 84    | 71    | 76    |
| Selenium (Se), (UG/L):                   | 0            | 0     | -     | -     |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 68           | 58    | 74    | 60    |
| Sodium (Na), (MG/L):                     | 500          | 530   | 490   | 500   |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 380          | 430   | 400   | 380   |
| Zinc (Zn), (UG/L):                       | 10           | 10    | -     | -     |
| Alkalinity                               |              |       |       |       |
| As Calcium Carbonate, (MG/L):            | 1,240        | 1,250 | 1,140 | 1,140 |
| As Bicarbonate, (MG/L):                  | 1,510        | 1,520 | 1,390 | 1,390 |
| Hardness                                 |              |       |       |       |
| Noncarbonate, (MG/L):                    | 0            | 0     | 0     | 0     |
| Total, (MG/L):                           | 500          | 540   | 460   | 470   |
| Specific conductance<br>(Micromohs):     | 3,400        | 2,800 | 2,760 | 2,600 |
| Total dissolved<br>solids (TDS), (MG/L): | 2,020        | 2,110 | 1,950 | 1,940 |
| pH, Field                                | -            | 6.9   | 6.7   | 6.9   |
| Discharge (gpm):                         | 21           | -     | -     | -     |
| Temperature (°C):                        | 45           | 40    | 40    | 40    |

**Remarks:** Located 75 feet south of lodge, east of the creek in the cliff.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Idaho Hot Springs: Spring B

Location: 39°44'21"N. Latitude; 105°30'43"W. Longitude; T. 3 S., R. 73 W., Sec. 36 cd, 6th P.M., Clear Creek County

|                                                                                 | Date Sampled |
|---------------------------------------------------------------------------------|--------------|
|                                                                                 | 7/75         |
| Arsenic (As), (UG/L):                                                           | 12           |
| Boron (B), (UG/L):                                                              | 370          |
| Cadium (Cd), (UG/L):                                                            | 0            |
| Calcium (Ca), (MG/L):                                                           | 130          |
| Chloride (Cl), (MG/L):                                                          | 69           |
| Fluoride (F), (MG/L):                                                           | 4.8          |
| Iron (Fe), (UG/L):                                                              | 20           |
| Lithium (Li), (UG/L):                                                           | 660          |
| Magnesium (Mg), (MG/L):                                                         | 50           |
| Manganese (Mn), (UG/L):                                                         | 20           |
| Mercury (Hg), (UG/L):                                                           | 0.1          |
| Nitrogen (N), (MG/L):                                                           | 0.08         |
| Phosphate (PO <sub>4</sub> )                                                    |              |
| Ortho diss. as P, (MG/L):                                                       | 0.06         |
| Ortho, (MG/L):                                                                  | 0.18         |
| Potassium (K), (MG/L):                                                          | 82           |
| Selenium (Se), (UG/L):                                                          | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):                                             | 68           |
| Sodium (Na), (MG/L):                                                            | 520          |
| Sulfate (SO <sub>4</sub> ), (MG/L):                                             | 400          |
| Zinc (Zn), (UG/L):                                                              | 10           |
| Alkalinity                                                                      |              |
| As Calcium Carbonate, (MG/L):                                                   | 1,250        |
| As Bicarbonate, (MG/L):                                                         | 1,520        |
| Hardness                                                                        |              |
| Noncarbonate, (MG/L):                                                           | 0            |
| Total, (MG/L):                                                                  | 530          |
| Specific conductance<br>(Micromohs):                                            | 2,900        |
| Total dissolved<br>solids (TDS), (MG/L):                                        | 2,070        |
| pH, Field                                                                       | -            |
| Discharge (gpm):                                                                | -            |
| Temperature (°C):                                                               | 24           |
| Remarks: Located 50 feet east of the southeast corner of the lodge in th cliff. |              |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Idaho Hot Springs: Spring C

Location: 39°44'19"N. Latitude; 105°30'43"W. Longitude; T. 4 S., R. 73 W., Sec. 1 ba, 6th P.M., Clear Creek County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 7/75         |
| Arsenic (As), (UG/L):                    | 2            |
| Boron (B), (UG/L):                       | 170          |
| Cadium (Cd), (UG/L):                     | 1            |
| Calcium (Ca), (MG/L):                    | 77           |
| Chloride (Cl), (MG/L):                   | 36           |
| Fluoride (F), (MG/L):                    | 2.9          |
| Iron (Fe), (UG/L):                       | 40           |
| Lithium (Li), (UG/L):                    | 340          |
| Magnesium (Mg), (MG/L):                  | 23           |
| Manganese (Mn), (UG/L):                  | 40           |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0.13         |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.01         |
| Ortho, (MG/L):                           | 0.03         |
| Potassium (K), (MG/L):                   | 44           |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 45           |
| Sodium (Na), (MG/L):                     | 260          |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 210          |
| Zinc (Zn), (UG/L):                       | 20           |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 623          |
| As Bicarbonate, (MG/L):                  | 759          |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 0            |
| Total, (MG/L):                           | 290          |
| Specific conductance<br>(Micromohs):     | 1,620        |
| Total dissolved<br>solids (TDS), (MG/L): | 1,070        |
| pH, Field                                | -            |
| Discharge (gpm):                         | 1            |
| Temperature (°C):                        | 20           |

Remarks Located 100 feet south of lodge and east of the creek.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Idaho Hot Springs: Lodge Hot Water Well

Location: 39°44'22"N. Latitude; 105°30'43"W. Longitude; T. 3 S., R. 73 W., Sec. 36 cd, 6th P.M., Clear Creek County

|                                                                                  | Date Sampled |
|----------------------------------------------------------------------------------|--------------|
|                                                                                  | 10/75        |
| Arsenic (As), (UG/L):                                                            | 46           |
| Boron (B), (UG/L):                                                               | 360          |
| Cadium (Cd), (UG/L):                                                             | 0            |
| Calcium (Ca), (MG/L):                                                            | 150          |
| Chloride (Cl), (MG/L):                                                           | 66           |
| Fluoride (F), (MG/L):                                                            | 3.5          |
| Iron (Fe), (UG/L):                                                               | 1,000        |
| Lithium (Li), (UG/L):                                                            | 870          |
| Magnesium (Mg), (MG/L):                                                          | 38           |
| Manganese (Mn), (UG/L):                                                          | 70           |
| Mercury (Hg), (UG/L):                                                            | 0            |
| Nitrogen (N), (MG/L):                                                            | 0            |
| Phosphate (PO <sub>4</sub> )                                                     |              |
| Ortho diss. as P, (MG/L):                                                        | 0.05         |
| Ortho, (MG/L):                                                                   | 0.15         |
| Potassium (K), (MG/L):                                                           | 82           |
| Selenium (Se), (UG/L):                                                           | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):                                              | 58           |
| Sodium (Na), (MG/L):                                                             | 520          |
| Sulfate (SO <sub>4</sub> ), (MG/L):                                              | 420          |
| Zinc (Zn), (UG/L):                                                               | 10           |
| Alkalinity                                                                       |              |
| As Calcium Carbonate, (MG/L):                                                    | 1,220        |
| As Bicarbonate, (MG/L):                                                          | 1,490        |
| Hardness                                                                         |              |
| Noncarbonate, (MG/L):                                                            | 0            |
| Total, (MG/L):                                                                   | 530          |
| Specific conductance<br>(Micromohs):                                             | 2,920        |
| Total dissolved<br>solids (TDS), (MG/L):                                         | 2,070        |
| pH, Field                                                                        | 6.9          |
| Discharge (gpm):                                                                 | 30           |
| Temperature (°C):                                                                | 46           |
| Remarks: Located at south end of swimming pool, approx. 100 feet north of lodge. |              |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Juniper Hot Springs

Location: 40°28'01"N. Latitude; 107°57'10"W. Longitude; T. 6 N., R. 94 W., Sec. 16 cd, 6th P.M., Moffat County

|                                          | Date Sampled |       |       |       |
|------------------------------------------|--------------|-------|-------|-------|
|                                          | 7/75         | 10/75 | 1/76  | 4/76  |
| Arsenic (As), (UG/L):                    | 0            | 1     | -     | -     |
| Boron (B), (UG/L):                       | 540          | 550   | 480   | 520   |
| Cadium (Cd), (UG/L):                     | 1            | 0     | -     | -     |
| Calcium (Ca), (MG/L):                    | 3.7          | 2.9   | 3.9   | 3.3   |
| Chloride (Cl), (MG/L):                   | 94           | 93    | 89    | 90    |
| Fluoride (F), (MG/L):                    | 4            | 3.1   | 3.3   | 3.3   |
| Iron (Fe), (UG/L):                       | 10           | 10    | 10    | 20    |
| Lithium (Li), (UG/L):                    | 170          | 250   | -     | -     |
| Magnesium (Mg), (MG/L):                  | 0.8          | 0.4   | 0.3   | 0.3   |
| Manganese (Mn), (UG/L):                  | 10           | 10    | 0     | 0     |
| Mercury (Hg), (UG/L):                    | 0.2          | 0     | -     | -     |
| Nitrogen (N), (MG/L):                    | 0.05         | 0.01  | 0.10  | 0.01  |
| Phosphate (PO <sub>4</sub> )             |              |       |       |       |
| Ortho diss. as P, (MG/L):                | 0.01         | 0.01  | 0.03  | 0.03  |
| Ortho, (MG/L):                           | 0.03         | 0.03  | 0.09  | 0.09  |
| Potassium (K), (MG/L):                   | 2.3          | 2.0   | 2.2   | 2.1   |
| Selenium (Se), (UG/L):                   | 0            | 0     | -     | -     |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 33           | 29    | 31    | 32    |
| Sodium (Na), (MG/L):                     | 460          | 480   | 470   | 460   |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 12           | 8.3   | 20    | 13    |
| Zinc (Zn), (UG/L):                       | 0            | 10    | -     | -     |
| Alkalinity                               |              |       |       |       |
| As Calcium Carbonate, (MG/L):            | 902          | 894   | 894   | 902   |
| As Bicarbonate, (MG/L):                  | 1,100        | 1,090 | 1,090 | 1,100 |
| Hardness                                 |              |       |       |       |
| Noncarbonate, (MG/L):                    | 0            | 0     | 0     | 0     |
| Total, (MG/L):                           | 13           | 9     | 11    | 9     |
| Specific conductance<br>(Micromohs):     | 1,900        | 1,900 | 1,800 | 1,850 |
| Total dissolved<br>solids (TDS), (MG/L): | 1,150        | 1,160 | 1,160 | 1,150 |
| pH, Field                                | 7.8          | 8.0   | 8.2   | 7.9   |
| Discharge (gpm):                         | 13           | 14    | 13    | 18    |
| Temperature (°C):                        | 38           | 33    | 37    | 36    |
| Remarks:                                 |              |       |       |       |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Lemon Hot Spring

Location: 38°51'00"N. Latitude; 108°03'11"W. Longitude; T. 44 N., R. 11 W., Sec. 34 dd, N.M.P.M., San Miguel County

|                                       | Date Sampled |       |       |
|---------------------------------------|--------------|-------|-------|
|                                       | 9/75         | 1/76  | 4/76  |
| Arsenic (As), (UG/L):                 | 240          | -     | -     |
| Boron (B), (UG/L):                    | 2,600        | 490   | 2,500 |
| Cadium (Cd), (UG/L):                  | 0            | -     | -     |
| Calcium (Ca), (MG/L):                 | 140          | 150   | 150   |
| Chloride (Cl), (MG/L):                | 260          | 280   | 270   |
| Fluoride (F), (MG/L):                 | 4.7          | 4.9   | 5.0   |
| Iron (Fe), (UG/L):                    | 850          | 890   | 840   |
| Lithium (Li), (UG/L):                 | 4,400        | -     | -     |
| Magnesium (Mg), (MG/L):               | 11           | 10    | 11    |
| Manganese (Mn), (UG/L):               | 380          | 380   | 390   |
| Mercury (Hg), (UG/L):                 | 0            | -     | -     |
| Nitrogen (N), (MG/L):                 | 0            | 0.08  | 0.01  |
| Phosphate (PO <sub>4</sub> )          |              |       |       |
| Ortho diss. as P, (MG/L):             | 0.05         | 0.08  | 1.4   |
| Ortho, (MG/L):                        | 0.15         | 0.25  | 4.3   |
| Potassium (K), (MG/L):                | 84           | 80    | 84    |
| Selenium (Se), (UG/L):                | 0            | -     | -     |
| Silica (SiO <sub>2</sub> ), (MG/L):   | 95           | 100   | 94    |
| Sodium (Na), (MG/L):                  | 730          | 780   | 760   |
| Sulfate (SO <sub>4</sub> ), (MG/L):   | 880          | 860   | 810   |
| Zinc (Zn), (UG/L):                    | 0            | -     | -     |
| Alkalinity                            |              |       |       |
| As Calcium Carbonate, (MG/L):         | 902          | 902   | 910   |
| As Bicarbonate, (MG/L):               | 1,100        | 1,100 | 1,110 |
| Hardness                              |              |       |       |
| Noncarbonate, (MG/L):                 | 0            | 0     | 0     |
| Total, (MG/L):                        | 400          | 420   | 420   |
| Specific conductance (Micromohs):     | 3,920        | 3,950 | 3,950 |
| Total dissolved solids (TDS), (MG/L): | 2,760        | 2,810 | 2,740 |
| pH, Field                             | -            | 6.5   | 6.2   |
| Discharge (gpm):                      | 8            | 10    | 10    |
| Temperature (°C):                     | 31           | 33    | 33    |

Remarks:

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

McIntyre Warm Spring

Location: 37°16'48"N. Latitude; 105°49'07"W. Longitude; T. 35 N., R. 11 E, Sec. 18 bcb, N.M.P.M., Conejos County

Temperature: 14°C

Discharge: 5 gpm (est.)

Specific conductance: 265

pH: 7.9

Remarks: 15-20 springs in area. Temperatures range from 10°C-14°C. Flow from group appears to be large but difficult to estimate due to surface water runoff through the area.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Mineral Hot Springs: Spring A

Location: 38°10'08"N. Latitude; 105°55'05"W. Longitude: T. 45 N., R. 9 E., Sec. 12 ad, N.M.P.M., Saguache County

Date Sampled

|                                       | 6/75 | 10/75 | 1/76  | 4/76 |
|---------------------------------------|------|-------|-------|------|
| Arsenic (As), (UG/L):                 | 28   | 32    | -     | -    |
| Boron (B), (UG/L):                    | 360  | 350   | 370   | 450  |
| Cadium (Cd), (UG/L):                  | 0    | 1     | -     | -    |
| Calcium (Ca), (MG/L):                 | 57   | 60    | 57    | 59   |
| Chloride (Cl), (MG/L):                | 39   | 41    | 39    | 37   |
| Fluoride (F), (MG/L):                 | 3.7  | 3.6   | 3.9   | 4.6  |
| Iron (Fe), (UG/L):                    | 270  | 220   | 150   | 250  |
| Lithium (Li), (UG/L):                 | 300  | 320   | -     | -    |
| Magnesium (Mg), (MG/L):               | 14   | 13    | 13    | 13   |
| Manganese (Mn), (UG/L):               | 20   | 20    | 20    | 10   |
| Mercury (Hg), (UG/L):                 | 0    | 0     | -     | -    |
| Nitrogen (N), (MG/L):                 | 0.14 | 0.04  | 0     | 0    |
| Phosphate (PO <sub>4</sub> )          |      |       |       |      |
| Ortho diss. as P, (MG/L):             | 0.04 | 0.01  | 0     | 0.04 |
| Ortho, (MG/L):                        | 0.12 | 0.03  | 0     | 0.12 |
| Potassium (K), (MG/L):                | 14   | 14    | 15    | 14   |
| Selenium (Se), (UG/L):                | 0    | 0     | -     | -    |
| Silica (SiO <sub>2</sub> ), (MC/L):   | 48   | 45    | 47    | 47   |
| Sodium (Na), (MG/L):                  | 130  | 140   | 140   | 140  |
| Sulfate (SO <sub>4</sub> ), (MG/L):   | 170  | 180   | 170   | 150  |
| Zinc (Zn), (UG/L):                    | 0    | 10    | -     | -    |
| Alkalinity                            |      |       |       |      |
| As Calcium Carbonate, (MG/L):         | 275  | 275   | 288   | 289  |
| As Bicarbonate, (MG/L):               | 335  | 335   | 351   | 352  |
| Hardness                              |      |       |       |      |
| Noncarbonate, (MG/L):                 | 0    | 0     | 0     | 0    |
| Total, (MG/L):                        | 200  | 200   | 200   | 200  |
| Specific conductance (Micromohs):     | 970  | 1,000 | 1,020 | 995  |
| Total dissolved solids (TDS), (MG/L): | 643  | 663   | 658   | 639  |
| pH, Field                             | -    | 6.5   | 7.0   | 6.8  |
| Discharge (gpm):                      | 100  | 167   | 70    | 95   |
| Temperature (°C):                     | 60   | 60    | 60    | 60   |

Remarks: Actually a well, located in easternmost group of springs.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Mineral Hot Springs: Spring C

Location: 38°10'06"N. Latitude; 105°55'11"W. Longitude; T. 45 N., R. 9 E., Sec. 12 ad, N.M.P.M., Saguache County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 6/75         |
| Arsenic (As), (UG/L):                    | 28           |
| Boron (B), (UG/L):                       | 370          |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 60           |
| Chloride (Cl), (MG/L):                   | 43           |
| Fluoride (F), (MG/L):                    | 4.2          |
| Iron (Fe), (UG/L):                       | 20           |
| Lithium (Li), (UG/L):                    | 330          |
| Magnesium (Mg), (MG/L):                  | 14           |
| Manganese (Mn), (UG/L):                  | 30           |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 6.5          |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.04         |
| Ortho, (MG/L):                           | 0.12         |
| Potassium (K), (MG/L):                   | 14           |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 50           |
| Sodium (Na), (MG/L):                     | 150          |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 190          |
| Zinc (Zn), (UG/L):                       | 0            |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 280          |
| As Bicarbonate, (MG/L):                  | 341          |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 0            |
| Total, (MG/L):                           | 210          |
| Specific conductance<br>(Micromohs):     | 1,060        |
| Total dissolved<br>solids (TDS), (MG/L): | 723          |
| pH, Field                                | -            |
| Discharge (gpm):                         | -            |
| Temperature (°C):                        | 60           |

Remarks: Located approx. 2300 feet east of Colo. 17 and 150 feet northwest of Spring A

Table 1. ~~Physical Properties~~ Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Mineral Hot Springs: Spring D

Location: 38°10'04"N. Latitude; 105°55'20"W. Longitude; T. 45 N., R. 9 W., Sec. 12 ad, N.M.P.M., Saguache County

|                                          | Date Sampled |       |      |      |
|------------------------------------------|--------------|-------|------|------|
|                                          | 6/75         | 10/75 | 1/76 | 4/76 |
| Arsenic (As), (UG/L):                    | 26           | 36    | -    | -    |
| Boron (B), (UG/L):                       | 370          | 350   | 340  | 400  |
| Cadium (Cd), (UG/L):                     | 0            | 1     | -    | -    |
| Calcium (Ca), (MG/L):                    | 55           | 59    | 56   | 58   |
| Chloride (Cl), (MG/L):                   | 39           | 40    | 40   | 38   |
| Fluoride (F), (MG/L):                    | 3.9          | 3.4   | 3.8  | 4.6  |
| Iron (Fe), (UG/L):                       | 30           | 130   | 50   | 60   |
| Lithium (Li), (UG/L):                    | 330          | 320   | -    | -    |
| Magnesium (Mg), (MG/L):                  | 13           | 13    | 13   | 13   |
| Manganese (Mn), (UG/L):                  | 20           | 10    | 20   | 10   |
| Mercury (Hg), (UG/L):                    | 0            | 0     | -    | -    |
| Nitrogen (N), (MG/L):                    | 2            | 0.05  | 0.02 | 0.01 |
| Phosphate (PO <sub>4</sub> )             |              |       |      |      |
| Ortho diss. as P, (MG/L):                | 0.03         | 0.01  | 0    | 0.04 |
| Ortho, (MG/L):                           | 0.09         | 0.03  | 0    | 0.12 |
| Potassium (K), (MG/L):                   | 14           | 14    | 14   | 14   |
| Selenium (Se), (UG/L):                   | 0            | 0     | -    | -    |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 48           | 45    | 46   | 47   |
| Sodium (Na), (MG/L):                     | 140          | 150   | 140  | 140  |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 170          | 190   | 170  | 160  |
| Zinc (Zn), (UG/L):                       | 8            | 10    | -    | -    |
| Alkalinity                               |              |       |      |      |
| As Calcium Carbonate, (MG/L):            | 286          | 290   | 289  | 288  |
| As Bicarbonate, (MG/L):                  | 349          | 354   | 352  | 351  |
| Hardness                                 |              |       |      |      |
| Noncarbonate, (MG/L):                    | 0            | 0     | 0    | 0    |
| Total, (MG/L):                           | 190          | 200   | 190  | 200  |
| Specific conductance<br>(Micromohs):     | 995          | 1,000 | 950  | 995  |
| Total dissolved<br>solids (TDS), (MG/L): | 665          | 690   | 657  | 648  |
| pH, Field                                | -            | 6.5   | 6.5  | 7.3  |
| Discharge (gpm):                         | -            | -     | 5E   | -    |
| Temperature (°C):                        | 59           | 60    | 60   | 60   |

Remarks: Located in concrete cistern approx. 1800 feet east of Colo. 17.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters  
in Colorado.

