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# Water Quality Effect of Diking a Shallow Arid-Region Lake

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# WATER QUALITY EFFECT OF DIKING A SHALLOW ARID-REGION LAKE

By

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## ABSTRACT

The inflow, outflow, and in-lake water quality and quantity of Utah Lake in Central Utah was studied over a 36-month period. The work was undertaken to determine the effect of a proposed diking project on the quality and quantity of lake water and to develop methodology for determining the effect of diking or other management practices on the quality of water in any lake system.

A computer simulation model was developed which is able to analyze the effect of a given management program on the water quality of the lake, particularly as related to the "conservative salts" present. The simulation model was also used to evaluate the evaporation from the lake by use of a salt balance technique.

Results of the research indicate that the diking of Utah Lake will have a positive beneficial effect upon the water quality of the lake and will also result in considerable saving of water and reclamation of valuable land.

This report was submitted in fulfillment of Project Number 16080 and Grant Number R-801400 by Brigham Young University under the partial sponsorship of the Environmental Protection Agency. Work was completed as of June 24, 1974.

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## ACKNOWLEDGEMENTS

Many individuals have had important roles in carrying out the research program reported herein. The authors wish to acknowledge with thanks the contribution of the following graduate students of Brigham Young University, Provo, Utah, who have provided significant assistance in collecting and analyzing the data: Harold Stock, Elwood Loveridge, David Pratt, Eric Loveless, James Riley, James D. Nelson, Bruce Sundrud, David Tillman, Mark Morrison, Lynn Kennison, Paul Daniels, Allon Owen, and Coleman McVea. Advice and general assistance of Professors David White and Sheril Burton are gratefully acknowledged.

The cordial cooperation and material assistance of the U. S. Bureau of Reclamation in providing data, maps, measuring equipment, and engineering instruments to assist in gathering data has been a significant factor in accomplishing the work reported herein. The assistance of Bureau of Reclamation personnel--Palmer DeLong, Provo Area Office Director, Larry Fluharty, Gale Moore, and Robert White--has been particularly helpful to the project.

Financial assistance of the Environmental Protection Agency and the helpfulness of Project Officers Lowell Leach and Curtis Harlin has been greatly appreciated.

# SECTION I

## CONCLUSIONS

The diking of Utah Lake will result in salvaging about 75,000 acre feet of water per year. It will also improve the water quality since concentrations of dissolved ions will be decreased significantly since much of the water that would evaporate remains in the lake as "dilution" water.

The computer simulation model developed as part of this project may be used to predict water quality improvements and quantity savings which may result from diking of lakes at any location. It may also be used to investigate effects of many other water management alternatives in water resource development.

The amount of evaporation from Utah Lake is greater than previous investigators have estimated. The sub-surface spring inflow is also greater than has been presumed in previous investigations. Much of the sub-surface inflow to the lake probably comes from deep strata containing warm highly-mineralized water that issues into the lake in areas of geologic faulting.

The principles of salt balance incorporated into the simulation model developed on this project provide a valuable tool in refinement of evaporation estimates by the water budget method.

## SECTION II

## RECOMMENDATIONS

The computer simulation model developed on this project should be tested at other locations to provide a check on the model and to assist in the development of water resource planning decisions.

The positive results of diking of Utah Lake--improvement of water quality, savings of water, and reclamation of land for other uses--are such that investigations as to engineering and economic feasibility should proceed. Such investigations should include (1) the relative benefits and costs for each of the dikes considered separately as well as together, (2) evaluation of the numerous water management policies using the LKSIM model to determine the quantity and quality results of these policies, (3) pre-treatment of Provo Bay tributaries which are high in organic matter, phosphates or nitrates, and (4) dike design features and construction methods that will preserve fish habitat which may be eliminated in the diking process.

# SECTION III

## INTRODUCTION

Natural waters of arid regions are subject to the same factors which cause deterioration of water quality in humid regions--municipal, industrial and agricultural waste pollution, natural pollution from many biological processes, and excessive concentration of phosphates and nitrates. In addition to these universal problems, arid region waters contain great quantities of dissolved minerals--often in such excessive concentration that the water is unfit for many uses--and the total quantity of water available with which any contaminant may be diluted is often extremely limited. Many of the dissolved minerals in arid region waters; which are predominantly chlorides, sulphates, and carbonates of sodium, potassium, calcium and magnesium; have existed at relatively high concentrations since long before man came upon the scene. They are present mainly because the watershed soils of streams in arid areas have not been subjected to the greater precipitation and natural leaching which has been going on for centuries in humid areas.

Any process involving water use--whether it be natural or purposeful, beneficial or wasteful, planned or inadvertent--results in leaving the dissolved minerals as a residue in the soils of the drainage basin or in the waters of the basin, in increasingly greater concentrations. Most of the water "used" is taken from the waters of the basin by evaporative processes.

Water lost as evaporation from lakes or artificial storage reservoirs usually serves no immediate beneficial purpose and represents, in total, a tremendous quantity of water. In 1962, Meyers [1*] estimated the total evaporation losses from the fresh water areas of seventeen contiguous western states as 23,641,000 acre-feet, or 7,703,420,000,000 gallons (29,160 million cubic meters) annually. This is enough water to provide the irrigation water supply to about eight million acres (3.2 million hectares) of land, or the domestic water supply for more than one hundred million people. The economic value of such lost water is staggering.

The enormous quantity of water lost in evaporation from fresh water surfaces has attracted considerable attention from engineers and scientists, especially in the water-short arid regions. A great research effort has been carried on over the past two decades to find means of reducing the amount of evaporation losses. A major part of the research effort has been related to the development of a protective material to be applied to the surface of the water which will act to reduce or suppress the evaporation loss. The magnitude of this research effort may be indicated by the fact that in 1973, the office of Water Resources Research issued a 477-page bibliography on evaporation suppression.[2] In the 319 reports listed in the publication, studies were reported of various methods of reducing evaporation from water surfaces, but no research was reported in which the reduction of water surface area by any means was considered.

If a lake or reservoir is relatively shallow over all or a significant portion of its total area, it may be possible to materially reduce evaporation by reduction of the surface area. Such is the case with Utah Lake, located in Central Utah, where the surface area is large but the lake is shallow. Evaporation loss from this lake is equal to about one-third of the total capacity and nearly one-half of the average annual in-flow. Plans for the diking of Utah Lake have been under consideration

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*Superscript numbers refer to literature cited in SECTION X of this report.

for several years as a part of the Bonneville Unit of the U.S. Bureau of Reclamation Central Utah Project.[3] The proposed diking of Utah Lake would dike off two bays from the lake and reduce the surface area by about one-third resulting in the saving of about 75,000 acre-feet (925,500,000 cubic meters) of evaporation loss annually. The research reported herein represents an evaluation of the projected dikes as they relate to the quality of the water in Utah Lake and describes the computer model, LKSIM, that was developed to help evaluate the water quality and quantity changes associated with diking. This model was set up to be flexible and versatile so that it might be readily applied to other lake systems.

## SECTION IV

## DESCRIPTION OF UTAH LAKE

Utah Lake is located in Central Utah and is the primary fresh water lake in the Jordan River drainage basin (See Figure 1). Water is stored in Utah Lake and then released into the Jordan River and irrigation canals for use in the Salt Lake Valley. Water flowing from Utah Lake which is not diverted for irrigation terminates in the Great Salt Lake. The Great Salt Lake is a remnant of the Lake Bonneville of ancient times which at one time covered 20,000 square miles (51,800 square kilometers) in northwestern Utah and had a depth of about 1000 feet (304.8 meters). For a detailed description of the geology of Utah Lake and the surrounding valley, the reader is referred to Hunt, Varnes and Thomas[4] and Bissell[5].

The area and volume of Utah Lake vary depending upon the lake level. The control level is known as "compromise level," which represents a near maximum level above which the lake does not often remain for any extended period of time. At "compromise level" the lake has a surface area of about 95,000 acres (38,446 hectares), a volume of storage equal to 898,000 acre feet (1108 million cubic meters) and an average depth of 9.5 feet (2.88 meters), according to U.S. Bureau of Reclamation surveys made between 1953 and 1962. The lake level drops several feet each year during the hot summer months, when water is being used for irrigation and when large amounts of water are being evaporated. During periods of drouth, the lake has decreased greatly in size and depth reaching a record level 12 feet (3.66 meters) below "compromise" after the great drouth of 1934.

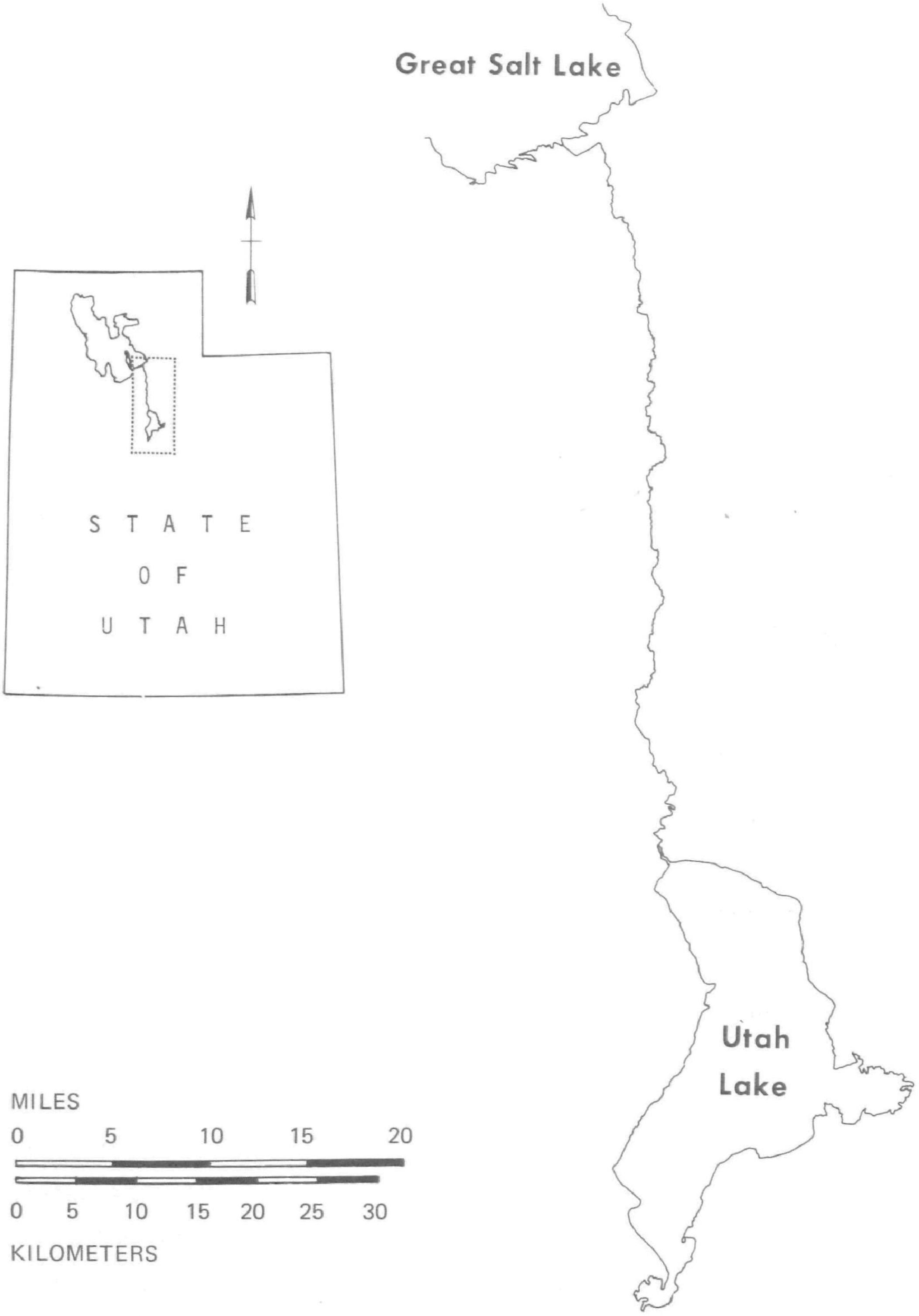


Figure 1- Map showing location of Utah Lake and Jordan River

The lake has a mud bottom throughout most of the lake, composed largely of lake sediments of clay and silt. The waters of the lake are often turbid, since frequent winds on the lake generate rather high waves which stir up the bottom sediments and re-deposit them. The usual wind direction is from the north, but south winds also occur at times. During times of wind, in addition to the wave action which is generated, a seiche is established with the water level at the leeward end of the lake reaching a level of as much as two feet (0.61 meters) in elevation above the water level at the windward end. This fact causes some difficulty in evaluating the "change in lake storage" in "water-balance" calculations.

There are about 51 streams of water in definite channels which flow into Utah Lake during all or a substantial part of each year. The Jordan River represents the only natural outflowing stream, but there are several locations where water is sometimes pumped from the lake for use in irrigation.

A number of springs issue forth beneath the water surface of the lake. These springs are generally of two types--either warm rather highly mineralized waters, or cool waters of good quality. The warm mineral springs seem to issue from a geologic fault or faults extending across the lake in a general north-south direction from Saratoga Resort on the northwest shore of the lake to Lincoln Point. The cool springs are located mainly near the north and east shores of the lake and seem to be similar in mineral content to well water from the shallow artesian aquifer along the east and north shore of the lake. The presence of these under-water springs introduces some difficulty into the water balance studies required to evaluate various water quality effects of the lake. The amount and quality of water from the springs in the lake will be further discussed in SECTION VII.

## SECTION V

## DIKING PLANS FOR UTAH LAKE

Consideration of plans for diking of Utah Lake to curtail the evaporation by reducing the surface area of the lake date back many years. In 1905, Swendsen[6] wrote of such consideration by the then newly-organized Reclamation Service of the federal government. The investigations included the measurement of 33 inflowing tributaries to the lake over a five-year period, limited studies of the underwater springs in the lake, records of lake level fluctuations, and notes relating to the nature of the bottom sediments along the lines of proposed dikes across the Provo and Goshen Bays. Considering the limited knowledge of the field of soil mechanics and the relatively primitive earth moving equipment available, it is not surprising that the conclusion was reached that the construction of the proposed dikes should not be undertaken at that time.

A plan to dike Provo and Goshen Bays is included in the Bonneville Unit of the U.S. Bureau of Reclamation Service Central Utah Project. Some parts of this unit are already under construction. The proposed dike locations are shown in Figure 2. The present plan[3], calls for the Goshen Bay land reclaimed by diking, to be used as a waterfowl refuge and the Provo Bay land to be drained and used for agricultural purposes. At compromise level, the Goshen Bay and Provo Bay dikes would reduce the lake surface area by 26,776 acres (10,836 hectares) and 6,961 acres (2817 hectares), respectively. This represents a total area equal to 35.5 percent of the existing lake area. Design details for the dikes have not been completed, nor has a definite program date for construction been established.

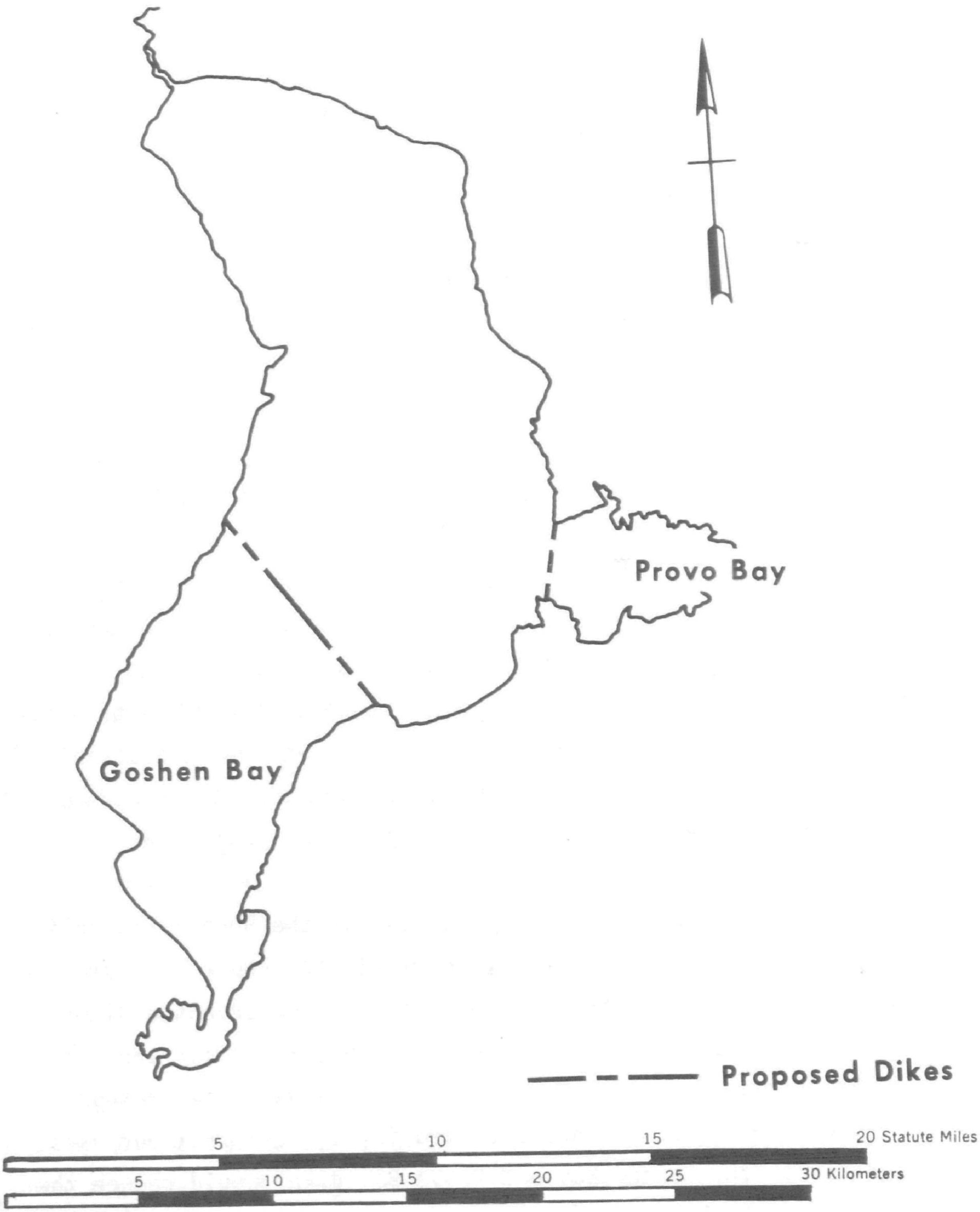


Figure 2- Map of Utah Lake showing proposed diking of Goshen Bay and Provo Bay

The project reported herein was planned to provide information relating to the effect of the proposed diking upon the water quality of the lake, and to develop methodology which could be applied to other similar projects which may exist at other locations.

## SECTION VI

## COLLECTION OF DATA

The task of collection of the data required to make the evaluations of this study was a monumental one. Fifty-one surface streams are tributary to Utah Lake. The quantity of flow in each of these streams fluctuates with time, and it was therefore necessary to install measuring devices and make regular observations of the flow at frequent intervals throughout the study period. It was also necessary to obtain samples for determination of quality parameters from the inflowing streams, the outlet stream (the Jordan River) and at many points in the lake. This massive program of measurement, sampling, and chemical and biological analyses of the samples was initiated in June 1970. Some scattered water quality data prior to that time was found and included in the data tabulation of the project. Most of the flow measurements were made jointly by project personnel and the staff of the Provo River Project office of the U.S. Bureau of Reclamation. Most of the lake and stream sampling and analyses during 1970-72 was done by the research project staff. Tributaries were measured at least weekly during the summer months and less frequently during the winter.

The U.S. Geological Survey maintains regular water stage recorder records on the Provo and Spanish Fork Rivers near their point of entry into Utah Lake. Their records were included in our project tabulations. Effluent flow from the Geneva Steel works were furnished to our project by the engineering staff of Geneva Steel Company. Effluent data from Provo, Orem, and American Fork sewage treatment works were provided by the Utah State Department of Health, and effluents from other sewage treatment works in the valley were included as part of the flow of measured tributaries.

Information on lake levels was obtained from the water stage recorder operated by the Jordan River Commissioner.

Precipitation records were compiled from regular U.S. Weather Bureau stations in the valley and also from supplemental stations at several locations established by the U.S. Bureau of Reclamation. Evaporation pan data for the U.S. Weather Bureau station at Lehi were obtained from the Weather Bureau. Supplemental records during part of the study period were obtained from temporary stations established by the U.S. Bureau of Reclamation at the Provo Airport and at Dixon Farms, near the south end of the lake.

Water quality data for under-water springs were derived from Harding[7], Subitzky[8], Mundorff[9], and Milligan, et. al.[10].

A listing of the lake and tributary water measurements and sample analyses made during the investigation is included in Appendix A. Some water quality data from samples taken over a three-year period prior to the beginning of this project are also included in the listing.

## SECTION VII

## ANALYSIS OF DATA

### WATER BUDGET STUDIES

The hydrology of a lake may be studied in detail by making a water budget study. This involves a quantitative determination of all inflows (inflowing surface tributary flows, precipitation on the lake surface, and sub-surface seepage or spring inflows), and all outflows (outflowing surface streams, evaporation from the lake surface, transpiration from vegetation growing in the water, and sub-surface seepage into the material under-lying the lake). If inflows and outflows are defined as above and are all measureable, the outflow plus or minus the change in storage should equal the inflow. However, it is not possible to measure evaporation loss from a large body of water, and so the water budget method is often used as an indirect method of determining evaporation. It is also usually impossible to measure accurately the subsurface seepage into or out of the lake. In the Lake Hefner (Oklahoma) studies[11, 12], the lake was carefully selected, primarily because of its geologic characteristics. Lake Hefner is underlain by a shale formation which is relatively impermeable, and the influent and effluent seepage is an outward flow of about six acre feet per month. With such a small seepage factor, and careful measurement of other parameters, the researchers were able to determine lake evaporation with much greater accuracy than had been possible in any previous investigation.

In the Utah Lake studies reported herein, it was known from previous reports that there are a number of springs in the lake. The amount of inflow to the lake from these springs has never been accurately determined, and therefore this un-measured quantity must be evaluated in the water budget calculations--along with the evaluation of evaporation losses from the lake. It is obvious that if all of the other water budget factors can be measured or accurately estimated, an over-estimate of evaporation will also result in an over-estimate of subsurface spring flow if it is determined by the water budget. Conversely, an under-estimate of evaporation will result in an underestimate of subsurface spring flow, if spring flow is calculated from the water budget equation. Recognizing this problem, it was determined that it would be advantageous to develop some criteria for evaluation in addition to the water budget analysis. A method of analysis involving salt balance was developed, and this method and the actual analysis are discussed in the following sub-sections, in which data for each factor in the water budget analysis are considered in detail.

Inflowing Tributaries

All of the surface tributaries to the lake were located by study of maps and by air or ground observation.

A total of 52 tributaries were located. A summary of the flows of all of the tributaries for each month from July 1970 to June 1972 is shown in Tables 1 and 2. It is noted that station number 30 shows no entries. The flows of this tributary were found to be insignificantly small, and the measurements were discontinued after the first year. Measurements were made of the major tributaries also during the 1972-73 year. The remaining inflows for that year are combined together as one estimate for "un-measured" inflow. The resulting measured and un-measured data for 1972-73 are shown in Table 3.

The two largest tributaries, Provo River (No. 29) and Spanish Fork River, (No. 48) are included in the network of stream gaging stations maintained by the U.S. Geological Survey and are equipped with automatic

Table 1. UTAH LAKE SURFACE TRIBUTARY INFLOWS, 1970-71

(All Figures are in acre-feet of water)

| Tributary Number | 1970 July | Aug. | Sept. | Oct. | Nov. | Dec. | 1971 Jan. | Feb. | March | April | May | June | Totals July-June |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 44 | 33 | 57 | 26 | 0 | 0 | 0 | 0 | 0 | 17 | 16 | 3 | 196 |
| 2 | 46 | 25 | 24 | 45 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 19 | 161 |
| 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 59 | 37 | 103 |
| 4 | 24 | 28 | 23 | 32 | 30 | 33 | 33 | 33 | 34 | 32 | 34 | 35 | 371 |
| 5 | 23 | 13 | 37 | 7 | 20 | 16 | 21 | 30 | 14 | 18 | 23 | 67 | 289 |
| 6 | 138 | 126 | 234 | 69 | 55 | 67 | 73 | 66 | 64 | 73 | 104 | 146 | 1215 |
| 7 | 43 | 62 | 37 | 40 | 29 | 34 | 75 | 47 | 40 | 81 | 102 | 65 | 655 |
| 8 | 353 | 117 | 385 | 436 | 376 | 383 | 404 | 314 | 274 | 316 | 327 | 392 | 4077 |
| 9 | 1287 | 678 | 1240 | 1507 | 1642 | 1474 | 1519 | 1189 | 1207 | 1066 | 977 | 1363 | 15149 |
| 10 | 207 | 236 | 275 | 262 | 213 | 185 | 191 | 175 | 181 | 185 | 240 | 269 | 2619 |
| 11 | 163 | 129 | 95 | 83 | 74 | 74 | 74 | 76 | 80 | 80 | 117 | 215 | 1260 |
| 12 | 64 | 58 | 99 | 80 | 61 | 54 | 60 | 47 | 35 | 61 | 136 | 154 | 909 |
| 13 | 58 | 67 | 45 | 52 | 44 | 26 | 23 | 21 | 23 | 25 | 49 | 501 | 934 |
| 14 | 148 | 163 | 153 | 155 | 126 | 109 | 120 | 102 | 109 | 128 | 125 | 226 | 1664 |
| 15 | 157 | 156 | 153 | 195 | 174 | 155 | 156 | 138 | 156 | 163 | 191 | 189 | 1983 |
| 16 | 143 | 73 | 118 | 119 | 99 | 93 | 111 | 111 | 122 | 124 | 146 | 152 | 1411 |
| 17 | 401 | 255 | 356 | 319 | 222 | 156 | 158 | 131 | 159 | 235 | 368 | 472 | 3232 |
| 18 | 1444 | 1569 | 2686 | 2442 | 2081 | 1866 | 2115 | 1725 | 1819 | 1974 | 1673 | 1519 | 22913 |
| 19 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 20 | 1842 | 2027 | 1849 | 1910 | 2170 | 2165 | 2196 | 1741 | 1910 | 2006 | 1910 | 1805 | 23531 |
| 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 22 | 0 | 0 | 0 | 0 | 0 | 8 | 8 | 6 | 6 | 4 | 2 | 0 | 34 |
| 23 | 0 | 0 | 0 | 0 | 4 | 6 | 6 | 6 | 6 | 6 | 5 | 2 | 41 |
| 24 | 12 | 8 | 11 | 17 | 20 | 19 | 22 | 17 | 16 | 15 | 13 | 13 | 183 |
| 25 | 67 | 98 | 58 | 59 | 82 | 94 | 119 | 88 | 85 | 23 | 72 | 89 | 934 |
| 26 | 314 | 313 | 289 | 252 | 296 | 217 | 202 | 199 | 225 | 217 | 252 | 260 | 3036 |
| 27 | 1210 | 1270 | 1240 | 1380 | 1440 | 1420 | 1500 | 1480 | 1540 | 1450 | 1530 | 1320 | 16780 |
| 28 | 7 | 0 | 28 | 35 | 68 | 67 | 182 | 129 | 79 | 87 | 47 | 28 | 757 |
| 29 | 1250 | 633 | 1220 | 9500 | 20700 | 23350 | 19280 | 17170 | 13310 | 18800 | 11690 | 19500 | 156403 |

Table 1. (Continued) UTAH LAKE SURFACE TRIBUTARY INFLOWS 1970-71

(All figures are in acre-feet of water)

| Tributary Number | 1970 July | Aug. | Sept. | Oct. | Nov. | Dec. | 1971 Jan. | Feb. | March | April | May | June | Totals July-June |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 31 | 78 | 121 | 164 | 149 | 177 | 160 | 116 | 106 | 119 | 143 | 118 | 66 | 1517 |
| 32 | 49 | 44 | 44 | 45 | 42 | 43 | 43 | 39 | 43 | 46 | 47 | 55 | 540 |
| 33 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 6 | 6 | 6 | 6 | 77 |
| 34 | 743 | 722 | 717 | 669 | 595 | 410 | 337 | 269 | 296 | 358 | 394 | 702 | 6212 |
| 35 | 91 | 92 | 199 | 118 | 149 | 132 | 93 | 99 | 45 | 65 | 83 | 75 | 1241 |
| 36 | 32 | 64 | 138 | 50 | 26 | 13 | 40 | 130 | 25 | 38 | 76 | 88 | 720 |
| 37 | 74 | 81 | 94 | 93 | 82 | 61 | 58 | 54 | 58 | 75 | 83 | 72 | 885 |
| 38 | 867 | 870 | 814 | 1041 | 1118 | 1041 | 990 | 898 | 1208 | 1031 | 814 | 825 | 11517 |
| 39 | 1524 | 1564 | 1361 | 812 | 948 | 928 | 935 | 828 | 853 | 1014 | 1182 | 1342 | 13291 |
| 40 | 232 | 229 | 185 | 247 | 236 | 208 | 184 | 166 | 184 | 167 | 170 | 148 | 2356 |
| 41 | 408 | 423 | 416 | 337 | 263 | 273 | 292 | 298 | 346 | 378 | 498 | 461 | 4393 |
| 42 | 1484 | 1403 | 1362 | 1708 | 1782 | 1568 | 1602 | 1390 | 1228 | 1274 | 1858 | 1297 | 17956 |
| 43 | 743 | 373 | 359 | 278 | 293 | 404 | 673 | 634 | 817 | 923 | 921 | 729 | 7147 |
| 44 | 145 | 128 | 758 | 1366 | 2002 | 2049 | 1979 | 1834 | 2178 | 2731 | 2012 | 557 | 17739 |
| 45 | 170 | 205 | 207 | 226 | 242 | 229 | 209 | 213 | 183 | 140 | 154 | 281 | 2459 |
| 46 | 494 | 577 | 422 | 267 | 176 | 217 | 178 | 164 | 178 | 194 | 227 | 523 | 3617 |
| 47 | 334 | 924 | 1134 | 1361 | 1211 | 1291 | 1211 | 1158 | 1215 | 1159 | 399 | 791 | 12188 |
| 48 | 353 | 681 | 2165 | 4130 | 5320 | 5810 | 6810 | 6810 | 9970 | 13860 | 10760 | 1910 | 68579 |
| 49 | 68 | 69 | 56 | 57 | 50 | 34 | 32 | 42 | 44 | 37 | 35 | 58 | 582 |
| 50 | 261 | 331 | 256 | 288 | 245 | 272 | 303 | 368 | 242 | 277 | 395 | 434 | 3672 |
| 51 | 1454 | 1645 | 3242 | 3454 | 3944 | 3885 | 3516 | 3706 | 3933 | 4233 | 2881 | 2159 | 38052 |
| 52 | 0 | 0 | 0 | 0 | 0 | 0 | 1538 | 1231 | 720 | 359 | 338 | 70 | 4256 |
| Totals | 19056 | 18692 | 24811 | 35725 | 48934 | 51106 | 49797 | 45485 | 45385 | 55701 | 43661 | 41490 | 479840 |

Table 2. UTAH LAKE SURFACE TRIBUTARY INFLOWS, 1971-72

(All figures are in acre-feet of water)

| Tributary Number | 1971 July | Aug. | Sept. | Oct. | Nov. | Dec. | 1972 Jan. | Feb. | March | April | May | June | Totals July-June |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 4 | 15 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 8 | 62 |
| 2 | 0 | 5 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 68 | 1 | 97 |
| 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 49 | 0 | 0 | 60 | 109 |
| 4 | 38 | 35 | 22 | 26 | 31 | 32 | 31 | 35 | 30 | 23 | 33 | 39 | 375 |
| 5 | 22 | 2 | 19 | 15 | 29 | 0 | 37 | 21 | 17 | 12 | 20 | 32 | 226 |
| 6 | 159 | 115 | 215 | 63 | 64 | 70 | 74 | 63 | 55 | 60 | 112 | 146 | 1196 |
| 7 | 68 | 79 | 135 | 194 | 191 | 97 | 92 | 58 | 30 | 57 | 179 | 74 | 1254 |
| 8 | 276 | 93 | 298 | 328 | 343 | 310 | 295 | 230 | 178 | 214 | 406 | 351 | 3322 |
| 9 | 1387 | 997 | 1445 | 1558 | 1418 | 1311 | 1291 | 1104 | 1168 | 916 | 375 | 1154 | 14124 |
| 10 | 215 | 207 | 220 | 217 | 204 | 180 | 178 | 16 | 213 | 274 | 325 | 233 | 2482 |
| 11 | 259 | 141 | 107 | 76 | 74 | 77 | 70 | 66 | 70 | 92 | 104 | 164 | 1300 |
| 12 | 73 | 96 | 121 | 114 | 90 | 72 | 49 | 38 | 50 | 100 | 168 | 178 | 1149 |
| 13 | 63 | 60 | 58 | 57 | 58 | 60 | 61 | 58 | 68 | 83 | 105 | 173 | 904 |
| 14 | 158 | 231 | 167 | 159 | 133 | 114 | 105 | 89 | 86 | 121 | 149 | 168 | 1680 |
| 15 | 123 | 106 | 158 | 178 | 163 | 151 | 129 | 115 | 121 | 135 | 150 | 177 | 1706 |
| 16 | 99 | 103 | 98 | 115 | 98 | 94 | 80 | 71 | 90 | 83 | 121 | 114 | 1166 |
| 17 | 348 | 377 | 428 | 378 | 249 | 171 | 141 | 123 | 117 | 179 | 375 | 506 | 3392 |
| 18 | 1374 | 1678 | 2693 | 2466 | 2020 | 1863 | 1654 | 1377 | 1353 | 1452 | 1150 | 1410 | 20490 |
| 19 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 10 |
| 20 | 1933 | 1980 | 2538 | 2266 | 2289 | 2440 | 2723 | 2377 | 2541 | 2509 | 2440 | 2313 | 28349 |
| 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 22 | 0 | 0 | 0 | 0 | 6 | 6 | 6 | 6 | 12 | 30 | 6 | 0 | 72 |
| 23 | 0 | 0 | 0 | 0 | 6 | 6 | 6 | 6 | 7 | 7 | 6 | 1 | 45 |
| 24 | 10 | 13 | 11 | 16 | 21 | 18 | 16 | 15 | 16 | 15 | 15 | 13 | 179 |
| 25 | 107 | 90 | 45 | 66 | 82 | 103 | 92 | 73 | 61 | 54 | 100 | 78 | 951 |
| 26 | 262 | 292 | 273 | 245 | 226 | 279 | 290 | 257 | 265 | 266 | 312 | 312 | 3279 |
| 27 | 1210 | 1270 | 1240 | 1380 | 1440 | 1420 | 1500 | 1480 | 1540 | 1450 | 1530 | 1320 | 16780 |
| 28 | 17 | 3 | 50 | 75 | 122 | 123 | 111 | 104 | 80 | 12 | 55 | 23 | 775 |
| 29 | 850 | 877 | 1120 | 15802 | 20229 | 20205 | 16520 | 16288 | 20577 | 16854 | 16723 | 29437 | 175482 |

Table 2 (Continued) UTAH LAKE SURFACE TRIBUTARY INFLOWS, 1971-72

(All figures are in acre-feet of water)

| Tributary Number | 1971 July | Aug. | Sept. | Oct. | Nov. | Dec. | 1972 Jan. | Feb. | March | April | May | June | Totals July-June |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 31 | 104 | 100 | 149 | 137 | 105 | 109 | 123 | 104 | 74 | 89 | 68 | 65 | 1227 |
| 32 | 42 | 45 | 40 | 42 | 39 | 42 | 43 | 40 | 49 | 42 | 80 | 125 | 629 |
| 33 | 3 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 8 | 8 | 77 |
| 34 | 617 | 354 | 297 | 470 | 242 | 224 | 234 | 224 | 289 | 321 | 301 | 321 | 3894 |
| 35 | 46 | 54 | 119 | 211 | 214 | 133 | 148 | 35 | 80 | 125 | 141 | 119 | 1425 |
| 36 | 25 | 24 | 60 | 58 | 26 | 30 | 31 | 23 | 25 | 71 | 25 | 24 | 422 |
| 37 | 75 | 80 | 92 | 95 | 76 | 55 | 49 | 35 | 37 | 60 | 68 | 69 | 791 |
| 38 | 859 | 947 | 711 | 883 | 868 | 923 | 959 | 892 | 1008 | 726 | 750 | 684 | 10210 |
| 39 | 1439 | 1624 | 1401 | 1259 | 1117 | 1055 | 952 | 944 | 1128 | 1141 | 1325 | 1466 | 14851 |
| 40 | 404 | 255 | 273 | 206 | 169 | 149 | 123 | 29 | 31 | 30 | 18 | 0 | 1687 |
| 41 | 313 | 262 | 241 | 245 | 228 | 208 | 215 | 196 | 246 | 303 | 240 | 250 | 2947 |
| 42 | 1529 | 2057 | 2116 | 2241 | 1940 | 1468 | 1279 | 1294 | 1457 | 1743 | 2060 | 2338 | 21522 |
| 43 | 451 | 414 | 438 | 476 | 468 | 509 | 553 | 506 | 553 | 553 | 584 | 779 | 6284 |
| 44 | 149 | 191 | 434 | 1461 | 1663 | 1766 | 1968 | 1818 | 2226 | 2130 | 92 | 161 | 14059 |
| 45 | 341 | 279 | 331 | 424 | 643 | 401 | 357 | 276 | 283 | 315 | 240 | 268 | 4158 |
| 46 | 386 | 456 | 274 | 216 | 203 | 191 | 185 | 127 | 178 | 202 | 240 | 292 | 2950 |
| 47 | 489 | 835 | 891 | 941 | 1073 | 823 | 935 | 1041 | 1992 | 1095 | 689 | 238 | 11042 |
| 48 | 593 | 538 | 1700 | 5343 | 6389 | 7289 | 7329 | 7525 | 10320 | 6926 | 801 | 736 | 55489 |
| 49 | 62 | 54 | 39 | 45 | 44 | 40 | 31 | 35 | 37 | 54 | 49 | 48 | 538 |
| 50 | 333 | 250 | 207 | 180 | 137 | 135 | 172 | 150 | 160 | 184 | 394 | 303 | 2605 |
| 51 | 1043 | 1156 | 2559 | 3063 | 3793 | 4013 | 4034 | 3664 | 3419 | 2600 | 1636 | 2172 | 33152 |
| 52 | 0 | 0 | 0 | 922 | 2082 | 1783 | 1014 | 2013 | 680 | 600 | 90 | 0 | 9184 |
| Totals | 18355 | 18838 | 23877 | 44728 | 51111 | 50554 | 46292 | 45048 | 53073 | 44321 | 34951 | 48951 | 480099 |

## Table 3. UTAH LAKE SURFACE TRIBUTARY INFLOWS, 1972-73

(All figures are in acre-feet of water)

| Tributary No. | 1972 July | Aug. | Sept. | Oct. | Nov. | Dec. | 1973 Jan. | Feb. | March | April | May | June | Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 | 1537 | 1168 | 1309 | 1875 | 1666 | 1722 | 1506 | 1722 | 1968 | 1785 | 1107 | 1368 | 18733 |
| 11 | 129 | 124 | 138 | 143 | 130 | 135 | 143 | 130 | 130 | 140 | 150 | 150 | 1642 |
| 18 | 1599 | 1568 | 2410 | 2767 | 2350 | 1875 | 1783 | 1805 | 2029 | 1577 | 1844 | 1785 | 23392 |
| 20 | 1745 | 2372 | 2313 | 2593 | 2602 | 2579 | 2782 | 2250 | 2271 | 2063 | 2265 | 2405 | 28240 |
| 26 | 314 | 314 | 304 | 295 | 285 | 295 | 295 | 266 | 333 | 313 | 285 | 304 | 3603 |
| 27 | 1210 | 1270 | 1240 | 1380 | 1440 | 1420 | 1500 | 1480 | 1540 | 1450 | 1530 | 1320 | 16780 |
| 29 | 1840 | 732 | 2020 | 11400 | 13850 | 14090 | 16290 | 16000 | 17130 | 20680 | 41880 | 19470 | 175382 |
| 34 | 679 | 710 | 533 | 429 | 235 | 191 | 188 | 204 | 334 | 502 | 875 | 1154 | 6034 |
| 38 | 813 | 695 | 632 | 943 | 683 | 1185 | 1319 | 1206 | 1395 | 1325 | 678 | 546 | 11420 |
| 39 | 1475 | 1427 | 1381 | 1269 | 933 | 1135 | 1009 | 945 | 1094 | 1068 | 1465 | 1427 | 14628 |
| 41 | 286 | 455 | 550 | 524 | 529 | 336 | 240 | 272 | 340 | 374 | 460 | 387 | 4753 |
| 42 | 1020 | 1072 | 775 | 1161 | 1651 | 740 | 526 | 461 | 1055 | 1104 | 1423 | 1214 | 12202 |
| 43 | 861 | 829 | 439 | 689 | 455 | 252 | 144 | 218 | 375 | 371 | 383 | 980 | 5996 |
| 47 | 85 | 221 | 416 | 1072 | 1133 | 1156 | 1128 | 1137 | 1270 | 1187 | 893 | 119 | 9817 |
| 48 | 113 | 149 | 762 | 4950 | 6320 | 6450 | 6550 | 5730 | 7300 | 17090 | 40150 | 3480 | 99044 |
| 51 | 440 | 336 | 857 | 2413 | 2657 | 2619 | 2828 | 3307 | 3590 | 3273 | 3951 | 2023 | 28294 |
| Un-measured tributaries | 3721 | 3416 | 4331 | 5429 | 5734 | 5978 | 6100 | 13800[a] | 5612 | 8653[b] | 37029[b] | 17339[b] | 117142 |
| Totals | 17867 | 16858 | 20410 | 39332 | 42653 | 42158 | 44331 | 50933 | 47766 | 62955 | 136368 | 55471 | 577102 |

[a]February abnormal winter thaw caused considerable un-measured runoff.

[b]Estimated indirectly by evaporation and water balance calculations.

water stage recorders for continuous recording of the stream flow. The flow records are published as "Provo River at Provo, Utah" and "Spanish Fork River near Lakeshore, Utah." Records for these two tributaries were tabulated from U.S.G.S. data.

The effluent from Geneva Steel plant (No. 20) is measured continuously by the steel company, and these records have been made available to the project.

Records of effluent flow from Provo (No. 39), Orem (No. 26), and American Fork (No. 11) sewage treatment plants were obtained from the Utah State Board of Health. Flows from the other sewage treatment facilities in the valley are mingled with other waters before entering the lake, and the entire flow of these tributaries was measured on a regular basis over the period of study. One tributary, Powell Slough (No. 27), consists of several branches in an area where a number of springs arise. Measurement of this tributary presented a number of difficulties. A study of several record sources indicated that rather careful and detailed measurements of this tributary had been made at different times in the past. Swendsen[6] made detailed measurements over a 13-month period in 1903-04. Harding[13] carefully analyzed the Swendsen records and noted minor differences from his own measurements. The Bureau of Reclamation made measurements over an eight-year period, 1938-45. Taking all of the available records of measurements of Powell's Slough, it was noted that for each month of the year, the records of flow from all of these different periods of time did not differ greatly from each other. It was therefore decided that to use a fixed monthly flow equal to the average of the available ten years of record would not be seriously in error. Considering the physical difficulty of getting an actual measurement of this tributary it was felt that the expense of attempting to do so would not be warranted. Since all three years of the study were "good" water years and the lake level was high, the same monthly figure was used for each corresponding month of the three years. Measuring devices were established on all of the other of the fifty-one tributaries. For the first two years of study, measurements were made at all stations weekly during the summer months and about monthly during the other periods of the year, when experience showed that there was relatively little change in flow with time. After the first two years of data were collected, it was noted that many of the small drainage channels which are tributary to the lake are not subject to appreciable fluctuation, except on a predictable seasonal basis. Thirty-five of the fifty-one stations were in this category. These thirty-five stations included numbers 1 through 8, 10, 12 through 17, 19, 21 through 25, 28, 31 through 33, 35 through 37, 40, 44 through 46, 49, 50, and 52. These thirty-five stations represented thirteen percent of the total surface tributary inflow in each of the first two years of the study. It was decided in the third year that these flows could be estimated, using the records of the first two years and the flows from the major tributaries during the third year as a basis for the estimation. It will be noted in Table 3 that an estimated total flow for each month for these thirty-five stations is given.

The estimates of flow for these thirty-five stations during the last half of 1972 were made by comparison with measurements of previous years, and measurements of the other seventeen tributaries which were measured. However, in February an unusual winter thaw occurred which caused a lot of un-measured flow into the lake, which was difficult to evaluate. The spring runoff during 1973 was also abnormally high as shown by flows of the Provo and Spanish Fork River. In view of these conditions, it was decided that the best way to estimate the un-measured lake tributary inflow was to utilize the water budget method, using sub-surface spring flows and evaporation data and average lake-pan coefficients determined from the first two year's data for each of the months when evaporation pan data were available.

## Precipitation Measurement

Precipitation on the lake surface was determined by using the data from regular U.S. Department of Commerce precipitation station records as published in "Climatological Data"[14]; supplemented by stations established by the U.S. Bureau of Reclamation at Pelican Point, Lakeshore, Dixon Farms, and Provo Airport over part of the study period. Average weighted precipitation on the lake surface was determined by using the Thiessen method[15].

## Lake Outflow

All of the surface outflow from Utah Lake is through the overflow gates or pumping plant to the Jordan River at the north end of the lake near Lehi, except for a small amount taken by direct pumping from the southwestern portion of the lake near Elberta. The outflows are accurately measured and reported by Gardner[16]. All outflow data used in this study were taken from these reports.

## Change in Storage

The change in storage during any time period used in water budget studies may be determined by use of area-capacity data coupled with accurate measurements of the elevation of the lake surface. Water budget calculations in this study were made over monthly time intervals. Determination of the elevation of the water surface of the lake were made from water stage recorder readings at midnight on the last day of each month, with adjustments as necessary to account for seiches caused by wind on the lake surface. Continuous water stage recorder records of the elevation of the water surface of the lake throughout the entire period reported herein were obtained from the Utah Lake and Jordan River Commissioner. Tables giving surface areas and volume of storage for the lake at one-hundredth of a foot intervals were obtained from the U.S. Bureau of Reclamation. The importance of accuracy in determining and evaluating the elevation of the water surface can be emphasized by pointing out that at compromise level, a one-inch (2.54 c.m.) difference in elevation represents a change in storage of nearly 8000 acre feet (9,872,000 cubic meters).

In making calculations by the water budget method, it is worthy of note that over short periods (i.e., monthly) small errors in determining water stage levels may result in considerable errors in the other calculated factors over longer periods (such as one or two years) or during months of high evaporation losses, the small water level errors have only a relatively small effect on the calculations of water budget factors.

## Sub-Surface Seepage

The existence of springs in Utah Lake has already been mentioned. The springs along the east shore of the lake from the mouth of Provo River northward are presumed to issue from the shallow Pleistocene Aquifer from which many flowing wells near the lake draw water. This presumption is based upon the similarities in salt content, water pressure, and water temperature between these wells and the sub-surface springs in this area of the lake.

The warm springs which occur in a general line from the vicinity of Saratoga Resort at the north end of the lake to Lincoln Point are presumed to issue from geologic faults in the lake which have much deeper origin. These spring waters are similar in dissolved solids and temperature to the springs at Lincoln Point and Saratoga. They are high in dissolved salts--particularly sodium chloride.

Swendsen[6] and Harding[7] and others[4, 5, 17], have pointed out that the groundwater near the lake is under pressure--sometimes as much as 15 feet of pressure head. It is presumed, therefore, that the net seepage flow is into the lake, and that it occurs primarily in the warm and cold springs mentioned above.

Various estimates have been made of the quantity of flow into the lake in the sub-surface springs. Most investigators have indicated that their estimates are subject to considerable possibility of error. Certainly the amount of flow would decrease as the pressures in the aquifers feeding the springs decreased. It has been noted, however, that even in the extreme drouth years, the water pressure in deep aquifers was probably not diminished significantly. The pressures in the shallow aquifers, being subject to greater development and use, have diminished in time of drouth, or even during short periods of heavy use such as the summer months. In investigations reported in 1964, Viers[18] estimated inflow of 18,300 acre feet (22.6 million cubic meters) annually from known springs, and 67,000 acre feet (82.7 million cubic meters) "unmeasured inflow from the alluvial fans north of the Provo River."

Greene[19] and Jacobsen and Peterson[20], estimated that the "invisible inflow" to Utah Lake is less than 300 cubic feet per second (8.5 cubic meters per second)--this is 217,200 acre feet (268 million cubic meters) annually--with their estimates presumably being based upon the same water budget analysis. Harding[7] reported a number of personal studies and measurements to evaluate all sub-surface spring flow into the lake. He estimated a total average spring flow from known spring areas at 40 to 60 cubic feet per second (1.13 to 1.70 cubic meters per second). An average flow of 60 cubic feet per second represents an annual volume equivalent to about 45,000 acre feet (55.5 million cubic meters). It was decided, as a first approximation, to use 45,000 acre feet as the annual sub-surface flow to the lake for each of the three years of the study reported herein. A somewhat arbitrary flow by months was estimated by assuming monthly fluctuations similar to the normal high-to-low fluctuations in ground water aquifer pressures in the shallow Pleistocene Aquifer at Lehi. Water Quality similar to the shallow Pleistocene Aquifer was also assumed. The first approximation was later adjusted based upon water budget and salt balance studies over the first two years of the study which are described in subsequent paragraphs.

The lake simulation model, described later, indicated that there was more salt and more spring water inflowing into the lake. Balance of the simulation model was achieved when 4324 acre feet (5.34 million cubic meters) of water per month was added as additional sub-surface inflow. Of this added spring flow, 2000 acre feet (2.47 million cubic meters) per month was assumed to have dissolved mineral content similar to the wells of the shallow Pleistocene Aquifer on the east and north shore of the lake. The other 2324 acre feet (2.87 million cubic meters) per month was assumed to have dissolved mineral content similar to the warm springs issuing from the geologic fault zone in the lake already mentioned. The total annual sub-surface spring inflow to the lake was thus estimated at 96,880 acre feet (119.6 million cubic meters) and was considered to be made up of three components--(a) 45,000 acre feet per year (55.5 million cubic meters) with the quantity varying from month to month corresponding to ground water pressures in the shallow Pleistocene Aquifer, and quality similar to this aquifer; (b) 24,000 acre feet (29.6 million cubic meters per year) evenly distributed to each month, and of the same quality as the shallow Pleistocene Aquifer just mentioned; and (c) 2,324 acre feet (2.87 million cubic meters) per month or 27,888 acre feet (34.4 million cubic meters) per year of quality similar to the warm springs issuing from the fault.

Each of the three years of the study reported herein were relatively "good" water years, and it may therefore be assumed that the magnitude of the sub-surface spring inflow would be approximately the same in all three years. The above-adjusted estimate was then used in the water budget analysis to calculate the evaporation term in the water budget equation.

## Evaporation From The Lake

Other researchers have given considerable attention to the problems of measuring evaporation from a natural lake. Allen[12] used the water budget, energy budget, and evaporation tanks in carefully controlled studies at Lake Hefner, Oklahoma. Harbeck and others[11], in earlier Lake Hefner studies investigated the use of water budget, energy budget, mass transfer, pan evaporation, and a radiation integration in extensive research investigations. The Lake Hefner studies were the result of much detailed planning[21] in an attempt to find a suitable location where the parameters of the water budget equation could be measured with sufficient accuracy that the evaporation could be determined by this method. At the same time, the data obtained could be used as a base for testing of the use of energy budget and mass transfer methods which had never been possible before.

Prior to the Lake Hefner studies, Rohwer[22] in 1931 reported extensive studies which included careful laboratory measurements under controlled conditions as well as the use of an 85-foot (25.9 meter) diameter concrete tank. Hickox [23] also conducted carefully controlled laboratory studies of evaporation as related to wind, velocity, vapor pressure gradient, water temperature, air pressure and other variables.

Many have attempted to derive empirical equations for evaporation from lakes or reservoirs. These efforts have been handicapped by a lack of actual evaporation information. The same handicap has limited the usefulness of studies aimed at evaluation of the use of evaporation pans. Aside from the work by Rohwer[22] (who correlated pan evaporation with that from the 85-foot tank already mentioned) no studies prior to the Lake Hefner studies had sufficient information on actual measured evaporation to provide meaningful comparisons with pan data or emperical equations. Young[24] and Follansbee[25] projected many records of pan evaporation by using "pan coefficients." Harding[26] studied several lakes in Nevada and California during periods of limited inflow and made calculations of evaporation based on water budget analyses. Many investigators have been tempted to use a pan coefficient, based on measurements over an entire season, to short periods--even sometimes for periods as short as one month. This has resulted in many erroneous estimates of evaporation, since the relationship between lake and pan evaporation changes as the season progresses. In the Lake Hefner studies, the coefficients for the Weather Bureau Class A pan varied from about 0.5 in the early spring to nearly 1.0 in the fall, and greater than 1.0 in the winter months. The seasonal fluctuation is due in part to heat stored in the lake or reservoir waters which increases evaporation from the lake or reservoir in the fall and winter months as the average air temperature decreases.

In the Utah Lake studies reported herein, it was anticipated that evaporation could be calculated by the water budget method--at least during the first two years of the study when extensive measurements of inflowing tributaries were made. The difficulty caused by having two unknowns (evaporation and sub-surface flow) was overcome by making use of the salt balance principle.

Salt Balance Study -

Measurements of dissolved mineral content of the inflowing and outflowing waters and of the lake itself were made at regular intervals. Measurements were made of total dissolved minerals and of the sodium, calcium, magnesium, potassium, bicarbonate, carbonate, sulphate, nitrate, and phosphate ions. The chlorides and sulphates of sodium and potassium do not easily precipitate out of solution at the concentrations existing in Utah Lake. A balance therefore should exist between the inflowing and outflowing quantities of these ions adjusted for changes in the amount in solution in the lake over an appropriate time period, with the water that evaporates leaving the salt behind in solution in the lake waters. A simulation on the computer over the first two years of the study indicated that the evaporation as calculated by the water budget method using Harding's estimate[7] of subsurface inflow to the lake resulted in a large deficiency of sodium, potassium, chloride, and sulphate compared with the actual conditions in the lake over the two-year period.

By increasing the estimated sub-surface spring flows from the spring sources having the greatest concentration of chlorides, sulphates, sodium and potassium ions (and by increasing the evaporation a corresponding amount to keep the water budget in balance); the simulation model was brought into approximate balance, mineral-wise, with the actual lake conditions. The water budget figures, adjusted to achieve salt balance, show the calculated evaporation. These figures are shown in Tables 4 and 5. Since evaporation in the winter months is small and represents the difference between large numbers (inflow, outflow, and change of storage) any small errors are greatly magnified in the calculated evaporation. Therefore, although monthly calculation of evaporation is made for the seven months, April through October, no attempt is made to calculate monthly evaporation during the months of October through March. A total evaporation for these five months is calculated based upon water budget analysis over this five-month period in each of the first two years of the study.

Water Balance - The Third Year -

In the third year of the study, many of the tributary inflows were not measured. During most of the year, the measurements on these tributaries during the first two years provide enough information to enable reasonably accurate estimates of flow in the unmeasured tributaries. In the months of April, May, and June of 1973, a period of extra-ordinarily high runoff occurred, and it was not possible to estimate the flows by this method. Therefore, the evaporation for these months was estimated by using the evaporation pan records at Lehi, Utah, and average coefficients for the months as determined from the records of the first two years. Calculated pan coefficients for the first two years of the study are shown in Table 6. Water budget figures for the third year of the study, (including evaporation data for the months of April, May, and June calculated from average pan coefficients for these months from the first two years of the study) are shown in Table 7.

Table 4. WATER BUDGET ANALYSIS - UTAH LAKE 1970-71

(All figures are in acre-feet of water)

| Month | Precipitation on lake surface | Surface inflow | Shallow sub-surface inflow | Deep sub-surface inflow | Surface outflow | Change in storage | Calculated evaporation |
|---|---|---|---|---|---|---|---|
| July '70 | 7,254 | 19,056 | 4,490 | 2,324 | 45,300 | -66,248 | 54,072 |
| August | 5,981 | 18,692 | 4,490 | 2,324 | 50,700 | -76,441 | 57,228 |
| September | 15,710 | 24,811 | 4,707 | 2,324 | 33,400 | -26,540 | 40,692 |
| October | 9,705 | 35,725 | 5,447 | 2,324 | 14,900 | +14,128 | 24,173 |
| November | 19,745 | 48,934 | 6,149 | 2,324 | 8,900 | +76,133 | |
| December | 12,634 | 51,106 | 6,593 | 2,324 | 16,900 | +30,066 | |
| January '71 | 6,180 | 49,794 | 6,784 | 2,324 | 23,100 | +47,043 | 32,033 |
| February | 12,007 | 45,485 | 6,460 | 2,324 | 25,900 | +25,196 | |
| March | 2,985 | 45,385 | 6,937 | 2,324 | 31,900 | +21,627 | |
| April | 16,632 | 55,701 | 6,445 | 2,324 | 30,000 | +27,483 | 23,619 |
| May | 3,833 | 43,661 | 5,791 | 2,324 | 38,200 | -22,764 | 40,173 |
| June | 2,517 | 41,490 | 4,707 | 2,324 | 40,000 | -45,029 | 56,067 |
| Totals | 115,183 | 479,840 | 69,000 | 27,888 | 359,200 | + 4,654 | 328,057 |

Table 5. WATER BUDGET ANALYSIS - UTAH LAKE 1971-72

(All figures are in acre-feet of water)

| Month | Precipitation on lake surface | Surface inflow | Shallow sub-surface inflow | Deep sub-surface inflow | Surface outflow | Change in storage | Calculated evaporation |
|---|---|---|---|---|---|---|---|
| July '71 | 827 | 18,355 | 4,490 | 2,324 | 48,000 | -84,530 | 62,526 |
| August | 5,151 | 18,838 | 4,490 | 2,324 | 51,400 | -74,340 | 53,743 |
| September | 5,807 | 23,877 | 4,707 | 2,324 | 36,800 | -29,952 | 29,867 |
| October | 10,381 | 44,728 | 5,447 | 2,324 | 12,900 | +38,816 | 11,164 |
| November | 7,814 | 51,111 | 6,149 | 2,324 | 10,300 | +55,521 | |
| December | 10,519 | 50,554 | 6,593 | 2,324 | 15,200 | +53,770 | |
| January | 354 | 46,292 | 6,784 | 2,324 | 23,800 | +30,486 | 31,276 |
| February | 116 | 45,048 | 6,460 | 2,324 | 25,800 | +23,295 | |
| March | 2,445 | 53,073 | 6,937 | 2,324 | 29,300 | +13,121 | |
| April | 9,171 | 44,321 | 6,445 | 2,324 | 25,200 | + 3,761 | 33,300 |
| May | 330 | 34,951 | 5,791 | 2,324 | 44,800 | -50,373 | 48,969 |
| June | 5,239 | 48,951 | 4,707 | 2,324 | 44,000 | -32,215 | 49,436 |
| Totals | 58,154 | 480,099 | 69,000 | 27,888 | 367,500 | -52,640 | 320,281 |

Table 6. CALCULATED EVAPORATION[a] FROM UTAH LAKE AND EVAPORATION FROM PAN AT LEHI, UTAH, JULY 1970 - SEPTEMBER 1972.

| Month | Average Lake Area (acres) | Calculated Lake Evaporation (acre-feet) | Lake Evaporation (inches) | Pan Evaporation (inches) | Pan Coefficient |
|---|---|---|---|---|---|
| 1970 | | | | | |
| July | 92,018 | 54,072 | 7.05 | 9.39 | 0.75 |
| August | 89,940 | 57,228 | 7.64 | 8.82 | 0.87 |
| September | 88,467 | 40,692 | 5.52 | 6.20 | 0.89 |
| October | 88,292 | 24,173 | 3.29 | 3.47 | 0.95 |
| 1971 | | | | | |
| April | 94,772 | 23,619 | 2.99 | 5.16 | 0.58 |
| May | 94,843 | 40,173 | 5.08 | 6.57 | 0.77 |
| June | 93,817 | 56,067 | 7.17 | 9.16 | 0.78 |
| July | 91,890 | 62,526 | 8.17 | 10.88 | 0.75 |
| August | 89,578 | 53,743 | 7.20 | 9.06 | 0.79 |
| September | 88,096 | 29,867 | 4.07 | 6.84 | 0.59 |
| October | 88,222 | 11,164 | 1.52 | no data | -- |
| 1972 | | | | | |
| April | 93,982 | 33,300 | 4.25 | 5.17 | 0.82 |
| May | 93,284 | 48,969 | 6.30 | 8.87 | 0.71 |
| June | 92,052 | 49,436 | 6.44 | 9.01 | 0.72 |
| July | 90,270 | 64,892 | 8.63 | 11.72 | 0.74 |
| August | 87,914 | 51,913 | 7.09 | 8.73 | 0.81 |
| September | 83,162 | 40,279 | 5.81 | 6.04 | 0.96 |
| October | 86,055 | 18,733 | 2.61 | no date | -- |

[a]Calculated by water budget method.

Table 7. WATER BUDGET ANALYSIS - UTAH LAKE 1972-73

(All figures are in acre-feet of water)

| Month | Precipitation on lake surface | Surface inflow | Shallow sub-surface inflow | Deep sub-surface inflow | Surface outflow | Change in storage | Calculated evaporation |
|---|---|---|---|---|---|---|---|
| July '72 | 955 | 17,867 | 4,490 | 2,324 | 51,000 | - 90,256 | 64,892 |
| August | 4,542 | 16,858 | 4,490 | 2,324 | 51,900 | - 75,599 | 51,913 |
| September | 5,220 | 20,410 | 4,707 | 2,324 | 35,485 | - 43,103 | 40,279 |
| October | 20,316 | 39,332 | 5,447 | 2,324 | 13,370 | + 35,316 | 18,733 |
| November | 6,481 | 42,653 | 6,149 | 2,324 | 5,286 | + 46,240 | |
| December | 4,830 | 42,158 | 6,593 | 2,324 | 1,773 | + 49,623 | |
| January '73 | 7,410 | 44,331 | 6,784 | 2,324 | 6,779 | + 54,057 | 10,987 |
| February | 7,189 | 50,933 | 6,460 | 2,324 | 19,714 | + 47,622 | |
| March | 9,542 | 47,766 | 6,937 | 2,324 | 26,753 | + 39,002 | |
| April | 11,784 | 62,955[a] | 6,445 | 2,324 | 29,798 | + 30,048 | 23,662[a] |
| May | 8,964 | 136,368[a] | 5,791 | 2,324 | 39,258 | + 65,794 | 48,395[a] |
| June | 6,106 | 55,471[a] | 4,707 | 2,324 | 44,551 | - 29,732 | 53,789[a] |
| Totals | 93,339 | 577,102 | 69,000 | 27,888 | 325,667 | +129,012 | 312,650 |

[a]Evaporation during April, May, and June was calculated from pan evaporation data at Lehi, Utah, and surface inflow calculated by water budget, since surface inflow measurements not available for these months.

## SECTION VIII

## COMPUTER SIMULATION

A Fortran IV computer program, LKSIM, was developed to allow simulation of the conservative salts in a well-mixed lake system. This model (1) carries along the salt concentrations as well as the water budget, thus allowing the user to evolve better estimates of evaporation and sub-surface inflow; and (2) provides the capability to predict changes in water quality and the water budget resulting from various management alternatives, such as (a) diking, (b) changes in tributary inflow quantity and/or quality, (c) and diked bay management policies.

The simulation model is based on the concept of a central main lake which has satellite bays connected to it. During each time period of the simulation, normally one month, the given inflows, outflows, precipitation and evaporation are evaluated for each area; the total quantities of inflowing salts are calculated and added to each area; and the end-of-period water volume and quality determined assuming that each area is a separate, well-mixed body of water. The imaginary gates separating the bays from the main lake are then "opened" and the volume of interflow occurs as necessary to bring the entire lake system to the same stage. This lake stage is the dependent variable since all other water quantities are given as input data. Circulation between the main lake and any bays is simulated at this point by also allowing the exchange of a specified percentage of a bay's volume with lake water. These flows are then completely mixed in the recipient areas. The end-of-period water quantity and quality summary is then printed and the next time period begins.

Diking is simulated by leaving the imaginary gates closed, thus leaving the diked area as a separate lake. Many options are possible for management of the diked area, for example:

(1) Any or all bay tributaries may be reassigned to another bay or to the main lake. This allows simulation of diversion of water around the diked bay or pumpage of tributary inflow over the dike.

(2) Any desired beginning bay stage may be given, thus representing various degrees of pumpage from the bay after dike completion. Any such pumpage would be simulated by assigning it as a tributary inflow during an early time period(s).

(3) If a given maximum stage is exceeded in the main lake in any period, the excess water may be allowed (coded) to flow into a diked bay area or else be exported out of the lake system, etc. Refer to Section XIII, Appendix B for specific details on these and other model options.

Although the LKSIM simulation model is conceptually quite simple, it provides a powerful tool for the evaluation of the water balance and dissolved salt concentrations in a lake system. The model does not presently incorporate non-conservative quality parameters--all are assumed to be conservative--and it would be difficult to do so for most parameters. This difficulty stems more from the general dearth of understanding of factors as: (a) chemical precipitation, (b) circulation patterns, (c) energy balances, and (d) biological cycles; than from inherent difficulties in the model itself.

Since the simulation model assumes well-mixed sub-areas, the quality calculated is, at best, the average for each part of the real lake system. Any quality gradient between the main lake and a bay is likewise lumped at the imaginary boundary between them.

When applying the model to a lake system, many judgments and estimates must be made, such as: (a) average beginning salt concentrations, (b) circulation for each period, (c) time period step to be used. When the model is used in conjunction with a detailed knowledge of the real system, and compared to the observed lake quality during the calibration period, it greatly increases the probability of accurately establishing the major unknown components in the water balance budget. The "calibrated" model then also provides a powerful tool for evaluating responses to changes in the lake system.

## SECTION IX

## DISCUSSION OF RESULTS

The computer simulation of the lake system was described in the previous section and in Appendix B. This simulation served as a valuable tool in the evaluation of evaporation losses from the lake over the study period, as already described in previous sections of this report. The salt balance technique, utilizing the "conservative" ions which are least subject to precipitation out of solution, should prove valuable to other investigators who may be interested in the evaluation of evaporation from lakes and reservoirs. Details of the methodology involved can be noted by careful study of the detailed simulation reproduced in Appendix B. The simulation presented there is actually the end product of a number of successive preliminary simulations with appropriate adjustments made successively to bring about the evolution of the simulation presented.

The capability of simulation of the lake and tributary system in a computer model permits many kinds of analyses. The analysis presented herein relates to consideration of the diking of two bays of the main lake. Innumerable variations in management are possible using the LKSIM model. Considerable data are generated by the model. It is noted that the simulated water quality, as indicated by total dissolved solids and nine different ions, is determined on a monthly basis throughout the study period. A brief summarization of the results of the detailed simulation (shown in Appendix B) is presented in Table 8. In addition to simulated water quality data at the end of the 36-month study period,

Table 8. SUMMARY OF SIMULATION RESULTS - UTAH LAKE AS AT PRESENT

***SUMMARY INFORMATION FOR TIME PERIOD 36 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 3139. | 34634. | 11589. | 641161. | -689. | 4489.33 | 61450. | 641850. |
| PROVO B | 2 | 274. | 4002. | 5827. | 31059. | 4215. | 4489.33 | 6928. | 26645. |
| GOSHEN B | 3 | 2719. | 15246. | 535. | 226169. | -3526. | 4489.33 | 26840. | 229695. |
| TOTAL SYSTEM | | 6131. | 53883. | 17951. | | LAKE | 4489.33 | 95218. | 898390. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 960.19 | 121.90 | 88.16 | 44.70 | 16.61 | 189.21 | 328.62 | 172.68 | 6.61 | 2.42 |
| PROVO B | 2 | 747.00 | 63.12 | 92.15 | 34.99 | 11.81 | 71.82 | 391.26 | 143.40 | 2.99 | 3.07 |
| GOSHEN B | 3 | 1201.92 | 162.37 | 100.22 | 56.43 | 21.19 | 261.66 | 387.19 | 225.23 | 5.30 | 2.04 |

***WATER BALANCE FOR THE SIMULATION

| | BAY | PRECIP AC-FT | EVAP AC-FT | TRIB INFLOW AC-FT | BEGINNING STAGE | BEGINNING VOLUME | ENDING STAGE | ENDING VOLUME |
|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 161951. | 633970. | 1521799. | 4488.58 | 595789.0 | 4489.33 | 641850.1 |
| PROVO B | 2 | 19050. | 63356. | 266885. | 4488.58 | 21771.5 | 4489.33 | 26844.5 |
| GOSHEN B | 3 | 81293. | 268882. | 39025. | 4488.58 | 209400.7 | 4489.33 | 229695.1 |

***TOTAL LAKE -- AC-FT (EXCLUDING DIKED BAYS, IF ANY)

TOTAL PRECIPITATION= 262293.6
TOTAL EVAPORATION = 966207.6
TOTAL TRIB. INFLOW = 1827709.1
TOTAL TRIB. OUTFLOW= -1052366.4
OTHER OVERFLOW = 0.0 (ENDING VOLUME HAS BEEN ADJUSTED FOR OVERFLOW)
BEGINNING VOLUME = 826961.1 STAGE= 4488.58
ENDING VOLUME = 898389.8 STAGE= 4489.33

the summary also shows a water balance analysis for the entire 36-month period. The computer printout, reproduced on Appendix B, also displays these data in graphical form showing variations throughout the study period. Comparison of these simulated values with actual measurements at various times indicates the salt balance characteristics. Figures 3, 4, and 5 show comparisons between simulated and observed concentrations of sodium ions, chloride ions, and total dissolved solids in Utah Lake over the three-year period of the study.

Many other simulations have been generated for different input and management conditions. One which is most pertinent to the present study is one in which Provo Bay and Goshen Bay were assumed to have been separated from the main body of the lake by diking. For this "diked" simulation, all of the Provo Bay tributaries were diverted around the bay and into the lake, and all of the Goshen Bay tributaries continued to flow into Goshen Bay. All of the areas started at the same July 1, 1970 stage, and no water was pumped out of the bays into the lake. When the lake level exceeded compromise level, the excess water was "exported" out of the system. A summary of results of the computer simulation are shown in Table 9. It may be noted from the summary that a net saving of 220,000 to 270,000 acre feet (271 to 331 million cubic meters) of water was made over the three-year period--the exact value being dependent upon whether the Goshen Bay tributaries are also diverted to the main lake. It may also be noted that the total dissolved solids of the main lake would be reduced from 960 to 800 milligrams per liter by comparing the undiked simulation results to the diked simulation results. Diking would reduce sodium concentration from 122 to 95 milligrams per liter, and chloride from 189 to 138 milligrams per liter.

It should be pointed out in passing that while some of the quality parameters shown in the simulation (for example, sodium, potassium, and chloride) would be expected to correspond to actual measured values; others (such as calcium, bi-carbonate, nitrate, phosphates, and total

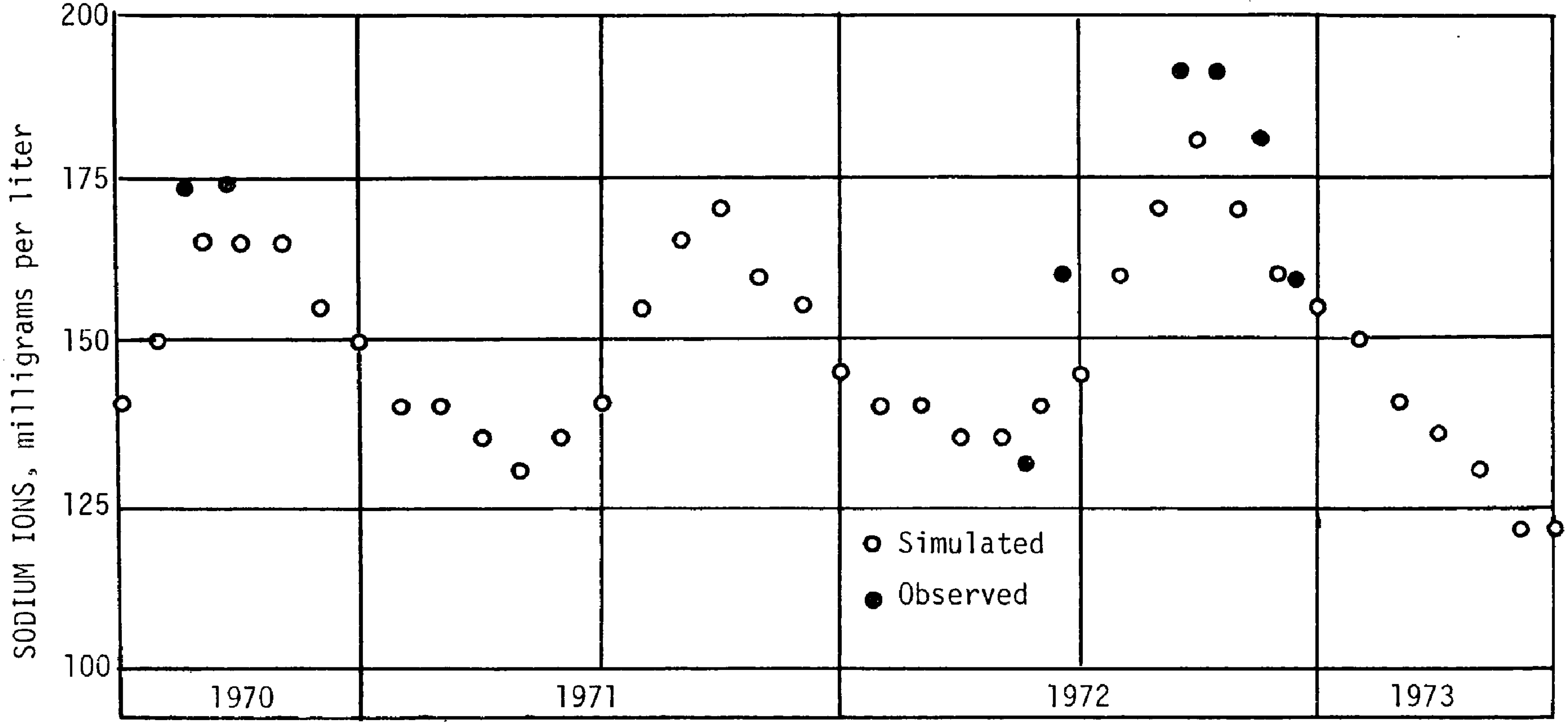


Figure 3. Graph showing simulated and observed concentration of sodium ions in Utah Lake - July 1970 to July 1973

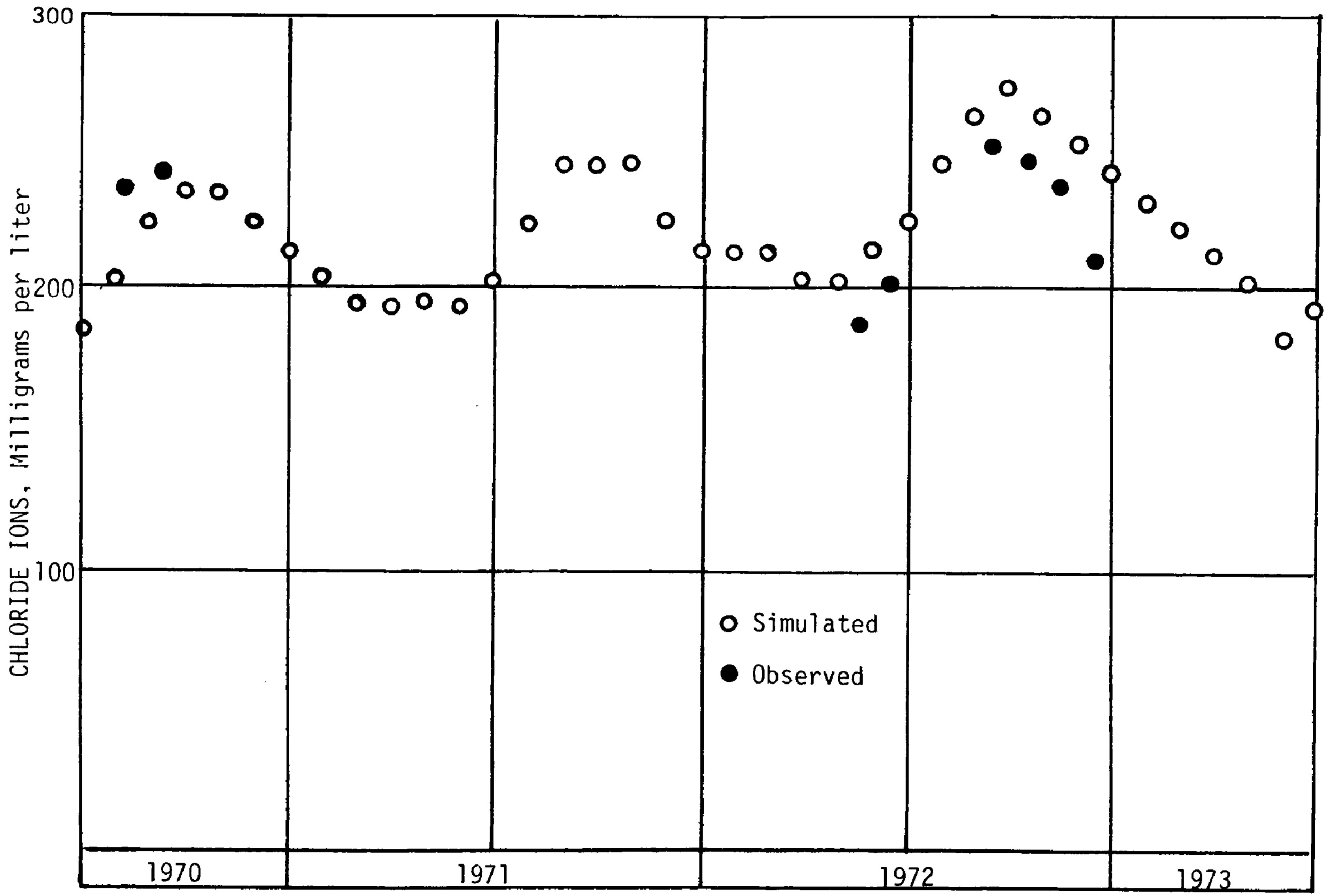


Figure 4. Graph showing simulated and observed concentration of chloride ions in Utah Lake - July 1970 to July 1973

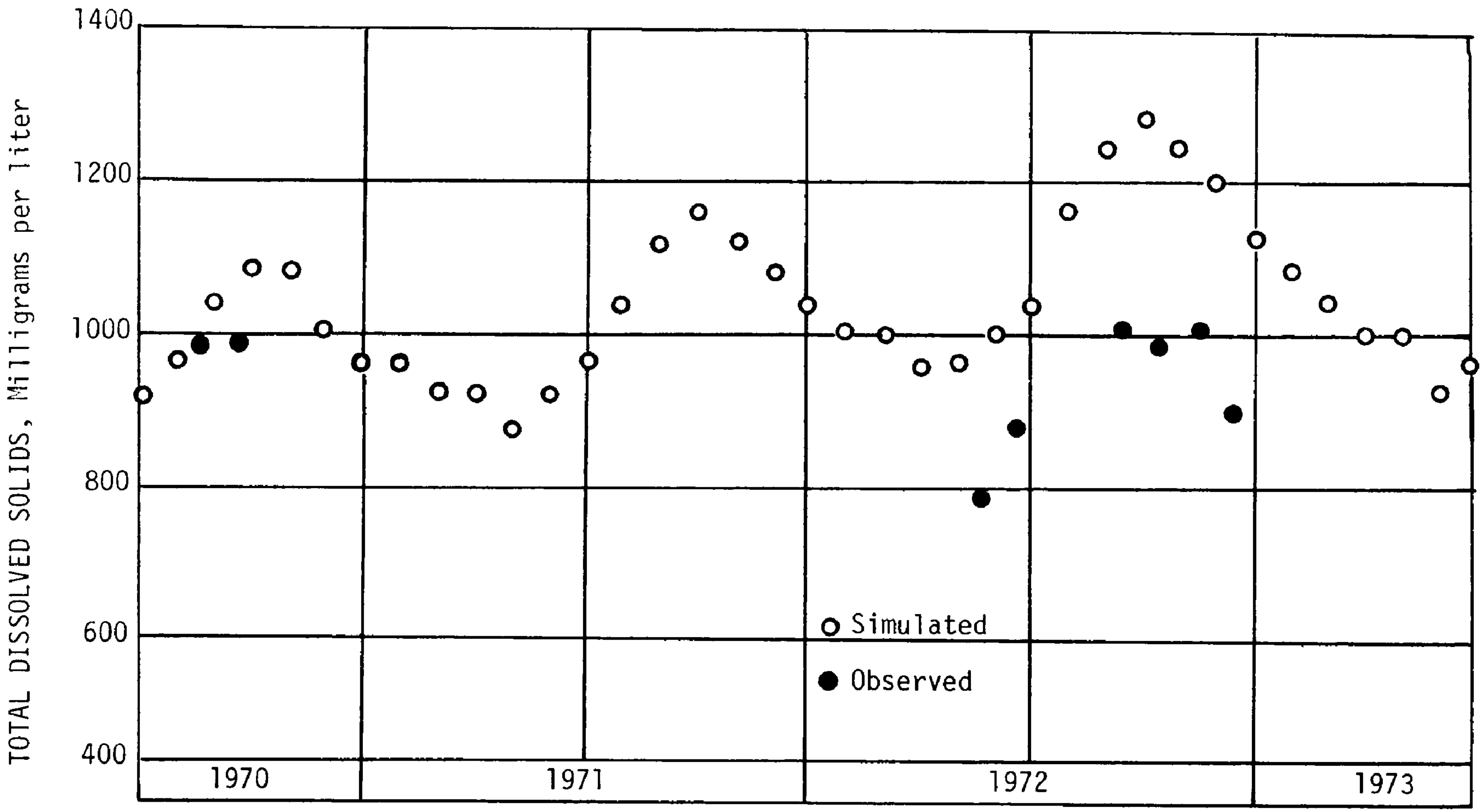


Figure 5. Graph showing simulated and observed concentration of total dissolved solids in Utah Lake - July 1970 to July 1973

Note: The simulated TDS results have not been corrected for apparent precipitation of $CaCO_3$ from the water. Rough estimates of this precipitation based on analysis of calcium and bicarbonate ions would decrease the simulated total dissolved solids to near observed values in 1972. (About 100 mg/l decrease)

Table 9. SUMMARY OF SIMULATION RESULTS - WITH DIKES ON PROVO BAY AND GOSHEN BAY

***SUMMARY INFORMATION FOR TIME PERIOD 36 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| NAME | BAY NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 3123. | 34455. | 17416. | 628521. | 0. | 4489.12 | 61220. | 628521. |
| PROVO B | 2 | 46. | 668. | 0. | 493. | 0. | 4482.60 | 521. | 493. |
| GOSHEN B | 3 | 2082. | 11678. | 535. | 77395. | 0. | 4482.88 | 20216. | 77395. |
| TOTAL SYSTEM | | 5251. | 46801. | 17951. | | LAKE | 4489.12 | 61220. | 628521. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 799.64 | 94.59 | 82.46 | 36.94 | 13.57 | 138.00 | 301.75 | 136.14 | 6.90 | 2.46 |

***WATER BALANCE FOR THE SIMULATION

| | BAY | PRECIP AC-FT | EVAP AC-FT | TRIB INFLOW AC-FT | BEGINNING STAGE | BEGINNING VOLUME | ENDING STAGE | ENDING VOLUME |
|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 162445. | 635542. | 1777751. | 4488.58 | 595789.0 | 4489.12 | 628520.6 |
| PROVO B | 2 | 15120. | 47331. | 10933. | 4488.58 | 21771.5 | 4482.60 | 493.2 |
| GOSHEN B | 3 | 74987. | 246018. | 39025. | 4488.58 | 209400.7 | 4482.88 | 77395.0 |

***TOTAL LAKE -- AC-FT (EXCLUDING DIKED BAYS, IF ANY)

```
TOTAL PRECIPITATION=    162445.2
TOTAL EVAPORATION  =    635542.3
TOTAL TRIB. INFLOW =   1777751.1
TOTAL TRIB. OUTFLOW=  -1052366.4
OTHER OVERFLOW     =    219555.9  (ENDING VOLUME HAS BEEN ADJUSTED FOR OVERFLOW)
BEGINNING  VOLUME  =    595789.0     STAGE= 4488.58
ENDING  VOLUME     =    628520.6     STAGE= 4489.12
```

dissolved solids would not--for at least two reasons: (1) chemical precipitation of several compounds, especially calcium carbonate, and (2) biological activity such as algae growth and decay which results in uptake and release of nutrients such as nitrates and phosphates. The quantities of these nonconservative ions that are trapped or removed in the lake may be estimated by calculating the difference between the observed and the simulated levels at the end of the simulation period. Using this approach, the model is calibrated using the conservative ions and then used to estimate nonconservative ion removal. Several other important factors in relation to the effects of diking should be mentioned. The authors have already previously reported[27] that Provo Bay is presently functioning as a large oxidation pond which has considerable effect upon the reduction of pollution parameters within the bay. If the waters now tributary to the bay were diverted to the main lake, some pre-treatment would be necessary to maintain the present lake quality, particularly near the inflow area.

The research reported herein was not directed toward a detailed study of biological factors, but Barnes, et. al.,[28] have reported several recommendations relating to the precautions which should be taken to limit the possible adverse effects of the proposed Goshen Bay dike on the biota of the lake.

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## SECTION XI

## INVENTIONS, PUBLICATIONS, TECHNICAL PAPERS

### INVENTIONS

No inventions have been produced on this project.

### PUBLICATIONS


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## SECTION XII

## APPENDIX A

In this section, a complete computer print-out is given for all lake and tributary quality sampling results and many of the quantitative flow measurements of tributaries, particularly for those made at the same time a quality sample was taken. See pages 56 to 98 inclusive.

Preceding the computer print-outs are maps showing the location of all sampling stations and an explanation sheet of nomenclature used in the data listing.

The tabulation of data is presented chronologically for each sampling station in order of number, except for some supplemental data obtained from the U.S. Bureau of Reclamation for the period September 1972 to June 1973 which is presented on the last three pages of the data listing.