**Mineral Hot Springs: Spring B**

**Location:** 38°10'07"N. Latitude; 105°55'06"W. Longitude; T. 45 N., R. 9 E.,  
Sec. 12 ad, N.M.P.M., Saguache County

**Temperature:** 51°C

**Discharge:** small

**Specific conductance:** 1,000

**Remarks:** Located approximately 25 feet northwest of Spring A

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Mt. Princeton Hot Springs: Spring A

Location: 38°43'58"N. Latitude; 106°09'40"W. Longitude; T. 15 S., R. 78 W., Sec. 19 bc, 6th P.M., Chaffee County

|                                       | Date Sampled |        |      |      |
|---------------------------------------|--------------|--------|------|------|
|                                       | 7/75         | 10/75* | 1/76 | 4/76 |
| Arsenic (As), (UG/L):                 | 1            | 2      | -    | -    |
| Boron (B), (UG/L):                    | 20           | 20     | 20   | 20   |
| Cadium (Cd), (UG/L):                  | 0            | 0      | -    | -    |
| Calcium (Ca), (MG/L):                 | 11           | 10     | 11   | 10   |
| Chloride (Cl), (MG/L):                | 4.4          | 5.3    | 5.3  | 5.2  |
| Fluoride (F), (MG/L):                 | 9.1          | 8.3    | 10   | 10   |
| Iron (Fe), (UG/L):                    | 40           | 0      | 0    | 10   |
| Lithium (Li), (UG/L):                 | 90           | 90     | -    | -    |
| Magnesium (Mg), (MG/L):               | 0.5          | 0.2    | 0.9  | 0.8  |
| Manganese (Mn), (UG/L):               | 10           | 10     | 0    | 0    |
| Mercury (Hg), (UG/L):                 | 0            | 0.1    | -    | -    |
| Nitrogen (N), (MG/L):                 | 0.14         | 0.12   | 0.21 | 0.19 |
| Phosphate (PO <sub>4</sub> )          |              |        |      |      |
| Ortho diss. as P, (MG/L):             | 0.05         | 0.01   | 0    | 0.05 |
| Ortho, (MG/L):                        | 0.15         | 0.03   | 0    | 0.15 |
| Potassium (K), (MG/L):                | 2.1          | 2.1    | 2.2  | 2.2  |
| Selenium (Se), (UG/L):                | 0            | 0      | -    | -    |
| Silica (SiO <sub>2</sub> ), (MG/L):   | 60           | 58     | 56   | 59   |
| Sodium (Na), (MG/L):                  | 57           | 58     | 57   | 58   |
| Sulfate (SO <sub>4</sub> ), (MG/L):   | 65           | 69     | 64   | 64   |
| Zinc (Zn), (UG/L):                    | 10           | 10     | -    | -    |
| Alkalinity                            |              |        |      |      |
| As Calcium Carbonate, (MG/L):         | 58           | 60     | 62   | 62   |
| As Bicarbonate, (MG/L):               | 71           | 67     | 75   | 76   |
| Hardness                              |              |        |      |      |
| Noncarbonate, (MG/L):                 | 0            | 0      | 0    | 0    |
| Total, (MG/L):                        | 30           | 26     | 31   | 28   |
| Specific conductance (Micromohs):     | 326          | 335    | 331  | 327  |
| Total dissolved solids (TDS), (MG/L): | 245          | 248    | 244  | 248  |
| pH, Field                             | -            | 8.6    | 7.9  | 7.8  |
| Discharge (gpm):                      | -            | 18     | 20   | 23   |
| Temperature (°C):                     | 54           | 54     | 54   | 56   |

\* Remarks: Contains 3 mg/l of carbonate. Located approx. 200 feet east of old swimming pool.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Mt. Princeton Hot Springs: Spring F

Location: 38°43'58"N. Latitude; 106°09'43"W. Longitude; T. 15 S., R. 78 W., Sec. 19 bc, 6th P.M., Chaffee County

|                                                        | Date Sampled |
|--------------------------------------------------------|--------------|
|                                                        | 7/75         |
| Arsenic (As), (UG/L):                                  | 1            |
| Boron (B), (UG/L):                                     | 10           |
| Cadium (Cd), (UG/L):                                   | 0            |
| Calcium (Ca), (MG/L):                                  | 12           |
| Chloride (Cl), (MG/L):                                 | 3.8          |
| Fluoride (F), (MG/L):                                  | 8.3          |
| Iron (Fe), (UG/L):                                     | 10           |
| Lithium (Li), (UG/L):                                  | 80           |
| Magnesium (Mg), (MG/L):                                | 0.5          |
| Manganese (Mn), (UG/L):                                | 10           |
| Mercury (Hg), (UG/L):                                  | 0            |
| Nitrogen (N), (MG/L):                                  | 0.24         |
| Phosphate (PO <sub>4</sub> )                           |              |
| Ortho diss. as P, (MG/L):                              | 0.04         |
| Ortho, (MG/L):                                         | 0.12         |
| Potassium (K), (MG/L):                                 | 1.9          |
| Selenium (Se), (UG/L):                                 | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):                    | 57           |
| Sodium (Na), (MG/L):                                   | 50           |
| Sulfate (SO <sub>4</sub> ), (MG/L):                    | 58           |
| Zinc (Zn), (UG/L):                                     | 0            |
| Alkalinity                                             |              |
| As Calcium Carbonate, (MG/L):                          | 60           |
| As Bicarbonate, (MG/L):                                | 73           |
| Hardness                                               |              |
| Noncarbonate, (MG/L):                                  | 0            |
| Total, (MG/L):                                         | 32           |
| Specific conductance<br>(Micromohs):                   | 310          |
| Total dissolved<br>solids (TDS), (MG/L):               | 229          |
| pH, Field                                              | -            |
| Discharge (gpm):                                       | 12           |
| Temperature (°C):                                      | 49           |
| Remarks: Located at southeast corner of swimming pool. |              |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Mt. Princeton Hot Springs: Spring B

Location: 38°43'58"N. Latitude; 106°09'41"W. Longitude; T. 15 S., R. 78 W., Sec. 19 bc, 6th P.M., Chaffee County

Temperature: 54°C

Discharge: Large

Specific conductance: 320

Remarks: Located at east end of old swimming pool. Waters used in upper swimming pool.

Mt. Princeton Hot Springs: Spring D

Location: 38°43'58"N. Latitude; 106°09'39"W. Longitude; T. 15 S., R. 78 W., Sec. 19 bc, 6th P.M., Chaffee County

Temperature: 44°C

Discharge:--

Specific conductance: 320

Remarks: Located about 30 feet east of Spring A

Mt. Princeton Hot Springs: Spring E

Location: 38°43'58"N. Latitude; 106°09'39"W. Longitude; T. 15 S., R. 78 W., Sec. 19 bc, 6th P.M., Chaffee County

Temperature: 50°C

Discharge:--

Specific conductance: 330

Remarks: This is the big spring located about 10 feet east of Spring D

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Mt. Princeton Hot Springs Area: Hortense Hot Spring

Location: 38°43'59"N. Latitude; 106°10'26" W. Longitude; T. 15 S., R. 79 W., Sec. 24 bd, 6th P.M., Chaffee County

|                                          | Date Sampled |       |      |      |
|------------------------------------------|--------------|-------|------|------|
|                                          | 7/75         | 10/75 | 1/76 | 4/76 |
| Arsenic (As), (UG/L):                    | 3            | 3     | -    | -    |
| Boron (B), (UG/L):                       | 40           | 50    | 40   | 40   |
| Cadium (Cd), (UG/L):                     | 1            | 1     | -    | -    |
| Calcium (Ca), (MG/L):                    | 4.5          | 4.4   | 4.0  | 4.7  |
| Chloride (Cl), (MG/L):                   | 9.8          | 10    | 11   | 10   |
| Fluoride (F), (MG/L):                    | 18           | 14    | 19   | 15   |
| Iron (Fe), (UG/L):                       | 40           | 0     | 0    | 10   |
| Lithium (Li), (UG/L):                    | 140          | 140   | -    | -    |
| Magnesium (Mg), (MG/L):                  | 0.5          | 0.1   | 0    | 0    |
| Manganese (Mn), (UG/L):                  | 0            | 10    | 0    | 0    |
| Mercury (Hg), (UG/L):                    | 0            | 0.2   | -    | -    |
| Nitrogen (N), (MG/L):                    | 0.06         | 0.01  | 0.01 | 0.01 |
| Phosphate (PO <sub>4</sub> )             |              |       |      |      |
| Ortho diss. as P, (MG/L):                | 0.05         | 0.01  | 0.01 | 0.07 |
| Ortho, (MG/L):                           | 0.15         | 0.03  | 0.03 | 0.21 |
| Potassium (K), (MG/L):                   | 3.2          | 3.1   | 3.1  | 3.2  |
| Selenium (Se), (UG/L):                   | 0            | 0     | -    | -    |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 72           | 68    | 74   | 88   |
| Sodium (Na), (MG/L):                     | 93           | 94    | 100  | 94   |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 97           | 100   | 99   | 98   |
| Zinc (Zn), (UG/L):                       | 10           | 10    | -    | -    |
| Alkalinity                               |              |       |      |      |
| As Calcium Carbonate, (MG/L):            | 68           | 71    | 67   | 71   |
| As Bicarbonate, (MG/L):                  | 83           | 17    | 82   | 86   |
| Hardness                                 |              |       |      |      |
| Noncarbonate, (MG/L):                    | 0            | 0     | 0    | 0    |
| Total, (MG/L):                           | 13           | 11    | 10   | 12   |
| Specific conductance<br>(Micromohs):     | 450          | 480   | 469  | 471  |
| Total dissolved<br>solids (TDS), (MG/L): | 340          | 336   | 351  | 341  |
| pH, Field                                | -            | 8.5   | 8.2  | 8.2  |
| Discharge (gpm):                         | -            | 18    | 18   | 17   |
| Temperature (°C):                        | 81           | 82    | 83   | 83   |
| Remarks:                                 |              |       |      |      |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Mt. Princeton Hot Springs Area: Hortense Hot Water Well

Location: 38°43'58"N. Latitude; 106°10'27"W. Longitude; T. 15 S., R. 79 W., Sec. 24 bd, 6th P.M., Chaffee County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 7/75         |
| Arsenic (As), (UG/L):                    | 2            |
| Boron (B), (UG/L):                       | 30           |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 6.4          |
| Chloride (Cl), (MG/L):                   | 8.3          |
| Fluoride (F), (MG/L):                    | 14           |
| Iron (Fe), (UG/L):                       | 40           |
| Lithium (Li), (UG/L):                    | 120          |
| Magnesium (Mg), (MG/L):                  | 1            |
| Manganese (Mn), (UG/L):                  | 10           |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0.02         |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.01         |
| Ortho, (MG/L):                           | 0.03         |
| Potassium (K), (MG/L):                   | 2.8          |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 72           |
| Sodium (Na), (MG/L):                     | 84           |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 92           |
| Zinc (Zn), (UG/L):                       | 0            |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 62           |
| As Bicarbonate, (MG/L):                  | 75           |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 0            |
| Total, (MG/L):                           | 20           |
| Specific conductance<br>(Micromohs):     | 420          |
| Total dissolved<br>solids (TDS), (MG/L): | 318          |
| pH, Field                                | -            |
| Discharge (gpm):                         | -            |
| Temperature (°C):                        | 82           |
| Remarks:                                 |              |

Table 1. Physical Properties and Chemical Analysis  
in Colorado.

Mt. Princeton Hot Springs Area: Woolmington Hot Water Well

Location: 38°43'24"N. Latitude; 106°10'38"W. Longitude; T. 15 S., R. 79 W.,  
Sec. 24 db, 6th P.M., Chaffee County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 8/75         |
| Arsenic (As), (UG/L):                    | 1            |
| Boron (B), (UG/L):                       | 20           |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 11           |
| Chloride (Cl), (MG/L):                   | 3.9          |
| Fluoride (F), (MG/L):                    | 0.1          |
| Iron (Fe), (UG/L):                       | 30           |
| Lithium (Li), (UG/L):                    | 60           |
| Magnesium (Mg), (MG/L):                  | 0.6          |
| Manganese (Mn), (UG/L):                  | 0            |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0.11         |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.03         |
| Ortho, (MG/L):                           | 0.09         |
| Potassium (K), (MG/L):                   | 1.7          |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 1            |
| Sodium (Na), (MG/L):                     | 40           |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 47           |
| Zinc (Zn), (UG/L):                       | 10           |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 62           |
| As Bicarbonate, (MG/L):                  | 75           |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 0            |
| Total, (MG/L):                           | 30           |
| Specific conductance<br>(Micromohs):     | 250          |
| Total dissolved<br>solids (TDS), (MG/L): | 143          |
| pH, Field                                | -            |
| Discharge (gpm):                         | -            |
| Temperature (°C):                        | 39           |
| Remarks:                                 |              |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Mt. Princeton Hot Springs Area: Wright Hot Water Well (East)

Location: 38°44'00"N. Latitude; 106°10'00"W. Longitude; T. 15 S., R. 79 W., Sec. 24 ad, 6th P.M., Chaffee County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 8/75         |
| Arsenic (As), (UG/L):                    | 1            |
| Boron (B), (UG/L):                       | 20           |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 8.3          |
| Chloride (Cl <sup>-</sup> ), (MG/L):     | 4.9          |
| Fluoride (F), (MG/L):                    | 10           |
| Iron (Fe), (UG/L):                       | 50           |
| Lithium (Li), (UG/L):                    | 100          |
| Magnesium (Mg), (MG/L):                  | 0.3          |
| Manganese (Mn), (UG/L):                  | 0            |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0.15         |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0            |
| Ortho, (MG/L):                           | 0            |
| Potassium (K), (MG/L):                   | 2.1          |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 53           |
| Sodium (Na), (MG/L):                     | 61           |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 60           |
| Zinc (Zn), (UG/L):                       | 20           |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 56           |
| As Bicarbonate, (MG/L):                  | 68           |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 0            |
| Total, (MG/L):                           | 22           |
| Specific conductance<br>(Micromohs):     | 240          |
| Total dissolved<br>solids (TDS), (MG/L): | 234          |
| pH, Field                                | -            |
| Discharge (gpm):                         | -            |
| Temperature (°C):                        | 67           |
| Remarks:                                 |              |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Mt. Princeton Hot Springs Area: Wright Hot Water Well (West)

Location: 38°43'58"N. Latitude; 106°10'25"W. Longitude; T. 15 S., R. 79 W., Sec. 24 ac, 6th P.M., Chaffee County

|                                          | Date Sampled<br>7/75 |
|------------------------------------------|----------------------|
| Arsenic (As), (UG/L):                    | 1                    |
| Boron (B), (UG/L):                       | 30                   |
| Cadium (Cd), (UG/L):                     | 0                    |
| Calcium (Ca), (MG/L):                    | 5.8                  |
| Chloride (Cl), (MG/L):                   | 6.4                  |
| Fluoride (F), (MG/L):                    | 13                   |
| Iron (Fe), (UG/L):                       | 20                   |
| Lithium (Li), (UG/L):                    | 100                  |
| Magnesium (Mg), (MG/L):                  | 0.3                  |
| Manganese (Mn), (UG/L):                  | 0                    |
| Mercury (Hg), (UG/L):                    | 0.2                  |
| Nitrogen (N), (MG/L):                    | 0.09                 |
| Phosphate (PO <sub>4</sub> )             |                      |
| Ortho diss. as P, (MG/L):                | 8.8                  |
| Ortho, (MG/L):                           | 27                   |
| Potassium (K), (MG/L):                   | 2.5                  |
| Selenium (Se), (UG/L):                   | 0                    |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 68                   |
| Sodium (Na), (MG/L):                     | 73                   |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 81                   |
| Zinc (Zn), (UG/L):                       | 20                   |
| Alkalinity                               |                      |
| As Calcium Carbonate, (MG/L):            | 59                   |
| As Bicarbonate, (MG/L):                  | 72                   |
| Hardness                                 |                      |
| Noncarbonate, (MG/L):                    | 0                    |
| Total, (MG/L):                           | 16                   |
| Specific conductance<br>(Micromohs):     | 370                  |
| Total dissolved<br>solids (TDS), (MG/L): | 313                  |
| pH, Field                                | -                    |
| Discharge (gpm):                         | -                    |
| Temperature (°C):                        | 72                   |
| Remarks:                                 |                      |

**Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.**

**Mt. Princeton Hot Springs Area: Young Life Hot Water Well**

Location: 38°43'57"N. Latitude; 106°10'27"W. Longitude; T. 15 S., R. 79 W., Sec. 24 bd, 6th P.M., Chaffee County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 7/75         |
| Arsenic (As), (UG/L):                    | 2            |
| Boron (B), (UG/L):                       | 20           |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 8.5          |
| Chloride (Cl), (MG/L):                   | 3.9          |
| Fluoride (F), (MG/L):                    | 9.2          |
| Iron (Fe), (UG/L):                       | 30           |
| Lithium (Li), (UG/L):                    | 90           |
| Magnesium (Mg), (MG/L):                  | 0.3          |
| Manganese (Mn), (UG/L):                  | 0            |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0.15         |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.04         |
| Ortho, (MG/L):                           | 0.12         |
| Potassium (K), (MG/L):                   | 2.3          |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 71           |
| Sodium (Na), (MG/L):                     | 60           |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 67           |
| Zinc (Zn), (UG/L):                       | 30           |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 59           |
| As Bicarbonate, (MG/L):                  | 72           |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 0            |
| Total, (MG/L):                           | 22           |
| Specific conductance<br>(Micromohs):     | 320          |
| Total dissolved<br>solids (TDS), (MG/L): | 259          |
| pH, Field                                | -            |
| Discharge (gpm):                         | -            |
| Temperature (°C):                        | 66           |
| Remarks:                                 |              |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Orvis Hot Spring

Location: 38°07'59"N. Latitude; 107°44'01"W. Longitude; T. 45 N., R. 8 W., Sec. 22cd, N.M.P.M., Ouray County

|                                          | Date Sampled |       |       |
|------------------------------------------|--------------|-------|-------|
|                                          | 9/75         | 1/76  | 4/76  |
| Arsenic (As), (UG/L):                    | 240          | -     | -     |
| Boron (B), (UG/L):                       | 1,000        | 990   | 1,000 |
| Cadium (Cd), (UG/L):                     | 1            | -     | -     |
| Calcium (Ca), (MG/L):                    | 260          | 290   | 280   |
| Chloride (Cl), (MG/L):                   | 85           | 88    | 86    |
| Fluoride (F), (MG/L):                    | 3.6          | 4.1   | 4.0   |
| Iron (Fe), (UG/L):                       | 920          | 920   | 960   |
| Lithium (Li), (UG/L):                    | 1,400        | -     | -     |
| Magnesium (Mg), (MG/L):                  | 19           | 18    | 19    |
| Manganese (Mn), (UG/L):                  | 130          | 130   | 130   |
| Mercury (Hg), (UG/L):                    | 0            | -     | -     |
| Nitrogen (N), (MG/L):                    | 0.02         | 0.01  | 0.01  |
| Phosphate (PO <sub>4</sub> )             |              |       |       |
| Ortho diss. as P, (MG/L):                | 0.01         | 0.07  | 0.11  |
| Ortho, (MG/L):                           | 0.03         | 0.21  | 0.34  |
| Potassium (K), (MG/L):                   | 28           | 33    | 30    |
| Selenium (Se), (UG/L):                   | 0            | -     | -     |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 51           | 60    | 53    |
| Sodium (Na), (MG/L):                     | 420          | 460   | 390   |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 1,200        | 1,400 | 1,200 |
| Zinc (Zn), (UG/L):                       | 10           | -     | -     |
| Alkalinity                               |              |       |       |
| As Calcium Carbonate, (MG/L):            | 335          | 227   | 348   |
| As Bicarbonate, (MG/L):                  | 409          | 277   | 424   |
| Hardness                                 |              |       |       |
| Noncarbonate, (MG/L):                    | 390          | 570   | 430   |
| Total, (MG/L):                           | 730          | 800   | 780   |
| Specific conductance<br>(Micromohs):     | 2,900        | 3,180 | 3,030 |
| Total dissolved<br>solids (TDS), (MG/L): | 2,270        | 2,490 | 2,270 |
| pH, Field                                | -            | 6.5   | 6.6   |
| Discharge (gpm):                         | <1           | <1    | <1    |
| Temperature (°C):                        | 53           | 52    | 52    |

Remarks:

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Ouray Area: Wesbaden Vapor Caves and Motel Hot Spring A

Location: 38°01'15"N. Latitude: 107°40'03"W. Longitude; T. 44 N., R. 7 W., Sec. 31-, N.M.P.M., Ouray County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 9/75         |
| Arsenic (As), (UG/L):                    | 16           |
| Boron (B), (UG/L):                       | 150          |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 350          |
| Chloride (Cl), (MG/L):                   | 31           |
| Fluoride (F), (MG/L):                    | 2.7          |
| Iron (Fe), (UG/L):                       | 90           |
| Lithium (Li), (UG/L):                    | 2,400        |
| Magnesium (Mg), (MG/L):                  | 8            |
| Manganese (Mn), (UG/L):                  | 800          |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0.05         |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.02         |
| Ortho, (MG/L):                           | 0.06         |
| Potassium (K), (MG/L):                   | 11           |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 40           |
| Sodium (Na), (MG/L):                     | 120          |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 910          |
| Zinc (Zn), (UG/L):                       | 20           |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 175          |
| As Bicarbonate, (MG/L):                  | 213          |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 730          |
| Total, (MG/L):                           | 910          |
| Specific conductance<br>(Micromohs):     | 1,900        |
| Total dissolved<br>solids (TDS), (MG/L): | 1,580        |
| pH, Field                                | -            |
| Discharge (gpm):                         | -            |
| Temperature (°C):                        | 53           |

Remarks: Located just inside cave entrance to the left.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Ouray Area: Wesbaden Vapor Caves and Motel Hot Spring B

Location: 38°01'15"N. Latitude; 107°40'03"W. Longitude; T. 44 N., R. 7 W., Sec. 31-, N.M.P.M., Ouray County

|                                                                         | Date Sampled |
|-------------------------------------------------------------------------|--------------|
|                                                                         | 9/75         |
| Arsenic (As), (UG/L):                                                   | 4            |
| Boron (B), (UG/L):                                                      | 60           |
| Cadium (Cd), (UG/L):                                                    | 0            |
| Calcium (Ca), (MG/L):                                                   | 150          |
| Chloride (Cl), (MG/L):                                                  | 14           |
| Fluoride (F), (MG/L):                                                   | 1.1          |
| Iron (Fe), (UG/L):                                                      | 20           |
| Lithium (Li), (UG/L):                                                   | 1,200        |
| Magnesium (Mg), (MG/L):                                                 | 8.3          |
| Manganese (Mn), (UG/L):                                                 | 20           |
| Mercury (Hg), (UG/L):                                                   | 0            |
| Nitrogen (N), (MG/L):                                                   | 0.04         |
| Phosphate (PO <sub>4</sub> )                                            |              |
| Ortho diss. as P, (MG/L):                                               | 0            |
| Ortho, (MG/L):                                                          | 0            |
| Potassium (K), (MG/L):                                                  | 5            |
| Selenium (Se), (UG/L):                                                  | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):                                     | 29           |
| Sodium (Na), (MG/L):                                                    | 53           |
| Sulfate (SO <sub>4</sub> ), (MG/L):                                     | 340          |
| Zinc (Zn), (UG/L):                                                      | 0            |
| Alkalinity                                                              |              |
| As Calcium Carbonate, (MG/L):                                           | 155          |
| As Bicarbonate, (MG/L):                                                 | 189          |
| Hardness                                                                |              |
| Noncarbonate, (MG/L):                                                   | 250          |
| Total, (MG/L):                                                          | 410          |
| Specific conductance<br>(Micromohs):                                    | 975          |
| Total dissolved<br>solids (TDS), (MG/L):                                | 695          |
| pH, Field                                                               | -            |
| Discharge (gpm):                                                        | 2E           |
| Temperature (°C):                                                       | 30           |
| Remarks: Located 15 feet inside cave on ledge about 8 feet above floor. |              |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Ouray Area: Wesbaden Vapor Caves and Motel Hot Spring C

Location: 38°01'15"N. Latitude; 107°40'03"W. Longitude; T. 44 N., R. 7 W., Sec. 31-, N.M.P.M., Ouray County

|                                          | Date Sampled |       |       |
|------------------------------------------|--------------|-------|-------|
|                                          | 9/75         | 1/76  | 4/76  |
| Arsenic (As), (UG/L):                    | 12           | -     | -     |
| Boron (B), (UG/L):                       | 160          | 170   | 170   |
| Cadium (Cd), (UG/L):                     | 0            | -     | -     |
| Calcium (Ca), (MG/L):                    | 300          | 310   | 310   |
| Chloride (Cl), (MG/L):                   | 30           | 32    | 34    |
| Fluoride (F), (MG/L):                    | 2.7          | 3     | 3     |
| Iron (Fe), (UG/L):                       | 30           | 0     | 20    |
| Lithium (Li), (UG/L):                    | 3,200        | -     | -     |
| Magnesium (Mg), (MG/L):                  | 8.8          | 8.5   | 8.9   |
| Manganese (Mn), (UG/L):                  | 470          | 480   | 540   |
| Mercury (Hg), (UG/L):                    | 0            | -     | -     |
| Nitrogen (N), (MG/L):                    | 0.03         | 0.03  | 0.04  |
| Phosphate (PO <sub>4</sub> )             |              |       |       |
| Ortho diss. as P, (MG/L):                | 0.01         | 0.02  | 0.05  |
| Ortho, (MG/L):                           | 0.03         | 0.06  | 0.15  |
| Potassium (K), (MG/L):                   | 8.9          | 9.1   | 9.4   |
| Selenium (Se), (UG/L):                   | 0            | -     | -     |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 39           | 39    | 39    |
| Sodium (Na), (MG/L):                     | 110          | 110   | 110   |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 780          | 820   | 780   |
| Zinc (Zn), (UG/L):                       | 20           | -     | -     |
| Alkalinity                               |              |       |       |
| As Calcium Carbonate, (MG/L):            | 159          | 159   | 157   |
| As Bicarbonate, (MG/L):                  | 194          | 194   | 192   |
| Hardness                                 |              |       |       |
| Noncarbonate, (MG/L):                    | 630          | 650   | 650   |
| Total, (MG/L):                           | 790          | 810   | 810   |
| Specific conductance<br>(Micromohs):     | 1,840        | 1,810 | 1,850 |
| Total dissolved<br>solids (TDS), (MG/L): | 1,380        | 1,430 | 1,390 |
| pH, Field                                | -            | -     | 7.1   |
| Discharge (gpm):                         | 1E           | 30E   | 5E    |
| Temperature (°C):                        | 46           | 30    | 48    |

Remarks:

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Ouray Area: Pool Spring

Location: 38°01'00"N. Latitude; 107°40'41"W. Longitude;

|                                          | Date Sampled |       |       |
|------------------------------------------|--------------|-------|-------|
|                                          | 9/75         | 1/76  | 4/76  |
| Arsenic (As), (UG/L):                    | 13           | -     | -     |
| Boron (B), (UG/L):                       | 200          | 200   | 200   |
| Cadium (Cd), (UG/L):                     | 0            | -     | -     |
| Calcium (Ca), (MG/L):                    | 370          | 360   | 360   |
| Chloride (Cl), (MG/L):                   | 41           | 44    | 44    |
| Fluoride (F), (MG/L):                    | 3            | 3.6   | 3.2   |
| Iron (Fe), (UG/L):                       | 10           | 0     | 40    |
| Lithium (Li), (UG/L):                    | 2,800        | -     | -     |
| Magnesium (Mg), (MG/L):                  | 8.9          | 8.5   | 8.8   |
| Manganese (Mn), (UG/L):                  | 670          | 750   | 720   |
| Mercury (Hg), (UG/L):                    | 0            | -     | -     |
| Nitrogen (N), (MG/L):                    | 0.01         | 0.01  | 0.02  |
| Phosphate (PO <sub>4</sub> )             |              |       |       |
| Ortho diss. as P, (MG/L):                | 0.01         | 0.02  | 0.03  |
| Ortho, (MG/L):                           | 0.03         | 0.06  | 0.09  |
| Potassium (K), (MG/L):                   | 9.2          | 8.8   | 9.4   |
| Selenium (Se), (UG/L):                   | 0            | -     | -     |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 47           | 49    | 49    |
| Sodium (Na), (MG/L):                     | 110          | 120   | 110   |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 990          | 1,000 | 990   |
| Zinc (Zn), (UG/L):                       | 10           | -     | -     |
| Alkalinity                               |              |       |       |
| As Calcium Carbonate, (MG/L):            | 106          | 107   | 108   |
| As Bicarbonate, (MG/L):                  | 129          | 131   | 132   |
| Hardness                                 |              |       |       |
| Noncarbonate, (MG/L):                    | 850          | 830   | 830   |
| Total, (MG/L):                           | 960          | 930   | 940   |
| Specific conductance<br>(Micromohs):     | 2,000        | 2,020 | 2,030 |
| Total dissolved<br>solids (TDS), (MG/L): | 1,650        | 1,660 | 1,640 |
| pH, Field                                | 6.7          | 6.5   | 7.3   |
| Discharge (gpm):                         | 125          | 60    | 200   |
| Temperature (°C):                        | 67           | 69    | 69    |

Remarks: Located in Box Canyon

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Ouray Area: Uncompahgre Hot Spring

Location: 38°01'06"N. Latitude; 107°40'34"W. Longitude; T. 44 N., R. 7 W., Sec. 31-, N.M.P.M., Ouray County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 4/76         |
| Arsenic (As), (UG/L):                    | -            |
| Boron (B), (UG/L):                       | 200          |
| Cadium (Cd), (UG/L):                     | -            |
| Calcium (Ca), (MG/L):                    | 350          |
| Chloride (Cl), (MG/L):                   | 42           |
| Fluoride (F), (MG/L):                    | 3            |
| Iron (Fe), (UG/L):                       | 10           |
| Lithium (Li), (UG/L):                    | -            |
| Magnesium (Mg), (MG/L):                  | 9.2          |
| Manganese (Mn), (UG/L):                  | 1,200        |
| Mercury (Hg), (UG/L):                    | -            |
| Nitrogen (N), (MG/L):                    | 0.53         |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.03         |
| Ortho, (MG/L):                           | 0.09         |
| Potassium (K), (MG/L):                   | 9.4          |
| Selenium (Se), (UG/L):                   | -            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 44           |
| Sodium (Na), (MG/L):                     | 110          |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 930          |
| Zinc (Zn), (UG/L):                       | -            |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 113          |
| As Bicarbonate, (MG/L):                  | 138          |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 800          |
| Total, (MG/L):                           | 910          |
| Specific conductance<br>(Micromohs):     | 2,040        |
| Total dissolved<br>solids (TDS), (MG/L): | 1,570        |
| pH, Field                                | 7.7          |
| Discharge (gpm):                         | 5            |
| Temperature (°C):                        | 49           |
| Remarks:                                 |              |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Pagosa Springs: Big Spring

Location: 37°15'52"N. Latitude; 107°00'37"W. Longitude; T. 35 N., R. 2 W., Sec. 13cd, N.M.P.M., Archuleta County

|                                          | Date Sampled |       |       |       |
|------------------------------------------|--------------|-------|-------|-------|
|                                          | 8/75         | 10/75 | 1/76  | 4/76  |
| Arsenic (As), (UG/L):                    | 120          | 130   | -     | -     |
| Boron (B), (UG/L):                       | 1,800        | 1,700 | 2,000 | 2,300 |
| Cadium (Cd), (UG/L):                     | 0            | 0     | -     | -     |
| Calcium (Ca), (MG/L):                    | 230          | 210   | 240   | 230   |
| Chloride (Cl), (MG/L):                   | 180          | 180   | 190   | 180   |
| Fluoride (F), (MG/L):                    | 4.3          |       | 5     | 4.8   |
| Iron (Fe), (UG/L):                       | 80           | 20    | 20    | 20    |
| Lithium (Li), (UG/L):                    | 2,900        | 3,200 | -     | -     |
| Magnesium (Mg), (MG/L):                  | 25           | 23    | 2.6   | 24    |
| Manganese (Mn), (UG/L):                  | 230          | 220   | 220   | 200   |
| Mercury (Hg), (UG/L):                    | 0.1          | 0     | -     | -     |
| Nitrogen (N), (MG/L):                    | 0.02         | -     | 0.01  | 0.01  |
| Phosphate (PO <sub>4</sub> )             |              |       |       |       |
| Ortho diss. as P, (MG/L):                | 0.07         | -     | 0.03  | 0.07  |
| Ortho, (MG/L):                           | 0.21         | -     | 0.09  | 0.21  |
| Potassium (K), (MG/L):                   | 90           | 87    | 87    | 85    |
| Selenium (Se), (UG/L):                   | 0            | -     | -     | -     |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 54           |       | 58    | 59    |
| Sodium (Na), (MG/L):                     | 790          | 780   | 800   | 730   |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 1,400        | 1,500 | 1,500 | 1,300 |
| Zinc (Zn), (UG/L):                       | 10           | 20    | -     | -     |
| Alkalinity                               |              |       |       |       |
| As Calcium Carbonate, (MG/L):            | 701          | 705   | 707   | 702   |
| As Bicarbonate, (MG/L):                  | 855          | 859   | 862   | 856   |
| Hardness                                 |              |       |       |       |
| Noncarbonate, (MG/L):                    | 0            | 0     | 0     | 0     |
| Total, (MG/L):                           | 680          | 620   | 610   | 670   |
| Specific conductance<br>(Micromohs):     | 5,810        | 4,000 | 4,200 | 4,340 |
| Total dissolved<br>solids (TDS), (MG/L): | 3,200        |       | 3,310 | 3,040 |
| pH, Field                                | 6.5          | 6.9   | 6.6   | 6.5   |
| Discharge (gpm):                         | 265          | 226   | 241   | 260   |
| Temperature (°C):                        | 58           | 57    | 55    | 54    |
| Remarks:                                 |              |       |       |       |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Pagosa Springs: Courthouse Hot Water Well

Location: 37°15'55"N. Latitude; 107°00'37"W. Longitude; T. 35 N., R. 2 W., Sec. 13 cd, N.M.P.M., Archuleta County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 8/75         |
| Arsenic (As), (UG/L):                    | 93           |
| Boron (B), (UG/L):                       | 1,800        |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 250          |
| Chloride (Cl), (MG/L):                   | 170          |
| Fluoride (F), (MG/L):                    | 4.5          |
| Iron (Fe), (UG/L):                       | 20           |
| Lithium (Li), (UG/L):                    | 2,800        |
| Magnesium (Mg), (MG/L):                  | 25           |
| Manganese (Mn), (UG/L):                  | 270          |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0.01         |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.05         |
| Ortho, (MG/L):                           | 0.15         |
| Potassium (K), (MG/L):                   | 89           |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 52           |
| Sodium (Na), (MG/L):                     | 780          |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 1,500        |
| Zinc (Zn), (UG/L):                       | 10           |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 704          |
| As Bicarbonate, (MG/L):                  | 858          |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 23           |
| Total, (MG/L):                           | 730          |
| Specific conductance<br>(Micromohs):     | 6,300        |
| Total dissolved<br>solids (TDS), (MG/L): | 3,300        |
| pH, Field                                | 6.5          |
| Discharge (gpm):                         | 30           |
| Temperature (°C):                        | 56           |
| Remarks:                                 |              |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Pagosa Springs: Spa Motel Hot Water Well

Location: 37°15'51"N. Latitude; 107°00'35"W. Longitude; T. 35 N., R. 2 W., Sec. 13 cd, N.M.P.M., Archuleta County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 8/75         |
| Arsenic (As), (UG/L):                    | 80           |
| Boron (B), (UG/L):                       | 1,900        |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 230          |
| Chloride (Cl), (MG/L):                   | 160          |
| Fluoride (F), (MG/L):                    | 4.4          |
| Iron (Fe), (UG/L):                       | 210          |
| Lithium (Li), (UG/L):                    | 2,900        |
| Magnesium (Mg), (MG/L):                  | 24           |
| Manganese (Mn), (UG/L):                  | 250          |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0            |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.04         |
| Ortho, (MG/L):                           | 0.12         |
| Potassium (K), (MG/L):                   | 91           |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 51           |
| Sodium (Na), (MG/L):                     | 780          |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 1,600        |
| Zinc (Zn), (UG/L):                       | 10           |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 618          |
| As Bicarbonate, (MG/L):                  | 753          |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 56           |
| Total, (MG/L):                           | 670          |
| Specific conductance<br>(Micromohs):     | 6,000        |
| Total dissolved<br>solids (TDS), (MG/L): | 3,320        |
| pH, Field                                | 6.5          |
| Discharge (gpm):                         | -            |
| Temperature (°C):                        | 53           |
| Remarks:                                 |              |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Paradise Hot Spring

Location: 37°45'15"N. Latitude; 108°07'53"W. Longitude; T. 40 N., R. 11 W., Sec. 6-, N.M.P.M., Dolores County

|                                          | Date Sampled |        |        |
|------------------------------------------|--------------|--------|--------|
|                                          | 9/75         | 1/76   | 4/76   |
| Arsenic (As), (UG/L):                    | 140          | -      | -      |
| Boron (B), (UG/L):                       | 9,300        | 1,000  | 4,300  |
| Cadium (Cd), (UG/L):                     | 0            | -      | -      |
| Calcium (Ca), (MG/L):                    | 160          | 240    | 170    |
| Chloride (Cl), (MG/L):                   | 3,100        | 3,300  | 3,100  |
| Fluoride (F), (MG/L):                    | 3.9          | 3.8    | 3.7    |
| Iron (Fe), (UG/L):                       | 150          | 60     | 200    |
| Lithium (Li), (UG/L):                    | 9,600        | -      | -      |
| Magnesium (Mg), (MG/L):                  | 27           | 30     | 28     |
| Manganese (Mn), (UG/L):                  | 780          | 860    | 830    |
| Mercury (Hg), (UG/L):                    | 0.1          | -      | -      |
| Nitrogen (N), (MG/L):                    | 0.07         | 0.11   | 0.09   |
| Phosphate (PO <sub>4</sub> )             |              |        |        |
| Ortho diss. as P, (MG/L):                | 0.10         | 0.12   | 0.22   |
| Ortho, (MG/L):                           | 0.31         | 0.37   | 0.67   |
| Potassium (K), (MG/L):                   | 360          | 380    | 370    |
| Selenium (Se), (UG/L):                   | 0            | -      | -      |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 150          | 200    | 150    |
| Sodium (Na), (MG/L):                     | 1,800        | 1,900  | 1,900  |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 140          | 140    | 110    |
| Zinc (Zn), (UG/L):                       | 50           | -      | -      |
| Alkalinity                               |              |        |        |
| As Calcium Carbonate, (MG/L):            | 515          | 562    | 572    |
| As Bicarbonate, (MG/L):                  | 628          | 685    | 697    |
| Hardness                                 |              |        |        |
| Noncarbonate, (MG/L):                    | 0            | 160    | 0      |
| Total, (MG/L):                           | 510          | 720    | 540    |
| Specific conductance<br>(Micromohs):     | 9,560        | 10,700 | 10,000 |
| Total dissolved<br>solids (TDS), (MG/L): | 6,070        | 6,530  | 6,180  |
| pH, Field                                | -            | 6.9    | 6.8    |
| Discharge (gpm):                         | 26           | 34     | 30     |
| Temperature (°C):                        | 46           | 40     | 42     |

Remarks:

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Penny Hot Springs

Location: 39°13'33"N. Latitude; 107°13'28"W. Longitude; T. 10 S., R. 88 W., Sec. 4 ba, 6th P.M., Pitkin County

|                                          | Date Sampled |       |       |
|------------------------------------------|--------------|-------|-------|
|                                          | 9/75         | 1/76  | 4/76  |
| Arsenic (As), (UG/L):                    | 5            | -     | -     |
| Boron (B), (UG/L):                       | 700          | 640   | 690   |
| Cadium (Cd), (UG/L):                     | 0            | -     | -     |
| Calcium (Ca), (MG/L):                    | 410          | 420   | 390   |
| Chloride (Cl), (MG/L):                   | 240          | 250   | 240   |
| Fluoride (F), (MG/L):                    | 3            | 3.4   | 3.4   |
| Iron (Fe), (UG/L):                       | 1,300        | 1,000 | 1,300 |
| Lithium (Li), (UG/L):                    | 970          | -     | -     |
| Magnesium (Mg), (MG/L):                  | 50           | 51    | 53    |
| Manganese (Mn), (UG/L):                  | 380          | 430   | 430   |
| Mercury (Hg), (UG/L):                    | 0            | -     | -     |
| Nitrogen (N), (MG/L):                    | 0.02         | 0.01  | 0.01  |
| Phosphate (PO <sub>4</sub> )             |              |       |       |
| Ortho diss. as P, (MG/L):                | 0.02         | 0.04  | 0.05  |
| Ortho, (MG/L):                           | 0.06         | 0.12  | 0.15  |
| Potassium (K), (MG/L):                   | 38           | 36    | 38    |
| Selenium (Se), (UG/L):                   | 0            | -     | -     |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 96           | 74    | 150   |
| Sodium (Na), (MG/L):                     | 400          | 390   | 380   |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 1,300        | 1,300 | 1,200 |
| Zinc (Zn), (UG/L):                       | 20           | -     | -     |
| Alkalinity                               |              |       |       |
| As Calcium Carbonate, (MG/L):            | 468          | 486   | 491   |
| As Bicarbonate, (MG/L):                  | 570          | 593   | 599   |
| Hardness                                 |              |       |       |
| Noncarbonate, (MG/L):                    | 760          | 770   | 700   |
| Total, (MG/L):                           | 1,200        | 1,300 | 1,200 |
| Specific conductance<br>(Micromohs):     | 3,550        | 3,450 | 3,850 |
| Total dissolved<br>solids (TDS), (MG/L): | 2,820        | 2,820 | 2,750 |
| pH, Field                                | -            | 6.3   | 6.3   |
| Discharge (gpm):                         | 10           | 10    | 10    |
| Temperature (°C):                        | 40           | 46    | 45    |

Remarks: Located in meadows on east side of Crystal River. Sampling point is located 50 feet south of wooden fence-like structure.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Penny Hot Springs: Granges Spring

Location: 39°13'50"N. Latitude; 107°13'36"W Longitude; T. 9 S., R. 88 W., Sec. 33 cdc, 6th P.M., Pitkin County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 1/76         |
| Arsenic (As), (UG/L):                    | -            |
| Boron (B), (UG/L):                       | 650          |
| Cadium (Cd), (UG/L):                     | -            |
| Calcium (Ca), (MG/L):                    | 440          |
| Chloride (Cl), (MG/L):                   | 260          |
| Fluoride (F), (MG/L):                    | 2.7          |
| Iron (Fe), (UG/L):                       | 2,300        |
| Lithium (Li), (UG/L):                    | -            |
| Magnesium (Mg), (MG/L):                  | 55           |
| Manganese (Mn), (UG/L):                  | 300          |
| Mercury (Hg), (UG/L):                    | -            |
| Nitrogen (N), (MG/L):                    | 0.01         |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.05         |
| Ortho, (MG/L):                           | 0.15         |
| Potassium (K), (MG/L):                   | 38           |
| Selenium (Se), (UG/L):                   | -            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 81           |
| Sodium (Na), (MG/L):                     | 400          |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 1,400        |
| Zinc (Zn), (UG/L):                       | -            |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 463          |
| As Bicarbonate, (MG/L):                  | 565          |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 860          |
| Total, (MG/L):                           | 1,300        |
| Specific conductance<br>(Micromohs):     | 3,760        |
| Total dissolved<br>solids (TDS), (MG/L): | 2,960        |
| pH, Field                                | 9.2          |
| Discharge (gpm):                         | 12           |
| Temperature (°C):                        | 56           |

Remarks: Biggest spring on west side of Crystal River, approx. 100 yards north of house.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Pinkerton Hot Springs: Spring A