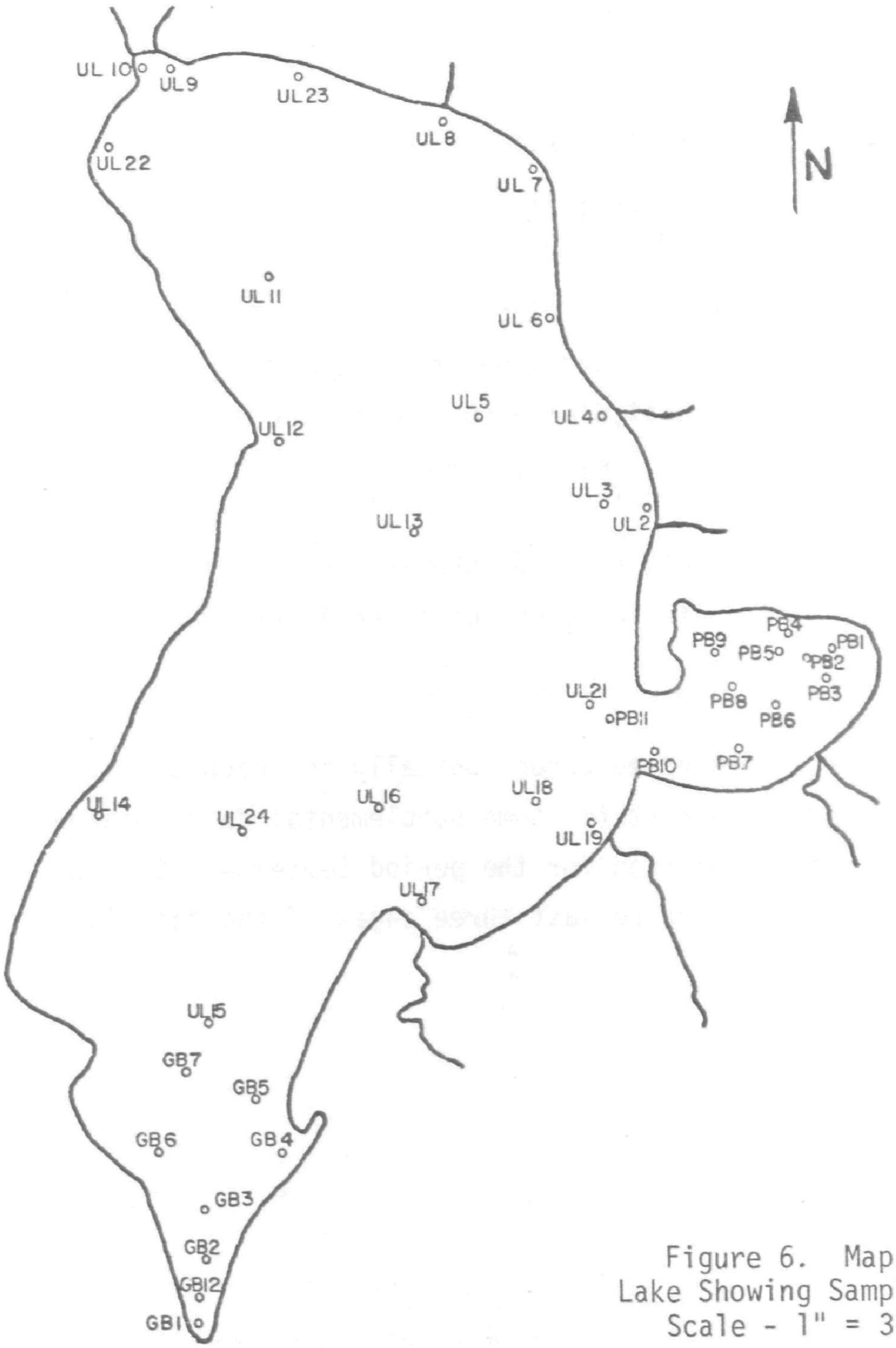


Figure 6. Map of Utah Lake Showing Sampling Stations Scale - 1" = 3.33 miles

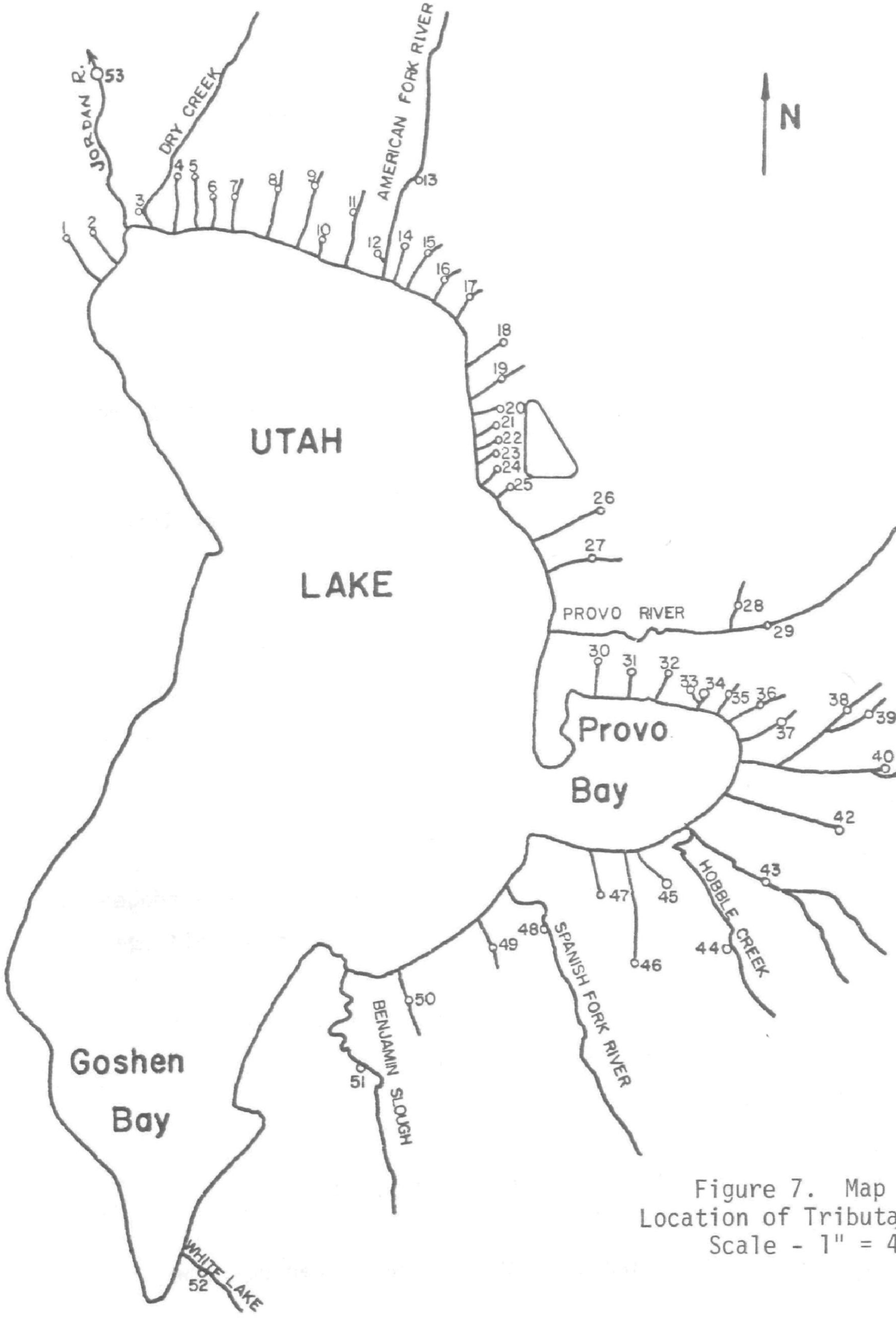


Figure 7. Map Showing
Location of Tributary Stations
Scale - 1" = 4 miles

## NOMENCLATURE USED IN THE DATA LISTING

AL = Alkalinity - reported as mg/liter calcium carbonate

BOD = Biochemical oxygen demand - 5 day 20 degree C

CA = Calcium - reported in mg/liter

CL = Chloride - reported in mg/liter

CO3 = Carbonate - reported as mg/liter

COLF = Coliform bacteria - measured either as actual number or most probable number per 100 ml of sample

COND = Conductivity measured in micromhos/cm

DS = Dissolved solids - total soluble salts measured in mg/liter

F = Fluoride - reported in mg/liter

FLOW = Flow rate in cubic feet per second

GB = Goshen bay stations

HARD = Hardness of the water reported as mg/liter calcium carbonate

HCO3 = Bicarbonate - reported as mg/liter

K = Potassium - reported in mg/liter

MG = Magnesium - reported in mg/liter

NA = Sodium - reported in mg/liter

NH3 = Nitrogen present as ammonia - reported as mg/liter nitrogen

NO3 = Nitrogen present as nitrate - reported as mg/liter nitrogen

PB = Provo bay stations

PH = Negative log of hydrogen ion concentration in moles/liter

PO4 = Ortho phosphate - reported as mg/liter phosphorus

SO4 = Sulfate - reported as mg/liter

TEMP = Water Temperature - degrees C

TURB = Turbidity reported in Jackson turbidity units

UL = Utah Lake stations

UT = Tributaries to Utah Lake including Jordan River outflow

| DATE | STA | FLOW | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 51072 | UT 1 | | 14.0 | | 432 | 187 | 204 | 050 | 57 | 15 | 9 | 229 | | 010 | | 1.08 | | 0.44 | | | 04.6 | | 372 | |
| 51072 | UT 2 | | 15.0 | | 410 | 180 | 195 | 014 | 57 | 13 | 06 | 220 | | 005 | | 0.37 | | 0.09 | | | 01.5 | | 315 | |
| 82669 | UT 3 | | 26.7 | 8.70 | | | | | | | | | | | | | | | | | | 08.8 | | 048 |
| 90269 | UT 3 | | 22.9 | | | | | | | | | | | | | | | | | | | 07.4 | | 042 |
| 90969 | UT 3 | | 24.5 | 8.50 | | | | | | | | | | | | | | | | | | 12.3 | | 028 |
| 50570 | UT 3 | | | 7.40 | 1310 | 485 | 539 | 70 | 99 | 71 | 2 | 591 | 0.8 | 85 | 163 | 0.11 | | | | 2300 | 3.5 | | | |
| 60270 | UT 3 | | | 8.15 | 475 | 209 | 231 | 17 | 58 | 21 | 2 | 251 | 2.0 | 20 | 29 | 0.32 | | | | | | | | |
| 20271 | UT 3 | | 4.0 | 8.90 | 649 | | | | | | | | | | | 1.70 | | 0.44 | | | | 7.0 | 424 | |
| 31672 | UT 4 | 0.62 | 11.0 | | | 225 | 431 | 072 | 125 | 29 | 01 | 275 | | 032 | 305 | 1.80 | | 0.03 | | | 00.8 | | 841 | |
| 32372 | UT 4 | 0.70 | 10.0 | | | 132 | 507 | 041 | 157 | 28 | 02 | 162 | | 026 | 106 | 1.38 | | 0.03 | | | 00.5 | | 523 | |
| 33072 | UT 4 | 0.02 | 12.0 | | | 291 | 369 | 045 | 100 | 29 | 02 | 356 | | 030 | 098 | 1.74 | | 0.03 | | | 01.0 | | 662 | |
| 40572 | UT 4 | 0.54 | 11.5 | | 605 | | 246 | 041 | 51 | 29 | 14 | | | 029 | | 1.66 | | 0.07 | | | 00.4 | | | |
| 41372 | UT 4 | 0.42 | 08.2 | | 648 | 341 | 412 | 047 | 119 | 28 | 02 | 417 | | 028 | 099 | 1.60 | | 0.03 | | | 00.6 | | 0742 | |
| 41972 | UT 4 | 0.37 | 07.5 | | | 340 | 376 | 042 | 106 | 27 | 01 | 415 | | 030 | | 1.55 | | | | | | | 0590 | |
| 50372 | UT 4 | 0.32 | 09.0 | | | | | | | | | | | | | | | | | | | | | |
| 51072 | UT 4 | 0.44 | 13.0 | | 475 | 163 | 221 | 027 | 54 | 21 | 05 | 200 | | 019 | | 0.12 | | 0.17 | | | 02.2 | | 326 | |
| 32372 | UT 5 | 0.20 | 12.0 | | | 205 | 281 | 025 | 78 | 21 | 03 | 251 | | 017 | 042 | 0.80 | | 0.16 | | | 02.4 | | 430 | |
| 33072 | UT 5 | 0.24 | 15.0 | | | 237 | 293 | 020 | 83 | 21 | 02 | 290 | | 020 | 045 | 0.74 | | 0.04 | | | 00.6 | | 482 | |
| 40572 | UT 5 | 0.22 | 12.0 | | 356 | | 148 | 016 | 28 | 19 | 01 | | | 022 | | 0.68 | | 0.06 | | | 00.1 | | | |
| 41372 | UT 5 | 0.26 | 04.5 | | 475 | 231 | 250 | 016 | 69 | 19 | 02 | 282 | | 017 | 042 | 0.88 | | 0.07 | | | 01.8 | | 448 | |
| 41972 | UT 5 | 0.22 | 04.0 | | | 204 | 214 | 016 | 58 | 17 | 02 | 249 | | 015 | | 0.68 | | 0.02 | | | 00.8 | | 400 | |
| 50372 | UT 5 | 0.20 | 11.0 | | | | | | | | | | | | | | | | | | | | | |
| 51072 | UT 5 | 0.44 | 14.5 | | 250 | 286 | 365 | 024 | 72 | 45 | 02 | 349 | | 012 | | 0.73 | | 0.06 | | | 00.6 | | 650 | |
| 31672 | UT 6 | 1.06 | 12.0 | | | 331 | 386 | 036 | 92 | 38 | 07 | 404 | | 035 | 072 | 2.70 | | 0.13 | | | 04.0 | | 687 | |
| 32372 | UT 6 | 0.34 | 12.0 | | | 330 | 383 | 032 | 94 | 36 | 08 | 403 | | 055 | 060 | 2.64 | | 0.16 | | | 00.7 | | 691 | |
| 33072 | UT 6 | 0.81 | 15.5 | | | 317 | 372 | 031 | 86 | 37 | 08 | 387 | | 028 | 071 | 2.64 | | 0.07 | | | 01.1 | | 653 | |
| 40572 | UT 6 | 1.40 | 12.5 | | | | 219 | 021 | 32 | 34 | 07 | | | 025 | | 1.98 | | 0.11 | | | 00.6 | | | |
| 41372 | UT 6 | 0.90 | 08.5 | | 605 | 318 | 358 | 029 | 81 | 38 | 06 | 388 | | 031 | 070 | 2.24 | | 0.11 | | | 01.4 | | 645 | |
| 41972 | UT 6 | 1.00 | 06.5 | | | 313 | 368 | 030 | 85 | 38 | 06 | 382 | | 027 | | 2.20 | | | | | 00.9 | | 0600 | |
| 50372 | UT 6 | 1.13 | 13.0 | | | | | | | | | | | | | | | | | | | | | |
| 51072 | UT 6 | 2.57 | 14.0 | | 810 | 331 | 299 | 036 | 82 | 23 | 09 | 404 | | 027 | | 2.76 | | 0.21 | | | 01.6 | | 663 | |
| 31672 | UT 7 | 0.62 | 14.0 | | | 327 | 362 | 046 | 71 | 45 | 08 | 400 | | 023 | 094 | 0.90 | | 0.08 | | | 06.6 | | 688 | |
| 32372 | UT 7 | 0.59 | 12.0 | | | 228 | 376 | 047 | 75 | 46 | 12 | 279 | | 007 | 087 | 0.83 | | 0.23 | | | 01.6 | | 554 | |
| 33072 | UT 7 | 0.54 | 15.0 | | | 276 | 294 | 035 | 57 | 37 | 06 | 337 | | 021 | 070 | 0.78 | | 0.13 | | | 00.7 | | 564 | |
| 40572 | UT 7 | 0.64 | 14.0 | | 497 | | 194 | 029 | 22 | 34 | 04 | | | 022 | | 1.14 | | 0.07 | | | 00.3 | | 401 | |
| 41372 | UT 7 | 0.62 | 07.0 | | 551 | 227 | 237 | 031 | 44 | 31 | 04 | 273 | | 018 | 075 | 1.26 | | 0.08 | | | 01.7 | | 0482 | |
| 41972 | UT 7 | 0.62 | 06.0 | | | 259 | 273 | 031 | 60 | 30 | 04 | 316 | | 018 | | 1.23 | | 0.02 | | | 00.6 | | 0567 | |
| 50372 | UT 7 | 2.79 | 13.5 | | | | | | | | | | | | | | | | | | | | | |
| 51072 | UT 7 | 3.55 | 14.0 | | 616 | 309 | 332 | 038 | 64 | 42 | 05 | 378 | | 015 | | 0.78 | | 0.08 | | | 02.3 | | 643 | |
| 31672 | UT 8 | 2.40 | 13.0 | | | 298 | 364 | 059 | 80 | 40 | 08 | 364 | | 031 | 170 | 2.80 | | 0.52 | | | 02.0 | | 755 | |
| 32372 | UT 8 | 2.70 | 12.0 | | | 292 | 351 | 046 | 78 | 36 | 09 | 357 | | 026 | 071 | 2.66 | | 1.36 | | | 05.6 | | 656 | |
| 33072 | UT 8 | 2.70 | 13.5 | | | 322 | 294 | 035 | 57 | 37 | 06 | 393 | | 036 | 040 | 3.36 | | 1.02 | | | 06.3 | | 608 | |
| 40572 | UT 8 | 3.15 | 12.5 | | 691 | | 312 | 035 | 61 | 39 | 08 | | | 033 | | 2.84 | | 0.39 | | | 03.7 | | 0755 | |
| 41372 | UT 8 | 5.14 | 08.0 | | 648 | 260 | 254 | 037 | 44 | 35 | 08 | 318 | | 034 | 063 | 3.05 | | 1.22 | | | 03.9 | | 0588 | |
| 41972 | UT 8 | 5.14 | 08.5 | | | 301 | 343 | 035 | 78 | 36 | 08 | 368 | | 030 | | 2.76 | | 0.84 | | | 02.6 | | 609 | |
| 42672 | UT 8 | 4.70 | 13.5 | | 713 | 309 | 360 | 038 | 80 | 39 | 10 | 378 | | 032 | 051 | 1.95 | | 1.10 | | | 06.7 | | 631 | |
| 50372 | UT 8 | 5.70 | 13.5 | | 853 | 304 | 342 | 042 | 73 | 39 | 12 | 371 | | 033 | 080 | 5.85 | | 0.75 | | | 06.1 | | 657 | |
| 51072 | UT 8 | 6.30 | 15.0 | | 724 | 295 | 381 | 044 | 72 | 49 | 10 | 361 | | 192 | | 2.65 | | 2.03 | | | 04.3 | | 782 | |
| 82669 | UT 9 | | 25.5 | 8.80 | | | | | | | | | | | | | | | | | | 13.0 | | 035 |
| 90269 | UT 9 | | 22.8 | 8.80 | | | | | | | | | | | | | | | | | | 09.4 | | 029 |

| DATE | STA | FLOW | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90969 | UT 9 | | 20.8 | 8.40 | | | | | | | | | | | | | | | | | | 05.5 | | 020 |
| 50570 | UT 9 | | | 8.15 | 655 | 258 | 338 | 23 | 73 | 38 | 4 | 311 | 2.4 | 28 | 103 | 1.81 | | | | 4300 | 4.8 | | | |
| 60270 | UT 9 | | | 8.00 | 675 | 243 | 342 | 22 | 73 | 39 | 5 | 294 | 1.6 | 30 | 106 | 0.16 | | | | 2000 | 5.0 | | | |
| 61670 | UT 9 | 34.2 | | | | | 298 | 16 | 70 | 30 | 5 | | | 14 | | | | | | | | | | |
| 63070 | UT 9 | 24.8 | | 8.20 | 600 | 254 | 309 | 17 | 68 | 34 | 3 | 290 | 9.9 | 22 | 73 | 1.13 | | 0.40 | | 930 | 5.3 | | | |
| 70470 | UT 9 | 20.6 * | | | | 213 | 342 | 24 | 76 | 37 | 6 | 246 | 7.0 | 16 | 90 | 0.99 | | 0.30 | | | | | | |
| 71470 | UT 9 | 19.5 * | | | | 129 | 367 | 55 | 86 | 37 | 4 | 158 | | 18 | 77 | 0.99 | | 0.10 | | | | | | |
| 71770 | UT 9 | 16.9 | 26.0 | 8.20 | | | 222 | | | | | | | | | 1.40 | | 0.02 | | | | | 464 | 12 |
| 73170 | UT 9 | 27.0 | | | | | | | | | | | | | | | | | | | | | 358 | |
| 80470 | UT 9 | 16.0 * | | | | | | | | | | | | | | | | | | | 5.5 | | | |
| 81170 | UT 9 | 7.0 * | | | | 197 | 263 | 22 | 56 | 30 | 6 | 241 | | 17 | 93 | 1.24 | | 0.40 | | | | | | |
| 81470 | UT 9 | 7.4 * | 23.0 | 8.50 | | | | | | | | | | 38 | | 1.20 | | 0.14 | | | | 8.0 | | |
| 82870 | UT 9 | 19.0 | 21.0 | 8.10 | | | | | | | | | | 38 | | 1.20 | | 0.03 | | | | 9.0 | 472 | 22 |
| 90170 | UT 9 | 10.1 * | | 8.25 | 650 | 265 | 369 | 21 | 77 | 43 | 3 | 317 | 3.1 | 33 | 95 | 1.18 | | 0.70 | 0.35 | 9300 | 5.2 | | | |
| 92370 | UT 9 | 21.6 * | | 7.90 | | 156 | 321 | 19 | 71 | 35 | 3 | 191 | | 18 | 69 | 2.64 | | 0.50 | | 3 | | | | |
| 100570 | UT 9 | 14.5 | | | | | | | | | | | | | | | | | | 2300 | 4.3 | | | |
| 101570 | UT 9 | 22.7 * | 9.5 | 8.15 | | | | | | | | | | 25 | | 1.10 | | 0.04 | | | | 10.0 | | 10 |
| 102970 | UT 9 | 20.8 * | 7.0 | 8.25 | 700 | | | | | | | | | 25 | | 1.90 | | 0.03 | | | | 12.0 | 423 | 5 |
| 110270 | UT 9 | 28.5 | | 8.15 | 630 | 261 | 340 | 18 | 77 | 36 | 4 | 314 | 2.4 | 29 | 82 | 1.81 | | 0.20 | 0.31 | 9300 | 5.0 | | | |
| 111270 | UT 9 | 28.8 * | 7.0 | 8.10 | 690 | | | | | | | | | 25 | | 1.60 | | 0.04 | | | | 9.0 | 422 | 15 |
| 111670 | UT 9 | 28.0 | | 8.20 | | 213 | 345 | 24 | 79 | 36 | 4 | 260 | | 15 | 84 | 2.12 | | 0.10 | | | | | | |
| 112670 | UT 9 | 25.5 * | 8.0 | 8.10 | 568 | | | | | | | | | 25 | | 1.70 | | 0.02 | | | | 10.0 | 421 | |
| 113070 | UT 9 | 25.8 | | 8.20 | 670 | 277 | 359 | 20 | 78 | 40 | 4 | 333 | 2.9 | 30 | 93 | 1.60 | | 0.20 | | 7200 | 5.8 | | | |
| 121070 | UT 9 | | 6.0 | 8.20 | 690 | | | | | | | | | 25 | | 1.50 | | 0.05 | | | | 8.0 | | 5 |
| 122270 | UT 9 | | 2.0 | 8.10 | 649 | | | | | | | | | 25 | | 0.32 | | 0.17 | | | | 9.0 | 453 | 5 |
| 10471 | UT 9 | 22.0 | | 8.20 | 635 | 268 | 342 | 20 | 75 | 38 | 4 | 321 | 2.8 | 30 | 90 | 2.10 | | .10 | 0.32 | 1500 | 5.9 | | 450 | 20 |
| 11471 | UT 9 | | 3.0 | 8.65 | 629 | | | | | | | | | 37 | | 1.40 | | 0.12 | | | | 9.0 | 442 | |
| 20271 | UT 9 | | 7.0 | 8.85 | 649 | | | | | | | | | | | 1.60 | | 0.11 | | | | 8.0 | 436 | |
| 20871 | UT 9 | 21.3 | | 8.25 | 675 | 254 | 330 | 22 | 68 | 39 | 4 | 304 | 3.0 | 34 | 100 | 2.70 | | 0.20 | | 5000 | 6.0 | | | |
| 21171 | UT 9 | | 7.0 | 8.40 | | | | | | | | | | | | 1.60 | | 0.11 | | | | 7.0 | 450 | |
| 21871 | UT 9 | 21.6 * | 6.0 | 8.12 | 610 | 214 | | | | | | 262 | | | | 1.64 | 0.04 | 0.21 | | | | 9.0 | 400 | |
| 30271 | UT 9 | | | 8.00 | 540 | 233 | 309 | 22 | 58 | 40 | 4 | 282 | 1.6 | 30 | 90 | 1.60 | | 0.10 | | 150 | 7.3 | | 390 | |
| 30471 | UT 9 | | | 8.30 | 650 | | | | | | | | | | | 1.86 | 0.10 | | | | | | | |
| 31171 | UT 9 | | | 8.10 | 570 | | | | | | | | | | | 1.74 | 0.06 | 0.08 | | | | | 457 | |
| 31871 | UT 9 | | | 8.12 | 590 | | | | | | | | | | | 1.76 | . | 0.11 | | | | | 496 | |
| 32571 | UT 9 | | | 8.10 | 590 | | | | | | | | | | | 1.74 | . | .10 | | | | | 424 | |
| 40171 | UT 9 | 18.3 | | 8.10 | 570 | | | | | | | | | | | 2.54 | 0.04 | 0.09 | | | | | 429 | |
| 40671 | UT 9 | 16.6 * | | 8.20 | 680 | 250 | 319 | 22 | 67 | 37 | 4 | 300 | 2.6 | 17 | 95 | 1.63 | | 0.10 | | 430 | 5.8 | | | |
| 41571 | UT 9 | 16.5 * | | 7.85 | 510 | | | | | | | | | | | 1.03 | | 0.03 | | | | | 424 | |
| 42771 | UT 9 | 18.0 * | | 8.20 | 530 | 206 | 311 | 25 | 62 | 38 | 7 | 252 | | 17 | 114 | 1.42 | 0.07 | 0.16 | | | | | 448 | |
| 51371 | UT 9 | 17.0 * | | 8.30 | 550 | 209 | | | | | | 251 | 2.3 | | | 1.49 | | 0.13 | | | | | | |
| 52071 | UT 9 | 14.0 * | | 8.40 | 550 | | | | | | | | | 17 | | 1.46 | | 0.12 | | | | | | |
| 60871 | UT 9 | 22.5 * | | 8.02 | 530 | | | | | | | | | | | 1.23 | | 0.10 | | | | | | |
| 61571 | UT 9 | 32.5 * | | 8.20 | 510 | | | | | | | | | | | | | 0.24 | | | | | | |
| 62271 | UT 9 | 21.0 * | | 8.30 | 540 | | | | | | | | | | | | | 0.22 | | | | | | |
| 62971 | UT 9 | 17.3 * | | 8.10 | 590 | | | | | | | | | | | | | 0.10 | | | | | | |
| 71371 | UT 9 | | | 8.10 | 540 | | | | | | | | | | | | | 0.21 | | | | | | |
| 72071 | UT 9 | | | 8.20 | 580 | | | | | | | | | | | | | 0.78 | | | | | | |
| 72971 | UT 9 | | | 8.10 | 590 | | | | | | | | | | | | | 1.25 | | | | | | |
| 31672 | UT 9 | 18.6 | 12.0 | | | 278 | 357 | 040 | 82 | 37 | 03 | 340 | | 013 | 091 | 2.20 | | 0.03 | | | 02.0 | | | |

| DATE | STA | FLOW | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32372 | UT 9 | 19.5 | 11.0 | | | 244 | 353 | 031 | 82 | 36 | 04 | 298 | | 013 | 084 | | | 0.05 | | | 03.2 | | 0255 | |
| 33072 | UT 9 | 20.1 | 09.0 | | | 292 | 347 | 026 | 78 | 37 | 03 | 357 | | 016 | 086 | 1.88 | | 0.04 | | | 01.1 | | 0233 | |
| 40572 | UT 9 | 16.0 | 13.0 | | 497 | | 208 | 023 | 24 | 36 | 03 | | | 008 | | 1.65 | | 0.07 | | | 00.8 | | 0582 | |
| 41372 | UT 9 | 16.2 | 03.5 | | 551 | 236 | 279 | 025 | 54 | 35 | 03 | 288 | | 017 | 088 | 1.50 | | 0.06 | | | 01.2 | | 0475 | |
| 41972 | UT 9 | 15.1 | 08.5 | | | 292 | 336 | 024 | 77 | 35 | 03 | 357 | | 015 | | 1.63 | | 0.01 | | | 00.7 | | 0501 | |
| 42672 | UT 9 | 12.8 | 12.0 | | 616 | 318 | 340 | 023 | 77 | 36 | 04 | 389 | | 017 | 084 | 1.15 | | 0.03 | | | 01.0 | | | |
| 51072 | UT 9 | 05.0 | 14.2 | | 583 | 304 | 338 | 029 | 73 | 38 | 03 | 371 | | 011 | | 1.20 | | 0.07 | | | 01.3 | | 0344 | |
| 31672 | UT10 | 3.53 | 16.0 | | | 251 | 375 | 031 | 101 | 30 | 04 | 307 | | 015 | 178 | 2.40 | | 0.02 | | | 00.6 | | 668 | |
| 32372 | UT10 | 3.71 | 13.0 | | | 212 | 421 | 018 | 121 | 29 | 05 | 259 | | 013 | 087 | 1.86 | | 0.03 | | | 01.8 | | 0540 | |
| 33072 | UT10 | 4.20 | 14.5 | | | 228 | 321 | 012 | 84 | 27 | 05 | 279 | | 012 | 071 | 1.86 | | 0.03 | | | 00.2 | | 492 | |
| 40572 | UT10 | 4.33 | 14.0 | | 432 | | 210 | 008 | 38 | 28 | 04 | | | 012 | | 1.90 | | 0.06 | | | 00.3 | | 0440 | |
| 41372 | UT10 | 4.75 | 08.8 | | 562 | 291 | 353 | 013 | 97 | 27 | 04 | 356 | | 019 | 074 | 2.18 | | 0.07 | | | 00.5 | | 0571 | |
| 41972 | UT10 | 4.80 | 10.0 | | | 267 | 326 | 012 | 88 | 26 | 04 | 326 | | 012 | | 1.84 | | 0.01 | | | 00.6 | | 0450 | |
| 50372 | UT10 | 4.66 | 15.5 | | | | | | | | | | | | | | | | | | | | | |
| 51072 | UT10 | 5.68 | 16.0 | | 562 | 289 | 311 | 020 | 77 | 29 | 04 | 353 | | 010 | | 2.56 | | 0.05 | | | | | 566 | |
| 31672 | UT12 | 0.80 | 15.0 | | | 190 | 329 | 031 | 89 | 26 | 04 | 232 | | 013 | 078 | 1.65 | | 0.03 | | | 01.5 | | 0475 | |
| 32372 | UT12 | 0.77 | 12.0 | | | 190 | 393 | 017 | 113 | 27 | 05 | 232 | | 014 | 181 | 1.66 | | 0.04 | | | 00.1 | | 591 | |
| 33072 | UT12 | 0.88 | 15.5 | | | 139 | 331 | 014 | 88 | 27 | 04 | 170 | | 014 | 085 | 0.74 | | 0.07 | | | 00.3 | | 403 | |
| 40572 | UT12 | 0.99 | 13.5 | | 432 | | 211 | 013 | 42 | 26 | 04 | | | 015 | | 1.60 | | 0.08 | | | 00.2 | | | |
| 41372 | UT12 | 1.27 | 09.0 | | 475 | 262 | 346 | 016 | 96 | 26 | 04 | 320 | | 016 | 087 | 1.92 | | 0.04 | | | 00.9 | | 567 | |
| 41972 | UT12 | 1.88 | 09.5 | | | 272 | 353 | 014 | 97 | 27 | 04 | 333 | | 014 | | 1.58 | | | | | 00.4 | | 0599 | |
| 51072 | UT12 | 2.85 | 15.0 | | | | | | | | | | | | | | | | | | | | | |
| 31672 | UT13 | 01.0 | 15.0 | | | 231 | 338 | 054 | 86 | 30 | 05 | 282 | | 017 | 110 | 1.27 | | 0.02 | | | 01.7 | | 585 | |
| 32372 | UT13 | 01.1 | 12.0 | | | 185 | 329 | 021 | 89 | 26 | 07 | 226 | | 016 | 074 | 1.10 | | 0.04 | | | 00.5 | | | |
| 33072 | UT13 | 01.0 | 14.0 | | | 219 | 527 | 022 | 81 | 79 | 05 | 268 | | 015 | 101 | 0.94 | | 0.03 | | | 00.9 | | 572 | |
| 40572 | UT13 | 01.0 | 13.2 | | 518 | | 220 | 020 | 42 | 28 | 04 | | | 012 | | 0.32 | | 0.05 | | | 00.4 | | 0533 | |
| 41372 | UT13 | 01.8 | 04.5 | | 378 | 196 | 217 | 010 | 64 | 14 | 03 | 240 | | 010 | 044 | 0.30 | | 0.07 | | | 01.4 | | 385 | |
| 41972 | UT13 | 01.1 | 08.0 | | | 237 | 204 | 015 | 44 | 23 | 04 | 290 | | 012 | | 1.05 | | 0.03 | | | 00.4 | | 0421 | |
| 50372 | UT13 | 01.1 | 17.0 | | | | | | | | | | | | | | | | | | | | | |
| 51072 | UT13 | 01.1 | 18.0 | | 497 | 240 | 291 | 029 | 72 | 27 | 04 | 293 | | 010 | | 1.42 | | 0.10 | | | 02.3 | | 437 | |
| 31672 | UT14 | 1.39 | 16.0 | | | 222 | 342 | 037 | 91 | 28 | 03 | 271 | | 013 | 104 | 1.85 | | 0.02 | | | 01.5 | | 549 | |
| 32372 | UT14 | 1.39 | 12.0 | | | 232 | 396 | 016 | 114 | 27 | 04 | 284 | | 015 | 085 | 1.36 | | 0.04 | | | 01.4 | | 548 | |
| 40572 | UT14 | 1.93 | 14.3 | | 454 | | 206 | 011 | 40 | 26 | 02 | | | 013 | | 1.56 | | 0.06 | | | 00.8 | | 0485 | |
| 41372 | UT14 | 1.98 | 09.0 | | 464 | 245 | 327 | 010 | 90 | 25 | 03 | 299 | | 013 | 089 | 1.64 | | 0.04 | | | 01.0 | | 385 | |
| 41972 | UT14 | 2.23 | 10.0 | | | 253 | 313 | 013 | 86 | 24 | 03 | 309 | | 011 | | 1.44 | | 0.02 | | | 00.9 | | 0231 | |
| 50372 | UT14 | 2.63 | 15.0 | | | | | | | | | | | | | | | | | | | | | |
| 51072 | UT14 | 3.01 | 15.5 | | | | | | | | | | | | | | | | | | | | | |
| 31672 | UT15 | 1.98 | 16.0 | | | 222 | 332 | 031 | 95 | 23 | 03 | 272 | | 011 | 069 | 2.80 | | 0.04 | | | 02.6 | | 507 | |
| 32372 | UT15 | 2.08 | 13.0 | | | 185 | 363 | 012 | 106 | 24 | 03 | 226 | | 010 | 062 | 2.50 | | 0.08 | | | 01.3 | | 446 | |
| 40572 | UT15 | 2.08 | 1[illegible].0 | | 432 | | 211 | 010 | 45 | 24 | 02 | | | 012 | | 2.55 | | 0.06 | | | 00.1 | | 0405 | |
| 41372 | UT15 | 2.23 | 09.2 | | 389 | 117 | 165 | 010 | 30 | 22 | 03 | 143 | | 010 | 067 | 2.58 | | 0.13 | | | 00.9 | | 0418 | |
| 41972 | UT15 | 3.58 | 10.0 | | | 250 | 298 | 012 | 83 | 22 | 03 | 335 | | 009 | | 2.44 | | 0.02 | | | 00.9 | | 0419 | |
| 50372 | UT15 | 2.23 | 15.5 | | | | | | | | | | | | | | | | | | | | | |
| 51072 | UT15 | 2.96 | 16.5 | | 497 | 258 | | | | | | 315 | | 004 | | 3.06 | | 0.08 | | | 01.0 | | 0377 | |
| 31672 | UT16 | 1.07 | 16.0 | | | 225 | 584 | 042 | 150 | 51 | 05 | 275 | | 022 | 214 | 2.15 | | 0.01 | | | 01.4 | | 761 | |
| 32372 | UT16 | 1.11 | 13.0 | | | 218 | 404 | 026 | 104 | 35 | 04 | 267 | | 028 | 143 | 1.94 | | 0.17 | | | 02.4 | | 609 | |
| 33072 | UT16 | 1.19 | 14.5 | | | 135 | 389 | 025 | 98 | 35 | 03 | 165 | | 024 | 158 | 1.84 | | 0.04 | | | 00.4 | | 510 | |
| 40572 | UT16 | 1.15 | 13.8 | | 572 | | 279 | 021 | 56 | 34 | 03 | | | 020 | | 0.40 | | 0.06 | | | 00.1 | | 0644 | |
| 41372 | UT16 | 1.23 | 09.0 | | 583 | 422 | 415 | 022 | 112 | 33 | 03 | 516 | | 021 | 138 | 2.06 | | 0.04 | | | 01.6 | | | |
| 41972 | UT16 | 1.27 | 10.0 | | | 242 | 349 | 022 | 92 | 29 | 03 | 296 | | 019 | | 2.16 | | 0.03 | | | 00.8 | | 563 | |

| DATE | STA | FLOW | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 51072 | UT16 | 0.77 | 17.5 | | 583 | 245 | 350 | 025 | 81 | 36 | 02 | 300 | | 022 | | 2.15 | | 0.09 | | | 00.4 | | 568 | |
| 31672 | UT17 | 1.97 | 15.0 | | | 276 | 410 | 027 | 105 | 36 | 05 | 337 | | 018 | 122 | 2.90 | | 0.08 | | | 01.2 | | 653 | |
| 32372 | UT17 | 1.90 | 12.0 | | | 141 | 349 | 034 | 74 | 40 | 08 | 173 | | 030 | 159 | 3.54 | | 0.04 | | | 00.6 | | 0522 | |
| 40572 | UT17 | 2.00 | 17.5 | | | | | | | | | | | | | | | | | | | | | |
| 41372 | UT17 | 2.25 | 08.5 | | 626 | 285 | 393 | 018 | 103 | 33 | 04 | 348 | | 017 | 109 | 2.55 | | 0.08 | | | 01.9 | | 0635 | |
| 41972 | UT17 | 3.12 | 03.0 | | | 300 | 356 | 017 | 95 | 27 | 04 | 366 | | 013 | | 2.35 | | 0.06 | | | 01.4 | | 0511 | |
| 51072 | UT17 | 3.50 | 16.0 | | 562 | 316 | 347 | 018 | 83 | 34 | 04 | 386 | | 013 | | 3.25 | | 0.07 | | | 00.6 | | 541 | |
| 82669 | UT18 | | 27.3 | 8.70 | | | | | | | | | | | | | | | | | | 10.2 | | 087 |
| 90269 | UT18 | | 24.0 | 8.70 | | | | | | | | | | | | | | | | | | 12.4 | | 029 |
| 90969 | UT18 | | 23.4 | 8.50 | | | | | | | | | | | | | | | | | | 08.7 | | 041 |
| 50570 | UT18 | | | 8.15 | 780 | 258 | 384 | 35 | 88 | 40 | 6 | 311 | 2.4 | 41 | 116 | 2.24 | | 1.00 | | 4300 | 8.9 | | | |
| 60270 | UT18 | | | 8.10 | 710 | 268 | 367 | 27 | 83 | 39 | 5 | 323 | 2.2 | 35 | 106 | 0.20 | | 0.60 | | 3000 | 10.0 | | | |
| 61670 | UT18 | | | | | | 366 | 26 | 89 | 35 | 7 | | | 24 | | | | | | | | | | |
| 63070 | UT18 | 26.1 | | 8.00 | 745 | 281 | 370 | 30 | 84 | 39 | 5 | 340 | 1.9 | 36 | 104 | 2.24 | | 2.00 | | 9300 | 9.0 | | | |
| 70470 | UT18 | 25.0 * | | | | 241 | 426 | 37 | 98 | 44 | 8 | 295 | | 33 | 140 | 2.24 | | 2.80 | | | | | | |
| 71470 | UT18 | 23.8 * | | | | 319 | 432 | 77 | 99 | 45 | 7 | 390 | | 32 | 103 | 2.24 | | 1.00 | | | | | | |
| 71770 | UT18 | 23.8 | 24.0 | 8.10 | 450 | | 256 | | | | | | | | | 1.05 | | 0.55 | | | | 8.0 | 622 | 52 |
| 73170 | UT18 | 28.5 | 22.3 | 8.35 | | | 394 | | | | | | | | | 0.38 | | 0.13 | | | | 7.0 | 503 | 45 |
| 80470 | UT18 | 26.1 * | | | | | | | | | | | | | | | | | | | 8.4 | | | |
| 81170 | UT18 | 25.2 * | | | | 272 | 372 | 32 | 88 | 37 | 9 | 277 | 2.7 | 30 | 110 | 2.24 | | 1.40 | | | | | | |
| 81470 | UT18 | | 22.0 | 8.15 | | | | | | | | | | 63 | | 1.10 | | 0.64 | | | | 8.0 | | 23 |
| 82870 | UT18 | 31.5 | 18.5 | 8.10 | | | | | | | | | | 50 | | 1.60 | | 0.46 | | | | 7.0 | 528 | 60 |
| 90170 | UT18 | 37.1 * | | 7.85 | 775 | 299 | 401 | 40 | 93 | 41 | 5 | 362 | 1.4 | 40 | 104 | 2.24 | | 0.70 | 0.40 | 3000 | 5.5 | | | |
| 92370 | UT18 | 40.4 * | | 8.30 | | 233 | 387 | 26 | 91 | 39 | 5 | 275 | 5.0 | 20 | 73 | 3.68 | | 0.80 | | | | | | |
| 100570 | UT18 | 40.6 | | | | | | | | | | | | | | | | | | 3000 | 5.0 | | | |
| 101570 | UT18 | | 9.5 | 8.15 | | | | | | | | | | 50 | | 0.15 | | 1.30 | | | | 9.0 | | 20 |
| 102970 | UT18 | | 9.0 | 8.15 | 792 | | | | | | | | | 37 | | 1.60 | | 0.13 | | | | 7.0 | 490 | 23 |
| 110270 | UT18 | 35.5 | | 8.10 | 725 | 300 | 382 | 26 | 89 | 39 | 5 | 362 | 2.5 | 33 | 95 | 0.41 | | 0.50 | 0.36 | 3000 | 9.5 | | | |
| 111270 | UT18 | | 9.0 | 8.00 | 864 | | | | | | | | | 50 | | 1.70 | | 0.13 | | | | 7.0 | 507 | 65 |
| 111670 | UT18 | 35.9 | | 8.20 | | 247 | 379 | 30 | 86 | 40 | 6 | 302 | | 25 | 96 | 1.65 | | 0.20 | | | | | | |
| 112670 | UT18 | | 9.0 | 7.80 | 771 | | | | | | | | | 63 | | 0.03 | | 0.07 | | | | 8.0 | 609 | 90 |
| 113070 | UT18 | 32.8 | | 8.20 | 835 | 323 | 411 | 35 | 92 | 44 | 6 | 388 | 3.4 | 42 | 117 | 0.50 | | 0.80 | | 9300 | 6.7 | | | |
| 121070 | UT18 | | 6.5 | 8.05 | 824 | | | | | | | | | 37 | | 1.60 | | 0.22 | | | | 8.0 | | 28 |
| 122270 | UT18 | | 2.0 | 8.50 | 924 | | | | | | | | | 50 | | 0.57 | | 0.25 | | | | 9.0 | 513 | |
| 10471 | UT18 | 26.0 | | 8.10 | 760 | 311 | 404 | 30 | 91 | 43 | 5 | 374 | 2.6 | 38 | 102 | 2.62 | | 0.50 | 0.36 | 3000 | 8.8 | | 554 | 53 |
| 11471 | UT18 | | 6.0 | 8.50 | 924 | | | | | | | | | 63 | | 1.60 | | 0.35 | | | | 8.0 | 573 | |
| 20271 | UT18 | | 7.0 | 8.80 | 864 | | | | | | | | | | | 1.60 | | 0.41 | | | | 6.0 | 568 | |
| 20871 | UT18 | 31.2 | | 7.65 | 595 | 248 | 300 | 15 | 84 | 22 | 5 | 302 | 0.7 | 34 | 61 | 1.20 | | 0.10 | | 2100 | 6.7 | | | |
| 21171 | UT18 | | 7.0 | 8.40 | | | | | | | | | | | | 1.90 | | 0.31 | | | | 7.0 | 582 | |
| 21871 | UT18 | 33.3 * | 6.0 | 7.75 | 865 | 263 | | | | | | 321 | | | | 2.62 | 0.04 | 1.10 | | | | 7.0 | 639 | |
| 30271 | UT18 | 29.6 | | 7.95 | 880 | 303 | 438 | 32 | 93 | 50 | 5 | 367 | 1.8 | 50 | 129 | 2.21 | | 0.60 | | 4300 | 9.0 | | 731 | |
| 30471 | UT18 | 27.6 | | 8.12 | 815 | | | | | | | | | | | 2.22 | 0.02 | 1.00 | | | | | | |
| 31171 | UT18 | 29.9 * | | 8.15 | 690 | | | | | | | | | | | 2.62 | 0.05 | 0.54 | | | | | 568 | |
| 31871 | UT18 | 30.9 | | 7.78 | 720 | | | | | | | | | | | 2.75 | | 0.60 | | | | | 602 | |
| 32571 | UT18 | 29.1 * | | 8.10 | 730 | | | | | | | | | | | 2.52 | | 0.92 | | | | | 529 | |
| 40171 | UT18 | 27.7 * | | 8.01 | 710 | | | | | | | | | | | 1.78 | 0.20 | 0.90 | | | | | 532 | |
| 40671 | UT18 | 27.5 * | | 8.20 | 820 | 309 | 388 | 30 | 88 | 41 | 5 | 371 | 3.3 | 27 | 104 | 5.42 | | 0.40 | | 1500 | 8.0 | | 675 | |
| 41571 | UT18 | 28.5 * | | 8.10 | 660 | | | | | | | | | | | 2.40 | | 0.74 | | | | | 551 | |
| 42771 | UT18 | | | 8.15 | 650 | 254 | 377 | 47 | 87 | 39 | 9 | 311 | | 35 | 126 | 2.00 | 0.14 | 0.66 | | | | | 657 | |
| 51371 | UT18 | 35.0 * | | 8.20 | 530 | 204 | | | | | | 246 | 1.8 | | | 1.54 | | 0.36 | | | | | | |

| DATE | STA | FLOW | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 52071 | UT18 | 32.0 * | | 8.30 | 630 | | | | | | | | | 26 | | 1.98 | | 0.62 | | | | | | |
| 60871 | UT18 | 32.0 * | | 7.87 | 600 | | | | | | | | | | | 1.40 | | 0.46 | | | | | | |
| 61571 | UT18 | 28.8 * | | 8.10 | 550 | | | | | | | | | | | | | 0.61 | | | | | | |
| 62271 | UT18 | 15.0 * | | 8.15 | 690 | | | | | | | | | | | | | 0.72 | | | | | | |
| 62971 | UT18 | 20.0 * | | 8.02 | 770 | | | | | | | | | | | | | 0.57 | | | | | | |
| 71371 | UT18 | | | 8.00 | 740 | | | | | | | | | | | | | 0.96 | | | | | | |
| 72071 | UT18 | | | 8.00 | 710 | | | | | | | | | | | | | 0.92 | | | | | | |
| 72971 | UT18 | | | 8.15 | 710 | | | | | | | | | | | | | 2.08 | | | | | | |
| 31672 | UT18 | 20.3 | 13.0 | | | | 423 | 037 | 102 | 41 | 04 | | | 019 | 106 | 3.05 | | 0.42 | | | 02.7 | | | |
| 32372 | UT18 | 19.3 | 11.0 | | | 122 | 436 | 037 | 107 | 41 | 06 | 149 | | 033 | 100 | 4.10 | | 0.47 | | | 03.5 | | | |
| 33072 | UT18 | 19.8 | 14.0 | | | 351 | 417 | 035 | 98 | 42 | 06 | 429 | | 028 | 111 | 3.34 | | .48 | | | 03.0 | | 0752 | |
| 40572 | UT18 | 23.7 | 12.5 | | 637 | | 290 | 044 | 47 | 42 | 05 | | | 040 | | 2.25 | | 0.18 | | | 01.0 | | 0642 | |
| 41372 | UT18 | 22.4 | 08.0 | | | 337 | 402 | 030 | 100 | 37 | 04 | 412 | | 029 | 101 | 2.86 | | 0.39 | | | | | | |
| 41972 | UT18 | 31.8 | 07.5 | | | 318 | 393 | 042 | 95 | 38 | 06 | 389 | | 031 | | 2.44 | | 0.51 | | | 06.5 | | 0604 | |
| 42672 | UT18 | 23.7 | 12.5 | | 788 | 318 | 394 | 038 | 92 | 40 | 05 | 389 | | 027 | 097 | 2.25 | | 0.37 | | | 02.2 | | 691 | |
| 50372 | UT18 | 20.8 | 13.0 | | 799 | 287 | 388 | 036 | 88 | 41 | 06 | 351 | | 025 | 119 | 2.15 | | 0.32 | | | 03.9 | | 668 | |
| 51072 | UT18 | 16.8 | 17.0 | | 734 | 326 | 397 | 042 | 90 | 42 | 05 | 398 | | 034 | | 1.75 | | 0.28 | | | 03.7 | | 613 | |
| 41972 | UT21 | | 06.0 | | | 586 | 374 | 130 | 51 | 60 | 25 | 715 | | 105 | | 0.75 | | 0.29 | | | 02.6 | | | |
| 51072 | UT24 | 00.2 | 17.2 | | 508 | 272 | 397 | 025 | 90 | 42 | 04 | 332 | | 015 | | 0.72 | | 0.06 | | | 00.3 | | 509 | |
| 31672 | UT25 | 01.3 | 16.0 | | | 326 | 415 | 042 | 84 | 50 | 17 | 398 | | 030 | 076 | 1.20 | | 0.17 | | | 02.2 | | 0666 | |
| 32372 | UT25 | 01.0 | 13.0 | | | 162 | 376 | 042 | 80 | 43 | 16 | 198 | | 027 | 065 | 0.97 | | 0.18 | | | 02.5 | | 0483 | |
| 33072 | UT25 | 01.0 | 16.0 | | | 366 | 322 | 037 | 73 | 34 | 18 | 447 | | 025 | 079 | 0.72 | | 0.19 | | | 01.0 | | 714 | |
| 40572 | UT25 | 1.00 | 14.8 | | 637 | | 134 | 013 | 29 | 15 | 02 | | | 026 | | 0.78 | | 0.68 | | | 01.2 | | 0688 | |
| 41372 | UT25 | 01.0 | 08.0 | | 648 | 381 | 374 | 039 | 79 | 43 | 15 | 465 | | 029 | 076 | 0.80 | | 0.18 | | | 02.4 | | 747 | |
| 41972 | UT25 | 01.5 | 06.5 | | | 395 | 361 | 051 | 72 | 44 | 18 | 482 | | 032 | | 0.52 | | 0.14 | | | 02.9 | | 700 | |
| 51072 | UT25 | 01.3 | 19.5 | | 767 | 426 | 397 | 030 | 65 | 57 | 19 | 520 | | 025 | | 1.13 | | 0.13 | | | 01.7 | | 717 | |
| 50372 | UT25 | 01.5 | 18.5 | | | | | | | | | | | | | | | | | | | | | |
| 82669 | UT29 | 28. | 24.8 | 8.50 | | | | | | | | | | | | | | | | | | 06.2 | | 030 |
| 90269 | UT29 | 30. | 23.5 | 8.60 | | | | | | | | | | | | | | | | | | 07.8 | | 028 |
| 90969 | UT29 | 37. | 22.6 | 8.50 | | | | | | | | | | | | | | | | | | 07.5 | | 025 |
| 50570 | UT29 | 84. | | 8.15 | 460 | 182 | 232 | 12 | 65 | 17 | 3 | 219 | 1.7 | 20 | 56 | 0.23 | | | | 200 | 10.0 | | | |
| 60270 | UT29 | 118. | | 8.00 | 460 | 174 | 238 | 12 | 64 | 19 | 2 | 211 | 1.2 | 25 | 54 | 0.36 | | 0.10 | | 930 | 6.9 | | | |
| 61670 | UT29 | 376. | | | | | 181 | 9 | 56 | 10 | 4 | | | 9 | | | | | | | | | | |
| 63070 | UT29 | 117. | | 8.10 | 365 | 143 | 180 | 8 | 49 | 14 | 3 | 173 | 1.2 | 20 | 37 | 0.20 | | 0.10 | | 230 | 6.6 | | | |
| 70470 | UT29 | 25. | | | | 131 | 196 | 13 | 59 | 12 | 4 | 161 | | 11 | 100 | | | 0.30 | | | | | | |
| 71470 | UT29 | 25. | | | | 148 | 232 | 51 | 65 | 17 | 4 | 181 | | 13 | 42 | 0.41 | | 0.80 | | | | | | |
| 71770 | UT29 | 11. | 27.0 | 8.40 | 240 | | 154 | | | | | | | | | 0.22 | | 0.14 | | | | 13.0 | 283 | 10 |
| 73170 | UT29 | 8. | 25.5 | 8.30 | | | 256 | | | | | | | | | 0.31 | | 0.03 | | | | 11.0 | 264 | 10 |
| 80470 | UT29 | 13. | | | | | | | | | | | | | | | | | | | 6.5 | | | |
| 81470 | UT29 | 7. | | 8.20 | | | | | | | | | | 36 | | 0.09 | | 0.17 | | | | 10.0 | | |
| 81170 | UT29 | 8. | | | | 136 | 176 | 14 | 46 | 15 | 6 | 166 | | 14 | 45 | 0.00 | | 0.80 | | | | | | |
| 82870 | UT29 | 19. | 24.5 | 7.90 | | | | | | | | 0 | | 36 | | 0.49 | | 0.04 | | | | 6.0 | 325 | |
| 90170 | UT29 | 17. | | 8.25 | 415 | 183 | 226 | 11 | 61 | 18 | 3 | 219 | 2.2 | 23 | 39 | 0.14 | | 0.10 | 0.23 | 930 | 7.5 | | | |
| 92370 | UT29 | 93. | | 8.20 | | 151 | 253 | 19 | 70 | 19 | 7 | 185 | | 14 | 47 | | | 0.20 | | | | | | |
| 100570 | UT29 | 34. | | | | | | | | | | | | | | | | | | 4300 | 7.5 | | | |
| 101570 | UT29 | 113. | 8.0 | 7.95 | | | | | | | | | | 25 | | 1.40 | | 0.09 | | | | 6.0 | | 5 |
| 102970 | UT29 | 336. | 7.5 | 8.11 | 447 | | | | | | | | | 25 | | 0.11 | | 0.03 | | | | 6.0 | 263 | 10 |
| 110270 | UT29 | 331. | | 8.40 | 400 | 161 | 203 | 11 | 55 | 16 | 4 | 192 | 2.7 | 24 | 50 | 0.20 | | 0.10 | 0.22 | 930 | 7.5 | | | |
| 111270 | UT29 | 329. | 7.5 | 8.10 | 487 | | | | | | | | | 25 | | 0.14 | | 0.03 | | | | 9.0 | 253 | 9 |
| 111670 | UT29 | 319. | | 8.10 | | 57 | 197 | 12 | 56 | 14 | 4 | 70 | | 8 | 56 | 0.21 | | | | | | | | |

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| DATE | STA | FLOW | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 112670 | UT29 | 411. | 7.0 | 8.00 | 264 | | | | | | | | | 25 | | 0.21 | | 0.03 | | | | 9.0 | 259 | 40 |
| 113070 | UT29 | 401. | | 8.20 | 410 | 161 | 201 | 11 | 56 | 15 | 3 | 194 | 1.7 | 20 | 52 | 0.18 | | 0.20 | | 430 | 8.5 | | | |
| 121070 | UT29 | 379. | 4.5 | 8.15 | 437 | | | | | | | | | | | 0.21 | | 0.04 | | | | 8.0 | | 16 |
| 121470 | UT29 | 374. | | 8.30 | | 133 | 234 | 54 | 69 | 15 | 3 | 163 | | 8 | 54 | 0.30 | | 0.00 | | | | | | |
| 122370 | UT29 | 380. | 4.0 | 8.20 | 385 | | | | | | | | | 25 | | 0.09 | | 0.06 | | | | 10.0 | 271 | |
| 10471 | UT29 | 377. | | 8.30 | 410 | 165 | 228 | 11 | 58 | 20 | 4 | 197 | 2.2 | 19 | 53 | 0.25 | | 0.10 | 0.22 | 230 | 6.6 | | 274 | 15 |
| 11471 | UT29 | 260. | 2.0 | 8.45 | 426 | | | | | | | | | 25 | | 0.22 | | 0.16 | | | | 9.0 | 365 | |
| 11671 | UT29 | 261. | | 6.53 | 365 | 148 | 240 | 12 | 75 | 13 | | 181 | | 10 | | 0.33 | 0.04 | 0.00 | | | | | 346 | |
| 20271 | UT29 | 306. | 4.0 | 8.90 | 426 | | | | | | | | | | | 0.37 | | 0.08 | | | | 9.0 | 270 | |
| 20871 | UT29 | 328. | | 8.10 | 450 | 163 | 219 | 11 | 58 | 18 | 3 | 196 | 1.7 | 24 | 58 | 0.17 | | 0.10 | | 430 | 6.3 | | | |
| 21171 | UT29 | 392. | 4.0 | 8.75 | | | | | | | | | | | | 0.36 | | 0.33 | | | | 10.0 | 295 | |
| 21871 | UT29 | 281. | 4.0 | 7.84 | 430 | 143 | | | | | | 175 | | | | 0.44 | 0.02 | 0.25 | | | | 7.0 | 260 | |
| 30271 | UT29 | 186. | | 8.40 | 455 | 171 | 224 | 11 | 60 | 18 | 4 | 204 | 2.8 | 30 | 61 | 0.54 | | 0.10 | | 150 | 3.4 | | 391 | |
| 31171 | UT29 | 165. | | 8.25 | 420 | | | | | | | | | | | 0.41 | 0.06 | 0.08 | | | | | 285 | |
| 31971 | UT29 | 157. | | 8.05 | 460 | | | | | | | | | | | 0.39 | | 0.11 | | | | | 350 | |
| 32571 | UT29 | 264. | | 8.10 | 440 | | | | | | | | | | | 0.44 | | 0.18 | | | | | 297 | |
| 40171 | UT29 | 350. | | 8.08 | 420 | | | | | | | | | | | 0.65 | 0.08 | 0.09 | | | | | 297 | |
| 40671 | UT29 | 325. | | 8.20 | 455 | 165 | 221 | 11 | 59 | 18 | 3 | 199 | 1.7 | 11 | 54 | 0.68 | | | | 4300 | 6.0 | | 357 | |
| 42771 | UT29 | 362. | | 8.20 | 340 | 140 | 219 | 12 | 63 | 15 | 5 | 172 | | 11 | 55 | 0.30 | 0.04 | 0.24 | | | | | 334 | |
| 51371 | UT29 | 191. | | 8.20 | 370 | 133 | | | | | | 160 | 1.1 | | | 0.26 | | 0.09 | | | | | | |
| 52071 | UT29 | 162. | | 8.30 | 400 | | | | | | | | | 11 | | 0.28 | | 0.08 | | | | | | |
| 60871 | UT29 | 165. | | 7.85 | 330 | | | | | | | | | | | 0.31 | | 0.14 | | | | | | |
| 61571 | UT29 | 456. | | 8.20 | 295 | | | | | | | | | | | | | 0.28 | | | | | | |
| 62271 | UT29 | 369. | | 8.30 | 295 | | | | | | | | | | | | | 0.19 | | | | | | |
| 62971 | UT29 | 120. | | 7.63 | 330 | | | | | | | | | | | | | 0.10 | | | | | | |
| 71371 | UT29 | 13. | | 7.90 | 430 | | | | | | | | | | | | | 0.31 | | | | | | |
| 72071 | UT29 | 16. | | 7.90 | 400 | | | | | | | | | | | | | 0.52 | | | | | | |
| 72971 | UT29 | 12.5 * | | 8.20 | 420 | | | | | | | | | | | | | 1.23 | | | | | | |
| 31672 | UT29 | 354. | 08.0 | | | 46 | 250 | 016 | 77 | 14 | 03 | 57 | | 009 | 054 | 0.28 | | 0.06 | | | 02.0 | | 0443 | |
| 32372 | UT29 | 364. | 07.0 | | | | 236 | 014 | 70 | 15 | 03 | | | 010 | 050 | 0.36 | | 0.04 | | | 01.2 | | | |
| 33072 | UT29 | 332. | 08.0 | | | 186 | 219 | 012 | 63 | 15 | 03 | 227 | | 009 | 049 | 0.14 | | 0.03 | | | 01.5 | | 378 | |
| 40572 | UT29 | 266. | 07.5 | | 378 | | 134 | 013 | 29 | 15 | 02 | | | 016 | | 0.18 | | 0.06 | | | 00.3 | | 0349 | |
| 41372 | UT29 | 341. | 06.0 | | 421 | 169 | 215 | 010 | 63 | 14 | 03 | 207 | | 009 | 045 | 0.22 | | 0.04 | | | 01.6 | | 0389 | |
| 41972 | UT29 | 313. | 07.0 | | | 181 | 210 | 010 | 63 | 13 | 03 | 221 | | 038 | | 0.17 | | 0.02 | | | 00.7 | | 348 | |
| 42672 | UT29 | 274. | 08.0 | | 410 | 162 | 201 | 013 | 56 | 15 | 03 | 198 | | 005 | 045 | 0.06 | | 0.00 | | | 00.1 | | 0429 | |
| 50372 | UT29 | 172. | 08.3 | | 475 | 168 | 210 | 013 | 61 | 14 | 03 | 205 | | 005 | 047 | 0.11 | | 0.05 | | | 01.9 | | | |
| 51072 | UT29 | 121. | 12.0 | | 356 | 164 | 234 | 015 | 46 | 29 | 02 | 201 | | 005 | | 0.15 | | 0.08 | | | 00.0 | | | |
| 31672 | UT31 | 01.5 | 15.0 | | | 281 | 318 | 020 | 93 | 21 | 04 | 343 | | 014 | 061 | 0.25 | | 0.06 | | | 01.8 | | 556 | |
| 32372 | UT31 | 00.5 | 12.0 | | | 203 | 318 | 016 | 93 | 21 | 05 | 248 | | 016 | 057 | 0.22 | | 0.13 | | | 01.9 | | 456 | |
| 33072 | UT31 | 01.3 | [illegible] | | | 266 | 303 | 021 | 87 | 21 | 04 | 325 | | 016 | 052 | 0.15 | | 0.11 | | | 01.4 | | 526 | |
| 40572 | UT31 | 01.8 | 14.0 | | 378 | | 178 | 016 | 37 | 21 | 03 | | | 017 | | 0.15 | | 0.08 | | | 00.5 | | 0550 | |
| 41372 | UT31 | 02.1 | 07.0 | | 486 | 282 | 309 | 016 | 91 | 20 | 04 | 345 | | 019 | 062 | 0.25 | | 0.10 | | | 01.1 | | 0557 | |
| 41972 | UT31 | 01.0 | 09.0 | | | 269 | 294 | 017 | 85 | 20 | 05 | 329 | | 015 | | 0.35 | | 0.04 | | | 01.4 | | 0460 | |
| 51072 | UT31 | 00.5 | 19.1 | | 572 | 283 | 287 | 018 | 77 | 23 | 04 | 346 | | 012 | | 0.22 | | 0.09 | | | 02.6 | | 0480 | |
| 32372 | UT32 | 00.7 | | | | | | | | | | | | | | | | | | | | | | |
| 33072 | UT32 | 00.7 | | | | | | | | | | | | | | | | | | | | | | |
| 41372 | UT32 | 00.7 | 11.5 | | | 309 | 359 | 020 | 106 | 23 | 04 | 377 | | 020 | 112 | 1.15 | | 0.04 | | | 00.4 | | 663 | |
| 41972 | UT32 | 00.7 | 12.0 | | | 350 | 352 | 019 | 103 | 23 | 05 | 427 | | 016 | | 1.08 | | 0.02 | | | 01.0 | | 494 | |
| 51072 | UT32 | 00.7 | 12.0 | | 583 | 314 | 343 | 031 | 98 | 24 | 04 | 384 | | 016 | | 0.88 | | 0.05 | | | 00.2 | | 0558 | |
| 32372 | UM33 | 00.1 | | | | | | | | | | | | | | | | | | | | | | |

| DATE | STA | FLOW | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 33072 | UT33 | 00.1 | | | | | | | | | | | | | | | | | | | | | | |
| 40572 | UT33 | 00.1 | 12.2 | | | | | | | | | | | | | | | | | | | | | |
| 41372 | UT33 | 00.1 | 12.0 | | 486 | 273 | 227 | 034 | 58 | 20 | 04 | 334 | | 027 | 016 | 0.14 | | 0.15 | | | 03.1 | | 493 | |
| 41972 | UT33 | 00.1 | 12.0 | | | 163 | 222 | 033 | 56 | 20 | 04 | 199 | | 023 | | 0.06 | | 0.14 | | | 01.0 | | 335 | |
| 51072 | UT33 | 00.1 | 12.0 | | 454 | 265 | 223 | 036 | 55 | 21 | 04 | 324 | | 018 | | 0.32 | | 0.10 | | | 01.9 | | 0458 | |
| 82669 | UT34 | | 24.7 | 8.40 | | | | | | | | | | | | | | | | | | 04.8 | | 023 |
| 90269 | UT34 | | 22.8 | 8.50 | | | | | | | | | | | | | | | | | | 08.4 | | 024 |
| 90969 | UT34 | | 22.3 | 8.40 | | | | | | | | | | | | | | | | | | 07.3 | | 026 |
| 50570 | UT34 | | | 7.70 | 575 | 231 | 288 | 14 | 84 | 19 | 4 | 281 | 0.7 | 28 | 55 | 1.24 | | 0.10 | | 930 | 2.5 | | | |
| 60270 | UT34 | | | 7.95 | 570 | 240 | 303 | 13 | 87 | 21 | 4 | 290 | 1.4 | 28 | 49 | 1.29 | | 0.10 | | 230 | 2.9 | | | |
| 61670 | UT34 | 15.0 * | | | | | 314 | 15 | 93 | 20 | 6 | | | 20 | | | | | | | | | | |
| 63070 | UT34 | 11.8 * | | 8.00 | 610 | 241 | 305 | 14 | 86 | 22 | 5 | 291 | 1.6 | 31 | 61 | 2.24 | | 0.20 | | 390 | 2.3 | | | |
| 70470 | UT34 | 11.9 * | | | | 198 | 314 | 16 | 93 | 20 | 6 | 242 | | 18 | 80 | 2.24 | | 0.40 | | | | | | |
| 71470 | UT34 | 11.6 * | | | | 200 | 347 | 52 | 98 | 25 | 6 | 244 | | 20 | 56 | 2.24 | | 0.10 | | | | | | |
| 71770 | UT34 | 10.0 | 16.5 | 7.85 | | | 205 | | | | | | | | | 1.20 | | 0.08 | | | | 6.0 | 418 | 5 |
| 73170 | UT34 | 11.5 | 19.0 | 7.90 | | | 308 | | | | | | | | | 2.01 | | 0.08 | | | | 7.0 | 328 | |
| 80470 | UT34 | 11.7 * | | | | | | | | | | | | | | | | | | | 2.3 | | | |
| 81170 | UT34 | 11.6 | | | | 152 | 203 | 15 | 50 | 19 | 7 | 186 | | 17 | 58 | 1.56 | | | | | | | | |
| 81470 | UT34 | | 17.0 | 7.45 | | | | | | | | | | 37 | | 1.64 | | 0.15 | | | | 5.0 | | |
| 82870 | UT34 | 11.6 | 17.5 | 7.60 | | | | | | | | | | 37 | | 1.32 | | 0.07 | | | | 5.0 | 443 | |
| 93170 | UT34 | 12.0 * | | 8.20 | 595 | 243 | 302 | 18 | 83 | 23 | 5 | 292 | 2.6 | 30 | 54 | 1.36 | | 0.20 | 0.25 | 2300 | 3.0 | | | |
| 92370 | UT34 | 11.9 * | | 8.00 | | 127 | 285 | 18 | 83 | 19 | 5 | 155 | 0.7 | 14 | 50 | 0.20 | | 0.10 | | | | | | |
| 100570 | UT34 | 11.5 * | | | | | | | | | | | | | | | | | | 2900 | 3.8 | | | |
| 101570 | UT34 | 10.7 | 11.0 | 7.45 | | | | | | | | | | 25 | | 0.55 | | 0.08 | | | | 6.0 | 398 | |
| 102970 | UT34 | 10.5 * | 10.0 | 7.65 | 660 | | | | | | | | | 37 | | 1.20 | | 0.11 | | | | 6.0 | 385 | |
| 110270 | UT34 | 10.3 * | | 7.75 | 600 | 259 | 315 | 16 | 85 | 25 | 7 | 314 | 1.0 | 30 | 52 | 0.95 | | 0.20 | 0.25 | 4300 | 3.4 | | | |
| 111270 | UT34 | 10.3 | 10.5 | 7.60 | 690 | | | | | | | | | 37 | | 0.65 | | 0.04 | | | | 5.0 | 391 | 10 |
| 111670 | UT34 | 9.6 * | | 7.80 | | 223 | 305 | 19 | 86 | 22 | 7 | 273 | 0.8 | 18 | 57 | 1.13 | | | | | | | | |
| 112670 | UT34 | 10.1 | 10.0 | 7.70 | 447 | | | | | | | | | 37 | | 0.66 | | 0.07 | | | | 7.0 | 389 | 20 |
| 113070 | UT34 | 10.1 * | | 7.75 | 630 | 249 | 314 | 2 | 88 | 23 | 6 | 302 | 0.9 | 30 | 78 | 1.02 | | 0.60 | | 930 | 3.0 | | | |
| 121070 | UT34 | 6.0 | 7.0 | 7.70 | 824 | | | | | | | | | 25 | | 0.85 | | 0.11 | | | | 8.0 | | 3 |
| 121470 | UT34 | 5.5 * | | 8.30 | | 173 | | 58 | | 20 | | 212 | 1.9 | 17 | 59 | 1.10 | | 0.10 | | | | | | |
| 122370 | UT34 | 5.7 * | 7.0 | 7.70 | 588 | | | | | | | | | 38 | | 0.45 | | 0.13 | | | | 9.0 | 378 | |
| 10471 | UT34 | 6.1 * | | 7.70 | 615 | 260 | 304 | 15 | 86 | 22 | 04 | 316 | 0.9 | 30 | 50 | 1.04 | | 0.10 | 0.23 | 4300 | 2.5 | | 525 | 13 |
| 11471 | UT34 | 5.7 * | 6.0 | 8.10 | 629 | | | | | | | | | 38 | | 0.85 | | 0.12 | | | | 7.0 | 388 | |
| 11671 | UT34 | 5.6 * | | 8.15 | 500 | 188 | 346 | 15 | 104 | 21 | | 230 | 1.5 | 1 | | 0.97 | 0.15 | | | | | | 372 | |
| 20271 | UT34 | 4.0 * | 8.0 | 8.40 | 588 | | | | | | | | | | | 0.85 | | 0.14 | | | | 5.0 | 398 | |
| 20871 | UT34 | 5.7 * | | | | | | | | | | | | | | | | | | 930 | 3.9 | | | |
| 21171 | UT34 | 5.9 * | | | | | | | | | | | | | | | | | | | | | 450 | |
| 30271 | UT34 | 4.3 * | | 8.30 | 600 | 236 | 288 | 15 | 81 | 21 | 5 | 282 | 3.1 | 39 | 55 | 1.24 | | 0.20 | | 230 | 2.3 | | 502 | |
| 31171 | UT34 | 4.7 * | | 7.92 | 530 | | | | | | | | | | | 1.10 | 0.06 | 0.12 | | | | | 393 | |
| 31871 | UT34 | 4.7 * | | 7.75 | 530 | | | | | | | | | | | 1.16 | | 0.11 | | | | | 420 | |
| 32571 | UT34 | 5.1 * | | 7.80 | 550 | | | | | | | | | | | 0.92 | | 0.14 | | | | | 393 | |
| 40171 | UT34 | 5.8 * | | 7.70 | 540 | | | | | | | | | | | 1.04 | 0.08 | 0.08 | | | | | 383 | |
| 40671 | UT34 | 5.8 * | | 7.80 | 650 | 246 | 302 | 15 | 83 | 23 | 5 | 299 | 1.0 | 21 | 57 | 1.13 | | | | 430 | 2.8 | | 368 | |
| 42771 | UT34 | 5.8 * | | 7.70 | 450 | 212 | 272 | 17 | 76 | 20 | 7 | 259 | 0.6 | 21 | 61 | 2.22 | 0.06 | 0.04 | | | | | 398 | |
| 51371 | UT34 | 6.6 * | | 7.70 | 500 | 181 | | | | | | 220 | 0.5 | | | 1.87 | | 0.14 | | | | | | |
| 52071 | UT34 | 6.5 * | | 8.30 | 530 | | | | | | | | | 21 | | 2.19 | | 0.17 | | | | | | |
| 60871 | UT34 | 11.9 * | | 7.68 | 540 | | | | | | | | | | | 2.07 | | 0.10 | | | | | | |
| 61571 | UT34 | 12.3 | | 8.00 | 520 | | | | | | | | | | | | | 0.26 | | | | | | |

| DATE | STA | FLOW | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 62271 | UT34 | 12.3 | | 8.10 | 530 | | | | | | | | | | | | | 0.21 | | | | | | |
| 62971 | UT34 | 12.9 | | 7.70 | 540 | | | | | | | | | | | | | 0.14 | | | | | | |
| 71371 | UT34 | 11.3 | | 7.85 | 530 | | | | | | | | | | | | | 0.27 | | | | | | |
| 72071 | UT34 | 11.9 | | 7.80 | 550 | | | | | | | | | | | | | 0.66 | | | | | | |
| 72971 | UT34 | 7.9 * | | 7.85 | 570 | | | | | | | | | | | | | 1.37 | | | | | | |
| 31672 | UT34 | 04.8 | 18.0 | | | 263 | 289 | 024 | 83 | 20 | 05 | 322 | | 027 | 051 | 0.65 | | 0.04 | | | 02.9 | | 0532 | |
| 32372 | UT34 | 04.8 | 13.0 | | | 290 | 306 | 018 | 88 | 21 | 06 | 354 | | 021 | 050 | 0.60 | | 0.04 | | | 00.1 | | 0512 | |
| 33072 | UT34 | 04.9 | 16.0 | | | 250 | 293 | 023 | 83 | 21 | 05 | 306 | | 019 | 046 | 0.73 | | 0.08 | | | 00.5 | | 503 | |
| 40572 | UT34 | 05.0 | 15.2 | | | | 203 | 014 | 47 | 21 | 04 | | | 017 | | 0.65 | | 0.08 | | | 00.3 | | | |
| 41372 | UT34 | 06.2 | 08.0 | | 518 | 250 | 257 | 019 | 70 | 20 | 04 | 305 | | 020 | 057 | 0.96 | | 0.05 | | | 01.2 | | 0549 | |
| 41972 | UT34 | 05.2 | 09.0 | | | 287 | 307 | 018 | 90 | 20 | 04 | 351 | | 016 | | 1.26 | | 0.04 | | | 01.1 | | 500 | |
| 42672 | UT34 | 05.2 | 14.0 | | 605 | 259 | 292 | 020 | 84 | 20 | 04 | 317 | | 019 | 051 | 1.43 | | | | | 01.5 | | 516 | |
| 50372 | UT34 | 05.1 | 15.0 | | | 255 | 307 | 018 | 90 | 20 | 05 | 312 | | 013 | 056 | 1.55 | | 0.03 | | | 01.8 | | | |
| 51072 | UT34 | 04.9 | 17.0 | | 497 | 268 | | 017 | | | | 328 | | 015 | | 1.49 | | 0.05 | | | 01.0 | | 0366 | |
| 31672 | UT35 | 01.0 | 16.0 | | | 218 | 263 | 015 | 79 | 16 | 03 | 266 | | 009 | 045 | 0.65 | | 0.03 | | | 00.5 | | 434 | |
| 32372 | UT35 | 02.0 | 15.0 | | | 150 | 249 | 015 | 72 | 17 | 04 | 184 | | 012 | 046 | 0.77 | | 0.13 | | | 01.9 | | 351 | |
| 40572 | UT35 | 01.3 | 15.5 | | 292 | | 133 | 011 | 27 | 16 | 02 | | | 013 | | | | 0.07 | | | 00.3 | | 0253 | |
| 41972 | UT35 | 00.0 | 09.0 | | 0 | | | | | | | | | | | | | | | | | | | |
| 51072 | UT35 | 03.5 | 18.0 | | 421 | 191 | 210 | 014 | 58 | 16 | 02 | 234 | | 09 | | 0.41 | | 0.07 | | | 00.9 | | 414 | |
| 32372 | UT36 | 00.4 | 15.0 | | | 190 | | | | | | 232 | | 018 | | 0.44 | | 0.08 | | | 02.2 | | 0273 | |
| 33072 | UT36 | 00.4 | 17.0 | | | | 282 | 025 | 67 | 28 | 04 | | | | 031 | | | | | | | | | |
| 40572 | UT36 | 00.6 | 16.5 | | 410 | | 141 | 018 | 14 | 26 | 03 | | | 015 | | 0.16 | | 0.08 | | | 00.7 | | 0431 | |
| 41972 | UT36 | 02.5 | 10.5 | | | 169 | 184 | 015 | 54 | 12 | 03 | 207 | | 010 | | 0.72 | | 0.05 | | | 01.3 | | 302 | |
| 50372 | UT36 | 00.7 | 16.0 | | | | | | | | | | | | | | | | | | | | | |
| 51072 | UT36 | 00.4 | 19.5 | | | | | | | | | | | | | | | | | | | | | |
| 32372 | UT37 | 00.8 | 12.0 | | | 194 | 365 | 020 | 105 | 25 | 05 | 237 | | 018 | 054 | | | | | | 01.2 | | 464 | |
| 33072 | UT37 | 00.6 | 13.0 | | | 323 | 362 | 024 | 104 | 25 | 04 | 395 | | 070 | 057 | 1.44 | | 0.07 | | | 01.0 | | 681 | |
| 40572 | UT37 | 00.7 | 11.7 | | 475 | | 219 | 018 | 45 | 26 | 04 | | | 018 | | 1.06 | | 0.07 | | | 00.2 | | 0789 | |
| 41372 | UT37 | 01.2 | 10.5 | | 518 | 331 | 366 | 017 | 107 | 24 | 04 | 405 | | 019 | 058 | 1.40 | | 0.08 | | | | | 635 | |
| 41972 | UT37 | 01.0 | 11.0 | | | 340 | 362 | 021 | 104 | 25 | 04 | 415 | | 019 | | 1.42 | | 0.05 | | | 00.1 | | 589 | |
| 31672 | UT38 | 16.2 | 13.0 | | | 231 | 264 | 028 | 78 | 17 | 03 | 283 | | 013 | 049 | | | 0.13 | | | 01.6 | | 471 | |
| 32372 | UT38 | 16.2 | 13.0 | | | 246 | 252 | 018 | 73 | 17 | 05 | 301 | | 014 | 046 | 0.76 | | 0.78 | | | 01.6 | | 476 | |
| 33072 | UT38 | 15.7 | 12.0 | | | 219 | 259 | 016 | 74 | 18 | 03 | 268 | | 012 | 045 | 0.85 | | 0.11 | | | 01.2 | | 437 | |
| 40572 | UT38 | 15.1 | 12.2 | | 346 | | 146 | 014 | 29 | 18 | 03 | | | 021 | | 0.93 | | 0.08 | | | 00.2 | | | |
| 41372 | UT38 | 10.2 | 11.8 | | 432 | 236 | 249 | 013 | 72 | 17 | 03 | 289 | | 014 | 043 | 0.98 | | 0.07 | | | 01.2 | | 0404 | |
| 41972 | UT38 | 15.6 | 08.8 | | | 154 | 167 | 019 | 49 | 11 | 03 | 188 | | 020 | | 0.83 | | 0.07 | | | 02.4 | | 0313 | |
| 42672 | UT38 | 12.0 | 12.0 | | 464 | 204 | 241 | 017 | 67 | 18 | 03 | 249 | | 009 | 036 | 0.88 | | 0.08 | | | 01.1 | | 0400 | |
| 50372 | UT38 | 10.2 | 14.5 | | 540 | 207 | 259 | 015 | 74 | 18 | 03 | 253 | | 011 | 045 | 0.93 | | 0.15 | | | 02.4 | | 420 | |
| 51072 | UT38 | 11.7 | 15.5 | | 497 | 204 | 234 | 016 | 64 | 18 | 03 | 250 | | 012 | | 0.89 | | 0.08 | | | 01.3 | | 364 | |
| 31672 | UT41 | 04.0 | 10.0 | | | 137 | 319 | 031 | 80 | 29 | 03 | 168 | | 015 | 044 | 0.85 | | 0.03 | | | 04.4 | | 371 | |
| 32372 | UT41 | 04.3 | 11.0 | | | 178 | 307 | 027 | 77 | 28 | 04 | 218 | | 023 | 042 | 1.00 | | 0.05 | | | 02.3 | | | |
| 33072 | UT41 | 04.0 | 14.0 | | | | | | | | | | | | | | | | | | | | | |
| 40572 | UT41 | 04.0 | 13.5 | | | | | | | | | | | | | 0.51 | | | | | | | | |
| 41372 | UT41 | 06.2 | 12.0 | | | | | | | | | | | | | | | | | | | | | |
| 41972 | UT41 | 05.8 | 07.0 | | | 233 | 237 | 021 | 62 | 20 | 04 | 285 | | 016 | | 0.71 | | 0.05 | | | 02.3 | | 409 | |
| 51072 | UT41 | 04.3 | 17.0 | | 562 | 259 | 299 | 021 | 77 | 26 | 04 | 317 | | 018 | | 0.69 | | 0.09 | | | 01.9 | | 464 | |
| 81470 | UT42 | | 20.0 | 7.35 | | | | | | | | | | 63 | | 0.85 | | 1.12 | | | | 6.0 | | 10 |
| 82870 | UT42 | | 19.5 | 7.35 | | | | | | | | | | 63 | | 0.36 | | 0.25 | | | | 5.0 | 1065 | 5 |
| 90370 | UT42 | | 17.0 | 7.35 | | | | | | | | | | | | | | | | | | | | |
| 121470 | UT42 | | | | | | 264 | 78 | 17 | 54 | 6 | | 10.0 | | 338 | | | 0.40 | | | | | | |

| DATE | STA | FLOW | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10471 | UT42 | | | | | | | | | | | | | | | | | | | | 12.0 | | | |
| 10571 | UT42 | | | 7.80 | 970 | 234 | 420 | 40 | 99 | 42 | 5 | 284 | 1.0 | 54 | 268 | 0.82 | | 0.50 | 0.69 | 2300 | | | 740 | 10 |
| 11871 | UT42 | | | 8.20 | 835 | 207 | 521 | 36 | 136 | 44 | | 253 | 1.8 | 47 | | 0.75 | 0.94 | 1.0 | | | | | 869 | |
| 20271 | UT42 | | 11.0 | 8.30 | 864 | | | | | | | | | | | 0.62 | | 0.84 | | | | 6.0 | 694 | |
| 21671 | UT42 | | 14.0 | 7.45 | 855 | 179 | | | | | | 219 | 0.2 | | | 0.68 | 1.88 | 1.35 | | | | 6.0 | 634 | |
| 30471 | UT42 | | | 7.46 | 885 | | | | | | | | | | | 0.75 | 1.15 | 2.10 | | | | | | |
| 31171 | UT42 | | | 7.40 | 790 | | | | | | | | | | | 0.61 | 2.09 | 1.69 | | | | | 668 | |
| 31871 | UT42 | | | 7.35 | 780 | | | | | | | | | | | 0.75 | 1.45 | 1.87 | | | | | 669 | |
| 32571 | UT42 | | | 7.50 | 790 | | | | | | | | | | | 0.62 | 0.81 | 2.10 | | | | | 590 | |
| 40171 | UT42 | | | 7.58 | 740 | | | | | | | | | | | 0.80 | 0.09 | 0.86 | | | | | 597 | |
| 40671 | UT42 | | | 7.50 | 730 | | | | | | | | | | | 0.67 | | 2.01 | | | | | 806 | |
| 42271 | UT42 | | | 7.60 | 800 | | | | | | | | | | | 0.61 | 0.85 | 1.12 | | | | | 639 | |
| 42771 | UT42 | | | 7.50 | 740 | 187 | 448 | 44 | 117 | 38 | 10 | 229 | 0.3 | 39 | 244 | 0.79 | 0.89 | 1.04 | | | | | 722 | |
| 50871 | UT42 | | | 7.52 | 760 | | | | | | | | | | | 0.72 | 1.82 | 2.05 | | | | | | |
| 51371 | UT42 | | | 7.55 | 750 | 190 | | | | | | 232 | 0.3 | | | 0.55 | 0.16 | 1.20 | | | | | | |
| 52071 | UT42 | | | 8.20 | 780 | | | | | | | | | 38 | | 0.64 | 0.60 | 0.89 | | | | | | |
| 61571 | UT42 | | | 7.62 | 710 | | | | | | | | | | | | | 1.50 | | | | | | |
| 62271 | UT42 | | | 7.70 | 780 | | | | | | | | | | | | | 1.23 | | | | | | |
| 62971 | UT42 | | | 7.57 | 820 | | | | | | | | | | | | | 0.84 | | | | | | |
| 71371 | UT42 | | | 7.65 | 790 | | | | | | | | | | | | | 0.77 | | | | | | |
| 72071 | UT42 | | | 7.40 | 830 | | | | | | | | | | | | | 1.20 | | | | | | |
| 72971 | UT42 | | | 7.60 | 850 | | | | | | | | | | | | | 1.47 | | | | | | |
| 80471 | UT42 | | | 7.30 | 830 | | | | | | | | | | | | | 0.39 | | | | | | |
| 31672 | UT42 | 21.5 | 18.0 | | | | | | | | | | | | | | | | | | | | | |
| 32372 | UT42 | 21.5 | 16.0 | | | 235 | 486 | 051 | 132 | 38 | 07 | 287 | | 044 | 293 | 0.54 | | 0.07 | | | 02.3 | | 853 | |
| 33072 | UT42 | 22.7 | 17.0 | | | 153 | 339 | 060 | 70 | 40 | 06 | 187 | | 037 | 282 | 0.63 | | | | | 02.3 | | 683 | |
| 40572 | UT42 | 21.5 | 17.0 | | 767 | | 345 | 033 | 74 | 39 | 05 | | | 040 | | 0.51 | | 0.08 | | | 01.0 | | 0721 | |
| 41372 | UT42 | 32.0 | 14.5 | | 832 | 240 | 454 | 035 | 126 | 34 | 06 | 293 | | 037 | 245 | 0.56 | | 0.10 | | | 02.7 | | 0917 | |
| 41972 | UT42 | 31.5 | 11.5 | | | 251 | 449 | 043 | 122 | 35 | 05 | 307 | | 033 | | 0.65 | | 0.05 | | | 01.4 | | 0499 | |
| 42672 | UT42 | 32.0 | 14.0 | | 864 | 251 | 467 | 043 | 126 | 37 | 06 | 307 | | 032 | 252 | 0.48 | | | | | 03.7 | | 0977 | |
| 50372 | UT42 | 32.0 | 18.0 | | | 251 | 526 | 043 | 148 | 38 | 06 | 307 | | 022 | 278 | 0.64 | | 0.08 | | | 03.1 | | 843 | |
| 51072 | UT42 | 33.0 | 18.0 | | 907 | 269 | 495 | 040 | 129 | 42 | 06 | 329 | | 036 | | 0.57 | | 0.08 | | | 02.6 | | 582 | |
| 61670 | UT43 | | | | | | 364 | 24 | 98 | 29 | 7 | | | 21 | | | | | | | | | | |
| 70470 | UT43 | 19.6 * | | | | 200 | 387 | 41 | 99 | 34 | 6 | 245 | | 44 | 130 | 1.31 | | 5.20 | | | | | | |
| 71470 | UT43 | 8.1 * | | | | 202 | 391 | 74 | 99 | 35 | 9 | 247 | | 53 | 124 | 1.40 | | 4.30 | | | | | | |
| 71770 | UT43 | 9.2 | 20.0 | 7.70 | | | 205 | | | | | | | | | 0.30 | | 1.45 | | | | 6.0 | 543 | 20 |
| 73170 | UT43 | 6.5 | 19.5 | 7.80 | | | | | | | | | | | | 0.90 | | 3.00 | | | | 5.0 | 552 | 8 |
| 81170 | UT43 | 6.5 | | 0. | | 255 | 333 | 10 | 84 | 30 | 10 | 208 | 5.1 | 52 | 116 | 3.43 | | 2.80 | | | | | | |
| 82870 | UT43 | 6.2 | 18.0 | 7.65 | | | | | | | | | | 88 | | 0.32 | | 1.35 | | | | 6.0 | 627 | 10 |
| 101570 | UT43 | 5.0 | 8.0 | 7.70 | | | | | | | | | | 50 | | 1.40 | | 2.25 | | | | 5.0 | 532 | 40 |
| 102370 | UT43 | 7.3 * | | 7.00 | | | | | 53 | | | | | | 32 | | | | | | | | | |
| 102970 | UT43 | 3.7 * | 6.5 | 7.95 | 864 | | | | | | | | | 63 | | 1.10 | | 1.85 | | | | 7.0 | 571 | |
| 111270 | UT43 | 4.8 | 8.0 | 8.25 | 945 | | | | | | | | | 63 | | 1.40 | | 1.90 | | | | 6.0 | 606 | 21 |
| 112670 | UT43 | 5.5 | 8.0 | 7.70 | 508 | | | | | | | | | 75 | | 0.06 | | 1.30 | | | | 7.0 | 640 | 130 |
| 121070 | UT43 | 7.0 | 6.5 | 7.90 | 915 | | | | | | | | | 75 | | 1.70 | | 0.61 | | | | 7.0 | | 12 |
| 122370 | UT43 | 7.1 * | 6.5 | 7.85 | 944 | | | | | | | | | 65 | | 0.57 | | 1.10 | | | | 8.0 | 654 | |
| 10571 | UT43 | 9.5 * | | 8.20 | | 226 | 468 | 35 | 110 | 47 | 6 | 276 | 2.0 | 37 | | 1.94 | | 3.4 | | | | | 582 | |
| 11471 | UT43 | 11.8 | 4.0 | 8.15 | 944 | | | | | | | | | 75 | | 1.40 | | 3.10 | | | | 8.0 | 640 | |
| 11671 | UT43 | 11.8 * | | 8.50 | 805 | 235 | 472 | 39 | 110 | 48 | | 287 | 4.2 | 56 | | 1.46 | 1.32 | 3.2 | | | | | 745 | |
| 20271 | UT43 | 11.4 * | 8.0 | 8.80 | 812 | | | | | | | | | | | 1.20 | | 1.90 | | | | 6.0 | 600 | |