Location: 37°26'50"N. Latitude; 107°48'17"W. Longitude; T. 37 N., R. 9 W., Sec. 25 ab, N.M.P.M., La Plata County

|                                          | Date Sampled |       |       |
|------------------------------------------|--------------|-------|-------|
|                                          | 9/75         | 1/76  | 4/76  |
| Arsenic (As), (UG/L):                    | 120          | -     | -     |
| Boron (B), (UG/L):                       | 3,000        | 2,800 | 2,800 |
| Cadium (Cd), (UG/L):                     | 0            | -     | -     |
| Calcium (Ca), (MG/L):                    | 510          | 560   | 530   |
| Chloride (Cl), (MG/L):                   | 1,000        | 1,000 | 1,000 |
| Fluoride (F), (MG/L):                    | 2.1          | 1.9   | 3.9   |
| Iron (Fe), (UG/L):                       | 4,400        | 4,000 | 4,500 |
| Lithium (Li), (UG/L):                    | 2,500        | -     | -     |
| Magnesium (Mg), (MG/L):                  | 79           | 69    | 72    |
| Manganese (Mn), (UG/L):                  | 470          | 490   | 480   |
| Mercury (Hg), (UG/L):                    | 0            | -     | -     |
| Nitrogen (N), (MG/L):                    | 0.10         | 0.01  | 0     |
| Phosphate (PO <sub>4</sub> )             |              |       |       |
| Ortho diss. as P, (MG/L):                | 0.05         | 0.01  | 0.07  |
| Ortho, (MG/L):                           | 0.15         | 0.03  | 0.21  |
| Potassium (K), (MG/L):                   | 120          | 110   | 120   |
| Selenium (Se), (UG/L):                   | 0            | -     | -     |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 28           | 28    | 29    |
| Sodium (Na), (MG/L):                     | 750          | 690   | 720   |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 690          | 610   | 540   |
| Zinc (Zn), (UG/L):                       | 0            | -     | -     |
| Alkalinity                               |              |       |       |
| As Calcium Carbonate, (MG/L):            | 1,340        | 1,330 | 1,250 |
| As Bicarbonate, (MG/L):                  | 1,630        | 1,620 | 1,520 |
| Hardness                                 |              |       |       |
| Noncarbonate, (MG/L):                    | 260          | 350   | 370   |
| Total, (MG/L):                           | 1,600        | 1,700 | 1,600 |
| Specific conductance<br>(Micromohs):     | 5,600        | 6,060 | 5,930 |
| Total dissolved<br>solids (TDS), (MG/L): | 3,990        | 3,880 | 3,770 |
| pH, Field                                | -            | 6.5   | 6.4   |
| Discharge (gpm):                         | 54           | 54    | 54    |
| Temperature (°C):                        | 32           | 32    | 32    |

Remarks: Located south of resort and approx. 50 feet east of U.S. 550.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Pinkerton Hot Springs: Spring B

Location: 37°27'58"N. Latitude; 107°48'18"W. Longitude; T. 37 N., R. 9 W., Sec. 25 a, N.M.P.M., La Plata County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 9/75         |
| Arsenic (As), (UG/L):                    | 160          |
| Boron (B), (UG/L):                       | 3,000        |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 530          |
| Chloride (Cl), (MG/L):                   | 990          |
| Fluoride (F), (MG/L):                    | -            |
| Iron (Fe), (UG/L):                       | 4,400        |
| Lithium (Li), (UG/L):                    | 2,800        |
| Magnesium (Mg), (MG/L):                  | 71           |
| Manganese (Mn), (UG/L):                  | 530          |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | -            |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.01         |
| Ortho, (MG/L):                           | 0.04         |
| Potassium (K), (MG/L):                   | 120          |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | -            |
| Sodium (Na), (MG/L):                     | 720          |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 610          |
| Zinc (Zn), (UG/L):                       | 20           |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 1,350        |
| As Bicarbonate, (MG/L):                  | 1,640        |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 280          |
| Total, (MG/L):                           | 1,600        |
| Specific conductance<br>(Micromohs):     | 6,000        |
| Total dissolved<br>solids (TDS), (MG/L): | -            |
| pH, Field                                | -            |
| Discharge (gpm):                         | 20           |
| Temperature (°C):                        | 33           |

Remarks: Located approx. 1200 feet west of Spring A

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Pinkerton Hot Springs: Mound Spring

Location: 37°27'07"N. Latitude; 107°48'20"W. Longitude; T. 37 N., R. 9 W., Sec. 25 ba, N.M.P.M., La Plata County

|                                          | Date Sampled |       |       |
|------------------------------------------|--------------|-------|-------|
|                                          | 9/75         | 1/76  | 4/76  |
| Arsenic (As), (UG/L):                    | 180          | -     | -     |
| Boron (B), (UG/L):                       | 3,000        | 3,000 | 2,900 |
| Cadium (Cd), (UG/L):                     | 0            | -     | -     |
| Calcium (Ca), (MG/L):                    | 550          | 550   | 550   |
| Chloride (Cl), (MG/L):                   | 1,000        | 1,000 | 900   |
| Fluoride (F), (MG/L):                    | 2.1          | 1.9   | 3.0   |
| Iron (Fe), (UG/L):                       | 4,100        | 4,200 | 4,300 |
| Lithium (Li), (UG/L):                    | 2,800        | -     | -     |
| Magnesium (Mg), (MG/L):                  | 74           | 68    | 72    |
| Manganese (Mn), (UG/L):                  | 500          | 490   | 480   |
| Mercury (Hg), (UG/L):                    | 0            | -     | -     |
| Nitrogen (N), (MG/L):                    | 0.06         | 0     | 0     |
| Phosphate (PO <sub>4</sub> )             |              |       |       |
| Ortho diss. as P, (MG/L):                | 0.01         | 0.03  | 0     |
| Ortho, (MG/L):                           | 0.03         | 0.09  | 0     |
| Potassium (K), (MG/L):                   | 120          | 120   | 120   |
| Selenium (Se), (UG/L):                   | 0            | -     | -     |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 29           | 28    | 28    |
| Sodium (Na), (MG/L):                     | 730          | 710   | 710   |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 620          | 600   | 650   |
| Zinc (Zn), (UG/L):                       | 10           | -     | -     |
| Alkalinity                               |              |       |       |
| As Calcium Carbonate, (MG/L):            | 1,340        | 1,320 | 1,330 |
| As Bicarbonate, (MG/L):                  | 1,630        | 1,610 | 1,620 |
| Hardness                                 |              |       |       |
| Noncarbonate, (MG/L):                    | 340          | 330   | 340   |
| Total, (MG/L):                           | 1,700        | 1,700 | 1,700 |
| Specific conductance<br>(Micromohs):     | 5,600        | 6,050 | 5,890 |
| Total dissolved<br>solids (TDS), (MG/L): | 3,940        | 3,880 | 3,840 |
| pH, Field                                | -            | 6.5   | 6.4   |
| Discharge (gpm):                         | 8E           | 5E    | 5E    |
| Temperature (°C):                        | 30           | 29    | 29    |

Remarks:

Table 1. Physical Properties and Chemical Analysis of Thermal Waters  
In Colorado.

Pinkerton Hot Springs: Little Mound Spring

Location:  $37^{\circ}27'09''$ N. Latitude;  $107^{\circ}48'21''$ W. Longitude; T. 37 N., R. 9 W.,  
Sec. 25 ba, N.M.P.M., La Plata County

Temperature:  $26^{\circ}\text{C}$

Discharge: 2 gpm (est.)

Specific conductance: 5,500

pH: 7.0

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Poncha Hot Springs: Spring A

Location: 38°29'49"N. Latitude; 106°04'37"W. Longitude; T. 49 N., R. 8 E., Sec. 15 cb, N.M.P.M., Chaffee County

|                                          | Date Sampled |       |      |      |
|------------------------------------------|--------------|-------|------|------|
|                                          | 6/75         | 10/75 | 1/76 | 4/76 |
| Arsenic (As), (UG/L):                    | 2            | 3     | -    | -    |
| Boron (B), (UG/L):                       | 80           | 70    | 80   | 60   |
| Cadium (Cd), (UG/L):                     | 0            | 0     | -    | -    |
| Calcium (Ca), (MG/L):                    | 20           | 17    | 17   | 17   |
| Chloride (Cl), (MG/L):                   | 49           | 50    | 51   | 49   |
| Fluoride (F), (MG/L):                    | 11           | 11    | 12   | 14   |
| Iron (Fe), (UG/L):                       | 20           | 0     | 20   | 0    |
| Lithium (Li), (UG/L):                    | 190          | 180   | -    | -    |
| Magnesium (Mg), (MG/L):                  | 0.7          | 0.5   | 0.2  | 0.2  |
| Manganese (Mn), (UG/L):                  | 40           | 50    | 40   | 30   |
| Mercury (Hg), (UG/L):                    | 0.1          | 0     | -    | -    |
| Nitrogen (N), (MG/L):                    | 0.05         | 0     | 0.01 | 0.01 |
| Phosphate (PO <sub>4</sub> )             |              |       |      |      |
| Ortho diss. as P, (MG/L):                | 0.05         | 0.02  | 0.03 | 0.12 |
| Ortho, (MG/L):                           | 0.15         | 0.06  | 0.09 | 0.12 |
| Potassium (K), (MG/L):                   | 8            | 8.1   | 8.3  | 8.7  |
| Selenium (Se), (UG/L):                   | 0            | 0     | -    | -    |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 81           | 71    | 100  | 77   |
| Sodium (Na), (MG/L):                     | 190          | 200   | 200  | 190  |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 200          | 220   | 200  | 190  |
| Zinc (Zn), (UG/L):                       | 10           | 10    | -    | -    |
| Alkalinity                               |              |       |      |      |
| As Calcium Carbonate, (MG/L):            | 177          | 166   | 180  | 180  |
| As Bicarbonate, (MG/L):                  | 216          | 202   | 219  | 219  |
| Hardness                                 |              |       |      |      |
| Noncarbonate, (MG/L):                    | 0            | 0     | 0    | 0    |
| Total, (MG/L):                           | 53           | 45    | 43   | 43   |
| Specific conductance<br>(Micromohs)      | 870          | 1,040 | 996  | 995  |
| Total dissolved<br>solids (TDS), (MG/L): | 667          | 678   | 697  | 654  |
| pH, Field                                | -            | 8.0   | 7.7  | 7.5  |
| Discharge (gpm):                         | -            | -     | -    | 200  |
| Temperature (°C):                        | 71           | 70    | 70   | 50   |

Remarks: Located 270 feet southeast of house in lowest collection box. Discharge may represent total discharge of all springs.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Poncha Hot Springs: Spring B

Location: 38°29'49"N. Latitude; 106°04'36"W. Longitude; T. 49 N., R. 8 E., Sec. 15 cb, N.M.P.M., Chaffee County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 6/75         |
| Arsenic (As), (UG/L):                    | 2            |
| Boron (B), (UG/L):                       | 70           |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 18           |
| Chloride (Cl), (MG/L):                   | 48           |
| Fluoride (F), (MG/L):                    | 12           |
| Iron (Fe), (UG/L):                       | 50           |
| Lithium (Li), (UG/L):                    | 180          |
| Magnesium (Mg), (MG/L):                  | 0.5          |
| Manganese (Mn), (UG/L):                  | 40           |
| Mercury (Hg), (UG/L):                    | 0.1          |
| Nitrogen (N), (MG/L):                    | 0.02         |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.04         |
| Ortho, (MG/L):                           | 0.12         |
| Potassium (K), (MG/L):                   | 7.8          |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 83           |
| Sodium (Na), (MG/L):                     | 190          |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 190          |
| Zinc (Zn), (UG/L):                       | 0            |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 176          |
| As Bicarbonate, (MG/L):                  | 214          |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 0            |
| Total, (MG/L):                           | 47           |
| Specific conductance<br>(Micromohs):     | 940          |
| Total dissolved<br>solids (TDS), (MG/L): | 655          |
| pH, Field                                | -            |
| Discharge (gpm):                         | 30E          |
| Temperature (°C):                        | 66           |

Remarks: Located approx. 140 feet southeast of Spring A and approx. 50feet higher up the hill.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Poncha Hot Springs: Spring C

Location: 38°29'50"N. Latitude; 106°04'31"W. Longitude; T. 49 N., R. 8 E., Sec. 15 bc, N.M.P.M., Chaffee County

|                                          | Date Sampled |       |      |      |
|------------------------------------------|--------------|-------|------|------|
|                                          | 6/75         | 10/75 | 1/76 | 4/76 |
| Arsenic (As), (UG/L):                    | 6            | 4     | -    | -    |
| Boron (B), (UG/L):                       | 80           | 70    | 60   | 150  |
| Cadium (Cd), (UG/L):                     | 0            | 0     | -    | -    |
| Calcium (Ca), (MG/L):                    | 24           | 17    | 17   | 17   |
| Chloride (Cl), (MG/L):                   | 49           | 50    | 52   | 49   |
| Fluoride (F), (MG/L):                    | 11           | 8.9   | 12   | 13   |
| Iron (Fe), (UG/L):                       | 40           | 10    | 30   | 0    |
| Lithium (Li), (UG/L):                    | 200          | 180   | -    | -    |
| Magnesium (Mg), (MG/L):                  | 0.8          | 0.4   | 0.3  | 0.4  |
| Manganese (Mn), (UG/L):                  | 50           | 40    | 40   | 40   |
| Mercury (Hg), (UG/L):                    | 0            | 0     | -    | -    |
| Nitrogen (N), (MG/L):                    | 0.02         | 0.01  | 0.02 | 0    |
| Phosphate (PO <sub>4</sub> )             |              |       |      |      |
| Ortho diss. as P, (MG/L):                | 0.05         | 0.02  | 0.03 | 0.05 |
| Ortho, (MG/L):                           | 0.15         | 0.06  | 0.09 | 0.15 |
| Potassium (K), (MG/L):                   | 8.3          | 8.1   | 8.3  | 8.6  |
| Selenium (Se), (UG/L):                   | 0            | 0     | -    | -    |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 81           | 71    | 88   | 79   |
| Sodium (Na), (MG/L):                     | 190          | 190   | 200  | 190  |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 200          | 210   | 200  | 190  |
| Zinc (Zn), (UG/L):                       | 4            | 10    | -    | -    |
| Alkalinity                               |              |       |      |      |
| As Calcium Carbonate, (MG/L):            | 176          | 174   | 179  | 180  |
| As Bicarbonate, (MG/L):                  | 214          | 212   | 218  | 219  |
| Hardness                                 |              |       |      |      |
| Noncarbonate, (MG/L):                    | 0            | 0     | 0    | 0    |
| Total, (MG/L):                           | 63           | 44    | 44   | 44   |
| Specific conductance<br>(Micromohs):     | 960          | 860   | 998  | 999  |
| Total dissolved<br>solids (TDS), (MG/L): | 670          | 660   | 685  | 655  |
| pH, Field                                | -            | 8.0   | 7.5  | 7.5  |
| Discharge (gpm):                         | 2            | 3     | 2    | 4    |
| Temperature (°C):                        | 63           | 62    | 63   | 62   |

Remarks: Uppermost spring in draw east of Springs A and B

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Poncha Hot Springs: Spring D

Location: 38°29'50"N. Latitude; 106°04'32"W. Longitude; T. 49 N., R. 8 E., Sec. 15 bc, N.M.P.M., Chaffee County

Temperature: 56°C

Discharge: 2 gpm (est.)

Specific conductance: 1,000

Remarks: Located approximately 40 feet northwest of Spring C

Poncha Hot Springs: Spring E

Location: 38°29'50"N. Latitude; 106°04'32"W. Longitude; T. 49 N., R. 8 E., Sec. 15 bc, N.M.P.M., Chaffee County

Temperature: 60°C

Discharge: 2 gpm (est.)

Specific conductance: 950

Remarks: Located approximately 20 feet southwest of Spring D

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Rainbow Hot Spring

Location: 37°30'34"N. Latitude; 106°56'52"W. Longitude; T. 38 N., R. 1 W., Sec. 9, N.M.P.M., Mineral County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 9/75         |
| Arsenic (As), (UG/L):                    | 0            |
| Boron (B), (UG/L):                       | 50           |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 2.1          |
| Chloride (Cl), (MG/L):                   | 0.7          |
| Fluoride (F), (MG/L):                    | 2.2          |
| Iron (Fe), (UG/L):                       | 80           |
| Lithium (Li), (UG/L):                    | 10           |
| Magnesium (Mg), (MG/L):                  | 0.2          |
| Manganese (Mn), (UG/L):                  | 10           |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0            |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0            |
| Ortho, (MG/L):                           | 0            |
| Potassium (K), (MG/L):                   | 0.2          |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 39           |
| Sodium (Na), (MG/L):                     | 45           |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 30           |
| Zinc (Zn), (UG/L):                       | 10           |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 70           |
| As Bicarbonate, (MG/L):                  | 85           |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 0            |
| Total, (MG/L):                           | 6            |
| Specific conductance<br>(Micromohs):     | 220          |
| Total dissolved<br>solids (TDS), (MG/L): | 161          |
| pH, Field                                | -            |
| Discharge (gpm):                         | 45           |
| Temperature (°C):                        | 40           |
| Remarks:                                 |              |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Ranger Warm Spring

Location: 38°48'57"N. Latitude; 106°52'28"W. Longitude; T. 14 S., R. 85 W., Sec. 22 dc, 6th P.M., Gunnison County

|                                          | Date Sampled |       |      |      |
|------------------------------------------|--------------|-------|------|------|
|                                          | 7/75         | 10/75 | 1/76 | 4/76 |
| Arsenic (As), (UG/L):                    | 12           | 15    | -    | -    |
| Boron (B), (UG/L):                       | 80           | 80    | 80   | 80   |
| Cadium (Cd), (UG/L):                     | 0            | 0     | -    | -    |
| Calcium (Ca), (MG/L):                    | 73           | 70    | 72   | 71   |
| Chloride (Cl), (MG/L):                   | 17           | 18    | 19   | 19   |
| Fluoride (F), (MG/L):                    | 1.8          | 0.2   | 1.5  | 1.9  |
| Iron (Fe), (UG/L):                       | 10           | 20    | 0    | 10   |
| Lithium (Li), (UG/L):                    | 140          | 160   | -    | -    |
| Magnesium (Mg), (MG/L):                  | 22           | 20    | 20   | 23   |
| Manganese (Mn), (UG/L):                  | 0            | 0     | 0    | 0    |
| Mercury (Hg), (UG/L):                    | 0            | 0     | -    | -    |
| Nitrogen (N), (MG/L):                    | 0.10         | 0.08  | 0.12 | 0.14 |
| Phosphate (PO <sub>4</sub> )             |              |       |      |      |
| Ortho diss. as P, (MG/L):                | 0.01         | 0     | 0    | 0    |
| Ortho, (MG/L):                           | 0.03         | 0     | 0    | 0    |
| Potassium (K), (MG/L):                   | 7.2          | 7.7   | 8.1  | 8.2  |
| Selenium (Se), (UG/L):                   | 0            | 0     | -    | -    |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 20           | 18    | 19   | 19   |
| Sodium (Na), (MG/L):                     | 59           | 61    | 62   | 63   |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 89           | 90    | 100  | 89   |
| Zinc (Zn), (UG/L):                       | 30           | 10    | -    | -    |
| Alkalinity                               |              |       |      |      |
| As Calcium Carbonate, (MG/L):            | 285          | 298   | 272  | 298  |
| As Bicarbonate, (MG/L):                  | 347          | 363   | 332  | 363  |
| Hardness                                 |              |       |      |      |
| Noncarbonate, (MG/L):                    | 0            | 0     | 0    | 0    |
| Total, (MG/L):                           | 270          | 260   | 260  | 270  |
| Specific conductance<br>(Micromohs):     | 700          | 730   | 760  | 760  |
| Total dissolved<br>solids (TDS), (MG/L): | 461          | 465   | 466  | 474  |
| pH, Field                                | -            | 7.1   | 6.9  | 7.1  |
| Discharge (gpm):                         | 132          | 250E  | 225E | 175E |
| Temperature (°C):                        | 26           | 27    | 27   | 27   |

Remarks:

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Rhodes Warm Spring

Location: 30°09'49"N. Latitude; 106°03'53"W. Longitude; T. 10 S., R. 78 W., Sec. 24 cb, 6th P.M., Park County

|                                          | Date Sampled |       |
|------------------------------------------|--------------|-------|
|                                          | 6/75         | 10/75 |
| Arsenic (As), (UG/L):                    | 1            | 1     |
| Boron (B), (UG/L):                       | 30           | 20    |
| Cadium (Cd), (UG/L):                     | 1            | 0     |
| Calcium (Ca), (MG/L):                    | 33           | 32    |
| Chloride (Cl), (MG/L):                   | 1.8          | 4.1   |
| Fluoride (F), (MG/L):                    | 0.2          | 0.3   |
| Iron (Fe), (UG/L):                       | 20           | 40    |
| Lithium (Li), (UG/L):                    | 10           | 20    |
| Magnesium (Mg), (MG/L):                  | 21           | 19    |
| Manganese (Mn), (UG/L):                  | 5            | 10    |
| Mercury (Hg), (UG/L):                    | 0            | 0     |
| Nitrogen (N), (MG/L):                    | 0.21         | 0.16  |
| Phosphate (PO <sub>4</sub> )             |              |       |
| Ortho diss. as P, (MG/L):                | 0            | 0     |
| Ortho, (MG/L):                           | 0            | 0     |
| Potassium (K), (MG/L):                   | 1            | 1.2   |
| Selenium (Se), (UG/L):                   | 0            | 0     |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 11           | 12    |
| Sodium (Na), (MG/L):                     | 5.5          | 8.6   |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 14           | 16    |
| Zinc (Zn), (UG/L):                       | 20           | 10    |
| Alkalinity                               |              |       |
| As Calcium Carbonate, (MG/L):            | 162          | 166   |
| As Bicarbonate, (MG/L):                  | 197          | 202   |
| Hardness                                 |              |       |
| Noncarbonate, (MG/L):                    | 7            | 0     |
| Total, (MG/L):                           | 170          | 160   |
| Specific conductance<br>(Micromohs):     | 340          | 340   |
| Total dissolved<br>solids (TDS), (MG/L): | 186          | 194   |
| pH, Field                                | 8.2          | 6.5   |
| Discharge (gpm):                         | -            | 200   |
| Temperature (°C):                        | 24           | 25    |

Remarks:

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Rico Area: Diamond Drill Hole

Location: 37°41'20"N. Latitude; 108°01'45"W. Longitude; T. 40 N., R. 11 W., Sec. -, N.M.P.M., Dolores County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 1/76         |
| Arsenic (As), (UG/L):                    | -            |
| Boron (B), (UG/L):                       | 70           |
| Cadium (Cd), (UG/L):                     | -            |
| Calcium (Ca), (MG/L):                    | 590          |
| Chloride (Cl), (MG/L):                   | 2.4          |
| Fluoride (F), (MG/L):                    | 1.4          |
| Iron (Fe), (UG/L):                       | 30           |
| Lithium (Li), (UG/L):                    | -            |
| Magnesium (Mg), (MG/L):                  | 82           |
| Manganese (Mn), (UG/L):                  | 1,300        |
| Mercury (Hg), (UG/L):                    | -            |
| Nitrogen (N), (MG/L):                    | 0.07         |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.08         |
| Ortho, (MG/L):                           | 0.25         |
| Potassium (K), (MG/L):                   | 28           |
| Selenium (Se), (UG/L):                   | -            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 120          |
| Sodium (Na), (MG/L):                     | 66           |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 810          |
| Zinc (Zn), (UG/L):                       | -            |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 919          |
| As Bicarbonate, (MG/L):                  | 1,120        |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 890          |
| Total, (MG/L):                           | 1,800        |
| Specific conductance<br>(Micromohs):     | 2,710        |
| Total dissolved<br>solids (TDS), (MG/L): | 2,250        |
| pH, Field                                | 7.0          |
| Discharge (gpm):                         | 15           |
| Temperature (°C):                        | 44           |

Remarks: Located approximately 100 yards northwest of Little Spring in the middle of the floodplain.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Rico Area: Big Geyser Warm Spring

Location: 37°41'15"N. Latitude; 108°01'44"W. Longitude; T. 40 N., R. 11 W., Sec. -, N.M.P.M., Dolores County

|                                          | Date Sampled |       |
|------------------------------------------|--------------|-------|
|                                          | 9/75         | 4/76  |
| Arsenic (As), (UG/L):                    | 31           | -     |
| Boron (B), (UG/L):                       | 80           | 70    |
| Cadium (Cd), (UG/L):                     | 1            | -     |
| Calcium (Ca), (MG/L):                    | 680          | 690   |
| Chloride (Cl), (MG/L):                   | 4.1          | 4.3   |
| Fluoride (F), (MG/L):                    | 2.1          | 1.5   |
| Iron (Fe), (UG/L):                       | 8,300        | 8,500 |
| Lithium (Li), (UG/L):                    | 250          | -     |
| Magnesium (Mg), (MG/L):                  | 98           | 93    |
| Manganese (Mn), (UG/L):                  | 3,100        | 4,400 |
| Mercury (Hg), (UG/L):                    | 0            | -     |
| Nitrogen (N), (MG/L):                    | 0.05         | 0.01  |
| Phosphate (PO <sub>4</sub> )             |              |       |
| Ortho diss. as P, (MG/L):                | 0.08         | 0.18  |
| Ortho, (MG/L):                           | 0.25         | 0.55  |
| Potassium (K), (MG/L):                   | 30           | 31    |
| Selenium (Se), (UG/L):                   | 0            | -     |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 110          | 140   |
| Sodium (Na), (MG/L):                     | 78           | 67    |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 900          | 920   |
| Zinc (Zn), (UG/L):                       | 1,000        | -     |
| Alkalinity                               |              |       |
| As Calcium Carbonate, (MG/L):            | 1,390        | 1,350 |
| As Bicarbonate, (MG/L):                  | 1,700        | 1,650 |
| Hardness                                 |              |       |
| Noncarbonate, (MG/L):                    | 710          | 750   |
| Total, (MG/L):                           | 2,100        | 2,100 |
| Specific conductance<br>(Micromohs):     | 3,250        | 3,100 |
| Total dissolved<br>solids (TDS), (MG/L): | 2,750        | 2,740 |
| pH, Field                                | -            | 6.8   |
| Discharge (gpm):                         | 8            | 12    |
| Temperature (°C):                        | 34           | 36    |

Remarks:

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Rico Area: Geyser Warm Spring

Location: 37°41'17"N. Latitude; 108°01'44"W. Longitude; T. 40 N., R. 11 W., Sec. -, N.M.P.M., Dolores County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 9/75         |
| Arsenic (As), (UG/L):                    | 26           |
| Boron (B), (UG/L):                       | 80           |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 680          |
| Chloride (Cl), (MG/L):                   | 3.9          |
| Fluoride (F), (MG/L):                    | 2.1          |
| Iron (Fe), (UG/L):                       | 8,500        |
| Lithium (Li), (UG/L):                    | 250          |
| Magnesium (Mg), (MG/L):                  | 100          |
| Manganese (Mn), (UG/L):                  | 1,900        |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0.02         |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.09         |
| Ortho, (MG/L):                           | 0.28         |
| Potassium (K), (MG/L):                   | 32           |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 110          |
| Sodium (Na), (MG/L):                     | 80           |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 920          |
| Zinc (Zn), (UG/L):                       | 80           |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 1,420        |
| As Bicarbonate, (MG/L):                  | 1,730        |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 690          |
| Total, (MG/L):                           | 2,100        |
| Specific conductance<br>(Micromohs):     | 3,200        |
| Total dissolved<br>solids (TDS), (MG/L): | 2,790        |
| pH, Field                                | -            |
| Discharge (gpm):                         | 14           |
| Temperature (°C):                        | 38           |
| Remarks:                                 |              |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Rico Area: Little Spring

Location: 37°41'19"N. Latitude; 108°01'44"W Longitude;; T. 40 N., R. 11 W., Sec. -, N.M.P.M., Dolores County

|                                          | Date Sampled |       |
|------------------------------------------|--------------|-------|
|                                          | 9/75         | 1/76  |
| Arsenic (As), (UG/L):                    | 26           | -     |
| Boron (B), (UG/L):                       | 90           | 70    |
| Cadium (Cd), (UG/L):                     | 0            | -     |
| Calcium (Ca), (MG/L):                    | 620          | 690   |
| Chloride (Cl), (MG/L):                   | 2.3          | 3     |
| Fluoride (F), (MG/L):                    | 1.5          | 4.8   |
| Iron (Fe), (UG/L):                       | 4,800        | 7,400 |
| Lithium (Li), (UG/L):                    | 210          | -     |
| Magnesium (Mg), (MG/L):                  | 110          | 92    |
| Manganese (Mn), (UG/L):                  | 1,500        | 1,600 |
| Mercury (Hg), (UG/L):                    | 0.1          | -     |
| Nitrogen (N), (MG/L):                    | 0.05         | 0.08  |
| Phosphate (PO <sub>4</sub> )             |              |       |
| Ortho diss. as P, (MG/L):                | 0.08         | 0.11  |
| Ortho, (MG/L):                           | 0.25         | 0.34  |
| Potassium (K), (MG/L):                   | 5.6          | 32    |
| Selenium (Se), (UG/L):                   | 0            | -     |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 120          | 120   |
| Sodium (Na), (MG/L):                     | 76           | 77    |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 1,000        | 960   |
| Zinc (Zn), (UG/L):                       | 100          | -     |
| Alkalinity                               |              |       |
| As Calcium Carbonate, (MG/L):            | 1,400        | 1,190 |
| As Bicarbonate, (MG/L):                  | 1,710        | 1,450 |
| Hardness                                 |              |       |
| Noncarbonate, (MG/L):                    | 600          | 910   |
| Total, (MG/L):                           | 2,000        | 2,100 |
| Specific conductance<br>(Micromohs):     | 4,700        | 3,350 |
| Total dissolved<br>solids (TDS), (MG/L): | 2,790        | 2,700 |
| pH, Field                                | -            | 7.0   |
| Discharge (gpm):                         | 13           | 15    |
| Temperature (°C):                        | 38           | 39    |
| Remarks:                                 |              |       |

**Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.**

Routt Hot Springs: Spring A

Location: 40°33'34"N. Latitude, 106°51'00"W. Longitude;; T. 7 N., R. 84 W., Sec. 18 dc, 6th P.M., Routt County

|                                          | Date Sampled |       |      |       |
|------------------------------------------|--------------|-------|------|-------|
|                                          | 7/75         | 10/75 | 1/76 | 4/76  |
| Arsenic (As), (UG/L):                    | 38           | 85    | -    | -     |
| Boron (B), (UG/L):                       | 280          | 290   | 260  | 280   |
| Cadium (Cd), (UG/L):                     | 0            | 0     | -    | -     |
| Calcium (Ca), (MG/L):                    | 13           | 7.3   | 7.7  | 7.7   |
| Chloride (Cl), (MG/L):                   | 140          | 130   | 120  | 130   |
| Fluoride (F), (MG/L):                    | 18           | 14    | 16   | 17    |
| Iron (Fe), (UG L):                       | 0            | 60    | 0    | 110   |
| Lithium (Li), (UG/L):                    | 290          | 420   | -    | -     |
| Magnesium (Mg), (MG/L):                  | 0.4          | 0.2   | 0.1  | 0.1   |
| Manganese (Mn), (UG/L):                  | 0            | 10    | 0    | 10    |
| Mercury (Hg), (UG/L):                    | 0            | 0     | -    | -     |
| Nitrogen (N), (MG/L):                    | 0            | 0     | 0.01 | 0.02  |
| Phosphate (PO <sub>4</sub> )             |              |       |      |       |
| Ortho diss. as P, (MG/L):                | 0.01         | 0.02  | 0.04 | 0.05  |
| Ortho, (MG/L):                           | 0.03         | 0.06  | 0.12 | 0.15  |
| Potassium (K), (MG/L):                   | 9            | 8.3   | 8.5  | 8.8   |
| Selenium (Se), (UG/L):                   | 0            | 0     | -    | -     |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 97           | 80    | 86   | 89    |
| Sodium (Na), (MG/L):                     | 160          | 160   | 160  | 160   |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 47           | 49    | 54   | 45    |
| Zinc (Zn), (UG/L):                       | 0            | 10    | -    | -     |
| Alkalinity                               |              |       |      |       |
| As Calcium Carbonate, (MG/L):            | 112          | 113   | 114  | 114   |
| As Bicarbonate, (MG/L):                  | 136          | 138   | 139  | 139   |
| Hardness                                 |              |       |      |       |
| Noncarbonate, (MG/L):                    | 0            | 0     | 0    | 0     |
| Total, (MG/L):                           | 34           | 19    | 20   | 20    |
| Specific conductance<br>(Micromohs):     | 830          | 890   | 810  | 1,000 |
| Total dissolved<br>solids (TDS), (MG/L): | 552          | 518   | 521  | 527   |
| pH, Field                                | 7.6          | 6.5   | 9.3  | 7.8   |
| Discharge (gpm):                         | 33           | 50    | 25   | 35    |
| Temperature (°C):                        | 64           | 64    | 64   | 64    |

Remarks: Located south of creek and approximately 100 feet up the hillside

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Routt Hot Springs: Spring B

Location: 40°33'35"N. Latitude; 106°50'59"W. Longitude; T. 7 N., R. 84 W., Sec. 18 dc, 6th P.M., Routt County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 7/75         |
| Arsenic (As), (UG/L):                    | 100          |
| Boron (B), (UG/L):                       | 280          |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 7.8          |
| Chloride (Cl), (MG/L):                   | 130          |
| Fluoride (F), (MG/L):                    | 17           |
| Iron (Fe), (UG/L):                       | 80           |
| Lithium (Li), (UG/L):                    | 310          |
| Magnesium (Mg), (MG/L):                  | 0.5          |
| Manganese (Mn), (UG/L):                  | 10           |
| Mercury (Hg), (UG/L):                    | 0.1          |
| Nitrogen (N), (MG/L):                    | 0            |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.02         |
| Ortho, (MG/L):                           | 0.06         |
| Potassium (K), (MG/L):                   | 9.1          |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 98           |
| Sodium (Na), (MG/L):                     | 160          |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 49           |
| Zinc (Zn), (UG/L):                       | 6            |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 111          |
| As Bicarbonate, (MG/L):                  | 135          |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 0            |
| Total, (MG/L):                           | 22           |
| Specific conductance<br>(Micromohs):     | 770          |
| Total dissolved<br>solids (TDS), (MG/L): | 539          |
| pH, Field                                | 7.1          |
| Discharge (gpm):                         | 30           |
| Temperature (°C):                        | 62           |

Remarks: Biggest spring north of creek, approximately 5 feet above creek.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Routt Hot Springs: Spring C

Location:  $40^{\circ}33'34''$ N. Latitude;  $106^{\circ}50'59''$ W. Longitude; T. 7 N., R. 84 W., Sec. 18 dc, 6th P.M., Routt County

Temperature:  $54^{\circ}\text{C}$

Discharge: 2 gpm (est.)

Specific conductance: 860

Remarks: Located approximately 50 feet east of Spring A

Routt Hot Springs: Spring D

Location:  $40^{\circ}33'34''$ N. Latitude;  $106^{\circ}50'58''$ W Longitude; T. 7 N., R. 84 W., Sec. 18 dc, 6th P.M., Routt County

Temperature:  $51^{\circ}\text{C}$

Discharge: 2 gpm (est.)

Specific conductance: 830

Remarks: Located approximately 40 feet southeast of Spring D

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Sand Dunes Swimming Pool: Hot Water Well

Location: 37°46'42"N. Latitude; 105°51'20"W. Longitude; T. 41 N., R. 10 E., Sec. 27 aa, N.M.P.M., Alamosa County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 8/75         |
| Arsenic (As), (UG/L):                    | 144          |
| Boron (B), (UG/L):                       | 510          |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 3.2          |
| Chloride (Cl), (MG/L):                   | 4.7          |
| Fluoride (F), (MG/L):                    | 5.9          |
| Iron (Fe), (UG/L):                       | 10           |
| Lithium (Li), (UG/L):                    | 10           |
| Magnesium (Mg), (MG/L):                  | 0.4          |
| Manganese (Mn), (UG/L):                  | 0            |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0            |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.06         |
| Ortho, (MG/L):                           | 0.18         |
| Potassium (K), (MG/L):                   | 8.6          |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 120          |
| Sodium (Na), (MG/L):                     | 81           |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 23           |
| Zinc (Zn), (UG/L):                       | 10           |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 144          |
| As Bicarbonate, (MG/L):                  | 176          |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 0            |
| Total, (MG/L):                           | 10           |
| Specific conductance<br>(Micromohs):     | 385          |
| Total dissolved<br>solids (TDS), (MG/L): | 334          |
| pH, Field                                | 8.3          |
| Discharge (gpm):                         | -            |
| Temperature (°C):                        | 44           |
| Remarks:                                 |              |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Shaws Warm Spring

Location: 37°45'01"N. Latitude; 106°19'01"W. Longitude; T. 41 N., R. 6 E., Sec. 33 dd, N.M.P.M., Saguache County

|                                                                         | Date Sampled |        |       |       |
|-------------------------------------------------------------------------|--------------|--------|-------|-------|
|                                                                         | 8/75*        | 10/75* | 1/76* | 4/76* |
| Arsenic (As), (UG/L):                                                   | 0            | 0      | -     | -     |
| Boron (B), (UG/L):                                                      | 130          | 140    | 120   | 270   |
| Cadium (Cd), (UG/L):                                                    | 0            | 0      | -     | -     |
| Calcium (Ca), (MG/L):                                                   | 0.9          | 0.5    | 2.7   | 0.9   |
| Chloride (Cl), (MG/L):                                                  | 7.5          | 7.2    | 7.3   | 7.0   |
| Fluoride (F), (MG/L):                                                   | 3.1          | 2.9    | 3.0   | 4.2   |
| Iron (Fe), (UG/L):                                                      | 40           | 20     | 10    | 0     |
| Lithium (Li), (UG/L):                                                   | 10           | 10     | -     | -     |
| Magnesium (Mg), (MG/L):                                                 | 0.6          | 0.3    | 0.7   | 0.1   |
| Manganese (Mn), (UG/L):                                                 | 0            | 0      | 0     | 10    |
| Mercury (Hg), (UG/L):                                                   | 0            | 0      | -     | -     |
| Nitrogen (N), (MG/L):                                                   | 0.01         | 0.02   | 0.02  | 0.01  |
| Phosphate (PO <sub>4</sub> )                                            |              |        |       |       |
| Ortho diss. as P, (MG/L):                                               | 0.04         | 0.03   | 0.05  | 0.04  |
| Ortho, (MG/L):                                                          | 0.12         | 0.09   | 0.15  | 0.12  |
| Potassium (K), (MG/L):                                                  | 1.5          | 1.4    | 1.5   | 1.5   |
| Selenium (Se), (UG/L):                                                  | 0            | 0      | -     | -     |
| Silica (SiO <sub>2</sub> ), (MG/L):                                     | 83           | 73     | 100   | 76    |
| Sodium (Na), (MG/L):                                                    | 130          | 130    | 130   | 130   |
| Sulfate (SO <sub>4</sub> ), (MG/L):                                     | 50           | 53     | 46    | 46    |
| Zinc (Zn), (UG/L):                                                      | 0            | 0      | -     | -     |
| Alkalinity                                                              |              |        |       |       |
| As Calcium Carbonate, (MG/L):                                           | 214          | 222    | 221   | 219   |
| As Bicarbonate, (MG/L):                                                 | 121          | 114    | 154   | 127   |
| Hardness                                                                |              |        |       |       |
| Noncarbonate, (MG/L):                                                   | 0            | 0      | 0     | 0     |
| Total, (MG/L):                                                          | 5            | 2      | 10    | 3     |
| Specific conductance (Micromohs):                                       | 550          | 540    | 569   | 556   |
| Total dissolved solids (TDS), (MG/L):                                   | 406          | 402    | 424   | 398   |
| pH, Field                                                               | 9.3          | 9.3    | 9.0   | 8.9   |
| Discharge (gpm):                                                        | 34           | 34     | 52    | 40    |
| Temperature (°C):                                                       | 30           | 30     | 30    | 30    |
| Remarks: Carbonate content (MG/L): 69; 77; 57; and 69 mg/l respectively |              |        |       |       |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

South Canyon Hot Springs: Spring A

Location: 39°33'16"N. Latitude; 107°23'53"W. Longitude; T. 6 S., R. 90 W., Sec. 2 cd, 6th P.M., Garfield County

|                                          | Date Sampled |       |       |       |
|------------------------------------------|--------------|-------|-------|-------|
|                                          | 7/75         | 10/75 | 1/76  | 4/76  |
| Arsenic (As), (UG/L):                    | 2            | 1     | -     | -     |
| Boron (B), (UG/L):                       | 210          | 260   | 290   | 260   |
| Cadium (Cd), (UG/L):                     | 0            | 1     | -     | -     |
| Calcium (Ca), (MG/L):                    | 7.0          | 7.7   | 7.9   | 7.8   |
| Chloride (Cl), (MG/L):                   | 190          | 210   | 200   | 190   |
| Fluoride (F), (MG/L):                    | 4.2          | 3.0   | 4.0   | 3.5   |
| Iron (Fe), (UG/L):                       | 20           | 30    | 10    | 30    |
| Lithium (Li), (UG/L):                    | 150          | 150   | -     | -     |
| Magnesium (Mg), (MG/L):                  | 1.0          | 1.4   | 2.2   | 0.9   |
| Manganese (Mn), (UG/L):                  | 40           | 40    | 50    | 50    |
| Mercury (Hg), (UG/L):                    | 0            | 0     | -     | -     |
| Nitrogen (N), (MG/L):                    | 0.04         | 0.19  | 0.01  | 0.07  |
| Phosphate (PO <sub>4</sub> )             |              |       |       |       |
| Ortho diss. as P, (MG/L):                | 0.02         | 0.02  | 0.01  | 0.01  |
| Ortho, (MG/L):                           | 0.06         | 0.06  | 0.03  | 0.03  |
| Potassium (K), (MG/L):                   | 8.2          | 8.0   | 8.2   | 8.2   |
| Selenium (Se), (UG/L):                   | 0            | 0     | -     | -     |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 44           | 39    | 45    | 41    |
| Sodium (Na), (MG/L):                     | 280          | 280   | 270   | 270   |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 110          | 100   | 94    | 100   |
| Zinc (Zn), (UG/L):                       | 0            | 10    | -     | -     |
| Alkalinity                               |              |       |       |       |
| As Calcium Carbonate, (MG/L):            | 248          | 249   | 251   | 250   |
| As Bicarbonate, (MG/L):                  | 302          | 303   | 306   | 305   |
| Hardness                                 |              |       |       |       |
| Noncarbonate, (MG/L):                    | 0            | 0     | 0     | 0     |
| Total, (MG/L):                           | 22           | 25    | 29    | 23    |
| Specific conductance<br>(Micromohs):     | 1,300        | 1,300 | 1,220 | 1,100 |
| Total dissolved<br>solids (TDS), (MG/L): | 794          | 800   | 783   | 772   |
| pH, Field                                | 7.1          | 7.6   | -     | 7.3   |
| Discharge (gpm):                         | 12           | 7     | 9     | 17    |
| Temperature (°C):                        | 48           | 48    | 48    | 47    |
| Remarks:                                 |              |       |       |       |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

South Canyon Hot Springs: Spring B

Location: 39°33'15"N. Latitude; 107°23'51"W. Longitude; T. 6 S., R. 90 W., Sec. 2 cd, 6th P. M., Garfield County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 7/75         |
| Arsenic (As), (UG/L):                    | 2            |
| Boron (B), (UG/L):                       | 230          |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 7.1          |
| Chloride (Cl), (MG/L):                   | 190          |
| Fluoride (F), (MG/L):                    | 4.0          |
| Iron (Fe), (UG/L):                       | 40           |
| Lithium (Li), (UG/L):                    | 150          |
| Magnesium (Mg), (MG/L):                  | 0.9          |
| Manganese (Mn), (UG/L):                  | 50           |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0.01         |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.01         |
| Ortho, (MG/L):                           | 0.03         |
| Potassium (K), (MG/L):                   | 7.8          |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 43           |
| Sodium (Na), (MG/L):                     | 260          |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 100          |
| Zinc (Zn), (UG/L):                       | 0            |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 239          |
| As Bicarbonate, (MG/L):                  | 291          |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 0            |
| Total, (MG/L):                           | 21           |
| Specific conductance<br>(Micromohs):     | 1,300        |
| Total dissolved<br>solids (TDS), (MG/L): | 757          |
| pH, Field                                | 7.1          |
| Discharge (gpm):                         | 1E           |
| Temperature (°C):                        | 48           |
| Remarks:                                 |              |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Splashland Hot Water Well

Location: 37°29'19"N. Latitude; 105°51'27"W. Longitude; T. 38 N., R. 10 E., Sec. 34 dd, N.M.P.M., Alamosa County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 8/75         |
| Arsenic (As), (UG/L):                    | 65           |
| Boron (B), (UG/L):                       | 340          |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 4.1          |
| Chloride (Cl), (MG/L):                   | 6.4          |
| Fluoride (F), (MG/L):                    | 4.2          |
| Iron (Fe), (UG/L):                       | 20           |
| Lithium (Li), (UG/L):                    | 10           |
| Magnesium (Mg), (MG/L):                  | 0.4          |
| Manganese (Mn), (UG/L):                  | 0            |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0            |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.05         |
| Ortho, (MG/L):                           | 0.15         |
| Potassium (K), (MG/L):                   | 9.9          |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 110          |
| Sodium (Na), (MG/L):                     | 72           |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 29           |
| Zinc (Zn), (UG/L):                       | 0            |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 124          |
| As Bicarbonate, (MG/L):                  | 151          |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 0            |
| Total, (MG/L):                           | 12           |
| Specific conductance<br>(Micromohs):     | 365          |
| Total dissolved<br>solids (TDS), (MG/L): | 311          |
| pH, Field                                | 8.3          |
| Discharge (gpm):                         | -            |
| Temperature (°C):                        | 40           |
| Remarks:                                 |              |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Steamboat Springs Area: Heart Hot Spring

Location: 40°28'58"N. Latitude; 106°49'37"W. Longitude; T. 6 N., R. 84 W., Sec. 17 adb, 6th. P.M., Routt County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 4/76         |
| Arsenic (As), (UG/L):                    | 5            |
| Boron (B), (UG/L):                       | 700          |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 18           |
| Chloride (Cl), (MG/L):                   | 320          |
| Fluoride (F), (MG/L):                    | 1.9          |
| Iron (Fe), (UG/L):                       | 40           |
| Lithium (Li), (UG/L):                    | 350          |
| Magnesium (Mg), (MG/L):                  | 1            |
| Manganese (Mn), (UG/L):                  | 0            |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0.04         |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.02         |
| Ortho, (MG/L):                           | 0.06         |
| Potassium (K), (MG/L):                   | 11           |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 49           |
| Sodium (Na), (MG/L):                     | 300          |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 150          |
| Zinc (Zn), (UG/L):                       | 0            |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 84           |
| As Bicarbonate, (MG/L):                  | 103          |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 0            |
| Total, (MG/L):                           | 49           |
| Specific conductance<br>(Micromohs):     | 1,450        |
| Total dissolved<br>solids (TDS), (MG/L): | 903          |
| pH, Field                                | 8.0          |
| Discharge (gpm):                         | 140 (7/75)   |
| Temperature (°C):                        | 39           |

Remarks: Located at east end of main street. Supplies water to swimming pool.