| DATE | STA | FLOW | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21671 | UT43 | 11.8 * | 13.0 | 7.95 | 810 | 197 | | | | | | 241 | 1.0 | | | 1.36 | | 2.25 | | | | 8.0 | 570 | |
| 30471 | UT43 | 12.7 * | | 7.80 | 825 | | | | | | | | | | | 1.21 | 0.84 | 2.68 | | | | | | |
| 30871 | UT43 | 13.6 * | | | | | | | | | | | | | | | | | | | | | 625 | |
| 31171 | UT43 | 13.8 * | | 7.85 | 750 | | | | | | | | | | | 1.41 | 0.03 | 2.27 | | | | | 643 | |
| 31871 | UT43 | 12.5 * | | 7.88 | 760 | | | | | | | | | | | 1.48 | 0.68 | 2.54 | | | | | 640 | |
| 32571 | UT43 | 13.6 * | | 7.60 | 780 | | | | | | | | | | | 1.34 | 0.24 | 2.54 | | | | | 590 | |
| 40171 | UT43 | 15.4 * | | 7.54 | 730 | | | | | | | | | | | 2.12 | . | 2.54 | | | | | 579 | |
| 42271 | UT43 | 15.1 * | | 7.80 | 790 | | | | | | | | | | | 1.68 | 0.34 | 2.15 | | | | | 624 | |
| 42771 | UT43 | 15.1 * | | 7.80 | 740 | 205 | 471 | 51 | 113 | 46 | 11 | 251 | 0.7 | 51 | 210 | 1.86 | 0.29 | 1.96 | | | | | 682 | |
| 50871 | UT43 | 17.3 * | | 8.00 | 650 | | | | | | | | | | | 2.04 | 0.64 | 1.95 | | | | | | |
| 51371 | UT43 | 16.4 * | | 7.90 | 700 | 208 | | | | | | 254 | 0.9 | | | 1.15 | 0.01 | 2.06 | | | | | | |
| 52071 | UT43 | 12.6 * | | 8.35 | 630 | | | | | | | | | | | 1.70 | 0.46 | 2.70 | | | | | | |
| 61571 | UT43 | 8.0 | | 7.98 | 630 | | | | | | | | | | | | | 1.51 | | | | | | |
| 62271 | UT43 | 7.0 | | 8.19 | 700 | | | | | | | | | | | | | 3.31 | | | | | | |
| 62971 | UT43 | 5.9 | | 7.88 | 710 | | | | | | | | | | | | | 3.26 | | | | | | |
| 71371 | UT43 | | | 7.90 | 640 | | | | | | | | | | | | | 2.82 | | | | | | |
| 72071 | UT43 | 12.0 | | 7.70 | 690 | | | | | | | | | | | | | 2.91 | | | | | | |
| 72971 | UT43 | 3.9 * | | 7.90 | 730 | | | | | | | | | | | | | 3.78 | | | | | | |
| 80471 | UT43 | 6.5 * | | 7.20 | 730 | | | | | | | | | | | | | 2.13 | | | | | | |
| 31672 | UT43 | 10.0 | 18.0 | | | 245 | 404 | 040 | 109 | 32 | 05 | 300 | | 034 | 149 | 1.20 | | 0.69 | | | 03.5 | | 671 | |
| 32372 | UT43 | 0308 | 13.0 | | | 208 | 378 | 037 | 102 | 30 | 05 | 254 | | 011 | 122 | 1.73 | | 0.93 | | | 00.4 | | 564 | |
| 33072 | UT43 | 08.8 | 16.0 | | | 245 | 220 | 018 | 67 | 13 | 02 | 299 | | 036 | 037 | 2.05 | | 0.91 | | | 03.4 | | 475 | |
| 40572 | UT43 | 08.2 | 16.0 | | 616 | | 271 | 034 | 61 | 29 | 05 | | | 045 | | 2.10 | | 0.85 | | | 01.1 | | 0495 | |
| 41372 | UT43 | 09.9 | 10.0 | | 756 | 263 | 383 | 033 | 104 | 30 | 06 | 321 | | 039 | 134 | 1.78 | | 0.50 | | | 04.7 | | 669 | |
| 41972 | UT43 | 10.2 | 09.5 | | | 245 | 370 | 030 | 99 | 30 | 05 | 300 | | 039 | | 1.23 | | 0.36 | | | 02.5 | | 0511 | |
| 42672 | UT43 | 08.8 | 13.0 | | 767 | 240 | 385 | 040 | 100 | 33 | 08 | 293 | | 044 | 131 | 1.88 | | 0.96 | | | 02.7 | | 0479 | |
| 50372 | UT43 | | 19.5 | | 864 | 230 | 376 | 047 | 103 | 29 | 06 | 281 | | 060 | 117 | 3.55 | | 0.60 | | | 04.6 | | 647 | |
| 51072 | UT43 | | 18.5 | | 648 | 276 | 357 | 030 | 92 | 31 | 04 | 337 | | 027 | | 1.23 | | 0.47 | | | 02.3 | | 523 | |
| 82669 | UT44 | | 24.6 | 8.50 | | | | | | | | | | | | | | | | | | | | 021 |
| 90269 | UT44 | | 21.5 | 8.60 | | | | | | | | | | | | | | | | | | | | 023 |
| 90969 | UT44 | | 20.3 | 8.40 | | | | | | | | | | | | | | | | | | 05.6 | | 020 |
| 50570 | UT44 | | | 8.10 | 320 | 136 | 166 | 7 | 50 | 10 | 2 | 164 | 1.1 | 19 | 26 | 0.45 | | 0.10 | | 1500 | 3.2 | | | |
| 60270 | UT44 | | | 7.75 | 745 | 237 | 374 | 23 | 97 | 32 | 5 | 288 | 0.9 | 40 | 131 | 1.70 | | 2.10 | | 2300 | 2.5 | | | |
| 63070 | UT44 | .4 * | | 7.75 | 815 | 254 | 402 | 28 | 97 | 39 | 7 | 309 | 1.0 | 47 | 146 | 0.52 | | 2.20 | | 2300 | 3.0 | | | |
| 71770 | UT44 | 2.6 * | | | | | | | | | | | | | | | | | | | | | 543 | |
| 73170 | UT44 | 1.0 | | | | | | | | | | | | | | | | | | | | | 552 | |
| 82870 | UT44 | 1.6 * | | | | | | | | | | | | | | | | | | | | | 627 | |
| 90170 | UT44 | 4.1 * | | 8.00 | 750 | 253 | 374 | 40 | 97 | 32 | 5 | 306 | 1.7 | 47 | 107 | 1.24 | | 2.40 | 0.50 | 3000 | 3.6 | | | |
| 92370 | UT44 | 5.5 * | | 8.10 | | 104 | 206 | 17 | 53 | 18 | 2 | 128 | 0.7 | 14 | 32 | 1.11 | | 0.10 | | | | | | |
| 100570 | UT44 | 9.2 * | | | | | | | | | | | | | | | | | | 2300 | 3.2 | | | |
| 110270 | UT44 | 27.5 * | | 8.25 | 490 | 204 | 244 | 12 | 65 | 20 | 4 | 244 | 2.4 | 22 | 41 | 0.66 | | 0.10 | | 2300 | 2.7 | | | |
| 111670 | UT44 | 33.1 * | | 7.80 | . | 172 | 239 | 14 | 68 | 17 | 3 | 211 | 0.6 | 11 | 53 | 0.83 | | | | | | | | |
| 113070 | UT44 | 36.2 * | | 8.30 | 510 | 221 | 249 | 13 | 72 | 17 | 2 | 264 | 2.9 | 21 | 44 | 0.79 | | 0.20 | | 4300 | 2.5 | | | |
| 121470 | UT44 | 32.9 * | | 8,20 | | 129 | 235 | 24 | 68 | 16 | 2 | 158 | 1.1 | 31 | 28 | 0.82 | | 0.50 | | | | | | |
| 10471 | UT44 | 31.3 * | | | | | | | | | | | | | | | | | | | 7.8 | | | |
| 10571 | UT44 | 31.1 * | | 8.20 | 470 | 222 | 270 | 10 | 73 | 21 | 3 | 266 | 2.3 | 18 | 38 | 1.06 | | 0.20 | 0.13 | 2300 | | | 433 | 15 |
| 11671 | UT44 | 32.9 * | | 8.30 | 365 | 156 | 249 | 10 | 75 | 15 | | 183 | 4.0 | 29 | | 0.80 | 0.06 | 0.30 | | | | | 344 | |
| 20271 | UT44 | 33.0 * | 6.0 | 8.40 | 588 | | | | | | | | | | | | | | | | | 7.0 | 281 | |
| 20871 | UT44 | 33.0 * | | 8.25 | 480 | 206 | 242 | 11 | 69 | 17 | 2 | 247 | 2.4 | 29 | 43 | 0.66 | | 0.10 | | 4300 | 6.8 | | | |
| 21671 | UT44 | 33.4 * | 9.5 | 8.25 | 440 | 151 | | | | | | 185 | 1.5 | | | 0.79 | 0.03 | | | | | 10.0 | 259 | |

| DATE | STA | FLOW | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30271 | UT44 | 33.0 * | | 7.70 | 480 | 207 | 245 | 9 | 72 | 16 | 2 | 252 | 0.7 | 20 | 42 | 1.13 | | 0.10 | | 430 | 7.0 | | 415 | |
| 30471 | UT44 | 33.0 * | | 8.12 | 460 | | | | | | | | | | | 0.83 | 0.02 | | | | | | | |
| 31171 | UT44 | 33.0 * | | 8.10 | 410 | | | | | | | | | | | 0.76 | 0.04 | 0.03 | | | | | 331 | |
| 31871 | UT44 | 33.6 * | | 8.15 | 430 | | | | | | | | | | | 0.78 | | 0.04 | | | | | 323 | |
| 32571 | UT44 | 38.7 * | | 8.10 | 410 | | | | | | | | | | | 0.66 | | 0.09 | | | | | 256 | |
| 40171 | UT44 | 45.7 * | | 8.10 | 310 | | | | | | | | | | | 0.58 | 0.03 | 0.04 | | | | | 213 | |
| 40671 | UT44 | 44.3 * | | 8.15 | 320 | 132 | 160 | 6 | 46 | 11 | 2 | 159 | 1.2 | 5 | 29 | 0.54 | | 0.10 | | 1500 | 7.5 | | 260 | |
| 42271 | UT44 | 44.3 * | | 8.20 | 265 | | | | | | | | | | | 0.48 | 0.02 | 0.08 | | | | | 221 | |
| 42771 | UT44 | 44.7 * | | | | 204 | 182 | 9 | 58 | 9 | 3 | 250 | | 4 | 25 | 0.45 | | 0.20 | | | | | | |
| 50871 | UT44 | 39.7 * | | | 255 | | | | | | | | | | | 0.38 | 0.04 | 0.15 | | | | | | |
| 51371 | UT44 | 35.6 * | | 8.25 | 285 | 125 | | | | | | 151 | 1.2 | | | 0.40 | | 0.16 | | | | | | |
| 52071 | UT44 | 37.8 * | | 8.50 | 320 | | | | | | | | | 6 | | 0.53 | | 0.17 | | | | | | |
| 60871 | UT44 | 13.0 * | | 8.10 | 430 | | | | | | | | | | | 0.86 | | 0.17 | | | | | | |
| 61571 | UT44 | 14.0 | | 8.40 | 430 | | | | | | | | | | | | | 0.25 | | | | | | |
| 62271 | UT44 | 3.0 | | 8.10 | 470 | | | | | | | | | | | | | 0.18 | | | | | | |
| 62971 | UT44 | 5.0 | | 8.27 | 450 | | | | | | | | | | | | | 0.14 | | | | | | |
| 71371 | UT44 | | | 7.80 | 690 | | | | | | | | | | | | | 0.50 | | | | | | |
| 72071 | UT44 | 3.8 * | | 8.10 | 610 | | | | | | | | | | | | | 0.51 | | | | | | |
| 72971 | UT44 | 2.9 * | | 7.80 | 610 | | | | | | | | | | | | | 1.42 | | | | | | |
| 31672 | UT44 | 40.5 | 09.0 | | | 159 | 184 | 010 | 59 | 9 | 01 | 195 | | 005 | 031 | 0.70 | | 0.04 | | | 02.9 | | 0355 | |
| 32372 | UT44 | 38.0 | 09.0 | | | 131 | 190 | 090 | 58 | 11 | 02 | 160 | | 007 | 031 | 0.70 | | 0.14 | | | 00.8 | | | |
| 33072 | UT44 | 33.8 | 09.0 | | | 187 | 295 | 018 | 67 | 31 | 02 | 229 | | 005 | 037 | 0.63 | | 0.05 | | | 00.7 | | 390 | |
| 40572 | UT44 | 33.3 | 10.5 | | | | | | | | | | | | | | | | | | | | | |
| 41372 | UT44 | 38.2 | 08.0 | | 605 | 169 | 183 | 007 | 57 | 10 | 02 | 207 | | 004 | 012 | 0.48 | | 0.05 | | | 01.5 | | 300 | |
| 41972 | UT44 | 37.5 | 05.0 | | | 168 | 181 | 008 | 56 | 10 | 01 | 206 | | 005 | | 0.38 | | 0.03 | | | 00.8 | | 286 | |
| 42672 | UT44 | 34.2 | 07.2 | | 356 | 167 | 185 | 010 | 56 | 11 | 02 | 204 | | 004 | 030 | 0.46 | | 0.06 | | | 01.0 | | 318 | |
| 50372 | UT44 | | | | | | | | | | | | | | | | | | | | | | | |
| 51072 | UT44 | | | | | | | | | | | | | | | | | | | | | | | |
| 81969 | UT45 | | 24.3 | 8.70 | | | | | | | | | | | | | | | | | | | | 032 |
| 82669 | UT45 | | 23.4 | 8.50 | | | | | | | | | | | | | | | | | | | | 040 |
| 90269 | UT45 | | 23.5 | 8.80 | | | | | | | | | | | | | | | | | | | | 029 |
| 90969 | UT45 | | 20.7 | 8.30 | | | | | | | | | | | | | | | | | | 05.5 | | 026 |
| 50570 | UT45 | | | 8.20 | 1200 | 379 | 364 | 130 | 75 | 43 | 12 | 455 | 4.0 | 102 | 124 | 2.24 | | 3.50 | | 2300 | 8.0 | | | |
| 60270 | UT45 | | | 7.75 | 770 | 329 | 389 | 36 | 90 | 40 | 40 | 400 | 1.2 | 57 | 83 | 2.24 | | 0.20 | | 2300 | 6.6 | | | |
| 61670 | UT45 | 9.2 * | | | | | 328 | 47 | 77 | 33 | 7 | | | 29 | | | | | | | | | | |
| 63070 | UT45 | 9.5 * | | 7.55 | 960 | 379 | 445 | 50 | 96 | 50 | 4 | 461 | 0.9 | 42 | 107 | 2.24 | | 0.20 | | 4300 | 8.5 | | | |
| 70470 | UT45 | 5.7 * | | | | 251 | 351 | 43 | 83 | 35 | 7 | 307 | | 26 | 104 | 2.24 | | 0.40 | | | | | | |
| 71470 | UT45 | 8.2 * | | | | 231 | 334 | 46 | 81 | 32 | 6 | 283 | | 26 | 70 | 1.47 | | 0.40 | | | | | | |
| 71770 | UT45 | 10.0 | 18.5 | 7.60 | 430 | | 256 | | | | | | | | | 0.75 | | 0.03 | | | | 6.0 | 508 | 150 |
| 73170 | UT45 | 8.5 | 17.5 | 7.60 | | | 239 | | | | | | | | | 1.70 | | 0.18 | | | | 7.0 | 483 | 25 |
| 80470 | UT45 | 8.7 * | | | | | | | | | | | | | | | | | | | 3.0 | | | |
| 81170 | UT45 | 8.4 | | | | 258 | 329 | 83 | 43 | 54 | 9 | 303 | 6.0 | 46 | 144 | 2.24 | | 1.20 | | | | | | |
| 81470 | UT45 | 9.8 | 18.0 | 7.55 | | | | | | | | | | 75 | | 1.58 | | 0.37 | | | | 5.0 | | 5 |
| 82870 | UT45 | 9.5 | 18.0 | 7.50 | | | | | | | | | | 75 | | 1.64 | | 0.09 | | | | 5.0 | 552 | 10 |
| 90170 | UT45 | 8.7 * | | 8.20 | 835 | 346 | 368 | 65 | 80 | 41 | 5 | 416 | 3.6 | 49 | 93 | 2.24 | | 1.10 | 0.35 | 300 | 3.7 | | | |
| 92370 | UT45 | 7.5 * | | 8.60 | | 250 | 431 | 81 | 82 | 55 | 6 | 301 | 2.0 | 51 | 131 | 3.59 | | 0.20 | | | | | | |
| 100570 | UT45 | 6.2 * | | | | | | | | | | | | | | | | | | 930 | 4.0 | | | |
| 101570 | UT45 | 9.8 * | 9.0 | 7.70 | | | | | | | | | | 75 | | 1.50 | | 0.26 | | | | 9.0 | 649 | 35 |
| 102970 | UT45 | 10.1 * | 8.5 | 7.92 | 1186 | | | | | | | | | 100 | | 2.10 | | 0.09 | | | | 8.0 | 735 | 8 |
| 110270 | UT45 | 2.9 * | | 7.85 | 1170 | 408 | 441 | 95 | 91 | 52 | 5 | 494 | 1.9 | 70 | 152 | 2.15 | | 0.30 | | 7500 | 3.6 | | | |

| DATE | STA | FLOW | | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 111270 | UT45 | 3.2 | | 9.0 | 7.70 | 1105 | | | | | | | | | 87 | | 1.15 | | 0.06 | | | | 9.0 | 673 | 190 |
| 112670 | UT45 | 2.9 | | 8.0 | 7.70 | 428 | | | | | | | | | 150 | | 0.04 | | 0.13 | | | | 9.0 | 824 | 270 |
| 113070 | UT45 | 3.4 | * | | 8.25 | 1435 | 456 | 407 | 175 | 74 | 54 | 19 | 546 | 5.4 | 130 | 181 | 0.79 | | 2.50 | | 2300 | 4.1 | | | |
| 121070 | UT45 | 3.6 | | 7.0 | 7.75 | 1246 | | | | | | | | | 125 | | 1.90 | | 0.21 | | | | 8.0 | | 28 |
| 122370 | UT45 | 3.5 | * | 6.0 | 7.85 | 1286 | | | | | | | | | 125 | | 0.53 | | 0.17 | | | | 9.0 | 839 | |
| 10471 | UT45 | 3.1 | * | | | | | | | | | | | | | | | | | | | 6.5 | | | |
| 10571 | UT45 | 3.1 | * | | | | | | | | | | | | | | | | | | 430 | | | | |
| 11471 | UT45 | 2.8 | | 5.0 | 7.85 | 1396 | | | | | | | | | 138 | | 1.64 | | 3.90 | | | | 7.0 | 957 | 15 |
| 20271 | UT45 | 3.0 | * | 8.0 | 8.55 | 1296 | | | | | | | | | | | 1.45 | | 1.60 | | | | 7.0 | 1150 | |
| 20871 | UT45 | 3.1 | * | | 7.90 | 1480 | 461 | 524 | 125 | 98 | 68 | 5 | 558 | 2.4 | 103 | 235 | 2.26 | | 0.10 | | 930 | 4.8 | | | |
| 30271 | UT45 | 2.8 | * | | 7.90 | 1315 | 420 | 479 | 105 | 93 | 60 | 4 | 509 | 2.2 | 100 | 202 | 2.21 | | 0.20 | | 430 | 5.0 | | | |
| 30471 | UT45 | 2.8 | * | | 7.75 | 1185 | | | | | | | | | | | 2.66 | 0.02 | 0.11 | | | | | | |
| 31171 | UT45 | 2.9 | * | | 7.97 | 1085 | | | | | | | | | | | 2.07 | | 0.15 | | | | | 897 | |
| 32571 | UT45 | 2.5 | * | | 7.80 | 1165 | | | | | | | | | | | 2.13 | | 0.24 | | | | | 874 | |
| 40671 | UT45 | 2.9 | * | | 8.00 | 1300 | 435 | 497 | 120 | 92 | 65 | 4 | 526 | 2.9 | 82 | 202 | 2.49 | | 0.20 | | 430 | 5.0 | | 1097 | |
| 42771 | UT45 | 3.2 | * | | 7.90 | | 312 | 395 | 190 | 76 | 50 | 10 | 381 | 1.4 | 96 | 408 | 0.78 | 0.08 | 0.31 | | | | | 1212 | |
| 60371 | UT45 | 11.9 | * | | 7.77 | 890 | | | | | | | | | | | 0.96 | | 0.32 | | | | | | |
| 61571 | UT45 | 4.8 | | | 8.05 | 860 | | | | | | | | | | | | | 0.35 | | | | | | |
| 62271 | UT45 | 7.1 | | | 7.95 | 840 | | | | | | | | | | | | | 0.52 | | | | | | |
| 62971 | UT45 | 7.0 | | | 7.75 | 1005 | | | | | | | | | | | | | 0.23 | | | | | | |
| 71371 | UT45 | 6.2 | | | 7.80 | 820 | | | | | | | | | | | | | 0.52 | | | | | | |
| 72071 | UT45 | 6.7 | | | 7.80 | 800 | | | | | | | | | | | | | 0.44 | | | | | | |
| 72971 | UT45 | | | | 7.90 | 930 | | | | | | | | | | | | | 1.84 | | | | | | |
| 40572 | UT45 | 05.6 | | 14.5 | | 443 | | 159 | 024 | 16 | 29 | 04 | | | 022 | | 1.30 | | 0.08 | | | 01.1 | | | |
| 41972 | UT45 | 05.2 | | 10.4 | | | 331 | 318 | 023 | 83 | 27 | 05 | 405 | | 021 | | 1.25 | | 0.03 | | | 00.3 | | 565 | |
| 31672 | UT46 | 03.0 | | 14.0 | | | 357 | 438 | 200 | 93 | 50 | 04 | 436 | | 058 | 175 | 1.50 | | 0.08 | | | 01.1 | | 1017 | |
| 32372 | UT46 | 03.2 | | 12.0 | | | 281 | 428 | 085 | 94 | 47 | 05 | 343 | | 053 | 133 | 1.90 | | 0.11 | | | 01.9 | | 762 | |
| 33072 | UT46 | 03.0 | | 12.0 | | | | | | | | | | | | | | | | | | | | | |
| 40572 | UT46 | 03.3 | | 11.0 | | | | 244 | 084 | 22 | 46 | 03 | | | | | 1.68 | | | | | 01.0 | | | |
| 41372 | UT46 | 03.3 | | 09.0 | | 680 | 341 | 336 | 058 | 77 | 35 | 03 | 417 | | 040 | 098 | | | 0.08 | | | 03.2 | | 728 | |
| 41972 | UT46 | 03.4 | | 11.0 | | | 304 | 269 | 046 | 70 | 23 | 03 | 372 | | 031 | | 1.05 | | 0.05 | | | 01.5 | | 546 | |
| 50372 | UT46 | 03.9 | | 16.0 | | 950 | 354 | 347 | 080 | 73 | 40 | 08 | 433 | | 046 | 103 | 1.60 | | 0.21 | | | 02.4 | | 0785 | |
| 51072 | UT46 | 03.9 | | 17.0 | | 605 | 326 | 393 | 036 | 80 | 47 | 07 | 398 | | 023 | | 0.75 | | 0.22 | | | 03.1 | | 592 | |
| 81969 | UT47 | | | 23.3 | 9.50 | | | | | | | | | | | | | | | | | | 16.4 | | 019 |
| 82669 | UT47 | | | 22.1 | 8.30 | | | | | | | | | | | | | | | | | | 07.4 | | 018 |
| 90269 | UT47 | | | 23.3 | 9.60 | | | | | | | | | | | | | | | | | | 14.2 | | 022 |
| 90969 | UT47 | | | 19.7 | 8.80 | | | | | | | | | | | | | | | | | | 07.2 | | 020 |
| 20271 | UT47 | 20.5 | * | 6.0 | 9.05 | 1708 | | | | | | | | | | | 0.68 | | 0.44 | | | | 8.0 | 1150 | |
| 21671 | UT47 | 22.8 | * | 9.0 | 8.20 | 1445 | 387 | | | | | | 473 | 3.5 | | | 3.10 | 0.30 | 2.05 | | | | 9.0 | 1010 | |
| 30471 | UT47 | 19.7 | * | | 8.26 | 1305 | | | | | | | | | | | 3.18 | 0.52 | 2.68 | | | | | | |
| 31171 | UT47 | 20.6 | * | | 8.10 | 1325 | | | | | | | | | | | 2.66 | 0.66 | 2.27 | | | | | | |
| 31871 | UT47 | 19.9 | * | | 8.02 | 1180 | | | | | | | | | | | 2.86 | 0.67 | 2.18 | | | | | 936 | |
| 32571 | UT47 | 19.7 | * | | 8.10 | 1265 | | | | | | | | | | | 2.63 | 0.31 | 2.05 | | | | | 922 | |
| 40171 | UT47 | 18.3 | * | | 8.00 | 1365 | | | | | | | | | | | 3.62 | | 2.85 | | | | | 800 | |
| 42271 | UT47 | 21.5 | * | | 8.25 | 1525 | | | | | | | | | | | 1.97 | 0.15 | 1.81 | | | | | 1172 | |
| 42771 | UT47 | 21.4 | * | | 8.30 | 1365 | | | | | | | | | | 251 | 2.96 | 1.44 | 2.70 | | | | | 1186 | |
| 50871 | UT47 | 11.6 | * | | 8.22 | 1135 | | | | | | | | | | | 2.35 | 0.47 | 2.68 | | | | | | |
| 51371 | UT47 | 1.1 | * | | 8.20 | 800 | | | | | | | | | | | 2.30 | 0.03 | 1.42 | | | | | | |
| 52071 | UT47 | 1.1 | * | | 8.80 | 1125 | | | | | | | | | | | 2.74 | 0.30 | 2.48 | | | | | | |
| 61571 | UT47 | 20.6 | * | | 8.07 | 990 | | | | | | | | | | | | | 2.82 | | | | | | |

| DATE | STA | FLOW | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 62271 | UT47 | .5 | | 8.00 | 980 | | | | | | | | | | | | | 4.17 | | | | | | |
| 62971 | UT47 | 7.0 | | 8.00 | 900 | | | | | | | | | | | | | 1.26 | | | | | | |
| 71371 | UT47 | 5.4 | | 7.90 | 910 | | | | | | | | | | | | | 2.71 | | | | | | |
| 72071 | UT47 | 1.0 * | | 8.00 | 960 | | | | | | | | | | | | | 1.78 | | | | | | |
| 72971 | UT47 | 17.9 * | | 8.10 | 1015 | | | | | | | | | | | | | 5.76 | | | | | | |
| 80471 | UT47 | 8.1 * | | 7.90 | 1145 | | | | | | | | | | | | | 3.44 | | | | | | |
| 31672 | UT47 | 37.0 | 16.0 | | | 441 | 341 | 158 | 56 | 49 | 12 | 539 | | 092 | 119 | 1.56 | | 0.44 | | | 06.3 | | 1027 | |
| 32372 | UT47 | 37.0 | 10.0 | | | | 393 | 136 | 80 | 47 | 15 | | | 123 | 145 | 2.40 | | 1.78 | | | 02.3 | | | |
| 33072 | UT47 | 38.2 | 11.0 | | | 477 | | | | | | 582 | | 109 | | 2.44 | | 1.40 | | | 05.6 | | | |
| 40572 | UT47 | 17.2 | 13.0 | | 691 | | 220 | 076 | 34 | 33 | 06 | | | | | 1.94 | | 0.53 | | | | | | |
| 41372 | UT47 | 18.0 | 08.0 | | | 126 | 174 | 082 | 27 | 26 | 06 | 154 | | | 831 | | | | | | 03.9 | | | |
| 41972 | UT47 | 21.0 | 07.0 | | | 403 | 250 | 210 | 59 | 25 | 09 | 492 | | 142 | | 1.90 | | 0.75 | | | 06.0 | | 940 | |
| 42672 | UT47 | 17.2 | 10.5 | | 994 | 362 | 328 | 122 | 72 | 36 | 10 | 442 | | 094 | 136 | 2.26 | | 1.14 | | | 07.0 | | 915 | |
| 50372 | UT47 | 16.6 | 15.5 | | | | | | | | | | | | | | | | | | | | | |
| 51072 | UT47 | 16.5 | 17.0 | | 994 | 412 | 373 | 115 | 77 | 44 | 09 | 503 | | 076 | | 3.56 | | 0.08 | | | 04.1 | | 828 | |
| 81969 | UT48 | | 24.2 | 8.80 | | | | | | | | | | | | | | | | | | | | 031 |
| 82669 | UT48 | | 25.3 | 8.60 | | | | | | | | | | | | | | | | | | | | 025 |
| 90269 | UT48 | | 23.9 | 8.90 | | | | | | | | | | | | | | | | | | | | 032 |
| 90969 | UT48 | | 21.2 | 8.50 | | | | | | | | | | | | | | | | | | 06.4 | | 022 |
| 50570 | UT48 | 119. | | 8.10 | 630 | 222 | 271 | 40 | 69 | 24 | 3 | 267 | 1.9 | 42 | 75 | 0.36 | | 0.20 | | 9300 | 7.8 | | | |
| 60270 | UT48 | 13. | | 7.70 | 1100 | 356 | 396 | 120 | 83 | 46 | 5 | 432 | 1.2 | 96 | 158 | 0.47 | | 0.20 | | 9300 | 8.9 | | | |
| 61670 | UT48 | 101. | | | | | 269 | 38 | 65 | 26 | 6 | | | 32 | | | | | | | | | | |
| 63070 | UT48 | 3. | | 7.85 | 675 | 240 | 270 | 45 | 59 | 30 | 4 | 291 | 1.1 | 47 | 76 | 0.36 | | 0.20 | | 3000 | 9.3 | | | |
| 70470 | UT48 | 2. | | | | 326 | 447 | 182 | 90 | 54 | 10 | 398 | | 123 | 190 | 0.29 | | 1.20 | | | | | | |
| 71470 | UT48 | 1. | | | | 325 | 453 | 173 | 91 | 55 | 9 | 397 | | 111 | 223 | 0.54 | | 0.30 | | | | | | |
| 71770 | UT48 | 3. | 22.0 | 7.55 | 470 | | 240 | | | | | | | | | 0.31 | | 0.17 | | | | 6.0 | 518 | 120 |
| 73170 | UT48 | 5. | 18.5 | 7.80 | | | | | | | | | | | | 1.00 | | 0.90 | | | | 5.5 | 802 | |
| 80470 | UT48 | 10. | | | | | | | | | | | | | | | | | | | 2.4 | | | |
| 91170 | UT48 | 3. | | | | 166 | 189 | 21 | 46 | 18 | 6 | 177 | 13.0 | 21 | 55 | 0.38 | | 0.60 | | | | | | |
| 31470 | UT48 | | 21.5 | 8.90 | | | | | | | | | | 100 | | 0.66 | | 0.11 | | | | 9.0 | | 65 |
| 82870 | UT48 | 17. | 18.5 | 7.85 | | | | | | | | | | 75 | | 0.28 | | 0.07 | | | | 7.0 | 868 | 190 |
| 90170 | UT48 | 6. | | 8.20 | 875 | 277 | 298 | 90 | 57 | 38 | 3 | 333 | 2.9 | | 117 | 0.45 | | 0.50 | 0.37 | | 8.3 | | | |
| 92370 | UT48 | 54. | | 8.10 | | 147 | 268 | 50 | 63 | 27 | 5 | 180 | 1.0 | 39 | 86 | 0.36 | | | | 3 | | | | |
| 100570 | UT48 | 33. | | | | | | | | | | | | | | | | | | 3000 | 6.4 | | | |
| 101570 | UT48 | | 6.0 | 8.10 | | | | | | | | | | 87 | | 0.35 | | 0.48 | | | | 10.0 | 526 | 35 |
| 102970 | UT48 | | 4.0 | 8.22 | 814 | | | | | | | | | 75 | | 0.30 | | 0.07 | | | | 11.0 | 481 | 23 |
| 110270 | UT48 | 78. | | 8.10 | 785 | 246 | 293 | 45 | 68 | 30 | 4 | 296 | 2.1 | 61 | 101 | 0.34 | | | | 7500 | 3.3 | | | |
| 111270 | UT48 | | 5.5 | 8.25 | 905 | | | | | | | | | 75 | | 0.13 | | 0.07 | | | | 7.0 | 489 | 35 |
| 111670 | UT48 | 85. | | 8.30 | | 214 | 310 | 65 | 73 | 31 | 7 | 262 | 2.4 | 53 | 101 | 0.45 | | | | | | | | |
| 112670 | UT48 | | 7.0 | 8.10 | | | | | | | | | | 63 | | 0.06 | | 0.04 | | | | 9.0 | 483 | 260 |
| 113070 | UT48 | 101. | | 7.95 | 855 | 258 | 318 | 70 | 78 | 30 | 5 | 312 | 1.5 | 70 | 113 | 0.45 | | 0.20 | | 5000 | 10.8 | | | |
| 121070 | UT48 | | 2.5 | 8.20 | 710 | | | | | | | | | 75 | | 0.33 | | 0.05 | | | | 10.0 | | 50 |
| 121470 | UT48 | 89. | | 8.30 | | 196 | | 93 | | 34 | 5 | 235 | 2.2 | 69 | 117 | 0.61 | | | | | | | | |
| 122370 | UT48 | | 3.0 | 8.20 | 771 | | | | | | | | | 75 | | 0.22 | | 0.10 | | | | 8.0 | 487 | |
| 10471 | UT48 | 101. | | | | | | | | | | | | | | | | | | 7500 | | | | |
| 11471 | UT48 | | | 8.35 | 710 | | | | | | | | | 88 | | 0.33 | | 0.10 | | | | 9.0 | 499 | |
| 11671 | UT48 | 115. | | 8.50 | 610 | 183 | 347 | 47 | 88 | 31 | | 224 | 3.3 | 57 | | 0.59 | 0.06 | 0.26 | | | | | 589 | |
| 20271 | UT48 | | 5.0 | 9.00 | 791 | | | | | | | | | | | 0.32 | | 0.08 | | | | 8.0 | 485 | |
| 20871 | UT48 | 116. | | 8.10 | 880 | 274 | 329 | 60 | 74 | 35 | 5 | 330 | 2.3 | 70 | 105 | 0.50 | | 0.10 | | 930 | 10.2 | | | |
| 21671 | UT48 | 135. | 6.5 | 8.18 | 710 | 219 | | | | | | 268 | 1.9 | | | 0.58 | 0.10 | 0.62 | | | | 7.0 | 494 | |

| DATE | STA | FLOW | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30271 | UT48 | 100. | | 7.90 | 800 | 258 | 319 | 55 | 72 | 34 | 5 | 313 | 1.4 | 73 | 109 | 0.59 | | 0.10 | | 230 | 3.8 | | 663 | |
| 30471 | UT48 | 113. | | 8.25 | 770 | | | | | | | | | | | 0.62 | 0.04 | 0. | | | | | | |
| 31171 | UT48 | 125. | | 8.20 | 720 | | | | | | | | | | | 0.55 | 0.04 | 0.12 | | | | | 561 | |
| 31871 | UT48 | 129. | | 8.13 | 720 | | | | | | | | | | | 0.51 | | 0.14 | | | | | 532 | |
| 32571 | UT48 | 191. | | 8.00 | 590 | | | | | | | | | | | 0.45 | | 0.14 | | | | | 416 | |
| 40171 | UT48 | 212. | | 8.20 | 580 | | | | | | | | | | | 0.42 | 0.05 | 0.18 | | | | | 404 | |
| 40671 | UT48 | 214. | | 8.25 | 625 | 237 | 266 | 40 | 64 | 26 | 3 | 284 | 2.8 | 31 | 63 | 0.45 | | 0.10 | | 930 | 10.3 | | | |
| 42271 | UT48 | 191. | | 8.35 | 550 | | | | | | | | | | | 0.34 | 0.03 | 0.15 | | | | | 383 | |
| 42771 | UT48 | 263. | | 8.30 | 480 | 186 | 250 | 37 | 59 | 25 | 6 | 227 | 2.1 | 27 | 95 | 1.05 | 0.04 | 0.24 | | | | | 477 | |
| 51371 | UT48 | 207. | | 8.30 | 470 | 208 | | | | | | 236 | 9.0 | | | 0.37 | | 0.21 | | | | | | |
| 52071 | UT48 | 126. | | 8.40 | 520 | | | | | | | | | 26 | | 0.47 | | 0.28 | | | | | | |
| 60871 | UT48 | | | 8.02 | 630 | | | | | | | | | | | 0.52 | | 0.19 | | | | | | |
| 61571 | UT48 | | | 8.20 | 1325 | | | | | | | | | | | | | 0.26 | | | | | | |
| 62271 | UT48 | | | 8.10 | 470 | | | | | | | | | | | | | 0.23 | | | | | | |
| 62971 | UT48 | | | 7.93 | 1065 | | | | | | | | | | | | | 0.12 | | | | | | |
| 71371 | UT48 | | | 7.90 | 580 | | | | | | | | | | | | | 0.22 | | | | | | |
| 72071 | UT48 | | | 7.90 | 510 | | | | | | | | | | | | | 0.40 | | | | | | |
| 72971 | UT48 | | | 8.10 | 890 | | | | | | | | | | | | | 1.42 | | | | | | |
| 31672 | UT48 | 168. | 09.0 | | | 282 | 310 | 048 | 78 | 28 | 04 | 345 | | 033 | 071 | 0.42 | | 0.03 | | | 01.8 | | 607 | |
| 32372 | UT48 | 178. | 08.0 | | | | | | | | | | | | | | | | | | | | | |
| 33072 | UT48 | 155. | 07.0 | | | 213 | 259 | 055 | 56 | 29 | 04 | 261 | | 040 | 081 | 0.44 | | 0.04 | | | 00.0 | | 526 | |
| 40572 | UT48 | 103. | 10.0 | | 518 | | 181 | 048 | 25 | 29 | 03 | | | 043 | | 0.36 | | 0.06 | | | | | 0457 | |
| 41372 | UT48 | 130. | 08.0 | | | 281 | 276 | 042 | 71 | 24 | 03 | 343 | | 033 | 072 | 0.36 | | | | | 02.7 | | | |
| 41972 | UT48 | 166. | 06.5 | | | 295 | 258 | 038 | 64 | 24 | 03 | 361 | | 030 | | 0.24 | | 0.04 | | | 01.0 | | 520 | |
| 42672 | UT48 | 112. | 09.0 | | 594 | 269 | 276 | 041 | 68 | 26 | 03 | 329 | | 033 | 067 | 0.33 | | 0.06 | | | 01.0 | | 0710 | |
| 50372 | UT48 | 18. | 14.5 | | 907 | 337 | 340 | 073 | 82 | 33 | 05 | 412 | | 050 | 109 | 0.42 | | 0.10 | | | 01.2 | | 765 | |
| 51072 | UT48 | 32. | 13.0 | | 670 | 275 | 281 | 042 | 70 | 26 | 02 | 336 | | | | 0.47 | | | | | 00.7 | | 476 | |
| 40572 | UT49 | 00.6 | 13.2 | | | | 628 | 504 | 59 | 117 | 05 | | | | | 0.27 | | | | | 02.1 | | | |
| 41972 | UT49 | 01.1 | 08.7 | | | 495 | 448 | 343 | 64 | 70 | 20 | 605 | | 271 | | 1.42 | | 0.62 | | | 02.1 | | 1367 | |
| 51072 | UT49 | 00.7 | 19.0 | | 1998 | 471 | 579 | 328 | 77 | 94 | 12 | 575 | | 282 | | 0.66 | | 0.55 | | | 05.9 | | 1369 | |
| 31672 | UT50 | 02.6 | 17.0 | | | 762 | | 650 | 138 | 160 | 10 | 930 | | 650 | 896 | 0.70 | | 0.13 | | | 02.4 | | 3434 | |
| 32372 | UT50 | 02.6 | 12.0 | | | 231 | 866 | 648 | 85 | 159 | 10 | 283 | | 636 | 725 | 0.42 | | 0.46 | | | 01.8 | | | |
| 33072 | UT50 | 02.7 | 14.0 | | | 568 | | 689 | 139 | 183 | 10 | 693 | | 665 | 822 | 0.45 | | 0.10 | | | 01.2 | | 3202 | |
| 40572 | UT50 | 02.5 | 14.5 | | | | | 718 | 83 | 233 | 09 | | | 376 | | 0.40 | | 0.12 | | | 01.0 | | | |
| 41372 | UT50 | 02.7 | 11.0 | | | 610 | 390 | 540 | 130 | 16 | 13 | 745 | | 235 | 895 | 0.74 | | 0.10 | | | 01.9 | | | |
| 41972 | UT50 | 03.2 | 10.0 | | | 600 | | 683 | 145 | 229 | 11 | 733 | | 935 | | 0.49 | | 0.04 | | | 01.2 | | 3908 | |
| 50372 | UT50 | 04.1 | 18.5 | | | | | | | | | | | | | | | | | | | | | |
| 51072 | UT50 | 06.0 | 16.4 | | | 554 | 648 | 382 | 93 | 101 | 12 | 677 | | 352 | | 0.97 | | 0.22 | | | 02.5 | | | |
| 82669 | UT51 | | 24.9 | 8.70 | | | | | | | | | | | | | | | | | | | | 023 |
| 90269 | UT51 | | 22.9 | 8.70 | | | | | | | | | | | | | | | | | | | | 030 |
| 90969 | UT51 | | 22.5 | 8.50 | | | | | | | | | | | | | | | | | | 07.2 | | 030 |
| 50570 | UT51 | | | 8.25 | 1335 | 397 | 458 | 125 | 70 | 69 | 14 | 476 | 4.7 | 121 | 183 | 1.58 | | 0.60 | | 930 | 4.0 | | 1719 | |
| 60270 | UT51 | | | 7.95 | 1600 | 442 | 541 | 180 | 85 | 80 | 18 | 534 | 2.6 | 164 | 277 | 0.77 | | 0.50 | | 7500 | 6.0 | | | |
| 61670 | UT51 | 48.1 * | | | | | 449 | 139 | 81 | 60 | 18 | | | 106 | | | | | | | | | | |
| 63070 | UT51 | 15.4 * | | 8.30 | 1750 | 460 | 536 | 190 | 83 | 80 | 18 | 550 | 6.1 | 65 | 307 | 0.81 | | 0.20 | | 2000 | 4.8 | | | |
| 70470 | UT51 | 15.5 * | | | | 348 | 654 | 265 | 99 | 99 | 22 | 425 | | 256 | 346 | 0.61 | | 0.40 | | | | | | |
| 71470 | UT51 | 26.6 * | | | | 333 | 519 | 177 | 86 | 74 | 19 | 407 | | 131 | 250 | 1.45 | | 0.90 | | | | | | |
| 71770 | UT51 | 18.5 | 21.0 | 7.85 | 980 | | 394 | | | | | | | | | 1.05 | | 0.35 | | | | 5.0 | 1116 | 140 |
| 73170 | UT51 | 30.5 | 19.5 | 7.60 | | | 325 | | | | | | | | | 0.60 | | 0.18 | | | | 5.0 | 1045 | 45 |
| 80470 | UT51 | 29.3 * | | | | | | | | | | | | | | | | | | | 4.1 | | | |

| DATE | STA | FLOW | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 81170 | UT51 | 18.6 | | | | 323 | 389 | 192 | 44 | 68 | 13 | 378 | 8.0 | 155 | 278 | 0.66 | | 0.80 | | | | | | |
| 81470 | UT51 | 18.8 | 20.0 | 7.75 | | | | | | | | | | 350 | | 1.20 | | 0.41 | | | | | | 45 |
| 82870 | UT51 | 39.5 | 19.5 | 7.85 | | | | | | | | | | 175 | | 0.35 | | 0.15 | | | | 5.0 | 906 | 185 |
| 90170 | UT51 | 45.6 * | | 8.10 | 1215 | 400 | 425 | 140 | 73 | 59 | 16 | 482 | 3.3 | 110 | 173 | 0.68 | | 1.00 | 0.51 | 9300 | 5.8 | | | |
| 90970 | UT51 | | 22.5 | 8.50 | | | | | | | | | | | | | | | | | | 07.2 | | 030 |
| 92370 | UT51 | 52.3 * | | 8.70 | | 269 | 408 | 44 | 73 | 55 | 15 | 306 | 11.0 | 78 | 152 | 0.81 | | 0.70 | | | | | | |
| 100570 | UT51 | 54.3 * | | | | | | | | | | | | | | | | | | 2300 | 5.7 | | | |
| 101570 | UT51 | 56.4 * | 7.0 | 7.85 | | | | | | | | | | 137 | | 0.75 | | 1.25 | | | | 9.0 | 782 | 45 |
| 102970 | UT51 | 60.3 * | 4.5 | 8.10 | 1346 | | | | | | | | | 137 | | 0.80 | | 0.95 | | | | 10.0 | 848 | 5 |
| 110270 | UT51 | 57.6 * | | 8.50 | | 306 | 357 | 130 | 49 | 57 | 17 | 346 | 14.0 | 80 | 182 | 1.39 | | 1.00 | | 4300 | 4.2 | | | |
| 110270 | UT51 | 57.6 * | | 8.50 | 1045 | 384 | 394 | 85 | 64 | 57 | 15 | 453 | 7.9 | 80 | 130 | 1.31 | | 0.40 | | 4300 | 4.2 | | | |
| 111270 | UT51 | 75.0 | 5.5 | 8.20 | 1588 | | | | | | | | | 137 | | 0.95 | | 0.45 | | | | 8.0 | 874 | 50 |
| 111670 | UT51 | 70.2 * | | 8.20 | | 188 | 492 | 150 | 80 | 71 | 27 | 230 | 1.7 | 208 | 133 | 1.21 | | 0.30 | | | | | | |
| 112670 | UT51 | 71.0 | 7.0 | 7.80 | | | | | | | | | | 125 | | 0.03 | | 0.05 | | | | 7.0 | 800 | 90 |
| 113070 | UT51 | 70.2 * | | 8.20 | 1435 | 472 | 468 | 155 | 72 | 70 | 22 | 566 | 4.9 | 122 | 194 | 0.97 | | 0.80 | | 4300 | 10.9 | | | |
| 121070 | UT51 | 67.0 | 2.0 | 7.95 | 1266 | | | | | | | | | 125 | | 0.87 | | 0.17 | | | | 8.0 | | 45 |
| 122370 | UT51 | 59.3 * | 1.0 | 8.10 | 1407 | | | | | | | | | 187 | | 0.45 | | 0.35 | | | | 9.0 | 1017 | |
| 11471 | UT51 | | 0.0 | 8.20 | 1145 | | | | | | | | | 112 | | 0.95 | | 0.45 | | | | 8.0 | 781 | |
| 11671 | UT51 | | | 8.52 | 1040 | 329 | 558 | 79 | 113 | 67 | | 384 | 9.0 | 97 | | 1.56 | 0.18 | 0.94 | | | | | 900 | |
| 20271 | UT51 | 61.0 * | 5.0 | 8.80 | 1507 | | | | | | | | | | | 1.70 | | 0.26 | | | | 6.0 | 926 | |
| 20871 | UT51 | 74.6 * | | | | | | | | | | | | | | | | | | 430 | 8.0 | | | |
| 21671 | UT51 | 69.4 * | 8.0 | 8.20 | 1335 | 378 | | | | | | 444 | 9.0 | | | 1.22 | 0.05 | 1.20 | | | | | 1052 | |
| 30271 | UT51 | 57.6 * | | 3.10 | 1170 | 400 | 432 | 100 | 79 | 57 | 5 | 482 | 3.3 | 90 | 140 | 1.27 | | 0.80 | | 4300 | 6.9 | | 958 | |
| 30471 | UT51 | 60.7 * | | 8.10 | 1255 | | | | | | | | | | | 1.64 | 0.08 | 1.52 | | | | | | |
| 30871 | UT51 | 58.0 * | | 0. | | | | | | | | | | | | | | | | | | | 923 | |
| 31171 | UT51 | 69.2 * | | 8.27 | 1165 | | | | | | | | | | | 1.31 | 0.10 | 0.35 | | | | | 976 | |
| 31871 | UT51 | 64.2 * | | 8.08 | 1210 | | | | | | | | | | | 1.74 | 0.03 | 0.50 | | | | | 980 | |
| 32571 | UT51 | 62.9 * | | 8.00 | 1085 | | | | | | | | | | | 1.22 | 0.13 | 0.49 | | | | | 804 | |
| 40171 | UT51 | 65.1 * | | 3.04 | 980 | | | | | | | | | | | 1.56 | 0.01 | 0.55 | | | | | 729 | |
| 40671 | UT51 | 62.9 * | | 8.15 | 1045 | 333 | 386 | 80 | 74 | 49 | 8 | 400 | 3.1 | 73 | 13 | 1.13 | | 0.40 | | 5000 | 7.9 | | 702 | |
| 42271 | UT51 | 72.8 * | | 8.00 | 1325 | | | | | | | | | | | 0.89 | 0.09 | 0.63 | | | | | 1002 | |
| 42771 | UT51 | 77.1 * | | 8.30 | 920 | 338 | 435 | 132 | 72 | 62 | 26 | 413 | 3.8 | 92 | 100 | 1.13 | 0.09 | 0.44 | | | | | 899 | |
| 51371 | UT51 | 46.0 * | | 8.20 | 970 | 283 | | | | | | 341 | 2.5 | | | 0.66 | | 0.26 | | | | | | |
| 52071 | UT51 | 37.0 * | | 8.50 | 1335 | | | | | | | | | 147 | | 0.80 | | 0.37 | | | | | | |
| 60871 | UT51 | 35.1 * | | 8.05 | 1395 | | | | | | | | | | | 0.73 | | 0.79 | | | | | | |
| 61571 | UT51 | 45.3 | | 8.20 | 1215 | | | | | | | | | | | | | 0.41 | | | | | | |
| 62271 | UT51 | 56.3 | | 8.10 | 2210 | | | | | | | | | | | | | 0.95 | | | | | | |
| 62971 | UT51 | 10.5 | | 8.17 | 2305 | | | | | | | | | | | | | 0.24 | | | | | | |
| 71371 | UT51 | 15.5 * | | 3.10 | 1990 | | | | | | | | | | | | | 0.47 | | | | | | |
| 72071 | UT51 | 20.0 | | 8.00 | 1600 | | | | | | | | | | | | | 1.36 | | | | | | |
| 72971 | UT51 | 16.4 * | | 8.20 | 1525 | | | | | | | | | | | | | 3.60 | | | | | | |
| 31672 | UT51 | 60.0 | 12.0 | | | 418 | 418 | 098 | 85 | 50 | 09 | 510 | | 061 | 115 | 1.45 | | 0.23 | | | 03.9 | | 930 | |
| 32372 | UT51 | 60.0 | 10.0 | | | 250 | 284 | 077 | 38 | 46 | 09 | 306 | | 058 | 108 | 1.14 | | 0.25 | | | 00.5 | | 643 | |
| 33072 | UT51 | 47.5 | 12.0 | | | 430 | 463 | 115 | 90 | 58 | 12 | 525 | | 082 | 157 | 1.92 | | 0.29 | | | 01.9 | | 1041 | |
| 40572 | UT51 | 45.2 | 12.2 | | | 0 | 347 | 130 | 32 | 65 | 13 | 0 | | 106 | | 1.18 | | 0.08 | | | 00.7 | | 0833 | |
| 41372 | UT51 | 45.3 | 10.0 | | 1015 | 301 | 282 | 129 | 19 | 57 | 20 | 368 | | 107 | 169 | 1.25 | | 0.10 | | | 02.5 | | 870 | |
| 41972 | UT51 | 45.2 | 08.0 | | | 459 | 438 | 108 | 80 | 58 | 14 | 561 | | 083 | | 1.26 | | 0.10 | | | 01.4 | | 935 | |
| 42672 | UT51 | 39.0 | 11.0 | | 1210 | 460 | 460 | 124 | 79 | 64 | 16 | 562 | | 096 | 166 | 1.26 | | 0.22 | | | 02.7 | | 1058 | |
| 50372 | UT51 | 55.0 | 17.0 | | 1598 | 809 | 565 | 185 | 98 | 78 | 14 | 988 | | 156 | 263 | 1.03 | | 0.29 | | | 02.7 | | 1783 | |
| 51072 | UT51 | 30.0 | 18.0 | | 1577 | 522 | 638 | 213 | 76 | 109 | 15 | 637 | | 204 | | 0.62 | | 0.51 | | | 02.6 | | 1255 | |

| DATE | STA | FLOW | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32972 | UT52 | 06.6 | 09.5 | | 5940 | 389 | | | | | | 475 | | 1788 | | 0.03 | | 0.09 | | | 01.2 | | 3951 | |
| 40672 | UT52 | 07.2 | 20.0 | | | | 351 | 552 | 37 | 63 | 25 | | | 745 | | 0.01 | | | | | 00.2 | | | |
| 42072 | UT52 | 13.7 | 18.5 | | 6372 | 389 | 734 | 242 | 52 | 147 | 25 | 475 | | 1630 | | 0.10 | | 0.03 | | | 01.5 | | 2819 | |
| 50570 | UT53 | 505. | | 8.35 | 1280 | 204 | 354 | 140 | 58 | 51 | 25 | 243 | 3.0 | 180 | 210 | 0.57 | | | | 150 | 6.9 | | | |
| 60270 | UT53 | 793. | | | | | | | | | | | | | | | | | | 430 | 4.8 | | | |
| 61670 | UT53 | 415. | | | | | 375 | 149 | 63 | 53 | 22 | | | 178 | | | | | | | | | | |
| 62170 | UT53 | 758. | | 8.20 | 1350 | 205 | 365 | 145 | 59 | 53 | 18 | 246 | 2.1 | 190 | 217 | 0.50 | | | | | | | | |
| 63070 | UT53 | 786. | | 8.25 | 1335 | 205 | 366 | 145 | 61 | 52 | 19 | 246 | 2.4 | 198 | 230 | 0.36 | | 0.20 | | 93 | 6.4 | | | |
| 70470 | UT53 | 911. | | | | 166 | 373 | 167 | 62 | 53 | 22 | 203 | | 193 | | 0.18 | | 1.00 | | | | | | |
| 71470 | UT53 | 756. | | | | 160 | 411 | 191 | 66 | 60 | 22 | 196 | | 195 | 219 | 0.50 | | 0.30 | | | | | | |
| 71770 | UT53 | 830. | 18.5 | 8.45 | 730 | | 154 | | | | | | | | | 0.75 | | 0.08 | | | | 6.0 | 997 | 75 |
| 73170 | UT53 | 772. | | | | | | | | | | | | | | | | | | | | | 870 | |
| 80470 | UT53 | 814. | | | | | 4.9 | | | | | | | | | | | | | | | | | |
| 81170 | UT53 | 806. | | | | 159 | 372 | 164 | 52 | 59 | 30 | 194 | | 210 | 241 | 0.52 | | 1.00 | | | | | | |
| 81470 | UT53 | 838. | | 8.50 | | | | | | 9 | | | | | | | | | | | | | | |
| 82870 | UT53 | 807. | | 8.45 | | | | | 5 5 | 9 | | | | | | | | | | | | | | |
| 90170 | UT53 | 789. | | 7.55 | 1350 | 180 | 398 | 175 | 46 | 69 | 22 | 220 | 0.4 | 220 | 240 | 0.05 | | 0.50 | 0.65 | 930 | 5.3 | | | |
| 92370 | UT53 | 610. | | 8.50 | | 180 | 353 | 178 | 46 | 58 | 21 | 175 | 2.0 | 209 | 243 | 0.00 | | 0.20 | | | | | | |
| 100570 | UT53 | 510. | | | | | | | | | | | | | | | | | | 93 | 6.0 | | | |
| 101570 | UT53 | | 8.5 | 8.50 | | | | | | | | | | 288 | | 0.17 | | 0.04 | | | | 10.0 | | 45 |
| 102970 | UT53 | | 5.5 | 8.33 | 1467 | | | | | | | | | 275 | | 0.36 | | 0.10 | | | | 9.0 | | 22 |
| 110270 | UT53 | 103. | | 8.10 | | 132 | 392 | 252 | 55 | 62 | 27 | 162 | | 203 | 232 | 0.51 | | 0.60 | | 93 | 7.0 | | | |
| 110270 | UT53 | 103. | | 8.20 | 1335 | 206 | 366 | 150 | 51 | 58 | 17 | 247 | 2.2 | 208 | 236 | 0.43 | | 0.10 | 0.64 | 93 | 7.0 | | | |
| 111270 | UT53 | | 5.0 | 8.25 | 1588 | 0 | | | | | | | | 288 | | 0.31 | | 0.04 | | | | 8.0 | 896 | 48 |
| 111670 | UT53 | 156. | | 8.20 | | 161 | 382 | 200 | 51 | 62 | 25 | 197 | | 217 | 243 | 0.57 | | 0.20 | | | | | | |
| 112670 | UT53 | | 6.0 | 8.10 | 1005 | | | | | | | | | 225 | | 0.75 | | 0.12 | | | | 9.0 | 845 | 80 |
| 113070 | UT53 | 269. | | 8.30 | 1410 | 209 | 402 | 160 | 64 | 59 | 18 | 250 | 2.7 | 220 | 257 | 0.75 | | 0.40 | | 110 | 4.6 | | | |
| 121070 | UT53 | | 3.0 | 8.25 | 1246 | | | | | | | | | 300 | | 0.68 | | 0.05 | | | | 8.0 | | 57 |
| 122370 | UT53 | | 0.5 | 8.20 | 1286 | | | | | | | | | 300 | | 0.33 | | 0.08 | | | | 10.0 | 878 | |
| 10471 | UT53 | 361. | | 8.20 | 1450 | 220 | 390 | 165 | 56 | 61 | 18 | 264 | 2.3 | 211 | 242 | 0.90 | | 0.20 | 0.63 | 93 | 4.3 | | 1021 | 13 |
| 11471 | UT53 | | 2.0 | 8.75 | 1226 | | | | | | | | | 288 | | 0.52 | | 0.17 | | | | 10.0 | 888 | |
| 20871 | UT53 | 456. | | | | | | | | | | | | | | | | | | 43 | 4.5 | | | |
| 21171 | UT53 | | 5.0 | 8.15 | | | | | | | | | | | | 0.56 | | 0.18 | | | | 8.0 | 896 | |
| 21871 | UT53 | 452. | 4.0 | 8.10 | 1175 | | | | | | | | | | | 0.48 | 0.10 | 0.29 | | | | 9.0 | 867 | |
| 30271 | UT53 | 320. | | 8.25 | 1350 | 203 | 360 | 135 | 57 | 53 | 16 | 243 | 2.4 | 193 | 219 | 0.41 | | | | 143 | 9.4 | | | |
| 30471 | UT53 | 495. | | 8.45 | 1226 | | | | | | | | | | | 0.59 | 0.16 | | | | | | | |
| 31171 | UT53 | 538. | | 8.05 | 1005 | | | | | | | | | | | 0.43 | 0.30 | 0.18 | | | | | 803 | |
| 31871 | UT53 | 504. | | 8.22 | 1100 | | | | | | | | | | | 0.35 | 0.18 | 0.09 | | | | | 898 | |
| 32571 | UT53 | 538. | | 8.20 | 1095 | | | | | | | | | | | 0.31 | 0.14 | 0.14 | | | | | 836 | |
| 40171 | UT53 | 522. | | 8.20 | 1065 | | | | | | | | | | | 0.36 | 0.06 | 1.56 | | | | | 834 | |
| 40671 | UT53 | 517. | | 8.35 | 1350 | 201 | 357 | 145 | 54 | 54 | 16 | 240 | 3.0 | 185 | 223 | 0.54 | | | | 9 | 5.0 | | 921 | |
| 41571 | UT53 | | | 8.15 | 1095 | | | | | | | | | | | 0.52 | | 0.08 | | | | | 906 | |
| 42771 | UT53 | 553. * | | 8.10 | | 186 | 378 | 132 | 66 | 52 | 24 | 227 | | 155 | 218 | 0.73 | 0.26 | 0.17 | | | | | 875 | |
| 51371 | UT53 | 578. * | | 8.40 | 1085 | 162 | | | | | | 194 | 2.2 | | | 0.47 | | 0.24 | | | | | | |
| 52071 | UT53 | 649. * | | 8.30 | 1105 | | | | | | | | | 180 | | 0.50 | | 0.18 | | | | | | |
| 60871 | UT53 | 654. * | | 7.98 | 1135 | | | | | | | | | | | 0.58 | | 0.18 | | | | | | |
| 61571 | UT53 | 515. * | | 8.20 | 1155 | | | | | | | | | | | | | 0.32 | | | | | | |
| 62271 | UT53 | 749. * | | 8.40 | 1145 | | | | | | | | | | | | | 0.16 | | | | | | |
| 62971 | UT53 | 741. * | | 8.28 | 1200 | | | | | | | | | | | | | 0.18 | | | | | | |
| 71371 | UT53 | 768. * | | 8.20 | 1125 | | | | | | | | | | | | | 0.32 | | | | | | |

| DATE | STA | FLOW | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 72071 | UT53 | 848. * | | 8.20 | 1185 | | | | | | | | | | | | | 0.55 | | | | | | |
| 72971 | UT53 | 819. * | | 8.20 | 1235 | | | | | | | | | | | | | 1.92 | | | | | | |
| 31672 | UT53 | 495. | 10.0 | | | 136 | 341 | 158 | 64 | 44 | 15 | 166 | | 166 | 199 | 0.11 | | 0.10 | | | | | 0784 | |
| 32372 | UT53 | 448. | 11.0 | | | 241 | 368 | 153 | 60 | 53 | 17 | 295 | | 180 | 217 | 0.20 | | 0.13 | | | 00.4 | | 975 | |
| 33072 | UT53 | 433. | 07.0 | | | 231 | 360 | 139 | 62 | 50 | 16 | 283 | | 179 | 211 | 0.19 | | 0.04 | | | 01.4 | | 940 | |
| 40572 | UT53 | 471. | 10.0 | | 1080 | | 344 | 130 | 31 | 65 | 13 | | | 169 | | | | 0.09 | | | 00.1 | | 0835 | |
| 41372 | UT53 | 356. | 08.0 | | 1199 | 262 | 373 | 143 | 64 | 52 | 20 | 320 | | 181 | 220 | 0.24 | | 0.23 | | | 01.5 | | 1135 | |
| 41972 | UT53 | 452. | 07.2 | | | 237 | 382 | 139 | 61 | 56 | 18 | 290 | | 179 | | 0.22 | | 0.08 | | | 00.9 | | 0808 | |
| 42672 | UT53 | 417. | 11.0 | | 1210 | 237 | 373 | 153 | 59 | 55 | 17 | 290 | | 183 | 221 | 0.15 | | | | | 01.1 | | 1073 | |
| 50372 | UT53 | 574. | 12.5 | | 1210 | 213 | 393 | 155 | 70 | 53 | 17 | 261 | | 186 | 226 | | | 0.10 | | | 01.8 | | 968 | |
| 51072 | UT53 | 738. | 13.5 | | 1188 | 227 | 406 | 148 | 64 | 60 | 15 | 278 | | 179 | | 0.32 | | 0.09 | | | 01.3 | | 744 | |

| DATE | STA | FLOW | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 82669 | UT61 | | 26.9 | 8.70 | | | | | | | | | | | | | | | | | | 00.0 | | 066 |
| 90269 | UT61 | | 22.5 | | | | | | | | | | | | | | | | | | | 00.0 | | 051 |
| 90969 | UT61 | | 24.5 | 8.40 | | | | | | | | | | | | | | | | | | 07.3 | | |
| 50570 | UT61 | | | 7.75 | 85 | 31 | 40 | 5 | 8 | 5 | 2 | 38 | 0.1 | 11 | 9 | 0.14 | | 0.10 | | 150 | 5.7 | | | |
| 60270 | UT61 | | | 7.60 | 59 | 22 | 21 | 3 | 7 | 1 | 0 | 27 | | 10 | 2 | 0.14 | | | | 43 | 4.5 | | | |
| 61670 | UT61 | | | | | | 33 | 5 | 10 | 2 | 2 | | | 2 | | | | | | | | | | |
| 63070 | UT61 | | | 7.20 | 98 | 37 | 37 | 5 | 10 | 3 | 1 | 46 | | 14 | 4 | 0.14 | | 0.20 | | 930 | 3.0 | | | |
| 71070 | UT61 | | 14.3 | 7.50 | | | 51 | | | | | | | | | 0.15 | | 0.12 | | | | 8.0 | 90 | 8 |
| 71470 | UT61 | | | | | 61 | 75 | 17 | 22 | 5 | 2 | 75 | | 8 | 12 | 0.16 | | 0.20 | | | | | | |
| 80470 | UT61 | | | | | | | | | | | | | | | | | | | | 3.1 | | | |
| 80770 | UT61 | | 14.5 | 7.85 | | | 68 | | | | | | | | | 0.29 | | 0.03 | | | | 9.0 | 85 | |
| 81170 | UT61 | | | | | 41 | 49 | 5 | 15 | 3 | 2 | 51 | | 4 | 14 | 0.00 | | 0.80 | | | | | | |
| 82170 | UT61 | | 13.5 | 7.85 | | | | | | | | | | 25 | | 0.33 | | 0.14 | | | | 9.0 | 84 | |
| 90170 | UT61 | | | 7.95 | 165 | 75 | 86 | 7 | 18 | 10 | 1 | 91 | 0.5 | 19 | 7 | 0.16 | | 0.20 | 0.25 | 7300 | 3.0 | | | |
| 90470 | UT61 | | 13.0 | 7.95 | | | | | | | | | | 25 | | 0.13 | | 0.25 | | | | 9.0 | 126 | 35 |
| 92370 | UT61 | | | 7.90 | | 56 | 70 | 8 | 20 | 5 | 2 | 69 | 0.2 | 4 | 7 | | | 0.20 | | | | | | |
| 100170 | UT61 | | 9.0 | 7.95 | 159 | | | | | | | | | | | 0.04 | | 0.02 | | | | 10.0 | 53 | 5 |
| 100570 | UT61 | | | | | | | | | | | | | | | | | | | 930 | 5.2 | | | |
| 102270 | UT61 | | 6.5 | 7.70 | | | | | | | | | | 12 | | .015 | | 0.08 | | | | 10.0 | 88 | 5 |
| 110270 | UT61 | | | 7.90 | 125 | 53 | 57 | 11 | 13 | 6 | 2 | 65 | 0.3 | 20 | 7 | 0.14 | | 0.10 | 0.22 | 210 | 3.6 | | | |
| 110570 | UT61 | | 6.5 | 7.95 | 134 | | | | | | | | | 12 | | 0.02 | | 0.03 | | | | 9.0 | 90 | |
| 111670 | UT61 | | | 7.50 | | 47 | 57 | 2 | 18 | 3 | 2 | 58 | | 4 | 4 | 0.13 | | 0.40 | | | | | | |
| 111970 | UT61 | | 2.0 | 8.20 | 115 | | | | | | | | | | | 0.08 | | 0.02 | | | | 12.0 | 88 | |
| 112770 | UT61 | | 5.0 | 7.90 | 131 | | | | | | | | | | | 0.04 | | 0.04 | | | | 10.0 | 89 | |
| 113070 | UT61 | | | 8.20 | 140 | 56 | 62 | 6 | 15 | 6 | 2 | 68 | 0.6 | 19 | 5 | 0.18 | | 0.30 | | 430 | 4.0 | | | |
| 120370 | UT61 | | 2.0 | 7.85 | 115 | | | | | | | | | | | 0.03 | | 0.03 | | | | | 75 | |
| 121770 | UT61 | | 3.0 | 7.95 | 129 | | | | | | | | | 12 | | 0.15 | | 0.03 | | | | 9.0 | 97 | |
| 122370 | UT61 | | 0.5 | 7.85 | 135 | | | | | | | | | 12 | | 0.10 | | 0.09 | | | | 11.0 | 103 | |
| 10471 | UT61 | | - | 7.85 | 150 | 68 | 65 | 7 | 17 | 5 | 2 | 82 | 0.3 | 15 | 7 | 0.30 | | 0.20 | 0.23 | 43 | 2.3 | | 110 | 3 |
| 10771 | UT61 | | -.5 | 7.95 | 121 | | | | | | | | | | | 0.11 | | 0.09 | | | | | 98 | |
| 12871 | UT61 | | 3.0 | 7.95 | 134 | | | | | | | | | | | 0.16 | | 0.12 | | | | 10.0 | 77 | |
| 20371 | UT61 | | | 7.80 | 130 | 51 | 49 | 6 | 15 | 3 | 2 | 63 | 0.2 | 15 | 6 | 0.00 | | 0.10 | | | 2.8 | | | |
| 21171 | UT61 | | 3.0 | 8.15 | | | | | | | | | | | | 0.11 | | 0.27 | | | | 9.0 | 86 | |
| 30271 | UT61 | | | 8.00 | 140 | 56 | 56 | 5 | 16 | 4 | 2 | 68 | 0.4 | 17 | 7 | 0.16 | | 0.20 | | 93 | 6.2 | | 52 | |
| 40671 | UT61 | | | 7.70 | 99 | 33 | 32 | 5 | 8 | 3 | 2 | 41 | | 4 | 7 | 0.18 | | 0.10 | | 150 | 3.8 | | 54 | |
| 42771 | UT61 | | | 7.80 | 89 | 41 | 51 | 7 | 14 | 4 | 3 | 50 | 0.1 | 3 | 003 | 0.20 | 0.01 | 0.07 | | | | | 84 | |
| 60871 | UT61 | | | 6.68 | 80 | | | | | | | | | | | 0.15 | | 0.13 | | | | | | |
| 82669 | UT62 | | 29.8 | 9.00 | | | | | | | | | | | | | | | | | | 16.2 | | 030 |
| 90269 | UT62 | | 24.0 | 8.90 | | | | | | | | | | | | | | | | | | 15.6 | | 035 |
| 90969 | UT62 | | 24.6 | 8.60 | | | | | | | | | | | | | | | | | | 18.0 | | 030 |
| 50570 | UT62 | | | | | | | | | | | | | | | | | | | 230 | 3.8 | | | |
| 60270 | UT62 | | | 8.25 | 255 | 112 | 138 | 2 | 39 | 10 | 0 | 134 | 1.3 | 16 | 18 | 0.20 | | | | 150 | 4.0 | | | |
| 61670 | UT62 | | | | | | 164 | 3 | 51 | 9 | 1 | | | 3 | | | | | | | | | | |
| 63070 | UT62 | | | 8.20 | 290 | 121 | 154 | 2 | 42 | 12 | 1 | 145 | 1.3 | 13 | 27 | 0.18 | | 0.10 | | 430 | 4.2 | | | |
| 71070 | UT62 | | 12.6 | 8.60 | | | 137 | | | | | | | | | 0.09 | | 0.03 | | | | 9.0 | 223 | |
| 71470 | UT62 | | | | | 111 | 198 | 6 | 58 | 13 | 1 | 136 | | 4 | 39 | 0.25 | | 0.10 | | | | | | |
| 80470 | UT62 | | | | | | | | | | | | | | | | | | | | 4.0 | | | |
| 80770 | UT62 | | 13.0 | 8.20 | | | 102 | | | | | | | | | 1.50 | | 0.05 | | | | 8.0 | 255 | |
| 81170 | UT62 | | | | | 109 | 181 | 3 | 48 | 15 | 2 | 134 | | 4 | 73 | | | 0.50 | | | 4.0 | | | |
| 82170 | UT62 | | 12.5 | 8.20 | | | | | | | | | | 25 | | 0.33 | | 0.07 | | | | 9.0 | 232 | |

| DATE | STA | FLOW | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90170 | UT62 | | | 7.75 | 415 | 148 | 237 | 3 | 62 | 20 | 1 | 180 | 0.6 | 17 | 76 | 0.14 | | 0.40 | 0.26 | 2300 | 5.0 | | | |
| 90470 | UT62 | | 12.0 | 8.25 | | | | | | | | | | 25 | | 0.12 | | 0.04 | | | | 9.0 | 276 | |
| 92370 | UT62 | | | 8.40 | | 146 | 231 | 3 | 63 | 18 | 1 | 168 | 5.0 | 3 | 81 | | | | | | | | | |
| 100170 | UT62 | | 9.0 | 8.40 | 507 | | | | | | | | | | | 0.08 | | 0.02 | | | | 9.0 | 254 | |
| 100570 | UT62 | | | | | | | | | | | | | | | | | | | 430 | 5.2 | | | |
| 102270 | UT62 | | 7.5 | 8.09 | | | | | | | | | | 12 | | .030 | | 0.06 | | | | 10.0 | 406 | 8 |
| 110270 | UT62 | | | 8.05 | 435 | 152 | 250 | 4 | 64 | 22 | 3 | 184 | 1.1 | 16 | 90 | 0.14 | | 0.10 | 0.29 | 150 | 4.2 | | | |
| 110570 | UT62 | | 7.5 | 8.45 | 497 | | | | | | | | | 12 | | 0.03 | | 0.04 | | | | 10.0 | 308 | |
| 111670 | UT62 | | | 8.20 | | 140 | 249 | 3 | 67 | 20 | 1 | 169 | 1.2 | 3 | 84 | 0.07 | | 0.70 | | | | | | |
| 111970 | UT62 | | 4.0 | 8.25 | 446 | | | | | | | | | | | 0.08 | | 0.03 | | | | 9.0 | 288 | 4 |
| 112770 | UT62 | | 7.0 | 8.15 | 487 | | | | | | | | | 12 | | 0.09 | | 0.05 | | | | 10.0 | 297 | |
| 120370 | UT62 | | 6.0 | 8.40 | 447 | | | | | | | | | | | .055 | | 0.26 | | | | | 185 | |
| 121770 | UT62 | | 3.5 | 8.50 | 456 | | | | | | | | | 25 | | 0.13 | | 0.05 | | | | 10.0 | 334 | |
| 122370 | UT62 | | 1.0 | 8.20 | 446 | | | | | | | | | 12 | | 0.12 | | 0.04 | | | | 11.0 | 321 | |
| 10471 | UT62 | | | 8.35 | 510 | 174 | 284 | 7 | 74 | 24 | 2 | 207 | 2.6 | 19 | 105 | 0.18 | | 1.10 | 0.31 | 9300 | 2.6 | | 442 | 1 |
| 10771 | UT62 | | .5 | 8.40 | 426 | | | | | | | | | | | 0.11 | | 0.04 | | | | 10.0 | 337 | |
| 12871 | UT62 | | 4.0 | 8.40 | 450 | | | | | | | | | | | 0.11 | | 0.05 | | | | 8.0 | 302 | |
| 20871 | UT62 | | | 8.00 | 480 | 161 | 255 | 4 | 66 | 22 | 2 | 194 | 1.2 | 19 | 90 | 0.75 | | | | 750 | 2.4 | | | |
| 21171 | UT62 | | 4.5 | 8.55 | | | | | | | | | | | | 0.08 | | 0.06 | | | | 10.0 | 328 | |
| 30271 | UT62 | | | 8.30 | 485 | 159 | 262 | 4 | 67 | 23 | 1 | 190 | 2.1 | 19 | 99 | 0.07 | | | | 93 | 3.6 | | 405 | |
| 31871 | UT62 | | | | | | | | | | | | | | | | | | | | | | 602 | |
| 40671 | UT62 | | | 8.40 | 430 | 154 | 225 | 3 | 59 | 19 | 2 | 183 | 2.5 | 20 | 72 | 0.16 | | | | 93 | 6.3 | | | |
| 42771 | UT62 | | | 8.30 | 330 | 146 | 216 | 4 | 62 | 15 | 1 | 175 | 1.6 | 4 | 113 | 0.20 | 0.09 | 0.09 | | | | | 229 | |
| 60871 | UT62 | | | 7.92 | 265 | | | | | | | | | | | 0.23 | | 0.08 | | | | | | |
| 82669 | UT63 | | 27.2 | 8.70 | | | | | | | | | | | | | | | | | | 12.4 | | 054 |
| 90269 | UT63 | | 23.5 | 8.80 | | | | | | | | | | | | | | | | | | 13.6 | | 044 |
| 90969 | UT63 | | 23.4 | 8.60 | | | | | | | | | | | | | | | | | | 12.4 | | 039 |
| 50570 | UT63 | | | 8.25 | 430 | 182 | 219 | 9 | 60 | 17 | 2 | 218 | 2.1 | 20 | 35 | 0.45 | | | | 23 | 6.9 | | | |
| 60270 | UT63 | | | 8.20 | 425 | 168 | 220 | 11 | 62 | 16 | 2 | 202 | 1.8 | 20 | 52 | 0.29 | | | | 430 | 4.0 | | | |
| 61670 | UT63 | | | | | | 173 | 10 | 53 | 10 | 4 | | | 10 | | | | | | | | | | |
| 63070 | UT63 | | | 8.00 | 360 | 135 | 177 | 8 | 48 | 14 | 2 | 164 | 0.9 | 18 | 36 | 0.36 | | 0.20 | | 750 | 7.2 | | | |
| 71070 | UT63 | | 14.3 | 7.80 | | | 171 | | | | | | | | | 0.30 | | 0.04 | | | | 9.0 | 219 | |
| 71470 | UT63 | | | | | 142 | 234 | 46 | 66 | 17 | 2 | 174 | | 13 | 37 | 0.36 | | 0.50 | | | | | | |
| 80470 | UT63 | | | | | | | | | | | | | | | | | | | | 7.1 | | | |
| 80770 | UT63 | | 12.5 | 7.65 | | | 120 | | | | | | | | | 0.53 | | 0.03 | | | | 8.0 | 252 | |
| 81170 | UT63 | | | | | 147 | 186 | 9 | 50 | 15 | 3 | 180 | | 12 | 53 | 0.25 | | 0.30 | | | | | | |
| 82170 | UT63 | | 12.5 | 7.20 | | | | | | | | | | 25 | | 0.41 | | 0.02 | | | | 7.0 | 262 | |
| 90170 | UT63 | | | 8.35 | 415 | 180 | 228 | 10 | 60 | 19 | 1 | 215 | 2.7 | 24 | 39 | 0.32 | | 0.60 | 0.21 | 230 | 6.1 | | | |
| 90470 | UT63 | | 12.5 | 7.50 | | | | | | | | | | 38 | | 0.24 | | 0.03 | | | | 7.0 | 380 | |
| 92370 | UT63 | | | 7.90 | | 140 | 221 | 9 | 64 | 15 | 2 | 170 | 0.6 | 8 | 33 | 0.13 | | 0.10 | | | | | | |
| 100170 | UT63 | | 12.5 | 7.95 | 446 | | | | | | | | | 25 | | 0.31 | | | | | | 10.0 | 230 | |
| 100570 | UT63 | | | | | | | | | | | | | | | | | | | 2300 | 6.3 | | | |
| 102270 | UT63 | | 9.5 | 7.70 | | | | | | | | | | 25 | | .038 | | 0.06 | | | | 9.0 | 237 | 5 |
| 110270 | UT63 | | | 8.30 | | 142 | 186 | 9 | 50 | 15 | 2 | 170 | 1.5 | 8 | 22 | 0.13 | | 0.10 | | 9300 | 5.2 | | | |
| 110270 | UT63 | | | 8.30 | 350 | 165 | 184 | 7 | 49 | 15 | 4 | 197 | 2.2 | 20 | 25 | 0.20 | | 0.00 | 0.16 | 9300 | 5.2 | | | |
| 110570 | UT63 | | 8.0 | 8.25 | 410 | | | | | | | | | 12 | | 0.16 | | 0.06 | | | | 11.0 | 221 | |
| 111670 | UT63 | | | 8.10 | | 141 | 187 | 8 | 52 | 14 | 2 | 170 | 1.0 | 6 | 30 | 0.28 | | 0.70 | | | | | | |
| 111970 | UT63 | | 5.0 | 8.20 | 325 | | | | | | | | | | | 0.19 | | 0.05 | | | | 10.0 | 212 | 5 |
| 112770 | UT63 | | 6.5 | 7.80 | 467 | | | | | | | | | 25 | | 0.16 | | 0.04 | | | | 10.0 | 237 | 5 |
| 113070 | UT63 | | | 7.80 | 390 | 152 | 199 | 9 | 52 | 17 | 3 | 185 | 0.6 | 22 | 47 | 0.25 | | 0.30 | | 430 | 6.0 | | | |