Table 1. Physical Properties and Chemical Analysis of ~~Thermal Waters~~  
in Colorado.

Steamboat Springs Area: Sulphur Cave Spring

Location: 40°29'02"N. Latitude; 106°50'23"W. Longitude; T. 6 N., R. 84 W.,  
Sec. 17 bdb, 6th. P.M., Routt County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 4/76         |
| Arsenic (As), (UG/L):                    | 45           |
| Boron (B), (UG/L):                       | 2,900        |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 90           |
| Chloride (Cl), (MG/L):                   | 1,000        |
| Fluoride (F), (MG/L):                    | 3.0          |
| Iron (Fe), (UG/L):                       | 60           |
| Lithium (Li), (UG/L):                    | 3,000        |
| Magnesium (Mg), (MG/L):                  | 24           |
| Manganese (Mn), (UG/L):                  | 310          |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0            |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.06         |
| Ortho, (MG/L):                           | 0.18         |
| Potassium (K), (MG/L):                   | 110          |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 18           |
| Sodium (Na), (MG/L):                     | 1,600        |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 490          |
| Zinc (Zn), (UG/L):                       | 10           |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 1,980        |
| As Bicarbonate, (MG/L):                  | 2,420        |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 0            |
| Total, (MG/L):                           | 320          |
| Specific conductance<br>(Micromohs):     | 5,800        |
| Total dissolved<br>solids (TDS), (MG/L): | 4,530        |
| pH, Field                                | 6.5          |
| Discharge (gpm):                         | 10           |
| Temperature (°C):                        | 20           |
| Remarks:                                 |              |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Steamboat Springs Area: Steamboat Spring

Location: 40°29'18"N. Latitude; 106°50'27"W. Longitude; T. 6 N., R. 84 W., Sec. 8 cca, 6th. P.M., Routt County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 4/76         |
| Arsenic (As), (UG/L):                    | 130          |
| Boron (B), (UG/L):                       | 3,200        |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 110          |
| Chloride (Cl), (MG/L):                   | 1,400        |
| Fluoride (F), (MG/L):                    | 2.9          |
| Iron (Fe), (UG/L):                       | 10           |
| Lithium (Li), (UG/L):                    | 3,700        |
| Magnesium (Mg), (MG/L):                  | 31           |
| Manganese (Mn), (UG/L):                  | 380          |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0.16         |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.07         |
| Ortho, (MG/L):                           | 0.21         |
| Potassium (K), (MG/L):                   | 140          |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 21           |
| Sodium (Na), (MG/L):                     | 2,200        |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 590          |
| Zinc (Zn), (UG/L):                       | 30           |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 2,780        |
| As Bicarbonate, (MG/L):                  | 3,390        |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 0            |
| Total, (MG/L):                           | 400          |
| Specific conductance<br>(Micromohs):     | 9,130        |
| Total dissolved<br>solids (TDS), (MG/L): | 6,170        |
| pH, Field                                | 6.7          |
| Discharge (gpm):                         | 20           |
| Temperature (°C):                        | 26           |
| Remarks:                                 |              |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Stinking Springs

Location: 37°02'05"N. Latitude; 106°48'25"W. Longitude; T. 32 N., R. 1 E., Sec.2 dd, N.M.P.M., Archuleta County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 9/75         |
| Arsenic (As), (UG/L):                    | 0            |
| Boron (B), (UG/L):                       | 60           |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 210          |
| Chloride (Cl), (MG/L):                   | 7.3          |
| Fluoride (F), (MG/L):                    | 0.6          |
| Iron (Fe), (UG/L):                       | 140          |
| Lithium (Li), (UG/L):                    | 90           |
| Magnesium (Mg), (MG/L):                  | 27           |
| Manganese (Mn), (UG/L):                  | 120          |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0            |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0            |
| Ortho, (MG/L):                           | 0            |
| Potassium (K), (MG/L):                   | 12           |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 24           |
| Sodium (Na), (MG/L):                     | 20           |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 470          |
| Zinc (Zn), (UG/L):                       | 10           |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 212          |
| As Bicarbonate, (MG/L):                  | 258          |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 420          |
| Total, (MG/L):                           | 640          |
| Specific conductance<br>(Micromohs):     | 1,250        |
| Total dissolved<br>solids (TDS), (MG/L): | 899          |
| pH, Field                                | -            |
| Discharge (gpm):                         | 24           |
| Temperature (°C):                        | 27           |
| Remarks:                                 |              |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Swissvale Warm Springs: Spring A

Location: 38°28'49"N. Latitude; 105°53'25"W. Longitude; T. 49 N., R. 10 E., Sec. 20 cda, N.M.P.M., Fremont County

Temperature: 28°C

Discharge: 125 gpm

Specific conductance: 880

pH: 7.0

Remarks: Located 30 feet south of U.S. Bureau of Land Management cadastral survey marker.

Swissvale Warm Springs: Spring F

Location: 38°28'49"N. Latitude; 105°53'28"W. Longitude; T. 49 N., R. 10 E., Sec. 20 cda, N.M.P.M., Fremont County

Temperature: 20°C

Discharge: 20 gpm (est.)

Specific conductance: 775

pH: 7.0

Remarks: Located approximately 350 feet west of Spring A and about 20 feet above the river bank.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Trimble Hot Spring

Location: 37°23'28"N. Latitude; 107°50'52"W. Longitude; T. 36 N., R. 9 W., Sec. 15 bb, N.M.P.M., La Plata County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 9/75         |
| Arsenic (As), (UG/L):                    | 17           |
| Boron (B), (UG/L):                       | 1,400        |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 510          |
| Chloride (Cl), (MG/L):                   | 220          |
| Fluoride (F), (MG/L):                    | 2.7          |
| Iron (Fe), (UG/L):                       | 50           |
| Lithium (Li), (UG/L):                    | 1,600        |
| Magnesium (Mg), (MG/L):                  | 42           |
| Manganese (Mn), (UG/L):                  | 80           |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0.08         |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.02         |
| Ortho, (MG/L):                           | 0.06         |
| Potassium (K), (MG/L):                   | 47           |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 72           |
| Sodium (Na), (MG/L):                     | 510          |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 1,400        |
| Zinc (Zn), (UG/L):                       | 10           |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 894          |
| As Bicarbonate, (MG/L):                  | 1,090        |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 550          |
| Total, (MG/L):                           | 1,400        |
| Specific conductance<br>(Micromohs):     | 4,400        |
| Total dissolved<br>solids (TDS), (MG/L): | 3,340        |
| pH, Field                                | -            |
| Discharge (gpm):                         | 1E           |
| Temperature (°C):                        | 36           |
| Remarks:                                 |              |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Tripp Hot Spring

Location: 37°23'30"N. Latitude; 107°50'52"W. Longitude; T. 36 N., R. 9 W., Sec. 10 cc, N.M.P.M., La Plata County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 9/75         |
| Arsenic (As), (UG/L):                    | 17           |
| Boron (B), (UG/L):                       | 1,500        |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 470          |
| Chloride (Cl), (MG/L):                   | 220          |
| Fluoride (F), (MG/L):                    | 2.7          |
| Iron (Fe), (UG/L):                       | 10           |
| Lithium (Li), (UG/L):                    | 1,600        |
| Magnesium (Mg), (MG/L):                  | 41           |
| Manganese (Mn), (UG/L):                  | 80           |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0.16         |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.05         |
| Ortho, (MG/L):                           | 0.15         |
| Potassium (K), (MG/L):                   | 47           |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 69           |
| Sodium (Na), (MG/L):                     | 500          |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 1,400        |
| Zinc (Zn), (UG/L):                       | 20           |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 810          |
| As Bicarbonate, (MG/L):                  | 988          |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 530          |
| Total, (MG/L):                           | 1,300        |
| Specific conductance<br>(Micromohs):     | 3,900        |
| Total dissolved<br>solids (TDS), (MG/L): | 3,240        |
| pH, Field                                | -            |
| Discharge (gpm):                         | -            |
| Temperature (°C):                        | 44           |
| Remarks:                                 |              |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Valley View Hot Springs: Spring A

Location: 38°11'32"N. Latitude; 105°48'49"W. Longitude; T. 46 N., R. 10 E., Sec. 36 db, N.M.P.M., Saguache County

|                                          | Date Sampled |       |      |      |
|------------------------------------------|--------------|-------|------|------|
|                                          | 6/75         | 10/75 | 1/76 | 4/76 |
| Arsenic (As), (UG/L):                    | 1            | 1     | -    | -    |
| Boron (B), (UG/L):                       | 8            | 10    | 7    | 310  |
| Cadium (Cd), (UG/L):                     | 0            | 1     | -    | -    |
| Calcium (Ca), (MG/L):                    | 51           | 50    | 50   | 50   |
| Chloride (Cl), (MG/L):                   | 0.8          | 1.5   | 1.1  | 0.9  |
| Fluoride (F), (MG/L):                    | 0.4          | 0.4   | 0.3  | 0.7  |
| Iron (Fe), (UG/L):                       | 10           | 20    | 10   | 10   |
| Lithium (Li), (UG/L):                    | 0            | 10    | -    | -    |
| Magnesium (Mg), (MG/L):                  | 15           | 14    | 14   | 14   |
| Manganese (Mn), (UG/L):                  | 20           | 10    | 0    | 10   |
| Mercury (Hg), (UG/L):                    | 0            | 0     | -    | -    |
| Nitrogen (N), (MG/L):                    | 0.57         | 0.11  | 0.17 | 0.14 |
| Phosphate (PO <sub>4</sub> )             |              |       |      |      |
| Ortho diss. as P, (MG/L):                | 0.01         | 0     | 0.03 | 0.01 |
| Ortho, (MG/L):                           | 0.03         | 0     | 0.09 | 0.03 |
| Potassium (K), (MG/L):                   | 2.5          | 2.6   | 2.7  | 2.8  |
| Selenium (Se), (UG/L):                   | 1            | 0     | -    | -    |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 21           | 20    | 20   | 20   |
| Sodium (Na), (MG/L):                     | 3.5          | 3.7   | 3.9  | 3.3  |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 96           | 95    | 89   | 80   |
| Zinc (Zn), (UG/L):                       | 0            | 10    | -    | -    |
| Alkalinity                               |              |       |      |      |
| As Calcium Carbonate, (MG/L):            | 98           | 102   | 102  | 103  |
| As Bicarbonate, (MG/L):                  | 120          | 124   | 124  | 125  |
| Hardness                                 |              |       |      |      |
| Noncarbonate, (MG/L):                    | 91           | 81    | 81   | 80   |
| Total, (MG/L):                           | 190          | 180   | 180  | 180  |
| Specific conductance<br>(Micromohs):     | 390          | 384   | 385  | 381  |
| Total dissolved<br>solids (TDS), (MG/L): | 252          | 249   | 243  | 234  |
| pH, Field                                | -            | 6.5   | 6.8  | 7.5  |
| Discharge (gpm):                         | -            | 60E   | -    | -    |
| Temperature (°C):                        | 37           | 36    | 35   | 36   |

Remarks: Located approx. 300 feet east of old swimming pool.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Valley View Hot Springs: Spring B

Location: 38°11'31"N. Latitude; 105°48'50"W. Longitude; T. 46 N., R. 10 E., Sec. 36 db, N.M.P.M., Saguache County

|                                                 | Date Sampled |
|-------------------------------------------------|--------------|
|                                                 | 6/75         |
| Arsenic (As), (UG/L):                           | 2            |
| Boron (B), (UG/L):                              | 8            |
| Cadium (Cd), (UG/L):                            | 0            |
| Calcium (Ca), (MG/L):                           | 46           |
| Chloride (Cl), (MG/L):                          | 2.6          |
| Fluoride (F), (MG/L):                           | 0.3          |
| Iron (Fe), (UG/L):                              | 20           |
| Lithium (Li), (UG/L):                           | 10           |
| Magnesium (Mg), (MG/L):                         | 14           |
| Manganese (Mn), (UG/L):                         | 0            |
| Mercury (Hg), (UG/L):                           | 0            |
| Nitrogen (N), (MG/L):                           | 0.22         |
| Phosphate (PO <sub>4</sub> )                    |              |
| Ortho diss. as P, (MG/L):                       | 0.01         |
| Ortho, (MG/L):                                  | 0.03         |
| Potassium (K), (MG/L):                          | 2.2          |
| Selenium (Se), (UG/L):                          | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):             | 19           |
| Sodium (Na), (MG/L):                            | 3.7          |
| Sulfate (SO <sub>4</sub> ), (MG/L):             | 82           |
| Zinc (Zn), (UG/L):                              | 0            |
| Alkalinity                                      |              |
| As Calcium Carbonate, (MG/L):                   | 105          |
| As Bicarbonate, (MG/L):                         | 128          |
| Hardness                                        |              |
| Noncarbonate, (MG/L):                           | 68           |
| Total, (MG/L):                                  | 170          |
| Specific conductance<br>(Micromohs):            | 350          |
| Total dissolved<br>solids (TDS), (MG/L):        | 234          |
| pH, Field                                       | -            |
| Discharge (gpm):                                | -            |
| Temperature (°C):                               | 32           |
| Remarks: Located 150 feet southwest of Spring A |              |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Valley View Hot Springs: Spring D

Location: 38°11'23"N. Latitude; 105°48'35"W. Longitude; T. 46 N., R. 10 E., Sec. 36, N.M.P.M., Saguache County

|                                          | Date Sampled |      |      |
|------------------------------------------|--------------|------|------|
|                                          | 10/75        | 1/76 | 4/76 |
| Arsenic (As), (UG/L):                    | 1            | -    | -    |
| Boron (B), (UG/L):                       | 9            | 20   | 220  |
| Cadium (Cd), (UG/L):                     | 1            | -    | -    |
| Calcium (Ca), (MG/L):                    | 49           | 51   | 50   |
| Chloride (Cl), (MG/L):                   | 1.8          | 2.5  | 0.6  |
| Fluoride (F), (MG/L):                    | 0.5          | 0.2  | 0.4  |
| Iron (Fe), (UG/L):                       | 10           | 60   | 20   |
| Lithium (Li), (UG/L):                    | 10           | -    | -    |
| Magnesium (Mg), (MG/L):                  | 12           | 13   | 13   |
| Manganese (Mn), (UG/L):                  | 10           | 10   | 0    |
| Mercury (Hg), (UG/L):                    | 0            | -    | -    |
| Nitrogen (N), (MG/L):                    | 0.12         | 0.17 | 0.15 |
| Phosphate (PO <sub>4</sub> )             |              |      |      |
| Ortho diss. as P, (MG/L):                | 0            | 0    | 0.01 |
| Ortho, (MG/L):                           | 0            | 0    | 0.03 |
| Potassium (K), (MG/L):                   | 2.4          | 2.8  | 2.5  |
| Selenium (Se), (UG/L):                   | 0            | -    | -    |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 17           | 18   | 18   |
| Sodium (Na), (MG/L):                     | 3.2          | 4.3  | 2.6  |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 82           | 93   | 73   |
| Zinc (Zn), (UG/L):                       | 10           | -    | -    |
| Alkalinity                               |              |      |      |
| As Calcium Carbonate, (MG/L):            | 100          | 102  | 103  |
| As Bicarbonate, (MG/L):                  | 122          | 124  | 125  |
| Hardness                                 |              |      |      |
| Noncarbonate, (MG/L):                    | 72           | 79   | 76   |
| Total, (MG/L):                           | 170          | 180  | 180  |
| Specific conductance<br>(Micromohs):     | 360          | 370  | 361  |
| Total dissolved<br>solids (TDS), (MG/L): | 229          | 247  | 223  |
| pH, Field                                | 6.0          | 6.5  | 7.5  |
| Discharge (gpm):                         | 120E         | 75E  | 75E  |
| Temperature (°C):                        | 34           | 35   | 36   |

Remarks: Located 1200 feet southeast of Spring A and 300 feet up the hillside

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Wagon Wheel Gap Hot Springs: 4UR Ranch Spring

Location: 37°41'06"N. Latitude; 106°49'47"W. Longitude; T. 41 N., R. 1 E., Sec. 35 dd, N.M.P.M., Mineral County

|                                          | Date Sampled |       |       |
|------------------------------------------|--------------|-------|-------|
|                                          | 10/75        | 1/76  | 4/76  |
| Arsenic (As), (UG/L):                    | 21           | -     | -     |
| Boron (B), (UG/L):                       | 2,500        | 1,300 | 2,600 |
| Cadium (Cd), (UG/L):                     | 0            | -     | -     |
| Calcium (Ca), (MG/L):                    | 61           | 60    | 66    |
| Chloride (Cl), (MG/L):                   | 200          | 200   | 200   |
| Fluoride (F), (MG/L):                    | 6.6          | 6.7   | 7.6   |
| Iron (Fe), (UG/L):                       | 30           | 10    | 0     |
| Lithium (Li), (UG/L):                    | 2,200        | -     | -     |
| Magnesium (Mg), (MG/L):                  | 15           | 14    | 15    |
| Manganese (Mn), (UG/L):                  | 310          | 320   | 300   |
| Mercury (Hg), -(UG/L):                   | 0            | -     | -     |
| Nitrogen (N), (MG/L):                    | 0.01         | 0.01  | 0     |
| Phosphate (PO <sub>4</sub> )             |              |       |       |
| Ortho diss. as P, (MG/L):                | 0.02         | 0.07  | 0.10  |
| Ortho, (MG/L):                           | 0.06         | 0.21  | 0.31  |
| Potassium (K), (MG/L):                   | 51           | 48    | 48    |
| Selenium (Se), (UG/L):                   | 0            | -     | -     |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 81           | 90    | 84    |
| Sodium (Na), (MG/L):                     | 480          | 460   | 490   |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 170          | 170   | 200   |
| Zinc (Zn), (UG/L):                       | 20           | -     | -     |
| Alkalinity                               |              |       |       |
| As Calcium Carbonate, (MG/L):            | 853          | 828   | 837   |
| As Bicarbonate, (MG/L):                  | 1,040        | 1,010 | 1,020 |
| Hardness                                 |              |       |       |
| Noncarbonate, (MG/L):                    | 0            | 0     | 0     |
| Total, (MG/L):                           | 210          | 210   | 230   |
| Specific conductance<br>(Micromohs):     | 2,400        | 2,240 | 2,200 |
| Total dissolved<br>solids (TDS), (MG/L): | 1,580        | 1,550 | 1,620 |
| pH, Field                                | 7.0          | 7.0   | 6.7   |
| Discharge (gpm):                         | 30E          | 30E   | 28E   |
| Temperature (°C):                        | 57           | 55    | 57    |
| Remarks:                                 |              |       |       |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Wagon Wheel Gap Hot Springs: CFI Spring