| DATE | STA | FLOW | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 120370 | UT63 | | 4.0 | 7.85 | 345 | | | | | | | | | | | 0.17 | | 0.03 | | | | | 208 | |
| 121470 | UT63 | | | 8.20 | | 120 | 196 | 49 | 54 | 15 | 2 | 145 | 1.0 | 5 | 29 | 0.19 | | 1.10 | | | | | | |
| 121770 | UT63 | | 3.5 | 8.25 | 325 | | | | | | | | | 12 | | 0.25 | | 0.05 | | | | 9.0 | 223 | |
| 122371 | UT63 | | 3.0 | | 345 | | | | | | | | | 12 | | 0.11 | | 0.05 | | | | 10.0 | 155 | |
| 10471 | UT63 | | | 8.10 | 395 | 175 | 208 | 7 | 53 | 18 | 02 | 211 | 1.5 | 20 | 31 | 0.14 | | | 0.15 | 430 | 3.0 | | 344 | 1 |
| 10771 | UT63 | | 1.0 | 7.90 | 325 | | | | | | | | | 12 | | 0.22 | | 0.04 | | | | 10.0 | 211 | |
| 11671 | UT63 | | | 8.55 | 285 | 144 | 183 | 9 | 52 | 13 | | 170 | 2.8 | 11 | | 0.27 | 0.01 | 0.24 | | | | | 294 | |
| 12871 | UT63 | | 4.0 | 8.25 | 349 | | | | | | | | | | | 0.22 | | 0.08 | | | | 9.0 | 207 | |
| 20871 | UT63 | | | 8.25 | 385 | 167 | 201 | 7 | 51 | 18 | 2 | 199 | 2.8 | 23 | 29 | 0.09 | | 0.10 | | 930 | 3.8 | | | |
| 21171 | UT63 | | 4.0 | 8.20 | | | | | | | | | | | | 0.26 | | 0.06 | | | | 9.0 | 243 | |
| 30271 | UT63 | | | 8.40 | 370 | 160 | 188 | 7 | 49 | 16 | 2 | 191 | 2.6 | 24 | 28 | 0.11 | | | | 43 | 4.3 | | 320 | |
| 40671 | UT63 | | | 8.35 | 385 | 163 | 201 | 6 | 51 | 18 | 2 | 195 | 2.4 | 8 | 26 | 0.27 | | 0.10 | | 23 | 3.2 | | 309 | |
| 42771 | UT63 | | | 8.20 | 330 | 139 | 207 | 12 | 60 | 14 | 5 | 168 | 1.2 | 11 | 50 | 0.30 | 0.03 | 0.06 | | | | | 320 | |
| 60871 | UT63 | | | 8.18 | 320 | | | | | | | | | | | 0.22 | | 0.02 | | | | | | |
| 50570 | UT64 | | | 8.30 | 305 | 116 | 155 | 7 | 49 | 8 | 1 | 139 | 1.5 | 19 | 39 | 0.07 | | 0.10 | | 930 | 4.6 | | | |
| 60270 | UT64 | | | 8.05 | 355 | 132 | 187 | 7 | 57 | 11 | 1 | 160 | 1.0 | 18 | 50 | 0.14 | | 0.10 | | 230 | 4.8 | | | |
| 61670 | UT64 | | | | | | 226 | 10 | 74 | 10 | 3 | | | 80 | | | | | | | | | | |
| 63070 | UT64 | | | 8.00 | 525 | 167 | 260 | 12 | 78 | 16 | 2 | 202 | 1.1 | 18 | 102 | 0.16 | | 0.20 | | 430 | 4.0 | | | |
| 71070 | UT64 | | 15.8 | 8.30 | | | 188 | | | | | | | | | 0.05 | | 0.03 | | | | 9.0 | 369 | |
| 71470 | UT64 | | | | | 131 | 295 | 50 | 87 | 19 | 2 | 161 | | 13 | 109 | 0.09 | | 0.10 | | | | | | |
| 80770 | UT64 | | 16.0 | 7.80 | | | 120 | | | | | | | | | 0.15 | | | | | | 8.0 | 421 | |
| 81170 | UT64 | | | | | 133 | 269 | 16 | 78 | 18 | 3 | 163 | | 13 | 156 | 0.00 | | 0.50 | | | | | | |
| 82170 | UT64 | | 14.0 | 8.15 | | | | | | | | | | 38 | | 0.30 | | 0.04 | | | | | 409 | |
| 90170 | UT64 | | | 7.85 | 600 | 160 | 306 | 16 | 88 | 21 | 1 | 194 | 0.8 | 24 | 153 | 0.11 | | 0.70 | 0.27 | 230 | 4.0 | | | |
| 90470 | UT64 | | 15.0 | 8.05 | | | | | | | | | | 25 | | 0.05 | | 0.03 | | | | 9.0 | 434 | |
| 92370 | UT64 | | | 7.90 | | 110 | 284 | 23 | 81 | 20 | 1 | 134 | 0.5 | 11 | 140 | | | 0.40 | | | | | | |
| 100170 | UT64 | | 8.0 | 8.20 | 669 | | | | | | | | | 25 | | 0.06 | | 0.03 | | | | 10.0 | 249 | 20 |
| 100570 | UT64 | | | | | | | | | | | | | | | | | | | 430 | 10.4 | | | |
| 102270 | UT64 | | 8.0 | 8.15 | | | | | | | | | | 25 | | .004 | | 0.06 | | | | 9.0 | 444 | 9 |
| 110270 | UT64 | | | 7.90 | 600 | 182 | 308 | 16 | 89 | 21 | 5 | 221 | 1.0 | 23 | 147 | 0.05 | | | 0.27 | 430 | 3.0 | | | |
| 110570 | UT64 | | 7.5 | 8.35 | 711 | | | | | | | | | 25 | | 0.03 | | 0.03 | | | | 10.0 | 436 | |
| 111670 | UT64 | | | 7.80 | | 159 | 274 | 19 | 77 | 20 | 3 | 193 | 0.5 | 10 | 141 | | | 0.40 | | | | | | |
| 111970 | UT64 | | 4.0 | 8.25 | 619 | | | | | | | | | | | 0.04 | | 0.04 | | | | 10.0 | 422 | |
| 112670 | UT64 | | 5.0 | 8.00 | | | | | | | | | | | | | | | | | | 9.0 | 385 | |
| 113070 | UT64 | | | 8.25 | 620 | 200 | 318 | 20 | 96 | 19 | 2 | 240 | 2.4 | 25 | 142 | 0.16 | | 0.20 | | 930 | 3.9 | | | |
| 120370 | UT64 | | 3.0 | 8.25 | 624 | | | | | | | | | | | 0.05 | | 0.02 | | | | | | |
| 120571 | UT64 | | 3.0 | 8.25 | 629 | | | | | | | | | | | 0.05 | | 0.02 | | | | | 389 | |
| 121770 | UT64 | | 2.5 | 8.40 | 558 | | | | | | | | | 38 | | 0.14 | | 0.08 | | | | 7.0 | 423 | |
| 122270 | UT64 | | 2.5 | 8.20 | 507 | | | | | | | | | 25 | | 0.11 | | 0.15 | | | | 10.0 | 405 | |
| 10471 | UT64 | | | | | | | | | | | | | | | | | | | | 5.0 | | | |
| 10571 | UT64 | | | 7.90 | 480 | 206 | 266 | 9 | 77 | 18 | 02 | 249 | 1.1 | 17 | 61 | 0.41 | | 0.20 | 0.15 | 930 | | | 435 | 1 |
| 10771 | UT64 | | -.5 | | 518 | | | | | | | | | 25 | | 0.13 | | 0.03 | | | | | 366 | |
| 12871 | UT64 | | 2.5 | 8.45 | 550 | | | | | | | | | 25 | | 0.10 | | 0.11 | | | | 9.0 | 406 | |
| 30271 | UT64 | | | 7.90 | 555 | 160 | 260 | 15 | 73 | 19 | 15 | 194 | 0.9 | 27 | 104 | 0.11 | | | | 43 | 6.5 | | 448 | |
| 40671 | UT64 | | | 8.35 | 300 | 114 | 152 | 8 | 46 | 9 | 1 | 136 | 1.7 | 5 | 39 | 0.18 | | 0.10 | | 23 | 4.7 | | 246 | |
| 42771 | UT64 | | | 8.20 | 265 | 128 | 187 | 9 | 60 | 9 | 3 | 154 | 1.1 | 4 | 110 | 0.12 | 0.01 | 0.10 | | | | | 349 | |
| 60871 | UT64 | | | 8.10 | 410 | | | | | | | | | | | | | 0.11 | | | | | | |
| 82669 | UT65 | | 24.9 | 8.70 | | | | | | | | | | | | | | | | | | 10.0 | | 022 |
| 90269 | UT65 | | 21.5 | 8.60 | | | | | | | | | | | | | | | | | | 07.2 | | 018 |
| 90969 | UT65 | | 21.0 | 8.40 | | | | | | | | | | | | | | | | | | 05.6 | | 020 |

| DATE | STA | FLOW | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CC* | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50570 | UT65 | | | 8.25 | 565 | 224 | 261 | 35 | 65 | 24 | 3 | 269 | 2.6 | 40 | 51 | 0.23 | | | | 1500 | 4.5 | | | |
| 60270 | UT65 | | | | | | | | | | | | | | | | | | | 4300 | 3.8 | | | |
| 61670 | UT65 | | | | | | 237 | 30 | 57 | 23 | 5 | | | 28 | | | | | | | | | | |
| 63070 | UT65 | | | 8.25 | 410 | 179 | 197 | 17 | 46 | 20 | 2 | 215 | 2.1 | 25 | 28 | 0.18 | | 0.20 | | 2306 | 3.9 | | | |
| 71070 | UT65 | | 19.4 | 8.15 | | | 188 | | | | | | | | | 0.03 | | 0.02 | | | | 8.0 | 244 | 170 |
| 71470 | UT65 | | | | | 140 | 196 | 50 | 49 | 18 | 3 | 172 | | 14 | 29 | 0.20 | | 0.20 | | | | | | |
| 80470 | UT65 | | | | | | | | | | | | | | | | | | | | 3.2 | | | |
| 80770 | UT65 | | 18.0 | 7.60 | | | 120 | | | | | | | | | 0.40 | | 0.07 | | | | 7.0 | 273 | 85 |
| 81170 | UT65 | | | | | 139 | 170 | 16 | 42 | 16 | 4 | 170 | | 15 | 38 | | | | | | | | | |
| 82170 | UT65 | | 19.0 | | | | | | | | | | | 38 | | 0.60 | | 0.42 | | | | 8.0 | 232 | 500 |
| 90170 | UT65 | | | 8.30 | 425 | 171 | 208 | 19 | 49 | 21 | 1 | 204 | 2.3 | 30 | 37 | 0.11 | | 0.60 | 0.21 | 9300 | 3.9 | | | |
| 90470 | UT65 | | 17.5 | 8.15 | | | | | | | | | | 38 | | 0.07 | | 0.02 | | | | 7.0 | 260 | 105 |
| 92370 | UT65 | | | 8.00 | | 113 | 212 | 34 | 52 | 20 | 4 | 137 | 0.6 | 29 | 32 | | | 0.50 | | | | | | |
| 100170 | UT65 | | 8.5 | 8.20 | 432 | | | | | | | | | 38 | | 0.03 | | 0.02 | | | | 9.0 | 270 | 20 |
| 100570 | UT65 | | | | | | | | | | | | | | | | | | | 930 | 4.0 | | | |
| 102270 | UT65 | | 7.5 | 8.10 | | | | | | | | | | 87 | | .024 | | 0.03 | | | | 10.0 | 437 | 12 |
| 110270 | UT65 | | | 8.50 | | 208 | 272 | 52 | 68 | 25 | 6 | 218 | 18.0 | 54 | 63 | 0.10 | | 0.10 | | 930 | 3.8 | | | |
| 110270 | UT65 | | | 8.10 | 675 | 210 | 257 | 50 | 57 | 28 | 2 | 253 | 1.8 | 62 | 82 | 0.18 | | | | 930 | 3.8 | | | |
| 110570 | UT65 | | 7.0 | 8.25 | 802 | | | | | | | | | 87 | | 0.11 | | 0.04 | | | | 10.0 | 459 | 801 |
| 111670 | UT65 | | | 8.10 | | 194 | 276 | 57 | 66 | 27 | 6 | 235 | 1.3 | 54 | 90 | 0.20 | | | | | | | | |
| 111970 | UT65 | | 3.0 | 8.15 | 680 | | | | | | | | | | | 0.08 | | 0.04 | | | | 9.0 | 458 | 13 |
| 112670 | UT65 | | 6.0 | 8.10 | 428 | | | | | | | | | 63 | | 0.21 | | 0.08 | | | | 9.0 | 450 | 50 |
| 113070 | UT65 | | | 8.30 | 745 | 248 | 295 | 55 | 72 | 28 | 4 | 296 | 3.3 | 64 | 84 | 0.23 | | 0.20 | | 2300 | 5.0 | | | |
| 120370 | UT65 | | 2.0 | 8.10 | 731 | | | | | | | | | | | 0.15 | | 0.07 | | | | | | |
| 120570 | UT65 | | 2.0 | 8.10 | 730 | | | | | | | | | | | 0.15 | | 0.07 | | | | | 458 | |
| 121770 | UT65 | | 4.0 | 8.20 | 751 | | | | | | | | | 87 | | 0.18 | | 0.25 | | | | 11.0 | 484 | |
| 122270 | UT65 | | 2.5 | 8.15 | 690 | | | | | | | | | 63 | | 0.14 | 0.18 | | | | | 11.0 | 476 | |
| 10471 | UT65 | | | | | | | | | | | | | | | | | | | | 5.5 | | | |
| 10571 | UT65 | | | 7.95 | 820 | 222 | 400 | 40 | 99 | 30 | 4 | 268 | 1.3 | 54 | 184 | 1.17 | | | 0.33 | 930 | | | 682 | 5 |
| 12871 | UT65 | | 2.0 | 8.40 | 600 | | | | | | | | | 100 | | 0.25 | | 0.16 | | | | 9.0 | 481 | |
| 20871 | UT65 | | | 8.15 | 865 | 254 | 315 | 60 | 80 | 28 | 4 | 306 | 2.4 | 82 | 99 | 0.13 | | 0.10 | | 430 | 4.9 | | | |
| 30271 | UT65 | | | 8.00 | 800 | 224 | 288 | 65 | 66 | 30 | 5 | 271 | 1.5 | 80 | 112 | 0.23 | | | | 430 | 5.3 | | 631 | |
| 40671 | UT65 | | | 8.35 | 600 | 230 | 252 | 25 | 60 | 25 | 3 | 274 | 3.4 | 28 | 53 | 0.68 | | 0.20 | | 230 | 4.3 | | 472 | |
| 42771 | UT65 | | | 8.30 | 460 | 117 | 233 | 34 | 57 | 22 | 5 | 141 | 1.3 | 23 | 122 | 0.25 | 0.01 | 0.17 | | | | | 404 | |
| 60071 | UT65 | | | 8.00 | 500 | | | | | | | | | | | 0.26 | | 0.12 | | | | | | |
| 82669 | UT66 | | 24.0 | 8.60 | | | | | | | | | | | | | | | | | | 00.0 | | 034 |
| 90269 | UT66 | | 23.0 | 8.80 | | | | | | | | | | | | | | | | | | 00.0 | | 037 |
| 90969 | UT66 | | 21.2 | 8.40 | | | | | | | | | | | | | | | | | | 05.8 | | 029 |
| 50570 | UT66 | | | 8.35 | 460 | 242 | 265 | 7 | 57 | 30 | 2 | 289 | 3.6 | 18 | 20 | 0.07 | | 0.20 | | 430 | 3.2 | | | |
| 60270 | UT66 | | | 7.95 | 445 | 231 | 255 | 6 | 53 | 30 | 6 | 279 | 1.4 | 20 | 18 | 0.07 | | 0.20 | | 93 | 4.9 | | | |
| 61670 | UT66 | | | | | | 239 | 7 | 48 | 29 | 4 | | | 7 | | | | | | | | | | |
| 63070 | UT66 | | | 8.40 | 460 | 231 | 250 | 6 | 49 | 31 | 2 | 275 | 3.8 | 20 | 19 | 0.14 | | 0.20 | | 120 | 3.5 | | | |
| 71070 | UT66 | | 24.0 | 8.00 | | | 222 | | | | | | | | | 0.01 | | | | | | 7.0 | 269 | 13 |
| 71470 | UT66 | | | | | 183 | 257 | 9 | 52 | 31 | 3 | 224 | | 8 | 24 | 0.90 | | 0.10 | | | | | | |
| 80470 | UT66 | | | | | | | | | | | | | | | | | | | | 2.8 | | | |
| 80770 | UT66 | | 24.5 | 8.20 | | | 154 | | | | | | | | | 0.31 | | 0.07 | | | | 7.0 | 276 | 10 |
| 81170 | UT66 | | | | | 194 | 208 | 6 | 39 | 27 | 4 | 203 | 17.0 | 8 | 26 | 0.27 | | | | | | | | |
| 82170 | UT66 | | 22.0 | 8.25 | | | | | | | | | | 38 | | 0.22 | | 0.02 | | | | 9.0 | 249 | 12 |
| 90170 | UT66 | | | 8.45 | 435 | 230 | 268 | 7 | 48 | 36 | 1 | 273 | 4.2 | 20 | 20 | 0.05 | | 0.20 | 0.13 | 3000 | 3.5 | | | |
| 90470 | UT66 | | 20.0 | 8.00 | | | | | | | | | | 25 | | 0.13 | | 0.02 | | | | 7.0 | 251 | 10 |

| DATE | STA | FLOW | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 92370 | UT66 | | | 8.30 | | 145 | 245 | 12 | 52 | 28 | 3 | 174 | 2.0 | 6 | 21 | | | | | 4 | | | | |
| 100170 | UT66 | | 15.0 | 8.15 | 446 | | | | | | | | | 25 | | 0.08 | | 1.15 | | | | 13.0 | 438 | 40 |
| 100570 | UT66 | | | | | | | | | | | | | | | | | | | 2300 | 3.8 | | | |
| 102270 | UT66 | | 10.0 | 8.20 | | | | | | | | | | 25 | | .025 | | 0.04 | | | | 10.0 | 287 | 12 |
| 110270 | UT66 | | | 8.25 | 490 | 249 | 272 | 7 | 58 | 31 | 3 | 299 | 2.9 | 20 | 20 | 0.05 | | 0.30 | | 1500 | 3.0 | | | |
| 110570 | UT66 | | 7.0 | 8.25 | 498 | | | | | | | | | 12 | | 0.02 | | 0.08 | | | | 11.0 | 310 | 15 |
| 111670 | UT66 | | | 8.20 | | 222 | 286 | 10 | 62 | 32 | 3 | 268 | 1.9 | 5 | 28 | 0.24 | | 1.00 | | | | | | |
| 111970 | UT66 | | 4.0 | 8.20 | 467 | | | | | | | | | | | 0.03 | | 0.04 | | | | 10.0 | 303 | 10 |
| 112670 | UT66 | | 7.0 | 8.00 | 305 | | | | | | | | | 12 | | 0.05 | | 0.06 | | | | 8.0 | 299 | 10 |
| 113070 | UT66 | | | 8.25 | 530 | 267 | 278 | 8 | 62 | 30 | 3 | 320 | 3.2 | 20 | 23 | 0.18 | | 0.20 | | 4300 | 3.3 | | | |
| 120370 | UT66 | | 3.5 | 8.20 | 477 | | | | | | | | | | | 0.03 | | 0.02 | | | | | 291 | |
| 121770 | UT66 | | 3.5 | 7.90 | 487 | | | | | | | | | 12 | | 0.05 | | 0.04 | | | | 10.0 | 315 | |
| 122270 | UT66 | | 3.0 | 8.25 | 477 | | | | | | | | | 25 | | 0.05 | | 0.07 | | | | 11.0 | 304 | |
| 10471 | UT66 | | | | | | | | | | | | | | | | | | | | 8.9 | | | |
| 10571 | UT66 | | | 8.05 | 490 | 264 | 300 | 7 | 62 | 35 | 2 | 318 | 2.0 | 16 | 23 | 0.11 | | 0.10 | 0.08 | 430 | | | 465 | 4 |
| 20871 | UT66 | | | 8.30 | 490 | 253 | 268 | 9 | 58 | 30 | 3 | 303 | 3.3 | 26 | 23 | 0.05 | | 0.00 | | 150 | 8.5 | | | |
| 12871 | UT66 | | 5.0 | 8.30 | 450 | | | | | | | | | 25 | | 0.09 | | 4.40 | | | | 12.0 | 303 | |
| 30271 | UT66 | | | 8.30 | 460 | 233 | 249 | 7 | 52 | 29 | 2 | 279 | 3.1 | 20 | 19 | 0.07 | | | | 150 | 6.8 | | 411 | |
| 40671 | UT66 | | | 8.20 | 450 | 222 | 244 | 6 | 50 | 29 | 2 | 267 | 2.3 | 6 | 21 | 0.20 | | | | 43 | 4.0 | | 384 | |
| 42771 | UT66 | | | 8.50 | 420 | 233 | 282 | 9 | 62 | 31 | 4 | 277 | 4.1 | 5 | 25 | 0.08 | 0.05 | 0.10 | | | | | 413 | |
| 60871 | UT66 | | | 8.18 | 430 | | | | | | | | | | | | | 0.13 | | | | | | |
| 81969 | UT67 | | 25.2 | 8.90 | | | | | | | | | | | | | | | | | | 10.2 | | 024 |
| 82669 | UT67 | | 24.3 | 8.40 | | | | | | | | | | | | | | | | | | 04.8 | | 026 |
| 90269 | UT67 | | 24.0 | 8.90 | | | | | | | | | | | | | | | | | | 11.6 | | 021 |
| 90969 | UT67 | | 21.3 | 8.30 | | | | | | | | | | | | | | | | | | 05.8 | | 025 |
| 10471 | UT67 | 39.1 * | | | | | | | | | | | | | | | | | | 9300 | 17.5 | | | |
| 10571 | UT67 | 38.8 * | | 7.90 | 490 | 186 | 284 | 25 | 81 | 20 | 5 | 226 | 0.8 | 32 | | 0.64 | | 4.1 | | | | | 394 | 12 |
| 10571 | UT67 | 38.8 * | | 7.75 | 585 | 236 | 266 | 27 | 67 | 21 | 5 | 287 | 0.9 | 41 | 44 | 1.22 | | 3.80 | 0.29 | | | | 498 | |
| 11671 | UT67 | 40.5 * | | 8.30 | 500 | 177 | 292 | 22 | 84 | 20 | | 212 | 1.9 | 36 | | 0.26 | 3.86 | 4.4 | | | | | 462 | |
| 11871 | UT67 | 40.2 * | | 8.25 | 520 | 186 | 292 | 23 | 79 | 23 | | 224 | 1.8 | 34 | | 1.26 | 2.78 | 2.5 | | | | | 446 | |
| 20271 | UT67 | 36.4 | 10.0 | 8.65 | 568 | | | | | | | | | | | 1.15 | | 3.70 | | | | 6.0 | 387 | |
| 21671 | UT67 | 36.9 * | 12.0 | 7.62 | 560 | 169 | | | | | | 206 | 0.4 | | | 0.93 | 5.48 | 5.5 | | | | 6.0 | 312 | |
| 30471 | UT67 | 41.1 * | | 7.72 | 590 | | | | | | | | | | | 0.80 | 2.55 | 4.9 | | | | | | |
| 31171 | UT67 | 40.5 * | | 7.60 | 580 | | | | | | | | | | | 0.39 | 4.90 | 1.96 | | | | | 412 | |
| 31871 | UT67 | 43.5 * | | 7.46 | 560 | | | | | | | | | | | 0.43 | 3.03 | 4.11 | | | | | 401 | |
| 32571 | UT67 | 44.1 * | | 7.50 | 550 | | | | | | | | | | | 0.57 | 2.80 | 3.89 | | | | | 360 | |
| 40171 | UT67 | 42.4 * | | 7.62 | 550 | | | | | | | | | | | 0.54 | 2.48 | 2.68 | | | | | 370 | |
| 40671 | UT67 | 39.5 * | | 7.32 | 550 | | | | | | | | | | | 0.88 | 0.48 | 1.98 | | | | | 476 | |
| 42271 | UT67 | 41.5 | | 7.55 | 560 | | | | | | | | | | | 0.48 | 1.96 | 3.33 | | | | | 370 | |
| 42771 | UT67 | 43.9 | | 7.70 | 510 | 185 | 276 | 33 | 71 | 24 | 7 | 225 | 0.5 | 35 | 51 | 0.61 | 3.86 | 3.37 | | | | | 450 | |
| 50871 | UT67 | 43.6 | | 7.30 | 530 | | | | | | | | | | | 0.36 | 3.92 | 6.76 | | | | | | |
| 51371 | UT67 | 44.0 | | 7.70 | 530 | 196 | | | | | | 239 | 0.5 | | | 1.02 | 1.00 | 3.06 | | | | | | |
| 52071 | UT67 | 42.3 | | 8.30 | 530 | | | | | | | | | 33 | | 1.08 | 2.22 | 3.26 | | | | | | |
| 61571 | UT67 | 47.8 | | 7.37 | 490 | | | | | | | | | | | | | 2.53 | | | | | | |
| 62271 | UT67 | 44.7 | | 7.62 | 590 | | | | | | | | | | | | | 2.97 | | | | | | |
| 62971 | UT67 | 44.4 | | 7.70 | 560 | | | | | | | | | | | | | 2.56 | | | | | | |
| 71371 | UT67 | 51.6 | | 7.60 | 530 | | | | | | | | | | | | | 2.94 | | | | | | |
| 72071 | UT67 | 52.2 | | 7.55 | 540 | | | | | | | | | | | | | 2.48 | | | | | | |
| 72971 | UT67 | 53.0 | | 7.70 | 580 | | | | | | | | | | | | | 3.37 | | | | | | |
| 80471 | UT67 | 56.6 | | 7.30 | 580 | | | | | | | | | | | | | 2.41 | | | | | | |

| DATE | STA | FLOW | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 81969 | UT68 | | 25.0 | 8.90 | | | | | | | | | | | | | | | | | | 12.0 | | 035 |
| 82669 | UT68 | | 22.8 | 8.50 | | | | | | | | | | | | | | | | | | 04.2 | | 028 |
| 90269 | UT68 | | 23.1 | 8.70 | | | | | | | | | | | | | | | | | | 09.0 | | 016 |
| 90969 | UT68 | | 21.0 | 8.40 | | | | | | | | | | | | | | | | | | 05.6 | | 020 |
| 121470 | UT68 | | | 8.20 | 695 | 171 | 213 | 62 | 13 | 44 | 5 | 189 | 10.0 | 40 | 262 | 0.63 | | 0.30 | | | | | | |
| 11671 | UT68 | | | 8.25 | 785 | 188 | 556 | 25 | 152 | 43 | | 226 | 1.8 | 40 | | 0.73 | 0.07 | 0.11 | | | | | 750 | |
| 42771 | UT68 | | | 8.00 | 630 | 264 | 403 | 40 | 89 | 44 | 10 | 320 | 1.5 | 34 | | 2.62 | 0.06 | 0.24 | | | | | | |
| 82569 | UT69 | | 24.2 | 8.20 | | | | | | | | | | | | | | | | | | 05.6 | | 033 |
| 90269 | UT69 | | 22.4 | 8.40 | | | | | | | | | | | | | | | | | | 07.0 | | 032 |
| 90969 | UT69 | | 21.2 | 8.10 | | | | | | | | | | | | | | | | | | 05.7 | | 020 |
| 82669 | UT70 | | 26.5 | 8.10 | | | | | | | | | | | | | | | | | | 06.0 | | 015 |
| 90269 | UT70 | | 22.6 | 8.60 | | | | | | | | | | | | | | | | | | 08.2 | | 016 |
| 90969 | UT70 | | 22.0 | 8.40 | | | | | | | | | | | | | | | | | | 06.9 | | 024 |
| 81969 | UT71 | | 23.6 | 8.80 | | | | | | | | | | | | | | | | | | 09.6 | | 035 |
| 82669 | UT71 | | 24.3 | 8.60 | | | | | | | | | | | | | | | | | | 08.6 | | 056 |
| 90269 | UT71 | | 22.5 | 8.70 | | | | | | | | | | | | | | | | | | 08.8 | | 042 |
| 90969 | UT71 | | 21.4 | 8.50 | | | | | | | | | | | | | | | | | | 06.1 | | 029 |

| DATE | STA | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32470 | UL 1 | | | | | | | | | | | | | | | | | | 230 | | | | |
| 61570 | UL 2 | 18.0 | 8.35 | 1000 | 184 | 293 | 92 | 55 | 38 | 13 | 219 | 2.7 | 126 | 153 | 0.23 | | 0.1 | | 93 | 5.9 | 5.4 | | |
| 70870 | UL 2 | 25.0 | 8.30 | 1280 | 196 | 342 | 140 | 53 | 51 | 19 | 234 | 2.6 | 188 | 218 | 0.20 | | 0.5 | | 4 | 4.7 | 9.0 | | |
| 81270 | UL 2 | 25.5 | 8.60 | | 172 | 341 | 160 | 41 | 58 | 20 | 201 | 4.4 | 210 | 230 | 0.23 | | 0.2 | | | 5.8 | 5.5 | | |
| 90870 | UL 2 | | 8.50 | 1280 | 172 | 328 | 160 | 41 | 55 | 21 | 203 | 3.5 | 217 | 235 | 0.18 | | 0.4 | 0.77 | | | | | |
| 90970 | UL 2 | | | | | | | | | | | | | | | | | | | 11.2 | | | |
| 61570 | UL 4 | 21.0 | 8.35 | 1230 | 204 | 345 | 120 | 59 | 48 | 17 | 243 | 3.0 | 167 | 200 | 0.23 | | 0.2 | | 93 | | 8.0 | | |
| 70870 | UL 4 | 27.0 | 8.15 | 1250 | 202 | 348 | 140 | 54 | 52 | 19 | 243 | 1.9 | 184 | 214 | 0.11 | | 0.6 | | | | 12.9 | | |
| 81270 | UL 4 | 27.0 | 8.60 | 1300 | 172 | 322 | 145 | 40 | 54 | 19 | 202 | 4.4 | 201 | 220 | 0.23 | | 0.4 | | | | 5.4 | | |
| 90870 | UL 4 | | 7.80 | 1250 | 177 | 332 | 150 | 44 | 54 | 20 | 215 | 0.8 | 190 | 211 | 0.25 | | 0.5 | 0.68 | | | | | |
| 61368 | UL 5 | | 8.25 | 1445 | 207 | 363 | 140 | 60 | 52 | 17 | 248 | 2.0 | 180 | 223 | 0.29 | | 0.8 | 0.68 | | | | 922 | 11 |
| 61768 | UL 5 | | 8.40 | 1425 | 206 | 358 | 140 | 58 | 52 | 17 | 244 | 3.4 | 177 | 216 | 0.23 | | 0.9 | 0.64 | | | | 909 | 5 |
| 62768 | UL 5 | | 8.20 | 1425 | 201 | 360 | 140 | 58 | 52 | 18 | 241 | 2.1 | 180 | 223 | 0.07 | | 0.8 | 0.71 | | | | 916 | 8 |
| 70168 | UL 5 | | 8.35 | 1490 | 200 | 364 | 140 | 57 | 54 | 19 | 238 | 2.9 | 190 | 227 | 0.29 | | 0.8 | 0.70 | | | | 929 | 16 |
| 70568 | UL 5 | | 8.20 | 1630 | 204 | 364 | 140 | 55 | 55 | 19 | 244 | 2.1 | 192 | 232 | 0.23 | | 0.8 | 0.71 | | | | 941 | 9 |
| 70868 | UL 5 | | 8.40 | 1510 | 194 | 354 | 140 | 54 | 53 | 19 | 230 | 3.2 | 190 | 232 | 0.23 | | 0.6 | 0.70 | | | | 923 | 8 |
| 71168 | UL 5 | | 8.35 | 1390 | 186 | 348 | 132 | 50 | 54 | 19 | 221 | 2.7 | 190 | 230 | 0.14 | | 1.0 | 0.65 | | | | 862 | 16 |
| 71568 | UL 5 | | 8.35 | 1510 | 195 | 344 | 148 | 49 | 54 | 20 | 232 | 2.9 | 196 | 233 | | | 1.0 | 0.70 | | | | 937 | 17 |
| 71868 | UL 5 | | 8.30 | 1000 | 194 | 346 | 130 | 50 | 54 | 20 | 232 | 2.4 | 196 | 234 | 0.07 | | 1.0 | 0.73 | | | | 920 | 9 |
| 72168 | UL 5 | | 8.00 | 1000 | 184 | 346 | 145 | 36 | 62 | 20 | 222 | 1.2 | 200 | 240 | 0.07 | | 0.9 | 0.64 | | | | 928 | 14 |
| 72568 | UL 5 | | 8.00 | 1450 | 172 | 334 | 130 | 46 | 53 | 20 | 208 | 1.1 | 209 | 243 | 0.02 | | 3.5 | 0.70 | | | | 892 | 10 |
| 72968 | UL 5 | | 7.50 | 1425 | 180 | 348 | 140 | 49 | 55 | 21 | 219 | 0.3 | 199 | 241 | 0.02 | | 2.8 | 0.74 | | | | 886 | 9 |
| 80168 | UL 5 | | 7.70 | 1390 | 174 | 339 | 140 | 47 | 54 | 21 | 211 | 0.5 | 202 | 239 | | | 2.6 | 0.74 | | | | 880 | 9 |
| 80468 | UL 5 | | 7.60 | 1490 | 177 | 354 | 140 | 50 | 56 | 21 | 215 | 0.4 | 203 | 245 | | | 2.4 | 0.75 | | | | 894 | 5 |
| 80868 | UL 5 | | 7.65 | 1490 | 170 | 344 | 140 | 45 | 56 | 21 | 206 | 0.5 | 204 | 245 | 0.02 | | 2.4 | 0.75 | | | | 884 | 8 |
| 81268 | UL 5 | | 8.00 | 1470 | 171 | 340 | 150 | 46 | 55 | 20 | 206 | 1.1 | 204 | 241 | 0.23 | | 2.6 | 0.77 | | | | 888 | 8 |
| 81968 | UL 5 | | 8.11 | 1270 | 170 | 340 | 140 | 45 | 55 | 20 | 205 | 1.4 | 207 | 245 | 0.50 | | 1.0 | 0.76 | | | | 921 | 5 |
| 82668 | UL 5 | | 8.80 | 1425 | 138 | 306 | 155 | 34 | 54 | 22 | 157 | 5.5 | 205 | 246 | 0.05 | | 0.4 | 0.77 | | | | 856 | 4 |
| 90268 | UL 5 | | 8.25 | 1470 | 149 | 342 | 145 | 38 | 60 | 18 | 178 | 1.8 | 207 | 241 | 0.27 | | 0.9 | 0.80 | | | | 858 | 4 |
| 90568 | UL 5 | | 8.30 | 1600 | 165 | 340 | 155 | 43 | 57 | 18 | 199 | 1.1 | 217 | 248 | 0.27 | | 0.6 | 0.82 | | | | 888 | 4 |
| 90968 | UL 5 | | 8.45 | 1450 | 148 | 320 | 150 | 37 | 55 | 18 | 175 | 1.8 | 210 | 248 | 0.05 | | 0.3 | 0.81 | | | | 878 | 2 |
| 91268 | UL 5 | | 8.55 | 1270 | 153 | 329 | 165 | 38 | 57 | 18 | 180 | 3.5 | 232 | 249 | 0.11 | | 0.5 | 0.58 | | | | 870 | 10 |
| 91668 | UL 5 | | 7.85 | 1470 | 160 | 332 | 155 | 40 | 56 | 19 | 194 | 0.7 | 221 | 252 | 0.23 | | 0.7 | 0.76 | | | | 892 | 10 |
| 91968 | UL 5 | | 7.95 | 1500 | 161 | 468 | 165 | 41 | 89 | 19 | 195 | 0.9 | 217 | 249 | 0.23 | | 1.0 | 0.76 | | | | 906 | 5 |
| 100868 | UL 5 | | 7.90 | 1470 | 166 | 380 | 158 | 42 | 67 | 19 | 201 | 0.9 | 217 | 255 | 0.16 | | 0.5 | | | | | 922 | 29 |
| 120368 | UL 5 | | 8.30 | 1560 | 186 | 366 | 165 | 51 | 58 | 19 | 222 | 2.5 | 226 | 256 | 0.50 | | 0.9 | | | | | 966 | 11 |
| 51369 | UL 5 | | 8.05 | 1465 | 211 | 352 | 145 | 59 | 50 | 18 | 254 | 1.6 | 184 | 208 | 0.32 | | 0.7 | 0.66 | | | | 880 | 30 |
| 60369 | UL 5 | | 8.45 | 1390 | 212 | 374 | 140 | 62 | 53 | 17 | 251 | 3.9 | 181 | 222 | 0.29 | | 0.8 | 0.74 | | | | 880 | 30 |
| 60369 | UL 5 | | 8.20 | 1406 | | | | | | | | | 200 | 218 | | | | | | | | 890 | |
| 61969 | UL 5 | | 8.20 | 1395 | | | | | | | | | 220 | 215 | | | | | | | | 892 | |
| 62669 | UL 5 | | 8.25 | 1415 | | | | | | | | | 218 | 210 | | | | | | | | 907 | |
| 70169 | UL 5 | | 8.20 | 1430 | | | | | | | | | 210 | 215 | | | | | | | | 920 | |
| 70869 | UL 5 | | 8.20 | 1345 | | | | | | | | | 205 | 210 | | | | | | | | 860 | |
| 71569 | UL 5 | | 8.20 | 1325 | | | | | | | | | 210 | 200 | | | | | | | | 847 | |
| 80569 | UL 5 | | 7.65 | 1390 | 172 | 323 | 144 | 44 | 52 | 21 | 209 | 0.5 | 195 | 220 | 0.27 | | 0.8 | 0.70 | | | | 852 | 50 |
| 90269 | UL 5 | | 7.85 | 1370 | 157 | 312 | 150 | 36 | 54 | 20 | 190 | 0.7 | 204 | 218 | 0.07 | | 1.4 | 0.72 | | | | 862 | 21 |
| 102169 | UL 5 | | 7.85 | 1300 | 161 | 320 | 140 | 37 | 55 | 19 | 195 | 0.8 | 203 | 230 | 0.25 | | 1.0 | 0.71 | | | | 878 | 45 |
| 121669 | UL 5 | | 8.25 | 1280 | 181 | 344 | 150 | 43 | 58 | 18 | 217 | 2.1 | 203 | 223 | 0.23 | | 0.1 | 0.64 | | 1.2 | | 908 | 13 |
| 30370 | UL 5 | | 8.25 | 1390 | 191 | 338 | 145 | 48 | 53 | 18 | 228 | 2.2 | 196 | | 0.23 | | 0.0 | 0.62 | | | | 896 | 35 |
| 32470 | UL 5 | | 8.30 | 1170 | 194 | 334 | 130 | 51 | 50 | 18 | 232 | 2.6 | 179 | 204 | 0.23 | | 0.0 | 0.59 | | 1.8 | | 840 | 38 |

| DATE | STA | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 62470 | UL 5 | 23.5 | 8.40 | 1370 | 202 | 366 | 145 | 57 | 54 | 20 | 240 | 3.3 | 196 | 224 | 0.36 | | 0.1 | 0.56 | | | 8.3 | 872 | 10 |
| 72270 | UL 5 | 24.5 | | | | | | | | | | | | | | | | | | | 9.2 | | |
| 82670 | UL 5 | | 8.30 | 1335 | 166 | 342 | 170 | 40 | 59 | 31 | 199 | 2.2 | 217 | 240 | 0.09 | | 0.2 | | | | | | |
| 92370 | UL 5 | | 8.60 | 1455 | 168 | 342 | 170 | 40 | 59 | 16 | 197 | 4.3 | 237 | 244 | 0.09 | | 0.2 | 0.65 | | | | | |
| 32572 | UL 5 | 11.5 | | | | | | | | | | | | | | | | | | | | | |
| 42072 | UL 5 | 11.5 | | 1166 | 180 | 327 | 174 | 47 | 51 | 19 | 220 | | 190 | 218 | 0.19 | | 0.03 | | | 00.6 | | 919 | |
| 51572 | UL 5 | 18.9 | | 1264 | 222 | 377 | 159 | 57 | 57 | 15 | 271 | | 191 | | 0.22 | | | | | 00.8 | | 0864 | |
| 121669 | UL 6 | | | | | | | | | | | | | | | | | | | 2.5 | | | |
| 32470 | UL 6 | | | | | | | | | | | | | | | | | | 930 | 3.4 | | | |
| 61570 | UL 6 | 21.5 | | | | | | | | | | | | | | | | | 75 | | 6.4 | | |
| 70870 | UL 6 | 27.0 | 7.95 | 1230 | 202 | 357 | 135 | 59 | 51 | 20 | 244 | 1.2 | 182 | 221 | 0.02 | | 0.6 | | 230 | | 10.1 | | |
| 81270 | UL 6 | 26.0 | 8.35 | 1300 | 178 | 340 | 145 | 44 | 56 | 19 | 212 | 2.6 | 202 | 225 | 0.68 | | 0.4 | | | | 5.0 | | |
| 90870 | UL 6 | | 7.60 | 1080 | 181 | 341 | 120 | 56 | 49 | 19 | 221 | 0.5 | 150 | 201 | 0.97 | | 0.4 | 0.75 | | | | | |
| 121669 | UL 7 | | | | | | | | | | | | | | | | | | | 2.2 | | | |
| 32470 | UL 7 | | | | | | | | | | | | | | | | | | 43 | 4.6 | | | |
| 121669 | UL 8 | | | | | | | | | | | | | | | | | | | 1.9 | | | |
| 32470 | UL 8 | | | | | | | | | | | | | | | | | | 9 | 2.6 | | | |
| 61570 | UL 8 | 21.0 | 8.35 | 1280 | 209 | 363 | 130 | 63 | 50 | 18 | 249 | 3.1 | 180 | 219 | 0.72 | | 0.2 | | 93 | | 6.0 | | |
| 70870 | UL 8 | | 8.20 | 1280 | 196 | 355 | 145 | 55 | 53 | 20 | 235 | 2.1 | 192 | 225 | 0.23 | | 0.4 | | 23 | | 10.4 | | |
| 81270 | UL 8 | 27.0 | 8.55 | 1370 | 170 | 330 | 155 | 40 | 56 | 18 | 200 | 3.9 | 207 | 230 | 0.23 | | 0.3 | | | | 4.8 | | |
| 90370 | UL 3 | | 7.70 | 1280 | 185 | 351 | 150 | 42 | 60 | 21 | 225 | 0.6 | 194 | 221 | 0.38 | | 1.4 | 0.72 | | | | | |
| 121669 | UL 9 | | | | | | | | | | | | | | | | | | | 1.4 | | | |
| 32470 | UL 9 | | | | | | | | | | | | | | | | | | 9 | 2.7 | | | |
| 32470 | UL10 | | | | | | | | | | | | | | | | | | 9 | | | | |
| 61368 | UL11 | | 8.30 | 1490 | 212 | 368 | 140 | 60 | 53 | 18 | 253 | 2.8 | 205 | 231 | 0.05 | | 0.9 | 0.58 | | | | 964 | 18 |
| 61768 | UL11 | | 8.30 | 1425 | 210 | 370 | 140 | 61 | 53 | 18 | 251 | 2.7 | 180 | 228 | 0.27 | | 0.9 | 0.70 | | | | 936 | 6 |
| 62468 | UL11 | | 8.30 | 1445 | 207 | 360 | 140 | 57 | 53 | 17 | 247 | 2.7 | 192 | 225 | 0.25 | | 0.8 | 0.67 | | | | 935 | 18 |
| 62768 | UL11 | | 8.30 | 1445 | 204 | 360 | 140 | 58 | 52 | 19 | 244 | 2.7 | 185 | 229 | 0.29 | | 0.8 | 0.72 | | | | 932 | 14 |
| 70168 | UL11 | | 8.35 | 1425 | 195 | 360 | 140 | 55 | 54 | 19 | 232 | 2.9 | 187 | 227 | 0.29 | | 0.9 | 0.71 | | | | 919 | 14 |
| 70568 | UL11 | | 8.10 | 1630 | 200 | 360 | 140 | 55 | 55 | 19 | 241 | 1.7 | 193 | 232 | 0.20 | | 0.8 | 0.72 | | | | 938 | 9 |
| 70968 | UL11 | | 8.30 | 1530 | 197 | 362 | 150 | 56 | 54 | 19 | 235 | 2.6 | 195 | 238 | 0.18 | | 0.9 | 0.73 | | | | 951 | 17 |
| 71168 | UL11 | | 8.20 | 1530 | 196 | 352 | 140 | 51 | 55 | 19 | 235 | 2.1 | 190 | 230 | 0.16 | | 0.9 | 0.65 | | | | 924 | 15 |
| 71568 | UL11 | | 8.35 | 1510 | 200 | 352 | 150 | 52 | 54 | 20 | 238 | 2.9 | 200 | 234 | 0.02 | | 0.9 | 0.68 | | | | 953 | 21 |
| 71868 | UL11 | | 8.40 | 1390 | 194 | 358 | 140 | 55 | 54 | 20 | 232 | 3.2 | 193 | 240 | 0.14 | | 0.9 | 0.76 | | | | 939 | 14 |
| 72168 | UL11 | | 8.15 | 1000 | 187 | 346 | 150 | 37 | 61 | 20 | 225 | 1.8 | 195 | 240 | | | 1.3 | 0.67 | | | | 932 | 18 |
| 72568 | UL11 | | 8.20 | 1390 | 183 | 348 | 159 | 51 | 54 | 20 | 219 | 1.9 | 204 | 245 | | | 1.3 | 0.73 | | | | 956 | 20 |
| 72968 | UL11 | | 8.05 | 1425 | 183 | 348 | 140 | 50 | 54 | 21 | 221 | 1.4 | 200 | 224 | 0.16 | | 2.6 | 0.74 | | | | 892 | 18 |
| 80168 | UL11 | | 7.60 | 1390 | 175 | 339 | 140 | 46 | 54 | 21 | 213 | 0.4 | 200 | 241 | | | 4.2 | 0.74 | | | | 880 | 10 |
| 80468 | UL11 | | 7.90 | 1490 | 172 | 348 | 150 | 44 | 54 | 21 | 208 | 1.0 | 205 | 248 | 0.14 | | 8.0 | 0.74 | | | | 940 | 12 |
| 80868 | UL11 | | 7.90 | 1530 | 190 | 342 | 140 | 50 | 56 | 21 | 230 | 0.9 | 202 | 240 | | | 2.4 | 0.73 | | | | 934 | 8 |
| 81268 | UL11 | | 7.55 | 1210 | 184 | 352 | 150 | 51 | 55 | 21 | 224 | 0.4 | 208 | 242 | 0.05 | | 2.7 | 0.76 | | | | 955 | 5 |
| 81968 | UL11 | | 7.90 | 1195 | 169 | 340 | 140 | 45 | 55 | 20 | 204 | 0.9 | 209 | 246 | 0.32 | | 0.5 | 0.81 | | | | 902 | 6 |
| 90568 | UL11 | | 8.10 | 1450 | 162 | 334 | 150 | 46 | 55 | 18 | 195 | 1.4 | 210 | 246 | 0.32 | | 0.5 | 0.83 | | | | 886 | 11 |
| 90968 | UL11 | | 8.35 | 1450 | 158 | 326 | 170 | 40 | 55 | 18 | 188 | 2.3 | 210 | 245 | 0.18 | | 1.0 | 0.73 | | | | 930 | 4 |
| 91268 | UL11 | | 8.15 | 1450 | 157 | 327 | 160 | 38 | 56 | 19 | 169 | 1.7 | 211 | 245 | 0.14 | | 0.5 | 0.59 | | | | 884 | 13 |
| 91668 | UL11 | | 7.80 | 1500 | 165 | 332 | 155 | 42 | 55 | 19 | 200 | 0.7 | 216 | 248 | 0.14 | | 0.9 | 0.78 | | | | 938 | 13 |
| 91968 | UL11 | | 7.95 | 1450 | 165 | 468 | 150 | 41 | 89 | 19 | 200 | 0.9 | 211 | 249 | 0.23 | | 0.7 | 0.76 | | | | 962 | 11 |
| 102268 | UL11 | | 8.25 | 1470 | 177 | 376 | 150 | 51 | 61 | 16 | 212 | 2.1 | 208 | 252 | 0.36 | | 0.7 | 0.76 | | | | 920 | 29 |
| 112668 | UL11 | | 8.10 | 1430 | 187 | 348 | 150 | 50 | 54 | 18 | 225 | 1.6 | 197 | 230 | 0.43 | | 0.8 | 0.67 | | | | 928 | 17 |
| 42269 | UL11 | | 8.20 | 1370 | 205 | 360 | 130 | 58 | 52 | 2 | 246 | 2.2 | 186 | 221 | 0.34 | | 0.8 | 0.64 | | | | 899 | 12 |

| DATE | STA | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 52769 | UL11 | | 8.35 | 1285 | 208 | 360 | 130 | 59 | 52 | 17 | 248 | 3.0 | 171 | 206 | 0.34 | | 0.7 | 0.61 | | | | 883 | 70 |
| 60369 | UL11 | | 8.30 | 1400 | 213 | 366 | 140 | 61 | 52 | 17 | 255 | 2.4 | 179 | 221 | 0.32 | | 0.9 | 0.70 | | | | 929 | 8 |
| 60369 | UL11 | | 8.20 | 1380 | | | | | | | | | 210 | 217 | | | | 0.20 | | | | 883 | |
| 61969 | UL11 | | 8.18 | 1370 | | | | | | | | | 210 | 210 | | | | 0.38 | | | | 876 | |
| 62669 | UL11 | | 8.20 | 1410 | | | | | | | | | 218 | 208 | | | | 0.41 | | | | 899 | |
| 70169 | UL11 | | 8.25 | | | | | | | | | | 220 | 210 | | | | 0.38 | | | | 892 | |
| 70169 | UL11 | | 8.30 | 1315 | 202 | 348 | 130 | 56 | 51 | 19 | 241 | 2.7 | 174 | 217 | 0.16 | | 0.9 | 0.63 | | | | 840 | 25 |
| 70869 | UL11 | | 8.20 | 1350 | | | | | | | | | 220 | 210 | | | | 0.38 | | | | 870 | |
| 71569 | UL11 | | 8.24 | 1353 | | | | | | | | | 215 | 210 | | | | 0.44 | | | | 866 | |
| 80569 | UL11 | | 8.05 | 1400 | 180 | 334 | 145 | 48 | 52 | 22 | 217 | 1.3 | 196 | 223 | 0.16 | | 0.9 | 0.69 | | | | 868 | 70 |
| 90269 | UL11 | | 7.90 | 1425 | 165 | 321 | 150 | 39 | 54 | 20 | 200 | 0.9 | 204 | 223 | 0.09 | | 1.1 | 0.75 | | | | 872 | 50 |
| 102169 | UL11 | | 8.00 | 1350 | 165 | 328 | 150 | 42 | 54 | 19 | 199 | 1.1 | 205 | 228 | 0.20 | | 1.0 | 0.65 | | | | 890 | 65 |
| 112569 | UL11 | | 8.10 | 1335 | 177 | 336 | 150 | 46 | 54 | 19 | 213 | 1.5 | 200 | 206 | 0.23 | | 2.5 | 0.77 | | | | 880 | 16 |
| 121669 | UL11 | | 8.30 | 1170 | 183 | 330 | 140 | 48 | 51 | 17 | 219 | 2.4 | 185 | 210 | 0.23 | | 0.1 | 0.65 | | | | 856 | 10 |
| 30370 | UL11 | | 8.30 | 1140 | 185 | 350 | 115 | 48 | 56 | 15 | 221 | 2.4 | 111 | 177 | 0.18 | | 0.1 | 0.56 | | | | 770 | 25 |
| 32470 | UL11 | | 8.40 | 1170 | 193 | 325 | 115 | 50 | 49 | 17 | 229 | 3.2 | 165 | 190 | 0.18 | | 0.1 | 0.57 | 3 | | | 819 | 27 |
| 62470 | UL11 | 22.5 | 8.40 | 1370 | 207 | 367 | 145 | 58 | 54 | 19 | 245 | 3.4 | 197 | 228 | 0.36 | | 0.2 | 0.56 | 23 | | 7.2 | 951 | 26 |
| 72270 | UL11 | 23.0 | | | | | | | | | | | | | | | | | | | 8.2 | | |
| 82670 | UL11 | | 8.35 | 1400 | 166 | 341 | 170 | 41 | 58 | 21 | 198 | 2.4 | 222 | 240 | 0.09 | | 0.5 | | | | | | |
| 92370 | UL11 | | 8.60 | 1435 | 167 | 341 | 170 | 38 | 60 | 17 | 195 | 4.3 | 226 | 238 | 0.09 | | 0.2 | 0.67 | | | | | |
| 32572 | UL11 | 11.7 | | | | | | | | | | | | | | | | | | | | | |
| 40672 | UL11 | 9.4 | | 1199 | | | | | | | | | 144 | | 0.13 | | 0.06 | | | 00.5 | | 0890 | |
| 42072 | UL11 | 9.3 | | 1080 | 354 | 324 | 151 | 46 | 51 | 19 | 432 | | 180 | 198 | 0.12 | | 0.03 | | | 00.9 | | 1077 | 7 |
| 51572 | UL11 | 16.9 | | 1253 | 355 | 377 | 153 | 57 | 57 | 14 | 434 | | 185 | | 0.28 | | 0.10 | | | 01.0 | | 0900 | |
| 121669 | UL12 | | | | | | | | | | | | | | | | | | | 1.4 | | | |
| 32470 | UL12 | | | | | | | | | | | | | | | | | | 23 | 2.0 | | | |
| 61368 | UL13 | | 8.25 | 1425 | 209 | 358 | 140 | 58 | 52 | 17 | 250 | 2.5 | 179 | 218 | 0.27 | | 0.8 | 0.66 | | | | 918 | 16 |
| 61768 | UL13 | | 8.40 | 1445 | 205 | 355 | 140 | 58 | 51 | 17 | 243 | 3.4 | 185 | 217 | 0.25 | | 0.9 | 0.66 | | | | 916 | 38 |
| 62068 | UL13 | | 8.25 | 1425 | 204 | 346 | 130 | 57 | 56 | 16 | 244 | 2.4 | 170 | 211 | 0.18 | | 0.8 | 0.62 | | | | 888 | 11 |
| 62468 | UL13 | | 8.30 | 1445 | 218 | 368 | 150 | 58 | 54 | 18 | 260 | 2.9 | 199 | 234 | 0.23 | | 0.8 | 0.68 | | | | 978 | 22 |
| 62768 | UL13 | | 8.35 | 1445 | 205 | 364 | 160 | 58 | 53 | 19 | 244 | 3.0 | 200 | 234 | 0.23 | | 0.8 | 0.71 | | | | 973 | 11 |
| 70168 | UL13 | | 8.00 | 1510 | 203 | 366 | 150 | 58 | 54 | 19 | 245 | 1.4 | 197 | 231 | 0.02 | | 1.5 | 0.70 | | | | 958 | 13 |
| 70568 | UL13 | | 8.40 | 1680 | 222 | 364 | 160 | 56 | 54 | 20 | 263 | 3.7 | 221 | 234 | 0.34 | | 0.9 | 0.73 | | | | 1014 | 10 |
| 70868 | UL13 | | 8.35 | 1490 | 193 | 352 | 140 | 54 | 53 | 19 | 230 | 2.8 | 190 | 227 | 0.18 | | 0.9 | 0.70 | | | | 918 | 9 |
| 71168 | UL13 | | 8.30 | 1550 | 204 | 360 | 160 | 56 | 54 | 20 | 244 | 2.7 | 207 | 238 | 0.07 | | 0.9 | 0.67 | | | | 963 | 14 |
| 71568 | UL13 | | 8.20 | 1510 | 193 | 358 | 154 | 49 | 57 | 20 | 231 | 2.0 | 203 | 236 | | | 0.8 | 0.69 | | | | 953 | 14 |
| 71868 | UL13 | | 8.45 | 1390 | 192 | 350 | 150 | 52 | 54 | 20 | 228 | 3.2 | 190 | 237 | | | 0.9 | 0.75 | | | | 894 | 14 |
| 72168 | UL13 | | 8.15 | 1425 | 186 | 354 | 190 | 37 | 64 | 20 | 223 | 1.7 | 202 | 262 | 0.07 | | 0.9 | 0.66 | | | | 1001 | 14 |
| 72568 | UL13 | | 8.35 | 1380 | 177 | 340 | 176 | 47 | 54 | 20 | 211 | 2.6 | 202 | 240 | 0.02 | | 1.0 | 0.72 | | | | 954 | 12 |
| 72968 | UL13 | | 8.10 | 1425 | 178 | 344 | 140 | 48 | 54 | 21 | 215 | 1.5 | 202 | 239 | 0.02 | | 2.7 | 0.72 | | | | 896 | 13 |
| 80168 | UL13 | | 8.35 | 1425 | 177 | 346 | 140 | 47 | 56 | 21 | 211 | 2.6 | 201 | 242 | | | 2.2 | 0.74 | | | | 890 | 13 |
| 80468 | UL13 | | 7.90 | 1490 | 174 | 378 | 140 | 50 | 63 | 21 | 210 | 0.9 | 202 | 243 | | | 2.1 | 0.72 | | | | 906 | 5 |
| 80868 | UL13 | | 7.90 | 1445 | 175 | 347 | 140 | 48 | 55 | 21 | 212 | 0.9 | 208 | 225 | | | 2.4 | 0.73 | | | | 913 | 10 |
| 81268 | UL13 | | 7.70 | 1300 | 174 | 344 | 150 | 45 | 56 | 21 | 212 | 5.8 | 205 | 244 | 0.09 | | 2.4 | 0.77 | | | | 904 | 6 |
| 81968 | UL13 | | 7.55 | 1195 | 178 | 346 | 150 | 48 | 55 | 20 | 216 | 0.4 | 209 | 241 | 0.36 | | 0.7 | 0.77 | | | | 941 | 9 |
| 82668 | UL13 | | 8.20 | 1500 | 170 | 334 | 145 | 45 | 54 | 21 | 204 | 1.8 | 208 | 247 | 0.11 | | 0.2 | 0.75 | | | | 894 | 7 |
| 90568 | UL13 | | 8.40 | 1450 | 165 | 334 | 150 | 42 | 56 | 19 | 198 | 2.7 | 214 | 247 | 0.11 | | 0.5 | 0.79 | | | | 894 | 7 |
| 90968 | UL13 | | 7.90 | 1500 | 164 | 340 | 172 | 46 | 55 | 19 | 198 | 0.8 | 218 | 251 | 0.11 | | 1.0 | 0.59 | | | | 914 | 2 |
| 91268 | UL13 | | 8.35 | 1450 | 160 | 338 | 162 | 42 | 57 | 19 | 191 | 2.4 | 220 | 248 | 0.23 | | 0.8 | 0.58 | | | | 896 | 8 |
| 91668 | UL13 | | 7.80 | 1450 | 163 | 338 | 145 | 41 | 57 | 19 | 198 | 0.6 | 216 | 249 | 0.36 | | 1.0 | 0.78 | | | | 886 | 8 |

| DATE | STA | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 91968 | UL13 | | 8.00 | 1500 | 166 | 340 | 155 | 42 | 57 | 19 | 200 | 1.1 | 220 | 252 | 0.02 | | 0.7 | 0.77 | | | | 908 | 6 |
| 100868 | UL13 | | 8.40 | 2000 | 171 | 350 | 160 | 43 | 59 | 18 | 203 | 2.8 | 227 | 244 | 0.23 | | 0.6 | | | | | 936 | 27 |
| 120368 | UL13 | | 8.45 | 1510 | 185 | 360 | 166 | 50 | 57 | 18 | 218 | 3.4 | 215 | 251 | 0.59 | | 0.7 | | | | | 926 | 5 |
| 60369 | UL13 | | 8.00 | 1320 | 210 | 364 | 140 | 59 | 53 | 17 | 253 | 1.4 | 183 | 221 | 0.27 | | 0.8 | 0.70 | | | | 884 | 22 |
| 60369 | UL13 | | 8.30 | 1350 | | | | | | | | | 200 | 203 | | | | | | | | 865 | |
| 61969 | UL13 | | 8.20 | 1388 | | | | | | | | | 216 | 200 | | | | | | | | 968 | |
| 62669 | UL13 | | 8.25 | 1440 | | | | | | | | | 220 | 230 | | | | | | | | 924 | |
| 70169 | UL13 | | 8.20 | 1350 | 195 | 342 | 140 | 53 | 51 | 20 | 234 | 2.0 | 187 | 224 | | | 1.0 | 0.67 | | | | 860 | 3 |
| 70169 | UL13 | | 8.20 | 1450 | | | | | | | | | 224 | 230 | | | | | | | | 931 | |
| 70869 | UL13 | | 8.20 | 1485 | | | | | | | | | 220 | 210 | | | | | | | | 950 | |
| 71569 | UL13 | | 8.20 | 1406 | | | | | | | | | 222 | 215 | | | | | | | | 999 | |
| 80569 | UL13 | | 8.00 | 1425 | 183 | 338 | 144 | 48 | 53 | 22 | 221 | 1.2 | 201 | 226 | 0.05 | | 1.0 | 0.67 | | | | 882 | 52 |
| 90269 | UL13 | | 7.70 | 1370 | 166 | 348 | 170 | 41 | 60 | 20 | 202 | 0.6 | 204 | 227 | 0.05 | | 1.2 | 0.77 | | | | 878 | 23 |
| 100869 | UL13 | | 8.40 | 1350 | 163 | 322 | 161 | 38 | 55 | 19 | 193 | 2.7 | 220 | 235 | 0.16 | | 1.6 | 0.78 | | | | 894 | 40 |
| 110469 | UL13 | | 8.10 | 1410 | 176 | 330 | 160 | 42 | 55 | 19 | 212 | 1.5 | 212 | 237 | 0.18 | | 2.0 | 0.80 | | | | 884 | 22 |
| 120269 | UL13 | | 8.40 | 1335 | 187 | 350 | 170 | 50 | 55 | 21 | 222 | 3.1 | 222 | 211 | 0.23 | | 1.9 | 0.83 | | | | 950 | 18 |
| 30370 | UL13 | | 8.30 | 1300 | 200 | 340 | 160 | 50 | 52 | 18 | 239 | 2.6 | 120 | 189 | 0.18 | | 0.2 | 0.60 | | | | 880 | 44 |
| 51370 | UL13 | | 8.20 | 1390 | 212 | 360 | 140 | 60 | 51 | 17 | 254 | 2.2 | 184 | 210 | 0.32 | | 0.9 | 0.66 | | | | 856 | 30 |
| 62470 | UL13 | 24.5 | 8.40 | 1370 | 206 | 369 | 145 | 59 | 54 | 20 | 244 | 3.4 | 204 | 231 | 0.41 | | 0.3 | 0.58 | 39 | | 8.35 | 910 | 12 |
| 72270 | UL13 | 24.5 | | | | | | | | | | | | | | | | | | | 10.4 | | |
| 82670 | UL13 | | 8.40 | 1350 | 171 | 349 | 175 | 41 | 60 | 21 | 203 | 2.8 | 237 | 242 | 0.09 | | 0.2 | | | | | | |
| 92370 | UL13 | | 8.60 | 1435 | 172 | 349 | 170 | 41 | 60 | 1.7 | 201 | 4.4 | 228 | 243 | 0.11 | | 0.1 | 0.66 | | | | | |
| 32572 | UL13 | 11.0 | | | | | | | | | | | | | | | | | | | | | |
| 40672 | UL13 | 10.1 | | 1188 | | 291 | 139 | 36 | 49 | 14 | | | 205 | | 0.13 | | 0.08 | | | 02.3 | | 0460 | |
| 42072 | UL13 | 11.0 | | 1134 | 201 | 314 | 151 | 42 | 51 | 19 | 246 | | 190 | 216 | 0.16 | | 0.05 | | | 01.5 | | 0930 | |
| 51572 | UL13 | 19.8 | | 1274 | 232 | 377 | 164 | 57 | 57 | 16 | 284 | | 205 | | 0.28 | | 0.08 | | | 00.4 | | 0851 | |
| 100570 | UL14 | | 8.20 | 1280 | 408 | 459 | 125 | 80 | 63 | 12 | 490 | 4.3 | 108 | 190 | 1.40 | | 0.6 | | | | | | |
| 61368 | UL15 | | 8.20 | 1555 | 210 | 380 | 160 | 58 | 57 | | 251 | 2.2 | 210 | 242 | 0.18 | | 0.9 | 0.73 | | | | 930 | 12 |
| 61768 | UL15 | | 8.35 | 1710 | 212 | 389 | 180 | 57 | 60 | 21 | 252 | 3.1 | 230 | 254 | 0.23 | | 1.0 | 0.70 | | | | 1059 | 11 |
| 62068 | UL15 | | 8.35 | 1510 | 214 | 374 | 160 | 57 | 56 | 18 | 255 | 3.1 | 203 | 238 | 0.23 | | 0.9 | 0.72 | | | | 992 | 27 |
| 62468 | UL15 | | 8.30 | 1740 | 231 | 400 | 220 | 62 | 60 | 22 | 276 | 3.0 | 271 | 275 | 0.20 | | 0.9 | 0.76 | | | | 1191 | 27 |
| 62768 | UL15 | | 8.25 | 1550 | 204 | 380 | 170 | 58 | 57 | 20 | 244 | 2.4 | 225 | 251 | 0.20 | | 0.9 | 0.74 | | | | 1029 | 12 |
| 70168 | UL15 | | 8.50 | 1655 | 210 | 386 | 170 | 58 | 59 | 21 | 251 | 2.4 | 230 | 252 | 0.23 | | 0.8 | 0.71 | | | | 1045 | 23 |
| 70568 | UL15 | | 8.00 | 1655 | 202 | 364 | 150 | 56 | 54 | 20 | 244 | 1.3 | 202 | 237 | 0.18 | | 0.8 | 0.70 | | | | 966 | 7 |
| 70868 | UL15 | | 8.35 | 1630 | 194 | 360 | 150 | 53 | 55 | 20 | 231 | 2.9 | 207 | 239 | 0.16 | | 1.0 | 0.71 | | | | 908 | 15 |
| 71168 | UL15 | | 8.15 | 1650 | 204 | 368 | 170 | 54 | 57 | 21 | 245 | 1.9 | 224 | 250 | 0.09 | | 0.9 | 0.69 | | | | 1026 | 17 |
| 71568 | UL15 | | 8.20 | 1550 | 193 | 350 | 156 | 50 | 55 | 20 | 231 | 2.0 | 200 | 234 | 0.02 | | 0.9 | 0.71 | | | | 890 | 28 |
| 71868 | UL15 | | 8.10 | 1390 | 194 | 360 | 155 | 51 | 57 | 21 | 233 | 1.6 | 214 | 246 | 0.05 | | 1.7 | 0.73 | | | | 981 | 17 |
| 72168 | UL15 | | 8.40 | 1490 | 198 | 362 | 145 | 37 | 66 | 21 | 235 | 3.3 | 220 | 254 | | | 1.9 | 0.68 | | | | 984 | 20 |
| 72568 | UL15 | | 7.80 | 1360 | 184 | 364 | 167 | 50 | 58 | 21 | 223 | 0.7 | 214 | 249 | 0.02 | | 1.0 | 0.75 | | | | 944 | 14 |
| 72968 | UL15 | | 8.00 | 1510 | 184 | 359 | 150 | 50 | 57 | 22 | 222 | 1.2 | 216 | 251 | 0.23 | | 2.7 | 0.75 | | | | 922 | 18 |
| 80168 | UL15 | | 8.10 | 1510 | 186 | 359 | 160 | 50 | 57 | 22 | 224 | 1.6 | 220 | 253 | 0.02 | | 4.0 | 0.76 | | | | 946 | 8 |
| 80468 | UL15 | | 7.60 | 1510 | 180 | 366 | 140 | 58 | 59 | 22 | 219 | 0.8 | 215 | 253 | 0.05 | | 2.4 | 0.76 | | | | 944 | 6 |
| 80868 | UL15 | | 7.90 | 1510 | 179 | 360 | 150 | 50 | 58 | 22 | 217 | 0.4 | 200 | 252 | | | 2.3 | 0.75 | | | | 924 | 16 |
| 81268 | UL15 | | 7.95 | 1605 | 182 | 360 | 180 | 44 | 61 | 22 | 220 | 1.1 | 241 | 265 | 0.02 | | 2.4 | 0.78 | | | | 986 | 15 |
| 81968 | UL15 | | 7.75 | 1220 | 173 | 346 | 150 | 46 | 56 | 21 | 210 | 0.8 | 220 | 252 | 0.41 | | 0.7 | 0.81 | | | | 932 | 12 |
| 90268 | UL15 | | 7.50 | 1630 | 170 | 362 | 155 | 45 | 61 | 19 | 207 | 0.3 | 221 | 248 | 0.09 | | 0.6 | 0.82 | | | | 912 | 4 |
| 90568 | UL15 | | 8.55 | 1550 | 160 | 340 | 155 | 43 | 57 | 19 | 188 | 3.7 | 220 | 251 | 0.07 | | 1.0 | 0.82 | | | | 896 | 10 |
| 90968 | UL15 | | 7.80 | 1650 | 163 | 346 | 185 | 41 | 59 | 20 | 198 | 0.6 | 240 | 283 | 0.45 | | 1.0 | 0.65 | | | | 1029 | 5 |
| 91268 | UL15 | | 8.20 | 1470 | 158 | 345 | 180 | 39 | 60 | 20 | 189 | 1.7 | 240 | 259 | 0.47 | | 0.5 | 0.73 | | | | 948 | 10 |

| DATE | STA | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 91968 | UL15 | | 8.00 | 1500 | 167 | 340 | 170 | 42 | 57 | 19 | 201 | 1.1 | 226 | 255 | 0.07 | | 0.7 | 0.77 | | | | 918 | 10 |
| 100868 | UL15 | | 8.25 | 1470 | 172 | 350 | 160 | 43 | 59 | 18 | 206 | 2.0 | 227 | 261 | 0.20 | | 0.6 | | | | | 934 | 32 |
| 120368 | UL15 | | 8.05 | 1600 | 200 | 372 | 165 | 54 | 58 | 19 | 241 | 1.5 | 229 | 250 | 0.54 | | 1.0 | | | | | 966 | 15 |
| 60369 | UL15 | | 8.35 | 1470 | 214 | 362 | 140 | 61 | 51 | 18 | 255 | 3.1 | 182 | 223 | 0.32 | | 0.8 | 0.72 | | | | 884 | 27 |
| 60369 | UL15 | | 8.50 | 1400 | | | | | | | | | 200 | 199 | | | | | | | | 895 | |
| 61969 | UL15 | | 8.50 | 1395 | | | | | | | | | 209 | | | | | | | | | 892 | |
| 62669 | UL15 | | 8.35 | 1418 | | | | | | | | | 210 | 198 | | | | | | | | 904 | |
| 70169 | UL15 | | 8.00 | 1450 | 199 | 356 | 150 | 54 | 54 | 24 | 240 | 1.3 | 200 | 220 | 0.02 | | 0.9 | 0.69 | | | | 908 | 25 |
| 70169 | UL15 | | 8.20 | 1390 | 189 | 336 | 140 | 51 | 51 | 18 | 226 | 2.2 | 180 | 218 | | | 0.9 | 0.64 | | | | 844 | 20 |
| 70169 | UL15 | | 8.30 | 1420 | | | | | | | | | 212 | 200 | | | | | | | | 910 | |
| 70369 | UL15 | | 8.10 | 4210 | | | | | | | | | 680 | 705 | | | | | | | | 900 | |
| 70869 | UL15 | | 8.20 | 1425 | | | | | | | | | 210 | 205 | | | | | | | | 913 | |
| 71569 | UL15 | | 8.23 | 1402 | | | | | | | | | 212 | 200 | | | | | | | | 897 | |
| 80569 | UL15 | | 7.85 | 1400 | 175 | 340 | 144 | 45 | 55 | 22 | 212 | 0.8 | 197 | 225 | 0.27 | | 0.8 | 0.74 | | | | 876 | 50 |
| 90269 | UL15 | | 7.60 | 1320 | 170 | 337 | 160 | 41 | 57 | 20 | 207 | 0.5 | 208 | 232 | 0.07 | | 1.6 | 0.91 | | | | 876 | 28 |
| 100869 | UL15 | | 7.70 | 1375 | 167 | 328 | 168 | 37 | 57 | 19 | 203 | 0.6 | 219 | 235 | 0.09 | | 1.5 | 0.75 | | | | 916 | 85 |
| 110469 | UL15 | | 8.00 | 1410 | 191 | 342 | 160 | 44 | 56 | 19 | 231 | 1.3 | 225 | 239 | 0.27 | | 2.0 | 0.80 | | | | 936 | 51 |
| 120269 | UL15 | | 8.10 | 1345 | 180 | 342 | 160 | 44 | 56 | 19 | 217 | 1.5 | 210 | 204 | 0.20 | | 1.8 | 0.75 | | | | 916 | 19 |
| 30370 | UL15 | | 8.30 | 1550 | 203 | 366 | 190 | 50 | 59 | 22 | 242 | 2.7 | 260 | 246 | 0.05 | | 0.1 | 0.65 | | | | 1073 | 3 |
| 51370 | UL15 | | 8.05 | 1370 | 221 | 364 | 140 | 62 | 51 | 18 | 266 | 1.7 | 188 | 213 | 0.32 | | 0.8 | 0.68 | | | | 942 | 50 |
| 62470 | UL15 | 24.5 | 8.35 | 1370 | 207 | 369 | 145 | 59 | 54 | 20 | 246 | 3.0 | 200 | 229 | 0.41 | | 0.2 | 0.60 | 39 | | 7.1 | 912 | 32 |
| 72270 | UL15 | 24.0 | | | | | | | | | | | | | | | | | | | 7.4 | | |
| 82670 | UL15 | | 7.85 | 1400 | 170 | 351 | 175 | 40 | 61 | 23 | 206 | 0.8 | 230 | 243 | 0.11 | | 0.1 | | | | | | |
| 92370 | UL15 | | 8.50 | 1455 | 179 | 365 | 185 | 44 | 62 | 18 | 212 | 3.7 | 249 | 256 | 0.20 | | 0.2 | 0.69 | | | | | |
| 40672 | UL15 | 11.1 | | 994 | | 252 | 161 | 35 | 40 | 11 | | | 136 | | 0.04 | | 0.08 | | | 00.3 | | 0404 | |
| 42072 | UL15 | 10.2 | | 1220 | 195 | 328 | 079 | 44 | 53 | 19 | 239 | | 199 | 220 | 0.13 | | 0.04 | | | 00.7 | | 853 | |
| 51572 | UL15 | 12.1 | | 1285 | 272 | 419 | 171 | 61 | 65 | 16 | 333 | | 207 | | 0.23 | | 0.11 | | | 00.9 | | 0985 | |
| 40672 | UL16 | 10.8 | | 1080 | | 194 | 072 | 30 | 29 | 07 | | | 106 | | 0.06 | | 0.07 | | | 00.8 | | 0364 | |
| 42072 | UL16 | 13.0 | | 1188 | 201 | 328 | 079 | 44 | 53 | 19 | 246 | | 204 | 224 | 0.20 | | 0.03 | | | 00.6 | | 0942 | |
| 51572 | UL16 | 15.2 | | 1285 | 212 | 359 | 159 | 50 | 57 | 15 | 259 | | 197 | | 0.24 | | 0.09 | | | 01.2 | | 0856 | |
| 61570 | UL17 | 19.5 | 8.30 | 1300 | 246 | 375 | 135 | 63 | 53 | 18 | 294 | 3.2 | 175 | 208 | 0.23 | | 0.2 | | 930 | 8.5 | 6.2 | | |
| 70870 | UL17 | 24.0 | 8.20 | 1410 | 188 | 370 | 155 | 56 | 56 | 21 | 226 | 2.2 | 214 | 232 | 0.29 | | 0.5 | | 4 | 7.0 | 7.8 | | |
| 80370 | UL17 | 25.0 | 8.70 | | | | | | | | | | | | 0.22 | | 0.12 | | | | 14.0 | 932 | 50 |
| 81070 | UL17 | 24.3 | 8.20 | 1390 | | | | | | | | | | | | | 0.03 | | | | 7.0 | 1009 | 50 |
| 81270 | UL17 | 24.5 | 8.45 | 1435 | 182 | 348 | 165 | 44 | 58 | 20 | 216 | 3.3 | 220 | 242 | 0.23 | | 0.2 | | | 4.3 | | | |
| 81770 | UL17 | | | | | | | | | | | | | | | | | | | | | 996 | |
| 90870 | UL17 | | 7.20 | 1410 | 206 | 367 | 170 | 50 | 59 | 21 | 252 | 0.2 | 227 | 237 | 0.18 | | 0.5 | 0.75 | | 8.0 | | | |
| 100370 | UL17 | 18.0 | 9.70 | 1567 | | | | | | | | | 312 | | 0.04 | | 0.01 | | | | | 910 | 48 |
| 80370 | UL19 | 24.2 | 8.60 | | | | | | | | | | | | | | | | | | 10.0 | | 28 |
| 81070 | UL19 | 25.4 | 8.35 | 1365 | | | | | | | | | | | | | 0.03 | | | | 8.0 | 892 | 65 |
| 81770 | UL19 | | | | | | | | | | | | | | | | | | | | | 952 | |
| 100370 | UL19 | 18.0 | 9.60 | 1477 | | | | | | | | | 287 | | 0.08 | | 0.02 | | | | | 889 | 38 |
| 61570 | UL21 | 23.5 | 8.40 | 980 | 215 | 321 | 95 | 58 | 43 | 11 | 256 | 3.6 | 110 | 168 | 0.05 | | 0.2 | | 9 | 12.0 | 11.0 | | |
| 70870 | UL21 | 23.5 | 8.15 | 1090 | 169 | 299 | 130 | 36 | 51 | 16 | 203 | 1.6 | 164 | 201 | 0.11 | | 0.6 | | 4 | 12.4 | 14.0 | | |
| 81270 | UL21 | 24.5 | 7.60 | 1200 | 158 | 351 | 110 | 32 | 66 | 11 | 192 | 0.4 | 200 | 175 | 0.20 | | 1.3 | | | 18.0 | 8.7 | | |
| 90870 | UL21 | | 7.60 | 870 | 175 | 257 | 95 | 34 | 42 | 12 | 213 | 0.5 | 111 | 160 | 0.18 | | 0.4 | 0.55 | | 4.3 | | | |
| 32572 | UL21 | 12.0 | | | | | | | | | | | | | | | | | | | | | |
| 40672 | UL21 | 13.1 | | | | 222 | 064 | 38 | 31 | 06 | | | 111 | | 0.04 | | | | | 03.6 | | | |
| 42072 | UL21 | 12.0 | | 907 | 200 | 291 | 049 | 49 | 41 | 11 | 244 | | 119 | 160 | 0.20 | | 0.05 | | | 02.2 | | 0790 | |
| 51572 | UL21 | 14.0 | | 1145 | 204 | 333 | 150 | 48 | 52 | 13 | 250 | | 159 | | 0.07 | | 0.07 | | | 05.9 | | 672 | |

| DATE | STA | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 121669 | UL22 | | | | | | | | | | | | | | | | | | | 2.0 | | | |
| 32470 | UL22 | | | | | | | | | | | | | | | | | | 3 | 4.8 | | | |
| 61570 | UL22 | 19.5 | 8.20 | 1350 | 210 | 382 | 145 | 64 | 54 | 17 | 252 | 2.2 | 203 | 241 | 0.36 | | 0.2 | | 93 | | 5.8 | | |
| 70870 | UL22 | 25.5 | 8.20 | 1370 | 203 | 369 | 150 | 59 | 54 | 20 | 244 | 2.1 | 200 | 232 | 0.32 | | 0.5 | | 430 | | 7.2 | | |
| 81270 | UL22 | 25.0 | 8.00 | 1500 | 182 | 354 | 160 | 48 | 57 | 24 | 220 | 1.2 | 224 | 260 | 0.23 | | 0.4 | | | | 3.6 | | |
| 90870 | UL22 | | 8.10 | 1350 | 177 | 370 | 170 | 51 | 59 | 21 | 213 | 1.5 | 223 | 247 | 0.18 | | 0.4 | 0.81 | | | | | |
| 121669 | UL23 | | | | | | | | | | | | | | | | | | | 2.3 | | | |
| 32470 | UL23 | | | | | | | | | | | | | | | | | | 43 | 3.5 | | | |
| 61570 | UL23 | 20.5 | 8.20 | 1215 | 211 | 355 | 125 | 63 | 48 | 17 | 254 | 2.2 | 174 | 211 | 0.61 | | 0.4 | | 1500 | 8.0 | 6.4 | | |
| 70870 | UL23 | 26.5 | 8.30 | 1315 | 193 | 348 | 145 | 52 | 53 | 19 | 231 | 2.5 | 193 | 222 | 0.14 | | 0.4 | | 9 | 5.4 | 9.2 | | |
| 81270 | UL23 | 27.5 | 8.45 | 1335 | 169 | 330 | 155 | 40 | 56 | 20 | 200 | 3.1 | 210 | 231 | 0.23 | | 0.2 | | | 5.0 | 4.2 | | |
| 90870 | UL23 | | 7.85 | 1155 | 193 | 346 | 140 | 48 | 55 | 19 | 234 | 0.9 | 180 | 210 | 0.36 | | 0.5 | 0.69 | | 5.0 | | | |
| 61368 | UL24 | | | | | 396 | 160 | | 61 | 19 | | 2.7 | 201 | 240 | 0.23 | | 0.9 | 0.73 | | | | | |
| 61768 | UL24 | | 8.25 | 1535 | 205 | 365 | 150 | 56 | 55 | 19 | 245 | 2.4 | 200 | 236 | 0.25 | | 0.9 | 0.68 | | | | 965 | 9 |
| 62068 | UL24 | | 8.35 | 1490 | 212 | 364 | 150 | 58 | 53 | 17 | 252 | 3.1 | 190 | 229 | 0.23 | | 0.9 | 0.68 | | | | 954 | 19 |
| 62468 | UL24 | | 8.30 | 1445 | 214 | 368 | 150 | 57 | 55 | 18 | 256 | 2.8 | 194 | 234 | 0.05 | | 0.9 | 0.69 | | | | 968 | 21 |
| 62768 | UL24 | | 8.30 | 1425 | 202 | 360 | 140 | 58 | 52 | 18 | 241 | 2.7 | 188 | 225 | 0.02 | | 1.0 | 0.69 | | | | 926 | 7 |
| 70168 | UL24 | | 8.35 | 1530 | 204 | 364 | 150 | 57 | 54 | 19 | 243 | 3.0 | 200 | 235 | 0.25 | | 0.8 | 0.70 | | | | 963 | 22 |
| 70568 | UL24 | | 8.25 | 1680 | 206 | 366 | 150 | 56 | 55 | 20 | 246 | 2.4 | 211 | 239 | 0.18 | | 0.9 | 0.71 | | | | 981 | 4 |
| 70868 | UL24 | | 8.35 | 1600 | 196 | 364 | 150 | 54 | 56 | 20 | 233 | 2.9 | 204 | 240 | 0.16 | | 0.9 | 0.73 | | | | 918 | 9 |
| 71168 | UL24 | | 8.30 | 1530 | 202 | 382 | 156 | 54 | 60 | 20 | 241 | 2.7 | 202 | 221 | 0.16 | | 0.9 | 0.67 | | | | 958 | 12 |
| 71568 | UL24 | | 8.35 | 1580 | 207 | 360 | 142 | 50 | 57 | 20 | 246 | 3.0 | 204 | 238 | | | 0.9 | 0.70 | | | | 962 | 31 |
| 71868 | UL24 | | 8.25 | 1390 | 195 | 360 | 155 | 37 | 65 | 20 | 233 | 2.3 | 209 | 139 | 0.05 | | 3.0 | 0.66 | | | | 912 | 13 |
| 72168 | UL24 | | 8.35 | 1000 | 186 | 346 | 120 | 36 | 62 | 20 | 221 | 2.7 | [illegible] | 242 | | | 1.3 | 0.64 | | | | 888 | 13 |
| 72568 | UL24 | | 8.35 | 1350 | 181 | 324 | 159 | 49 | 49 | 20 | 215 | 2.7 | 205 | 244 | 0.02 | | 1.0 | 0.73 | | | | 902 | 8 |
| 72968 | UL24 | | 8.05 | 1390 | 179 | 344 | 140 | 48 | 55 | 21 | 216 | 1.3 | 204 | 244 | 0.05 | | 2.1 | 0.69 | | | | 900 | 7 |
| 80168 | UL24 | | 8.20 | 1490 | 183 | 350 | 140 | 50 | 55 | 22 | 220 | 1.9 | 208 | 248 | | | 2.4 | 0.74 | | | | 912 | 14 |
| 80468 | UL24 | | 7.80 | 1490 | 175 | 350 | 140 | 46 | 55 | 21 | 212 | 1.5 | 208 | 247 | | | 2.3 | 0.73 | | | | 894 | 5 |
| 80868 | UL24 | | 8.10 | 1490 | 179 | 351 | 140 | 49 | 57 | 21 | 216 | 0.7 | 205 | 241 | 0.02 | | 2.2 | 0.75 | | | | 914 | 16 |
| 81268 | UL24 | | 7.60 | 1490 | 173 | 342 | 140 | 44 | 56 | 21 | 210 | 0.4 | 204 | 242 | 0.05 | | 3.0 | 0.71 | | | | 896 | 5 |
| 81968 | UL24 | | 8.65 | 1240 | 166 | 332 | 140 | 42 | 55 | 21 | 202 | 4.8 | 219 | 249 | 0.41 | | 1.0 | 0.81 | | | | 894 | 10 |
| 82668 | UL24 | | 8.65 | 1450 | 152 | 324 | 150 | 39 | 55 | 22 | 177 | 3.5 | 213 | 249 | 0.05 | | 0.4 | 0.78 | | | | 878 | 8 |
| 90268 | UL24 | | 8.40 | 1470 | 157 | 332 | 145 | 39 | 57 | 19 | 186 | 2.6 | 212 | 242 | 0.32 | | 0.3 | 0.79 | | | | 800 | 6 |
| 90568 | UL24 | | 8.50 | 1425 | 161 | 330 | 155 | 41 | 55 | 18 | 190 | 3.3 | 213 | 250 | 0.09 | | 0.5 | 0.84 | | | | 886 | 13 |
| 90968 | UL24 | | 8.50 | 1470 | 163 | 338 | 170 | 41 | 57 | 18 | 192 | 3.4 | 214 | 253 | 0.16 | | 1.0 | 0.62 | | | | 950 | 5 |
| 91268 | UL24 | | 7.70 | 1510 | 163 | 356 | 165 | 42 | 61 | 19 | 199 | 0.5 | 216 | 247 | 0.11 | | 0.8 | 0.58 | | | | 950 | 5 |
| 91668 | UL24 | | 8.10 | 1500 | 165 | 338 | 155 | 41 | 57 | 19 | 199 | 1.4 | 221 | 254 | 0.23 | | 1.0 | 0.77 | | | | 949 | 12 |
| 91968 | UL24 | | 7.90 | 1500 | 162 | 338 | 155 | 41 | 57 | 19 | 196 | 0.8 | 222 | 255 | 0.09 | | 0.7 | 0.77 | | | | 910 | 5 |
| 100868 | UL24 | | 8.45 | 1450 | 172 | 344 | 160 | 43 | 58 | 18 | 204 | 3.2 | 221 | 254 | 0.16 | | 0.8 | | | | | 926 | 32 |
| 120368 | UL24 | | 8.35 | 1535 | 196 | 366 | 165 | 49 | 59 | 19 | 234 | 2.9 | 225 | 248 | 0.52 | | 0.8 | | | | | 1001 | 12 |
| 60369 | UL24 | | 8.25 | 1470 | 208 | 360 | 145 | 57 | 53 | 18 | 249 | 2.4 | 183 | 224 | 0.25 | | 0.8 | 0.71 | | | | 938 | 26 |
| 60369 | UL24 | | 8.50 | 1380 | | | | | | | | | 224 | 238 | | | | | | | | 880 | |
| 61969 | UL24 | | 8.50 | 1378 | | | | | | | | | 220 | 230 | | | | | | | | 882 | |
| 62669 | UL24 | | 8.40 | 1388 | | | | | | | | | 220 | 210 | | | | | | | | 886 | |
| 70169 | UL24 | | 8.25 | 1350 | 188 | 340 | 140 | 50 | 52 | 21 | 225 | 2.2 | 193 | 215 | 0.05 | | 1.0 | 0.63 | | | | 876 | 18 |
| 70169 | UL24 | | 8.35 | 1408 | | | | | | | | | 226 | 212 | | | | | | | | 900 | |
| 70869 | UL24 | | 8.30 | 1460 | | | | | | | | | 220 | 200 | | | | | | | | 935 | |
| 71569 | UL24 | | 8.25 | 1450 | | | | | | | | | 230 | 210 | | | | | | | | 930 | |
| 80569 | UL24 | | 7.95 | 1400 | 180 | 340 | 144 | 46 | 55 | 21 | 218 | 1.1 | 195 | 223 | 0.25 | | 1.0 | 0.69 | | | | 870 | 33 |
| 90269 | UL24 | | 7.60 | 1335 | 164 | 320 | 150 | 40 | 54 | 20 | 199 | 0.4 | 204 | 227 | 0.07 | | 1.3 | 0.79 | | | | 868 | 23 |