Location: 37°41'02"N. Latitude; 106°49'47"W. Longitude; T. 40 N., R. 1 E., Sec. 2 ab, N.M.P.M., Mineral County

|                                          | Date Sampled |       |       |       |
|------------------------------------------|--------------|-------|-------|-------|
|                                          | 8/75         | 10/75 | 1/76  | 4/76  |
| Arsenic (As), (UG/L):                    | 0            | 2     | -     | -     |
| Boron (B), (UG/L):                       | 2,600        | 2,500 | 1,300 | 2,600 |
| Cadium (Cd), (UG/L):                     | 0            | 0     | -     | -     |
| Calcium (Ca), (MG/L):                    | 67           | 68    | 66    | 68    |
| Chloride (Cl), (MG/L):                   | 200          | 200   | 200   | 190   |
| Fluoride (F), (MG/L):                    | 7            | 6.3   | 6.8   | 8.5   |
| Iron (Fe), (UG/L):                       | 210          | 250   | 120   | 170   |
| Lithium (Li), (UG/L):                    | 1,800        | 2,000 | -     | -     |
| Magnesium (Mg), (MG/L):                  | 16           | 15    | 15    | 15    |
| Manganese (Mn), (UG/L):                  | 560          | 530   | 560   | 540   |
| Mercury (Hg), (UG/L):                    | 0            | 0.1   | -     | -     |
| Nitrogen (N), (MG/L):                    | 0.01         | 0.03  | 0.04  | 0.02  |
| Phosphate (PO <sub>4</sub> )             |              |       |       |       |
| Ortho diss. as P, (MG/L):                | 0.05         | 0.02  | 0.06  | 0.08  |
| Ortho, (MG/L):                           | 0.15         | 0.06  | 0.18  | 0.25  |
| Potassium (K), (MG/L):                   | 48           | 47    | 46    | 46    |
| Selenium (Se), (UG/L):                   | 0            | 0     | -     | -     |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 74           | 68    | 88    | 67    |
| Sodium (Na), (MG/L):                     | 450          | 460   | 450   | 430   |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 140          | 150   | 160   | 130   |
| Zinc (Zn), (UG/L):                       | 0            | 2     | -     | -     |
| Alkalinity                               |              |       |       |       |
| As Calcium Carbonate, (MG/L):            | 837          | 837   | 837   | 845   |
| As Bicarbonate, (MG/L):                  | 1,020        | 1,020 | 1,020 | 1,030 |
| Hardness                                 |              |       |       |       |
| Noncarbonate, (MG/L):                    | 0            | 0     | 0     | 0     |
| Total, (MG/L):                           | 230          | 230   | 230   | 230   |
| Specific conductance<br>(Micromohs):     | 2,800        | 2,400 | 2,360 | 2,330 |
| Total dissolved<br>solids (TDS), (MG/L): | 1,510        | 1,520 | 1,540 | 1,470 |
| pH, Field                                | -            | 6.4   | 6.5   | 6.4   |
| Discharge (gpm):                         | 30           | 50    | 30    | 32    |
| Temperature (°C):                        | 50           | 51    | 48    | 50    |
| Remarks:                                 |              |       |       |       |

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Waunita Hot Springs: Spring C

Location: 38°30'50"N. Latitude; 106°30'27"W. Longitude; T. 49 N., R. 4 E., Sec. 11 cc, N.M.P.M., Gunnison County

|                                          | Date Sampled |        |       |      |
|------------------------------------------|--------------|--------|-------|------|
|                                          | 7/75         | 10/75* | 1/76* | 4/76 |
| Arsenic (As), (UG/L):                    | 0            | 2      | -     | -    |
| Boron (B), (UG/L):                       | 70           | 60     | 60    | 60   |
| Cadium (Cd), (UG/L):                     | 0            | 0      | -     | -    |
| Calcium (Ca), (MG/L):                    | 11           | 5.9    | 11    | 5.8  |
| Chloride (Cl), (MG/L):                   | 15           | 15     | 15    | 16   |
| Fluoride (F), (MG/L):                    | 17           | 18     | 19    | 20   |
| Iron (Fe), (UG/L):                       | 40           | 30     | 10    | 10   |
| Lithium (Li), (UG/L):                    | 200          | 220    | -     | -    |
| Magnesium (Mg), (MG/L):                  | 0.2          | 0      | 0.3   | 7.3  |
| Manganese (Mn), (UG/L):                  | 0            | 5      | 0     | 10   |
| Mercury (Hg), (UG/L):                    | 0            | 0      | -     | -    |
| Nitrogen (N), (MG/L):                    | 0.02         | 0      | 0.01  | 0.01 |
| Phosphate (PO <sub>4</sub> )             |              |        |       |      |
| Ortho diss. as P, (MG/L):                | 0.05         | 0.01   | 0.04  | 0.05 |
| Ortho, (MG/L):                           | 0.15         | 0.03   | 0.12  | 0.15 |
| Potassium (K), (MG/L):                   | 10           | 10     | 9.8   | 10   |
| Selenium (Se), (UG/L):                   | 0            | 0      | -     | -    |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 110          | 110    | 140   | 120  |
| Sodium (Na), (MG/L):                     | 150          | 160    | 160   | 150  |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 180          | 190    | 190   | 180  |
| Zinc (Zn), (UG/L):                       | 0            | 0      | -     | -    |
| Alkalinity                               |              |        |       |      |
| As Calcium Carbonate, (MG/L):            | 106          | 116    | 113   | 109  |
| As Bicarbonate, (MG/L):                  | 129          | 119    | 119   | 133  |
| Hardness                                 |              |        |       |      |
| Noncarbonate, (MG/L):                    | 0            | 0      | 0     | 0    |
| Total, (MG/L):                           | 28           | 15     | 29    | 45   |
| Specific conductance<br>(Micromohs):     | 720          | 796    | 766   | 756  |
| Total dissolved<br>solids (TDS), (MG/L): | 557          | 579    | 613   | 575  |
| pH, Field                                | -            | 8.4    | 8.5   | 7.9  |
| Discharge (gpm):                         | -            | 30     | 55    | 50   |
| Temperature (°C):                        | 78           | 80     | 77    | 77   |

Remarks: Contains 11 mg/l and 9 mg/l of carbonate respectively.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Waunita Hot Springs: Spring D

Location: 38°30'50"N. Latitude; 106°30'28"W. Longitude; T. 49 N., R. 4 E., Sec. 11 cc, N.M.P.M., Gunnison County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 7/75         |
| Arsenic (As), (UG/L):                    | 0            |
| Boron (B), (UG/L):                       | 70           |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 6.0          |
| Chloride (Cl), (MG/L):                   | 15           |
| Fluoride (F), (MG/L):                    | 18           |
| Iron (Fe), (UG/L):                       | 10           |
| Lithium (Li), (UG/L):                    | 210          |
| Magnesium (Mg), (MG/L):                  | 0            |
| Manganese (Mn), (UG/L):                  | 0            |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0.01         |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.02         |
| Ortho, (MG/L):                           | 0.06         |
| Potassium (K), (MG/L):                   | 10           |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 130          |
| Sodium (Na), (MG/L):                     | 160          |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 190          |
| Zinc (Zn), (UG/L):                       | 0            |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 108          |
| As Bicarbonate, (MG/L):                  | 132          |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 0            |
| Total, (MG/L):                           | 15           |
| Specific conductance<br>(Micromohs):     | 770          |
| Total dissolved<br>solids (TDS), (MG/L): | 594          |
| pH, Field                                | -            |
| Discharge (gpm):                         | -            |
| Temperature (°C):                        | 54           |

Remarks: Located in old concrete swimming pool approx. 400 feet west of lodge.

Waunita Hot Springs: Spring A

Location:  $38^{\circ}30'50''$ N. Latitude;  $106^{\circ}30'27''$ W. Longitude; T. 49 N., R. 4 E.,  
Sec. 11 cc, N.M.P.M., Gunnison County

Temperature:  $76^{\circ}$ C

Discharge:--

Specific conductance: 750

Remarks: Located in rock shed in front of lodge.

Waunita Hot Springs: Spring B

Location:  $38^{\circ}30'50''$ N. Latitude;  $106^{\circ}30'27''$ W. Longitude; T. 49 N., R. 4 E.,  
Sec. 11 cc, N.M.P.M., Gunnison County

Temperature:  $78^{\circ}$ C

Discharge: --

Specific conductance: 720

Remarks: Located 75 feet from Spring A along creek.

Lower Waunita Hot Springs: Spring A

Location:  $38^{\circ}31'02''$ N. Latitude;  $106^{\circ}30'56''$ W. Longitude; T. 49 N., R. 4 E.,  
Sec. 10 bc, N.M.P.M., Gunnison County

Temperature:  $70^{\circ}$ C

Discharge: 75 gpm (est.)

Specific conductance: 765

Remarks Area consists of a series of small to medium-sized springs.

Lower Waunita Hot Springs: Spring C

Location:  $38^{\circ}30'27''$ N. Latitude;  $106^{\circ}30'55''$ W. Longitude; T. 49 N., R. 4 E.,  
Sec. 10 bc, N.M.P.M., Gunnison County

Temperature:  $70^{\circ}$ C

Discharge: 8 gpm

Specific conductance: 780

Remarks: Located under rock building.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Lower Wanunita Hot Springs: Spring B

Location: 38°31'00"N. Latitude; 106°30'55"W. Longitude; T. 49 N., R. 4 E., Sec. 10 bc, N.M.P.M., Gunnison County

|                                          | Date Sampled |       |      |
|------------------------------------------|--------------|-------|------|
|                                          | 7/75         | 10/75 | 4/76 |
| Arsenic (As), (UG/L):                    | 0            | 0     | -    |
| Boron (B), (UG/L):                       | 70           | 60    | 60   |
| Cadium (Cd), (UG/L):                     | 0            | 0     | -    |
| Calcium (Ca), (MG/L):                    | 7.8          | 8.6   | 8.5  |
| Chloride (Cl), (MG/L):                   | 15           | 16    | 15   |
| Fluoride (F), (MG/L):                    | 17           | 15    | 16   |
| Iron (Fe), (UG/L):                       | 50           | 10    | 160  |
| Lithium (Li), (UG/L):                    | 200          | 200   | -    |
| Magnesium (Mg), (MG/L):                  | 0.7          | 0.4   | 1.0  |
| Manganese (Mn), (UG/L):                  | 20           | 30    | 30   |
| Mercury (Hg), (UG/L):                    | 0            | 0     | -    |
| Nitrogen (N), (MG/L):                    | 0.04         | 0     | 0.01 |
| Phosphate (PO <sub>4</sub> )             |              |       |      |
| Ortho diss. as P, (MG/L):                | 0            | 0.01  | 0.04 |
| Ortho, (MG/L):                           | 0            | 0.03  | 0.12 |
| Potassium (K), (MG/L):                   | 9.9          | 10    | 10   |
| Selenium (Se), (UG/L):                   | 0            | 0     | -    |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 88           | 77    | 86   |
| Sodium (Na), (MG/L):                     | 150          | 160   | 150  |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 180          | 180   | 160  |
| Zinc (Zn), (UG/L):                       | 10           | 0     | -    |
| Alkalinity                               |              |       |      |
| As Calcium Carbonate, (MG/L):            | 125          | 135   | 135  |
| As Bicarbonate, (MG/L):                  | 152          | 165   | 165  |
| Hardness                                 |              |       |      |
| Noncarbonate, (MG/L):                    | 0            | 0     | 0    |
| Total, (MG/L):                           | 22           | 23    | 25   |
| Specific conductance<br>(Micromohs):     | 765          | 830   | 773  |
| Total dissolved<br>solids (TDS), (MG/L): | 544          | 549   | 528  |
| pH, Field                                | -            | 8.0   | 7.7  |
| Discharge (gpm):                         | -            | 20E   | 25E  |
| Temperature (°C):                        | 70           | 70    | 70   |

Remarks: Located in small cement pool near east margin of group.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Lower Waunita Hot Springs: Spring D

Location: 38°31'01"N. Latitude; 106°31'00"W. Longitude; T. 49 N., R. 4 E., Sec. 10 bc, N.M.P.M., Gunnison County

|                                          | Date Sampled |
|------------------------------------------|--------------|
|                                          | 7/75         |
| Arsenic (As), (UG/L):                    | 0            |
| Boron (B), (UG/L):                       | 70           |
| Cadium (Cd), (UG/L):                     | 0            |
| Calcium (Ca), (MG/L):                    | 6.9          |
| Chloride (Cl), (MG/L):                   | 15           |
| Fluoride (F), (MG/L):                    | 20           |
| Iron (Fe), (UG/L):                       | 170          |
| Lithium (Li), (UG/L):                    | 200          |
| Magnesium (Mg), (MG/L):                  | 0.5          |
| Manganese (Mn), (UG/L):                  | 20           |
| Mercury (Hg), (UG/L):                    | 0            |
| Nitrogen (N), (MG/L):                    | 0.05         |
| Phosphate (PO <sub>4</sub> )             |              |
| Ortho diss. as P, (MG/L):                | 0.04         |
| Ortho, (MG/L):                           | 0.12         |
| Potassium (K), (MG/L):                   | 10           |
| Selenium (Se), (UG/L):                   | 0            |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 86           |
| Sodium (Na), (MG/L):                     | 150          |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 170          |
| Zinc (Zn), (UG/L):                       | 0            |
| Alkalinity                               |              |
| As Calcium Carbonate, (MG/L):            | 126          |
| As Bicarbonate, (MG/L):                  | 153          |
| Hardness                                 |              |
| Noncarbonate, (MG/L):                    | 0            |
| Total, (MG/L):                           | 19           |
| Specific conductance<br>(Micromohs):     | 800          |
| Total dissolved<br>solids (TDS), (MG/L): | 535          |
| pH, Field                                | -            |
| Discharge (gpm):                         | -            |
| Temperature (°C):                        | 62           |

Remarks: Located within gazebo along creek at west edge of the spring area.

Table 1. Physical Properties and Chemical Analysis of Thermal Waters in Colorado.

Wellsville Warm Spring

Location: 38°29'07"N. Latitude; 105°54'36"W. Longitude; T. 49 N., R. 10 E., Sec. 18-, N.M.P.M., Chaffee County

|                                          | Date Sampled |       |      |      |
|------------------------------------------|--------------|-------|------|------|
|                                          | 6/75         | 10/75 | 1/76 | 4/76 |
| Arsenic (As), (UG/L):                    | 10           | 9     | -    | -    |
| Boron (B), (UG/L):                       | 100          | 100   | 100  | 90   |
| Cadium (Cd), (UG/L):                     | 0            | 0     | -    | -    |
| Calcium (Ca), (MG/L):                    | 79           | 76    | 81   | 76   |
| Chloride (Cl), (MG/L):                   | 61           | 62    | 63   | 62   |
| Fluoride (F), (MG/L):                    | 0.5          | 0.9   | 0.6  | -    |
| Iron (Fe), (UG/L):                       | 20           | 60    | 0    | 0    |
| Lithium (Li), (UG/L):                    | 110          | 100   | -    | -    |
| Magnesium (Mg), (MG/L):                  | 24           | 27    | 25   | 26   |
| Manganese (Mn), (UG/L):                  | 5            | 10    | 0    | 0    |
| Mercury (Hg), (UG/L):                    | 0            | 0     | -    | -    |
| Nitrogen (N), (MG/L):                    | 0.27         | 0.26  | 0.33 | 0.20 |
| Phosphate (PO <sub>4</sub> )             |              |       |      |      |
| Ortho diss. as P, (MG/L):                | 0.02         | 0     | 0.01 | 0.02 |
| Ortho, (MG/L):                           | 0.06         | 0     | 0.03 | 0.06 |
| Potassium (K), (MG/L):                   | 6.2          | 6.1   | 6.3  | 6.3  |
| Selenium (Se), (UG/L):                   | 2            | 4     | -    | -    |
| Silica (SiO <sub>2</sub> ), (MG/L):      | 32           | 30    | 31   | 31   |
| Sodium (Na), (MG/L):                     | 51           | 50    | 49   | 52   |
| Sulfate (SO <sub>4</sub> ), (MG/L):      | 65           | 72    | 63   | 65   |
| Zinc (Zn), (UG/L):                       | 0            | 10    | -    | -    |
| Alkalinity                               |              |       |      |      |
| As Calcium Carbonate, (MG/L):            | 249          | 264   | 269  | 269  |
| As Bicarbonate, (MG/L):                  | 304          | 322   | 328  | 328  |
| Hardness                                 |              |       |      |      |
| Noncarbonate, (MG/L):                    | 47           | 37    | 36   | 28   |
| Total, (MG/L):                           | 300          | 300   | 310  | 300  |
| Specific conductance<br>(Micromohs):     | 670          | 760   | 816  | 809  |
| Total dissolved<br>solids (TDS), (MG/L): | 470          | 484   | 482  | 482  |
| pH, Field                                | -            | 7.0   | 7.1  | 7.2  |
| Discharge (gpm):                         | -            | 160   | 175  | 200  |
| Temperature (°C):                        | 32           | 33    | 28   | 28   |

Remarks:

Table 2. Spectrographic Analyses of Thermal Waters in Colorado. Values Reported in Micrograms/liter (UG/L).

| Spring                       | Aluminum<br>Al | Barium<br>Ba | Beryllium<br>Be | Bismuth<br>Bi | Chromium<br>Cr | Cobalt<br>Co | Copper<br>Cu | Gallium<br>Ga | Germanium<br>Ge | Lead<br>Pb | Nickel<br>Ni | Silver<br>Ag | Strontium<br>Sr | Tin<br>Sn | Titanium<br>Ti | Vandium<br>Va | Zirconium<br>Zr |
|------------------------------|----------------|--------------|-----------------|---------------|----------------|--------------|--------------|---------------|-----------------|------------|--------------|--------------|-----------------|-----------|----------------|---------------|-----------------|
| Canon City                   | 20             | 100          | < 2             | < 9           | < 9            | < 9          | < 2          | < 4           | < 20            | < 9        | < 9          | < 1          | 1,100           | < 10      | < 5            | < 5           | < 20            |
| Cebolla Hot Springs:Spg. A   | 60             | 130          | 5               | < 10          | < 10           | < 10         | 2            | < 5           | < 15            | < 10       | < 10         | < 1          | 6,000           | < 15      | < 5            | < 10          | < 22            |
| Cement Creek Warm Spring     | 30             | 82           | 0               | < 3           | < 3            | < 3          | 0            | < 1           | < 3             | < 3        | < 3          | 0            | 480             | < 3       | 10             | < 3           | < 4             |
| Clark Spring Warm Water Well | 20             | 20           | < 2             | < 7           | < 7            | < 7          | 3            | < 3           | < 20            | < 7        | < 7          | < 1          | 2,400           | < 8       | < 4            | < 4           | < 10            |
| Conundrum Hot Spring         | 60             | 20           | < 3             | < 10          | < 10           | < 10         | 3            | < 5           | < 20            | < 10       | < 10         | < 1          | 3,800           | < 15      | < 5            | < 5           | < 20            |
| Cottonwood Hot Spring        | 70             | 52           | 0               | 0             | < 3            | < 3          | 7            | 6             | < 3             | < 3        | 4            | 0            | 200             | < 3       | < 2            | < 3           | < 4             |
| Cottonwood Hot Spring Area   | 40             | 40           | 0               | < 2           | < 2            | < 2          | 5            | 2             | < 3             | < 2        | < 2          | 0            | 190             | < 2       | < 2            | < 2           | < 3             |
| Merrifield Hot Water Well    | 40             | 300          | < 3             | < 12          | < 12           | < 12         | < 3          | < 6           | < 30            | < 12       | < 12         | < 2          | 1,100           | < 17      | < 6            | < 6           | < 30            |
| Don K Ranch Artesian Well    | 100            | 70           | < 10            | < 60          | < 60           | < 60         | < 12         | < 30          | < 100           | < 60       | < 60         | < 6          | 2,500           | < 85      | < 30           | < 30          | < 100           |
| Dotsero Warm Springs         | 40             | 55           | < 2             | < 10          | < 9            | < 9          | < 2          | < 4           | < 9             | < 9        | < 9          | < 1          | 3,000           | < 9       | < 4            | < 9           | < 10            |
| Dunton Hot Spring            | 5              | 200          | < 0             | < 1           | < 1            | < 1          | < 2          | 0             | < 2             | < 1        | < 1          | < 0          | 300             | < 1       | < 0            | 4             | < 2             |
| Eldorado Springs: Spg. A     | 20             | 100          | < 0             | < 1           | 1              | < 1          | 2            | 0             | < 1             | 4          | < 1          | < 0          | 300             | < 0.7     | < 0            | < 0.3         | < 1             |
| Eldorado Springs: Spg. B     | 30             | 60           | < 3             | < 10          | < 10           | < 10         | 3            | < 5           | < 20            | < 10       | < 10         | < 1          | 2,900           | < 13      | < 5            | < 5           | < 20            |
| Florence Artesian Well       | 30             | 30           | < 2             | < 10          | < 9            | < 9          | < 2          | < 4           | < 20            | < 9        | < 9          | < 1          | 1,700           | < 10      | < 5            | < 5           | < 20            |
| Fremont Natatorium Hot Spg.  | 210            | 1,000        | < 6             | < 26          | < 24           | < 24         | < 6          | < 10          | < 24            | < 24       | < 24         | < 3          | 12,000          | < 24      | < 12           | < 24          | < 30            |
| Geyser Warm Spring           | 220            | 100          | < 20            | < 150         | < 100          | < 50         | < 20         | < 50          | < 100           | < 100      | < 50         | < 10         | 8,900           | < 150     | < 50           | < 50          | < 200           |
| Glenwood Springs Area        | 500            | 90           | < 20            | < 90          | < 90           | < 90         | < 20         | < 40          | < 90            | < 90       | < 90         | < 9          | 8,100           | < 90      | < 40           | < 90          | < 140           |
| Big Spring                   | 650            | 80           | < 20            | < 90          | < 90           | < 90         | < 20         | < 40          | < 90            | < 90       | < 90         | < 9          | 9,000           | < 90      | < 40           | < 90          | < 140           |
| Spring B                     | 100            | 90           | < 3             | < 13          | < 13           | < 13         | < 3          | < 6           | < 13            | < 13       | < 13         | < 2          | 2,200           | < 13      | < 6            | < 13          | < 20            |
| Hartsel Hot Springs: Spg. A  | 60             | 60           | < 2             | < 10          | < 10           | < 5          | < 2          | < 4           | < 10            | < 10       | < 10         | < 1          | 200             | < 10      | < 5            | < 5           | < 20            |
| Haystack Butte Wm. Wtr. Well | 95             | 100          | < 2             | < 9           | < 9            | < 9          | 3            | < 4           | < 9             | < 9        | < 9          | < 1          | 630             | < 9       | < 5            | < 9           | < 15            |
| Hot Sulphur Springs: Spg. A  | 130            | 130          | < 2             | < 9           | < 9            | < 9          | 2            | < 4           | < 9             | < 9        | < 9          | < 1          | 790             | < 9       | < 5            | < 9           | < 15            |
| Hot Sulphur Springs: Spg. B  | 140            | 74           | < 3             | < 20          | < 15           | < 7          | 8            | < 7           | < 15            | < 15       | < 7          | < 2          | 5,500           | < 20      | < 7            | < 7           | < 30            |
| Idaho Hot Springs: Spg. A    | 200            | 160          | < 3             | < 20          | < 15           | < 7          | 9            | < 7           | < 15            | < 15       | < 7          | < 2          | 6,000           | < 20      | < 7            | < 7           | < 30            |
| Idaho Hot Springs: Spg. B    | 95             | 120          | < 2             | < 9           | < 9            | < 9          | 8            | < 4           | < 9             | < 9        | < 9          | < 1          | 360             | < 9       | < 5            | < 9           | < 15            |
| Juniper Hot Springs          | 75             | 30           | 10              | < 20          | < 17           | < 17         | < 4          | < 8           | < 17            | < 17       | < 17         | < 2          | 7,000           | < 17      | < 8            | < 17          | < 20            |
| Lemon Hot Springs            | 45             | 90           | < 1             | < 4           | < 4            | < 4          | 2            | < 2           | < 4             | < 4        | < 4          | < 0          | 1,200           | < 4       | < 2            | < 4           | < 6             |
| Mineral Hot Springs: Spg. A  | 40             | 90           | < 1             | < 5           | < 5            | < 5          | < 1          | < 2           | < 5             | < 5        | < 5          | < 0          | 920             | < 5       | < 2            | < 5           | < 6             |
| Mineral Hot Springs: Spg. D  | 20             | 14           | 0               | < 2           | < 2            | < 2          | 1            | 3             | < 2             | < 2        | < 2          | 0            | 190             | < 2       | < 1            | 3             | < 3             |
| Mt. Princeton Hot Spgs. Area | 130            | 43           | 0               | < 3           | < 2            | < 2          | 5            | 8             | < 3             | 3          | < 2          | 0            | 180             | < 2       | < 2            | 2             | < 3             |
| Spring A                     | 90             | 35           | < 3             | < 13          | < 13           | < 7          | 4            | < 6           | < 13            | < 13       | < 13         | < 2          | 6,000           | < 13      | < 7            | < 7           | < 30            |
| Hortense Hot Wtr. Well       | 250            | 24           | < 2             | < 9           | < 9            | < 9          | 5            | < 4           | < 9             | < 9        | < 9          | < 1          | 10,000          | < 9       | < 4            | < 9           | < 10            |
| Orvis Hot Spring             | 50             | 40           | < 2             | < 10          | < 9            | < 9          | < 2          | < 4           | < 9             | < 9        | < 9          | < 1          | 5,600           | < 9       | < 4            | < 9           | < 10            |
| Ouray Area:                  | 130            | 40           | < 4             | < 30          | < 20           | < 10         | 7            | < 10          | < 20            | < 20       | < 10         | < 2          | 4,000           | < 30      | < 10           | < 10          | < 40            |
| Wesbaden Hot Spring A        | 350            | 28           | < 4             | < 30          | < 20           | < 10         | 14           | < 10          | < 20            | < 20       | < 10         | < 2          | 4,600           | < 30      | < 10           | < 10          | < 40            |
| Pool Spring                  | 240            | 290          | < 8             | < 40          | < 37           | < 37         | < 8          | < 17          | < 37            | < 37       | < 37         | < 4          | 3,800           | < 37      | < 17           | < 37          | < 40            |
| Pagosa Springs: Big Spring   | 30             | 40           | < 4             | < 16          | < 16           | < 16         | < 4          | < 4           | < 20            | < 16       | < 10         | < 2          | 5,700           | < 16      | < 8            | < 10          | < 30            |
| Pagosa Springs: Spa Well     | 130            | 33           | 10              | < 30          | < 26           | < 26         | < 6          | < 12          | < 26            | < 26       | < 26         | < 3          | 5,000           | < 26      | < 12           | < 26          | < 30            |
| Paradise Hot Spring          | 70             | 80           | < 2             | < 4           | < 4            | < 4          | < 1          | < 2           | < 4             | < 4        | < 4          | 0            | 560             | < 4       | < 2            | < 4           | < 8             |
| Penny Hot Spring             | 35             | 70           | < 2             | < 4           | < 4            | < 4          | < 1          | < 2           | < 4             | < 4        | < 4          | 0            | 520             | < 4       | < 2            | < 4           | < 8             |
| Pinkerton Hot Spg.: Spg. A   |                |              |                 |               |                |              |              |               |                 |            |              |              |                 |           |                |               |                 |
| Poncha Hot Springs: Spg. A   |                |              |                 |               |                |              |              |               |                 |            |              |              |                 |           |                |               |                 |
| Poncha Hot Springs: Spg. C   |                |              |                 |               |                |              |              |               |                 |            |              |              |                 |           |                |               |                 |