| DATE | STA | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100869 | UL24 | | 8.45 | 1375 | 163 | 322 | 155 | 38 | 55 | 19 | 193 | 3.0 | 211 | 224 | 0.09 | | 1.6 | 0.80 | | | | 908 | 42 |
| 110469 | UL24 | | 8.15 | 1410 | 180 | 326 | 160 | 41 | 54 | 19 | 216 | 1.7 | 212 | 222 | 0.18 | | 2.0 | 0.84 | | | | 916 | 6 |
| 120269 | UL24 | | 8.05 | 1230 | 177 | 334 | 165 | 43 | 55 | 20 | 213 | 1.5 | 210 | 233 | 0.23 | | 1.8 | 0.81 | | | | 920 | 20 |
| 30370 | UL24 | | 8.30 | 1390 | 207 | 344 | 155 | 50 | 53 | 18 | 247 | 2.7 | 209 | 224 | 0.09 | | 0.4 | 0.62 | | | | 918 | 45 |
| 51370 | UL24 | | 8.15 | 1425 | 210 | 362 | 145 | 61 | 51 | 18 | 252 | 2.0 | 193 | 213 | 0.20 | | 0.9 | 0.70 | | | | 894 | 35 |
| 62470 | UL24 | 23.0 | 8.35 | 1300 | 202 | 364 | 140 | 55 | 55 | 20 | 241 | 3.0 | 200 | 218 | 0.45 | | 0.2 | 0.59 | 75 | | 8.0 | 904 | 9 |
| 72270 | UL24 | 25.0 | | | | | | | | | | | | | | | | | | | 8.9 | | |
| 82670 | UL24 | | 8.35 | 1370 | 173 | 349 | 175 | 41 | 60 | 21 | 206 | 2.5 | 222 | 237 | 0.11 | | 0.2 | | | | | | |
| 92370 | UL24 | | 8.50 | 1455 | 176 | 349 | 180 | 41 | 60 | 16 | 208 | 3.6 | 233 | 248 | 0.14 | | 0.1 | 0.66 | 9 | | | | |
| 32572 | UL24 | 12.0 | | | | | | | | | | | | | | | | | | | | | |
| 40672 | UL24 | 12.3 | | 1080 | | 225 | 097 | 31 | 36 | 09 | | | 168 | | 0.07 | | 0.08 | | | 01.1 | | 0372 | |
| 42072 | UL24 | 9.0 | | 1166 | 191 | 325 | 077 | 48 | 50 | 19 | 234 | | 200 | 218 | 0.12 | | 0.04 | | | 01.0 | | 0846 | |
| 51572 | UL24 | 18.9 | | 1274 | 228 | 387 | 158 | 61 | 57 | 14 | 279 | | 192 | | 0.26 | | 0.09 | | | 00.4 | | 0828 | |
| 121669 | UL82 | | | | | | | | | | | | | | | | | | | 1.0 | | | |
| 32470 | UL93 | | | | | | | | | | | | | | | | | | 230 | 13.0 | | | |
| 42170 | UL93 | | | | | | | | | | | | | | | | | | 9300 | 13.1 | | | |
| 121669 | UL94 | | | | | | | | | | | | | | | | | | | 4.1 | | | |
| 32470 | UL94 | | | | | | | | | | | | | | | | | | 2300 | | | | |
| 42170 | UL94 | | | | | | | | | | | | | | | | | | 430 | | | | |
| 32470 | UL95 | | | | | | | | | | | | | | | | | | 5000 | | | | |
| 42170 | UL95 | | | | | | | | | | | | | | | | | | 230 | | | | |
| 121669 | UL96 | | | | | | | | | | | | | | | | | | | 4.4 | | | |
| 121669 | UL97 | | | | | | | | | | | | | | | | | | | 1.5 | | | |
| 32470 | UL98 | | | | | | | | | | | | | | | | | | 2100 | | | | |
| 42170 | UL98 | | | | | | | | | | | | | | | | | | 430 | | | | |
| 32470 | L1 2 | | | | | | | | | | | | | | | | | | 9300 | 1.0 | | | |
| 42170 | L1 2 | | | | | | | | | | | | | | | | | | 2300 | 1.5 | | | |
| 32470 | L1 8 | | | | | | | | | | | | | | | | | | 930 | | | | |
| 42170 | L1 8 | | | | | | | | | | | | | | | | | | 930 | | | | |
| 32470 | L111 | | | | | | | | | | | | | | | | | | 230 | | | | |
| 42170 | L111 | | | | | | | | | | | | | | | | | | 230 | | | | |
| 32470 | L114 | | | | | | | | | | | | | | | | | | | 2.4 | | | |
| 42170 | L114 | | | | | | | | | | | | | | | | | | 2300 | 4.4 | | | |
| 32470 | L116 | | | | | | | | | | | | | | | | | | 9300 | 5.9 | | | |
| 42170 | L116 | | | | | | | | | | | | | | | | | | 2300 | 8.8 | | | |
| 32470 | L117 | | | | | | | | | | | | | | | | | | 3000 | 3.3 | | | |
| 42170 | L117 | | | | | | | | | | | | | | | | | | 9300 | 2.4 | | | |

| DATE | STA | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 61970 | PB 1 | 22.3 | 6.95 | | | | | | | | | | | | | | | | | | | | |
| 62570 | PB 1 | 29.5 | 8.30 | | | | | | | | | | | | | | | | | | 14.0 | | 430 |
| 62670 | PB 1 | | | | | | | | | | | | | | | | | | | | | 516 | |
| 70270 | PB 1 | 21.5 | 7.30 | | | | | | | | | | | | | | 4.90 | | 170 | 1.0 | | 444 | 10 |
| 70970 | PB 1 | 20.0 | 7.10 | | 191 | 358 | 49 | 94 | 30 | 8 | 234 | 0.1 | 42 | 103 | | | 5.0 | | 5000 | 20.0 | | 565 | 20 |
| 71670 | PB 1 | 26.6 | 7.70 | | 195 | 362 | 34 | 99 | 28 | 7 | 238 | 0.5 | 33 | 107 | 2.15 | | 3.9 | | 7500 | 49.0 | 5.0 | 552 | 25 |
| 72370 | PB 1 | 18.7 | 7.60 | | | 205 | | | | | | | | | 0.36 | | 1.40 | | 3500 | 8.0 | 4.0 | 482 | 25 |
| 80670 | PB 1 | 23.4 | 7.55 | | | | | | | | | | | | 0.30 | | 1.62 | | 5000 | 11.0 | 5.0 | 472 | 15 |
| 81370 | PB 1 | 23.3 | 7.90 | | | | | | | | | | 90 | | 0.13 | | | | | | | | 15 |
| 82770 | PB 1 | 21.5 | 7.50 | | 206 | 370 | 35 | 99 | 30 | 7 | 252 | 0.3 | 35 | 121 | | | 1.9 | | | 10.0 | 3.0 | 581 | |
| 90370 | PB 1 | | 7.40 | | | | | | | | | | 63 | | | | | | 8000 | 30.0 | 5.0 | 540 | 20 |
| 91070 | PB 1 | 16.5 | 7.60 | | | | | | | | | | 50 | | 0.24 | | | | 3000 | 7.0 | | 336 | |
| 13071 | PB 1 | | 7.45 | | 212 | | | | | | 259 | 0.3 | | | 0.44 | 2.08 | 3.10 | | | | 4.0 | 630 | |
| 20671 | PB 1 | 4.5 | | 710 | 210 | | | | | | 257 | | | | 0.45 | 2.43 | 3.05 | | | | 7.0 | 592 | |
| 21371 | PB 1 | 9.0 | 7.42 | 740 | 206 | | | | | | 251 | 0.3 | | | 0.43 | 2.18 | 2.11 | | | | 4.0 | 637 | |
| 22371 | PB 1 | 4.0 | 8.50 | 680 | 214 | | | | | | 254 | 3.7 | | | 0.22 | 0.48 | 2.11 | | | | | 469 | |
| 32071 | PB 1 | 8.5 | 7.40 | 620 | | | | | | | | | | | 0.45 | 3.52 | 4.11 | | | | | 428 | |
| 33071 | PB 1 | | 7.50 | 660 | | | | | | | | | | | 2.26 | 1.86 | 3.48 | | | | | 510 | |
| 41071 | PB 1 | | 7.25 | 670 | | | | | | | | | | | 0.43 | 1.25 | 3.29 | | | | | 518 | |
| 42971 | PB 1 | | 7.35 | 610 | | | | | | | | | | | 0.41 | 2.96 | 3.98 | | | | | 432 | |
| 51571 | PB 1 | | 7.95 | 620 | 212 | 364 | 47 | 98 | 29 | 6 | 259 | 1.0 | 34 | 111 | 0.34 | 1.08 | 2.62 | | | | | | |
| 52171 | PB 1 | | 8.35 | 680 | | | | | | | | | | | 0.38 | 0.20 | 1.76 | | | | | | |
| 60771 | PB 1 | | 7.52 | 680 | | | | | | | | | | | | | 2.82 | | | | | | |
| 62171 | PB 1 | | 8.28 | 640 | | | | | | | | | | | | | 1.83 | | | | | | |
| 63071 | PB 1 | | 8.00 | 700 | | | | | | | | | | | | | 2.68 | | | | | | |
| 70571 | PB 1 | | 7.60 | 690 | | | | | | | | | | | | | 2.16 | | | | | | |
| 72671 | PB 1 | | 7.55 | 680 | | | | | | | | | | | | | 2.11 | | | | | | |
| 80271 | PB 1 | | 7.60 | 660 | | | | | | | | | | | | | 1.50 | | | | | | |
| 61970 | PB 2 | 24.5 | 8.10 | | | | | | | | | | | | | | | | | | | 578 | 58 |
| 62570 | PB 2 | 28.5 | 8.35 | | | | | | | | | | | | | | | | | | 8.0 | | 50 |
| 62670 | PB 2 | | | | | | | | | | | | | | | | | | | | | 591 | |
| 70270 | PB 2 | 21.9 | 8.65 | | | | | | | | | | | | | | 2.50 | | | 17.0 | 19.0 | 595 | 85 |
| 70970 | PB 2 | 24.0 | 7.38 | | | | | | | | | | | | | | | | 500 | 25.0 | | 489 | 45 |
| 71670 | PB 2 | 27.5 | 8.50 | | 159 | 323 | 67 | 70 | 36 | 11 | 195 | 2.8 | 60 | 122 | 0.05 | | 1.3 | | 1700 | 28.0 | 10.0 | 562 | 95 |
| 72370 | PB 2 | 23.0 | 7.60 | | | 222 | | | | | | | | | 0.27 | | 2.60 | | 6000 | 8.0 | 3.0 | 434 | 20 |
| 80670 | PB 2 | 25.6 | 7.60 | | | | | | | | | | | | 0.28 | | 3.70 | | | 8.5 | 2.8 | 458 | 25 |
| 81370 | PB 2 | 24.6 | 7.95 | | | | | | | | | | 75 | | 0.73 | | 3.50 | | | | 87.0 | 478 | |
| 82770 | PB 2 | 22.0 | 7.70 | | 205 | 363 | 33 | 96 | 30 | 7 | 251 | 0.5 | 100 | 120 | | | 2.7 | | 4000 | 2.0 | 4.0 | 640 | 15 |
| 90370 | PB 2 | 19.0 | 7.70 | | | | | | | | | | 63 | | 0.31 | | 2.40 | | 5000 | 25.0 | 4.0 | 523 | 15 |
| 91070 | PB 2 | 16.5 | 7.60 | | | | | | | | | | 50 | | | | | | 5000 | 10.0 | 5.0 | 487 | 15 |
| 92670 | PB 2 | 16.0 | 7.90 | 824 | | | | | | | | | 63 | | 0.65 | | 0.80 | | | | 7.0 | 494 | 15 |
| 101770 | PB 2 | 14.5 | 8.10 | | 206 | 346 | 31 | 96 | 26 | 6 | 252 | 1.4 | 32 | 128 | 0.91 | | 2.7 | | 1000 | 1.0 | 5.0 | 575 | |
| 112170 | PB 2 | 9.0 | 7.80 | 730 | 207 | 392 | 32 | 96 | 37 | 8 | 253 | 0.7 | 31 | 145 | 0.41 | | 3.3 | | 0500 | 22.0 | 6.0 | | 24 |
| 10971 | PB 2 | | 7.80 | 510 | 178 | | 24 | | 22 | | 217 | 0.6 | 27 | 79 | 0.76 | 3.46 | 3.28 | | | | | 395 | |
| 13071 | PB 2 | | 7.60 | 665 | 218 | | | | | | 265 | 0.4 | | | 0.36 | 2.67 | 4.00 | | | | 4.0 | 512 | |
| 20671 | PB 2 | 3.0 | 8.15 | 715 | 228 | | | | | | 275 | 1.8 | | | 0.40 | 2.06 | 3.70 | | | | 11.0 | 577 | |
| 21371 | PB 2 | 4.5 | 7.80 | 680 | 225 | | | | | | 273 | 0.8 | | | 0.21 | 0.68 | 2.17 | | | | 14.0 | 547 | |
| 22371 | PB 2 | 4.0 | 8.50 | 720 | 184 | | | | | | 219 | 3.2 | | | 0.05 | 0.28 | 1.25 | | | | | 477 | |
| 32071 | PB 2 | 6.0 | 7.70 | 780 | | | | | | | | | | | 0.02 | 0.43 | 0.37 | | | | 6.0 | 601 | |
| 33071 | PB 2 | | 7.64 | 770 | | | | | | | | | | | 1.48 | 1.00 | 0.98 | | | | | 571 | |

| DATE | STA | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 42971 | PB 2 | | 8.38 | 590 | | | | | | | | | | 121 | 0.09 | 0.69 | 0.71 | | | | | 432 | |
| 41071 | PB 2 | | 7.82 | 720 | | | | | | | | | | | 0.40 | 0.55 | 1.30 | | | | | 551 | |
| 51571 | PB 2 | | 0.20 | 670 | 200 | 356 | 69 | 90 | 32 | 7 | 245 | 1.8 | 49 | 121 | 0.12 | 0.46 | 1.12 | | | | | | |
| 52171 | PB 2 | | 8.70 | 690 | | | | | | | | | | | 0.16 | 0.10 | 1.34 | | | | | | |
| 60771 | PB 2 | | 8.08 | 700 | | | | | | | | | | | | | 0.70 | | | | | | |
| 62171 | PB 2 | | 8.40 | | | | | | | | | | | | | | 1.03 | | | | | | |
| 63071 | PB 2 | | 8.70 | 670 | | | | | | | | | | | | | 0.47 | | | | | | |
| 70571 | PB 2 | | 8.30 | 660 | | | | | | | | | | | | | 2.21 | | | | | | |
| 72671 | PB 2 | | 8.40 | 640 | | | | | | | | | | | | | 1.67 | | | | | | |
| 80271 | PB 2 | | 7.60 | 630 | | | | | | | | | | | | | 2.91 | | | | | | |
| 80971 | PB 2 | | 7.80 | 620 | | | | | | | | | | | | | 3.29 | | | | | | |
| 32572 | PB 2 | 14.5 | | | | | | | | | | | | | | | | | | | | | |
| 40672 | PB 2 | 14.5 | | 821 | | 269 | 036 | 65 | 26 | 05 | | | 075 | | | | 0.29 | | | 01.4 | | | |
| 42072 | PB 2 | 11.0 | | 616 | 216 | 291 | 045 | 72 | 27 | 06 | 264 | | 038 | 111 | 0.38 | | 1.06 | | | 02.2 | | 564 | |
| 61970 | PB 3 | 24.3 | 8.60 | | | | | | | | | | | | | | | | | | | | |
| 62570 | PB 3 | 27.5 | 8.60 | | | | | | | | | | | | | | | | | | 18.0 | | |
| 62670 | PB 3 | | | | | | | | | | | | | | | | | | | | | 597 | |
| 70270 | PB 3 | 22.7 | 8.60 | | | | | | | | | | | | | | 3.50 | | 0 | 16.0 | 9.0 | 560 | 40 |
| 70970 | PB 3 | 23.5 | 7.80 | | | | | | | | | | | | | | | | 100 | 46.0 | | 560 | |
| 71670 | PB 3 | 27.6 | 8.90 | | | | | | | | | | | | 0.03 | | 2.85 | | 800 | 46.0 | 13.0 | 460 | |
| 72370 | PB 3 | 24.0 | 8.20 | | | | | | | | | | | | 0.21 | | | | 3000 | 32.0 | 9.0 | 485 | |
| 80670 | PB 3 | 25.7 | 8.15 | | | | | | | | | | | | 0.43 | | 4.00 | | 1200 | 19.5 | 10.0 | 449 | 55 |
| 82770 | PB 3 | 24.5 | 7.60 | | 212 | 359 | 35 | 96 | 29 | 8 | 259 | 0.4 | 63 | 114 | | | 3.4 | | | 8.0 | 5.0 | 607 | |
| 90370 | PB 3 | 21.5 | 7.70 | | | | | | | | | | 50 | | 0.43 | | 4.60 | | 1800 | 25.0 | 7.0 | 500 | 25 |
| 91070 | PB 3 | 20.0 | 8.45 | | | | | | | | | | 63 | | | | | | 300 | 18.0 | | 484 | |
| 92670 | PB 3 | 15.0 | 8.70 | 751 | | | | | | | | | 63 | | 1.40 | | 1.80 | | | | 13.0 | 489 | 20 |
| 13071 | PB 3 | | 7.60 | 675 | 204 | | | | | | 248 | 0.4 | | | 0.41 | 2.22 | 2.80 | | | | | 488 | |
| 20671 | PB 3 | 3.0 | 8.50 | 730 | 238 | | | | | | 283 | 4.2 | | | 0.38 | 2.06 | 3.35 | | | | | 651 | |
| 21371 | PB 3 | 5.0 | 8.00 | 730 | 235 | | | | | | 284 | 1.3 | | | 0.06 | 0.25 | 1.96 | | | | 11.0 | 645 | |
| 22371 | PB 3 | 3.0 | 8.65 | 700 | 213 | | | | | | 250 | 5.2 | | | 0.29 | 0.59 | 2.41 | | | | | 508 | |
| 32071 | PB 3 | 6.5 | 7.75 | 720 | | | | | | | | | | | 0.20 | 1.13 | 1.64 | | | | 7.0 | 538 | |
| 33071 | PB 3 | | 7.68 | 760 | | | | | | | | | | | 1.59 | 0.65 | 1.35 | | | | | 552 | |
| 41071 | PB 3 | | 7.58 | 550 | | | | | | | | | | | | 0.33 | 0.42 | | | | | 457 | |
| 42971 | PB 3 | | 8.65 | 590 | | | | | | | | | | 130 | 0.09 | 0.15 | 0.35 | | | | | 416 | |
| 51571 | PB 3 | | 8.45 | 690 | 223 | 334 | 67 | 78 | 34 | 7 | 236 | 18.0 | 57 | 130 | 0.12 | 0.18 | 0.74 | | | | | | |
| 52171 | PB 3 | | 8.90 | 700 | | | | | | | | | | | 0.12 | .003 | 0.46 | | | | | | |
| 60771 | PB 3 | | 0.20 | 650 | | | | | | | | | | | | | 1.01 | | | | | | |
| 62171 | PB 3 | | 8.30 | | | | | | | | | | | | | | 1.58 | | | | | | |
| 63071 | PB 3 | | 9.10 | 650 | | | | | | | | | | | | | 0.65 | | | | | | |
| 70571 | PB 3 | | 8.90 | 670 | | | | | | | | | | | | | 0.93 | | | | | | |
| 72671 | PB 3 | | 8.75 | 670 | | | | | | | | | | | | | 1.44 | | | | | | |
| 80271 | PB 3 | | 6.60 | 800 | | | | | | | | | | | | | 1.14 | | | | | | |
| 61970 | PB 4 | 24.9 | 8.40 | | | | | | | | | | | | | | | | | | | 489 | 25 |
| 62570 | PB 4 | 28.5 | 8.70 | | | 256 | | | | | | | | | | | | | | | 13.0 | | 22 |
| 62670 | PB 4 | | | | | | | | | | | | | | | | | | | | | 618 | |
| 70270 | PB 4 | 22.4 | 8.45 | | | | | | | | | | | | | | 0.45 | | | | 11.0 | 611 | 35 |
| 70970 | PB 4 | | | | 278 | 299 | 94 | 49 | 43 | 12 | 157 | | 80 | 102 | 0.09 | | 0.6 | | 25 | 38.0 | | 628 | |
| 71670 | PB 4 | 26.9 | 8.45 | | 145 | 276 | 86 | 48 | 38 | 13 | 177 | 2.3 | 77 | 143 | | | 1.1 | | | | 11.0 | 583 | 100 |
| 72370 | PB 4 | 26.5 | 9.15 | | | | | | | | | | | | 0.27 | | 0.88 | | | | 14.0 | 557 | 220 |
| 80670 | PB 4 | 26.5 | 8.65 | | | | | | | | | | | | | | | | | | 11.0 | | 120 |

| DATE | STA | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 81370 | PB 4 | 23.6 | 9.05 | | | | | | | | | | 125 | | 0.03 | | 1.00 | | | | 9.0 | 511 | 100 |
| 82770 | PB 4 | 22.5 | 8.00 | | 174 | 309 | 52 | 76 | 29 | 9 | 213 | 1.0 | 46 | 113 | 0.18 | | 2.7 | | 4500 | 16.0 | 3.0 | 541 | 20 |
| 90370 | PB 4 | 23.5 | | | | | | | | | | | 50 | | 0.47 | | | | 3250 | 34.0 | 7.0 | 508 | |
| 91070 | PB 4 | 17.0 | 7.80 | | | | | | | | | | 312 | | | | 2.40 | | 1000 | 12.0 | 4.0 | 468 | |
| 92670 | PB 4 | 15.0 | 8.00 | 751 | | | | | | | | | 50 | | 1.00 | | 2.50 | | | | 6.0 | 432 | 15 |
| 101770 | PB 4 | 14.0 | 8.10 | | 199 | 346 | 31 | 94 | 27 | 6 | 243 | 1.4 | 31 | 103 | 0.05 | | 1.7 | | | | 6.0 | 514 | 12 |
| 112170 | PB 4 | | 7.70 | | 209 | 371 | 36 | 96 | 32 | 8 | 255 | 0.6 | 32 | 135 | 0.07 | | 4.0 | | | | | | |
| 10971 | PB 4 | 0.5 | 7.90 | 640 | 231 | | 31 | | 32 | | 280 | 1.0 | 39 | 103 | 1.12 | 3.23 | 3.50 | | | | 6.0 | 522 | |
| 13071 | PB 4 | | | 600 | 212 | | | | | | 259 | | | | 0.33 | 2.05 | 3.00 | | | | | 476 | |
| 20671 | PB 4 | | | 790 | 239 | | | | | | 292 | | | | 0.33 | 1.34 | 2.42 | | | | | 604 | |
| 21371 | PB 4 | 5.0 | 7.80 | 740 | 228 | | | | | | 277 | 0.8 | | | 0.06 | 0.25 | 0.95 | | | | 12.0 | 599 | |
| 22371 | PB 4 | | 8.55 | 730 | 174 | | | | | | 206 | 3.4 | | | 0.05 | 0.34 | 0.87 | | | | | 506 | |
| 32071 | PB 4 | | 7.95 | 780 | | | | | | | | | | | 0.07 | 0.14 | 0.20 | | | | | 589 | |
| 33071 | PB 4 | | 7.75 | 790 | | | | | | | | | | | 1.20 | 1.21 | 0.46 | | | | | 593 | |
| 41071 | PB 4 | | 7.58 | 790 | | | | | | | | | | | 0.26 | | 0.30 | | | | | 606 | |
| 61970 | PB 5 | 26.2 | 8.50 | | | | | | | | | | | | | | | | | | | | |
| 62570 | PB 5 | 29.0 | 8.85 | | | | | | | | | | | | | | | | | | 14.0 | | 50 |
| 62670 | PB 5 | | | | | | | | | | | | | | | | | | | | | 623 | |
| 70270 | PB 5 | 22.6 | 8.55 | | | | | | | | | | | | | | 0.44 | | | | 14.0 | 620 | 70 |
| 70970 | PB 5 | | | | | | | | | | | | | | | | | | | | | 536 | |
| 71670 | PB 5 | 28.3 | 8.90 | | 154 | 286 | 82 | 52 | 38 | 12 | 188 | 7.0 | 73 | 141 | | | 1.0 | | | | 15.0 | 587 | |
| 72370 | PB 5 | 24.5 | 9.30 | | | 171 | | | | | | | | | | | | | | | 25.0 | 507 | 145 |
| 81370 | PB 5 | 25.2 | | | | | | | | | | | | | | | | | | | 12.0 | 504 | 95 |
| 82770 | PB 5 | 23.5 | 7.95 | | | | | | | | | | | | | | | | | | 4.0 | 511 | 50 |
| 90370 | PB 5 | 23.5 | 7.90 | | | | | | | | | | 50 | | | | | | | | | 491 | 50 |
| 91070 | PB 5 | 17.0 | 7.70 | | | | | | | | | | 81 | | | | | | | | 3.0 | | |
| 92670 | PB 5 | 15.0 | 8.10 | 761 | | | | | | | | | 50 | | | | 2.18 | | | | 7.0 | 438 | 25 |
| 10971 | PB 5 | | 7.90 | | 238 | | 29 | | 32 | | 289 | 1.0 | 34 | 107 | 1.17 | 1.86 | 3.00 | | | | | 567 | |
| 21371 | PB 5 | | 7.95 | 690 | 228 | | | | | | 277 | 1.1 | | | 0.15 | 0.58 | 2.83 | | | | 11.0 | 561 | |
| 61970 | PB 6 | 25.0 | 8.50 | | | | | | | | | | | | | | | | | | | | 30 |
| 62570 | PB 6 | 26.8 | 8.90 | | | | | | | | | | | | | | | | | | | | 16 |
| 62670 | PB 6 | | | | | | | | | | | | | | | | | | | | | 574 | |
| 70270 | PB 6 | 18.7 | 8.70 | | | | 62 | | 11 | | | | | | | | | | | | | | |
| 70970 | PB 6 | | | | | | | | | | | | | | | | | | | | | 585 | |
| 71670 | PB 6 | 26.3 | 9.10 | | 145 | 267 | 87 | 43 | 39 | 13 | 177 | 10.4 | 81 | 157 | | | 1.1 | | | | 7.0 | | 82 |
| 72370 | PB 6 | 23.3 | 9.00 | | | | | | | | | | | | | | | | | | 10.0 | 608 | 125 |
| 81370 | PB 6 | 24.2 | 9.15 | | | | | | | | | | | | | | | | | | 11.0 | 564 | |
| 82770 | PB 6 | 21.0 | 9.10 | | 144 | 238 | 86 | 33 | 38 | 13 | 176 | 10.4 | 71 | 149 | 0.27 | | 1.2 | | | | 5.0 | 582 | 150 |
| 90370 | PB 6 | 21.0 | 9.10 | | | | | | | | | | 88 | | | | | | | | 8.0 | 646 | 165 |
| 91070 | PB 6 | 6.5 | 8.80 | | | | | | | | | | 63 | | | | | | | | 13.0 | 512 | 85 |
| 92670 | PB 6 | 14.0 | 9.50 | 730 | | | | | | | | | 75 | | 0.08 | | 0.25 | | | | 10.0 | 463 | 65 |
| 101770 | PB 6 | 12.0 | 8.00 | 649 | 150 | 276 | 39 | 63 | 29 | 7 | 184 | 0.8 | 39 | 100 | 0.05 | | 0.4 | | | 25.0 | 17.0 | 461 | 22 |
| 112170 | PB 6 | 3.0 | 7.60 | 649 | 154 | 279 | 55 | 54 | 35 | 9 | 188 | 0.3 | 44 | 121 | | | 1.7 | | 30 | 22.0 | 12.0 | | 82 |
| 22371 | PB 6 | | | | | | | | | | | | | | | | | | | | | 600 | |
| 32071 | PB 6 | | | | | | | | | | | | | | | | | | | | 7.0 | 564 | |
| 33071 | PB 6 | | 7.78 | 790 | | | | | | | | | | | 1.14 | 0.02 | 0.51 | | | | | 570 | |
| 41371 | PB 6 | | 7.82 | 770 | | | | | | | | | | | 0.15 | 0.18 | 0.19 | | | | | 586 | |
| 42971 | PB 6 | | 8.48 | 630 | | | | | | | | | | 118 | 0.09 | 0.29 | 0.34 | | | | | 485 | |
| 51571 | PB 6 | | 8.55 | 650 | 202 | 330 | 67 | 78 | 33 | 6 | 210 | 18.0 | 64 | 123 | 0.10 | .016 | 0.39 | | | | | | |
| 52171 | PB 6 | | 8.68 | 720 | | | | | | | | | | | 0.11 | .004 | 0.15 | | | | | | |

| DATE | STA | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 60771 | PB 6 | | 8.20 | 710 | | | | | | | | | | | | | 0.14 | | | | | | |
| 62171 | PB 6 | | 8.10 | | | | | | | | | | | | | | 0.42 | | | | | | |
| 63071 | PB 6 | | 9.40 | 740 | | | | | | | | | | | | | 0.25 | | | | | | |
| 70571 | PB 6 | | 8.70 | 700 | | | | | | | | | | | | | 0.28 | | | | | | |
| 72671 | PB 6 | | 9.50 | 740 | | | | | | | | | | | | | 0.21 | | | | | | |
| 80271 | PB 6 | | 9.40 | 730 | | | | | | | | | | | | | 0.20 | | | | | | |
| 90971 | PB 6 | | 9.70 | 710 | | | | | | | | | | | | | 0.13 | | | | | | |
| 62670 | PB 7 | | | | | | | | | | | | | | | | | | | | | 625 | |
| 70970 | PB 7 | | | | | | | | | | | | | | | | | | | | | 542 | |
| 61970 | PB 7 | 25.5 | 8.50 | | | | | | | | | | | | | | | | | | | | 24 |
| 62570 | PB 7 | 24.8 | 8.70 | | | | | | | | | | | | | | | | | | 10.0 | | 25 |
| 70270 | PB 7 | 20.8 | 8.58 | | | | | | | | | | | | | | 0.33 | | | | 11.0 | 637 | 35 |
| 71670 | PB 7 | 25.0 | 8.85 | | 144 | 279 | 82 | 46 | 40 | 12 | 176 | 5.8 | 76 | 154 | 0.00 | | 1.1 | | | | 8.0 | 587 | 90 |
| 72370 | PB 7 | 21.0 | 8.75 | | | 171 | | | | | | | | | | | | | | | 6.0 | 503 | 140 |
| 81370 | PB 7 | 23.3 | 9.05 | | | | | | | | | | | | | | | | | | 10.0 | 508 | 125 |
| 82770 | PB 7 | 22.0 | 9.10 | | 152 | 254 | 90 | 41 | 37 | 12 | 186 | 11.0 | 73 | 143 | 0.16 | | 0.9 | | | | 6.0 | 559 | 145 |
| 90370 | PB 7 | 20.0 | 8.80 | | | | | | | | | | 100 | | | | | | | | 8.0 | 529 | 170 |
| 91070 | PB 7 | 16.0 | 8.70 | | | | | | | | | | 88 | | | | | | | | 7.0 | 526 | 135 |
| 92670 | PB 7 | 13.0 | 9.50 | 588 | | | | | | | | | 100 | | 0.40 | | 0.22 | | | | 11.0 | 463 | 85 |
| 101770 | PB 7 | 10.5 | 7.70 | | 162 | 225 | 74 | 31 | 36 | 9 | 198 | 0.4 | 61 | 130 | 0.06 | | 0.6 | | | | 15.0 | 539 | 75 |
| 112170 | PB 7 | 3.0 | 8.00 | | 201 | 317 | 70 | 61 | 40 | 10 | 246 | 1.1 | 58 | 149 | 0.07 | | 1.8 | | 70 | 22.0 | 11.0 | | 55 |
| 10971 | PB 7 | 0.0 | 8.10 | 755 | 251 | | 49 | | 38 | | 303 | 1.7 | 50 | 163 | 0.78 | 0.01 | 3.60 | | | | 9.0 | 607 | |
| 22371 | PB 7 | 2.0 | 8.70 | 895 | 199 | | | | | | 232 | 5.4 | | | 0.08 | 0.26 | 0.31 | | | | | 627 | |
| 32071 | PB 7 | 6.5 | 7.60 | 850 | | | | | | | | | | | | 0.83 | 0.37 | | | | 6.0 | 661 | |
| 33071 | PB 7 | | 7.80 | 740 | | | | | | | | | | | 1.51 | 0.02 | 0.86 | | | | | 543 | |
| 41071 | PB 7 | | 7.72 | 860 | | | | | | | | | | | 0.30 | 0.46 | 0.26 | | | | | 665 | |
| 42971 | PB 7 | | 8.20 | 860 | | | | | | | | | | 123 | 0.08 | 0.53 | 0.29 | | | | | 670 | |
| 51571 | PB 7 | | 8.50 | 670 | 177 | 294 | 77 | 65 | 32 | 7 | 214 | 1.3 | 56 | 117 | 0.08 | 0.28 | 0.34 | | | | | | |
| 52171 | PB 7 | | 8.70 | 730 | | | | | | | | | | | 0.11 | | 0.13 | | | | | | |
| 60771 | PB 7 | | 7.98 | 680 | | | | | | | | | | | | | 0.14 | | | | | | |
| 62171 | PB 7 | | 8.00 | | | | | | | | | | | | | | 0.27 | | | | | | |
| 63071 | PB 7 | | 9.30 | 800 | | | | | | | | | | | | | 0.14 | | | | | | |
| 70571 | PB 7 | | 8.80 | 730 | | | | | | | | | | | | | 0.38 | | | | | | |
| 72671 | PB 7 | | 9.40 | 650 | | | | | | | | | | | | | 0.10 | | | | | | |
| 80271 | PB 7 | | 9.20 | 710 | | | | | | | | | | | | | 0.12 | | | | | | |
| 90971 | PB 7 | | 9.70 | 670 | | | | | | | | | | | | | 0.16 | | | | | | |
| 61970 | PB 8 | 26.8 | 8.51 | | | | | | | | | | | | | | | | | | | 666 | 45 |
| 62570 | PB 8 | 24.9 | 8.80 | | | | | | | | | | | | | | | | | | 11.0 | | 25 |
| 62670 | PB 8 | | | | | | | | | | | | | | | | | | | | | 665 | |
| 70270 | PB 8 | 19.2 | 8.50 | | | | | | | | | | | | | | 0.53 | | | | 10.0 | 674 | 40 |
| 70970 | PB 8 | | | | | | | | | | | | | | | | | | | | | 581 | |
| 72370 | PB 8 | 21.6 | 8.80 | | | 154 | | | | | | | | | | | 0.77 | | | 45.0 | 6.0 | 492 | 130 |
| 80670 | PB 8 | 26.4 | 9.10 | | | | | | | | | | | | 0.30 | | 1.45 | | 10 | 46.0 | 15.0 | 600 | 130 |
| 81370 | PB 8 | 28.5 | 9.65 | | | | | | | | | | | | | | 1.45 | | | | | 611 | 130 |
| 81970 | PB 8 | | | | 141 | 263 | 82 | 38 | 41 | 13 | 173 | | 77 | 152 | 0.09 | | 0.6 | | 110 | 58.0 | | | |
| 82770 | PB 8 | 22.0 | 9.15 | | 146 | 287 | 82 | 54 | 37 | 13 | 179 | 11.8 | 83 | 149 | 0.16 | | 1.3 | | 20 | 47.0 | 6.0 | 573 | 165 |
| 90370 | PB 8 | 19.0 | 8.60 | | | | | | | | | | 113 | | | | | | 55 | 60.0 | 7.0 | 572 | 105 |
| 91370 | PB 8 | 15.0 | 8.95 | | | | | | | | | | 150 | | 0.13 | | 0.52 | | 0 | 40.0 | 7.0 | 540 | 75 |
| 92670 | PB 8 | 12.5 | 9.15 | 730 | | | | | | | | | 88 | | 0.58 | | 0.43 | | | | | 464 | 60 |
| 101770 | PB 8 | 11.0 | 7.90 | | 138 | 227 | 54 | 35 | 34 | 8 | 169 | 0.6 | 50 | 115 | 0.06 | | 0.7 | | | 8.0 | 16.0 | 430 | 55 |

| DATE | STA | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 112170 | PB 8 | 3.0 | 9.05 | 629 | | | | | | | | | 75 | | 0.05 | | 0.52 | | | | 14.0 | 464 | 78 |
| 10971 | PB 8 | 0.0 | 8.10 | 805 | 238 | | 63 | | 44 | | 287 | 1.6 | 65 | 154 | 0.28 | 1.89 | 2.60 | | | | 5.0 | 676 | |
| 10971 | PB 8 | 0.0 | 8.20 | 805 | 234 | | 63 | | 43 | | 282 | 2.1 | 75 | 166 | .17 | | 2.60 | | | | 5.0 | 769 | |
| 22371 | PB 8 | | 8.65 | 1005 | 198 | | | | | | 232 | 4.8 | | | 0.09 | 0.28 | 0.13 | | | | | 760 | |
| 32071 | PB 8 | 4.0 | 7.70 | 830 | | | | | | | | | | | 0.02 | 0.56 | 0.36 | | | | 6.0 | 624 | |
| 33071 | PB 8 | | 7.80 | 780 | | | | | | | | | | | 0.24 | 1.17 | 0.55 | | | | | 583 | |
| 41071 | PB 8 | | 7.82 | 890 | | | | | | | | | | | 0.39 | 0.31 | 0.21 | | | | | 683 | |
| 42971 | PB 8 | | 8.15 | 820 | | | | | | | | | | 131 | 0.13 | 0.45 | 0.21 | | | | | 642 | |
| 51571 | PB 8 | | 8.40 | 700 | 192 | 311 | 83 | 67 | 35 | 7 | 217 | 9.0 | 61 | 124 | 0.06 | 0.40 | 0.47 | | | | | | |
| 52171 | PB 8 | | 8.58 | 710 | | | | | | | | | | | 0.11 | 0.01 | 0.13 | | | | | | |
| 60771 | PB 8 | | 8.10 | 720 | | | | | | | | | | | | | 0.13 | | | | | | |
| 62171 | PB 8 | | 8.10 | | | | | | | | | | | | | | 0.24 | | | | | | |
| 63071 | PB 8 | | 9.40 | 730 | | | | | | | | | | | | | 0.12 | | | | | | |
| 70571 | PB 8 | | 9.10 | 720 | | | | | | | | | | | | | 0.27 | | | | | | |
| 72671 | PB 8 | | 9.70 | 710 | | | | | | | | | | | | | 0.22 | | | | | | |
| 80271 | PB 8 | | 9.40 | 700 | | | | | | | | | | | | | 0.17 | | | | | | |
| 80971 | PB 8 | | 9.80 | 690 | | | | | | | | | | | | | 0.04 | | | | | | |
| 61970 | PB 9 | 25.2 | | | | | | | | | | | | | | | | | | | | 627 | 40 |
| 62570 | PB 9 | 28.9 | 8.80 | | | | | | | | | | | | | | | | | | 13.0 | | 50 |
| 62670 | PB 9 | | | | | | | | | | | | | | | | | | | | | 648 | |
| 70270 | PB 9 | 24.2 | 8.70 | | | | | | | | | | | | | | 0.54 | | | | 14.0 | 633 | 35 |
| 70970 | PB 9 | | 8.40 | | | | | | | | | | | | | | | | | | | 579 | |
| 71570 | PB 9 | 28.2 | 9.05 | | 131 | 247 | 87 | 33 | 40 | 13 | 161 | 8.4 | 88 | 164 | 0.00 | | 0.8 | | | | 13.0 | 587 | 90 |
| 72370 | PB 9 | 24.5 | 9.25 | | | 154 | | | | | | | | | | | | | | | 13.0 | 561 | 110 |
| 81370 | PB 9 | 30.4 | 9.75 | | | | | | | | | | 150 | | | | | | | | 14.0 | 505 | 135 |
| 82770 | PB 9 | 23.0 | 9.05 | | 136 | 196 | 87 | 26 | 32 | 13 | 166 | 8.7 | 87 | 151 | 0.00 | | 1.0 | | | | 10.0 | 538 | 165 |
| 90370 | PB 9 | 24.5 | 9.50 | | | | | | | | | | 124 | | | | | | | | 8.0 | 548 | 130 |
| 91070 | PB 9 | 15.0 | 9.00 | | | | | | | | | | 88 | | | | | | | | 7.0 | 506 | 100 |
| 92670 | PB 9 | 16.0 | 9.50 | 659 | | | | | | | | | 75 | | 0.60 | | 0.36 | | | | 12.0 | 462 | 45 |
| 101770 | PB 9 | 12.0 | 7.10 | | 118 | 224 | 62 | 32 | 35 | 8 | 144 | | 59 | 118 | 0.06 | | 0.1 | | | | 14.0 | 458 | 105 |
| 112170 | PB 9 | 3.0 | 7.70 | | 164 | 294 | 44 | 60 | 35 | 9 | 201 | 0.4 | 44 | 135 | 0.09 | | 1.0 | | 10 | 27.0 | 18.0 | | 78 |
| 10971 | PB 9 | 0.5 | 8.20 | 805 | 225 | | 68 | | 45 | | 271 | 2.0 | 74 | 166 | 0.08 | 0.82 | 2.00 | | | | 5.0 | 730 | |
| 22371 | PB 9 | 1.0 | | | | | | | | | | | | | | | | | | | | 565 | |
| 32071 | PB 9 | 5.5 | 7.90 | 770 | | | | | | | | | | | 0.02 | 0.35 | 0.30 | | | | | 583 | |
| 33071 | PB 9 | | 7.82 | 790 | | | | | | | | | | | 0.84 | 0.01 | 0.59 | | | | | 596 | |
| 41071 | PB 9 | | 7.70 | 830 | | | | | | | | | | | 0.23 | 0.11 | 0.29 | | | | | 636 | |
| 42971 | PB 9 | | 8.10 | 750 | | | | | | | | | | 133 | 0.09 | 0.55 | 0.28 | | | | | 534 | |
| 51571 | PB 9 | | 3.45 | 720 | 198 | | | | | 7 | 216 | 13.0 | 66 | 133 | 0.09 | 0.30 | 0.66 | | | | | | |
| 52171 | PB 9 | | 8.60 | 700 | | | | | | | | | | | 0.10 | .001 | 0.17 | | | | | | |
| 60771 | PB 9 | | 8.22 | 740 | | | | | | | | | | | | | 0.06 | | | | | | |
| 62171 | PB 9 | | 8.20 | | | | | | | | | | | | | | 0.13 | | | | | | |
| 63071 | PB 9 | | 9.15 | 680 | | | | | | | | | | | | | 0.15 | | | | | | |
| 70571 | PB 9 | | 9.10 | 710 | | | | | | | | | | | | | 0.06 | | | | | | |
| 72671 | PB 9 | | 9.70 | 720 | | | | | | | | | | | | | 0.25 | | | | | | |
| 80271 | PB 9 | | 9.30 | 730 | | | | | | | | | | | | | 0.09 | | | | | | |
| 80971 | PB 9 | | 9.85 | 700 | | | | | | | | | | | | | 0.17 | | | | | | |
| 61970 | PB10 | 24.7 | 8.40 | | | | | | | | | | | | | | | | | | | 736 | 44 |
| 62570 | PB10 | 24.6 | 8.60 | 1400 | | 256 | | | | | | | | | | | | | | | 8.0 | | 30 |
| 62670 | PB10 | | | | | | | | | | | | | | | | | | | | | 808 | |
| 70270 | PB10 | 20.1 | 8.30 | | | | | | | | | | | | | | 0.36 | | | 4.0 | 8.0 | 869 | 25 |

| DATE | STA | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 70970 | PB10 | | 0. | | 123 | 330 | 139 | 45 | 53 | 19 | 151 | | 161 | 170 | 0.41 | | 0.4 | | 25 | 19.0 | | 763 | |
| 71670 | PB10 | 24.0 | 8.90 | | 146 | 316 | 112 | 54 | 44 | 17 | 179 | 6.6 | 133 | 193 | 0.00 | | 0.9 | | | 18.0 | 9.0 | 617 | 82 |
| 72370 | PB10 | 21.7 | 8.40 | | | 154 | | | | | | | | | 0.31 | | 0.26 | | 10 | 22.0 | 6.0 | 758 | 135 |
| 80670 | PB10 | 24.0 | 8.80 | | | | | | | | | | | | 0.24 | | 0.45 | | | 25.0 | 10.0 | 677 | 155 |
| 81370 | PB10 | 23.1 | 8.70 | | | | | | | | | | 225 | | 0.12 | | 0.53 | | | | 8.0 | 731 | 115 |
| 82770 | PB10 | 21.5 | 9.15 | | 140 | 285 | 110 | 50 | 39 | 14 | 171 | 11.3 | 88 | 149 | 0.00 | | 1.9 | | 20 | 37.0 | 5.0 | 1139 | 135 |
| 90370 | PB10 | 23.0 | 9.25 | | | | | | | | | | 168 | | | | | | | | 10.0 | 614 | 150 |
| 91070 | PB10 | 15.5 | 9.00 | | | | | | | | | | 150 | | | | | | | 33.0 | 8.0 | 943 | 110 |
| 92670 | PB10 | 12.0 | 9.20 | 884 | | | | | | | | | 137 | | 0.17 | | 0.70 | | | | 15.0 | 897 | 80 |
| 101770 | PB10 | 10.0 | 7.40 | 872 | 129 | 251 | 80 | 28 | 44 | 6 | 158 | 0.1 | 93 | 150 | 0.05 | | 0.4 | | 10 | 10.0 | 10.0 | 1003 | 95 |
| 112170 | PB10 | 3.0 | 7.80 | 864 | 147 | 295 | 102 | 44 | 45 | 15 | 180 | 0.5 | 114 | 169 | 0.07 | | 0.4 | | | 20.0 | 10.0 | | 53 |
| 121270 | PB10 | 1.0 | 8.85 | 944 | 170 | | 178 | | 45 | 9 | 208 | 6.9 | 88 | 179 | 0.10 | | 1.0 | | | 12.0 | | | 75 |
| 10971 | PB10 | | 8.30 | 825 | 215 | | 82 | | 49 | | 258 | 2.4 | 87 | 182 | 0.10 | 0.83 | 2.00 | | | | 6.0 | 750 | |
| 22371 | PB10 | 1.5 | 8.60 | 800 | 189 | | | | | | 223 | 4.1 | | | 0.11 | 0.42 | 0.23 | | | | | | |
| 22771 | PB10 | | 8.10 | 925 | 189 | | | | | | 228 | 1.3 | | | 0.11 | 0.09 | | | | | | 573 | |
| 32071 | PB10 | | 7.85 | 1025 | | | | | | | | | | | 0.09 | 0.52 | 0.28 | | | | 6.0 | 765 | |
| 33071 | PB10 | | 7.86 | 940 | | | | | | | | | | | 0.43 | 0.49 | 0.27 | | | | | 714 | |
| 41071 | PB10 | | 7.92 | 1195 | | | | | | | | | | | 0.29 | | 0.09 | | | | | 748 | |
| 42971 | PB10 | | 8.10 | 900 | | | | | | | | | | 148 | 0.07 | 0.60 | 0.20 | | | | | 654 | |
| 51571 | PB10 | | 8.45 | 770 | 178 | 345 | 103 | 74 | 39 | 9 | 214 | 1.8 | 85 | 147 | 0.08 | 0.22 | 0.09 | | | | | | |
| 52171 | PB10 | | 8.35 | 1045 | | | | | | | | | | | 0.33 | 0.02 | 0.13 | | | | | | |
| 60771 | PB10 | | 8.23 | 940 | | | | | | | | | | | | | 0.09 | | | | | | |
| 62171 | PB10 | | 8.60 | | | | | | | | | | | | | | 0.21 | | | | | | |
| 63071 | PB10 | | 9.20 | 830 | | | | | | | | | | | | | 0.12 | | | | | | |
| 70571 | PB10 | | 8.90 | 920 | | | | | | | | | | | | | 0.26 | | | | | | |
| 72671 | PB10 | | 9.55 | 830 | | | | | | | | | | | | | 0.11 | | | | | | |
| 80271 | PB10 | | 9.30 | 870 | | | | | | | | | | | | | 0.15 | | | | | | |
| 80971 | PB10 | | 9.65 | 830 | | | | | | | | | | | | | 0.12 | | | | | | |
| 61970 | PB11 | 26.3 | 8.20 | | | | | | | | | | | | | | | | | | | 885 | 65 |
| 62570 | PB11 | 24.5 | 8.31 | 1400 | | | | | | | | | | | | | | | | | 7.0 | | 25 |
| 62670 | PB11 | | | | | | | | | | | | | | | | | | | | | 928 | |
| 70270 | PB11 | 19.4 | 8.20 | 3500 | | | | | | | | | | | | | 0.14 | | | | 6.0 | 871 | 60 |
| 70970 | PB11 | | 0. | | | | | | | | | | | | | | | | | | | 886 | |
| 71070 | PB11 | 22.7 | 8.05 | | | | | | | | | | | | | | | | | | | 886 | 50 |
| 71670 | PB11 | 24.0 | 8.20 | | 167 | 370 | 145 | 61 | 53 | 22 | 204 | 1.5 | 209 | 242 | | | 0.1 | | | | 7.0 | 894 | 65 |
| 72370 | PB11 | 21.7 | 7.95 | | | 171 | | | | | | | | | 0.31 | | 0.04 | | | | 7.0 | 905 | 90 |
| 80670 | PB11 | 23.5 | 8.20 | | | | | | | | | | | | 0.26 | | 0.07 | | | | 6.0 | 906 | 40 |
| 81370 | PB11 | 23.3 | 8.50 | | | | | | | | | | 338 | | | | | | | | 9.0 | 873 | 50 |
| 82770 | PB11 | 23.0 | 8.60 | | 152 | 351 | 175 | 45 | 58 | 27 | 186 | 3.4 | 400 | 248 | 0.10 | | 0.23 | | | 9.0 | 6.0 | 914 | 70 |
| 90370 | PB11 | 23.0 | 8.65 | | | | | | | | | | 300 | | | | | | | 65.0 | 9.0 | 976 | 70 |
| 91070 | PB11 | 15.0 | 8.55 | | | | | | | | | | 288 | | | | | | | 20.0 | 7.0 | 838 | 70 |
| 92670 | PB11 | 12.5 | 8.50 | 1447 | | | | | | | | | | | 0.22 | | 0.05 | | | | 11.0 | 887 | 65 |
| 101770 | PB11 | 10.0 | 8.40 | 1407 | 152 | 345 | 145 | 46 | 56 | 21 | 186 | 2.1 | 325 | 224 | 0.06 | | 0.05 | | | 10.0 | 11.0 | 872 | 75 |
| 112170 | PB11 | 3.5 | 8.45 | 1206 | 161 | 361 | 146 | 49 | 58 | 23 | 197 | 2.6 | 177 | 216 | 0.22 | | 0.8 | | | | 10.0 | | 43 |
| 121270 | PB11 | 2.0 | 8.45 | 1145 | 185 | | 219 | | 60 | 16 | 226 | 2.9 | 185 | 219 | 0.11 | | 0.4 | | | | | | 68 |
| 22371 | PB11 | 1.5 | 8.48 | 1055 | 181 | | | | | | 215 | 3.0 | | | 0.15 | 0.24 | 0.60 | | | | | | |
| 22771 | PB11 | | 8.00 | 945 | 168 | | | | | | 204 | 0.9 | | | 0.42 | 0.22 | 0.25 | | | | | 751 | |
| 32071 | PB11 | 3.5 | 8.05 | 1015 | | | | | | | | | | | 0.15 | 0.38 | 0.23 | | | | 8.0 | 743 | |
| 33071 | PB11 | | 8.15 | 1025 | | | | | | | | | | | 0.57 | 0.19 | 0.17 | | | | | 780 | |
| 41071 | PB11 | | 8.13 | 1105 | | | | | | | | | | | 0.34 | | 0.07 | | | | | 831 | |

| DATE | STA | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 42971 | PB11 | | 8.35 | 1085 | | | | | | | | | | | 0.35 | 0.15 | 0.13 | | | | | 820 | |
| 51571 | PB11 | | 8.50 | 1075 | 190 | 392 | 145 | 68 | 54 | 16 | 214 | 9.0 | 173 | 205 | 0.28 | 0.11 | 0.13 | | | | | | |
| 52171 | PB11 | | 8.38 | 1055 | | | | | | | | | | | 0.33 | 0.01 | 0.15 | | | | | | |
| 60771 | PB11 | | 8.31 | 1205 | | | | | | | | | | | | | 0.13 | | | | | | |
| 62171 | PB11 | | 8.40 | | | | | | | | | | | | | | 0.24 | | | | | | |
| 63071 | PB11 | | 8.70 | 1135 | | | | | | | | | | | | | 0.10 | | | | | | |
| 70571 | PB11 | | 8.55 | 1055 | | | | | | | | | | | | | 0.17 | | | | | | |
| 72671 | PB11 | | 8.60 | 1245 | | | | | | | | | | | | | 0.13 | | | | | | |
| 80271 | PB11 | | 8.70 | 1205 | | | | | | | | | | | | | 0.14 | | | | | | |
| 80971 | PB11 | | 9.00 | 1115 | | | | | | | | | | | | | 0.14 | | | | | | |
| 101770 | PB45 | | | | | | | | | | | | | | | | | | | | | 459 | |
| 112170 | PB45 | 8.5 | 7.40 | 751 | 209 | 371 | 36 | 96 | 32 | 8 | 255 | 0.3 | 32 | 135 | 0.07 | | 3.95 | | | | 5.0 | 571 | 22 |
| 13071 | PB45 | | 7.60 | 844 | | | | | | | | | | | 0.34 | | 4.40 | | | | 5.0 | 476 | |
| 20671 | PB45 | 3.0 | 8.30 | | | | | | | | | | | | 2.90 | | 0.32 | | | | 12.0 | 604 | |
| 22371 | PB45 | 3.0 | | | | | | | | | | | | | | | | | | | | 506 | |
| 32071 | PB45 | 6.0 | | | | | | | | | | | | | | | | | | | 6.0 | 589 | |
| 33071 | PB45 | | | | | | | | | | | | | | | | | | | | | 593 | |
| 42971 | PB45 | | 8.50 | 580 | | | | | | | | | | 130 | 0.08 | 0.31 | 0.32 | | | | | 421 | |
| 51571 | PB45 | | 8.30 | 720 | 200 | 359 | 80 | 86 | 35 | 7 | 245 | 2.2 | 62 | 127 | 0.11 | 0.34 | 0.64 | | | | | | |
| 52171 | PB45 | | 8.80 | 720 | | | | | | | | | | | 0.13 | .002 | 0.37 | | | | | | |
| 60771 | PB45 | | 7.98 | 670 | | | | | | | | | | | | | 0.12 | | | | | | |
| 62171 | PB45 | | 8.00 | | | | | | | | | | | | | | 0.15 | | | | | | |
| 63071 | PB45 | | 8.30 | 610 | | | | | | | | | | | | | 0.21 | | | | | | |
| 70571 | PB45 | | 8.50 | 650 | | | | | | | | | | | | | 0.61 | | | | | | |
| 72671 | PB45 | | 9.40 | 710 | | | | | | | | | | | | | 0.10 | | | | | | |
| 80271 | PB45 | | 8.20 | 740 | | | | | | | | | | | | | 0.18 | | | | | | |
| 80971 | PB45 | | 7.85 | 640 | | | | | | | | | | | | | 2.45 | | | | | | |

| DATE | STA | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 62270 | GB 1 | 24.7 | 8.40 | | | | | | | | | | | | | | | | | | | 3265 | 73 |
| 63070 | GB 1 | 20.4 | 8.70 | 2800 | | | | | | | | | | | | | 0.17 | | 70 | 6.0 | 8.0 | 2650 | 55 |
| 70670 | GB 1 | 25.9 | 8.60 | | | | | | | | | | | | | | 0.21 | | | 6.0 | 7.0 | 2875 | 70 |
| 71370 | GB 1 | 24.4 | 8.90 | | 209 | 758 | 658 | 78 | 137 | 40 | 256 | 9.5 | 938 | 631 | 0.10 | | 0.04 | | | 7.0 | 7.0 | 2860 | 92 |
| 72070 | GB 1 | 26.0 | 8.95 | | 193 | 665 | 645 | 57 | 127 | 40 | 236 | 9.8 | 999 | 672 | | | 0.1 | | 45 | 12.0 | | 3023 | 85 |
| 72770 | GB 1 | 23.6 | 9.00 | | | | | | | | | | | | | | 0.23 | | | | 8.0 | 3333 | |
| 80370 | GB 1 | 24.8 | 8.80 | | | | | | | | | | | | | | 0.31 | | 31 | 14.5 | 5.0 | 3512 | 110 |
| 81070 | GB 1 | 23.4 | 8.40 | | | | | | | | | | | | | | 0.09 | | | 35.0 | 5.0 | 3748 | |
| 62270 | GB 2 | 24.7 | 8.40 | | | | | | | | | | | | | | | | | | | 2260 | 86 |
| 63070 | GB 2 | 19.7 | 8.60 | 2800 | | | | | | | | | | | | | 0.14 | | 50 | 4.5 | 8.0 | 1965 | 55 |
| 70670 | GB 2 | 25.3 | 8.60 | | | | | | | | | | | | | | | | | | 8.0 | 2009 | 60 |
| 71370 | GB 2 | 24.4 | 8.75 | | | 222 | | | | | | | | | 0.07 | | 0.17 | | | | 7.0 | 2155 | 80 |
| 72070 | GB 2 | 26.1 | 8.65 | | 194 | 531 | 419 | 61 | 92 | 36 | 215 | 11.0 | 651 | 475 | | | 0.02 | | | | 9.0 | 2011 | 80 |
| 72770 | GB 2 | 23.3 | 8.90 | | | | | | | | | | | | | | | | | | 8.0 | 2434 | 45 |
| 80370 | GB 2 | 24.5 | 8.80 | | | | | | | | | | | | | | | | | | | | 73 |
| 81070 | GB 2 | 22.8 | 8.55 | 4440 | | | | | | | | | | | 0.20 | | 0.08 | | | | 8. | 2269 | 55 |
| 62270 | GB 3 | 24.0 | 8.20 | | | | | | | | | | | | | | | | | | | 968 | 50 |
| 63070 | GB 3 | 20.5 | 8.45 | 3500 | | | | | | | | | | | | | 0.15 | | | 5.5 | 7.0 | 1348 | 55 |
| 70670 | GB 3 | 24.2 | 8.43 | | | | | | | | | | | | | | 0.15 | | 20 | 0.0 | | 1295 | 55 |
| 71370 | GB 3 | 24.0 | 8.60 | | | 137 | | | | | | | | | 0.11 | | 0.07 | | | 9.0 | 7.0 | 1299 | 35 |
| 72070 | GB 3 | 26.0 | 8.45 | | 168 | 382 | 216 | 56 | 59 | 26 | 205 | 2.7 | 306 | 296 | | | 0.04 | | 55 | 11.0 | 8.0 | 1211 | 75 |
| 72770 | GB 3 | 23.9 | 8.50 | | | | | | | | | | | | | | | | | | 6.0 | 1335 | 100 |
| 80370 | GB 3 | 24.4 | 8.65 | | | | | | | | | | | | | | | | 30 | 19.0 | 8.0 | | 75 |
| 81070 | GB 3 | 23.5 | 8.20 | 2100 | | | | | | | | | 590 | | | | 0.02 | | | 7.0 | 7.0 | 1387 | 70 |
| 81770 | GB 3 | 24.2 | 8.60 | | 175 | 639 | 261 | 55 | 122 | 29 | 214 | 4.0 | 375 | 332 | 0.02 | | 0.6 | | | 8.0 | 7.0 | 1496 | 45 |
| 82470 | GB 3 | 23.5 | 8.60 | | | | | | | | | | 175 | | 0.05 | | 0.60 | | | 1.0 | 6.0 | | 95 |
| 83170 | GB 3 | 23.5 | 8.45 | | | | | | | | | | 400 | | | | | | 10 | 19.0 | 7.0 | 1041 | 170 |
| 100370 | GB 3 | 15.5 | 9.85 | 2101 | | | | | | | | | 500 | | 0.45 | | 0.02 | | | | | 1305 | 40 |
| 103170 | GB 3 | 6.5 | 8.20 | 2158 | 194 | 499 | 421 | 50 | 91 | 40 | 237 | 1.7 | 479 | 396 | 0.05 | | 0.28 | | | 16.0 | 5.0 | | 25 |
| 120570 | GB 3 | 2.5 | 8.55 | 2005 | 185 | 497 | 384 | 64 | 82 | 34 | 226 | 3.7 | 478 | 368 | 0.04 | | 0.65 | | | 0.4 | | | 24 |
| 40672 | GB 3 | 12.0 | | 1490 | | 355 | 206 | 40 | 62 | 19 | | | 157 | | 0.03 | | 0.07 | | | 01.5 | | 0642 | |
| 42072 | GB 3 | 10.3 | | 2376 | 246 | 460 | 384 | 54 | 79 | 30 | 301 | | 492 | 405 | 0.38 | | 0.03 | | | 00.6 | | 1745 | |
| 51572 | GB 3 | 15.0 | | 3240 | 306 | 734 | 522 | 80 | 130 | 40 | 374 | | 803 | | 0.09 | | 0.08 | | | 03.1 | | 2446 | |
| 62270 | GB 4 | 23.7 | 6.20 | | | | | | | | | | | | | | | | | | | 1231 | 60 |
| 63070 | GB 4 | 18.7 | 8.30 | 4000 | | | | | | | | | | | | | 0.14 | | | | 7.0 | 1114 | 85 |
| 70670 | GB 4 | 23.7 | 8.42 | | | | | | | | | | | | | | 0.12 | | | | 7.0 | 1086 | 90 |
| 71370 | GB 4 | 24.5 | 8.55 | | | 222 | | | | | | | | | 0.10 | | 0.06 | | | | 7.0 | 1206 | 65 |
| 72070 | GB 4 | 24.4 | 8.45 | | 178 | 391 | 209 | 56 | 61 | 26 | 181 | 18.0 | 314 | 299 | | | 0.4 | | | | 7.0 | 1291 | 85 |
| 72770 | GB 4 | 23.6 | 8.50 | | | | | | | | | | | | | | | | | | | 740 | |
| 81070 | GB 4 | 23.6 | 8.15 | 1470 | | | | | | | | | | | | | 0.02 | | | | 8.0 | 950 | 135 |
| 81770 | GB 4 | | | | 172 | 581 | 238 | 53 | 109 | 25 | 211 | | 296 | 282 | 0.11 | | 0.3 | | | | | 1148 | |
| 82470 | GB 4 | 24.0 | 8.60 | | | | | | | | | | 125 | | | | | | 20 | 7.0 | | | 85 |
| 83170 | GB 4 | 23.5 | 8.75 | | | | | | | | | | 999 | | | | | | | 11.0 | 7.0 | 1065 | 115 |
| 100370 | GB 4 | 15.0 | 9.65 | 1768 | | | | | | | | | 437 | | 0.45 | | 0.01 | | | | | 1091 | 45 |
| 103170 | GB 4 | 6.5 | 8.75 | 2000 | 166 | 519 | 312 | 48 | 97 | 31 | 203 | 5.3 | 293 | 280 | 0.04 | | | | | | 10.0 | | 14 |
| 120570 | GB 4 | 2.5 | 8.20 | 1949 | 173 | 457 | 209 | 61 | 74 | 27 | 212 | 1.5 | 380 | 162 | 0.07 | | 0.05 | | 10 | 11.0 | 9.0 | 1125 | 722 |
| 62270 | GB 5 | 22.7 | 8.15 | | | | | | | | | | | | | | | | | | | 984 | 50 |
| 63070 | GB 5 | 20.0 | 8.20 | | | | | | | | | | | | | | 0.13 | | 75 | 2.5 | 7.0 | 972 | 80 |
| 70670 | GB 5 | 23.9 | 8.39 | | | | | | | | | | | | | | | | | | 7.0 | 1007 | 65 |
| 71370 | GB 5 | 24.3 | 8.50 | | | 188 | | | | | | | | | 0.11 | | 0.05 | | | | 8.0 | 1051 | 53 |

| DATE | STA | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 72070 | GB 5 | 25.0 | 8.50 | | 150 | 339 | 174 | 47 | 54 | 24 | 184 | 2.7 | 253 | 267 | | | 0.2 | | | | 11.0 | 1294 | 75 |
| 72770 | GB 5 | 24.1 | 8.70 | | | | | | | | | | | | | | | | | | 11.0 | 686 | 95 |
| 81770 | GB 5 | | | | 158 | 530 | 212 | 51 | 98 | 22 | 193 | | 226 | 253 | | | 0.6 | | | | | 1041 | |
| 62270 | GB 6 | 23.8 | 8.10 | | | | | | | | | | | | | | | | | | | 1298 | 43 |
| 63070 | GB 6 | 20.6 | 8.30 | | | | | | | | | | | | | | 0.12 | | | | 7.0 | 1000 | 85 |
| 70670 | GB 6 | 26.2 | 8.35 | | | | | | | | | | | | | | | | | | 6.0 | 1011 | 70 |
| 71370 | GB 6 | 24.8 | 8.45 | | | | | | | | | | | | 0.04 | | 0.07 | | | | 7.0 | 997 | 50 |
| 72070 | GB 6 | 25.9 | 7.40 | | 159 | 325 | 166 | 43 | 53 | 24 | 194 | 0.2 | 242 | 263 | | | 0.4 | | | | 10.0 | 1071 | 87 |
| 72770 | GB 6 | 23.5 | 8.60 | | | | | | | | | | | | | | | | | | 7.0 | 893 | 110 |
| 81070 | GB 6 | 22.5 | 8.10 | 1650 | | | | | | | | | | | | | 0.02 | | | | 6.0 | | 105 |
| 81770 | GB 6 | | 7.90 | | 146 | 485 | 169 | 46 | 90 | 21 | 179 | 0.6 | 240 | 251 | 0.02 | | 0.8 | | | | | 980 | |
| 82470 | GB 6 | 23.5 | 8.65 | | | | | | | | | | 100 | | | | | | | | 7.0 | 980 | 45 |
| 100370 | GB 6 | 15.0 | 9.15 | 1728 | | | | | | | | | 400 | | | | 0.12 | | | | | 1032 | 45 |
| 103170 | GB 6 | 6.08 | 7.80 | 1708 | 165 | 392 | 204 | 50 | 65 | 29 | 202 | 0.5 | 244 | 260 | 0.06 | | 0.5 | | | | 6.0 | | 28 |
| 63070 | GB 7 | 20.3 | 8.20 | | | | | | | | | | | | | | 0.11 | | | | 7.0 | 989 | 75 |
| 70670 | GB 7 | 25.5 | 8.20 | | | | | | | | | | | | | | 0.12 | | | 3.5 | 7.0 | 994 | 70 |
| 71370 | GB 7 | 24.5 | 8.10 | | 171 | 415 | 210 | 61 | 64 | 24 | 209 | 1.2 | 248 | 268 | | | 0.02 | | | 5.0 | 7.0 | 1030 | 65 |
| 72070 | GB 7 | 25.2 | 7.70 | | 149 | 347 | 149 | 42 | 59 | 23 | 182 | 0.4 | 220 | 251 | | | 0.2 | | | 7.0 | 8.0 | 1045 | 75 |
| 72770 | GB 7 | 22.5 | 8.20 | | | 171 | | | | | | | | | | | 0.04 | | 10 | 6.0 | 9.0 | 881 | 65 |
| 80370 | GB 7 | 24.6 | 8.40 | | | | | | | | | | | | 0.18 | | 0.08 | | 9 | 9.0 | 9.0 | 907 | 60 |
| 81070 | GB 7 | 23.2 | 8.10 | 1390 | | | | | | | | | | | 0.20 | | 0.12 | | | 8.0 | 6.0 | 928 | 120 |
| 81770 | GB 7 | 24.5 | 7.70 | | 151 | 501 | 193 | 46 | 94 | 22 | 185 | 0.4 | 203 | 248 | 0.01 | | 0.4 | | | 13.0 | 6.0 | 967 | 95 |
| 82470 | GB 7 | 23.5 | 8.45 | | | | | | | | | | 87 | | 0.06 | | 0.30 | | | 3.0 | 7.0 | | 75 |
| 83170 | GB 7 | 23.5 | 8.50 | | | | | | | | | | 300 | | | | | | | 9.0 | 7.0 | 907 | 95 |
| 103170 | GB 7 | 5.5 | 8.10 | 1467 | 159 | 379 | 189 | 48 | 63 | 28 | 194 | 1.1 | 230 | 252 | 0.19 | | 0.15 | | | 17.0 | 9.0 | | 47 |
| 81770 | GB12 | 24.5 | 8.65 | | 234 | 983 | 743 | 66 | 199 | 44 | 286 | 6.0 | 997 | 665 | 0.07 | | 0.9 | | 20 | 6.0 | 4.0 | 2995 | 120 |
| 82470 | GB12 | 23.5 | 8.70 | | | | | | | | | | 375 | | 0.06 | | 1.50 | | 300 | 12.0 | 6.0 | | 100 |
| 83170 | GB12 | 24.0 | 8.75 | | | | | | | | | | 999 | | | | | | 10 | 26.0 | 6.0 | 2683 | 115 |
| 100370 | GB12 | 16.0 | 9.95 | 4202 | | | | | | | | | 999 | | 0.36 | | 0.02 | | | | | 2497 | 95 |
| 103170 | GB12 | 7.0 | 8.40 | 4252 | 257 | 755 | 899 | 62 | 146 | 58 | 296 | 9.0 | 965 | 660 | 0.07 | | 0.3 | | 0 | 17.0 | 9.0 | | 45 |
| 120570 | GB12 | 2.5 | 8.30 | 3342 | 227 | 653 | 723 | 82 | 109 | 50 | 278 | 2.6 | 922 | 558 | 0.09 | | 0.34 | | 20 | 11.0 | | | 24 |

SUPPLEMENTAL DATA FROM U.S. BUREAU OF RECLAMATION - SEPTEMBER 1972 THROUGH JUNE 1973

| DATE | STA | FLOW | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 91472 | UT 9 | 35 | 18,3 | 8,4 | 682 | | | 19 | 76 | 38 | 3 | 318 | 8,4 | 18 | 100 | 1,31 | | | | | | | 431 | |
| 103172 | UT 9 | 30 | 10,0 | 8,0 | 632 | | | 17 | 66 | 36 | 3 | 279 | | 17 | 84 | 2,19 | | | | | | | 398 | |
| 112972 | UT 9 | 25 | 4,4 | 7,9 | 675 | | | 19 | 74 | 37 | 3 | 309 | | 17 | 92 | 1,56 | | | | | | | 398 | |
| 10273 | UT 9 | 22 | 4,4 | 8,1 | 712 | | | 20 | 82 | 37 | 3 | 337 | | 21 | 98 | 1,94 | | | | | | | 440 | |
| 20273 | UT 9 | 29 | 5,6 | 8,0 | 730 | | | 22 | 77 | 39 | 3 | 321 | | 21 | 93 | 1,94 | | 0,02 | | | | | 443 | |
| 22773 | UT 9 | 33 | 8,9 | 8,2 | 782 | | | 26 | 80 | 43 | 5 | 331 | | 25 | 117 | 1,81 | | 0,02 | | | | | 490 | |
| 32273 | UT 9 | 33 | 10,0 | 8,1 | 723 | | | 23 | 71 | 40 | 4 | 310 | | 23 | 108 | 1,58 | | | | | | | 461 | |
| 41773 | UT 9 | 31 | 14,4 | 8,2 | 697 | | | 23 | 72 | 38 | 3 | 310 | | 20 | 97 | 1,63 | | | | | | | 444 | |
| 51473 | UT 9 | 25 | 15,6 | 8,1 | 657 | | | 22 | 61 | 37 | 4 | 284 | | 20 | 96 | 1,15 | | | | | | | 402 | |
| 91472 | UT18 | 35 | 18,3 | 8,3 | 799 | | | 27 | 92 | 39 | 5 | 370 | 8,7 | 27 | 94 | 2,21 | | 0,02 | | | | | 514 | |
| 103172 | UT18 | 40 | 11,1 | 8,0 | 756 | | | 27 | 76 | 38 | 5 | 375 | | 27 | 100 | 2,71 | | 0,23 | | | | | 516 | |
| 112972 | UT18 | 34 | 6,7 | 8,0 | 818 | | | 30 | 99 | 40 | 5 | 383 | | 29 | 102 | 2,71 | | 0,27 | | | | | 508 | |
| 10273 | UT18 | 27 | 5,6 | 8,1 | 889 | | | 36 | 98 | 41 | 5 | 392 | | 37 | 112 | 3,39 | | 0,38 | | | | | 552 | |
| 20273 | UT18 | 25 | 6,7 | 8,2 | 897 | | | 40 | 94 | 42 | 6 | 375 | | 40 | 136 | 3,84 | | 0,34 | | | | | 559 | |
| 22773 | UT18 | 30 | 10,0 | 8,1 | 1030 | | | 53 | 98 | 48 | 7 | 396 | | 51 | 154 | 2,94 | | 0,30 | | | | | 587 | |
| 32273 | UT18 | 37 | 10,0 | 8,0 | 1050 | | | 57 | 98 | 50 | 9 | 399 | | 61 | 167 | 2,89 | | 0,30 | | | | | 678 | |
| 41773 | UT18 | 27 | 11,1 | 8,2 | 910 | | | 44 | 91 | 41 | 7 | 362 | | 44 | 132 | 4,52 | | 1.14 | | | | | 596 | |
| 51473 | UT18 | 10 | 16,7 | 8,0 | 759 | | | 33 | 78 | 35 | 6 | 325 | | 34 | 96 | 1,76 | | 0,30 | | | | | 466 | |
| 91472 | UT34 | 8 | 15,6 | 7,9 | 609 | | | 14 | 86 | 20 | 5 | 315 | | 18 | 61 | 0,75 | | 0,04 | | | | | 371 | |
| 103172 | UT34 | 4 | 7,8 | 8,0 | 629 | | | 15 | 91 | 21 | 5 | 314 | | 20 | 61 | 0,75 | | 0,08 | | | | | 389 | |
| 112972 | UT34 | 4 | 11,7 | 8,2 | 592 | | | 15 | 85 | 21 | 5 | 300 | | 18 | 56 | 0,88 | | 0,04 | | | | | 351 | |
| 10273 | UT34 | 3 | 6,7 | 8,0 | 631 | | | 15 | 90 | 21 | 5 | 320 | | 19 | 57 | 0,77 | | 0,04 | | | | | 379 | |
| 20273 | UT34 | 3 | 4,4 | 7,9 | 631 | | | 15 | 86 | 21 | 5 | 330 | | 22 | 57 | 0,68 | | 0,04 | | | | | 368 | |
| 22773 | UT34 | 4 | 11.1 | 8,0 | 645 | | | 17 | 85 | 22 | 5 | 300 | | 24 | 77 | 0,61 | | 0,04 | | | | | 377 | |
| 32273 | UT34 | 6 | 10,0 | 7,9 | 636 | | | 15 | 88 | 22 | 5 | 299 | | 25 | 71 | 0,81 | | 0,02 | | | | | 387 | |
| 41773 | UT34 | 9 | 13,3 | 7,8 | 637 | | | 16 | 87 | 21 | 4 | 299 | | 25 | 62 | 0,86 | | 0,04 | | | | | 404 | |
| 51473 | UT34 | 14 | 13,3 | 7,9 | 636 | | | 15 | 88 | 21 | 4 | 296 | | 23 | 65 | 1,63 | | 0,02 | | | | | 394 | |
| 91472 | UT38 | 10 | 17,8 | 8,3 | 504 | | | 11 | 70 | 19 | 3 | 245 | 9, | 13 | 52 | 0,99 | | 0,11 | | | | | 315 | |
| 103172 | UT38 | 20 | 12,2 | 8,1 | 537 | | | 12 | 75 | 19 | 3 | 262 | | 15 | 51 | 0,99 | | 0,04 | | | | | 330 | |
| 112972 | UT38 | 8 | 13,3 | 8,4 | 778 | | | 41 | 89 | 29 | 5 | 323 | 8,7 | 59 | 57 | 2,26 | | 0,15 | | | | | 469 | |
| 10273 | UT38 | 22 | 5,6 | 8,2 | 525 | | | 12 | 74 | 19 | 3 | 256 | | 15 | 56 | 0,95 | | 0,04 | | | | | 318 | |
| 20273 | UT38 | 22 | 6,7 | 7,8 | 528 | | | 13 | 69 | 19 | 3 | 243 | | 17 | 61 | 0,97 | | 0,08 | | | | | 302 | |
| 22773 | UT38 | 20 | 12,2 | 8,2 | 559 | | | 14 | 74 | 20 | 3 | 260 | | 17 | 62 | 1,04 | | 0,04 | | | | | 330 | |
| 32273 | UT38 | 20 | 10,0 | 8,2 | 553 | | | 14 | 72 | 19 | 3 | 246 | | 17 | 61 | 0,90 | | 0,11 | | | | | 345 | |
| 41773 | UT38 | 24 | 13,3 | 7,8 | 434 | | | 13 | 56 | 14 | 3 | 188 | | 17 | 44 | 0,68 | | 0,19 | | | | | 272 | |
| 51473 | UT38 | 10 | 15,6 | 7,8 | 615 | | | 17 | 79 | 23 | 5 | 296 | | 21 | 61 | 1,42 | | 0,19 | | | | | 367 | |
| 91472 | UT41 | 9 | 18,3 | 8,1 | 575 | | | 14 | 75 | 23 | 3 | 303 | | 15 | 54 | 0,50 | | 0,04 | | | | | 348 | |
| 103172 | UT41 | 5 | 15,6 | 8,1 | 555 | | | 19 | 58 | 27 | 4 | 259 | | 18 | 62 | 0,18 | | | | | | | 336 | |
| 112972 | UT41 | 4 | 7,8 | 8,1 | 573 | | | 21 | 59 | 29 | 3 | 274 | | 19 | 59 | 0,86 | | | | | | | 325 | |
| 10273 | UT41 | 4 | 2,2 | 8,2 | 662 | | | 22 | 81 | 31 | 3 | 350 | | 21 | 57 | 1,13 | | 0,02 | | | | | 392 | |
| 20273 | UT41 | 3 | 4,4 | 8,0 | 656 | | | 23 | 73 | 29 | 3 | 317 | | 23 | 56 | 1,17 | | 0,02 | | | | | 368 | |
| 22773 | UT41 | 4 | 7,8 | 8,1 | 728 | | | 27 | 78 | 32 | 4 | 359 | | 24 | 63 | 0,79 | | 0,04 | | | | | 415 | |
| 32273 | UT41 | 6 | 8,9 | 8,3 | 697 | | | 28 | 74 | 34 | 4 | 303 | 17,7 | 32 | 79 | 0,81 | | 0,04 | | | | | 429 | |
| 41773 | UT41 | 6 | 11,1 | 8,1 | 659 | | | 23 | 74 | 31 | 3 | 337 | | 20 | 54 | 0,79 | | 0,02 | | | | | 404 | |
| 51473 | UT41 | 9 | 15,6 | 8,1 | 666 | | | 22 | 79 | 30 | 4 | 337 | | 23 | 67 | 0,77 | | 0,04 | | | | | 405 | |
| 91472 | UT42 | 12 | 18,9 | 7,7 | 968 | | | 31 | 122 | 38 | 5 | 271 | | 40 | 248 | 0,36 | | 0,02 | | | | | 684 | |
| 103172 | UT42 | 18 | 15,6 | 7,7 | 1010 | | | 33 | 132 | 41 | 7 | 278 | | 40 | 267 | 0,68 | | 0,04 | | | | | 729 | |
| 112972 | UT42 | 28 | 12,2 | 8,1 | 1010 | | | 33 | 132 | 40 | 6 | 276 | | 42 | 265 | 0,79 | | 0,08 | | | | | 699 | |
| 10273 | UT42 | 10 | 8,9 | 7,5 | 1090 | | | 37 | 139 | 45 | 6 | 292 | | 47 | 307 | 0,68 | | 0,02 | | | | | 777 | |
| 20273 | UT42 | 8 | 4,4 | 8,1 | 1070 | | | 40 | 131 | 42 | 6 | 269 | | 49 | 290 | 0,95 | | 0,04 | | | | | 748 | |

| DATE | STA | FLOW | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 22773 | UT42 | 9 | 6,7 | 7,6 | 1130 | | | 43 | 134 | 45 | 7 | 279 | | 49 | 321 | 0,50 | | 0,02 | | | | | 798 | |
| 32273 | UT42 | 20 | 11,1 | 7,7 | 1150 | | | 46 | 130 | 47 | 8 | 270 | | 53 | 334 | 0,50 | | 0,04 | | | | | 844 | |
| 41773 | UT42 | 10 | 14,4 | 7,5 | 1090 | | | 43 | 132 | 43 | 7 | 273 | | 48 | 309 | 0,43 | | 0,02 | | | | | 789 | |
| 51473 | UT42 | 22 | 16,1 | 7,7 | 1060 | | | 37 | 133 | 41 | 6 | 278 | | 48 | 294 | 0,21 | | 0,08 | | | | | 745 | |
| 91472 | UT43 | 9 | 18,3 | 8,1 | 939 | | | 41 | 98 | 44 | 6 | 361 | | 53 | 163 | 0,34 | | 1,14 | | | | | 632 | |
| 103172 | UT43 | 10 | 10,0 | 8,2 | 899 | | | 36 | 112 | 35 | 5 | 310 | | 59 | 180 | 1,33 | | 1,14 | | | | | 608 | |
| 112772 | UT43 | 8 | 10,6 | 8,1 | 845 | | | 32 | 107 | 33 | 5 | 307 | | 42 | 143 | 2,94 | | 0,76 | | | | | 550 | |
| 10273 | UT43 | 2 | 5,6 | 7,5 | 824 | | | 30 | 100 | 31 | 5 | 297 | | 40 | 132 | 3,84 | | 1,14 | | | | | 529 | |
| 20273 | UT43 | 3 | 3,3 | 7,5 | 880 | | | 38 | 100 | 32 | 4 | 286 | | 52 | 159 | 2,17 | | 1,14 | | | | | 550 | |
| 22773 | UT43 | 3 | 8,9 | 8,0 | 943 | | | 39 | 106 | 37 | 5 | 310 | | 49 | 186 | 0,84 | | 1,14 | | | | | 608 | |
| 32273 | UT43 | 6 | 7,8 | 7,9 | 973 | | | 40 | 112 | 40 | 6 | 302 | | 54 | 213 | 0,86 | | 0,76 | | | | | 660 | |
| 41773 | UT43 | 7 | 11,1 | 8,0 | 896 | | | 34 | 107 | 35 | 5 | 291 | | 45 | 194 | 0,90 | | 0,76 | | | | | 605 | |
| 51473 | UT43 | 7 | 15,6 | 7,7 | 810 | | | 36 | 92 | 28 | 8 | 296 | | 47 | 132 | 2,42 | | 1,90 | | | | | 514 | |
| 103172 | UT44 | 27 | 10,0 | 8,1 | 508 | | | 10 | 73 | 18 | 2 | 260 | | 11 | 42 | 0,84 | | 0,00 | | | | | 310 | |
| 112972 | UT44 | 24 | 7,8 | 8,2 | 490 | | | 12 | 68 | 17 | 2 | 242 | | 16 | 51 | 0,65 | | 0,00 | | | | | 292 | |
| 10273 | UT44 | 22 | | 7,9 | 491 | | | 9 | 70 | 17 | 2 | 251 | | 11 | 46 | 0,84 | | 0,00 | | | | | 290 | |
| 20273 | UT44 | 29 | 3,3 | 8,0 | 476 | | | 9 | 66 | 17 | 2 | 235 | | 11 | 51 | 0,75 | | 0,00 | | | | | 270 | |
| 22773 | UT44 | 31 | 7,8 | 8,2 | 521 | | | 10 | 74 | 18 | 2 | 264 | | 13 | 53 | 0,79 | | 0,04 | | | | | 300 | |
| 32273 | UT44 | 32 | 7,2 | 8,3 | 474 | | | 9 | 70 | 16 | 2 | 229 | | 11 | 46 | 0,70 | | 0,00 | | | | | 299 | |
| 41773 | UT44 | 53 | 7,8 | 8,1 | 340 | | | 6 | 50 | 9 | 2 | 160 | | 8 | 33 | 0,72 | | 0,02 | | | | | 216 | |
| 51473 | UT44 | 130 | 8,9 | 7,8 | 253 | | | 4 | 38 | 6 | 2 | 126 | | 6 | 17 | 0,45 | | 0,04 | | | | | 155 | |
| 103072 | UT47 | 10 | 11,1 | 8,1 | 1360 | | | 143 | 87 | 51 | 14 | 525 | | 105 | 161 | 1,94 | | 0,76 | | | | | 851 | |
| 112972 | UT47 | 18 | 7,8 | 7,9 | 1400 | | | 153 | 86 | 50 | 13 | 525 | | 115 | 161 | 4,52 | | 1,14 | | | | | 873 | |
| 10273 | UT47 | 18 | 2,2 | 8,1 | 1500 | | | 169 | 86 | 54 | 13 | 567 | | 126 | 182 | 3,61 | | 0,76 | | | | | 937 | |
| 20273 | UT47 | 18 | 3,3 | 8,5 | 1450 | | | 173 | 83 | 50 | 13 | 438 | 41,7 | 129 | 163 | 3,61 | | 1,14 | | | | | 889 | |
| 22773 | UT47 | 20 | 7,2 | 8,2 | 1590 | | | 213 | 75 | 49 | 13 | 537 | | 144 | 200 | 1,90 | | 1,14 | | | | | 972 | |
| 32273 | UT47 | 20 | 7,8 | 8,3 | 1770 | | | 237 | 80 | 54 | 14 | 523 | 29,4 | 169 | 254 | 2,10 | | 0,76 | | | | | 1100 | |
| 41773 | UT47 | 18 | 10,0 | 8,6 | 2280 | | | 398 | 82 | 48 | 14 | 553 | 62,1 | 234 | 357 | 1,83 | | 1,14 | | | | | 1500 | |
| 51473 | UT47 | 20 | 13,3 | 7,8 | 1180 | | | 147 | 63 | 35 | 14 | 393 | | 114 | 144 | 1,49 | | 1,14 | | | | | 729 | |
| 91472 | UT51 | 6 | 21,1 | 8,4 | 1590 | | | 135 | 82 | 58 | 13 | 464 | 21,0 | 125 | 167 | 0,54 | | 0,11 | | | | | 884 | |
| 103172 | UT51 | 42 | 5,6 | 8,1 | 1310 | | | 113 | 85 | 65 | 15 | 520 | | 96 | 179 | 1,11 | | 0,30 | | | | | 845 | |
| 112972 | UT51 | 43 | 3,9 | 8,1 | 1340 | | | 117 | 88 | 67 | 14 | 539 | | 93 | 169 | 1,51 | | 0,23 | | | | | 849 | |
| 10273 | UT51 | 47 | 0,0 | 8,0 | 1340 | | | 110 | 91 | 67 | 14 | 570 | | 85 | 165 | 1,96 | | 0,38 | | | | | 843 | |
| 20273 | UT51 | 42 | 0,0 | 8,2 | 1220 | | | 99 | 86 | 61 | 11 | 490 | | 83 | 163 | 1,96 | | 0,34 | | | | | 760 | |
| 22773 | UT51 | 70 | 5,6 | 8,2 | 1470 | | | 155 | 70 | 70 | 16 | 514 | | 123 | 209 | 0,65 | | 0,15 | | | | | 937 | |
| 32273 | UT51 | 47 | 8,9 | 8,2 | 1640 | | | 160 | 86 | 79 | 14 | 514 | | 155 | 261 | 1,35 | | 0,19 | | | | | 1050 | |
| 41773 | UT51 | 46 | 10,0 | 8,2 | 1190 | | | 112 | 81 | 55 | 10 | 436 | | 95 | 167 | 0,79 | | 0,19 | | | | | 772 | |
| 51473 | UT51 | 71 | 13,3 | 7,9 | 600 | | | 37 | 54 | 24 | 5 | 248 | | 34 | 67 | 0,27 | | 0,04 | | | | | 370 | |

| DATE | STA | TEMP | PH | COND | AL | HARD | NA | CA | MG | K | HCO3 | CO3 | CL | SO4 | NO3 | NH3 | PO4 | F | COLF | BOD | DO | DS | TURB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 82172 | UL 1 | 21,7 | 8,3 | 1570 | | | 182 | 50 | 60 | 19 | 204 | 11,1 | 233 | 284 | 0,27 | | 0,02 | | | | | 965 | |
| 82172 | UL 2 | | 8,1 | 1550 | | | 178 | 47 | 59 | 19 | 224 | | 225 | 265 | 0,45 | | 0,04 | | | | | 943 | |
| 82172 | UL 3 | 20,6 | 8,3 | 1560 | | | 184 | 47 | 60 | 19 | 192 | 16,5 | 228 | 280 | 0,09 | | 0,02 | | | | | 971 | |
| 81172 | UL 5 | 18,3 | 8,3 | 1550 | | | 180 | 42 | 59 | 20 | 206 | 2,4 | 227 | 269 | 0,68 | | | | | | | 954 | |
| 82172 | UL 5 | 22,2 | 8,1 | 1540 | | | 182 | 46 | 59 | 19 | 219 | | 227 | 265 | 0,47 | | 0,04 | | | | | 960 | |
| 102472 | UL 5 | 10,6 | 7,9 | 1510 | | | 173 | 49 | 58 | 19 | 215 | | 220 | 265 | 0,25 | | 0,04 | | | | | 945 | |
| 111472 | UL 5 | 5,6 | 8,1 | 1450 | | | 161 | 52 | 55 | 17 | 223 | | 202 | 244 | 0,18 | | 0,04 | | | | | 907 | |
| 82172 | UL 6 | 23,9 | 7,9 | 1580 | | | 185 | 46 | 60 | 19 | 222 | | 232 | 282 | 0,93 | | 0,04 | | | | | 958 | |
| 91172 | UL11 | 17,2 | 8,6 | 1590 | | | 186 | 43 | 61 | 20 | 190 | 9,9 | 239 | 282 | 0,14 | | 0,02 | | | | | 986 | |
| 102572 | UL11 | 10,0 | 8,0 | 1520 | | | 170 | 54 | 58 | 19 | 226 | | 214 | 255 | 0,38 | | 0,04 | | | | | 945 | |
| 111472 | UL11 | 5,6 | 8,0 | 1402 | | | 152 | 59 | 56 | 16 | 242 | | 198 | 246 | 0,77 | | 0,08 | | | | | 874 | |
| 82172 | UL12 | 21,7 | 8,1 | 1580 | | | 184 | 49 | 60 | 19 | 228 | | 233 | 275 | 0,43 | | 0,04 | | | | | 982 | |
| 81172 | UL13 | 18,9 | 8,6 | 1610 | | | 192 | 45 | 61 | 22 | 185 | 14,7 | 243 | 276 | 0,07 | | | | | | | 990 | |
| 102572 | UL13 | 9,4 | 8,3 | 1610 | | | 188 | 49 | 61 | 20 | 190 | 12,3 | 237 | 282 | 0,16 | | | | | | | 1000 | |
| 91172 | UL15 | 18,9 | 8,7 | 1590 | | | 187 | 42 | 60 | 20 | 171 | 17,4 | 237 | 280 | 0,07 | | | | | | | 974 | |
| 82172 | UL16 | 21,1 | 8,2 | 1680 | | | 204 | 53 | 61 | 20 | 239 | | 262 | 282 | 0,23 | | 0,02 | | | | | 1020 | |
| 91172 | UL16 | 18,9 | 8,6 | 1600 | | | 188 | 45 | 60 | 20 | 185 | 14,4 | 241 | 276 | 0,09 | | 0,00 | | | | | 986 | |
| 102572 | UL16 | 10,0 | 8,1 | 1680 | | | 195 | 50 | 62 | 22 | 220 | | 257 | 276 | 0,29 | | 0,04 | | | | | 1050 | |
| 82172 | UL17 | 22,2 | 8,2 | 1650 | | | 196 | 50 | 61 | 20 | 239 | | 242 | 280 | 0,45 | | 0,04 | | | | | 1000 | |
| 102472 | UL19 | 10,6 | 8,0 | 1590 | | | 182 | 51 | 61 | 20 | 221 | | 229 | 276 | 0,29 | | 0,04 | | | | | 988 | |
| 111472 | UL19 | 5,0 | 7,9 | 1440 | | | 161 | 54 | 59 | 17 | 231 | | 207 | 246 | 0,43 | | 0,04 | | | | | 883 | |
| 111472 | UL19 | 4,4 | 8,0 | 1410 | | | 159 | 53 | 57 | 17 | 231 | | 203 | 246 | 0,25 | | | | | | | 884 | |
| 91172 | UL24 | 17,8 | 8,7 | 1570 | | | 189 | 42 | 61 | 20 | 172 | 16,2 | 239 | 276 | 0,05 | | | | | | | 972 | |
| 102572 | UL24 | 10,0 | 8,0 | 1580 | | | 179 | 50 | 60 | 20 | 219 | | 230 | 276 | 0,32 | | 0,04 | | | | | 980 | |
| 111472 | UL24 | 5,0 | 8,2 | 1450 | | | 162 | 54 | 57 | 16 | 231 | | 206 | 246 | 0,61 | | 0,02 | | | | | 886 | |
| 82172 | PB 1 | 21,7 | 7,9 | 868 | | | 76 | 53 | 36 | 9 | 228 | | 85 | 162 | 2,21 | | 0,30 | | | | | 554 | |
| 82172 | PB 3 | | 8,3 | 907 | | | 97 | 32 | 40 | 11 | 167 | 5,1 | 106 | 184 | 1,87 | | 0,04 | | | | | 582 | |
| 81172 | PB 4 | 16,1 | 8,0 | 1060 | | | 109 | 49 | 46 | 11 | 341 | | 91 | 161 | 0,07 | | 0,08 | | | | | 645 | |
| 102572 | PB 4 | 8,9 | 7,5 | 792 | | | 48 | 72 | 35 | 7 | 300 | | 49 | 106 | 2,17 | | 1,14 | | | | | 523 | |
| 82172 | PB 5 | 21,7 | 8,3 | 1560 | | | 184 | 47 | 59 | 19 | 203 | 14,4 | 228 | 269 | 0,34 | | 0,04 | | | | | 955 | |
| 81172 | PB 8 | 18,3 | 8,9 | 865 | | | 86 | 33 | 42 | 11 | 190 | 2,4 | 95 | 154 | 0,11 | | | | | | | 552 | |
| 91172 | PB10 | 17,8 | 8,8 | 1130 | | | 127 | 34 | 49 | 13 | 179 | 10,5 | 146 | 213 | 0,09 | | 0,02 | | | | | 708 | |
| 91172 | PB11 | 18,9 | 8,6 | 1600 | | | 188 | 45 | 61 | 20 | 187 | 14,1 | 243 | 282 | 0,07 | | | | | | | 998 | |
| 102572 | PB11 | 8,9 | 7,7 | 1540 | | | 175 | 52 | 58 | 19 | 228 | | 221 | 259 | 0,20 | | 0,04 | | | | | 955 | |
| 82172 | GB 1 | 21,1 | 8,2 | 1590 | | | 186 | 48 | 59 | 19 | 197 | | 235 | 269 | 0,09 | | 0,02 | | | | | 979 | |
| 82172 | GB 2 | 20,0 | 8,4 | 1680 | | | 202 | 45 | 64 | 20 | 196 | 10,2 | 260 | 296 | 0,47 | | 0,02 | | | | | 1030 | |
| 82172 | GB 3 | 21,7 | 8,0 | 1620 | | | 188 | 46 | 61 | 20 | 221 | | 240 | 282 | 0,50 | | 0,04 | | | | | 980 | |
| 91172 | GB 3 | 17,2 | 8,7 | 1700 | | | 219 | 30 | 66 | 23 | 142 | 20,1 | 277 | 290 | 0,14 | | | | | | | 1020 | |
| 102572 | GB 3 | 10,6 | 7,9 | 1600 | | | 186 | 48 | 61 | 20 | 220 | | 237 | 302 | 0,20 | | 0,02 | | | | | 987 | |
| 111472 | GB 3 | 5,0 | 8,1 | 1470 | | | 167 | 52 | 56 | 17 | 193 | | 207 | 250 | 0,18 | | 0,04 | | | | | 915 | |

## SECTION XIII

## APPENDIX B - LKSIM - WATER QUALITY SIMULATION MODEL FOR SHALLOW LAKES

### DESCRIPTION

The purpose of the following paragraphs is to give a general description of the simulation model LKSIM and to indicate the general application, capability, and data requirements of the model.