Table 2. Spectrographic Analyses of Thermal Waters in Colorado (Continued). Values Reported in Micrograms/liter (UG/L).

| Spring                                           | Aluminum<br>Al | Barium<br>Ba | Beryllium<br>Be | Bismuth<br>Bi | Chromium<br>Cr | Cobalt<br>Co | Copper<br>Cu | Gallium<br>Ga | Germanium<br>Ge | Lead<br>Pb | Nickel<br>Ni | Silver<br>Ag | Strontium<br>Sr | Tin<br>Sn | Titanium<br>Ti | Vandium<br>Va | Zirconium<br>Zr |
|--------------------------------------------------|----------------|--------------|-----------------|---------------|----------------|--------------|--------------|---------------|-----------------|------------|--------------|--------------|-----------------|-----------|----------------|---------------|-----------------|
| Rainbow Hot Spring                               | 40             | 1            | < 0.3           | < 1           | < 1            | < 1          | < 1          | 1             | < 1             | < 1        | < 2          | < 0.3        | 42              | < 3       | < 0.5          | < 1           | < 1             |
| Ranger Warm Spring                               | 100            | 140          | 0               | < 4           | < 4            | < 4          | 8            | < 2           | < 5             | < 4        | < 4          | 0            | 360             | < 5       | 3              | < 4           | < 7             |
| Rhodes Warm Spring                               | 5              | 180          | 0               | < 2           | 0              | < 2          | 1            | 0             | < 2             | < 2        | < 2          | 0            | 65              | < 2       | 0              | < 1           | < 3             |
| Rico Area: Geyser Warm Spg.                      | 130            | 34           | 10              | < 20          | < 17           | < 17         | < 4          | < 8           | < 17            | < 17       | < 17         | < 2          | 6,700           | < 17      | < 8            | < 17          | < 20            |
| Routt Hot Springs: Spring A                      | 70             | 16           | < 1             | < 4           | < 4            | < 4          | 1            | < 2           | < 4             | < 4        | < 4          | < 0          | 360             | < 4       | < 2            | < 4           | < 5             |
| Routt Hot Springs: Spring B                      | 150            | 20           | < 1             | < 4           | < 4            | < 4          | 4            | < 2           | < 4             | < 4        | < 4          | 0            | 380             | < 4       | < 2            | < 4           | < 5             |
| Sand Dunes Swimming Pool Well                    | 20             | 17           | 0               | < 3           | < 3            | < 3          | 1            | 0             | < 3             | < 3        | < 3          | 0            | 30              | < 3       | < 2            | 5             | < 4             |
| Shaws Warm Spring                                | 40             | 3            | 0               | < 3           | < 3            | < 3          | 1            | < 1           | < 4             | < 3        | < 3          | < 0          | 10              | < 3       | < 2            | < 3           | < 4             |
| South Canyon Hot Springs:<br>Spring A            | 75             | 120          | < 1             | < 5           | < 5            | < 5          | 5            | < 3           | < 5             | < 5        | < 5          | 0            | 230             | < 5       | < 3            | < 5           | < 8             |
| Splashland Hot Water Well                        | 30             | 35           | < 0.5           | < 2           | < 2            | < 2          | 2            | < 0.7         | < 3             | < 2        | < 2          | < 0.2        | 42              | < 2       | < 2            | 30            | < 3             |
| Stinking Springs                                 | 44             | 37           | < 1             | < 6           | < 5            | < 5          | < 1          | < 3           | < 5             | < 5        | < 5          | < 1          | 1,700           | < 5       | < 3            | < 5           | < 7             |
| Trimble Hot Spring                               | 40             | 15           | < 3             | < 10          | < 10           | < 10         | < 3          | < 5           | < 10            | < 10       | < 10         | < 2          | 4,500           | < 10      | < 5            | < 10          | < 10            |
| Tripp Hot Spring                                 | 160            | 35           | < 5             | < 20          | < 20           | < 20         | < 5          | < 10          | < 20            | < 20       | < 20         | < 2          | 7,500           | < 20      | < 10           | < 20          | < 20            |
| Valley View Hot Springs:<br>Spring A             | 10             | 74           | 0               | < 2           | 0              | < 2          | 1            | 0             | < 2             | < 2        | 2            | 0            | 500             | < 2       | 0              | < 1           | < 4             |
| Wagon Wheel Gap Hot Springs:<br>40R Ranch Spring | 110            | 160          | < 5             | < 11          | < 11           | < 11         | < 3          | < 5           | < 11            | 30         | < 11         | 0            | 3,400           | < 11      | 17             | < 11          | < 20            |
| CFI Spring                                       | 60             | 120          | < 5             | < 10          | < 10           | < 10         | < 3          | < 5           | < 10            | < 10       | < 10         | < 1          | 2,100           | < 10      | < 5            | < 10          | < 20            |
| Maunita Hot Springs: Spg. C                      | 110            | 110          | 0               | < 4           | < 4            | < 4          | 3            | < 2           | < 6             | < 4        | < 4          | 0            | 240             | < 6       | < 2            | < 4           | < 8             |
| Lower Maunita Hot Springs:<br>Spring B           | 85             | 94           | 0               | < 4           | < 4            | < 4          | 1            | 6             | < 5             | < 4        | < 4          | 0            | 290             | < 5       | < 2            | < 4           | < 7             |
| Spring D                                         | 20             | 78           | 0               | < 4           | < 4            | < 4          | 0            | < 2           | < 5             | < 4        | < 4          | 0            | 300             | < 5       | < 2            | < 4           | < 7             |
| Wellsville Warm Spring                           | 40             | 110          | < 0.7           | < 4           | < 4            | < 4          | 0.7          | < 2           | < 4             | < 4        | < 4          | < 0.4        | 400             | < 4       | < 2            | < 4           | < 5             |

Table 3. Radioactivity associated with thermal waters in Colorado. Values reported in Picouries/liter (PC1/l).

| Spring or Well                                            | Date<br>Sampled | T <sub>emp</sub><br>C | pH  | <sup>222</sup> Rn | <sup>226</sup> Ra | <sup>228</sup> Ra | <sup>234</sup> U | <sup>235</sup> U | <sup>238</sup> U | <sup>230</sup> Th | <sup>232</sup> Th |
|-----------------------------------------------------------|-----------------|-----------------------|-----|-------------------|-------------------|-------------------|------------------|------------------|------------------|-------------------|-------------------|
| Canon City Hot Spring                                     | 9/75            | 40                    | 6.3 | N.A.              | 0.39 ± .099       | 2.8 ± .099        | 15.0 ± 1.6       | .25 ± .076       | 6.5 ± .73        | <.027             | <.019             |
| Clark Spring Warm Water Well                              | 9/75            | 25                    | 6.8 | N.A.              | 10. ± .48         | 18. ± .48         | 0.092 ± 0.037    | <.013            | 0.026 ± .021     | <.025             | <.015             |
| Conundrum Hot Spring                                      | 9/75            | 38                    | -   | N.A.              | 0.11 ± .058       | <0.58 ± .058      | <0.040           | <.024            | <0.028           | .019 ± .018       | <.021             |
| Cottonwood Hot Springs Area<br>Merrifield Hot Water Well  | 9/74*           | 50                    | 8.4 | 250 ± 94          | 0.68 ± .12        | N.A.              | 0.24 ± 0.048     | N.A.             | 0.18 ± .041      | <.014             | <.014             |
| Don K Ranch Artesian Well                                 | 9/75            | 28                    | 6.5 | N.A.              | 7.2 ± .40         | 4.1 ± .083        | 12.0 ± 1.2       | .15 ± .058       | 4.0 ± .47        | <.026             | <.020             |
| Dotsero Warm Spring                                       | 9/74*           | 32                    | 6.8 | 1800 ± 84         | 1.1 ± .16         | N.A.              | 1.1 ± 0.12       | N.A.             | 0.42 ± .068      | <.010             | <.0089            |
| Dunton Hot Spring                                         | 9/75            | 44                    | -   | N.A.              | 1.5 ± .18         | 1.1 ± .064        | 0.29 ± 0.06      | <.0091           | 0.15 ± .041      | <.035             | <.023             |
| Eldorado Springs: Spring B                                | 9/75            | 25                    | 6.7 | N.A.              | 0.32 ± .091       | <0.58 ± .091      | 0.23 ± 0.047     | <.011            | 0.12 ± .034      | <.028             | <.012             |
| Florence Artesian Well                                    | 9/75            | 28                    | 6.3 | N.A.              | 31.0 ± .83        | 8.8 ± 1.1         | 15.0 ± 1.9       | .19 ± .079       | 4.8 ± .67        | .026 ± .023       | <.011             |
| Fremont Natatorium Hot Spring                             | 9/75            | 35                    | 6.9 | N.A.              | 12.0 ± .52        | 36.0 ± 1.9        | 0.56 ± 0.10      | <.013            | 0.051 ± .029     | <.033             | <.019             |
| Geyser Warm Spring                                        | 9/75            | 28                    | -   | N.A.              | 2.4 ± .23         | 2.3 ± 0.71        | 0.041 ± 0.023    | <.010            | 0.023 ± .016     | .052 ± .030       | .045 ± .029       |
| Glenwood Springs: Big Spring                              | 9/74*           | 32                    | 7.0 | 300 ± 38          | 27 ± .78          | N.A.              | 0.19 ± 0.046     | <.0071           | 0.11 ± .035      | <.012             | <.0043            |
| Hot Sulphur Springs: Spring B                             | 9/74*           | 46                    | 6.6 | 510 ± 51          | 3.2 ± .27         | N.A.              | 0.057 ± 0.024    | <.010            | 0.041 ± .021     | <.0069            | <.0085            |
| Idaho Hot Springs: Spring A                               | 9/74*           | 39                    | 6.5 | 890 ± 67          | 17.0 ± .61        | N.A.              | 0.77 ± 0.11      | <.013            | 0.33 ± .065      | <.018             | <.016             |
| Juniper Hot Springs                                       | 10/75           | 33                    | 8.0 | N.A.              | 0.21 ± .077       | <0.62 ± .077      | 0.025 ± 0.022    | <.011            | 0.02 ± .019      | <.028             | <.012             |
| Lemon Warm Spring                                         | 9/75            | 31                    | -   | N.A.              | 2.8 ± .25         | 0.76 ± 0.59       | 0.077 ± 0.033    | <.011            | 0.049 ± .022     | <.024             | <.022             |
| Mineral Hot Springs: Spring A                             | 9/74*           | -                     | -   | 2100 ± 65         | 3.6 ± .28         | N.A.              | 0.089 ± 0.029    | <.0062           | 0.033 ± .018     | .12 ± .069        | .027 ± .027       |
| Mt. Princeton Hot Springs Area<br>Hortense Hot Water Well | 9/74*           | 84                    | 8.0 | 1400 ± 73         | 0.12 ± .057       | N.A.              | 0.30 ± 0.055     | <.0063           | 0.22 ± .047      | .027 ± .023       | <.012             |
| Young Life Hot Water Well                                 | 9/74*           | 65                    | 7.9 | ± 57              | 0.14 ± .063       | N.A.              | 1.9 ± 0.20       | .064 ± .027      | 1.70 ± .18       | <.018             | <.017             |
| Orvis Hot Spring                                          | 9/75            | 53                    | -   | N.A.              | 1.0 ± .15         | 3.30 ± 0.75       | 0.23 ± 0.053     | <.017            | 0.088 ± .034     | .033 ± .025       | <.023             |
| Ouray Area<br>Pool Hot Springs                            | 9/75            | 70                    | 6.7 | N.A.              | 3.9 ± .29         | 2.0 ± 0.68        | <0.048           | <.024            | 0.036 ± .029     | .034 ± .029       | .023 ± .022       |
| Wesbaden Vapor Caves: Spring A                            | 9/75            | 53                    | -   | N.A.              | 0.99 ± .15        | <0.60 ± .15       | 0.31 ± 0.061     | <.0096           | 0.15 ± .041      | <.036             | <.020             |
| Pagosa Springs: Big Spring                                | 8/75            | 56                    | 6.5 | N.A.              | 6.6 ± .39         | 2.9 ± 0.73        | 0.052 ± 0.034    | <.024            | 0.046 ± .036     | .052 ± .033       | <.016             |
| Paradise Hot Spring                                       | 9/75            | 46                    | -   | N.A.              | 2.2 ± .22         | 2.5 ± 0.72        | 0.16 ± 0.06      | <.020            | 0.10 ± .049      | .064 ± .032       | .022 ± .021       |
| Penny Hot Spring                                          | 9/74*           | 47                    | 6.1 | 600 ± 51          | 1.5 ± .18         | N.A.              | 0.24 ± 0.057     | <.014            | 0.12 ± .04       | <.012             | <.0065            |
| Poncha Hot Springs: Spring A                              | 9/74*           | 71                    | 7.6 | 1400 ± 71         | 0.16 ± .067       | N.A.              | 0.041 ± 0.021    | <.0084           | 0.034 ± .020     | .022 ± .016       | .02 ± .017        |
| Pinkerton Hot Springs<br>Spring A                         | 9/75            | 32                    | -   | N.A.              | 26.0 ± .77        | 6.9 ± 0.94        | 1.80 ± 0.20      | .029 ± .022      | 0.66 ± .10       | .054 ± .032       | <.018             |
| Mound Spring                                              | 9/75            | 30                    | -   | N.A.              | 28.0 ± .79        | 9.8 ± 1.1         | 1.90 ± 0.20      | .027 ± .021      | 0.67 ± .098      | .031 ± .030       | <.023             |
| Rico Area: Geyser Warm Spring                             | 9/75            | 28                    | -   | N.A.              | 38.0 ± .92        | 11.0 ± 1.1        | 0.97 ± 0.12      | .014 ± .014      | 0.55 ± .083      | .16 ± .064        | .46 ± .096        |

\* Analytical results of data collected in 1974 are taken from O'Connell, M.F., and Kaufmann, R.F., 1976, Radioactivity associated with geothermal waters in the western United States--Basic data: U.S. Env. Res. Admin. Geol. Surv. Open-File Report 76-100. Tech. Note 100/V-75-RA-25 n.

Table 3. Radioactivity associated with thermal waters in Colorado (Cont.).

| Spring or Well                     | Date<br>Sampled | Temp<br>°C | pH  | <sup>222</sup> Rn | <sup>226</sup> Ra | <sup>228</sup> Ra | <sup>234</sup> U | <sup>235</sup> U | <sup>238</sup> U | <sup>230</sup> Th | <sup>232</sup> Th |
|------------------------------------|-----------------|------------|-----|-------------------|-------------------|-------------------|------------------|------------------|------------------|-------------------|-------------------|
| Routt Hot Springs: Spring A        | 9/74*           | 64         | 7.5 | 530 ± 51          | 0.13 ± .058       | N.A.              | 0.039 ± 0.03     | N.A.             | 0.034 ± .023     | .019 ± .015       | .026 ± .015       |
| Sand Dunes Swimming Pool Well      | 9/74*           | 45         | 8.0 | 480 ± 34          | 0.17 ± .071       | N.A.              | <0.14            | N.A.             | 0.18 ± .16       | <.044             | <.031             |
| South Canyon Hot Springs: Spring A | 10/75           | 48         | 7.6 | N.A.              | 1.2 ± .17         | 0.65 ± 0.62       | 0.04 ± 0.027     | <.0095           | <0.018           | <.036             | <.028             |
| Steamboat Springs: Heart Spring    | 9/74*           | 40         | 7.8 | 150 ± 29          | 1.8 ± .20         | N.A.              | 0.084 ± 0.033    | N.A.             | 0.044 ± .024     | <.01              | <.0047            |
| Stinking Springs                   | 9/75            | 27         | -   | N.A.              | 1.6 ± .27         | 1.70 ± 1.2        | 0.035 ± 0.028    | <.011            | <0.019           | .076 ± .040       | .046 ± .039       |
| Trimble Hot Springs                | 9/75            | 36         | -   | N.A.              | 7.2 ± .40         | <0.60             | 0.53 ± 0.082     | <.015            | 0.33 ± .066      | .16 ± .052        | .10 ± .042        |
| Tripp Hot Springs                  | 9/75            | 44         | -   | N.A.              | 6.2 ± .37         | 2.9 ± 0.75        | 0.28 ± 0.095     | <.025            | 0.23 ± .082      | <.028             | <.020             |
| Wagon Wheel Gap: 4UR Hot Spring    | 9/74*           | 56         | 6.8 | 72 ± 15           | 3.6 ± .28         | N.A.              | <0.074           | N.A.             | <0.052           | <.018             | <.035             |
| Waunita Hot Springs: Spring A      | 9/74*           | 79         | 7.7 | 140 ± 21          | 0.083 ± .056      | N.A.              | 0.11 ± 0.035     | N.A.             | 0.078 ± .03      | .023 ± .023       | <.018             |
| Wellsville Warm Spring             | 9/74*           | 31         | 7.0 | 580 ± 43          | 0.23 ± .075       | N.A.              | 4.6 ± 0.36       | N.A.             | 2.2 ± .20        | .023 ± .019       | <.010             |

N.A.-- Indicates no analysis.

Rn--Radon

Ra--Radium

U--Uranium

Th--Thorium

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