### Need For The Model

When modifications of tributary inflows, either rate or quality, or lake geometry are considered, a very relevant concern is the impact on lake-water quality. For most lake systems, the large quantities of data to be incorporated, as well as the tedious and time-consuming calculations to be completed, make a computer-based computational system attractive. One of the main advantages of a computer-based system is that numerous lake system modifications may be readily and economically evaluated.

### Conceptual Model - LKSIM

Various types of models might be used in water quality modelling, e.g., one, two, or three dimensional models. Also, various water quality parameters might be modelled, e.g., conservative, non-conservative, or biological parameters. The type of model selected depends on many factors, including the simulation time frame, types of data required, types of data available, use of the model, quality parameters of importance.

The LKSIM model was developed to calculate the water balance and conservative salt concentrations in a well-mixed lake system both for existing and diked lake configurations.

The conceptual lake system consists of a main lake that has separable bays or sub-areas connected to it. During each time step in the model (normally one month), it is assumed that each bay is completely separated from the main lake. For each time period, the tributary inflows and outflows (including groundwater) and their salt concentrations, evaporation and precipitation are used to calculate the end-of-period water volume and well-mixed salt concentrations for each sub-area. The imaginary gates isolating the sub-areas from the main lake are then opened. The volume of water required to achieve equilibrium flows across the boundaries, either in or out of each sub-area, is completely mixed in the recipient area. Circulation between the main lake and a bay is simulated by specifying the fraction of the end-of-period volume in the bay that is to be exchanged with lake water. This intermixing, if any, occurs at the end of the period after overall lake stage equilibrium has been achieved.

Any or all of the subareas may be diked off from the main lake. The diked area is carried along in the simulation as a separate lake. Any or all of the tributaries to the diked area may be reassigned to flow into the main lake or into another bay. Any main lake overflow that occurs when a specified maximum lake stage is exceeded, may be designated to either flow into a diked area or be exported out of the lake system. The overflow quality is the quality of the main lake water.

## Use of The Model

This model may be used to determine the effect on lake water volume and/or conservative salt concentration in response to changes in tributary inflow quantity or quality and/or to the diking of lake sub-areas. The normal mode of usage is to pick a historical period for which an adequate amount of tributary flow and quality, lake stage and quality, precipitation, and evaporation data are available or can be established. A simulation based on these data is run for the period, and the simulation results compared to the historical lake stage and quality profiles. Adjustments are then made to the data, if necessary, to complete the model calibration.

The next step is to verify the model, if possible, by running a simulation for a historical time period that was not used to calibrate the model. Normally, this verification is conducted by inputting the hydrologic flows, precipitation and evaporation and then comparing the simulated quality to the historical quality record. Additional adjustments to the data are then made, if necessary. The model is finally used to predict the outcome of changes in the lake system. Of particular interest are changes in lake volume (stage) and quality (salt concentration) caused by diking sub-areas of the lake system or by changing inflow quantity or quality.

Date Requirements

The model is essentially a "bookkeeping" model and requires the following data:

Stage - Area - Volume Tables -

These values must be established for the total lake and each sub-area in the lake system.

Tributary Flow-Quality Tables -

The correlation between flowrate in cfs and ion concentration in mg/l must be made for every inflow to the system, also for the outflows if any.

Tributary Flowrates -

These average flowrates (or volumes) including groundwater, must be determined for each time step of the desired simulation.

Precipitation and Evaporation -

These values (depths in inches or feet) must be determined for each sub-area for each time step.

Circulation -

If there is appreciable circulation between the main lake and bays during the selected time period step, and if the quality in a bay is markedly different than the main lake, it may be necessary to specify the fraction of the bay volume that is exchanged with lake water during each period. Circulation is very difficult to measure accurately, but calibration runs for different values may lead to acceptable estimates for the circulation.

## USER'S GUIDE - SIMULATION MODEL

The purpose of this guide is to present instructions to the user on data preparation and coding, as well as on the interpretation of simulation results.

### Accuracy and Completeness of Data

For most lakes, there are only limited data available. One of the major challenges in using the model is to establish the hydrologic, climatic, and quality data to the precision necessary to give sufficiently accurate simulation results. The relationship between data and simulation precision is difficult to establish, but one must still be sensitive to discrepancies in, or validity of, data used; and then refine the data as model simulations indicate the response (sensitivity) to various input data variations. Such sensitivity results will indicate the data that are most critical in obtaining better simulations--be it flows, quality, evaporation, precipitation, or other factors.

Several factors need to be considered initially to set the framework for data evaluation, such as, average detention times, lake circulation and mixing characteristics, volume/surface area ratio, areal and temporal variation in precipitation and evaporation, interest in short or long term variations, and intended use of the resulting simulations. All of the factors must be weighted in view of the model limitations as imposed by the basic assumption of an incremental time, well-mixed system. The time step to be used is a major outcome of careful consideration of these factors.

## Problem Preparation and Coding

The following steps must be completed prior to running a simulation:

1. On a map or sketch of the lake system, establish the imaginary boundaries between the main lake and the bays (9 maximum). Assign the integer 1 to the main lake and a unique integer to each bay using any integer 2 through 10.
2. Determine the stage, area, and volume table for each sub-area as well as the total lake system. A maximum of 15 discrete common values for stages may be used to describe the curves.
3. Identify all tributaries to the lake system including outflows and groundwater inflows. Assign each one a unique integer code number, using any integer 1 through 60.
4. Establish a flowrate-quality table for each tributary and each ion desired. A maximum of four coordinate points may be used to describe each relationship (flow, quality). Flow may be given in cubic feet per second (cfs) or else acre feet per month (ac ft/mo). Quality may be given in milligrams per liter (mg/l) or else tons per acre foot (taf).

5. Determine the flow for each tributary for every time period in the simulation--may be given as cubic feet per second or acre feet per second, day, week, month, or year.
6. Determine the precipitation and evaporation for each sub-area for each time period in inches or feet per day, week, month, or year.
7. Other factors that may be needed for given runs are:
   a. Stage at which overflow is to occur from main lake.
   b. Areas to be diked off.
   c. Intermixing (circulation) fractions during any time period.

Date Input Structure

The subroutine DATA reads and manipulates the data. The data is structured to be read in by segments. The segments are identified by a five-digit number punched in the first five columns of the first card in each segment. 88888 ends any segment, 99999 ends the data search for the current simulation, and 12345 ends the run.

Segment Identification Codes -

| Segment | Subsegment | Information |
|---|---|---|
| 11111 | | Initialization and setup. |
| | 12111 | Project Name/Description Title<br>Number of time periods.<br>Beginning lake stage.<br>Data tape read or write code. |
| | 13111 | Ions to be considered. |
| | 14111 | Key for outflow quality. |
| | 15111 | Number of diked bays and their code number.<br>Diked bay to receive overflow.<br>Stage of lake at overflow. |

(continued)

| Segment | Subsegment | Information |
|---|---|---|
| | | Volume of lake system at overflow stage. |
| | | Tributaries from diked bay to be reassigned to another bay. |
| | 16111 | Number of tributary bays and their code numbers. |
| | | Names of bays. |
| | 17111 | Intermixing (circulation) fraction for bays in each time period. |
| | 18111 | Output codes - controls amount of data printed out. |
| | 19111 | Multipliers for all flows, precipitation, and evaporation data. |
| | 19511 | Multipliers for specified tributaries. |
| 22222 | | Tributaries flowing into each bay. |
| 33333 | | Tributaries flowing out of the system. |
| | | Tributary flowrates for each time period. |
| 44444 | | Tributary water quality and flowrate correlations. |
| 55555 | | Precipitation data. |
| 66666 | | Evaporation data. |

(continued)

| Segment | Subsegment | Information |
|---|---|---|
| 77777 | | Stage, area and volume data. |
| 88888 | | End of segment. |
| 99999 | | End of data (for this simulation). |
| 12345 | | End of simulations. |

The data segments may be submitted in any order and only those segments required for a given simulation need be included.

Data Card Description -

Data card descriptions are found below

---

Segment 11111

Subsegment 12111 (Begins at statement 120 in subroutine DATA)

Card 1 (Title)

| Title 60 |
|---|
| 15A4 |

Card 2 (Time periods)

| 5 | 10 |
|---|---|
| NINT | KEY |
| 15 | 15 |

NINT = The number of time periods in the simulation - dimensioned for a max of 50

KEY = The time period key = 1, one day
= 2, one week
= 3 or 0, one month
= 4, one year

Card 3 (Beginning stages)

| 10 | 20 | 30 | 40 | 50 | |
|---|---|---|---|---|---|
| S(11) | S(1) | S(2) | S(3) | S(4) | ... |

← F10.0's →

The beginning stages for each of the subareas in the lake system (any zero values are set equal to S(11) which is the stage for the entire interconnected lake system)

---

Subsegment 13111

Card 1 (Quality factors)

| 5 | 10 | 15 | 20 | |
|---|---|---|---|---|
| NIONS | IONS(1) | IONS(2) | IONS(3) | ... |

← I5's →

NIONS = The number of ions to be simulated
IONS(1) = The code number of the first ion
IONS(2) = The code number of the second ion
⋮ = etc

---

Subsegment 14111

Card 1 (Outflow Quality)

| 5 |
|---|
| QOF |
| F5.0 |

QOF = Key for the ion concentration in the lake outflow:

$\neq$ 1 means the specified quality will be used
= 1 means simulated lake quality will be used

Card 2 (Initial ion concentrations-- one for each bay and ion)

| 5 | 10 | 15 | 25 |
|---|---|---|---|
| I | J | K | C |
| I5 | I5 | I5 | F10.0 |

I = Bay code number
J = Code number of quality factor (ion)
K = Unit key
≠1,unit of C is mg/l
=1,unit of C is tons/ac ft.
C = Initial concentration of specified ion in the specified bay

---

Subsegment 15111

Card 1 (Diked bays)

| 5 | 10 | 15 | 20 | 25 |
|---|---|---|---|---|
| NOBD | BAY1 | BAY2 | BAY3 | ... |

←— I5's —→

NOBD = The number of bays to be diked off from main lake
BAY1 = The code number of the first bay.
BAY2 = The code number of the second bay.
⋮ etc.

Card 2 (Overflow assignment)

| 5 | 15 | 25 |
|---|---|---|
| IBOF | SOF | VOLOF |
| I5 | F10.0 | F10.0 |

IBOF = Code number of diked bay to receive lake overflow if any, 0 means overflow is exported.
SOF = The lake stage at which overflow occurs.
VOLOF = The lake volume, excluding diked areas, at which overflow occurs

Card(s) 3 (Tributary reassignment)

| 5 | 10 | 15 | 20 | 25 | |
|---|---|---|---|---|---|
| I | II | TR1 | TR2 | TR3 | .... |

← 15's →

I = Diked bay code number.
II = Code number of bay to receive diked-bay tributary flow.
TR1 = Code number of first tributary reassigned.
TR2 = Code number of second tributary reassigned.
: = etc.

Subsegment 16111

Card 1 (Bay code numbers)

| 5 | 10 | 15 | 20 | |
|---|---|---|---|---|
| NBAYS | IBAY(1) | IBAY(2) | IBAY(3) | ... (10 subareas max) |

NBAYS = The total number of subareas in the lake including the main lake - the main lake is always the first specified.
IBAY(1) = The main lake code number.
: = etc.

Card 2 (Subarea names)

| 8 | 16 | |
|---|---|---|
| NAMEB(1) A8 | NAMEB(2) A8 | etc. |

NAMEB(1) = Name of bay 1 (8 characters max).
NAMEB(2) = Name of bay 2.
: = etc.

Subsegment 17111

Card(s) 1 (Intermixing fractions)

| 5 | 10 | 15 | 20 | |
|---|---|---|---|---|
| I | J | BMF(1) | BMF(2) | ... (50 period max) |
| I5 | I5 | ←F5.0's→ | | |

I = Bay code number.
BMF(I,1) = Intermixing in period 1.
BMF(I,2) = Intermixing in period 2.
: = etc.

Note: READ is terminated by a negative number that is entered in the first F5.0 field after the last period BMF.

Subsegment 18111

Card 1 (Printout keys)

| 5 | 10 | 15 | 20 | 25 | 30 | 35 |
|---|---|---|---|---|---|---|
| I01 | I02 | I03 | I04 | I05 | I06 | I07 |
| ←I5's→ | | | | | | |

I01, I02, etc. Code for printout of data read in. Correspond to each section 11111 through 77777.

≠ 1 Print out data.

= 1 Don't print out data.

Subsegment 19111

Card 1 (multiplier factors)

| 5 | 10 | 15 |
|---|---|---|
| FQ | FP | FE |
| ←F5.0's→ | | |

FQ = The multiplier for all tributary flows.
FP = The multiplier for all precipitation values.
FE = The multiplier for all evaporation values.

Note: Set to 1 if zero.

Subsegment 19511

Card 1 (Selected flowrate multipliers)

| 5 | 10 | 15 | 20 | 25 |
|---|---|---|---|---|
| NTC | ITC(1) | FTC(1) | ITC(2) | FTC(2) |
| I5 | I5 | F5.0 | I5 | F5.0 |

NTC = Number of tributaries to have flowrates changed.
ITC = The tributary code number.
FTC = The multiplier for the flowrates.

---

Segment 22222 (Begins at statement 200)

Card 1 Tributary assignment)

| 5 | 10 | 15 | 20 | |
|---|---|---|---|---|
| I | NTRIB | ITBAY(I,1) | ITBAY(I,2) | etc. |

← I5's →

I = Bay code number
NTRIB = Number of tributaries to the bay.
ITBAY(I,1) = Code number of first tributary.
ITBAY(I,2) = Code number of second tributary.

Note: 50 tributary max per bay, 60 total.

---

Segment 33333 (Begins at statement 300)

Card 1 (Outflowing tributaries)

| 5 | 10 | 15 | |
|---|---|---|---|
| NTO | ITOS(1) | ITOS(2) | etc. (7 max) |

← I5's →

NTO = Number of outflows.
ITOS(1) = The code number of the first tributary outflow.
ITOS(2) = The code number of the second tributary outflow.
⋮

Card(s) 2 (Tributary Flowrates--one set of cards for each tributary)

| 5 | 10 | 15 | 20 | 25 | 30 | |
|---|---|---|---|---|---|---|
| I | J | K | L | FLOWS(I,1) | FLOWS(I,2) | ... |
| I5 | I5 | I5 | I5 | F5.0's | | |

I = The tributary code number.
J = Flow unit key.
  0 = cfs
  1 = ac ft
K = Time unit key.
  0 = secs
  1 = day
  2 = week
  3 = month
  4 = year
L = Number of flows on card(s)

Note: The flow volume specified is for the time increment used.

---

Segment 44444 (Begins at statement 400)

Card(s) 1 (Quality of tributaries)

| 5 | 10 | 15 | 20 | 25 | 30 | |
|---|---|---|---|---|---|---|
| I | J | K | L | QF(I,J,1) | QF(I,J,2) | ... |
| I5 | I5 | I5 | I5 | F10.0 | F10.0 | |

I = Tributary code number.
J = Quality factor code number.
K = Flowrate unit key.
  ≠ 1, cfs.
  = 1, ac ft/month.
L = Quality unit key.
  ≠ 1, mg/l.
  = 1, tons/ac ft.
QF(I,J,1) = Flowrate or volume.
QF(I,J,2) = Quality (concentration).
  : = etc.
  :
  - max of 4 points (4 flowrate, 4 quality).

---

Segment 55555 (Begins at statement 500)

Card(s) (Precipitation)

| 5 | 10 | 15 | 20 | 25 | 30 | |
|---|---|---|---|---|---|---|
| I | J | K | L | PREC(I,1) | PREC(I,2) | etc. |
| I5 | I5 | I5 | I5 | F5.0 | F5.0 | |

Note: READ terminated by number less than zero in the field immediately after the last EVAP entry.

I = Bay code number.
J = Precipitation unit key.
  ≠ 1, inches.
  = 1, feet.
K = Time unit key.
  0 = month.
  1 = day.
  2 = week.
  3 = month.
  4 = year.
L = Repeat period key
  = 0, repeat the first 12 by 12's through 48.
  ≠ 0, no effect.

PREC: The precipitation for period 1.
  etc.

Segment 66666 (Begins at statement 600)

Card(s) 1 (Evaporation)

| 5 | 10 | 15 | 20 | 25 | 30 | |
|---|---|---|---|---|---|---|
| I | J | K | L | EVAP(I,1) | EVAP(I,2) | etc. |
| I5 | I5 | I5 | I5 | F5.0 | F5.0 | |

Note: READ is terminated by a number less than zero.

Segment 77777 (Begins at statement 700)

Cards 1 (stages)

| 5 | 10 | 20 | 30 | 40 | |
|---|---|---|---|---|---|
| 10011 | J | STAGE(1) | STAGE(2) | STAGE(3) | etc.(2 cards) |
| I5 | I5 | ← F10.0's | | | → |

10011 = Code for setting up the lake stages for which area and volume values will be given below.
J = Stage unit key.
≠ 1, feet.
= 1, inches.
STAGE = The stages.

Card(s) 2 (Surface area values)

| 5 | 10 | 20 | 30 | 40 | |
|---|---|---|---|---|---|
| 200I | J | AREA(I,1) | AREA(I,2) | AREA(I,3) | etc. (2 cards per area |
| I5 | I5 | ← F10.0's | | | → |

200I = The code number of the subarea. The leading digits digits 200 identify the data as area data. I = 11 is the area information for the total lake system.
J = The area unit key.
≠ 1, acres.
= 1, sq. ft.
AREA = The areas at each stage specified above.

Card(s) 3 (Volume values)

| 5 | 10 | 20 | 30 | 40 | |
|---|---|---|---|---|---|
| 300I | J | VOL(I,1) | VOL(I,2) | VOL(I,3) | etc. (2 cards per area) |
| I5 | I5 | ← F10.0's | | | → |

300I = The code number of the subarea. The leading digits 300 identify the data as volume data. I = 11 is the volume information for the total lake system.
J = Volume unit key.
≠ 1, ac ft.
= 1, cu ft.
VOL = The volume at each stage specified above.

PROGRAMMING GUIDE, SIMULATION MODEL.

The purpose of this programming guide is to give the LKSIM program listing and briefly describe the program.

The complete LKSIM program as printed on the computer is listed on the following pages. Numerous comments have been included in the program to aid in understanding of the information flow and computational steps.

The program is written in FORTRAN IV and requires about 30K words of program space in its present form.

All of the system resides simultaneously in core except for some of the data which may be written and read from external Unit 1 as set up in subroutine TAPE. It would be easy, however, to separate the subroutine DATA as a separate first link.

The subroutine PLOTRS plots the simulation results on the lineprinter. It is necessary to substitute Plot calls as required for the x-y plot available on the computer used.

```
C  *****----------------------- - --
C  *** GENERAL DESCRIPTION
C  *** THIS PROGRAM CALCULATES THE WATER BALANCE AND CONCENTRATION OF
C  *** CONSERVATIVE SALTS IN A WELL-MIXED LAKE SYSTEM.  THE PROGRAM
C  *** IS BASICALLY A 'BOOKKEEPING' MODEL--IT REQUIRES THAT ALL OF THE
C  *** INFLOWS, THE CONCENTRATION OF THE CONSERVATIVE SALTS IN THE INFLOWS,
C  *** EVAPORATION, PRECIPITATION, AND THE STAGE-AREA-VOLUME TABLES BE
C  *** SETUP AS DATA FOR THE SIMULATION.
C  ***-------------------------------------------------------------------------
C  ***
C  *** THE CONCEPTUAL LAKE SYSTEM, FOR WHICH THE MODEL IS STRUCTURED, IS
C  *** A MAIN LAKE THAT HAS SATELLITE BAYS  CONNECTED TO IT.  EACH OF THE
C  *** BAYS, AS WELL AS THE MAIN LAKE, ARE ASSUMED TO BE COMPLETELY-MIXED,
C  *** SEPERATE BODIES OF WATER DURING THE TIME PERIOD SELECTED FOR EACH
C  *** STEP IN THE WATER QUALITY SIMULATION.  ALL OF THE TRIBUTARY INFLOW,
C  *** PRECIPITATION, AND EVAPORATION VOLUMES ARE ACCOUNTED FOR IN EACH
C  *** AREA (BAYS AND MAIN LAKE) DURING THE TIME PERIOD   THE RESULTING
C  *** CONCENTRATIONS OF CONSERVATIVE SALTS ARE CALCULATED FOR EACH AREA,
C  *** THEN THE VOLUME OF WATER REQUIRED TO FLOW ACROSS THE LAKE-BAY INTERFACES
C  *** SO AS TO ACHIEVE EQUILIBRIUM IS DETERMINED.  THESE VOLUMES ARE
C  *** COMPLETELY MIXED  IN THE RECIPIENT AREA.
C  *** ANY BAY(S) IN THE SYSTEM MAY BE DIKED OFF.  THE DIKED AREA IS THEN
C  *** CARRIED ALONG AS AN INDEPENDENT LAKE.  MANY OPTIONS FOR ALLOWING
C  *** OVERFLOW, TRIB REASSIGNMENT, INFLOW, EVAPORATION, AND PRECIPITATION
C  *** CHANGES WITHOUT CHANGING THE BASIC DATA ARE AVIALABLE.
C  *** (SEE THE DOCUMENTATION FOR DETAILS)
C  ***-------------------------------------------------------------------------
C  *** ANY CIRCULATION BETWEEN THE LAKE AND A BAY DURING A TIME STEP CAN
C  *** BE IMPOSED BY SPECIFYING THE FRACTION OF THE BAY VOLUME THAT INTER-
C  *** CHANGES WITH THE LAKE  WATER DUE TO  THE CIRCULATION, IF ANY.
C  *** THIS MIXING OCCURS AT THE END OF THE PERIOD.
C  ***
C  *** VARIABLE DEFINITION
C  *** UNLABELED COMMON
C  *** ARRAYS
C  ***   IT(I)      DUMMY ARRAY USED FOR TEMPORARY DATA STORAGE
C  ***   Q(I)       DUMMY ARRAY USED FOR TEMPORARY DATA STORAGE
C  ***   ITBAY(I,J) CONTAINS THE CODE NUMBERS FOR THE TRIBUTARIES (J) FOR
C  ***              EACH BAY AREA (I).
C  ***   NTRIB(I)   CONTAINS THE NUMBER OF TRIBUTARIES  TO EACH BAY (I).
C  ***   FLOWS(I,J) CONTAINS THE FLOWRATES FOR EACH TRIBUTARY (I) FOR
C  ***              EACH TIME PERIOD (J).  MAY BE READ-IN WITH UNITS OF
C  ***              CFS  OR AC-FT, AND TIME UNITS OF SECONDS, DAYS, WEEKS,
C  ***              MONTHS, OR YEARS.  STORED INTERNALLY WITH CFS UNITS
C  ***   QF(I,J,K)  CONTAINS THE WATER QUALITY INFORMATION FOR EACH TRIB. (I)
C  ***              AND QUALITY FACTOR (J).  ODD VALUES OF K CONTAIN THE
C  ***              FLOWRATE IN CFS AND THE EVEN VALUES THE CONCENTRATION
C  ***              IN MG/L.  THESE FOUR POINTS SPECIFY THE FLOW-CONC
C  ***              RELATIONSHIPS FOR EACH TRIBUTARY.
C  ***   IONS(I)    CONTAINS THE CODE NUMBERS OF THE IONS TO BE TRACED IN
C  ***              THE SIMULATION.
C  ***   COFIN(I,J) CONTAINS THE CURRENT CONC (WATER QUALITY) FOR EACH BAY
```

```
C  ***             (I) AND EACH ION (J).
C  ***   STAGE(I)  CONTAINS THE ELEVATIONS OF WATER SURFACE THAT MATCH
C  ***             UP WITH THE AREA AND VOLUME ARRAYS.  THESE ARRAYS GIVE
C  ***             THE STAGE-AREA-VOLUME RELATIONSHIPS FOR THE LAKE SYSTEM.
C  ***   AREA(I,J) CONTAINS THE SURFACE AREA VALUES (J) FOR EACH BAY (I).
C  ***             AREA MAY BE READ IN AS SQ-FT OR ACRES.  STORED AS ACRES.
C  ***   VOL(I,J)  AS FOR AREA. READ-IN AS AC-FT OR CU-FT. STORED AS AC-FT.
C  ***   PREC(I,J) CONTAINS THE PRECIPITATION FOR EACH BAY (I) FOR EACH TIME
C  ***             PERIOD (J).  MAY BE READ IN AS INCHES OR FEET PER DAY,
C  ***             WEEK, MONTH,  OR YEAR.  STORED AS FT PER MONTH.
C  ***   EVAP(I,J) CONTAINS THE EVAPORATION FOR EACH BAY (I) FOR EACH TIME
C  ***             PERIOD (J).  MAY BE READ IN AS INCHES OR FEET PER DAY,
C  ***             WEEK, MONTH, OR YEAR.  STORED AS FT PER MONTH.
C  ***   NBD(I)    CONTAINS THE CODE NUMBERS OF ANY DIKED BAYS.
C  ***   ITNA(I,J) CONTAINS THE CODE NUMBERS OF TRIBUTARIES OF ANY DIKED
C  ***             BAY (I) WHICH ARE TO BE ASSIGNED TO ANOTHER BAY FOR
C  ***             THE SIMULATION.  THIS CHANGE MAY ALSO BE MADE BY
C  ***             CHANGING THE BASIC TRIBUTARY ASSIGNMENT DATA CARDS.
C  ***   IBAYS(I)  CONTAINS THE CODE NUMBERS OF THE BAYS IN THE SYSTEM
C  ***             TO BE SIMULATED.  IBAY(1) ALWAYS AUTOMATICALLY CONTAINS
C  ***             NUMBER 11 WHICH IS THE CODE FOR THE ENTIRE LAKE SYSTEM.
C  ***             IBAY(2) IS ALWAYS ASSUMED TO BE THE MAIN LAKE.
C  ***   SALTS(I)  CONTAINS THE CURRENT SALT ACCUMULATION FOR ION I.
C  ***   DELV(I)   CONTAINS THE REQUIRED INTERFLOW VOLUME (WITH THE MAIN
C  ***             LAKE) DURING THE CURRENT PERIOD SO AS TO ACHIEVE
C  ***             EQUILIBRIUM AT THE END OF THE PERIOD.
C  ***   TITLE(I)  CONTAINS THE TITLE READ IN FOR THE RUN.
C  ***   NAMEB(I,2)  CONTAINS THE NAME OF EACH BAY AREA (I).  8 CHARACTERS.
C  ***   INMIX(I)  A KEY ARRAY--IF IT CONTAINS 1 FOR BAY I THEN CIRCULATION
C  ***             (INTERMIXING) FRACTIONS ARE DESIRED FOR AT LEAST SOME
C  ***             OF THE TIME PERIODS--(FRACTION ARRAY IS BMF).
C  ***   BMF(I,J)  CONTAINS A FRACTION FOR EACH TIME PERIOD AND SPECIFIED
C  ***             BAY I.  IT IS THE FRACTION OF THE BAY VOLUME WHICH IS TO
C  ***             BE DISPLACED BY LAKE WATER  TO ACCOUNT FOR CIRCULATION
C  ***             FROM THE LAKE INTO THE BAY DURING THE TIME PERIOD.
C  ***   TOTSI(I)  ACCUMULATES THE TOTAL QUANTITY OF ION I WHICH FLOWS
C  ***             INTO THE LAKE SYSTEM DURING  THE SIMULATION.
C  ***   TOTSO(I)  AS ABOVE --FOR THE QUANTITY OUT OF THE SYSTEM.
C  ***   S(I)      CONTAINS THE CURRENT WATER SURFACE ELEV OF AREA I.
C  ***   IBTA(I)   CONTAINS THE NUMBER OF TRIBUTARIES FROM BAY I TO BE
C  ***             REASSIGNED TO ANOTHER AREA--FROM BEHIND THE DIKED BAY.
C  ***   TTF(I)    CONTAINS THE ACCUMULATIVE FLOW FOR TRIBUTARY I DURING
C  ***             THE SIMULATION.
C  ***   TTS(I,J)  CONTAINS THE ACCUMULATED ION (J) QUANTITY FLOWING INTO
C  ***             THE LAKE SYSTEM FROM EACH TRIBUTARY I.
C  ***   ITOS(I)   CONTAINS THE CODE NUMBERS OF THE TRIBUTARIES THAT FLOW
C  ***             OUT OF THE LAKE SYSTEM.
C  ***   COMMON VARIABLES
C  ***   NIONS     THE NUMBER OF IONS TO BE CARRIED IN THE SIMULATION.
C  ***   NOBD      THE NUMBER OF BAYS DIKED OFF FOR THE SIMULATION.
C  ***   INT       THE COUNTER (INDEX) FOR THE TIME PERIODS.
C  ***   NINT      THE NUMBER OF TIME PERIODS IN THE SIMULATION.
C  ***   NBAYS     THE NUMBER OF BAYS IN THE LAKE SYSTEM (INCLUDING THE
```

```
C  ***             MAIN LAKE).
C  ***   IT1       A KEY  FOR TAPE READ--IF = 1 SOME DATA IS READ FROM TAPE.
C  ***   IT2       A KEY  FOR TAPE WRITE--IF = 1 DATA SPECIFIED IN SUBR TAPE
C  ***             WILL BE WRITTEN TO DATA TAPE.
C  ***   TP        TOTAL PERIOD PRECIPITATION VOLUME FOR THE ENTIRE LAKE.
C  ***   TE        TOTAL PERIOD EVAPORATION VOLUME FOR THE ENTIRE LAKE.
C  ***   TQ        TOTAL PERIOD TRIBUTARY INFLOW FOR THE ENTIRE LAKE.
C  ***   IBOF      CODE NUMBER OF THE DIKED BAY WHICH IS TO RECIEVE ANY
C  ***             SYSTEM OVERFLOW--NEED NOT BE SPECIFIED.
C  ***   SOF       LAKE STAGE AT WHICH OVERFLOW OCCURS.
C  ***   VOLOF     VOLUME IN AC FT OF THE ENTIRE LAKE SYSTEM AT OVERFLOW
C  ***             STAGE, EXCLUDING DIKED AREAS.
C  ***   BVDB      VOLUME IN THE DIKED BAY WHICH IS TO RECEIVE ANY OVERFLOW
C  ***             --AT THE BEGINNING OF THE SIMULATION.
C  ***   QOF       A KEY WHICH SPECIFIES WHETHER THE OVERFLOWING TRIBS
C  ***             ARE TO CARRY ION
C  ***             CONCENTRATIONS SPECIFIED IN ARRAY QF(KEY NOT = 1) OR THE
C  ***             CURRENT LAKE QUALITY--KEY=1
C  ***   FT        THE ACCUMULATIVE TOTAL TRIB. INFLOW FOR THE ENTIRE
C  ***             LAKE, EXCLUDING DIKED AREAS AND OUTFLOWS.
C  ***   VOFS      THE ACCUMULATIVE VOLUME IN AC FT OF ANY OVERFLOW FROM
C  ***             THE LAKE SYSTEM.
C  ***   IO1       A KEY WHICH CAUSES THE PERIOD TRIB FLOW AND QUALITY
C  ***             TO BE PRINTED OUT IF THE KEY = 1
C  ***   TIMEF     THE MULTIPLIER THAT CORRECTS THE FLOW, PREC, AND EVAP
C  ***             TO BE CORRECTED TO THE TIME PERIOD SPECIFIED.
C  ***------------------------------------------------------------------------
C  *** LABELED COMMON
C  *** ARRAYS
C  ***   A(I)      CONTAINS THE CURRENT WATER SURFACE AREA FOR EACH BAY I.
C  ***   V(I)      CONTAINS THE CURRENT VOLUME OF WATER IN EACH BAY I.
C  ***   VT(I)     CONTAINS THE CURRENT TOTAL VOLUME OF WATER THAT FLOWED
C  ***             INTO THE BAY I DURING THE CURRENT TIME PERIOD.
C  ***   P(I)      CONTAINS THE CURRENT PRECIPITATION VOLUME THAT FELL
C  ***             ON THE BAY I DURING THE CURRENT TIME PERIOD.
C  ***   E(I)      CONTAINS THE CURRENT EVAPORATION VOLUME DURING THE PERIOD.
C  ***
C  ***
C  ***------------------------------------------------------------------------
C  *** THIS MAIN PROGRAM CONTROLS THE SIMULATION.  IT STEPS THROUGH THE NUMBER
C  *** OF TIME INTERVALS, NINT, TABULATES AND PLOTS THE RESULTING WATER QUALITY.
C  ***------------------------------------------------------------------------
C  ***
         COMMON IT(20), Q(50), ITBAY(10,50), NTRIB(10), FLOWS( 60,52),
        2 QF( 60,12, 8), IONS(12), COFIN(10,12), STAGE(15), AREA(11,15),
        3 VOL(11,15), PREC(10,52), EVAP(10,52), NBD(10), ITNA(10,30),
        4 IBAYS(11), SALTS(15), DELV(11), TITLE(15), NAMEB(11,2),
        5 INMIX(10), BMF(10,52), TOTSI(12), TOTSO(12) , S(11), IBTA(10),
        6 TTF(60), TTS(60,12), ITOS(7),
        7 NIONS, NOBD, INT , NINT, NBAYS, IT1, IT2, TP, TE, TQ, IBOF, SOF,
        8 VOLOF, BVDB, QOF, FT, VOFS, IO1, TIMEF
         COMMON /STVL/   A(11), V(11), VT(11), P(11), E(11)
         DIMENSION NAMET(2), SS(12), TES(10), TPS(10), TQS(10), VB(11),
```

```
          2 SB(11)
           CALL IFILE(5,'TEMP')
           DATA NAMET /'  MO','NTHS'/
      C ***
           IBAYS(1)=11
      10   CALL DATA
           IF(SOF .EQ. 0.)SOF=1.E6
      97   FORMAT(1H1)
           WRITE( 6,3005) TITLE
           WRITE(6,108)
      108  FORMAT(1H0, '---BEGIN THE SIMULATION---')
           WRITE(6,110)
      110  FORMAT(1H0, 10X, '***INITIAL CONCENTRATIONS'/)
      C  ***
      C  ***-----------------------------------------------------------------------
      C  *** THE PRINTOUTS IN THE MAIN PROGRAM ARE BASED ON THE IONS BEING
      C  *** SPECIFIED IN THE FOLLOWING ORDER WITH NO OMISSIONS--
      C  ***    NO.   ION  CODE NO
      C  ***     1     TDS    1
      C  ***     2     NA     2
      C  ***     3     CA     3
      C  ***     4     MG     4
      C  ***     5     K      5
      C  ***     6     CL     6
      C  ***     7     HCO3   7
      C  ***     8     SO4    8
      C  ***     9     NO3    9
      C  ***    10     PO4   10
      C  ***-----------------------------------------------------------------------
      C  ***
           WRITE(6,120)
      120  FORMAT(1H ,10X,'BAY     TDS',7X,'NA',7X, 'CA',7X, 'MG',7X, 'K',6X,
          2 'CL',6X, 'HCO3',5X, 'SO4',7X, 'NO3',6X, 'PO4',7X)
           VOFS=0.
           NX=NBAYS+1
           DO 20 II=2,NX
           I=IBAYS(II)
           TES(I)=0.
           TPS(I)=0.
           TQS(I)=0.
      20   WRITE(6,125) NAMEB(I,1),NAMEB(I,2), I, (CQFIN(I,K), K=1,12)
      125  FORMAT(1H , 2A4, I4, 1X, 15F9.2)
      C  ***
      C  ***-----------------------------------------------------------------------
      C  *** WHEN ARG=0, THE SUBR SAV RETURNS THE AREA AND VOL OF EACH AREA
      C  *** FOR THE GIVEN STAGES OF EACH ONE.
      C  ***-----------------------------------------------------------------------
      C  ***
           CALL SAV(0)
           IF(IBOF .EQ. 0) GOTO 22
           BVDB=V(IBOF)
      22   WRITE(6,130)
      130  FORMAT(//1H0, 5X, 'BAY   NO.  STAGE     AREA     VOLUME')
```

```
        DO 25 II=2,NX
        I=IBAYS(II)
        VB(I)=V(I)
        SB(I)=S(I)
25       WRITE(6,132) NAMEB(I,1), NAMEB(I,2),I,S(I), A(I), V(I)
132     FORMAT(1H , 2X, 2A4, I3, F9.2, 2F10.1)
        VB(11)=V(11)
        SB(11)=S(11)
        WRITE(6,133) S(11), A(11), V(11)
133     FORMAT(1H0, 2X, 'TOTAL LAKE', F10.2,2F10.1)
        IX=0
        GOTO 92
30      IX=1
        DO 35 II=1,NIONS
        I=IONS(II)
        SALTS(I)=0.
35      SS(I)=Q(I)
        N=1
        VS=V(11)
        CALL PLOTRS(N,  VS)
C  ***
C  ***----------------------------------------------------------------------
C  *** STEP THROUGH THE TIME INTERVALS NINT--THE TIME INTERVAL MAY BE
C  *** ANY DESIRED,  IF THE DATA BASE IS SET UP FOR IT.
C  ***
C  *** SUBR COW CALCULATES ALL OF THE VOLUME AND QUALITY CHANGES DURING
C  *** THE TIME PERIOD INT.
C  ***----------------------------------------------------------------------
C  ***
        DO 90 INT=1,NINT
        N=N+1
        CALL COW
        WRITE( 6,3005) TITLE
        WRITE(6,135) INT, NAMET
135     FORMAT(1H0, 10X, '***SUMMARY INFORMATION FOR TIME PERIOD', I3,
       2 5X,'--',2A4)
        WRITE(6,145)
145     FORMAT( 1H0, 10X, '*** PERIOD FLOWS AND INTERFLOWS')
        WRITE(6,150)
150     FORMAT(1H0, 7X, '     BAY     PRECIP   EVAP   SUM TRIB   VOL BEFOR
       2E   INTERFLOW      F I N A L'/9X,'NAME  NO,    AC-FT   AC-FT INFLOW
       3 AC-FT  INTERFLOW   VOL AC-FT  STAGE     AREA      VOLUME')
        DO 40 II=2,NX
        I=IBAYS(II)
        WRITE(6,160)NAMEB(I,1),NAMEB(I,2),I,P(I),E(I),VT(I),Q(I),DELV(I),
       2 S(I), A(I), V(I)
160     FORMAT( 1H ,5X,2A4, I3, 2F9.0, F10.0, 2F12.0, F9.2, 2F10.0)
        TES(I)=TES(I) + E(I)
        TPS(I)=TPS(I) + P(I)
        TQS(I)=TQS(I) + VT(I)
40      CONTINUE
        TQS(1) = TQS(1) - FLOWS(53,INT) * 59.5041 * TIMEF
        WRITE(6,165) TP, TE, TQ, S(11), A(11), V(11)
```

```
165     FORMAT(1H0, 3X, 'TOTAL SYSTEM   ', 2F9.0, F10.0, 18X,'LAKE',2X,
       2F9.2, 2F10.0)
        WRITE(6,170)
170     FORMAT(//1H0, 5X, '*** WATER QUALITY AT THE END OF THE PERIOD'/)
        WRITE(6,120)
        DO 50 II=2,NX
        I=IBAYS(II)
        WRITE(6,175) NAMEB(I,1), NAMEB(I,2), I, (COFIN(I,K),K=1,NIONS)
175     FORMAT(1H , 2A4, I4, 1X, 12F9.2)
50      CONTINUE
        WRITE(6,180) N
180     FORMAT(///////1H0,5X,'***TIME PERIOD', I3, ' HAS BEGUN')
        VS=V(11)
        CALL PLOTRS(N,  VS)
90      CONTINUE
C  ***
C  ***-------------------------------------------------------------------------------
C  *** THE SIMULATION IS COMPLETED AT THIS POINT--NOW THE TOTAL SALTS ARE
C  *** TABULATED FOR THE VARIOUS COMPONENTS IN THE SIMULATION.
C  ***
C  *** FACTOR F CONVERTS FROM MG/L AC-FT UNITS TO TONS.
C  ***-------------------------------------------------------------------------------
C  ***
92      F=62.4*43560./2.E9
        DO 102 II=1,NIONS
        I=IONS(II)
        Q(I)=0.
        TOTSI(I)=TOTSI(I)*F
        TOTSO(I)=TOTSO(I)*F
        DO 100 KK=2,NX
        K=IBAYS(KK)
        Q(I)=Q(I) + COFIN(K,I)*V(K)
100     CONTINUE
        Q(I)=Q(I)*F
102     CONTINUE
        IF(IX .EQ. 0) GOTO 30
        WRITE( 6,3005) TITLE
        WRITE(6,182)
182     FORMAT(//1H0, 5X, '***TOTAL SALT SUMMARY FOR THE SIMULATION', //,
       2 25X, 'T  O  N  S')
        WRITE(6,120)
        WRITE(6,185) (TOTSI(K),K=1,NIONS)
        WRITE(6,186) (TOTSO(K),K=1,NIONS)
        WRITE(6,187) (SS(K),K=1,NIONS)
        WRITE(6,188) (Q(K),K=1,NIONS)
185     FORMAT(1H , 'TRIB. INFLOW' , F10.0,11F9.0)
186     FORMAT(1H0, 'LAKE OUTFLOW', F10.0, 11F9.0)
187     FORMAT(1H , 'LAKE . . '/,'  BEGINNING ',F10.0, 11F9.0)
188     FORMAT(1H , '  ENDING    ', F10.0, 11F9.0)
        WRITE( 6,3005) TITLE
        WRITE(6,2100)
2100    FORMAT(//1H0,5X,'***TRIBUTARY FLOWS AND SALT QUANTITIES')
2110    FORMAT(1H0, 20X, 'SALTS-- TONS TOTAL FOR THE SIMULATION')
```

```
        IC=0
        DO 220 II=2,NX
        I=IBAYS(II)
        WRITE(6,2110)
        WRITE(6,2120) I
 2120   FORMAT(1H0,'BAY',I3)
        WRITE(6,120)
        WRITE(6,2130)
 2130   FORMAT(1H , 'TRIB.   FLOW', /, 8X, 'AC-FT')
        N1=NTRIB(I)
        DO 220 JJ=1,N1
        IC = IC+1
        J=ITBAY(I,JJ)
        F1= TTF(J) / FT * 100.
        IF(J .EQ. 53) F1=100.
        DO 210 KK=1,NIONS
        K=IONS(KK)
        TTS(J,K) = TTS(J,K) * F
        T = TOTSI(K)
        IF(J .EQ. 53) T = TOTSO(K)
        SALTS(K) = TTS(J,K) / T * 100.
 210    CONTINUE
        IF(IC .LT. 12)GOTO 215
        WRITE( 6,3005) TITLE
        WRITE(6,2195)
 2195   FORMAT(1H , '---CONTINUED'/)
        WRITE(6,2120) I
        WRITE(6,120)
        WRITE(6,2130)
        IC=0
 215    WRITE(6,2200)J, TTF(J), (TTS(J,K),K=1,NIONS)
 2200   FORMAT(1H , I2, F10.0, F9.0, 7F9.2, 4F9.3)
        WRITE(6,2210) F1, (SALTS(K),K=1,NIONS )
 2210   FORMAT(1H , 4X, 'PCT', F7.3, 12F9.3)
        WRITE(6,2220)
 2220   FORMAT (1H0)
 220    CONTINUE
C ***
C ***-----------------------------------------------------------------------
C *** THE FOLLOWING STATEMENTS CALCULATE AND PRINT OUT THE WATER
C *** BALANCE FOR THE SIMULATION PERIOD
C ***-----------------------------------------------------------------------
C ***
        WRITE( 6,3005) TITLE
 3005   FORMAT(1H1,//,10X, 15A4)
        WRITE(6,3000)
 3000   FORMAT(// 1H0, 5X, '***WATER BALANCE FOR THE SIMULATION')
        WRITE(6,3010)
 3010   FORMAT(1H0, 10X, 'BAY  PRECIP    EVAP  TRIB INFLOW     BEGINNING
     2        ENDING ',/, 16X, 'AC-FT     AC-FT      AC-FT     STAGE   VOLUM
     3E   STAGE   VOLUME ')
        TE=0.
        TP=0.
```

```
        TQ=0.
        DO 320 II=2,NX
        I=IHAYS(II)
        WRITE(6,3020) NAMEB(I,1), NAMEB(I,2),I, TPS(I), TES(I), TQS(I),
       2 SB(I), VB(I), S(I), V(I)
 3020   FORMAT( 1H , 2A4, I4, 3F9.0, 3X, 2(F8.2,F9.1))
        IF(NBO(I) .EQ. 1) GOTO 320
        TE=TE + TES(I)
        TP=TP + TPS(I)
        TQ=TQ + TQS(I)
 320    CONTINUE
        CHECK = TP - TE + TQ + TTF(53) - V(11) + VB(11) - VOFS
        WRITE(6,3030)
        WRITE(6,3040) TP, TE, TQ, TTF(53), VOFS, VB(11), SB(11), V(11),
       2 S(11)
 3040   FORMAT( 1H , 5X, 'TOTAL PRECIPITATION=', F11.1,/,6X, 'TOTAL EVAPOR
       2ATION  =', F11.1,/, 6X, 'TOTAL TRIB. INFLOW =', F11.1, /, 6X,
       3 'TOTAL TRIB. OUTFLOW=',F11.1,/,6X, 'OTHER OVERFLOW      =',F11.1,
       3' (ENDING VOLUME HAS BEEN ADJUSTED FOR OVERFLOW)',
       4 /,6X,'BEGINNING  VOLUME  =',F11.1, 5X, 'STAGE=', F8.2,/, 6X,
       5 'ENDING  VOLUME     =',F11.1, 5X, 'STAGE=', F8.2)
 3030   FORMAT(//1H , 10X, '***TOTAL LAKE  --  AC-FT   (EXCLUDING DIKED BA
       2YS, IF ANY)')
        WRITE(6,3050) CHECK
 3050   FORMAT(// 1H0, 5X, 'CHECK=', F11.1,'  (IF NOT ZERO--PROG ERROR)')
 95     INT=999
 C  ***
 C  ***------------------------------------------------------------------------
 C  *** THE PROGRAM NOW GOES BACK TO THE BEGINNING AND LOOKS FOR NEW DATA--
 C  *** THE ONLY CHANGES IN THE DATA AS IT EXISTS AT THE END OF THIS
 C  *** SIMULATION WILL BE THOSE SPECIFIED IN THE DATA FOUND--SEE SUBR DATA.
 C  ***------------------------------------------------------------------------
 C  ***
        GOTO 10
        END
        S
```

```
        SUBROUTINE DATA
C   ***
C   ***----------------------------------------------------------------------
C   *** DATA HANDLES ALL OF THE DATA INPUT AND INITIALIZATION FOR THE
C   *** SIMULATION.
C   ***----------------------------------------------------------------------
C   *** THIS SUBR IS SET UP TO BE VERY FLEXIBLE AS TO THE AMOUNT OF DATA
C   *** GIVEN FOR A RUN, AS WELL AS THE UNITS OF THE DATA.
C   *** EACH TYPE OF DATA IS SET APART BY SPECIAL SECTION CARDS WHICH ARE
C   *** DESCRIBED IN DETAIL IN THE DOCUMENTATION.
C   ***
C   *** INT IS SET TO 999 AT THE END OF EACH SIMULATION RUN.  THE PROGRAM
C   *** THEN RETURNS TO THIS POINT AND LOOKS FOR NEW DATA FOR THE NEXT
C   *** RUN.  IF A DATA CARD CONTAINING 12345 IN THE FIRST 5 COLUMNS IS
C   *** FOUND THEN THE RUN IS ENDED.
C   ***
C   *** NORMALLY THE FLOW, QUALITY, EVAPORATION, AND PRECIPITATION INFORMATION
C   *** AS WELL AS THE STAGE-AREA-VOLUME TABLES ARE WRITTEN TO TAPE
C   *** DURING AN EARLY RUN AND THIS INFORMATION READ BACK FROM TAPE FOR
C   *** ADDITIONAL RUNS. (SEE FORMATS 1230 AND 1240 BELOW).  THIS GREATLY R
C   *** REDUCES THE NUMBER OF DATA CARDS TO BE SUBMITTED IN MOST CASES.
C   ***----------------------------------------------------------------------
C   ***
C   ***
        COMMON IT(20), Q(50), ITBAY(10,50), NTRIB(10), FLOWS( 60,52),
      2 QF( 60,12, 8), IONS(12), COFIN(10,12), STAGE(15), AREA(11,15),
      3 VOL(11,15), PREC(10,52), EVAP(10,52), NBD(10), ITNA(10,30),
      4 IBAYS(11), SALTS(15), DELV(11), TITLE(15), NAMEB(11,2),
      5 INMIX(10), BMF(10,52), TOTSI(12), TOTSO(12) , S(11), IBTA(10),
      6 TTF(60), TTS(60,12), ITOS(7),
      7 NIONS, NOBD, INT , NINT, NBAYS, IT1, IT2, TP, TE, TQ, IBOF, SOF,
      8 VOLOF, BVDB, QOF, FT, VOFS, IO1, TIMEF
        DIMENSION ITC(7), FTC(7), BGS(60,12)
        IF(INT .EQ. 999) GOTO 7
        SOF=1.E6
        DO 5 I=1,60
        DO 5 J=1,12
        FLOWS(I,J)=0.
        DO 5 K=1,7,2
        QF(I,J,K)=0.
5       CONTINUE
        DO 6 I=1,11
 6      AREA(I,2)=0.
7       DO 9 I=1,60
        DO 8 J=1,12
        COFIN(I,J) = BGS(I,J)
8       TTS(I,J) = 0.
9       TTF(I) = 0.
        FT = 0.
C   ***
C   ***----------------------------------------------------------------------
C   *** THE DATA READ FORMAT IS SET UP SO AS USE SEPERATOR CARDS TO KEY THIS
C   *** SUBR. TO READ THE DATA SUBMITTED-- SEE DOCUMENTATION FOR DETAILS.
```

```
C     ***----------------------------------------------------------------------
C     ***
10    READ(5,1000) I
1000  FORMAT(I5)
      IF(I .NE. 12345)GOTO12
      STOP
12    IF(I-11111) 50,20,15
15    IF(I-66666)30,40,45
20    IF(I .EQ. 11111) I=1
30    IF(I .EQ. 22222) I=2
      IF(I .EQ. 33333) I=3
      IF(I .EQ. 44444) I=4
      IF(I .EQ. 55555) I=5
      GOTO 50
40    IF(I .EQ. 66666) I=6
45    IF(I .EQ. 77777) I=7
      IF(I .EQ. 88888) GO TO 10
      IF(I .EQ. 99999) I=9
50    IF(I .GT. 9) GO TO 60
      GO TO 70
1020  FORMAT(1H0, '***DATA READ ERROR--SECTION CODE NOT FOUND--VALUE FOU
     2ND=',I6)
60    WRITE(6,1020) I
      IERR=1
      GO TO 10
70    GO TO (100,200,300,400,500,600,700,900,900),I
100   CONTINUE
103   READ(5,1000) I
104   IF(I-15111)105,110,115
105   IF(I .EQ. 12111) I=2
      IF(I .EQ. 13111) I=3
      IF(I .EQ. 14111) I=4
      GO TO 118
110   IF(I .EQ. 15111) I=5
115   IF(I .EQ. 16111) I=6
      IF(I .EQ. 17111) I=7
      IF(I .EQ. 18111) I=8
      IF(I .EQ. 19111) I=9
      IF(I .EQ. 19511) I=10
      IF(I .GT. 19511) GO TO 15
118   GO TO (103,120,130,140,150,160,170,180,190,195),I
C     ***
C     ***----------------------------------------------------------------------
C     *** THIS PART OF THE DATA READ IS FOR  (1)  TITLE  (2) NO. OF TIME INCREMENTS
C     ***  AND(3) KEY FOR TAPE READ AND WRITE--FOR DATA INPUT
C     ***----------------------------------------------------------------------
120   READ(5,1110) TITLE
C     ***
1110  FORMAT(15A4)
      WRITE(6,1090) TITLE
      READ(5,1200) NINT, KEY
      WRITE(6,1212) NINT, KEY
1212  FORMAT(1H0, 5X, 'THE NUMBER OF TIME INCREMENTS IN THIS SIMULATION
```

```
      2=', I3, //,6X, 'THE TIME PERIOD KEY IS =',I2)
       TIMEF = 1.
       IF(KEY .EQ. 1) TIMEF= .03333
       IF(KEY .EQ. 2) TIMEF= .23333
       IF(KEY .EQ. 4) TIMEF= 12.167
       READ(5,1215) S(11), (S(I),I=1,10)
1215   FORMAT(8F10.0)
       DO 125 I=1,10
       IF(S(I)) 122,122,125
122    S(I)=S(11)
125    CONTINUE
       WRITE(6,1220) (I,S(I),I=1,10)
1220   FORMAT(1H0, 5X, 'THE BEGINNING STAGES IN THE LAKE SYSTEM ARE',
      2 /, 5X, ' BAY   STAGE',/, 5X,     10(I3,F10.2,/, 5X))
       READ(5,1200) IT1, IT2
       IF(IT1 .EQ. 1) WRITE(6,1230)
1230   FORMAT(1H0, 5X, 'THE DATA WILL BE READ FROM TAPE --THEN MODIFIED
      2BY ANY CARDS READ')
       IF(IT1 .EQ. 1) CALL TAPE(1)
       IF(IT2 .EQ. 1) WRITE(6,1240)
1240   FORMAT(1H0, 5X, 'THE DATA SETUP FOR THIS SIMULATION WILL BE WRITTE
      2N TO THE DATA TAPE')
       WRITE(6,1111)
       GO TO 103
C   ***
C   ***-----------------------------------------------------------------------
C   *** THIS SECTION READS THE NUMBER OF IONS TO BE TRACED (NIONS) AND THEIR
C   *** CODE NUMBERS (FOUND IN ARRAY IONS).
C   ***-----------------------------------------------------------------------
C   ***
130    READ(5,1200) NIONS, (IONS(I),I=1,12)
       IF(I01 .EQ. 1) GO TO 103
       WRITE(6,1111)
1111   FORMAT(1H0,5X,'*****************************************************
      2*******************************')
       WRITE(6,1210)
       WRITE(6,1111)
1210   FORMAT(1H0,   '$$$ SIMULATION SETUP AND INITIALIZATION DATA')
       WRITE(6,1350) (IONS(I),I=1,NIONS)
1350   FORMAT(1H0, 5X, 'IONS TO BE CARRIED IN THE SIMULATION=', 15I5)
       GO TO 103
C   ***
C   ***-----------------------------------------------------------------------
C   *** THIS SECTION READS OOF WHICH IS THE KEY AS GIVEN IN FORMAT 1410 AND
C   *** ALSO READS THE INITIAL WATER QUALITY IN EACH OF THE LAKE AREAS.
C   ***-----------------------------------------------------------------------
C   ***
140    READ(5,3035) OOF
       WRITE(6,1111)
       WRITE(6,1410) OOF
1410   FORMAT(1H0, 5X, '***QUALITY OUTFLOW FACTOR =', F5.0,/ ,10X, '0. ME
      2ANS THAT QUALITY READ IN FOR THE TRIB (OUTFLOW) WILL BE USED FOR T
      3HE OUTFLOW',/,10X, '1. MEANS THAT THE LAKE QUALITY WILL BE USED FO
```

```
     4R  THE OUTFLOW')
      IF(IO1 .EQ. 1) GO TO 142
      WRITE(6,1111)
      WRITE(6,1420)
      WRITE(6,1425)
 1420 FORMAT(1H0, 5X, 'INITIAL WATER QUALITY IN THE LAKE AND BAYS')
 1425 FORMAT(1H0, 5X, 'BAY  QUALITY  QUAL UNIT ', /6X,
     2 'NO.     F.C.       KEY     CONCENTRATION')
 142  READ(5,1430) I,J,K,C
      F1=1.
 1430  FORMAT(3I5,F10.0)
      IF(I .GT. 11111) GO TO 104
      IF(I .GT. 10) WRITE(6,1435) I
 1435 FORMAT(1H ,'***ERROR--BAY .GT. 10--INITIAL W. QUALITY CARD, =',I4)
      IF(K .EQ. 1) F1=.000736
      IF(IO1 .EQ. 1) GO TO 146
      WRITE(6,1440) I,J,K,C
 1440 FORMAT(I8,I7,I10, F13.3)
 146  CQFIN(I,J)=C*F1
      GO TO 142
C  ***
C  ***-----------------------------------------------------------------------
C  *** THIS SECTION READS THE NUMBER OF DIKED BAYS NOBD IF ANY, AND
C  *** STORES  1 IN ARRAY NBD INDICATIONG DIKING FOR ANY BAY NO. GIVEN.
C  *** STATEMENT 153 READS THE CODE NUMBER OF THE BAY TO RECEIVE OVERFLOW
C  *** IBOF AND THE STAGE AND VOLUME OF THE REMAINING LAKE SYSTEM WHEN
C  *** OVERFLOW OCCURS (SOF AND VOLOF)  IF IBOF = 0 THEN OVERFLOW IS TO
C  *** FLOW OUT OF THE SYSTEM AND NOT INTO ANY DIKED BAY.
C  *** STATEMENTS STARTING WITH 155 REASSIGN ANY TRIBS. DESIRED TO FLOW
C  *** INTO THE MAIN LAKE--TRIBS THAT WERE ASSIGNED TO THE DIKED BAY I.
C  ***-----------------------------------------------------------------------
C  ***
 150  READ(5,1200) NOBD, ( IT(I),I=1,10)
      IF(NOBD .LT. 11)GOTO 151
      I=NOBD
      NOBD=0
      GO TO 104
 151  IF(NOBD .LE. 0) GOTO 153
      DO 152 I=1,NOBD
      J=IT(I)
 152  NBD(J)=1
      IF(IO1 .EQ. 1) GO TO 155
      WRITE(6,1111)
      WRITE(6,1510)  NOBD, ( IT(I),I=1,NOBD)
 1510 FORMAT(1H0, 5X, I3, ' BAYS DIKED OFF FOR THIS RUN, BAY NOS.',13I5)
 153  READ(5,1515) IBOF, SOF, VOLOF
 1515 FORMAT(I5,2F10.0)
      WRITE(6,1111)
      WRITE(6,1517) IBOF, SOF, VOLOF
 1517 FORMAT(1H0, 5X, 'BAY DESIGNATED TO RECEIVE ANY LAKE SPILLAGE IS',
     2 I3,' (0 MEANS THE SPILLAGE IS EXPORTED OUT OF THE SYSTEM)'//,
     3 10X,'STAGE AT OVERFLOW = ',F10.2,//,10X, 'VOLUME AT OVERFLOW=',
     4 F11.1)
```

```
155   READ(5,1200) I, II, (IT(J),J=1,14)
      IF(I .GT. 11111) GO TO 104
      IBTA(I)=II
      IB=-1
      IX=1
      IE=14
156   DO 157 J=IX,IE
      IF(IT(J) .LE. 0) GO TO 158
157   ITNA(I,J) = IT(J)
      IB=IB+16
      IX=IB
      IE=IE+16
      READ(5,1200) (IT(II),II=IX,IE)
      GOTO 156
158   J=J-1
      ITNA(1,I) = J
      IF(IO1 .EQ. 1) GO TO 155
      WRITE(6,1111)
      WRITE(6,1520)  I, IBTA(I), (IT(L),L=1,J)
1520  FORMAT(1H0, 5X, 'TRIBS FROM DIKED BAY', I3, ' WHICH ARE TO RUN INT
     2O BAY',I3, /,10X, 30I4)
      GO TO 155
C  ***
C  ***------------------------------------------------------------------
C  *** THIS SECTION READS THE NUMBER OF SUBAREAS IN THE LAKE SYSTEM (NBAYS)
C  *** PUTS THE CODE NUMBERS ASSIGNED TO EACH IN IBAYS.  THE NAME OF EACH
C  *** AREA IS THEN READ INTO NAMEB---8 CHARACTERS FOR EACH AREA)
C  *** -----------------------------------------------------------------
C  ***
160   READ(5,1200) NBAYS, (IBAYS(I),I=2,11)
      IF(NBAYS .LT. 11) GOTO 162
      IF(I .LT. 22222) GOTO 104
      I=NBAYS
      J=16111
      WRITE(6,1610) J
1610  FORMAT(1H0, 10X, '***TROUBLE--NO. OF BAYS SPECIFIED .GT. 11, CHECK
     2 DATA SECTION', I7)
      GOTO 104
162   READ(5,1620)((NAMEB(I,J),J=1,2),I=1,10)
1620  FORMAT(20A4)
164   IF(IO1 .EQ. 1) GOTO 103
      WRITE(6,1111)
      WRITE(6,1640) NBAYS
1640  FORMAT(1H0, 5X, 'NO. OF SUBAREAS IN THE LAKE SYSTEM =',I3, 5X,
     2 'THEIR CODE NOS. AND NAMES ARE-')
      NX=NBAYS+1
      DO 166 I=2,NX
      J=IBAYS(I)
166   WRITE(6,1650)  J,       (NAMEB(J,K),K=1,2)
1650  FORMAT(1H , 5X, I2, 2X, 2A4)
      GOTO 103
C  ***
C  *** -----------------------------------------------------------------
```

```
C  *** THIS SECTION READS THE INTERMIXING FRACTIONS FOR ANY BAY SPECIFIED
C  *** I IS THE BAY NO.,             A DECIMAL FRACTION FOR EACH TIME PERIOD
C  *** THE READ IS TERMINATED BY A NEGATIVE REAL NUMBER.
C  ***--------------------------------------------------------------------------
C  ***
170    WRITE(6,1111)
171    READ(5,1710) I, J, (Q(K),K=1,14)
1710   FORMAT(2I5, 14F5.0)
       IF(I .LT. 11) GOTO 172
       IF(I .LT. 22222) GOTO 104
       M=17111
       WRITE(6,1610) M
       GOTO 104
172    INMIX(I)=1
       DO 173 K=1,14
173    BMF(I,K)=Q(K)
       IB=-1
       IX=1
       IE=14
174    DO 176 K=IX,IE
       IF(BMF(I,K)) 178,176,176
176    CONTINUE
       IB=IB+16
       IE=IE+16
       IX=IB
       IF(IE .GT. 52) IE=52
       READ(5,3035) (BMF(I,K),K=IB,IE)
       GOTO 174
178    IF(IO1 .EQ. 1) GOTO 171
       K=K-1
       WRITE(6,1780)  I, (BMF(I,J),J=1,K)
1780   FORMAT(1H0, 5X, 'INTERMIXING FRACTIONS FOR BAY', I3, ' ARE  ',
      5 5(12F6.3,/, 44X))
       GOTO 171
180    READ(5,1200) IO1,IO2,IO3,IO4,IO5,IO6,IO7
       IF(IO1 .GT. 11111) GO TO 104
       GO TO 103
1200   FORMAT(16I5)
C  ***
C  ***--------------------------------------------------------------------------
C  *** THIS SECTION READS DECIMAL FRACTIONS THAT BECOME MULTIPLIERS FOR ALL
C  *** FLOWS, PRECIP., AND EVAP. RESP. AS IN THE BASIC DATA.
C  *** THIS SECTION CAN CHANGE THE MAGNITUDE OF THE FLOWS FOR ALL OF THE
C  *** TRIBS.--THE SECTION BEGINNING WITH STATEMENT 195 CHANGES ONLY THE
C  *** TRIBS. SPECFICALLY GIVEN THERE.
C  ***--------------------------------------------------------------------------
C  ***
190    READ(5,3035) FQ, FP, FE
       IF(FQ .LE. 0.) FQ=1.
       IF(FP .LE. 0.) FP=1.
       IF(FE .LE. 0.) FE=1.
       WRITE(6,1111)
       WRITE(6,1920) FQ, FP, FE
```

```
 1920  FORMAT(1H0, 5X, '***THE MULTIPLIERS TO BE APPLIED TO THE INPUT DAT
      2A ARE', /,10X, 'FLOWS. . .', F6.3,/,10X, 'PRECIP . .' ,F6.3,/,10X,
      3 'EVAP . . .' ,F6.3)
       GO TO 103
 195   READ(5,1950) NTC,(ITC(K), FTC(K),K=1,7)
 1950  FORMAT(I5, 7(I5,F5.0))
       IF(NTC .GT. 1111) GO TO 104
       IF(NTC .LE. 0) GO TO 104
       WRITE(6,1960)        (ITC(K),FTC(K),K=1,NTC)
 1960  FORMAT(1H0, 5X, 'THE FOLLOWING TRIBS WILL BE CHANGED BY THE FACTOR
      2 GIVEN--',/, 5X, 'TRIB.    FACTOR',/, 7(5X, I3, F9.3))
       GO TO 103
C  ***
C  ***------------------------------------------------------------------------
C  *** THIS SECTION READS THE TRIBS. THAT ARE TRIB TO EACH BAY, I=BAY NO.
C  *** N = NUMBER OF TRIBS TO THE BAY.
C  *** ----------------------------------------------------------------------
C  ***
 200   IF(IO2 .EQ. 1) GO TO 210
       WRITE(6,1090) TITLE
 1090  FORMAT(1H1//,9X,'TITLE-',15A4)
       WRITE( 6,1111)
       WRITE(6,2010)
 2010  FORMAT(1H0,10X, 'BAY - TRIBUTARY ASSIGNMENT DATA')
       WRITE(6,2020)
 2020  FORMAT(1H0, 5X, 'BAY   NO. OF    TRIBUTARY CODE NUMBERS'/1H ,
      2 11X,'TRIBS')
 210   READ(5,2030) I,N,(IT(L),L=1,14)
 2030  FORMAT(16I5)
       IF(I .GT. 11110)GO TO 12
       IF(I .GT. 10) GO TO 290
       DO 220 L=1,14
       ITBAY(I,L) = IT(L)
       NTRIB(I)=N
 220   CONTINUE
       IF(N .LT. 15) GO TO 230
       READ(5,2030) (ITBAY(I,M),M=15,N)
 230   CONTINUE
       IF(IO2 .NE. 1) WRITE(6,2040) I,N,(ITBAY(I,M),M=1,N)
 2040  FORMAT(/5X,I3, I7, 5X, 6(10I5,/,22X))
       GO TO 210
 290   WRITE(6,2100) I,N, (IT(L),L=1,14)
       IERR=1
       GO TO 210
 2100  FORMAT(1H0, '***DATA READ ERROR--IN SECTION 22222--BAY CODE NO .GT.
      2. 10' /1H ,5X, 'CARD IMAGE IS',16I5)
C  ***
C  ***------------------------------------------------------------------------
C  *** THIS SECTION READS THE NO. OF TRIBS. THAT FLOW OUT OF THE SYSTEM(NTO)
C  *** AND THEIR CODE NOS.-STATEMENTS 395 TO 398 CHANGE  THESE TRIBS TO NEG.
C  *** FLOWS.  IT THEN READS THE FLOW RATES (ST. 310), I = TRIB. NO., J = FLOW
C  *** UNIT KEY, K = TIME UNIT KEY, L = NO. OF FLOWS.
C  ***------------------------------------------------------------------------
```

```
      C  ***
300   READ(5,1200) NTO, (ITOS(I),I=1,7)
      IF(NTO .EQ. 0) GOTO 305
      IF(NTO .GT. 7) GO TO 104
      WRITE(6,1090)TITLE
      WRITE(6,3025)    (ITOS(I),I=1,NTO)
3025  FORMAT(1H0, 5X, '***THE TRIBS FLOWING OUT OF THE  SYSTEM ARE',
     2 5I4)
      IC=0
305   IF(IO3 .EQ. 1) GO TO 310
      WRITE(6,3010)
3010  FORMAT(1H0, 15X, 'TRIBUTARY FLOWRATE DATA')
      WRITE(6,3020)
3020  FORMAT(1H0, 5X, 'TRIB  FLOW UNIT  TIME BASE   F L O W S    PERIOD'
     2 /7X, 'NO      KEY       KEY      1       2       3 . . .')
310   READ(5,3030) I,J,K,L, (Q(M),M=1,12)
      F1=1.
      F2=1.
3030  FORMAT(4I5,12F5.0)
      IF(I .GT. 11110) GO TO 360
      IF(I .GT. 100) GO TO 390
      DO 320 M=1,12
      FLOWS(I,M) = Q(M)
320   CONTINUE
      IF(L .LT. 13) GO TO 330
      READ(5,3035) (FLOWS(I,M),M=13,L)
3035  FORMAT(16F5.0)
330   CONTINUE
      IF(IO3 .EQ. 1)GOTO 340
      IC=IC+1
      IF(IC .LT. 11)GOTO 335
      IC = 0
      WRITE(6,1090) TITLE
      WRITE(6,3010)
      WRITE(6,3015)
3015  FORMAT(1H , '--CONTINUED'/)
      WRITE(6,3020)
335   WRITE( 6,3040) I,J,K, (FLOWS(I,M),M=1,L)
3040  FORMAT(1H0, 5X,I3,I8,I11,2X,  6(12F8.1,/30X))
340   IF(J .EQ. 1) F1=43560.
      IF(K .EQ. 0) GO TO 350
      GO TO (342,344,346,348),K
342   F2=8.64E4
      GO TO 350
344   F2=6.048E5
      GO TO 350
346   F2=2.592E6
      GO TO 350
348   F2=3.1104E7
350   F1=F1/F2
      DO 355 M=1,L
      FLOWS(I,M)= FLOWS(I,M)*F1
355   CONTINUE
```

```
        GO TO 310
360     IF(IO3 .EQ. 1) GO TO 395
        WRITE(6,3053)
        WRITE(6,3055)
3050    FORMAT(///1H0,20X, 'KEY CODE-'/25X, 'FLOW UNIT KEY' /33X,
       2 '0 = CFS' /33X, '1 = AC. FT.')
3055    FORMAT(1H0,24X, 'TIME UNIT KEY' /33X,
       1                          '0 = SECONDS'/33X, '1 = DAY'/33X, '2 = WEE
       3K'  /33X, '3 = MONTH'/33X, '4 = YEAR')
        GO TO 395
390     WRITE(6,3100) I,J,K,L, (Q(M),M=1,12)
        IERR=1
3100    FORMAT(1H0, '***DATA READ ERROR--IN SECTION 33333--TRIB CODE NO .G
       2T. 100' /1H , 5X, 'CARD IMAGE IS ',4I5,12F7.1)
        GO TO 310
395     IF(NTO .EQ. 0) GOTO 12
        DO 398 I=1,NTO
        J=ITOS(I)
        DO 398 K=1,52
        IF(FLOWS(J,K))398,398,396
396     FLOWS(J,K)=-FLOWS(J,K)
398     CONTINUE
C  ***
C  ***------------------------------------------------------------------------
C  *** THIS SECTION READS THE FLOW RATE--QUALITY DATA (ST. 410),  I = TRIB. NO.,
C  *** J = QUALITY FACTOR CODE, K = FLOW UNIT KEY, L = QUALITY UNIT KEY)
C  *** THE FLOWRATE AND QUALITY ARE THEN READ IN PAIRS.  AT LEAST TWO PAIRS
C  *** MUST BE GIVEN.  THE PROGRAM INTERPOLATES  TO FIND THE NEEDED FLOW.
C  ***------------------------------------------------------------------------
C  ***
400     IF(IO4 .EQ. 1) GO TO 410
        WRITE(6,1090)TITLE
        WRITE(6,4010)
4010    FORMAT(1H0,15X, 'TRIBUTARY WATER QUALITY DATA')
        WRITE(6,4020)
4020    FORMAT(1H0, 5X, 'TRIB  QUALITY  FLOW UNIT  QUAL UNIT    POINTS' /
       2 6X,'NO.    F.C.       KEY         KEY',5X,'FLOW  QUALITY')
410     READ(5,4030) I,J,K,L, (Q(M),M=1,10)
4030    FORMAT(4I5,10F5.0)
        F1=1.
        F2=1.
        IF(I .GT. 11110) GO TO 450
        IF(I .GT. 100 .OR. J .GT. 12) GO TO 490
        IF(IO4 .EQ. 1) GOTO 430
        WRITE(6,4040) I, J, K, L, Q(1), Q(2)
4040    FORMAT(1H0, 3X,I5,I7,I10,I11, 1X,   2F9.3)
        DO 420 M=3,7,2
        IF(Q(M))420,430,420
420     WRITE(6,4042) Q(M), Q(M+1)
4042    FORMAT(38X, 2F9.3)
430     IF(K .EQ. 1) F1=.0168
        IF(L .EQ. 1) F2=.000736
        DO 440 M=1,7,2
```

```
      QF(I,J,M) = Q(M)*F1
440   QF(I,J,M+1) = Q(M+1)*F2
      GO TO 410
450   IF(IO4 .EQ. 1) GO TO 12
      WRITE(6,4050)
4050  FORMAT(///1H0, 20X, 'KEY CODE-'/25X, 'QUALITY FACTOR CODE'/35X,
     2'1 = TDS' /35X, '2 = NA' /35X,'3 = CA' /35X, '4 = MG'/ 35X, '5 = K
     3' /35X, '6 = CL' /35X, '7 = HCO3' /35X, '8 = SO4' /35X '9 = NO3' /
     4 34X '10 = PO4' /34X '11 = F')
      WRITE(6,4060)
      WRITE(6,4065)
4060  FORMAT( 1H0,24X, 'FLOW UNIT KEY' /35X,
     1                               '0 = CFS' /35X '1 = AC. FT./MO' )
4065  FORMAT(1H0, 24X,
     2 'QUALITY UNIT KEY' /35X '0 = MG/L' /35X '1 = TON/AF')
      GO TO 12
490   WRITE (6,4100) I,J,K,L, (Q(M),M=1,10)
4100  FORMAT(1H0, '***DATA READ ERROR--IN SECTION 44444--TRIB OR QUAL FAC
     2CTOR CODE TOO LARGE' /1H0, 5X, 'CARD IMAGE IS ',4I5,10F9.3)
      IERR=1
      GO TO 410
C  ***
C  ***-------------------------------------------------------------------
C  *** THIS SECTION READS THE PRECIPITATION DATA (ST. 510))  I = AREA CODE,
C  *** J = PREC. UNIT KEY, K = TIME BASE KEY, L = REPEAT KEY.
C  ***-------------------------------------------------------------------
C  ***
500   IF (IO5.EQ.1) GOTO 510
      WRITE(6,1090)TITLE
      WRITE (6,5010)
5010  FORMAT (1H0,15X,'PRECIPITATION DATA')
      WRITE(6,5020)
5020  FORMAT (1H0,5X,'BAY  PRECIP UNIT  TIME BASE  REPEAT   '   /
     11H ,5X,'NO.      KEY         KEY        KEY   PERIOD  PRECIP' )
510   READ(5,5030)I,J,K,L,(Q(M),M=1,12)
      IF (I.GT.11110)GOTO 560
      IF (I.GT.10)GOTO 590
      F1 =.0833
      F2=1.
       N=12
      IM=1
      IF(J.EQ.1)F1= 1.
      IF (K.EQ.0)GOTO 518
      GOTO (512,514,518,516),K
512   F2=30.41
      GO TO 517
514   F2=4.33
      GO TO 517
516   F2=.0833
517   F1=F1*F2
5030  FORMAT (4I5,12F5.0)
5035   FORMAT(16F5.0)
518   DO 520 M=IM,N
```

```
        PREC(I,M) = Q(M)*F1
        IF (Q(M).LT.0.0)GOTO 525
        M1=M+1
 520    CONTINUE
        IM=N+1
        N=N+16
        READ(5,5035)(Q(M),M=M1,N)
        GO TO 518
 525    M=M-1
        IF(IO5 .NE. 1) WRITE(6,5040) I,J,K,L,(N,Q(N),N=1,M)
 5040   FORMAT(1H ,I7, 5X, I4, 8X, I4, I10, 3X,  100( I5 ,F9.3,/42X))
 530    IF(L .NE. 0)GOTO 510
        DO 535 J=1,12
        J1=J+12
        J2=J+24
        J3 =J+36
        P=PREC(I,J)
        PREC(I,J1) = P
        PREC(I,J2) = P
        PREC(I,J3) = P
 535    CONTINUE
        GO TO 510
 560    IF(IO5.EQ.1)GOTO 12
        WRITE (6,5060)
 5060    FORMAT(///1H0,20X,'KEY CODE-',/25X,
       2 'PRECIP UNIT KEY' /33X, '0 = IN.' /33X, '1 = FT.')
        WRITE(6,5065)
 5065   FORMAT(1H0,24X, 'TIME UNIT KEY' /33X, '0 = MONTH', /33X,
       2 '1 = DAY' /33X, '2 = WEEK' /33X '3 = MONTH' /33X,
       3'4 = YEAR')
         GO TO 12
 590    WRITE(6,5100)I,J,K,L,(Q(M),M=1,12)
 5100    FORMAT(1H0,'***DATA READ ERROR--IN SECTION 55555--BAY CODE NO. ,G
       2T. 10'/
       3IH ,5X, 'CARD IMAGE IS-',4I5,12F7.1)
         GOTO 510
 C  ***
 C  ***-----------------------------------------------------------------------
 C  *** THIS SECTION READS THE EVAPORATION DATA AS FOR PRECIP, ABOVE.
 C  ***-----------------------------------------------------------------------
 C  ***
 600    IF(IO6 .EQ. 1)GOTO 610
        WRITE(6,1090) TITLE
        WRITE(6,6010)
 6010   FORMAT(1H0, 15X, 'EVAPORATION DATA')
        WRITE(6,6020)
 6020   FORMAT(1H0, 5X, 'BAY   EVAP UNIT    TIME BASE   REPEAT'/6X'NO',7X,
       2 'KEY',9X, 'KEY', 7X, 'KEY    PERIOD  EVAPORATION')
 610    READ(5,5030) I,J,K,L, (Q(M),M=1,12)
        IF(I .GT. 11110)GO TO 660
        IF(I .GT. 10) GO TO 690
        F1=.0833
        F2=1.
```

```
          N=12
          IM=1
          IF(J .EQ. 1) F1=1.
          IF(K.EQ. 0) GO TO 618
          GO TO (612,614,618,616),K
    612   F2=30.41
          GO TO 617
    614   F2=4.33
          GO TO 617
    616   F2=.0833
    617   F1=F1*F2
    618   DO 620 M=IM,N
          EVAP(I,M) = Q(M)*F1
          IF(Q(M) .LT. 0.) GO TO 625
          M1=M+1
    620   CONTINUE
          IM=N+1
          N=N+16
          READ(5,5035)(Q(M),M=M1,N)
          GO TO 618
    625   M=M-1
          IF(IO6 .NE. 1) WRITE(6,5040) I,J,K,L,(N,Q(N),N=1,M)
    630   IF(L .NE. 0) GO TO 610
          DO 635 J=1,12
          J1=J+12
          J2=J+24
          J3=J+36
          E = EVAP(I,J)
          EVAP(I,J1) = E
          EVAP(I,J2) = E
          EVAP(I,J3) = E
    635   CONTINUE
          GO TO 610
    660   IF(IO6 .EQ. 1) GO TO 12
          WRITE(6,6060)
    6060  FORMAT(///1H0,20X, 'KEY CODE-' /25X,'EVAPORATION UNIT KEY',/33X,
         2'0 = IN.' /33X, '1 = FT.')
          WRITE(6,5265)
          GO TO 12
    690   WRITE(6,6100) I,J,K,L,(Q(M),M=1,12)
    6100  FORMAT(1H0, '***DATA READ ERROR--IN SECTION 66666--BAY NO. .GT. 10' /5X
         2 ' /5X, 'CARD IMAGE IS-',4I5,12F7.1)
          GO TO 610
    C  ***
    C  ***------------------------------------------------------------------------
    C  *** THIS SECTION READS THE STAGE, AREA, VOLUME DATA. (ST. 710).
    C  *** I = AREA CODE, J = UNIT CODE.  AREA 11 IS THE ENTIRE LAKE SYSTEM.
    C  *** IF ANY BAYS ARE DIKED THE AREA AND VOLUME OF THE DIKED AREA ARE
    C  *** AUTOMATICALLY REMOVED BY STATEMENTS 9010 TO 8200 BELOW.
    C  ***------------------------------------------------------------------------
    C  ***
    700    IF(IO7.EQ.1)GOTO 710
          WRITE(6,1090)TITLE
```

```
              WRITE(6,7010)
      7010    FORMAT(1H0,15X,'STAGE - AREA - VOLUME'  )
             WRITE (6,7020)
      7020    FORMAT(1H0,5X,'BAY   STAGE      AREA        VOLUME'
            2/6X'NO      FT         ACRES       AC.FT.')
      710     READ(5,7030)I,J,(Q(M),M=1,7)
      7030   FORMAT(2I5, 7F10.0)
             IF(I .GT. 30011) GOTO 770
             READ(5,7035)(Q(M),M=8,15)
      7035   FORMAT(8F10.0)
              F1=1.
              IF(I.GT.20011)GOTO 750
              IF(I.GT.10011)GOTO 730
              I=I-10000
              IF(J.EQ.1)F1=12.
              DO 720 M=1,15
      720     STAGE(M) = Q(M)/F1
             GOTO 710
      730     I=I-20000
              IF(J.EQ.1)F1=43560.
              DO 740 M=1,15
              AREA(I,M)=Q(M)/F1
             IF(Q(M) .EQ. 0.) AREA(I,M)=.1
      740    CONTINUE
             GOTO 710
      750     I=I-30000
             IF(J .EQ.1)F1=43560.
             DO 760 M=1,15
      760    VOL(I,M)=Q(M)/F1
              GOTO 710
      770     IF(IO7.EQ.1)GOTO 12
             DO 790 J=1,11
             IF(AREA(J,2).LE.0.) GO TO 790
              WRITE(6,7060)
      7060    FORMAT(1H0)
             DO 780 M=1,15
      775     WRITE(6,7070)J,STAGE(M),   AREA(J,M), VOL(J,M)
      7070   FORMAT(1H ,2X,I4,F11.2,2F12.2)
      780    CONTINUE
      790    CONTINUE
             GO TO 12
      900    WRITE(6,9010)
      9010    FORMAT(/1H0,'***ALL DATA HAS BEEN READ IN')
      C  ***
      C  ***-------------------------------------------------------------- ---------
      C  ***
      C  *** THE FOLLOWING  SECTION ACCOUNTS FOR DIKING BY DECREASING THE TOTAL LAKE
      C  *** AREA AND VOLUME BY THE BAY VALUES--SPECIFIED TRIBS ARE ASSIGNED TO
      C  *** OTHER BAYS AS DESIRED.  THE DIKED BAYS ARE CARRIED ALONG AS SEPERATE BAYS
      C  ***
      C  ***-------------------------------------------------------------------------
      C  ***
             NX=NBAYS+1
```

```
      DO 820 II=2,NX
      I=IBAYS(II)
      IF(NBD(I) .NE. 1) GOTO 820
      DO 810 L=1,15
      AREA(11,L)=AREA(11,L) - AREA(I,L)
      VOL(11,L) = VOL(11,L) - VOL(I,L)
810   CONTINUE
      WRITE(6,8200) I
820   CONTINUE
8200  FORMAT(1H0, 5X, 'THE TOTAL LAKE AREA AND VOLUME HAVE BEEN REDUCED BY THE
     2BY THE VALUES FOR DIKED BAY', I3)
C  ***
C  ***-------------------------------------------------------------------
C  *** THE FOLLOWING SECTION IDENTIFIEDS DIKED BAYS AND REASSIGNS THE SPECIFIED
C  *** TRIBS TO THE BAY LISTED IN THE ARRAY IBTA.
C  ***-------------------------------------------------------------------
C  ***
      DO 860 II=1,NBAYS
      I=IBAYS(II)
C  *** IF NBD CONTAINS 1 THEN THE BAY IS DIKED
      IF(NBD(I) .NE. 1) GOTO 860
      J=IBTA(I)
      NN=NTRIB(J)
      LL=ITNA(1,I)
      NTRIB(J)=NN+LL
      DO 850 L=1,LL
      NNN=NN+L
      ITBAY(J,NNN)  = ITNA(I,L)
      KK= NTRIB(I)
      DO 842 K=1,KK
      IF(ITNA(I,L) .NE. ITBAY(I,K)) GOTO 842
      ITBAY(I,K) = ITBAY(I,KK)
      NTRIB(I) = KK-1
      GO TO 850
842   CONTINUE
850   CONTINUE
      WRITE(6,8510) I, J, (ITNA(I,L),L=1,LL)
8510  FORMAT(1H0, 5X, '***TRIBS FROM DIKED BAY', I3, ' THAT HAVE BEEN AS
     2SSIGNED TO BAY',I3, ' THEY ARE',/, 20X, 30I3)
      N=NTRIB(I)
      IF(N .EQ. 0) GOTO 860
      WRITE(6,8220) I, (ITBAY(I,L),L=1,N)
8220  FORMAT(1H0, 5X, 'DIKED BAY', I3, ' HAS THE FOLLOWING TRIBS REMAININ
     2NG' , 30I3)
860   CONTINUE
C  ***
C  ***-------------------------------------------------------------------
C  ***-------------------------------------------------------------------
C  *** THE FOLLOWING STATEMENTS CHANGE THE FLOWRATES (FQ), PRECIPITATION (FP)
C  *** AND EVAPORATION (FE) BY THE FACTOR GIVEN IN THE DATA.
C  ***-------------------------------------------------------------------
C  ***
      IF(FQ.EQ.1. .AND. FP.EQ.1. .AND. FE.EQ.1.) GOTO 940
```

```
      IF(FQ.EQ.0. .AND. FP.EQ.0. .AND. FE.EQ.0.) GOTO 940
      DO 930 II=1,NBAYS
      J=IBAYS(II+1)
      DO 920 I=1,NINT
      PREC(J,I)=PREC(J,I)*FP
      EVAP(J,I)=EVAP(J,I)*FE
      IF(FQ.EQ.1.)GOTO 920
      N=NTRIB(J)
      DO 910 LL=1,N
      L=ITBAY(J,LL)
      DO 910  K=1,NINT
      FLOWS(L,K)=FLOWS(L,K)*FQ
910   CONTINUE
920   CONTINUE
930   CONTINUE
      WRITE(6,9110) FP, FE, FQ
9110  FORMAT(1H0, 5X, 'THE PRECIP, EVAP, AND FLOWRATES HAVE BEEN MULTIPL
     2IED BY THE FOLLOWING FACTORS',/, 10X, 'PRECIP FACTOR=', F5.2,/
     3 ,10X, 'EVAP  FACTOR =', F5.2, /, 10X, 'FLOW  FACTOR =',F5.2)
940   CONTINUE
C  ***
C  ***------------------------------------------------------------------
C  *** THE FOLLOWING STATEMENTS CHANGE THE MAGNITUDE OF TRIB FLOWS FOR
C  *** TRIBS IN ITC, IF ANY.
C  ***------------------------------------------------------------------
C  ***
      IF(NTC .EQ. 0) GO TO 980
      DO 970 II=1,NTC
      K=ITC(II)
      F=FTC(II)
      DO 960 I=1,NINT
960   FLOWS(K,I) = FLOWS(K,I) * F
      WRITE(6,9600) K,F
9600  FORMAT(1H0, 5X, 'FLOWRATES FOR TRIB',I3, '  HAVE BEEN MULTIPLIED B
     2Y FACTOR',F7.3)
970   CONTINUE
980   CONTINUE
      DO 990 I=1,60
      DO 990 J=1,12
990   BGS(I,J) = COFIN(I,J)
C  ***
C  ***------------------------------------------------------------------
C  *** WHEN IT2 = 1 THEN THE DATA AS SET UP FOR SIMULATION IS WRITTEN TO TAPE
C  ***------------------------------------------------------------------
C  ***
      IF(IT2 .EQ. 1)CALL TAPE(2)
      IF(IT2 .EQ. 1) WRITE(6,9910)
9910  FORMAT(1H0, 5X, '***WARNING-- THE DATA WRITTEN TO TAPE HAS HAD ALL OF THE
     2 OF THE CHANGES INDICATED ABOVE MADE TO IT')
       RETURN
      WRITE(6,1090)TITLE
       END
      $
```

```
      SUBROUTINE COW
C  ***
C  ***------------------------------------------------------------------------
C  *** THIS SUBROUTINE COMBINES THE TIME PERIOD INFLOW, PRECIPITATION
C  *** AND EVAPORATION TO DETERMINE A NET FLOW BETWEEN THE MAIN LAKE AND
C  *** THE SATELLITE BAYS. THE BAY CODE NUMBERS ARE STORED IN THE ARRAY
C  *** IBAY IN THE ORDER TO BE CONSIDERED.  IBAY(1) CONTAINS 11--THE CODE
C  *** FOR THE ENTIRE LAKE, IBAY(2) IS THE MAIN LAKE, IBAY(3), . .CONTAIN
C  *** THE CODE NUMBERS FOR THE SATELLITE BAYS TO THE MAIN LAKE.
C  ***
C  *** ANY WATER OVERFLOWING OUT OF THE SYSTEM OR FLOWING INTO A
C  *** SATELLITE BAY IS REMOVED BEFORE THE FINAL END-OF-PERIOD QUALITY
C  *** OF THE MAIN LAKE IS DETERMINED.
C  *** WHEN KEY=0 SUBR SAV RETURNS THE VOLUME AND AREA OF ALL THE BODIES FOR THE
C  *** THE BEGINNING STAGE.
C  ***------------------------------------------------------------------------
C  ***
      COMMON IT(20), Q(50), ITBAY(10,50), NTRIB(10), FLOWS( 60,52),
     2 QF( 60,12, 8), IONS(12), COFIN(10,12), STAGE(15), AREA(11,15),
     3 VOL(11,15), PREC(10,52), EVAP(10,52), NBO(10), ITNA(10,30),
     4 IBAYS(11), SALTS(15), DELV(11), TITLE(15), NAMEB(11,2),
     5 INMIX(10), BMF(10,52), TOTSI(12), TOTSO(12) , S(11), IBTA(10),
     6 TTF(60), TTS(60,12), ITOS(7),
     7 NIONS, NOBD, INT , NINT, NBAYS, IT1, IT2, TP, TE, TQ, IBOF, SOF,
     8 VOLOF, BVDB, QOF, FT, VOFS, IO1, TIMEF
      COMMON /STVL/    A(11), V(11), VT(11), P(11), E(11)
      TP=0.
      TE=0.
      TQ=0.
C  *** DETERMINE THE INFLOW, PRECIP, AND EVAP FOR EACH BODY AND THE
C  *** RESULTING QUALITY AFTER MIXING IN EACH OF THE BODIES BEFORE INTERMIXING
      NX=NBAYS+1
      IF(IO1 .EQ. 1) WRITE(6,200) INT
200   FORMAT(// 1H0, 10X, '***TRIB. FLOW AND QUALITY DATA USED FOR PERIO
     2D', I3,//, '     BAY  TRIB.  FLOW-ACFT   I O N   C O N C --MG/L')
      DO 30 II=2,NX
      I=IBAYS(II)
      N=NTRIB(I)
      Q(I)=0.
      VT(I)=0.
      DO 20 JJ=1,N
      J=ITBAY(I,JJ)
      F1=FLOWS(J,INT)
      F=F1*59.5041 * TIMEF
      TTF(J) = TTF(J) + F
      Q(I)=Q(I)+F
      DO 10 KK=1,NIONS
      K=IONS(KK)
      IF(F1) 4,10,6
4     IF(QOF) 6,6,5
5     QUA= COFIN(I,K) *F
      IF(NBD(I) .EQ. 1) GOTO 9
      TOTSO(K) = TOTSO(K) - QUA
```

```
      GOTO 9
6     QUA =QUALF(J,K,F1,KK) * F
      IF(NBD(I) .EQ. 1)GOTO 9
      IF(F1) 7,7,8
7     TOTSO(K) = TOTSO(K) - QUA
      GOTO 9
8     TOTSI(K)=TOTSI(K) + QUA
9     SALTS(K)=SALTS(K) + QUA
      IF(J .EQ.53)  QUA = -QUA
      TTS(J,K) = TTS(J,K) + QUA
      BMF(1,K) = QUA/F
10    CONTINUE
      IF(J .NE. 53) FT = FT+F
      IF(IO1 .EQ. 1) WRITE(6,210) I, J, F, (BMF(1,K),K=1,NIONS)
210   FORMAT( 1H , I6, I6, F12.1, 12F8.2)
20    CONTINUE
      VT(I)=Q(I)
      VS=V(I)
      P(I)= PRECF(I) * A(I) * TIMEF
      E(I)= EVAPF(I) * A(I) * TIMEF
      V(I)=V(I) + P(I) + Q(I) - E(I)
      TE=TE+E(I)
      TP=TP+P(I)
      TQ=TQ+Q(I)
      DO 25 KK=1,NIONS
      K=IONS(KK)
      COFIN(I,K)=(VS*COFIN(I,K) + SALTS(K)) / V(I)
      SALTS(K)=0.
25    CONTINUE
30    CONTINUE
C  *** COMPUTE BAY INTERFLOW VOLUMES AND FINAL QUALITY AT THE END OF PERIOD
      Q1=V(1)
      DO 35 II=1,NX
      I=IBAYS(II)
35    Q(I)=V(I)
C  *** WHEN KEY=1 SUBR SAV RETURNS THE DELTA VOLUME IN EACH BAY TO ALLOW
C  *** THE LAKE TO REACH THE SAME STAGE THROUGHOUT.
      CALL SAV(1)
      IX=IBAYS(2)
      DO 80 II=3,NX
      I=IBAYS(II)
      IF(I .EQ. IBOF) GOTO 40
      IF(NBD(I) .EQ. 1) GOTO 80
40    D=DELV(I)
      V(I)=Q(I)-D
      IF(D)50,80,65
C  *** FLOW INTO THE BAY--- QUALITY
50    DO 55 KK=1,NIONS
      K=IONS(KK)
      COFIN(I,K)=(COFIN(I,K)*Q(I)+ COFIN(IX,K)*(-D))/ V(I)
55    CONTINUE
      Q(IX)=Q(IX) + D
      GO TO 75
```

```
C  *** FLOW INTO THE LAKE--- QUALITY
65     DO 70 KK=1,NIONS
       K=IONS(KK)
       SALTS(K)=SALTS(K) + D*COFIN(I,K)
70     CONTINUE
75     V(IX) = V(IX) + D
80     CONTINUE
C  ** NOW CALC FINAL WATER QUALITY IN THE MAIN LAKE AT THE END OF THE PERIOD
       DO 90 KK=1,NIONS
       K=IONS(KK)
       COFIN(IX,K)=(COFIN(IX,K)*Q(IX) + SALTS(K)) / V(IX)
       SALTS(K)=0.
90     CONTINUE
       Q(1)=Q1
C  ***
C  *** THE STATEMENTS FROM HERE TO 105 ALLOW FOR THE EXCHANGE OF BAY AND
C  *** MAIN LAKE WATER DUE TO CIRCULATION IF SPECIFIED
C  *** BMF IS THE FRACTION OF THE FINAL BAY VOLUME THAT IS EXCHANGED
C  *** WITH THE MAIN LAKE DUE TO CIRCULATION
C  ***
       IXX=0
       DO 95 II=3,NX
       I=IBAYS(II)
       IF(INMIX(I) .NE. 1) GOTO 95
       IF(NBD(I) .EQ. 1) GOTO 95
       IF(BMF(I,INT)) 95,95,92
92     IXX=1
       B1=BMF(I,INT)
       B2=1.-B1
       WRITE(6,950) I, B1, INT
950    FORMAT(1H0, 5X, '*** THE INTERMIXING FRACTION FOR BAY',I3, ' IS',
      2 F7.3, ' FOR TIME PERIOD', I3)
       DO 95 KK=1,NIONS
       K=IONS(KK)
       C1=COFIN(IX,K)
       C2=COFIN(I,K)
       COFIN(I,K)=C1*B1 + C2*B2
C  *** THE NET MASS INTO THE LAKE FROM THIS BAY ARE (PLUS PREVIOUS FROM
C  *** OTHER BAYS IF ANY)---
       SALTS(K)=SALTS(K) + V(I)*B1*(C2-C1)
95     CONTINUE
100    CONTINUE
       IF(IXX .EQ. 0)GOTO 110
       DO 105 KK=1,NIONS
       K=IONS(KK)
       COFIN(IX,K)= COFIN(IX,K) + SALTS(K)/V(IX)
105    SALTS(K)=0.
110    CONTINUE
       RETURN
       END
       $
```

```
      SUBROUTINE PLOTRS(N,  VS)
C  ***
C  ***-------------------------------------------------------------------------
C  *** THE PLOT ROUTINE MUST BE SET UP FOR THE PLOT AVAILABLE ON THE
C  *** COMPUTER BEING USED -- THIS IS INCLUDED AS AN EXAMPLE OF PLOT SYSTEMS
C  ***
C  *** PLOTRS STORES THE QUALITY AT THE END OF EACH TIME PERIOD AND
C  *** THEN PLOTS THE RESULTS AT THE END OF THE SIMULATION,
C  ***-------------------------------------------------------------------------
C  ***
      COMMON IT(20), Q(50), ITBAY(10,50), NTRIB(10), FLOWS( 60,52),
     2 QF( 60,12, 8), IONS(12), COFIN(10,12), STAGE(15), AREA(11,15),
     3 VOL(11,15), PREC(10,52), EVAP(10,52), NBO(10), ITNA(10,30),
     4 IBAYS(11), SALTS(15), DELV(11), TITLE(15), NAMEB(11,2),
     5 INMIX(10), BMF(10,52), TOTSI(12), TOTSO(12) , S(11), IBTA(10),
     6 TTF(60), TTS(60,12), ITOS(7),
     7 NIONS, NORD, INT ,   NI, NBAYS, IT1, IT2, TP, TE, TQ, IBOF, SOF,
     8 VOLOF, BVDB, QOF, FT, VOFS, IO1, TIMEF
      DIMENSION DSL(48), DSP(48), DSG(48), XNAL(48), XNAP(48), XNAG(48),
     2 CAL(48), CAP(48), CAG(48),  XMGL(48), XMGP(48), XMGG(48),
     3 XKL(48), XKP(48), XKG(48),  CLL(48), CLP(48), CLG(48),
     4 HCO3L(48), HCO3P(48), HCO3G(48),  SO4L(48), SO4P(48), SO4G(48),
     5XNO3L(48), XNO3P(48), XNO3G(48), PO4L(48), PO4P(48), PO4G(48),
     5 FL(48), FP(48), FG(48),
     6 TOTVOL(48),              XM(48), NAME1(6), NAME2(6), NAME3(6),
     7 NAME4(6), NAME5(6), NAME6(6), NAME7(6), NAME8(6), NAME9(6),
     8 NAME10(6), NAME11(6), NAME12(6), NAME13(6),ALT1(48),ALT2(48),
     9 ALT3(48)
      DATA NAME1 /'DISS','OLVE','D SO','LIDS','-MG/','L   '/,
     2 NAME2 /'SODI','UM I','ON  ','--MG','/L  ','    '/ ,
     3 NAME3 /'CALC','IUM ','ION ','--MG','/L  ','    '/ ,
     4 NAME4 /'MAGN','ESIU','M IO','N  -','MG/','L   '/ ,
     5 NAME5 /'POTA','SSIU','M IO','N  -','-MG/','L   '/ ,
     6 NAME6 /'CHLO','RIDE',' ION','--M','G/L ',' '/,
     7 NAME7 /'BICA','RBON','ATE ','AS C','ACO3','-MGL'/ ,
     8 NAME8 /'SULF','ATE ','ION ','--MG','/L  ',' '/,
     9 NAME9 /'NITR','ATE ','CONC',' AS ','N--M','G/L '/ ,
     X NAME10 /'PHOS','PHAT','E AS',' P  ','--MG','/L'/  ,
     9 NAME12 /'LAKE',' LEV','EL  ','IN F','EET ','-MSL'/,
     XNAME13 /'TOTA','L LA', 'KE V','OLUM','E--A','C-FT'/
      DSL(N)   = COFIN(1,1)
      DSP(N)   = COFIN(2,1)
      DSG(N)   = COFIN(3,1)
      XNAL(N) = COFIN(1,2)
      XNAP(N) = COFIN(2,2)
      XNAG(N) = COFIN(3,2)
       CAL(N) = COFIN(1,3)
       CAP(N) = COFIN(2,3)
       CAG(N) = COFIN(3,3)
      XMGL(N) = COFIN(1,4)
      XMGP(N) = COFIN(2,4)
      XMGG(N) = COFIN(3,4)
       XKL(N) = COFIN(1,5)
```

```
           XKP(N) = COFIN(2,5)
           XKG(N) = COFIN(3,5)
          CLL(N)  = COFIN(1,6)
          CLP(N)  = COFIN(2,6)
          CLG(N)  = COFIN(3,6)
          HCO3L(N)= COFIN(1,7)
          HCO3P(N)= COFIN(2,7)
          HCO3G(N)= COFIN(3,7)
          SO4L(N) = COFIN(1,8)
          SO4P(N) = COFIN(2,8)
          SO4G(N) = COFIN(3,8)
          XNO3L(N)= COFIN(1,9)
          XNO3P(N)= COFIN(2,9)
          XNO3G(N)= COFIN(3,9)
           PO4L(N)= COFIN(1,10)
           PO4P(N)= COFIN(2,10)
           PO4G(N)= COFIN(3,10)
             FL(N)= COFIN(1,11)
             FP(N)= COFIN(2,11)
             FG(N)= COFIN(3,11)
          ALT1(N) = S(1)
          ALT2(N)=S(2)
          ALT3(N) = S(3)
          TOTVOL(N) = VS
          XM(N) = N
          IF(N .EQ.(NI+1))GO TO 10
          RETURN
10        WRITE(6,20)
          DO 15 II=1,NIONS
          I=IONS(II)
15        IT(I)=999
          NINT=NI+1
20        FORMAT(1H1)
25        FORMAT(1H , 60X,'LEGEND-- MAIN LAKE  AAAAA',/,70X, 'PROVO BAY  BBB
         2BB',/,70X, 'GOSHEN BAY CCCCC '  )
          M=2*N
          NH=45
          IF(DSG(N) .GT. 1900.) NH=111
          IF(IT(1) .NE. 999) GOTO 40
          CALL XYPLTX(1.,.5,0.,40.)
          CALL XYPLOT(N,NH,M,606,XM,DSL,DSP,DSG)
          WRITE(6,30) NAME1
30        FORMAT(1H0, 30X, 6A4)
          WRITE(6,25)
          WRITE(6,200) TITLE
200       FORMAT(1H ,10X, 15A4)
          WRITE(6,20)
40        IF(IT(2) .NE. 999) GOTO 50
          CALL XYPLTX(1.,.5,0.,5.)
          CALL XYPLOT(N,NH,M,606,XM,XNAL,XNAP,XNAG)
          WRITE(6,30) NAME2
          WRITE(6,25)
          WRITE(6,200) TITLE
```

```
      WRITE(6,20)
50    IF(IT(3) .NE. 999) GOTO 60
      CALL XYPLTX(1.,.5,0., 3.)
      CALL XYPLOT(N,NH,M,606,XM,CAL,CAP,CAG)
      WRITE(6,30) NAME3
      WRITE(6,25)
      WRITE(6,200) TITLE
      WRITE(6,20)
60    IF(IT(4) .NE. 999) GOTO 70
      CALL XYPLTX(1.,.5,0., 3.)
      CALL XYPLOT(N,NH,M,606,XM,XMGL,XMGP,XMGG)
      WRITE(6,30) NAME4
      WRITE(6,25)
      WRITE(6,200) TITLE
      WRITE(6,20)
70    IF(IT(5) .NE. 999)  GOTO 80
      CALL XYPLTX(1.,.5,0.,1.)
      CALL XYPLOT(N,NH,M,606,XM,XKL,XKP,XKG)
      WRITE(6,30) NAME5
      WRITE(6,25)
      WRITE(6,200) TITLE
      WRITE(6,20)
80    IF(IT(6) .NE. 999) GOTO 90
      CALL XYPLTX(1.,.5,0.,10.)
      CALL XYPLOT(N,NH,M,606,XM,CLL,CLP,CLG)
      WRITE(6,30) NAME6
      WRITE(6,25)
      WRITE(6,200) TITLE
      WRITE(6,20)
90    IF(IT(7) .NE. 999) GOTO 100
      CALL XYPLTX(1.,.5,0.,10.)
      CALL XYPLOT(N,NH,M,606,XM,HCO3L,HCO3P,HCO3G)
      WRITE(6,30) NAME7
      WRITE(6,25)
      WRITE(6,200) TITLE
      WRITE(6,20)
100   IF(IT(8) .NE. 999) GOTO 110
      CALL XYPLTX(1.,.5,0.,10.)
      CALL XYPLOT(N,NH,M,606,XM,SO4L,SO4P,SO4G)
      WRITE(6,30) NAME8
      WRITE(6,25)
      WRITE(6,200) TITLE
      WRITE(6,20)
110   IF(IT(9) .NE. 999) GOTO 120
      CALL XYPLTX(1.,.5,0.,.1)
      CALL XYPLOT(N,NH,M,606,XM,XNO3L,XNO3P,XNO3G)
      WRITE(6,30) NAME9
      WRITE(6,25)
      WRITE(6,200) TITLE
      WRITE(6,20)
120   IF(IT(10) .NE. 999) GOTO 130
      CALL XYPLTX(1.,.5,0.,.10)
      CALL XYPLOT(N,NH,M,606,XM,PO4L,PO4P,PO4G)
```

```
        WRITE(6,30) NAME10
        WRITE(6,25)
        WRITE(6,200) TITLE
        WRITE(6,20)
130     IF(IT(11) .NE. 999) GOTO 140
        CALL XYPLTX(1.,.5,0.,.2)
        CALL XYPLOT(N,NH,M,606,XM,FL,FP,FG)
        WRITE(6,30) NAME11
        WRITE(6,25)
        WRITE(6,200) TITLE
        WRITE(6,20)
140     CALL XYPLTX(1.,.5,400000.,15000.)
        CALL XYPLOT(N,50,M,606,XM,TOTVOL)
        WRITE(6,30) NAME13
        WRITE(6,200) TITLE
        WRITE(6,20)
        CALL XYPLTX(1.,.5,4482.,.2)
        CALL XYPLOT(N,50,M,606,XM,ALT1,ALT2,ALT3)
        WRITE(6,30) NAME12
        WRITE(6,200) TITLE
        WRITE(6,20)
        RETURN
        END
        F
```

```
      FUNCTION QUALF(J,K,F1,KK)
C ***
C ***-----------------------------------------------------------------
C *** QUALF RETURNS THE QUALITY OF TRIBUTARY J, QUALITY FACTOR K,
C *** AND FLOWRATE F.  LINEAR INTERPOLATION IS USED BETWEEN POINTS
C *** STORED IN THE ARRAY QF.
C ***-----------------------------------------------------------------
C ***
       COMMON IT(20), Q(50), ITBAY(10,50), NTRIB(10), FLOWS( 60,52),
      2 QF( 60,12, 8), IONS(12), COFIN(10,12), STAGE(15), AREA(11,15),
      3 VOL(11,15), PREC(10,52), EVAP(10,52), NBO(10), ITNA(10,30),
      4 IBAYS(11), SALTS(15), DELV(11), TITLE(15), NAMEB(11,2),
      5 INMIX(10), BMF(10,52), TOTSI(12), TOTSO(12) , S(11), IBTA(10),
      6 TTF(60), TTS(60,12), ITOS(7),
      7 NIONS, NOBD, INT , NINT, NBAYS, IT1, IT2, TP, TE, TO, IBOF, SOF,
      8 VOLOF, BVDB, QOF, FT, VOFS, IO1, TIMEF
C *** THIS SUBROUTINE DETERMINES THE QUALITY FOR TRIB J, QUALITY FACTOR K FROM
C *** THE TABLE QF WHICH CONTAINS FLOW-QUALITY PAIRS.
       DATA IX/0/
       F=F1
       IF(F1 .LT. 0.) F=-F
       DO 10 M=3,7,2
       IF(F-QF(J,K,M))20,20,9
9      IF(QF(J,K,M))12,12,10
10     CONTINUE
12     IX=IX+1
       IF(IX .GT. 15) GOTO 15
       WRITE(6,100) J,K,F
100    FORMAT( 1H ,'***TROUBLE--FLOWRATE NOT FOUND IN FLOW-QUALITY TABLE
      2--TRIB=',I3, '   Q.F.=',I3, '  FLOW=',F8.2)
15     QUALF=0.
       GO TO 30
20     X= QF(J,K,M) - QF(J,K,M-2)
       IF(X .LT. 1.E-5) GOTO 15
       X=(F-QF(J,K,M-2)) / X
       QUALF        = QF(J,K,M-1) + X*(QF(J,K,M+1) - QF(J,K,M-1))
30     RETURN
       END
       $
```

```
        SUBROUTINE SAV(KEY)
C    ***
C    ***-----------------------------------------------------------------------
C    *** SAV -- WHEN KEY=0 THE AREA AND VOLUME OF EACH BAY AND THE TOTAL
C    *** LAKE ARE DETERMINED.  WHEN KEY=2 THE STAGE IS DETERMINED FOR THE
C    *** TOTAL LAKE (BASED ON THE TOTAL VOLUME), THEN THE DELTA VOLUME
C    *** (DELV) INTERFLOW BETWEEN THE MAIN LAKE AND EACH OF THE BAYS IS
C    *** DETERMINED FOR EQUILIBRIUM (UNIFORM STAGE) THROUGHOUT THE SYSTEM.
C    ***-----------------------------------------------------------------------
C    ***
           COMMON IT(20), Q(50), ITBAY(10,50), NTRIB(10), FLOWS( 60,52),
          2 QF( 60,12, 8), IONS(12), COFIN(10,12), STAGE(15), AREA(11,15),
          3 VOL(11,15), PREC(10,52), EVAP(10,52), NBD(10), ITNA(10,30),
          4 IBAYS(11), SALTS(15), DELV(11), TITLE(15), NAMEB(11,2),
          5 INMIX(10), BMF(10,52), TOTSI(12), TOTSO(12) , S(11), IBTA(10),
          6 TTF(60), TTS(60,12), ITOS(7),
          7 NIONS, NOBO, INT , NINT, NBAYS, IT1, IT2, TP, TE, TQ, IBOF, SOF,
          8 VOLOF, BVOB, QOF, FT, VOFS, IO1, TIMEF
           COMMON /STVL/    A(11), V(11), VT(11), P(11), E(11)
           NX=NBAYS + 1
           IF(KEY .EQ. 1)GO TO 50
           DO 45 KK=1,NX
           L=IBAYS(KK)
           DO 20 J=2,15
           IF(S(L) - STAGE(J)) 30,30,20
20         CONTINUE
           WRITE(6,100) S(L), L
100        FORMAT(//1H ,'***TROUBLE--LAKE STAGE (',F10.2, ') NOT IN STAGE-AREA-
          2A-VOLUME TABLE--BAY',I3)
           STOP
30         X = (S(L)-STAGE(J-1)) / (STAGE(J)-STAGE(J-1))
           A(L) = AREA(L,J-1) + X*(AREA(L,J)-AREA(L,J-1))
           V(L) = VOL(L,J-1) + X*(VOL(L,J)-VOL(L,J-1))
45         CONTINUE
           RETURN
50         V(11)=0.
           DO 55 I=2,NX
           L=IBAYS(I)
           DELV(L)=0.
           IF(NBD(L) .EQ. 1) GOTO 55
           V(11)=V(11) + V(L)
55         CONTINUE
C    *** INTERPOLATE TO GET POINT X IN TABLE FOR THE TOTAL LAKE AND DIKED BAYS
           DO 72 LL=1,NX
           L=IBAYS(LL)
           IF(L.NE.11 .AND. NBD(L).NE.1)GOTO 72
56         DO 60 J=2,15
           IF(V(L)-VOL(L,J)) 65,65,60
60         CONTINUE
           WRITE(6,110) V(L)
110        FORMAT(/1H , '***TROUBLE--LAKE VOLUME CALCULATED--',F10.2, ' AC FT--LARGER
          2--LARGER THAN FOUND IN VOLUME TABLE')
           STOP
```

```
65     X= (V(L)-VOL(L,J-1)) /(VOL(L,J)-VOL(L,J-1))
       IF(L .NE. 11) GOTO 64
       X1=X
       J1=J
64     S(L)=STAGE(J-1)+ X*(STAGE(J)-STAGE(J-1))
       A(L)= AREA(L,J-1) + X*(AREA(L,J) - AREA(L,J-1))
       IF(S(11) .LT. SOF+.02) GOTO 72
       IX=IBAYS(2)
       IF(IBOF) 67,67,66
66     K=IBOF
       DELV(K) = VOLOF - V(11)
       DELV(IX) =-DELV(K)
       V(11) = VOLOF
       WRITE(6,120) K, DELV(IX), INT
120    FORMAT(1H0, 5X, 'OVERFLOW FROM MAIN LAKE TO DIKED  BAY',I3, ' IS',
      2 F9.1,' AC FT DURING THIS PERIOD', I3)
       VOFS=VOFS - DELV(K)
       D= V(K) - DELV(K)
       DO 650 III=2,15
       IF(D - VOL(K,III)) 655,655,650
650    CONTINUE
       WRITE(6,100) S(K),K
655    X = (D - VOL(K,III-1))/ (VOL(K,III)-VOL(K,III-1))
       S(K) = STAGE (III-1) + X*(STAGE(III) - STAGE(III-1))
       A(K) = AREA(K,III-1) + X*(AREA(K,III) - AREA(K,III-1))
       D = -DELV(K)
       GOTO 69
67     D = V(11) - VOLOF
        V(11) = VOLOF
       WRITE(6,125) D
125    FORMAT(1H0, 5X, 'OVERFLOW FROM THE  LAKE  THIS PERIOD IS', F9.1,
      2 'AC FT')
       VOFS=VOFS + D
       DELV(IX) = D
69     DO 68 II=1,NIONS
       I=IONS(II)
68     TOTSD(I) = TOTSD(I) + COFIN(IX,I)* DELV(IX)
       IC=1
       V(IX) = V(IX) - D
       Q(IX) = V(IX)
       GO TO 56
72     CONTINUE
       X=X1
       DO 80 I=2,NX
       J=J1
       L=IBAYS(I)
       IF(NBD(L) .EQ. 1) GOTO 80
C  *** DETERMINE THE INTERFLOW VOLUME FOR EACH BAY.  POSITIVE DELV MEANS
C  *** FLOWS MUST LEAVE THE BAY FOR EQUILIBRIUM TO BE ACHIEVED.
       DELV(L) = DELV(L) + V(L) -(VOL(L,J-1) + X*(VOL(L,J)-VOL(L,J-1)))
       S(L)=S(11)
       A(L) = AREA(L,J-1) + X*(AREA(L,J) - AREA(L,J-1))
80     CONTINUE
90     RETURN
       END
       F
```

```
      FUNCTION PRECF(I)
C ***
C ***-----------------------------------------------------------------------
C *** PRECF RETURNS THE PRECIPITATION FALLING ON BAY I DURING TIME
C *** PERIOD INT.
C ***-----------------------------------------------------------------------
C ***
      COMMON IT(20), Q(50), ITBAY(10,50), NTRIB(10), FLOWS( 60,52),
     2 QF( 60,12, 8), IONS(12), COFIN(10,12), STAGE(15), AREA(11,15),
     3 VOL(11,15), PREC(10,52), EVAP(10,52), NBD(10), ITNA(10,30),
     4 IBAYS(11), SALTS(15), DELV(11), TITLE(15), NAMEB(11,2),
     5 INMIX(10), BMF(10,52), TOTSI(12), TOTSO(12) , S(11), IBTA(10),
     6 TTF(60), TTS(60,12), ITOS(7),
     7 NIONS, NOBD, INT , NINT, NBAYS, IT1, IT2, TP, TE, TO, IBOF, SOF,
     8 VOLOF, BVOB, QOF, FT, VOFS, IO1, TIMEF
      PRECF=PREC(I,INT)
      RETURN
      END
      F

      FUNCTION EVAPF(I)
C ***
C ***-----------------------------------------------------------------------
C *** EVAPF RETURNS THE EVAPORATION FROM BAY I DURING TIME PERIOD INT
C ***-----------------------------------------------------------------------
C ***
      COMMON IT(20), Q(50), ITBAY(10,50), NTRIB(10), FLOWS( 60,52),
     2 QF( 60,12, 8), IONS(12), COFIN(10,12), STAGE(15), AREA(11,15),
     3 VOL(11,15), PREC(10,52), EVAP(10,52), NBD(10), ITNA(10,30),
     4 IBAYS(11), SALTS(15), DELV(11), TITLE(15), NAMEB(11,2),
     5 INMIX(10), BMF(10,52), TOTSI(12), TOTSO(12) , S(11), IBTA(10),
     6 TTF(60), TTS(60,12), ITOS(7),
     7 NIONS, NOBD, INT , NINT, NBAYS, IT1, IT2, TP, TE, TO, IBOF, SOF,
     8 VOLOF, BVOB, QOF, FT, VOFS, IO1, TIMEF
      EVAPF=EVAP(I,INT)
      RETURN
      END
      S
```

```
       SUBROUTINE TAPE(IO)
C  ***
C  ***-----------------------------------------------------------------
C  *** THIS SUBR. WRITES AND READS THE INDICATED DATA FROM TAPE UNIT 1.
C  ***-----------------------------------------------------------------
C  ***
       COMMON IT(20), G(50), ITBAY(10,50), NTRIB(10), FLOWS( 60,52),
      2 QF( 60,12, 8), IONS(12), COFIN(10,12), STAGE(15), AREA(11,15),
      3 VOL(11,15), PREC(10,52), EVAP(10,52), NBD(10), ITNA(10,30),
      4 IBAYS(11), SALTS(15), DELV(11), TITLE(15), NAMEB(11,2),
      5 INMIX(10), BMF(10,52), TOTSI(12), TOTSO(12) , S(11), IBTA(10),
      6 TTF(60), TTS(60,12), ITOS(7),
      7 NIONS, NORD, INT , NINT, NBAYS, IT1, IT2, TP, TE, TQ, IBOF, SOF,
      8 VOLOF, BVDB, OOF, FT, VOFS, IO1, TIMEF
       IF(IO .EQ. 1) GO TO 50
       REWIND 1
       DO 30 I=1,60
       WRITE(1)  I,(FLOWS(I,J),J=1,52)
       WRITE(1)  ((QF(I,J,K),J=1,12),K=1,10)
30     CONTINUE
       WRITE(1)((PREC(I,J),I=1,5),J=1,50)
       WRITE(1)((PREC(I,J),I=6,10),J=1,50)
       WRITE(1)((EVAP(I,J),I=1,5),J=1,50)
       WRITE(1)((EVAP(I,J),I=6,10),J=1,50)
       WRITE(1) STAGE, AREA
       WRITE(1) VOL
       END FILE 1
       RETURN
50     REWIND 1
       DO 60 L=1,60
        READ(1)  I,(FLOWS(I,J),J=1,52)
        READ(1)  ((QF(I,J,K),J=1,12),K=1,10)
60     CONTINUE
        READ(1)((PREC(I,J),I=1,5),J=1,50)
        READ(1)((PREC(I,J),I=6,10),J=1,50)
        READ(1)((EVAP(I,J),I=1,5),J=1,50)
        READ(1)((EVAP(I,J),I=6,10),J=1,50)
        READ(1) STAGE, AREA
        READ(1) VOL
       RETURN
       END
```

## ILLUSTRATIVE WATER QUALITY SIMULATIONS

### System Simulated

A computer printout of the simulation of water quality in Utah Lake is included in the following pages. The simulation period is from July 1, 1970 to July 1, 1973. This simulation is included here to illustrate the necessary data input as described earlier, and to display the simulation results. Detailed descriptions of the Utah Lake setting, hydrology, and water quality, as well as discussions of these simulations, are found in the main report.

### Simulation of "Natural" Lake Quality

This simulation is for the Utah Lake system as it existed during the July 1, 1970 to July 1, 1973 period. As discussed in the main report, extensive analyses of the measured data and several preliminary simulations were used to refine the estimates of mineral spring inflow quantity and lake evaporation necessary to achieve a reasonably good simulation of observed lake quality.

#### Data Listing -

A listing of the data cards required to run the simulation is given on pages 152 to 166 inclusive immediately following. Each line contains the data found on one data card. Interpretation of the data is possible by referring to the data coding instructions in the User's Guide presented earlier in this section.

#### Results of Simulation -

The complete computer printout of the results for the simulation is given on pages 167 to 234 inclusive.

```
11111
12111
UTAH LAKE --JULY 1970-JULY 1973--
   36
 4488.56


13111
   10    1    2    3    4    5    6    7    8    9   10
14111
    8
    1    1     900.
    1    2     140.
    1    3     50.
    1    4     55.
    1    5     20.
    1    6     180.
    1    7     230.
    1    8     190.
    1    9     .23
    1   10     1.9
    1   11     0.
    1   12     0.
    2    1     590.
    2    2     70.
    2    3     60.
    2    4     45.
    2    5     10.
    2    6               80.
    2    7     180.
    2    8     150.
    2    9     .15
    2   10     1.
    2   11     0.
    2   12     0.
    3    1     1050.
    3    2     180.
    3    3     55.
    3    4     55.
    3    5     24.
    3    6     300.
    3    7     190.
    3    8     265.
    3    9     .2
    3   10     .23
    3   11     0.
    3   12     0.
16111
    3    1    2    3
MAIN LK PROVO B GOSHEN B
17111
    2   36 .005.005 .005 .005 .002  .002 .002 .002 .002 .005 .005 .005 .025 .005
 .005 .005 .002 .002 .002 .002 .002 .005 .005 .005 .005 .005 .005 .005 .002 .002
 .002 .002 .002 .005 .005 .005-.01
    3   36 .15  .15  .15  .15  .1   .1   .1   .1   .1   .15  .15  .15  .15  .15
 .15  .15  .1   .1   .1   .1   .1   .15  .15  .15  .15  .15  .15  .15  .1   .1
 .1   .1   .1   .15  .15  .15 -.01
18111
              1    1
19111
```

```
  1.   1.   1.
88888
22222
   1   39    1    2    3    4    5    6    7    8    9   10   11   12   13   14
  15   16   17   18   19   20   21   22   23   24   25   26   27   28   29   48
  49   50   51   53   54   55   56   59   60
   2   17   31   32   33   34   35   36   37   38   39   40   41   42   43   44
  45   46   47
   3    3   52   57   58
88888
33333
   1   53
   1    1    3   3644.  33.  57.  26.  0.   0.   0.   0.   0.   17.  16.  3.
0.  4.   15.  10.  0.   0.   0.   0.   0.   0.   25.  8.   0.   0.   0.   0.
 0.  0.   0.   0.   0.   0.   0.   0.
   2    1    3   3646.  25.  24.  45.  0.   0.   0.   0.   0.   0.   2.   19.
0.  5.   23.  0.   0.   0.   0.   0.   0.   0.   68.  1.   0.   0.   0.   0.
 0.  0.   0.   0.   0.   0.   0.   0.
   3    1    3   360.   0.   0.   0.   0.   0.   0.   0.   0.   7.   59.  37.
0.  0.   0.   0.   0.   0.   0.   0.   49.  0.   0.   60.  0.   0.   0.   0.
 0.  0.   0.   0.   0.   0.   0.   0.
   4    1    3   3624.  28.  23.  32.  30.  33.  33.  33.  34.  32.  34.  35.
38. 35.  22.  26.  31.  32.  31.  35.  30.  23.  33.  39.  0.   0.   0.   0.
 0.  0.   0.   0.   0.   0.   0.   0.
   5    1    3   3623.  13.  37.  7.   20.  16.  21.  30.  14.  18.  23.  67.
22. 2.   19.  15.  29.  0.   37.  21.  17.  12.  20.  32.  0.   0.   0.   0.
 0.  0.   0.   0.   0.   0.   0.   0.
   6    1    3   36138, 126. 234. 69.  55.  67.  73.  66.  64.  73.  104. 146.
159. 115. 215. 63.  64.  70.  74.  63.  55.  60.  112. 146. 0.   0.   0.   0.
 0.  0.   0.   0.   0.   0.   0.   0.
   7    1    3   3643.  62.  37.  40.  29.  34.  75.  47.  40.  81.  102. 65.
68. 79.  135. 194. 191. 97.  92.  58.  30.  57.  179. 74.  0.   0.   0.   0.
 0.  0.   0.   0.   0.   0.   0.   0.
   8    1    3   36353. 117. 385. 436. 376. 383. 404. 314. 274. 316. 327. 392.
276. 93. 298. 328. 343. 310. 295. 230. 178. 214. 406. 351. 0.   0.   0.   0.
 0.  0.   0.   0.   0.   0.   0.   0.
   9    1    3   361287.678. 1240.1507.1642.1474.1519.1189.1207.1066.977. 1363.
1387.997. 1445.1558.1418.1311.1291.1104.1168.916. 375. 1154.1537.1168.1309.1875.
1666.1722.1506.1722.1968.1785.1107.1368.
  10    1    3   36207, 236. 275. 262. 213. 185. 191. 175. 181. 185. 240. 269.
215. 207. 220. 217. 204. 180. 178. 16.  213. 274. 325. 233. 0.   0.   0.   0.
 0.  0.   0.   0.   0.   0.   0.   0.
  11    1    3   36163, 129. 95.  83.  74.  74.  74.  76.  80.  80.  117. 215.
259. 141. 107. 76.  74.  77.  70.  66.  70.  92.  104. 164. 129. 124. 138. 143.
133. 135. 143. 130. 130. 140. 150. 150.
  12    1    3   3664.  58.  99.  80.  61.  54.  60.  47.  35.  61.  136. 154.
73. 96.  121. 114. 90.  72.  49.  38.  50.  100. 168. 178. 0.   0.   0.   0.
 0.  0.   0.   0.   0.   0.   0.   0.
  13    1    3   3658.  67.  45.  52.  44.  26.  23.  21.  23.  25.  49.  501.
63. 60.  58.  57.  58.  60.  61.  58.  68.  83.  105. 173. 0.   0.   0.   0.
 0.  0.   0.   0.   0.   0.   0.   0.
  14    1    3   36148, 163. 153. 155. 126. 109. 120. 102. 109. 128. 125. 226.
158. 231. 167. 159. 133. 114. 105. 89.  86.  121. 149. 168. 0.   0.   0.   0.
 0.  0.   0.   0.   0.   0.   0.   0.
  15    1    3   36157, 156. 153. 195. 174. 155. 156. 138. 156. 163. 191. 189.
123. 106. 158. 178. 163. 151. 129. 115. 121. 135. 150. 177. 0.   0.   0.   0.
 0.  0.   0.   0.   0.   0.   0.   0.
  16    1    3   36143, 73.  118. 119. 99.  93.  111. 111. 122. 124. 146. 152.
99. 103. 98.  115. 98.  94.  80.  71.  90.  83.  121. 114. 0.   0.   0.   0.
 0.  0.   0.   0.   0.   0.   0.   0.
```

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   17    1    3   36401, 255, 356, 319, 222, 156, 158, 131, 159, 235, 368, 472,
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 0,   0,   0,   0,   0,   0,   0,   0,
   18    1    3   361444,1569,2626,2442,2081,1866,2115,1725,1819,1974,1673,1519,
1374,1678,2693,2466,2020,1663,1654,1377,1353,1452,1150,1410,1599,1568,2410,2767,
2350,1875,1783,1805,2029,1577,1844,1785,
   19    1    3   361,    3,   0,   0,   0,   0,   0,   0,   0,   0,   0,   0,
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 0,   0,   0,   0,   0,   0,   0,   0,
   20    1    3   361842,2027,1849,1910,2170,2165,2196,1741,1910,2006,1910,1805,
1933,1980,2538,2266,2289,2440,2723,2377,2541,2509,2440,2313,1745,2372,2313,2593,
2602,2579,2782,2250,2271,2063,2265,2405,
   21    1    3   360,   0,   0,   0,   0,   0,   0,   0,   0,   0,   0,   0,
0,   0,   0,   0,   0,   0,   0,   0,   0,   0,   0,   0,   0,   0,   0,   0,
 0,   0,   0,   0,   0,   0,   0,   0,
   22    1    3   36  0,   0,   0,   0,   0,   8,   8,   6,   6,   4,   2,   0,
0,   0,   0,   0,   6,   6,   6,   6,   12,  30,  6,   0,   0,   0,   0,   0,
 0,   0,   0,   0,   0,   0,   0,   0,
   23    1    3   360,   0,   0,   0,   4,   6,   6,   6,   6,   6,   5,   2,
0,   0,   0,   0,   6,   6,   6,   6,   7,   7,   6,   1,   0,   0,   0,   0,
 0,   0,   0,   0,   0,   0,   0,   0,
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10,  13,  11,  16,  21,  18,  16,  15,  16,  15,  15,  13,   0,   0,   0,   0,
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1440,1420,1500,1480,1540,1450,1530,1320,
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 0,   0,   0,   0,   0,   0,   0,   0,
   29    1    3   36 1250  633 1220 95002070023350192801717013310188001169019500
  850  877 1120158022302292020516520162882057716854167232943718400,732, 2220,11400
13850140901629016300171302068041880194 70
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104, 100, 149, 137, 105, 109, 123, 104, 74,  89,  68,  65,   0,   0,   0,   0,
 0,   0,   0,   0,   0,   0,   0,   0,
   32    1    3   3649,  44,  44,  45,  42,  43,  43,  39,  43,  46,  47,  55,
42,  45,  40,  42,  39,  42,  43,  40,  49,  42,  80,  125,  0,   0,   0,   0,
 0,   0,   0,   0,   0,   0,   0,   0,
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3,   6,   6,   6,   6,   6,   7,   7,   7,   7,   8,   8,   0,   0,   0,   0,
 0,   0,   0,   0,   0,   0,   0,   0,
   34    1    3   36743, 722, 717, 669, 595, 410, 337, 269, 296, 358, 394, 702,
617, 354, 297, 470, 242, 224, 234, 224, 289, 321, 301, 321, 679, 710, 533, 429,
235, 191, 188, 204, 334, 502, 875, 1154,
   35    1    3   3691,  92,  199, 118, 149, 132, 93,  99,  45,  65,  83,  75,
46,  54,  119, 211, 214, 133, 148, 35,  82,  125, 141, 119,  0,   0,   0,   0,
 0,   0,   0,   0,   0,   0,   0,   0,
   36    1    3   3632,  64,  138, 50,  26,  13,  40,  130, 25,  38,  76,  88,
25,  24,  60,  58,  26,  30,  31,  23,  25,  71,  25,  24,   0,   0,   0,   0,
 0,   0,   0,   0,   0,   0,   0,   0,
   37    1    3   3674,  84,  94,  93,  82,  63,  58,  54,  58,  75,  83,  72,
75,  80,  92,  95,  76,  55,  49,  35,  37,  60,  68,  69,   0,   0,   0,   0,
 0,   0,   0,   0,   0,   0,   0,   0,
```

```
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859, 947, 711, 883, 868, 923, 959, 892, 1008,726, 750, 684, 813, 695, 632, 943,
683, 1185,1319,1206,1395,1325,678, 546,
  39    1    3   361524,1564,1361,812, 948, 928, 935, 828, 853, 1014,1182,1342,
1439,1624,1401,1259,1117,1055,952, 944, 1128,1141,1325,1466,1475,1427,1381,1269,
933, 1135,1009,945, 1094,1068,1465,1427,
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404, 255, 273, 206, 169, 149, 123, 29,  31,  30,  18,  0,   0,   0,   0,   2,
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  41    1    3   36408, 423, 416, 337, 263, 273, 292, 298, 346, 378, 498, 461,
313, 262, 241, 245, 228, 208, 215, 196, 246, 303, 240, 250, 286, 455, 550, 524,
529, 336, 240, 272, 340, 374, 460, 387,
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     2     7      0     0.    225. 1.    225. 2.    225.
     2     8            0.    72.  2.    72.
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     2     100    0     0.    .08  1.    .08  2.    .08
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     3     50     0     0.    1.8  1.    1.8  2.    1.8
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     3     10     0     0.    .44  2.    .44
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     4     50     0     0.    1.8  .5    10.8 .8    3.0  9.    3.0  2.    3.
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     4     9            0.    1.76 2.    1.76
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     4     1            1.    660. 2.    660. 2.    660.
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     5     100    0     0.    .08  1.    .08  2.    .08
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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 1 | | 1. | 450. | 2. | 450. | 2. | 450. | | | | |
| 6 | 2 | | 1. | 32. | 20. | 32. | | | | | | |
| 6 | 30 | 0 | 0. | 92. | 2.7 | 84. | 3.0 | 84. | 5. | 84. | | |
| 6 | 40 | 0 | 0. | 38. | .9 | 38. | 2.7 | 22. | 9.0 | 22. | 5. | 22. |
| 6 | 50 | 0 | 0. | 7.8 | 3. | 7.8 | 5. | 7.8 | | | | |
| 6 | 6 | | 1. | 30. | 20. | 30. | | | | | | |
| 6 | 70 | 0 | 0. | 405. | 3. | 405. | 5. | 405. | | | | |
| 6 | 8 | | 1. | 72. | 20. | 72. | | | | | | |
| 6 | 90 | 0 | 0. | 2.4 | 1.5 | 2.4 | 2.7 | 2.88 | 9. | 2.88 | | |
| 6 | 10 | | 0. | .12 | 3. | .12 | 5. | .12 | | | | |
| 6 | 1 | | 1. | 660. | 20. | 660. | | | | | | |
| 7 | 2 | | 1. | 40. | 2. | 40. | 7. | 40. | | | | |
| 7 | 30 | 0 | 0. | 64. | 4. | 64. | 7. | 64. | | | | |
| 7 | 40 | 0 | 0. | 42. | 4. | 42. | 7. | 42. | | | | |
| 7 | 50 | 0 | 0. | 7.8 | 4. | 7.8 | 7. | 7.8 | | | | |
| 7 | 6 | | 1. | 17. | 2. | 17. | 7. | 17. | | | | |
| 7 | 70 | 0 | 0. | 360. | 4. | 360. | 7. | 360. | | | | |
| 7 | 8 | | 1. | 82. | 2. | 82. | 7. | 82. | | | | |
| 7 | 9 | | 0. | 1.04 | 7. | 1.04 | | | | | | |
| 7 | 10 | 0 | 0. | .08 | 4. | .08 | 7. | .08 | | | | |
| 7 | 1 | | 1. | 550. | 2. | 550. | 7. | 550. | | | | |
| 8 | 2 | | 1. | 44. | 20. | 44. | | | | | | |
| 8 | 3 | | 0. | 72. | 6.5 | 72. | 9. | 72. | | | | |
| 8 | 40 | 0 | 0. | 40. | 6.5 | 40. | 9. | 40. | | | | |
| 8 | 5 | | | 7.6 | 2.6 | 7.8 | 6. | 10.9 | 10. | 10.9 | | |
| 8 | 6 | | 1. | 33. | 20. | 33. | | | | | | |
| 8 | 70 | 0 | 0. | 375. | 6.5 | 375. | 9. | 375. | | | | |
| 8 | 8 | | 1. | 72. | 20. | 72. | | | | | | |
| 8 | 90 | 0 | 0. | 3.15 | 6.5 | 3.15 | 9. | 3.15 | | | | |
| 8 | 100 | 0 | 0. | 1. | 6.5 | 1. | 9. | 1. | | | | |
| 8 | 1 | | 1. | 660. | 20. | 660. | | | | | | |
| 9 | 2 | | | 24. | 50. | 24. | | | | | | |
| 9 | 30 | 0 | 0. | 96. | 35. | 96. | 50. | 96. | | | | |
| 9 | 40 | 0 | 0. | 38. | 35. | 38. | 50. | 38. | | | | |
| 9 | 5 | | 0. | 4.2 | 50. | 4.2 | | | | | | |
| 9 | 6 | | 0. | 20. | 50. | 20. | | | | | | |
| 9 | 70 | 0 | 0. | 315. | 35. | 315. | 50. | 315. | | | | |
| 9 | 8 | | 1. | 90. | 40. | 90. | 50. | 90. | | | | |
| 9 | 9 | | | 1.52 | 20. | 2.72 | 28. | 1.92 | 50. | 1.92 | | |
| 9 | 100 | 0 | 0. | .2 | 35. | .2 | 50. | .20 | | | | |
| 9 | 1 | | 1. | 420. | 40. | 420. | 50. | 420. | | | | |
| 10 | 2 | | 0. | 17. | 9. | 17. | | | | | | |
| 10 | 3 | | 0. | 90. | 9. | 90. | | | | | | |
| 10 | 4 | 0 | 0. | 28. | 6. | 28. | 9. | 28. | | | | |
| 10 | 5 | 0 | 0. | 4.2 | 6. | 4.2 | 9. | 4.2 | | | | |
| 10 | 6 | | 0. | 15. | 9. | 15. | | | | | | |
| 10 | 7 | 0 | 0. | 345. | 6. | 345. | 9. | 345. | | | | |
| 10 | 8 | | 0. | 90. | 9. | 90. | | | | | | |
| 10 | 9 | 0 | 0. | 2.16 | 6. | 2.16 | 9. | 2.16 | | | | |
| 10 | 10 | 0 | 0. | .04 | 6. | .04 | 9. | .04 | | | | |
| 10 | 1 | | 1. | 540. | 20. | 540. | | | | | | |
| 11 | 2 | | 0. | 95. | 6. | 95. | | | | | | |
| 11 | 3 | | 0. | 69. | 6. | 69. | | | | | | |
| 11 | 4 | | 0. | 24. | 6. | 24. | | | | | | |
| 11 | 5 | | 0. | 8. | 6. | 8. | | | | | | |
| 11 | 6 | | 0. | 156. | 6. | 156. | | | | | | |
| 11 | 7 | | 0. | 317. | 6. | 317. | | | | | | |
| 11 | 8 | | 0. | 75. | 6. | 75. | | | | | | |
| 11 | 9 | | 0. | 3.9 | 6. | 3.9 | | | | | | |
| 11 | 10 | | 0. | 17.3 | 6. | 17.3 | | | | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 | 1 | | 0. | 620. | 6. | 620. | | | | | | |
| 12 | 2 | | 0. | 16. | 6. | 16. | | | | | | |
| 12 | 3 | 0 | 0. | 88. | 3. | 88. | 9. | 88. | | | | |
| 12 | 40 | 0 | 0. | 26. | 3. | 26. | 9. | 26. | | | | |
| 12 | 5 | 0 | 0. | 4.2 | 3. | 4.2 | 9. | 4.2 | | | | |
| 12 | 6 | | 0.9 | 14. | 2.7 | 14. | 9. | 14. | | | | |
| 12 | 7 | 0 | 0. | 300. | 3. | 300. | 9. | 300. | | | | |
| 12 | 8 | | 0. | 90. | 6. | 90. | | | | | | |
| 12 | 9 | 0 | 0. | 1.6 | 3. | 1.6 | 9. | 1.6 | | | | |
| 12 | 10 | 0 | 0. | .04 | 3. | .04 | 9. | .04 | | | | |
| 12 | 1 | | .9 | 570. | 2.4 | 570. | 9. | 570. | | | | |
| 13 | 1 | | 0. | 510. | 1. | 510. | 1.8 | 390. | 12. | 390. | 4. | 390. |
| 13 | 2 | | 0. | 52. | 1. | 40. | 1.8 | 10. | 12. | 10. | 9. | 10. |
| 13 | 3 | | 0. | 72. | 12. | 72. | | | | | | |
| 13 | 4 | 0 | 0. | 42. | 2. | 42. | 9. | 42. | | | | |
| 13 | 50 | 0 | 0. | 4.5 | 2. | 4.5 | 9. | 4.5 | | | | |
| 13 | 6 | | 0. | 12. | 2. | 12. | 9. | 12. | | | | |
| 13 | 7 | 0 | 0. | 270. | 2. | 270. | 9. | 270. | | | | |
| 13 | 8 | | 0. | 90. | 1. | 90. | 1.8 | 42. | 9. | 42. | | |
| 13 | 9 | 0 | 0. | 1.04 | 2. | 1.04 | 9. | 1.04 | | | | |
| 13 | 10 | 0 | 0. | .04 | 2. | .04 | 9. | .04 | | | | |
| 14 | 2 | | 0. | 14. | 7. | 14. | | | | | | |
| 14 | 3 | 0 | 0. | 108. | 1.4 | 108. | 2.45 | 84. | 7.5 | 84. | | |
| 14 | 4 | 0 | 0. | 26. | 3.5 | 26. | 9. | 26. | | | | |
| 14 | 5 | 0 | 0. | 3.0 | 3.5 | 3.0 | 9. | 3.0 | | | | |
| 14 | 6 | | 0. | 12. | 5. | 12. | 9. | 12. | | | | |
| 14 | 7 | 0 | 0. | 315. | 3.5 | 315. | 9. | 315. | | | | |
| 14 | 8 | | 0. | 90. | 7. | 90. | | | | | | |
| 14 | 9 | 0 | 0. | 1.6 | 3.5 | 1.6 | 9. | 1.6 | | | | |
| 14 | 10 | 0 | 0. | .04 | 3.5 | .04 | 9. | .04 | | | | |
| 14 | 1 | | 0. | 450. | 7. | 450. | | | | | | |
| 15 | 2 | | 0. | 12. | 4. | 12. | 9. | 12. | | | | |
| 15 | 3 | 0 | 0. | 84. | 4. | 84. | 9. | 84. | | | | |
| 15 | 4 | 0 | 0. | 22. | 4. | 22. | 9. | 22. | | | | |
| 15 | 5 | 0 | 0. | 3. | 4. | 3. | 9. | 3. | | | | |
| 15 | 6 | | 0. | 12. | 4. | 12. | 9. | 12. | | | | |
| 15 | 7 | 0 | 0. | 285. | 4. | 285. | 9. | 285. | | | | |
| 15 | 8 | | 0. | 66. | 8. | 66. | | | | | | |
| 15 | 90 | 0 | 0. | 2.64 | 4. | 2.64 | 9. | 2.64 | | | | |
| 15 | 10 | 0 | 0. | .06 | 4. | .06 | 9. | .06 | | | | |
| 15 | 1 | | 0. | 420. | 4. | 420. | 9. | 420. | | | | |
| 16 | 2 | | 0. | 24. | 4. | 24. | | | | | | |
| 16 | 3 | 0 | 0. | 112. | 1.5 | 112. | 9. | 112. | | | | |
| 16 | 4 | 0 | 0. | 38. | 1.5 | 38. | 9. | 38. | | | | |
| 16 | 5 | 0 | 0. | 3. | 1.5 | 3. | 9. | 3. | | | | |
| 16 | 60 | 0 | 0. | 24. | 4. | 24. | | | | | | |
| 16 | 7 | 0 | 0. | 300. | 1.5 | 300. | 9. | 300. | | | | |
| 16 | 8 | | 0. | 66. | 3. | 66. | | | | | | |
| 16 | 9 | 0 | 0. | 2.08 | 1.5 | 2.08 | 9. | 2.08 | | | | |
| 16 | 10 | 0 | 0. | .04 | 1.5 | .04 | 9. | .04 | | | | |
| 16 | 10 | 0 | 0. | 600. | 4. | 600. | | | | | | |
| 17 | 20 | 0 | 0. | 32. | 1.75 | 32. | 2.45 | 16. | 10. | 16. | | |
| 17 | 3 | 0 | 0. | 92. | 3.5 | 92. | 9. | 92. | | | | |
| 17 | 4 | 0 | 0. | 34. | 3.5 | 34. | 9. | 34. | | | | |
| 17 | 5 | 0 | 0. | 4.8 | 3.5 | 4.8 | 9. | 4.8 | | | | |
| 17 | 60 | 0 | 0. | 18. | 20. | 18. | | | | | | |
| 17 | 7 | 0 | 0. | 360. | 3.5 | 360. | 9. | 360. | | | | |
| 17 | 8 | | 0. | 140. | 10. | 140. | | | | | | |
| 17 | 9 | 0 | 0. | 2.8 | 3.5 | 2.8 | 9. | 2.8 | | | | |
| 17 | 10 | 0 | 0. | .08 | 3.5 | .08 | 9. | .08 | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 17 | 10 | 0 | 0. | 630. | 20. | 630. | | |
| 18 | 2 | | 0. | 36. | 90. | 36. | | |
| 18 | 3 | | 0. | 96. | 90. | 96. | | |
| 18 | 4 | | 0. | 42. | 90. | 42. | | |
| 18 | 5 | | 0. | 5.4 | 90. | 5.4 | | |
| 18 | 6 | | 0. | 32. | 90. | 32. | | |
| 18 | 7 | | 0. | 370. | 90. | 370. | | |
| 18 | 8 | | 0. | 111. | 90. | 111. | | |
| 18 | 9 | | 0. | 2.25 | 90. | 2.25 | | |
| 18 | 10 | | 0. | .66 | 90. | .66 | | |
| 18 | 1 | | 0. | 630. | 90. | 630. | | |
| 19 | 2 | | 0. | 30. | 2. | 30. | | |
| 19 | 3 | | 0. | 70. | 2. | 70. | | |
| 19 | 4 | | 0. | 46. | 2. | 46. | | |
| 19 | 5 | | 0. | 27. | 2. | 27. | | |
| 19 | 6 | | 0. | 21. | 2. | 21. | | |
| 19 | 7 | | 0. | 355. | 2. | 355. | | |
| 19 | 8 | | 0. | 78. | 2. | 78. | | |
| 19 | 9 | | 0. | .75 | 2. | .75 | | |
| 19 | 10 | | 0. | .17 | 2. | .17 | | |
| 19 | 1 | | 0. | 600. | 2. | 600. | | |
| 20 | 1 | | 0. | 620. | 160. | 620. | | |
| 20 | 2 | | 0. | 48. | 160. | 48. | | |
| 20 | 3 | | 0. | 85. | 160. | 85. | | |
| 20 | 4 | | 0. | 31. | 160. | 31. | | |
| 20 | 5 | | 0. | 18. | 160. | 18. | | |
| 20 | 6 | | 0. | 64. | 160. | 64. | | |
| 20 | 7 | | 0. | 275. | 160. | 275. | | |
| 20 | 8 | | 0. | 191. | 160. | 191. | | |
| 20 | 9 | | 0. | 37. | 160. | 37. | | |
| 20 | 10 | | 0. | .7 | 160. | .7 | | |
| 21 | 20 | 0 | 0. | 130. | 18. | 130. | | |
| 21 | 3 | 0 | 0. | 52. | 1. | 52. | 9. | 52. |
| 21 | 4 | 0 | 0. | 60. | 1. | 60. | 9. | 60. |
| 21 | 5 | 0 | 0. | 25.2 | 1. | 25.2 | 9. | 25.2 |
| 21 | 6 | | 0. | 105. | 2. | 105. | | |
| 21 | 7 | 0 | 0. | 300. | 1. | 300. | 9. | 300. |
| 21 | 8 | | 0. | 78. | 2. | 78. | | |
| 21 | 9 | 0 | 0. | .72 | 1. | .72 | 9. | .72 |
| 21 | 10 | 0 | 0. | .28 | 1. | .28 | 9. | .28 |
| 21 | 1 | | 0. | 600. | 2. | 600. | | |
| 22 | 2 | | 0. | 30. | 2. | 30. | | |
| 22 | 3 | | 0. | 70. | 2. | 70. | | |
| 22 | 4 | | 0. | 46. | 2. | 46. | | |
| 22 | 5 | | 0. | 27. | 2. | 27. | | |
| 22 | 6 | | 0. | 21. | 2. | 21. | | |
| 22 | 7 | | 0. | 355. | 2. | 355. | | |
| 22 | 8 | | 0. | 78. | 2. | 78. | | |
| 22 | 9 | | 0. | .75 | 2. | .75 | | |
| 22 | 10 | | 0. | .17 | 2. | .17 | | |
| 22 | 1 | | 0. | 620. | 2. | 600. | | |
| 23 | 2 | | 0. | 30. | 2. | 30. | | |
| 23 | 3 | | 0. | 70. | 2. | 70. | | |
| 23 | 4 | | 0. | 46. | 2. | 46. | | |
| 23 | 5 | | 0. | 27. | 2. | 27. | | |
| 23 | 6 | | 0. | 21. | 2. | 21. | | |
| 23 | 7 | | 0. | 355. | 2. | 355. | | |
| 23 | 8 | | 0. | 78. | 2. | 78. | | |
| 23 | 9 | | 0. | .75 | 2. | .75 | | |
| 23 | 10 | | 0. | .17 | 2. | .17 | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 23 | 1 | | 0. | 600. | 2. | 600. | | |
| 24 | 2 | | | 24. | 18. | 24. | | |
| 24 | 3 | 0 | 0. | 90. | 1. | 90. | 9. | 90. |
| 24 | 4 | 0 | 0. | 42. | 1. | 42. | 9. | 42. |
| 24 | 5 | 0 | 0. | 42. | 1. | 42. | 9. | 42. |
| 24 | 6 | | | 15. | 18. | 15. | | |
| 24 | 7 | 0 | 0. | 330. | 1. | 330. | 9. | 330. |
| 24 | 8 | | | 40. | 18. | 40. | | |
| 24 | 9 | 0 | 0. | .72 | 1. | .72 | 9. | .72 |
| 24 | 10 | 0 | 0. | .06 | 1. | .06 | 9. | .06 |
| 24 | 1 | | | 510. | 18. | 510. | | |
| 25 | 2 | | | 36. | 18. | 36. | | |
| 25 | 3 | 0 | 0. | 68. | 1.5 | 68. | 9. | 68. |
| 25 | 4 | 0 | 0. | 36. | 1.5 | 36. | 9. | 36. |
| 25 | 5 | 0 | 0. | 16.2 | 1.5 | 16.2 | 9. | 16. |
| 25 | 6 | | | 27. | 18. | 27. | | |
| 25 | 7 | 0 | 0. | 435. | 1.5 | 435. | 9. | 435. |
| 25 | 8 | | | 78. | 18. | 78. | | |
| 25 | 9 | 0 | 0. | .8 | 1.5 | .8 | 9. | .8 |
| 25 | 10 | 0 | 0. | .16 | 1.5 | .16 | 9. | .16 |
| 25 | 1 | | | 690. | 18. | 690. | | |
| 26 | 2 | | 0. | 80. | 9. | 80. | | |
| 26 | 3 | | 0. | 54. | 9. | 54. | | |
| 26 | 4 | | 0. | 21. | 9. | 21. | | |
| 26 | 5 | | 0. | 10. | 9. | 10. | | |
| 26 | 6 | | 0. | 118. | 9. | 118. | | |
| 26 | 7 | | 0. | 326. | 9. | 326. | | |
| 26 | 8 | | 0. | 49. | 9. | 49. | | |
| 26 | 9 | | 0. | 4.3 | 9. | 4.3 | | |
| 26 | 10 | | 0. | 22. | 9. | 22. | | |
| 26 | 1 | | 0. | 479. | 9. | 479. | | |
| 27 | 2 | | 0. | 139. | 50. | 139. | | |
| 27 | 3 | | 0. | 49. | 50. | 49. | | |
| 27 | 4 | | 0. | 52. | 50. | 52. | | |
| 27 | 5 | | 0. | 19. | 50. | 19. | | |
| 27 | 6 | | 0. | 186. | 50. | 186. | | |
| 27 | 7 | | 0. | 226. | 50. | 226. | | |
| 27 | 8 | | 0. | 211. | 50. | 211. | | |
| 27 | 9 | | 0. | 1. | 50. | 1. | | |
| 27 | 10 | | 0. | .4 | 50. | .4 | | |
| 27 | 1 | | 0. | 600. | 50. | 600. | | |
| 28 | 2 | | | 26. | 18. | 26. | 2. | 26. |
| 28 | 10 | 0 | 0. | .04 | 1. | .04 | 6. | .04 |
| 28 | 3 | 0 | 0. | 102. | 6. | 102. | | |
| 28 | 4 | 0 | 0. | 23. | 6. | 23. | | |
| 28 | 5 | 0 | 0. | 4.5 | 6. | 4.5 | | |
| 28 | 6 | | | 18. | 18. | 18. | | |
| 28 | 7 | 0 | 0. | 390. | 6. | 390. | | |
| 28 | 8 | | | 114. | 18. | 114. | | |
| 28 | 9 | 0 | 0. | 1.02 | 6. | 1.02 | | |
| 28 | 1 | | | 570. | 18. | 570. | | |
| 29 | 2 | | | 12. | 600. | 12. | 1000.12. | |
| 29 | 3 | 0 | 0. | 60. | 500. | 60. | 1000.60. | |
| 29 | 4 | 0 | 0. | 16. | 500. | 16. | 1000.16. | |
| 29 | 5 | 0 | 0. | 3. | 500. | 3. | 1000.3. | |
| 29 | 6 | | 0. | 18. | 1000.18. | | | |
| 29 | 7 | 0 | 0. | 180. | 500. | 180. | 1000.180. | |
| 29 | 8 | | | 51. | 600. | 51. | 1000.51. | |
| 29 | 9 | | | .32 | 1000..32 | | | |
| 29 | 10 | | 0. | .12 | 1000..12 | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 29 | 1 | | | 330. | 600. | 330. | 1000. | 330. | | |
| 30 | 2 | | | 26. | 18. | 26. | 2. | 26. | | |
| 30 | 3 | 0 | 0. | 102. | 1. | 102. | 2. | 102. | | |
| 30 | 4 | 0 | 0. | 23. | 1. | 23. | 2. | 23. | | |
| 30 | 5 | 0 | 0. | 4.5 | 1. | 4.5 | 2. | 4.5 | | |
| 30 | 6 | | | 18. | 18. | 18. | | | | |
| 30 | 7 | 0 | 0. | 390. | 1. | 390. | 2. | 390. | | |
| 30 | 8 | | | 114. | 18. | 114. | | | | |
| 30 | 9 | 0 | 0. | 1.02 | 1. | 1.02 | 2. | 1.02 | | |
| 30 | 10 | 0 | 0. | .04 | 1. | .04 | 2. | .04 | | |
| 30 | 1 | | | 570. | 18. | 570. | | | | |
| 31 | 2 | | | 18. | 18. | 18. | | | | |
| 31 | 3 | | | 88. | 6. | 88. | | | | |
| 31 | 40 | 0 | 0. | 21. | 6.5 | 21. | | | | |
| 31 | 5 | 0 | 0. | 3.6 | 6.5 | 3.6 | | | | |
| 31 | 6 | | | 18. | 18. | 18. | | | | |
| 31 | 7 | 0 | 0. | 330. | 6.5 | 330. | | | | |
| 31 | 8 | | | 57. | 18. | 57. | | | | |
| 31 | 9 | 0 | 0. | .2 | 6.5 | .2 | | | | |
| 31 | 10 | 0 | 0. | .08 | 6.5 | .08 | | | | |
| 31 | 1 | | | 510. | 18. | 510. | | | | |
| 32 | 2 | | | 26. | 18. | 26. | 2. | 26. | | |
| 32 | 3 | 0 | 0. | 102. | 1. | 102. | 10. | 102. | | |
| 32 | 4 | 0 | 0. | 23. | 1. | 23. | 10. | 23. | | |
| 32 | 5 | 0 | 0. | 4.5 | 1. | 4.5 | 10. | 4.5 | | |
| 32 | 6 | | | 18. | 18. | 18. | | | | |
| 32 | 7 | 0 | 0. | 390. | 1. | 390. | 10. | 390. | | |
| 32 | 8 | | | 114. | 18. | 114. | | | | |
| 32 | 9 | 0 | 0. | 1.02 | 1. | 1.02 | 10. | 1.02 | | |
| 32 | 10 | 0 | 0. | .04 | 1. | .04 | 10. | .04 | | |
| 32 | 1 | | | 570. | 18. | 570. | | | | |
| 33 | 2 | | | 30. | 18. | 30. | | | | |
| 33 | 3 | 0 | 0. | 58. | 1. | 58. | 10. | 58. | | |
| 33 | 4 | 0 | 0. | 21. | 1. | 21. | 10. | 21. | | |
| 33 | 5 | 0 | 0. | 4.2 | 1. | 4.2 | 10. | 4.2 | | |
| 33 | 6 | | | 24. | 18. | 24. | | | | |
| 33 | 7 | 0 | 0. | 262.51. | | 262.510. | | 262.5 | | |
| 33 | 8 | | | 18. | 18. | 18. | | | | |
| 33 | 9 | 0 | 0. | .12 | 1. | .12 | 10. | .12 | | |
| 33 | 10 | 0 | 0. | .12 | 1. | .12 | 10. | .12 | | |
| 33 | 1 | | | 420. | 18. | 420. | | | | |
| 34 | 2 | | | 18. | 18. | 18. | 30. | 18. | | |
| 34 | 3 | 0 | 0. | 86. | 15. | 66. | 30. | 86. | | |
| 34 | 4 | 0 | 0. | 21. | 15. | 21. | 30. | 21. | | |
| 34 | 5 | 0 | 0. | 4.8 | 6.1 | 4.8 | 10.5 | 6. | 30. | 6. |
| 34 | 6 | | 0. | 24. | 30. | 24. | | | | |
| 34 | 7 | 0 | 0. | 315. | 6. | 315. | 12. | 255. | 70. | 255. |
| 34 | 8 | | | 54. | 18. | 54. | 30. | 54. | | |
| 34 | 9 | | 0. | 1.28 | 30. | 1.28 | | | | |
| 34 | 10 | 0 | 0. | .08 | 6. | .08 | 12. | .24 | 30. | .24 |
| 34 | 1 | | | 420. | 18. | 420. | 30. | 420. | | |
| 35 | 2 | | | 14. | 18. | 14. | | | | |
| 35 | 3 | 0 | 0. | 58. | 3.5 | 58. | 10. | 58. | | |
| 35 | 4 | 0 | 0. | 16.5 | 3.5 | 16.5 | 10. | 16.5 | | |
| 35 | 5 | 0 | 0. | 3. | 3.5 | 3. | 10. | 3. | | |
| 35 | 6 | | | 12. | 18. | 12. | | | | |
| 35 | 7 | 0 | 0. | 285. | 3.5 | 285. | 10. | .285. | | |
| 35 | 8 | | | 48. | 18. | 48. | | | | |
| 35 | 9 | 0 | 0. | .72 | 3.5 | .72 | 10. | .72 | | |
| 35 | 10 | 0 | 0. | .08 | 3.5 | .08 | 10. | .08 | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 35 | 1 | | | 330. | 18. | 330. | | |
| 36 | 2 | | | 20. | 18. | 20. | | |
| 36 | 3 | 0 | 0. | 40. | 2.5 | 40. | 10. | 40. |
| 36 | 4 | 0 | 0. | 27. | 2.5 | 27. | 10. | 27. |
| 36 | 5 | 0 | 0. | 3.6 | 2.5 | 3.6 | 10. | 3.6 |
| 36 | 6 | | | 12. | 18. | 12. | | |
| 36 | 7 | 0 | 0. | 225. | 2.5 | 225. | 10. | 225. |
| 36 | 8 | | | 30. | 18. | 30. | | |
| 36 | 9 | 0 | 0. | .32 | 2.5 | .32 | 10. | .32 |
| 36 | 10 | 0 | 0. | .08 | 2.5 | .08 | 10. | .08 |
| 36 | 1 | | | 360. | 18. | 360. | | |
| 37 | 2 | | | 20. | 18. | 20. | | |
| 37 | 3 | 0 | 0. | 100. | 1.5 | 100. | 10. | 100. |
| 37 | 4 | 0 | 0. | 26. | 1.5 | 26. | 10. | 26. |
| 37 | 5 | 0 | 0. | 5.2 | 1.5 | 5.2 | 10. | 5.2 |
| 37 | 6 | | | 18. | 18. | 18. | | |
| 37 | 7 | 0 | 0. | 400. | 1.5 | 400. | 10. | 400. |
| 37 | 8 | | | 57. | 18. | 57. | | |
| 37 | 9 | 0 | 0. | 1.36 | 1.5 | 1.36 | 10. | 1.36 |
| 37 | 10 | 0 | 0. | .08 | 1.5 | .08 | 10. | .08 |
| 37 | 1 | | | 600. | 18. | 600. | | |
| 38 | 2 | | | 16. | 40. | 16. | | |
| 38 | 3 | 0 | 0. | 68. | 20. | 68. | 40. | 68. |
| 38 | 4 | 0 | 0. | 17. | 20. | 17. | 40. | 17. |
| 38 | 5 | 0 | 0. | 3. | 20. | 3. | 40. | 3. |
| 38 | 6 | | | 16. | 40. | 16. | | |
| 38 | 7 | 0 | 0. | 255. | 20. | 255. | 40. | 255. |
| 38 | 8 | | | 42. | 40. | 42. | | |
| 38 | 9 | 0 | 0. | .8 | 20. | .8 | 40. | .8 |
| 38 | 10 | 0 | 0. | .1 | 20. | .1 | 40. | .1 |
| 38 | 1 | | | 390. | 40. | 390. | | |
| 39 | 2 | | 0. | 46. | 50. | 46. | | |
| 39 | 3 | | 0. | 69. | 50. | 69. | | |
| 39 | 4 | | 0. | 20. | 50. | 20. | | |
| 39 | 5 | | 0. | 7. | 50. | 7. | | |
| 39 | 6 | | 0. | 78. | 50. | 78. | | |
| 39 | 7 | | 0. | 295. | 50. | 295. | | |
| 39 | 8 | | 0. | 38. | 50. | 38. | | |
| 39 | 9 | | 0. | 6.2 | 50. | 6.2 | | |
| 39 | 10 | | 0. | 8.3 | 50. | 8.3 | | |
| 39 | 1 | | 0. | 437. | 50. | 437. | | |
| 40 | 2 | | | 28. | 18. | 28. | | |
| 40 | 3 | 0 | 0. | 68. | 6.5 | 68. | 13. | 68. |
| 40 | 4 | 0 | 0. | 30. | 6.5 | 30. | 13. | 30. |
| 40 | 5 | 0 | 0. | 38. | 6.5 | 38. | 13. | 38. |
| 40 | 6 | | | 18. | 18. | 18. | | |
| 40 | 7 | 0 | 0. | 270. | 6.5 | 270. | 13. | 270. |
| 40 | 8 | | | 42. | 18. | 42. | | |
| 40 | 9 | 0 | 0. | .8 | 6.5 | .8 | 13. | .8 |
| 40 | 10 | 0 | 0. | .06 | 6.5 | .06 | 13. | .06 |
| 40 | 1 | | | 450. | 18. | 450. | | |
| 41 | 2 | | | 28. | 18. | 28. | | |
| 41 | 3 | 0 | 0. | 68. | 6.5 | 68. | 13. | 68. |
| 41 | 4 | 0 | 0. | 30. | 6.5 | 30. | 13. | 30. |
| 41 | 5 | 0 | 0. | 38. | 6.5 | 38. | 13. | 38. |
| 41 | 6 | | | 18. | 18. | 18. | | |
| 41 | 7 | 0 | 0. | 270. | 6.5 | 270. | 13. | 270. |
| 41 | 8 | | | 42. | 18. | 42. | | |
| 41 | 9 | 0 | 0. | .8 | 6.5 | .8 | 13. | .8 |
| 41 | 10 | 0 | 0. | .06 | 6.5 | .06 | 13. | .06 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 41 | 1 | | | 450. | 18. | 450. | | | | |
| 42 | 2 | | | 48. | 100. | 48. | | | | |
| 42 | 3 | 0 | 0. | 120. | 22. | 72. | 31.5 | 136. | 70. | 136. |
| 42 | 4 | 0 | 0. | 44. | 21. | 39. | 31.5 | 36. | 70. | 36. |
| 42 | 5 | 0 | 0. | 6. | 35. | 6. | 120. | 6. | | |
| 42 | 6 | | | 36. | 100. | 36. | | | | |
| 42 | 7 | 0 | 0. | 300. | 35. | 300. | 120. | 300. | | |
| 42 | 8 | | | 259. | 100. | 259. | | | | |
| 42 | 9 | 0 | 0. | .56 | 35. | .56 | 100. | .56 | | |
| 42 | 10 | 0 | 0. | .765 | 35. | .765 | 100. | .765 | | |
| 42 | 1 | | | 780. | 100. | 780. | | | | |
| 43 | 2 | | | 32. | 40. | 32. | 170. | 32. | | |
| 43 | 3 | 0 | 0. | 105. | 65. | 105. | 170. | 105. | | |
| 43 | 4 | 0 | 0. | 32. | 65. | 32. | 170. | 32. | | |
| 43 | 5 | 0 | 0. | 6. | 65. | 65. | 170. | 65. | | |
| 43 | 6 | | | 60. | 40. | 60. | 170. | 60. | | |
| 43 | 7 | 0 | 0. | 270. | 65. | 270. | 170. | 270. | | |
| 43 | 8 | | | 126. | 40. | 126. | 170. | 126. | | |
| 43 | 9 | 0 | 0. | 1.4 | 65. | 1.4 | 170. | 1.4 | | |
| 43 | 10 | 0 | 0. | 2.15 | 65. | 2.15 | 170. | 2.15 | | |
| 43 | 1 | | | 600. | 40. | 600. | 170. | 600. | | |
| 44 | 2 | | | 10. | 100. | 10. | | | | |
| 44 | 3 | 0 | 0. | 64. | 50. | 64. | 100. | 64. | | |
| 44 | 4 | 0 | 0. | 16. | 50. | 16. | 100. | 16. | | |
| 44 | 5 | 0 | 0. | 1.8 | 50. | 1.8 | 100. | 1.8 | | |
| 44 | 6 | | | 18. | 100. | 18. | | | | |
| 44 | 7 | 0 | 0. | 210. | 50. | 210. | 100. | 210. | | |
| 44 | 8 | | | 108. | 40. | 30. | 120. | 30. | | |
| 44 | 9 | 0 | 0. | .72 | 50. | .72 | 100. | .72 | | |
| 44 | 10 | 0 | 0. | .1 | 50. | .1 | 100. | .1 | | |
| 44 | 1 | | | 540. | 45. | 210. | 100. | 210. | | |
| 45 | 2 | | 0. | 120. | 3. | 120. | 9. | 60. | 30. | 60. |
| 45 | 3 | 0 | 0. | 84. | 15. | 84. | 30. | 84. | | |
| 45 | 4 | 0 | 0. | 42. | 3. | 60. | 6. | 40. | 30. | 40. |
| 45 | 5 | 0 | 0. | 22.4 | 6. | 5.6 | 15. | 5.6 | 30. | 5.6 |
| 45 | 6 | | | 120. | 10.5 | 36. | 15. | 36. | 30. | 36. |
| 45 | 7 | 0 | 0. | 430. | 3. | 525. | 9. | 345. | 30. | 345. |
| 45 | 8 | | 0. | 240. | 9. | 110. | 30. | 110. | | |
| 45 | 9 | 0 | 0. | 1.52 | 15. | 1.52 | 30. | 1.52 | | |
| 45 | 10 | 0 | 0. | .32 | 15. | .32 | 30. | .32 | | |
| 45 | 1 | | | 1020. | 9. | 660. | 11. | 660. | 30. | 660. |
| 46 | 2 | | | 56. | 20. | 56. | | | | |
| 46 | 3 | 0 | 0. | 60. | 4. | 60. | 10. | 60. | | |
| 46 | 4 | 0 | 0. | 42. | 4. | 42. | 10. | 42. | | |
| 46 | 5 | 0 | 0. | 3.6 | 4. | 3.6 | 10. | 3.6 | | |
| 46 | 6 | | | 32. | 20. | 32. | | | | |
| 46 | 7 | 0 | 0. | 405. | 4. | 405. | 10. | 405. | | |
| 46 | 8 | | | 120. | 20. | 120. | | | | |
| 46 | 9 | 0 | 0. | 1.44 | 4. | 1.44 | 10. | 1.44 | | |
| 46 | 10 | 0 | 0. | .08 | 4. | .08 | 10. | .08 | | |
| 46 | 1 | | | 720. | 20. | 720. | | | | |
| 47 | 2 | | | 117. | 40. | 117. | 80. | 117. | | |
| 47 | 3 | 0 | 0. | 52. | 40. | 52. | 80. | 52. | | |
| 47 | 4 | 0 | 0. | 36. | 40. | 36. | 80. | 36. | | |
| 47 | 5 | 0 | 0. | 10.2 | 40. | 10.2 | 80. | 10.2 | | |
| 47 | 6 | | | 102. | 40. | 102. | 80. | 102. | | |
| 47 | 7 | 0 | 0. | 495. | 40. | 495. | 80. | 495. | | |
| 47 | 8 | | | 180. | 40. | 180. | 80. | 180. | | |
| 47 | 9 | 0 | 0. | 2.32 | 40. | 2.32 | 80. | 2.32 | | |
| 47 | 10 | 0 | 0. | 2.25 | 40. | 2.25 | 80. | 2.25 | | |

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47    1                930, 40.  930, 80.  930,
48    2          0,    50.  600. 50,
48    3          0,    70,  600. 70.
48    4          0,    30.  600. 30,
48    5          0,    5.   600. 5.
48    7          0,    300. 600, 300.
48    6          0,    70.  600. 70.
48    7          0,    300. 600, 300,
48    8          0.    90.  620. 90.
48    9          0,    .5   600, .5
48   10          0,    .2   600. .2
48    1          0,    550. 600. 550,
49    2                330. 9.   330,
49    3     0    0,    64.  1.5  64.  12.  64,
49    4     0    0,    97.5 1.5  97.5 12.  97.5
49    5     0    0,    12.6 1.5  12.6 12.  12.6
49    6                282. 9.   282.
49    7     0    0,    590. 1.5  590, 12.  590.
49    8          0,    390. 3.   390.
49    9     0    0,    .96  1.5  .96  12.  .96
49   10     0    0,    .6   1.5  .6   12.  .6
49    1                1380.9.   1300.
50    2                660. 9.   660. 12.  660.
52    3     0    0.    136. 6.   136, 12.  136.
50    4     0    0.    155, 6.   155. 12.  155.
50    5     0    0,    10.2 6.   10.2 12.  10.2
50    6                600, 9.   600. 12.  600.
50    7     0    0.    720, 6.   720. 12.  720.
50    8                780, 9.   780. 12.  780.
50    9     0    0,    .48  6.   .48  12.  .48
50   10     0    0,    .12  6.   .12  12.  .12
50    1                3040,9,   3040.12.  3040.
51    2                193. 16.  193. 72.  150, 160. 150,
51    3     0    0,    84.  80.  84.  160. 84.
51    4     0    0,    100. 64.  60.  80.  60.  160. 60.
51    5     0    0,    16.8 80.  16.8 160. 16.8
51    6                238. 56.  112. 100. 112. 160. 112.
51    7     0    0.    500. 72.  460. 80.  460. 160. 460.
51    8                336, 56,  161, 100. 161. 160. 160.
51    9     0    0.    .96  80.  .96  160. .96
51   10     0    0.    .525 80.  .525 160. .525
51    1                1120.64.  880. 100. 880. 160.880.
52    2          0.    400. 80.  400.
52    3          0.    45.  80.  45.
52    4          0.    105. 80.  105.
52    5          0.    25.  80.  25.
52    6          0.    1400.80.  1400.
52    7          0.    475. 80.  475.
52    8          0.    780. 80.  780.
52    9          0.    .07  80.  .07
52   10          0.    .06  80.  .06
52    1          0.    3390.80.  3390.
53    2                193. 475. 143. 950. 165. 1000.165. 1500.165.
53    3     0    0.    54.  570. 68.  950. 60.  1000.60.  1500.60.
53    4     0    0.    60.  475. 54.  760. 60.  1500.60.
53    5     0    0.    20.  950. 20.  1500.20.
53    6                240. 570. 169. 950. 221. 1500.221.
53    1                1200. 360.1100. 570. 860.1200. 860.
53    7                210. 420. 285. 870. 210. 1500. 210.
53    8                258. 475. 216. 950. 240. 1500.240.
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|---|---|---|---|---|---|
| 53 | 9 | 0 | 0. | .4 950. .4 1500..4 | |
| 53 | 10 | 0 | 0. | .2 950. .2 1500..2 | |
| 54 | 1 | | 0. | 1400.10. 1400. | |
| 54 | 2 | | 0. | 220. 10. 220. | |
| 54 | 3 | | 0. | 93. 10. 93. | |
| 54 | 4 | | 0. | 10. 10. 10. | |
| 54 | 5 | | 0. | 31. 10. 31. | |
| 54 | 6 | | | 330. 10. 330. | |
| 54 | 7 | | | 231. 10. 231. | |
| 54 | 8 | | | 410. 10. 410. | |
| 55 | 1 | | 0. | 4800.100. 4800. | |
| 55 | 2 | | 0. | 705. 100. 705. | |
| 55 | 3 | | 0. | 247. 100. 247. | |
| 55 | 4 | | 0. | 157. 100. 157. | |
| 55 | 5 | | 0. | 138. 100. 138. | |
| 55 | 6 | | 0. | 1820.100. 1820. | |
| 55 | 7 | | 0. | 147. 100. 147. | |
| 55 | 8 | | 0. | 660. 100. 660. | |
| 56 | 1 | | 0. | 7000. 100.7000. | |
| 56 | 2 | | 0. | 1840. 100.1840. | |
| 56 | 3 | | 0. | 140. 100.140. | |
| 56 | 4 | | 0. | 114. 100.114. | |
| 56 | 5 | | 0. | 160. 100.160. | |
| 56 | 6 | | 0. | 2950. 100.2950. | |
| 56 | 7 | | 0. | 744. 100.744. | |
| 56 | 8 | | 0. | 720. 100.720. | |
| 57 | 1 | | 0. | 1440. 10. 1440. | |
| 57 | 2 | | 0. | 360. 10. 360. | |
| 57 | 3 | | 0. | 37. 10. 37. | |
| 57 | 4 | | 0. | 37. 10. 37. | |
| 57 | 5 | | 0. | 24. 10. 24. | |
| 57 | 6 | | 0. | 540. 10. 540. | |
| 57 | 7 | | 0. | 244. 10. 244. | |
| 57 | 8 | | 0. | 92. 10. 92. | |
| 58 | 1 | | 0. | 1370. 10. 1370. | |
| 58 | 2 | | 0. | 380. 10. 380. | |
| 58 | 3 | | 0. | 29. 10. 29. | |
| 58 | 4 | | 0. | 29. 10. 29. | |
| 58 | 5 | | 0. | 25. 10. 25. | |
| 58 | 6 | | 0. | 510. 10. 510. | |
| 58 | 7 | | 0. | 244. 10. 244. | |
| 58 | 8 | | 0. | 88. 10. 88. | |
| 59 | 1 | 0 | 0. | 570. 1000.570. 5000.570. | |
| 59 | 2 | 0 | 0. | 12. 1000. 12. 5000. 12. | |
| 59 | 3 | 0 | 0. | 60. 1000. 60. 5000. 60. | |
| 59 | 4 | 0 | 0. | 16. 1000. 16. 5000. 16. | |
| 59 | 5 | 0 | 0. | 3. 1000. 3. 5000. 3. | |
| 59 | 6 | 0 | 0. | 18. 1000. 18. 5000. 18. | |
| 59 | 7 | 0 | 0. | 180. 1000.180. 5000.180. | |
| 59 | 8 | 0 | 0. | 51. 1000. 51. 5000. 51. | |
| 59 | 9 | 0 | 0. | 32. 1000. 32. 5000. 32. | |
| 59 | 10 | 0 | 0. | 12. 1000. 12. 5000. 12. | |
| 60 | 1 | | | 370. 100. 370. | |
| 60 | 2 | | | 20. 100. 20. | |
| 60 | 3 | | | 60. 100. 60. | |
| 60 | 4 | | | 20. 100. 20. | |
| 60 | 5 | | | 10. 100. 10. | |
| 60 | 6 | | | 15. 100. 15. | |
| 60 | 7 | | | 270. 100. 270. | |
| 60 | 8 | | | 50. 100. 50. | |

```
   60    9                .01  100. .01
   60   10                .05  100. .05
88888
55555
    1                   1  .79  .78 2.21 1.18 2.39 1.40  .77 1.42  .30 1.90  .35  .32
  .03  .67  .69 1.18 1.26 1.64  .03  .02  .02 1.16  .05  .65  .09  .40  .72 2.87
  .76  .61  .94 1.14 1.18 1.13  .91  .61 -.1
    2                   1  .86 1.24 2.53 1.49 3.37 1.66  .64 2.15  .56 2.16  .91  .52
  .35  .62 1.16 1.89 1.65 2.37  .08  .06  .00 1.46  .09  .67  .22  .76  .73 3.84
 1.25  .80  .93  .72 1.18  .78 1.25  .46 -.1
    3                   1 1.33  .75 1.86 1.61 3.09 2.28  .91 1.67  .53 2.57  .67  .27
  .22  .76  .96 1.87  .40  .55  .04  .00  .05 1.13  .01  .77  .20 1.18  .83 2.56
 1.14  .73 1.10  .53 1.38 2.10 1.60 1.20 -.1
88888
66666
    1               17.05 7.64 5.52 3.29  .84  .84  .83  .83  .84 2.99 5.08 7.17
 8.17 7.20 4.07 1.52  .82  .82  .82  .80  .82 4.25 6.30 6.44 8.63 7.09 5.81 2.61
  .29  .29  .29  .29  .30 3.02 6.09 6.73 -.1
    2               17.05 7.64 5.52 3.29  .84  .84  .83  .83  .84 2.99 5.08 7.17
 8.17 7.20 4.07 1.52  .82  .82  .82  .80  .82 4.25 6.30 6.44 8.63 7.09 5.81 2.61
  .29  .29  .29  .29  .30 3.02 6.09 6.73 -.1
    3               17.05 7.64 5.52 3.29  .84  .84  .83  .83  .84 2.99 5.08 7.17
 8.17 7.20 4.07 1.52  .82  .82  .82  .80  .82 4.25 6.30 6.44 8.63 7.09 5.81 2.61
  .29  .29  .29  .29  .30 3.02 6.09 6.73 -.1
88888
77777
1 11     0      4476  4476.5        4477      4478      4480      4482      4484
      4486      4488      4490      4492      4494
3 11     0                 780      6816     34024    138240    275614    428855
    595341    772028    961447   1160460   1369894
3  1     0                 766      6395     28897    112107    216216    326954
    442038    560365    682513    808963    940076
3  2     0                                                 2        31      1567
      7419     17870     31323     47292     65631
3  3     0                  14       421      5127     26131     59367    100334
    145684    193793    247611    304205     64 87
2 11     0        15      5599     17894     35525     63005     73116     80020
     86390     91413     97117    102004    107538
2  1     0        15      5461     15829     28555     49076     54101     56568
     58374     60048     62149     64349     66800
2  2     0                                                 6        23      1678
      4346      6033      7375      8585      9747
2  3     0                 138      2065      6970     13923     18992     21774
     23670     25332     27593     29070     30991
88888
99999
12345
```

```
TITLE=UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

THE NUMBER OF TIME INCREMENTS IN THIS SIMULATION= 36

THE TIME PERIOD KEY IS = 0

THE BEGINNING STAGES IN THE LAKE SYSTEM ARE
BAY   STAGE
 1   4488.58
 2   4488.58
 3   4488.58
 4   4488.58
 5   4488.58
 6   4488.58
 7   4488.58
 8   4488.58
 9   4488.58
10   4488.58

*************************************************************************************

*************************************************************************************

$$$ SIMULATION SETUP AND INITIALIZATION DATA

*************************************************************************************

IONS TO BE CARRIED IN THE SIMULATION=    1    2    3    4    5    6    7    8    9   10

*************************************************************************************

***QUALITY OUTFLOW FACTOR =    1.
    0. MEANS THAT QUALITY READ IN FOR THE TRIB (OUTFLOW) WILL BE USED FOR THE OUTFLOW
    1. MEANS THAT THE LAKE QUALITY WILL BE USED FOR  THE OUTFLOW.

*************************************************************************************

INITIAL WATER QUALITY IN THE LAKE AND BAYS
```

| BAY NO. | QUALITY F.C. | QUAL UNIT KEY | CONCENTRATION |
|---|---|---|---|
| 1 | 1 | 0 | 900.000 |
| 1 | 2 | 0 | 140.000 |
| 1 | 3 | 0 | 50.000 |
| 1 | 4 | 0 | 55.000 |
| 1 | 5 | 0 | 20.000 |
| 1 | 6 | 0 | 180.000 |
| 1 | 7 | 0 | 230.000 |
| 1 | 8 | 0 | 190.000 |
| 1 | 9 | 0 | 0.230 |
| 1 | 10 | 0 | 1.900 |
| 1 | 11 | 0 | 0.000 |
| 1 | 12 | 0 | 0.003 |
| 2 | 1 | 0 | 590.000 |
| 2 | 2 | 0 | 70.000 |
| 2 | 3 | 0 | 60.000 |
| 2 | 4 | 0 | 45.000 |

| | | | |
|---|---|---|---|
| 2 | 5 | 0 | 10.000 |
| 2 | 6 | 0 | 80.000 |
| 2 | 7 | 0 | 180.000 |
| 2 | 8 | 0 | 150.000 |
| 2 | 9 | 0 | 0.150 |
| 2 | 10 | 0 | 1.000 |
| 2 | 11 | 0 | 0.000 |
| 2 | 12 | 0 | 0.000 |
| 3 | 1 | 0 | 1050.000 |
| 3 | 2 | 0 | 180.000 |
| 3 | 3 | 0 | 55.000 |
| 3 | 4 | 0 | 55.000 |
| 3 | 5 | 0 | 24.000 |
| 3 | 6 | 0 | 300.000 |
| 3 | 7 | 0 | 190.000 |
| 3 | 8 | 0 | 265.000 |
| 3 | 9 | 0 | 0.200 |
| 3 | 10 | 0 | 0.230 |
| 3 | 11 | 0 | 0.000 |
| 3 | 12 | 0 | 0.000 |

*******************************************************************************

NO. OF SUBAREAS IN THE LAKE SYSTEM = 3 THEIR CODE NOS. AND NAMES ARE.

1 MAIN LK
2 PROVO B
3 GOSHEN B

*******************************************************************************

INTERMIXING FRACTIONS FOR BAY 2 ARE 0.005 0.005 0.005 0.005 0.002 0.002 0.002 0.002 0.002 0.005 0.005 0.005
0.005 0.005 0.005 0.005 0.002 0.002 0.002 0.002 0.002 0.005 0.005 0.005
0.005 0.005 0.005 0.005 0.002 0.002 0.002 0.002 0.002 0.005 0.005 0.005

INTERMIXING FRACTIONS FOR BAY 3 ARE 0.150 0.150 0.150 0.150 0.100 0.100 0.100 0.100 0.100 0.150 0.150 0.150
0.150 0.150 0.150 0.150 0.100 0.100 0.100 0.100 0.100 0.150 0.150 0.150
0.150 0.150 0.150 0.150 0.100 0.100 0.100 0.100 0.100 0.150 0.150 0.150

*******************************************************************************

***THE MULTIPLIERS TO BE APPLIED TO THE INPUT DATA ARE
FLOWS. . . 1.000
PRECIP . . 1.000
EVAP . . . 1.000

TITLE=UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

******************************************************************************************

BAY - TRIBUTARY ASSIGNMENT DATA

| BAY | NO. OF TRIBS | TRIBUTARY CODE NUMBERS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 39 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| | | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| | | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 48 |
| | | 49 | 50 | 51 | 53 | 54 | 55 | 56 | 59 | 60 | |
| 2 | 17 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| | | 41 | 42 | 43 | 44 | 45 | 46 | 47 | | | |
| 3 | 3 | 52 | 57 | 58 | | | | | | | |

TITLE=UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***THE TRIBS FLOWING OUT OF THE SYSTEM ARE 53

TITLE=UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

PRECIPITATION DATA

| DAY NO. | PRECIP UNIT KEY | TIME BASE KEY | REPEAT KEY | PERIOD | PRECIP |
|---|---|---|---|---|---|
| 1 | 0 | 0 | 1 | 1 | 0.790 |
| | | | | 2 | 0.780 |
| | | | | 3 | 2.210 |
| | | | | 4 | 1.180 |
| | | | | 5 | 2.390 |
| | | | | 6 | 1.400 |
| | | | | 7 | 0.770 |
| | | | | 8 | 1.420 |
| | | | | 9 | 0.300 |
| | | | | 10 | 1.900 |
| | | | | 11 | 0.350 |
| | | | | 12 | 0.320 |
| | | | | 13 | 0.030 |
| | | | | 14 | 0.670 |
| | | | | 15 | 0.690 |
| | | | | 16 | 1.180 |
| | | | | 17 | 1.260 |
| | | | | 18 | 1.640 |
| | | | | 19 | 0.030 |
| | | | | 20 | 0.020 |
| | | | | 21 | 0.020 |
| | | | | 22 | 1.160 |
| | | | | 23 | 0.050 |
| | | | | 24 | 0.650 |
| | | | | 25 | 0.090 |
| | | | | 26 | 0.400 |
| | | | | 27 | 0.720 |
| | | | | 28 | 2.870 |
| | | | | 29 | 0.760 |
| | | | | 30 | 0.610 |
| | | | | 31 | 0.940 |
| | | | | 32 | 1.140 |
| | | | | 33 | 1.180 |
| | | | | 34 | 1.130 |
| | | | | 35 | 0.910 |
| | | | | 36 | 0.610 |
| 2 | 0 | 0 | 1 | 1 | 0.860 |
| | | | | 2 | 1.240 |
| | | | | 3 | 2.530 |
| | | | | 4 | 1.490 |
| | | | | 5 | 3.370 |
| | | | | 6 | 1.660 |
| | | | | 7 | 0.640 |
| | | | | 8 | 2.150 |
| | | | | 9 | 0.560 |
| | | | | 10 | 2.160 |
| | | | | 11 | 0.910 |
| | | | | 12 | 0.520 |
| | | | | 13 | 0.350 |
| | | | | 14 | 0.620 |
| | | | | 15 | 1.160 |

| | | | | | |
|---|---|---|---|---|---|
| | | | | 16 | 1,890 |
| | | | | 17 | 1,650 |
| | | | | 18 | 2,370 |
| | | | | 19 | 0,080 |
| | | | | 20 | 0,060 |
| | | | | 21 | 0,000 |
| | | | | 22 | 1,460 |
| | | | | 23 | 0,090 |
| | | | | 24 | 0,670 |
| | | | | 25 | 0,220 |
| | | | | 26 | 0,760 |
| | | | | 27 | 0,730 |
| | | | | 28 | 3,840 |
| | | | | 29 | 1,250 |
| | | | | 30 | 0,800 |
| | | | | 31 | 0,930 |
| | | | | 32 | 0,720 |
| | | | | 33 | 1,180 |
| | | | | 34 | 0,780 |
| | | | | 35 | 1,250 |
| | | | | 36 | 0,460 |
| 3 | 0 | 0 | 1 | 1 | 1,330 |
| | | | | 2 | 0,750 |
| | | | | 3 | 1,860 |
| | | | | 4 | 1,610 |
| | | | | 5 | 3,090 |
| | | | | 6 | 2,250 |
| | | | | 7 | 0,910 |
| | | | | 8 | 1,670 |
| | | | | 9 | 0,530 |
| | | | | 10 | 2,570 |
| | | | | 11 | 0,670 |
| | | | | 12 | 0,270 |
| | | | | 13 | 0,220 |
| | | | | 14 | 0,760 |
| | | | | 15 | 0,960 |
| | | | | 16 | 1,870 |
| | | | | 17 | 0,400 |
| | | | | 18 | 0,550 |
| | | | | 19 | 0,000 |
| | | | | 20 | 0,000 |
| | | | | 21 | 0,050 |
| | | | | 22 | 1,130 |
| | | | | 23 | 0,010 |
| | | | | 24 | 0,770 |
| | | | | 25 | 0,200 |
| | | | | 26 | 1,180 |
| | | | | 27 | 0,830 |
| | | | | 28 | 2,560 |
| | | | | 29 | 1,140 |
| | | | | 30 | 0,730 |
| | | | | 31 | 1,100 |
| | | | | 32 | 0,530 |
| | | | | 33 | 1,380 |
| | | | | 34 | 2,100 |
| | | | | 35 | 1,600 |
| | | | | 36 | 1,200 |

```
KEY CODE=
    PRECIP UNIT KEY
            0 = IN.
            1 = FT.

    TIME UNIT KEY
            0 = MONTH
            1 = DAY
            2 = WEEK
            3 = MONTH
            4 = YEAR
```

TITLE=UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

EVAPORATION DATA

| BAY NO | EVAP UNIT KEY | TIME BASE KEY | REPEAT KEY | PERIOD | EVAPORATION |
|---|---|---|---|---|---|
| 1 | 0 | 0 | 1 | 1 | 7.050 |
| | | | | 2 | 7.640 |
| | | | | 3 | 5.520 |
| | | | | 4 | 3.290 |
| | | | | 5 | 0.840 |
| | | | | 6 | 0.840 |
| | | | | 7 | 0.830 |
| | | | | 8 | 0.830 |
| | | | | 9 | 0.840 |
| | | | | 10 | 2.990 |
| | | | | 11 | 5.060 |
| | | | | 12 | 7.170 |
| | | | | 13 | 8.170 |
| | | | | 14 | 7.200 |
| | | | | 15 | 4.070 |
| | | | | 16 | 1.520 |
| | | | | 17 | 0.820 |
| | | | | 18 | 0.820 |
| | | | | 19 | 0.820 |
| | | | | 20 | 0.800 |
| | | | | 21 | 0.820 |
| | | | | 22 | 4.250 |
| | | | | 23 | 6.300 |
| | | | | 24 | 6.440 |
| | | | | 25 | 8.630 |
| | | | | 26 | 7.090 |
| | | | | 27 | 5.810 |
| | | | | 28 | 2.610 |
| | | | | 29 | 0.290 |
| | | | | 30 | 0.290 |
| | | | | 31 | 0.290 |
| | | | | 32 | 0.290 |
| | | | | 33 | 0.300 |
| | | | | 34 | 3.020 |
| | | | | 35 | 6.090 |
| | | | | 36 | 6.730 |
| 2 | 0 | 0 | 1 | 1 | 7.050 |
| | | | | 2 | 7.640 |
| | | | | 3 | 5.520 |
| | | | | 4 | 3.290 |
| | | | | 5 | 0.840 |
| | | | | 6 | 0.840 |
| | | | | 7 | 0.830 |
| | | | | 8 | 0.830 |
| | | | | 9 | 0.840 |
| | | | | 10 | 2.990 |
| | | | | 11 | 5.060 |
| | | | | 12 | 7.170 |
| | | | | 13 | 8.170 |
| | | | | 14 | 7.200 |
| | | | | 15 | 4.070 |

| | | | | | |
|---|---|---|---|---|---|
| | | | | 16 | 1,520 |
| | | | | 17 | 0,820 |
| | | | | 18 | 0,820 |
| | | | | 19 | 0,820 |
| | | | | 20 | 0,800 |
| | | | | 21 | 0,820 |
| | | | | 22 | 4,250 |
| | | | | 23 | 6,300 |
| | | | | 24 | 6,440 |
| | | | | 25 | 8,630 |
| | | | | 26 | 7,090 |
| | | | | 27 | 5,810 |
| | | | | 28 | 2,610 |
| | | | | 29 | 0,290 |
| | | | | 30 | 0,290 |
| | | | | 31 | 0,290 |
| | | | | 32 | 0,290 |
| | | | | 33 | 0,300 |
| | | | | 34 | 3,020 |
| | | | | 35 | 6,090 |
| | | | | 36 | 6,730 |
| 3 | 0 | 0 | 1 | 1 | 7,050 |
| | | | | 2 | 7,640 |
| | | | | 3 | 5,520 |
| | | | | 4 | 3,290 |
| | | | | 5 | 0,840 |
| | | | | 6 | 0,840 |
| | | | | 7 | 0,830 |
| | | | | 8 | 0,830 |
| | | | | 9 | 0,840 |
| | | | | 10 | 2,990 |
| | | | | 11 | 5,080 |
| | | | | 12 | 7,170 |
| | | | | 13 | 8,170 |
| | | | | 14 | 7,200 |
| | | | | 15 | 4,070 |
| | | | | 16 | 1,520 |
| | | | | 17 | 0,820 |
| | | | | 18 | 0,820 |
| | | | | 19 | 0,820 |
| | | | | 20 | 0,800 |
| | | | | 21 | 0,820 |
| | | | | 22 | 4,250 |
| | | | | 23 | 6,300 |
| | | | | 24 | 6,440 |
| | | | | 25 | 8,630 |
| | | | | 26 | 7,090 |
| | | | | 27 | 5,810 |
| | | | | 28 | 2,610 |
| | | | | 29 | 0,290 |
| | | | | 30 | 0,290 |
| | | | | 31 | 0,290 |
| | | | | 32 | 0,290 |
| | | | | 33 | 0,300 |
| | | | | 34 | 3,020 |
| | | | | 35 | 6,090 |
| | | | | 36 | 6,730 |

```
KEY CODE=
    EVAPORATION UNIT KEY
            0 = IN.
            1 = FT.

    TIME UNIT KEY
            0 = MONTH
            1 = DAY
            2 = WEEK
            3 = MONTH
            4 = YEAR
```

TITLE=UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

STAGE - AREA - VOLUME

| BAY NO | STAGE FT | AREA ACRES | VOLUME AC.FT. |
|---|---|---|---|
| 1 | 4476.00 | 15.00 | 0.00 |
| 1 | 4476.50 | 5461.00 | 766.00 |
| 1 | 4477.00 | 15829.00 | 6395.00 |
| 1 | 4478.00 | 28555.00 | 28897.00 |
| 1 | 4480.00 | 49076.00 | 112107.00 |
| 1 | 4482.00 | 54101.00 | 216216.00 |
| 1 | 4484.00 | 56568.00 | 326954.00 |
| 1 | 4486.00 | 58374.00 | 442038.00 |
| 1 | 4488.00 | 60048.00 | 560365.00 |
| 1 | 4490.00 | 62149.00 | 682513.00 |
| 1 | 4492.00 | 64349.00 | 808963.00 |
| 1 | 4494.00 | 66800.00 | 940076.00 |
| 1 | 0.00 | 0.10 | 0.00 |
| 1 | 0.00 | 0.10 | 0.00 |
| 1 | 0.00 | 0.10 | 0.00 |
| 2 | 4476.00 | 0.10 | 0.00 |
| 2 | 4476.50 | 0.10 | 0.00 |
| 2 | 4477.00 | 0.10 | 0.00 |
| 2 | 4478.00 | 0.10 | 0.00 |
| 2 | 4480.00 | 6.00 | 2.00 |
| 2 | 4482.00 | 23.00 | 31.00 |
| 2 | 4484.00 | 1678.00 | 1567.00 |
| 2 | 4486.00 | 4346.00 | 7419.00 |
| 2 | 4488.00 | 6033.00 | 17870.00 |
| 2 | 4490.00 | 7375.00 | 31323.00 |
| 2 | 4492.00 | 8585.00 | 47292.00 |
| 2 | 4494.00 | 9747.00 | 65631.00 |
| 2 | 0.00 | 0.10 | 0.00 |
| 2 | 0.00 | 0.10 | 0.00 |
| 2 | 0.00 | 0.10 | 0.00 |
| 3 | 4476.00 | 0.10 | 0.00 |
| 3 | 4476.50 | 138.00 | 14.00 |
| 3 | 4477.00 | 2065.00 | 421.00 |
| 3 | 4478.00 | 6970.00 | 5127.00 |
| 3 | 4480.00 | 13923.00 | 26131.00 |
| 3 | 4482.00 | 18992.00 | 59367.00 |
| 3 | 4494.00 | 21774.00 | 100334.00 |
| 3 | 4486.00 | 23670.00 | 145884.00 |
| 3 | 4488.00 | 25332.00 | 193793.00 |
| 3 | 4490.00 | 27593.00 | 247611.00 |
| 3 | 4492.00 | 29070.00 | 304205.00 |
| 3 | 4494.00 | 30991.00 | 64087.00 |
| 3 | 0.00 | 0.10 | 0.00 |
| 3 | 0.00 | 0.10 | 0.00 |
| 3 | 0.00 | 0.10 | 0.00 |

| | | | |
|---|---|---|---|
| 11 | 4476.00 | 15.00 | 0.00 |
| 11 | 4476.50 | 5599.00 | 750.00 |
| 11 | 4477.00 | 17894.00 | 6816.00 |
| 11 | 4478.00 | 35525.00 | 34024.00 |
| 11 | 4480.00 | 63075.00 | 138240.00 |
| 11 | 4482.00 | 73116.00 | 275614.00 |
| 11 | 4484.00 | 80020.00 | 428855.00 |
| 11 | 4486.00 | 86390.00 | 595341.00 |
| 11 | 4488.00 | 91415.00 | 772028.00 |
| 11 | 4490.00 | 97117.00 | 961447.00 |
| 11 | 4492.00 | 102004.00 | 1160460.00 |
| 11 | 4494.00 | 107538.00 | 1369894.00 |
| 11 | 0.00 | 0.10 | 0.00 |
| 11 | 0.00 | 0.10 | 0.00 |
| 11 | 0.00 | 0.10 | 0.00 |

***ALL DATA HAS BEEN READ IN

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

---BEGIN THE SIMULATION---

***INITIAL CONCENTRATIONS

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 930.00 | 140.00 | 50.00 | 55.00 | 20.00 | 180.00 | 230.00 | 190.00 | 0.23 | 1.90 | 0.00 | 0.00 |
| PROVO B | 2 | 590.00 | 70.00 | 60.00 | 45.00 | 10.00 | 80.00 | 180.00 | 150.00 | 0.15 | 1.00 | 0.00 | 0.00 |
| GOSHEN B | 3 | 1050.00 | 180.00 | 55.00 | 55.00 | 24.00 | 300.00 | 190.00 | 265.00 | 0.20 | 0.23 | 0.00 | 0.00 |

| BAY | NO. | STAGE | AREA | VOLUME |
|---|---|---|---|---|
| MAIN LK | 1 | 4488.58 | 60657.3 | 595789.0 |
| PROVO B | 2 | 4488.58 | 6422.2 | 21771.5 |
| GOSHEN B | 3 | 4488.58 | 25987.7 | 209400.7 |
| TOTAL LAKE | | 4488.58 | 93067.2 | 826961.1 |

```
***TROUBLE--FLOWRATE NOT FOUND IN FLOW-QUALITY TABLE--TRIB= 54   Q.F.=  9  FLOW=    8.13
***TROUBLE--FLOWRATE NOT FOUND IN FLOW-QUALITY TABLE--TRIB= 54   Q.F.= 10  FLOW=    8.13
***TROUBLE--FLOWRATE NOT FOUND IN FLOW-QUALITY TABLE--TRIB= 55   Q.F.=  9  FLOW=   11.26
***TROUBLE--FLOWRATE NOT FOUND IN FLOW-QUALITY TABLE--TRIB= 55   Q.F.= 10  FLOW=   11.26
***TROUBLE--FLOWRATE NOT FOUND IN FLOW-QUALITY TABLE--TRIB= 56   Q.F.=  9  FLOW=   11.26
***TROUBLE--FLOWRATE NOT FOUND IN FLOW-QUALITY TABLE--TRIB= 56   Q.F.= 10  FLOW=   11.26
***TROUBLE--FLOWRATE NOT FOUND IN FLOW-QUALITY TABLE--TRIB= 57   Q.F.=  9  FLOW=    4.20
***TROUBLE--FLOWRATE NOT FOUND IN FLOW-QUALITY TABLE--TRIB= 57   Q.F.= 10  FLOW=    4.20
***TROUBLE--FLOWRATE NOT FOUND IN FLOW-QUALITY TABLE--TRIB= 58   Q.F.=  9  FLOW=    4.20
***TROUBLE--FLOWRATE NOT FOUND IN FLOW-QUALITY TABLE--TRIB= 58   Q.F.= 10  FLOW=    4.20
```

*** THE INTERMIXING FRACTION FOR BAY  2 IS  0.005 FOR TIME PERIOD  1

*** THE INTERMIXING FRACTION FOR BAY  3 IS  0.150 FOR TIME PERIOD  1

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 1 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 3992. | 35622. | -27404. | 536755. | -15694. | 4487.87 | 59936. | 552448. |
| PROVO B | 2 | 460. | 3772. | 7474. | 25934. | 8763. | 4487.87 | 5920. | 17171. |
| GOSHEN B | 3 | 2879. | 15262. | 500. | 197518. | 6930. | 4487.87 | 25221. | 190588. |
| TOTAL SYSTEM | | 7331. | 54655. | -19430. | | LAKE | 4487.87 | 91077. | 760207. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 962.10 | 150.39 | 54.64 | 57.71 | 21.34 | 199.20 | 243.59 | 205.17 | 0.39 | 1.86 |
| PROVO B | 2 | 661.02 | 70.92 | 72.74 | 46.02 | 11.26 | 80.61 | 238.76 | 158.03 | 0.72 | 1.48 |
| GOSHEN B | 3 | 1092.27 | 185.22 | 57.80 | 58.28 | 24.85 | 300.37 | 208.62 | 269.15 | 0.24 | 0.50 |

```
   ***TIME PERIOD  2 HAS BEGUN
***TROUBLE--FLOWRATE NOT FOUND IN FLOW-QUALITY TABLE--TRIB= 54   Q.F.=  9  FLOW=    8.13
***TROUBLE--FLOWRATE NOT FOUND IN FLOW-QUALITY TABLE--TRIB= 54   Q.F.= 10  FLOW=    8.13
***TROUBLE--FLOWRATE NOT FOUND IN FLOW-QUALITY TABLE--TRIB= 55   Q.F.=  9  FLOW=   11.26
***TROUBLE--FLOWRATE NOT FOUND IN FLOW-QUALITY TABLE--TRIB= 55   Q.F.= 10  FLOW=   11.26
***TROUBLE--FLOWRATE NOT FOUND IN FLOW-QUALITY TABLE--TRIB= 56   Q.F.=  9  FLOW=   11.26
```

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.005 FOR TIME PERIOD 2

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.150 FOR TIME PERIOD 2

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 2 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 3894. | 38144. | -33520. | 484679. | -16155. | 4486.99 | 59206. | 500833. |
| PROVO B | 2 | 612. | 3768. | 7829. | 21844. | 9232. | 4486.99 | 5184. | 12612. |
| GOSHEN B | 3 | 1576. | 16051. | 500. | 176613. | 6923. | 4486.99 | 24496. | 169689. |
| TOTAL SYSTEM | | 6081. | 57962. | -25191. | | LAKE | 4486.99 | 88886. | 683135. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 1037.33 | 162.63 | 60.16 | 61.19 | 22.95 | 220.17 | 262.02 | 222.61 | 0.58 | 1.86 |
| PROVO B | 2 | 734.13 | 73.10 | 83.09 | 46.63 | 12.17 | 81.36 | 302.89 | 164.95 | 1.33 | 1.96 |
| GOSHEN B | 3 | 1159.72 | 194.88 | 62.10 | 62.71 | 26.26 | 308.96 | 231.54 | 279.94 | 0.31 | 0.75 |



***TIME PERIOD 3 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.005 FOR TIME PERIOD 3

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.150 FOR TIME PERIOD 3

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 3 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 10899. | 27224. | -10438. | 474071. | -8920. | 4486.69 | 58953. | 482991. |
| PROVO B | 2 | 1093. | 2384. | 8380. | 19701. | 8665. | 4486.69 | 4930. | 11036. |
| GOSHEN B | 3 | 3795. | 11264. | 500. | 162721. | 256. | 4486.69 | 24245. | 162465. |
| TOTAL SYSTEM | | 15787. | 40871. | -1558. | | LAKE | 4486.69 | 88128. | 656493. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 1069.11 | 167.31 | 63.77 | 62.20 | 23.52 | 229.27 | 273.68 | 229.14 | 0.75 | 1.82 |
| PROVO B | 2 | 721.61 | 66.67 | 83.12 | 41.86 | 11.45 | 72.61 | 328.40 | 153.60 | 1.67 | 2.07 |
| GOSHEN B | 3 | 1190.86 | 198.51 | 64.69 | 64.97 | 26.84 | 388.87 | 247.17 | 282.24 | 0.39 | 0.94 |

***TIME PERIOD 4 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.005 FOR TIME PERIOD 4

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.150 FOR TIME PERIOD 4

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 4 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 5795. | 16157. | 19322. | 491952. | -484. | 4486.85 | 59087. | 492436. |
| PROVO B | 2 | 612. | 1351. | 8774. | 19071. | 7201. | 4486.85 | 5065. | 11870. |
| GOSHEN B | 3 | 3252. | 6645. | 500. | 159573. | -6717. | 4486.85 | 24378. | 166289. |
| TOTAL SYSTEM | | 9658. | 24152. | 28596. | | LAKE | 4486.85 | 88529. | 670595. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 1071.04 | 166.59 | 66.24 | 61.51 | 23.36 | 230.33 | 280.06 | 228.58 | 0.90 | 1.72 |
| PROVO B | 2 | 691.23 | 59.82 | 83.82 | 37.02 | 10.35 | 62.99 | 334.41 | 144.04 | 1.68 | 1.84 |
| GOSHEN B | 3 | 1188.80 | 196.22 | 66.01 | 65.35 | 26.62 | 299.58 | 257.75 | 276.24 | 0.49 | 1.11 |



***TIME PERIOD 5 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.002 FOR TIME PERIOD 5

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.100 FOR TIME PERIOD 5

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 5 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 11763. | 4134. | 38658. | 538723. | 4918. | 4487.55 | 59672. | 533804. |
| PROVO B | 2 | 1422. | 354. | 9349. | 22287. | 6763. | 4487.55 | 5654. | 15524. |
| GOSHEN B | 3 | 6275. | 1706. | 500. | 171358. | -11681. | 4487.55 | 24959. | 183039. |
| TOTAL SYSTEM | | 19460. | 6195. | 48507. | | LAKE | 4487.55 | 90285. | 732367. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 1012.78 | 156.04 | 65.26 | 57.50 | 21.81 | 216.95 | 271.45 | 214.63 | 0.99 | 1.56 |
| PROVO B | 2 | 600.64 | 49.48 | 77.87 | 30.79 | 8.56 | 51.41 | 305.70 | 123.11 | 1.55 | 1.57 |
| GOSHEN B | 3 | 1134.46 | 185.80 | 64.32 | 62.55 | 25.25 | 280.13 | 254.16 | 259.66 | 0.56 | 1.15 |



***TIME PERIOD 6 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.002 FOR TIME PERIOD 6

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.100 FOR TIME PERIOD 6

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 6 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 6959. | 4175. | 33589. | 570177. | 3603. | 4488.10 | 60155. | 566574. |
| PROVO B | 2 | 782. | 396. | 9036. | 24946. | 6392. | 4488.10 | 6101. | 18554. |
| GOSHEN B | 3 | 4740. | 1746. | 500. | 186533. | -9996. | 4488.10 | 25447. | 196529. |
| TOTAL SYSTEM | | 12481. | 6317. | 43125. | | LAKE | 4488.10 | 91703. | 781656. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 969.22 | 147.91 | 64.83 | 54.43 | 20.61 | 206.65 | 265.89 | 203.90 | 1.08 | 1.43 |
| PROVO B | 2 | 575.18 | 46.43 | 75.22 | 28.85 | 8.00 | 47.98 | 301.72 | 116.36 | 1.54 | 1.51 |
| GOSHEN B | 3 | 1094.91 | 178.03 | 63.45 | 60.42 | 24.21 | 265.87 | 252.42 | 247.37 | 0.63 | 1.18 |



***TIME PERIOD 7 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.002 FOR TIME PERIOD 7

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.100 FOR TIME PERIOD 7

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 7 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 3858. | 4159. | 24817. | 591090. | 1576. | 4488.48 | 60549. | 589514. |
| PROVO B | 2 | 325. | 422. | 8947. | 27404. | 6324. | 4488.48 | 6353. | 21080. |
| GOSHEN B | 3 | 1929. | 1759. | 2038. | 198736. | -7900. | 4488.48 | 25872. | 206636. |
| TOTAL SYSTEM | | 6113. | 6340. | 35802. | | LAKE | 4488.48 | 92774. | 817230. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 940.91 | 142.44 | 64.83 | 52.32 | 19.78 | 200.04 | 263.22 | 196.63 | 1.16 | 1.34 |
| PROVO B | 2 | 572.40 | 45.45 | 75.64 | 28.36 | 8.01 | 47.13 | 303.96 | 115.43 | 1.56 | 1.52 |
| GOSHEN B | 3 | 1088.79 | 174.08 | 63.40 | 59.50 | 23.59 | 264.69 | 255.19 | 243.37 | 0.70 | 1.19 |



***TIME PERIOD 8 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.002 FOR TIME PERIOD 8

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.100 FOR TIME PERIOD 8

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 8 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 7162. | 4186. | 18351. | 610841. | -504. | 4488,83 | 60925. | 611345. |
| PROVO B | 2 | 1138. | 439. | 8287. | 30066. | 6581. | 4488,83 | 6593. | 23485. |
| GOSHEN B | 3 | 3599, | 1789, | 1731. | 210177, | -6077. | 4488,83 | 26276. | 216255, |
| TOTAL SYSTEM | | 11899, | 6414, | 28369. | | LAKE | 4488,83 | 93794. | 851084, |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 914,87 | 137,71 | 64.46 | 50.40 | 19,02 | 194,36 | 259,91 | 190,04 | 1,20 | 1,26 |
| PROVO B | 2 | 556,60 | 43.79 | 72,56 | 27.40 | 7,82 | 45.45 | 297,39 | 111,73 | 1,53 | 1,47 |
| GOSHEN B | 3 | 1070,54 | 170,32 | 62.90 | 58,06 | 22.83 | 259,95 | 254,98 | 237,06 | 0,75 | 1,18 |



***TIME PERIOD 9 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0,002 FOR TIME PERIOD 9

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0,100 FOR TIME PERIOD 9

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 9 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | BAY NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 1523. | 4263. | 12544. | 621148. | -2560. | 4489.04 | 61138. | 623709. |
| PROVO B | 2 | 308. | 461. | 8982. | 32313. | 7466. | 4489.04 | 6729. | 24846. |
| GOSHEN B | 3 | 1160. | 1839. | 1220. | 216796. | -4906. | 4489.04 | 26505. | 221702. |
| TOTAL SYSTEM | | 2990. | 6563. | 22746. | | LAKE | 4489.04 | 94371. | 870257. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 900.05 | 134.69 | 64.72 | 49.16 | 18.53 | 191.01 | 259.94 | 185.83 | 1.26 | 1.20 |
| PROVO B | 2 | 554.22 | 43.31 | 72.33 | 27.30 | 8.00 | 45.30 | 299.95 | 109.70 | 1.54 | 1.47 |
| GOSHEN B | 3 | 1059.80 | 167.46 | 63.19 | 57.20 | 22.37 | 255.99 | 256.90 | 232.64 | 0.82 | 1.10 |



***TIME PERIOD 10 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.005 FOR TIME PERIOD 10

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.150 FOR TIME PERIOD 10

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 10 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 9676. | 15227. | 23869. | 642027. | 567. | 4489.33 | 61443. | 641459. |
| PROVO B | 2 | 1211. | 1676. | 9742. | 34123. | 7322. | 4489.33 | 6924. | 26801. |
| GOSHEN B | 3 | 5674. | 6601. | 859. | 221634. | -7889. | 4489.33 | 26833. | 229523. |
| TOTAL SYSTEM | | 16561. | 23505. | 34470. | | LAKE | 4489.33 | 95200. | 897784. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 808.00 | 131.83 | 65.26 | 40.10 | 18.05 | 188.05 | 260.98 | 182.25 | 1.31 | 1.15 |
| PROVO B | 2 | 548.54 | 42.91 | 72.77 | 27.32 | 8.22 | 45.67 | 302.41 | 107.64 | 1.57 | 1.50 |
| GOSHEN B | 3 | 1034.74 | 162.00 | 63.71 | 55.70 | 21.64 | 246.06 | 258.79 | 224.39 | 0.91 | 1.18 |



***TIME PERIOD 11 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.005 FOR TIME PERIOD 11

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.150 FOR TIME PERIOD 1.

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 11 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | BAY NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 1791, | 26800, | 3696, | 620946, | -5749, | 4489,09 | 61189, | 626695, |
| PROVO B | 2 | 525, | 2930, | 9842, | 33438, | 8263, | 4489,09 | 6762, | 25175, |
| GOSHEN B | 3 | 1498, | 11355, | 838, | 220504, | -2514, | 4489,09 | 26560, | 223018, |
| TOTAL SYSTEM | | 3814, | 40285, | 13576, | | LAKE | 4489,09 | 94510, | 874888, |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 915,14 | 134,99 | 68,45 | 49,22 | 18,46 | 193,45 | 273,20 | 186,85 | 1,40 | 1,15 |
| PROVO B | 2 | 583,61 | 44,34 | 81,28 | 29,07 | 9,03 | 47,93 | 319,55 | 115,44 | 1,69 | 1,63 |
| GOSHEN B | 3 | 1056,81 | 164,18 | 66,79 | 56,70 | 21,92 | 248,36 | 271,08 | 226,87 | 1,02 | 1,21 |

***TIME PERIOD 12 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0,005 FOR TIME PERIOD 12

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0,150 FOR TIME PERIOD 12

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 12 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 1631. | 36546. | -67. | 591713. | -5702. | 4488.61 | 60685. | 597415. |
| PROVO B | 2 | 293. | 4039. | 8018. | 29448. | 7497. | 4488.61 | 6440. | 21951. |
| GOSHEN B | 3 | 597. | 15863. | 570. | 208322. | -1795. | 4488.61 | 26018. | 210117. |
| TOTAL SYSTEM | | 2521. | 56447. | 8521. | | LAKE | 4488.61 | 93143. | 829483. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 958.36 | 140.44 | 72.89 | 51.19 | 19.21 | 202.14 | 289.33 | 194.82 | 1.53 | 1.19 |
| PROVO B | 2 | 660.04 | 50.36 | 89.09 | 32.71 | 10.29 | 54.34 | 357.91 | 129.60 | 1.98 | 1.93 |
| GOSHEN B | 3 | 1106.45 | 170.76 | 71.81 | 59.22 | 22.82 | 256.77 | 290.67 | 235.30 | 1.17 | 1.28 |



***TIME PERIOD 13 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.005 FOR TIME PERIOD 13

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.150 FOR TIME PERIOD 13

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 13 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 152. | 41300. | -30603. | 525664. | -15984. | 4487.68 | 59783. | 541647. |
| PROVO B' | 2 | 188. | 4383. | 7272. | 25028. | 8811. | 4487.68 | 5766. | 16217. |
| GOSHEN B | 3 | 477. | 17707. | 500. | 193387. | 7173. | 4487.68 | 25069. | 186215. |
| TOTAL SYSTEM | | 816. | 63390. | -22831. | | LAKE | 4487.68 | 90618. | 744079. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 1041.87 | 152.86 | 79.27 | 55.28 | 20.91 | 221.12 | 314.65 | 211.54 | 1.74 | 1.29 |
| PROVO B | 2 | 749.59 | 57.28 | 100.67 | 37.04 | 11.81 | 61.67 | 404.00 | 147.08 | 2.33 | 2.31 |
| GOSHEN B | 3 | 1179.88 | 181.18 | 78.29 | 62.98 | 24.23 | 270.97 | 316.16 | 248.88 | 1.34 | 1.37 |

***TIME PERIOD 14 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.005 FOR TIME PERIOD 14

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.150 FOR TIME PERIOD 14

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 14 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | BAY NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 3337. | 35856. | -34231. | 474897. | -16606. | 4486.84 | 59074. | 491503. |
| PROVO B | 2 | 298. | 3458. | 7983. | 21039. | 9251. | 4486.84 | 5051. | 11788. |
| GOSHEN B | 3 | 1587. | 15035. | 500. | 173266. | 7354. | 4486.84 | 24365. | 165912. |
| TOTAL SYSTEM | | 5221. | 54349. | -25748. | | LAKE | 4486.84 | 88490. | 669203. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 1117.32 | 163.90 | 85.31 | 58.89 | 22.43 | 238.01 | 338.38 | 226.50 | 1.96 | 1.39 |
| PROVO B | 2 | 812.29 | 62.84 | 110.62 | 39.65 | 12.35 | 66.91 | 433.35 | 162.09 | 2.60 | 2.64 |
| GOSHEN B | 3 | 1247.66 | 190.75 | 84.41 | 66.38 | 25.53 | 284.09 | 340.15 | 261.22 | 1.52 | 1.46 |



***TIME PERIOD 15 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.005 FOR TIME PERIOD 15

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.150 FOR TIME PERIOD 15

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 15 -- MONTHS

***.PERIOD FLOWS AND INTERFLOWS

| BAY NAME | NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 3395. | 20028. | -14265. | 460606. | -10766. | 4486.50 | 58789. | 471371. |
| PROVO B | 2 | 488. | 1713. | 7873. | 18436. | 8427. | 4486.50 | 4764. | 10010. |
| GOSHEN B | 3 | 1948. | 8260. | 500. | 160100. | 2339. | 4486.50 | 24082. | 157761. |
| TOTAL SYSTEM | | 5832. | 30001. | -5892. | | LAKE | 4486.50 | 87635. | 639142. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 1150.10 | 168.35 | 88.62 | 60.31 | 23.06 | 244.77 | 351.28 | 232.46 | 2.15 | 1.43 |
| PROVO B | 2 | 765.70 | 61.04 | 108.26 | 37.77 | 11.54 | 64.25 | 413.56 | 160.22 | 2.49 | 2.58 |
| GOSHEN B | 3 | 1274.09 | 194.02 | 87.74 | 67.54 | 25.99 | 287.95 | 352.95 | 264.90 | 1.67 | 1.50 |



***TIME PERIOD 16 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.005 FOR TIME PERIOD 16

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.150 FOR TIME PERIOD 16

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 16 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 5779. | 7444. | 28806. | 498512. | 1168. | 4486.93 | 59156. | 497344. |
| PROVO B | 2 | 750. | 603. | 9371. | 19528. | 7224. | 4486.93 | 5135. | 12304. |
| GOSHEN B | 3 | 3751. | 3049. | 1422. | 159885. | -8392. | 4486.93 | 24447. | 168277. |
| TOTAL SYSTEM | | 10280. | 11096. | 39599. | | LAKE | 4486.93 | 88738. | 677925. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 1115.86 | 161.96 | 87.76 | 58.21 | 22.21 | 235.79 | 346.32 | 224.17 | 2.18 | 1.37 |
| PROVO B | 2 | 683.48 | 52.11 | 96.65 | 32.51 | 9.47 | 54.58 | 358.53 | 140.96 | 2.10 | 2.13 |
| GOSHEN B | 3 | 1247.98 | 188.31 | 87.10 | 65.52 | 25.13 | 282.22 | 350.65 | 257.72 | 1.76 | 1.46 |



***TIME PERIOD 17 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.002 FOR TIME PERIOD 17

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.100 FOR TIME PERIOD 17

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 17 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | BAY NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 6209. | 4041. | 37622. | 537135. | 5668. | 4487,51 | 59639. | 531467. |
| PROVO B | 2 | 706. | 351. | 9080. | 21739. | 6421. | 4487,51 | 5621. | 15318. |
| GOSHEN B | 3 | 815. | 1670. | 2502. | 170003. | -12089. | 4487,51 | 24926. | 182092. |
| TOTAL SYSTEM | | 7729. | 6061. | 49204. | | LAKE | 4487,51 | 90186. | 728877. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 1065,72 | 153,49 | 85,40 | 55,27 | 21,01 | 223,94 | 335,16 | 212,81 | 2,16 | 1,28 |
| PROVO B | 2 | 628,38 | 47,60 | 89,65 | 29,85 | 8,35 | 49,08 | 330,62 | 129,31 | 1,89 | 1,88 |
| GOSHEN B | 3 | 1245,75 | 186,05 | 86,62 | 64,45 | 24,56 | 285,94 | 350,58 | 256,38 | 1,81 | 1,42 |



***TIME PERIOD 18 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0,002 FOR TIME PERIOD 18

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0,100 FOR TIME PERIOD 18

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 18 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 8147. | 4074. | 33896. | 569436. | 5616. | 4488.06 | 60107. | 563821. |
| PROVO B | 2 | 1110. | 384. | 8092. | 24135. | 5885. | 4488.06 | 6071. | 18251. |
| GOSHEN B | 3 | 1142. | 1703. | 2283. | 183815. | -11501. | 4488.06 | 25396. | 195316. |
| TOTAL SYSTEM | | 10399. | 6160. | 44271. | | LAKE | 4488.06 | 91574. | 777387. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 1020.11 | 145.91 | 83.01 | 52.61 | 19.92 | 213.54 | 324.49 | 202.55 | 2.15 | 1.21 |
| PROVO B | 2 | 584.78 | 44.03 | 81.52 | 27.86 | 7.67 | 45.83 | 310.66 | 119.05 | 1.77 | 1.74 |
| GOSHEN B | 3 | 1231.38 | 182.40 | 85.81 | 63.01 | 23.90 | 284.97 | 348.14 | 252.46 | 1.85 | 1.37 |



***TIME PERIOD 19 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.002 FOR TIME PERIOD 19

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.100 FOR TIME PERIOD 19

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 19 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 150. | 4106. | 21925. | 581790. | 1448. | 4488,33 | 60392. | 580342. |
| PROVO B | 2 | 40. | 415. | 8161. | 26037. | 5967. | 4488,33 | 6252. | 20070. |
| GOSHEN B | 3 | 85. | 1735. | 1514. | 195179. | -7415. | 4488,33 | 25702. | 202595. |
| TOTAL SYSTEM | | 275. | 6255. | 31600. | | LAKE | 4488,33 | 92346. | 803007. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 998,56 | 142,16 | 82,16 | 51,23 | 19,36 | 288,68 | 320,47 | 197,34 | 2,20 | 1,16 |
| PROVO B | 2 | 580,32 | 43,75 | 79,10 | 27,76 | 7,56 | 45,85 | 312,16 | 116,56 | 1,75 | 1,71 |
| GOSHEN B | 3 | 1218,53 | 179,62 | 85,63 | 61,98 | 23,46 | 282,13 | 347,21 | 248,75 | 1,90 | 1,35 |



***TIME PERIOD 20 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.002 FOR TIME PERIOD 20

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.100 FOR TIME PERIOD 20

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 20 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 101. | 4024. | 17928. | 594346. | -189. | 4488.56 | 60636. | 594535. |
| PROVO B | 2 | 31. | 417. | 7591. | 27276. | 5642. | 4488.56 | 6408. | 21633. |
| GOSHEN B | 3 | 0. | 1713. | 2513. | 203395. | -5453. | 4488.56 | 25965. | 208848. |
| TOTAL SYSTEM | | 132. | 6154. | 28032. | | LAKE | 4488.56 | 93009. | 825017. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 981.81 | 139.25 | 81.43 | 50.09 | 18.89 | 205.24 | 317.15 | 193.17 | 2.22 | 1.13 |
| PROVO B | 2 | 583.70 | 44.36 | 77.60 | 27.90 | 7.48 | 46.67 | 314.86 | 116.97 | 1.77 | 1.72 |
| GOSHEN B | 3 | 1216.44 | 178.11 | 85.26 | 61.23 | 23.07 | 284.58 | 346.80 | 247.73 | 1.94 | 1.31 |



***TIME PERIOD 21 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.002 FOR TIME PERIOD 21

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.100 FOR TIME PERIOD 21

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 21 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| NAME | BAY NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 101. | 4142. | 22191. | 612685. | 810. | 4488.84 | 60934. | 611875. |
| PROVO B | 2 | 0. | 438. | 9663. | 30859. | 7315. | 4488.84 | 6599. | 23543. |
| GOSHEN B | 3 | 108. | 1774. | 1180. | 208363. | -8125. | 4488.84 | 26285. | 216488. |
| TOTAL SYSTEM | | 209. | 6353. | 33034. | | LAKE | 4488.84 | 93818. | 851907. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 959.07 | 135.08 | 80.54 | 48.68 | 18.27 | 199.78 | 313.11 | 187.75 | 2.23 | 1.08 |
| PROVO B | 2 | 589.24 | 46.44 | 76.42 | 28.07 | 7.47 | 48.51 | 320.84 | 117.22 | 1.79 | 1.74 |
| GOSHEN B | 3 | 1195.82 | 174.43 | 84.98 | 59.99 | 22.58 | 278.49 | 344.66 | 242.33 | 1.98 | 1.28 |



***TIME PERIOD 22 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.005 FOR TIME PERIOD 22

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.150 FOR TIME PERIOD 22

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 22 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 5888. | 21572. | 17837. | 614028. | -324. | 4488.88 | 60977. | 614352. |
| PROVO B | 2 | 803. | 2336. | 8953. | 30963. | 7147. | 4488.88 | 6626. | 23816. |
| GOSHEN B | 3 | 2474. | 9306. | 1100. | 210757. | -6823. | 4488.88 | 26331. | 217579. |
| TOTAL SYSTEM | | 9165. | 33214. | 27890. | | LAKE | 4488.88 | 93934. | 855747. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 969.01 | 136.04 | 81.67 | 48.93 | 18.32 | 202.40 | 317.22 | 189.25 | 2.30 | 1.08 |
| PROVO B | 2 | 609.40 | 47.99 | 80.97 | 29.13 | 7.75 | 50.45 | 331.82 | 121.82 | 1.86 | 1.80 |
| GOSHEN B | 3 | 1190.73 | 172.81 | 86.41 | 59.57 | 22.39 | 274.79 | 348.75 | 239.81 | 2.08 | 1.27 |



***TIME PERIOD 23 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.005 FOR TIME PERIOD 23

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.150 FOR TIME PERIOD 23

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 23 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | BAY NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 254. | 32000. | -9253. | 573353. | -8302. | 4488.35 | 60414. | 581655. |
| PROVO B | 2 | 50. | 3477. | 6929. | 27317. | 7102. | 4488.35 | 6267. | 20215. |
| GOSHEN B | 3 | 22. | 13818. | 590. | 204373. | 1200. | 4488.35 | 25726. | 203173. |
| TOTAL SYSTEM | | 326. | 49296. | -1734. | | LAKE | 4488.35 | 92407. | 805043. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 1016.15 | 142.14 | 86.04 | 51.03 | 19.15 | 212.46 | 333.77 | 190.07 | 2.46 | 1.13 |
| PROVO B | 2 | 690.98 | 54.42 | 93.77 | 32.93 | 8.86 | 57.30 | 370.62 | 141.13 | 2.13 | 2.14 |
| GOSHEN B | 3 | 1232.02 | 178.27 | 91.13 | 61.56 | 23.16 | 281.47 | 366.02 | 246.72 | 2.26 | 1.32 |

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***TIME PERIOD 24 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.005 FOR TIME PERIOD 24

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.150 FOR TIME PERIOD 24

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 24 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | BAY NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 3271. | 32409. | 4275. | 556792. | -4022. | 4488.01 | 60056. | 560814. |
| PROVO B | 2 | 350. | 3362. | 7207. | 24410. | 6490. | 4488.01 | 6038. | 17919. |
| GOSHEN B | 3 | 1650. | 13801. | 500. | 191523. | -2468. | 4488.01 | 25340. | 193991. |
| TOTAL SYSTEM | | 5271. | 49572. | 11982. | | LAKE | 4488.01 | 91434. | 772724. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 1043.98 | 144.75 | 89.70 | 52.18 | 19.54 | 217.02 | 346.05 | 202.73 | 2.57 | 1.15 |
| PROVO B | 2 | 753.19 | 58.20 | 105.78 | 35.95 | 9.81 | 61.90 | 397.81 | 157.47 | 2.36 | 2.44 |
| GOSHEN B | 3 | 1265.48 | 182.41 | 95.56 | 63.16 | 23.77 | 285.93 | 381.65 | 251.92 | 2.42 | 1.36 |



***TIME PERIOD 25 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.005 FOR TIME PERIOD 25

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.150 FOR TIME PERIOD 25

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 25 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | BAY NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 450. | 43173. | -32038. | 486054. | -13791. | 4486.98 | 59192. | 499845. |
| PROVO B | 2 | 111. | 4341. | 5219. | 18909. | 6384. | 4486.98 | 5170. | 12525. |
| GOSHEN B | 3 | 422. | 18217. | 500. | 176696. | 7407. | 4486.98 | 24482. | 169289. |
| TOTAL SYSTEM | | 983. | 65730. | -26319. | | LAKE | 4486.98 | 88844. | 681658. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 1144.16 | 158.61 | 97.96 | 56.78 | 21.44 | 239.21 | 377.54 | 221.51 | 3.06 | 1.36 |
| PROVO B | 2 | 861.47 | 65.53 | 122.81 | 41.41 | 12.05 | 72.51 | 454.73 | 177.30 | 2.92 | 3.11 |
| GOSHEN B | 3 | 1353.95 | 194.56 | 103.90 | 67.44 | 25.42 | 373.36 | 413.03 | 268.09 | 2.72 | 1.47 |



***TIME PERIOD 26 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.005 FOR TIME PERIOD 26

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.150 FOR TIME PERIOD 26

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 26 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | BAY NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 1972. | 34959. | -34137. | 432721. | -16231. | 4486.12 | 58472. | 448952. |
| PROVO B | 2 | 327. | 3053. | 5409. | 15207. | 7178. | 4486.12 | 4445. | 8030. |
| GOSHEN B | 3 | 2406. | 14459. | 500. | 157737. | 9053. | 4486.12 | 23767. | 148684. |
| TOTAL SYSTEM | | 4706. | 52471. | -28228. | | LAKE | 4486.12 | 86684. | 605666. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 1234.52 | 171.02 | 105.51 | 60.84 | 23.19 | 259.18 | 406.19 | 238.36 | 3.59 | 1.57 |
| PROVO B | 2 | 904.20 | 68.03 | 128.17 | 43.79 | 13.77 | 77.62 | 476.56 | 183.29 | 3.26 | 3.55 |
| GOSHEN B | 3 | 1422.36 | 203.84 | 110.65 | 70.64 | 26.70 | 316.50 | 438.08 | 280.17 | 3.03 | 1.58 |



***TIME PERIOD 27 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.005 FOR TIME PERIOD 27

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.150 FOR TIME PERIOD 27

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 27 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | BAY NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 3507. | 28299. | -13270. | 410890. | -7471. | 4485.59 | 58002. | 418362. |
| PROVO B | 2 | 270. | 2151. | 4726. | 10875. | 4660. | 4485.59 | 3797. | 6215. |
| GOSHEN B | 3 | 1643. | 11503. | 500. | 139324. | 2811. | 4485.59 | 23280. | 136513. |
| TOTAL SYSTEM | | 5420. | 41952. | -8044. | | LAKE | 4485.59 | 85079. | 561089. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 1297.99 | 179.54 | 111.01 | 63.61 | 28.41 | 273.02 | 426.78 | 249.56 | 4.13 | 1.76 |
| PROVO B | 2 | 906.43 | 69.04 | 127.68 | 44.09 | 14.80 | 80.07 | 482.72 | 178.15 | 3.53 | 3.91 |
| GOSHEN B | 3 | 1487.48 | 212.66 | 117.06 | 73.63 | 27.92 | 329.14 | 461.82 | 291.47 | 3.38 | 1.69 |



***TIME PERIOD 28 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.005 FOR TIME PERIOD 28

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.150 FOR TIME PERIOD 28

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 28 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | BAY NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 13867. | 12610. | 26646. | 446264. | 3536. | 4486.01 | 58384. | 442728. |
| PROVO B | 2 | 1215. | 826. | 6087. | 12691. | 5211. | 4486.01 | 4356. | 7480. |
| GOSHEN B | 3 | 4964. | 5061. | 1000. | 137416. | -8747. | 4486.01 | 23680. | 146163. |
| TOTAL SYSTEM | | 20046. | 18497. | 33733. | | LAKE | 4486.01 | 86419. | 596371. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 1245.59 | 171.05 | 107.61 | 60.82 | 23.33 | 260.36 | 413.04 | 238.06 | 4.30 | 1.78 |
| PROVO B | 2 | 734.34 | 57.93 | 97.42 | 35.30 | 12.28 | 65.88 | 390.25 | 143.92 | 2.82 | 3.13 |
| GOSHEN B | 3 | 1442.88 | 205.07 | 114.69 | 70.96 | 26.96 | 318.59 | 451.23 | 281.26 | 3.55 | 1.70 |



***TIME PERIOD 29 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.002 FOR TIME PERIOD 29

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.100 FOR TIME PERIOD 29

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 29 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 3696. | 1410. | 39121. | 484134. | 7821. | 4486.58 | 58859. | 476314. |
| PROVO B | 2 | 454. | 105. | 5619. | 13447. | 3001. | 4486.58 | 4835. | 10446. |
| GOSHEN B | 3 | 2249. | 572. | 1100. | 148940. | -10822. | 4486.58 | 24151. | 159762. |
| TOTAL SYSTEM | | 6398. | 2088. | 45840. | | LAKE | 4486.58 | 87845. | 646522. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 1185.98 | 162.04 | 103.25 | 57.67 | 22.08 | 246.97 | 394.94 | 225.43 | 4.43 | 1.77 |
| PROVO B | 2 | 679.07 | 54.69 | 88.16 | 32.15 | 11.10 | 59.41 | 354.37 | 138.82 | 2.41 | 2.68 |
| GOSHEN B | 3 | 1393.28 | 197.15 | 111.26 | 68.10 | 25.89 | 307.98 | 437.15 | 270.51 | 3.65 | 1.69 |



***TIME PERIOD 30 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.002 FOR TIME PERIOD 30

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.100 FOR TIME PERIOD 30

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 30 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 2991. | 1422. | 43107. | 520989. | 9877. | 4487.17 | 59351. | 511112. |
| PROVO B | 2 | 322. | 117. | 4995. | 15647. | 2127. | 4487.17 | 5331. | 13520. |
| GOSHEN B | 3 | 1469. | 583. | 1200. | 161847. | -12004. | 4487.17 | 24640. | 173851. |
| TOTAL SYSTEM | | 4782. | 2122. | 49302. | | LAKE | 4487.17 | 89322. | 698483. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 1138.15 | 154.87 | 99.68 | 55.12 | 21.07 | 236.45 | 380.12 | 215.21 | 4.54 | 1.77 |
| PROVO B | 2 | 645.63 | 53.51 | 81.49 | 30.27 | 10.24 | 57.77 | 342.13 | 127.93 | 2.37 | 2.64 |
| GOSHEN B | 3 | 1351.57 | 190.38 | 108.38 | 65.67 | 24.96 | 299.14 | 425.26 | 261.41 | 3.76 | 1.68 |



***TIME PERIOD 31 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.002 FOR TIME PERIOD 31

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.100 FOR TIME PERIOD 31

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 31 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | BAY NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 4647. | 1434. | 40406. | 554732. | 8916. | 4487.75 | 59842. | 545816. |
| PROVO B | 2 | 413. | 129. | 4554. | 18358. | 1773. | 4487.75 | 5826. | 16585. |
| GOSHEN B | 3 | 2258. | 595. | 1700. | 177214. | -10689. | 4487.75 | 25128. | 187902. |
| TOTAL SYSTEM | | 7318. | 2158. | 46660. | | LAKE | 4487.75 | 90795. | 750303. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 1091.78 | 147.95 | 96.18 | 52.66 | 20.10 | 226.35 | 365.75 | 205.44 | 4.60 | 1.75 |
| PROVO B | 2 | 622.82 | 52.64 | 77.40 | 28.93 | 9.57 | 56.57 | 334.44 | 120.06 | 2.34 | 2.58 |
| GOSHEN B | 3 | 1312.13 | 183.88 | 105.08 | 63.27 | 24.00 | 292.25 | 412.45 | 253.16 | 3.83 | 1.67 |



***TIME PERIOD 32 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.002 FOR TIME PERIOD 32

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.100 FOR TIME PERIOD 32

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 32 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 5683. | 1446. | 31960. | 582013. | 6670. | 4488.25 | 60306. | 575343. |
| PROVO B | 2 | 349. | 141. | 4443. | 21237. | 1717. | 4488.25 | 6198. | 19520. |
| GOSHEN B | 3 | 1109. | 607. | 3600. | 192005. | -8387. | 4488.25 | 25609. | 200392. |
| TOTAL SYSTEM | | 7141. | 2193. | 40003. | | LAKE | 4488.25 | 92112. | 795254. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 1048.13 | 140.94 | 92.78 | 50.23 | 19.11 | 216.25 | 351.67 | 195.71 | 4.88 | 1.82 |
| PROVO B | 2 | 611.53 | 52.41 | 75.21 | 28.25 | 9.28 | 56.19 | 331.10 | 115.60 | 2.33 | 2.55 |
| GOSHEN B | 3 | 1300.61 | 180.77 | 102.10 | 61.78 | 23.27 | 296.65 | 403.36 | 251.35 | 3.91 | 1.66 |



***TIME PERIOD 33 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.002 FOR TIME PERIOD 33

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.100 FOR TIME PERIOD 33

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 33 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | BAY NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 5928. | 1507. | 23211. | 602974. | 3480. | 4488.64 | 60721. | 599494. |
| PROVO B | 2 | 609. | 155. | 5863. | 25837. | 3457. | 4488.64 | 6463. | 22180. |
| GOSHEN B | 3 | 2944. | 640. | 1200. | 203896. | -7137. | 4488.64 | 26056. | 211033. |
| TOTAL SYSTEM | | 9481. | 2302. | 30274. | | LAKE | 4488.64 | 93240. | 832707. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 1009.11 | 135.09 | 89.86 | 48.19 | 10.28 | 207.71 | 340.22 | 187.55 | 4.83 | 1.79 |
| PROVO B | 2 | 599.99 | 51.35 | 72.85 | 27.67 | 8.97 | 54.82 | 324.55 | 113.86 | 2.26 | 2.46 |
| GOSHEN B | 3 | 1255.04 | 173.90 | 99.14 | 59.41 | 22.38 | 285.53 | 390.77 | 241.52 | 3.98 | 1.65 |



***TIME PERIOD 34 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.005 FOR TIME PERIOD 34

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.150 FOR TIME PERIOD 34

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 34 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | BAY NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 5716. | 15275. | 34995. | 624930. | 6629. | 4488.95 | 61045. | 618301. |
| PROVO B | 2 | 420. | 1626. | 5931. | 26985. | 2654. | 4488.95 | 6670. | 24251. |
| GOSHEN B | 3 | 4558. | 6555. | 1000. | 210036. | -9283. | 4488.95 | 26404. | 219319. |
| TOTAL SYSTEM | | 10694. | 23456. | 41926. | | LAKE | 4488.95 | 94118. | 861871. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 991.93 | 131.60 | 89.00 | 47.20 | 17.73 | 203.04 | 336.86 | 183.18 | 4.92 | 1.81 |
| PROVO B | 2 | 628.32 | 53.62 | 75.77 | 28.99 | 9.34 | 57.29 | 338.85 | 119.64 | 2.34 | 2.52 |
| GOSHEN B | 3 | 1217.52 | 167.77 | 97.68 | 57.51 | 21.65 | 274.17 | 383.07 | 232.68 | 4.18 | 1.69 |



***TIME PERIOD 35 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.005 FOR TIME PERIOD 35

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.150 FOR TIME PERIOD 35

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 35 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

| BAY NAME | BAY NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 4627. | 30968. | 98298. | 690258. | 29191. | 4489.65 | 61780. | 661067. |
| PROVO B | 2 | 694. | 3383. | 6177. | 27739. | -1222. | 4489.65 | 7139. | 28961. |
| GOSHEN B | 3 | 3519. | 13395. | 750. | 210194. | -27969. | 4489.65 | 27196. | 238162. |
| TOTAL SYSTEM | | 8841. | 47746. | 105225. | | LAKE | 4489.65 | 96116. | 928191. |

*** WATER QUALITY AT THE END OF THE PERIOD

| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 926.66 | 118.95 | 84.63 | 43.44 | 16.16 | 184.06 | 316.38 | 167.82 | 5.92 | 2.17 |
| PROVO B | 2 | 491.60 | 60.16 | 82.91 | 32.06 | 10.49 | 67.12 | 363.11 | 132.41 | 2.73 | 2.77 |
| GOSHEN B | 3 | 1185.66 | 161.34 | 97.48 | 55.82 | 20.97 | 261.47 | 378.69 | 223.96 | 4.77 | 1.87 |



***TIME PERIOD 36 HAS BEGUN

*** THE INTERMIXING FRACTION FOR BAY 2 IS 0.005 FOR TIME PERIOD 36

*** THE INTERMIXING FRACTION FOR BAY 3 IS 0.150 FOR TIME PERIOD 36

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***SUMMARY INFORMATION FOR TIME PERIOD 36 -- MONTHS

*** PERIOD FLOWS AND INTERFLOWS

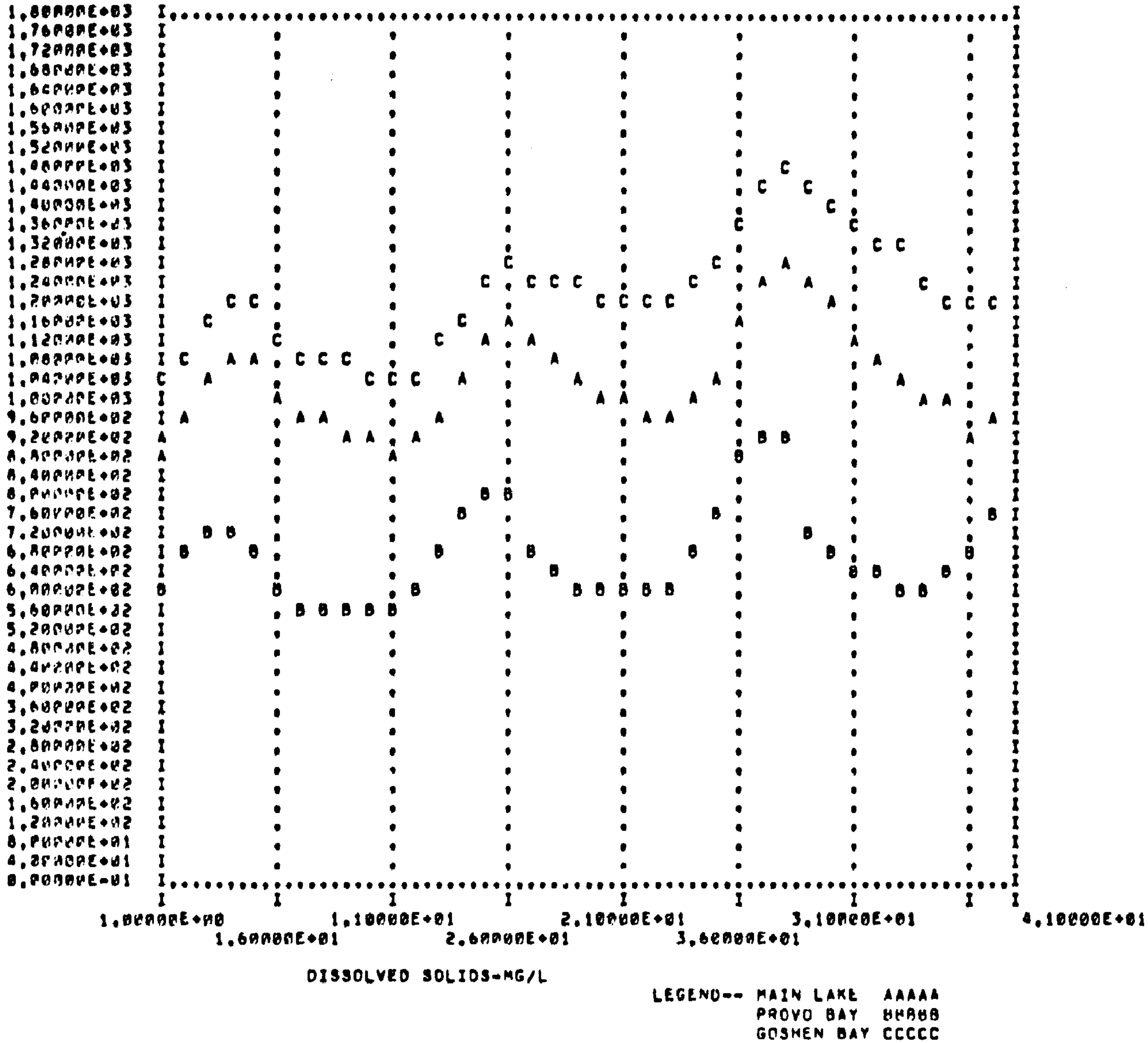
| BAY NAME | NO. | PRECIP AC-FT | EVAP AC-FT | SUM TRIB INFLOW AC-FT | VOL BEFORE INTERFLOW | INTERFLOW VOL AC-FT | FINAL STAGE | FINAL AREA | FINAL VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 3139. | 34634. | 11589. | 641161. | -689. | 4489.33 | 61450. | 641850. |
| PROVO B | 2 | 274. | 4002. | 5827. | 31059. | 4215. | 4489.33 | 6928. | 26845. |
| GOSHEN B | 3 | 2719. | 15246. | 535. | 226169. | -3526. | 4489.33 | 26840. | 229695. |
| TOTAL SYSTEM | | 6131. | 53883. | 17951. | | LAKE | 4489.33 | 95218. | 898390. |

*** WATER QUALITY AT THE END OF THE PERIOD

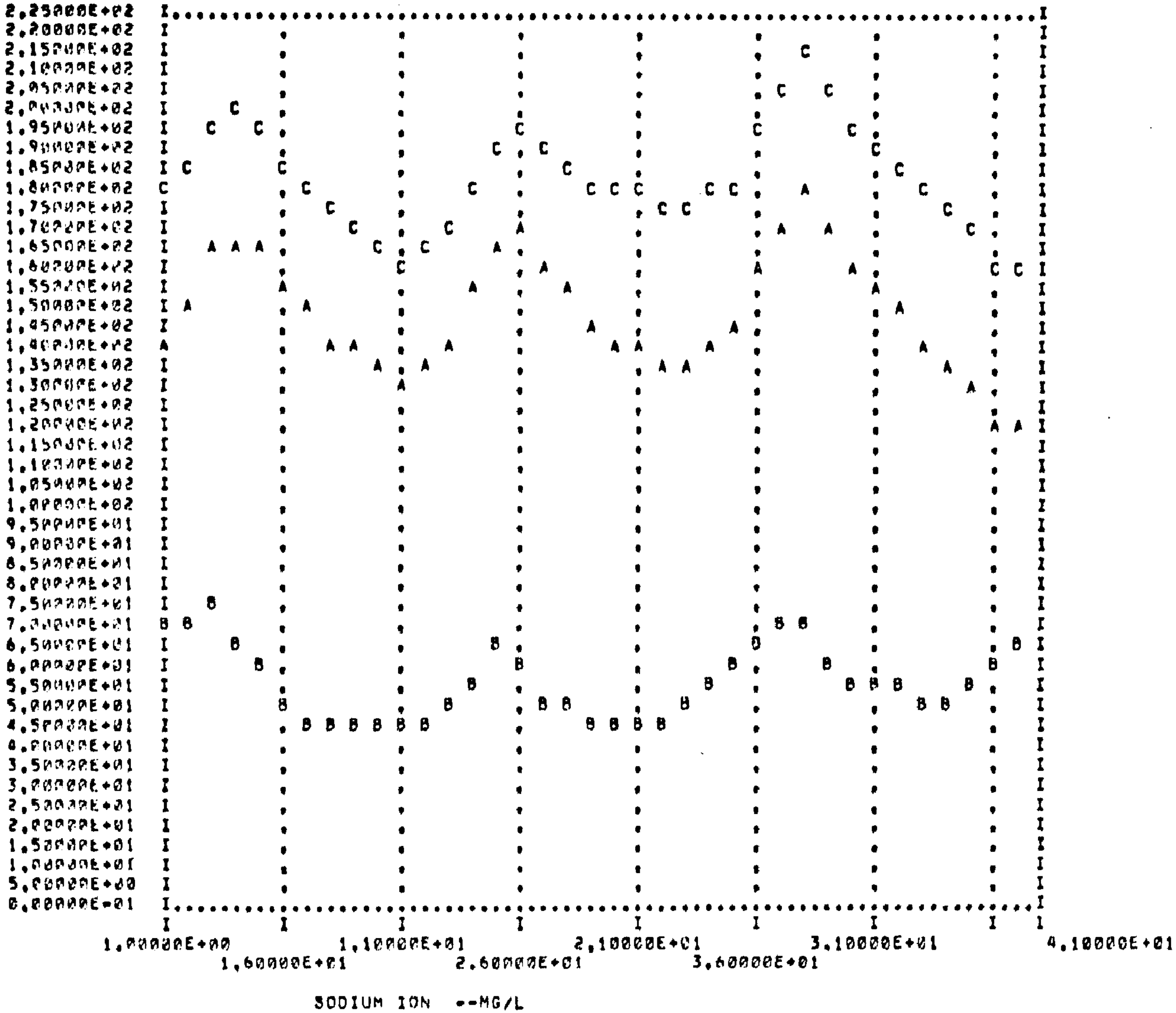
| | BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 960.19 | 121.90 | 88.16 | 44.70 | 16.61 | 189.21 | 328.62 | 172.68 | 6.61 | 2.42 |
| PROVO B | 2 | 747.00 | 63.12 | 92.15 | 34.99 | 11.81 | 71.82 | 391.26 | 143.40 | 2.99 | 3.07 |
| GOSHEN B | 3 | 1201.92 | 162.37 | 100.22 | 56.43 | 21.19 | 261.66 | 387.19 | 225.23 | 5.30 | 2.04 |



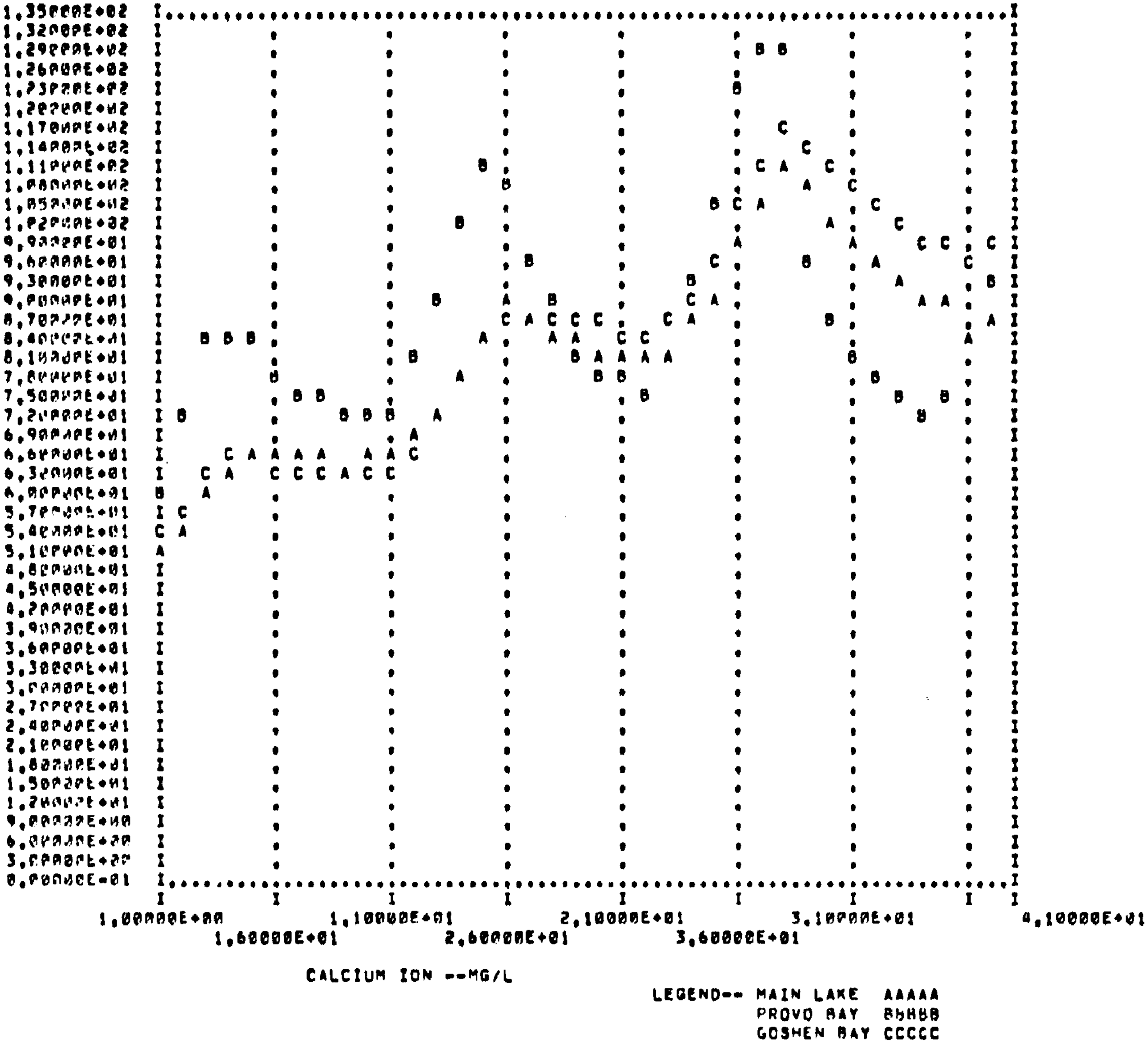
***TIME PERIOD 37 HAS BEGUN



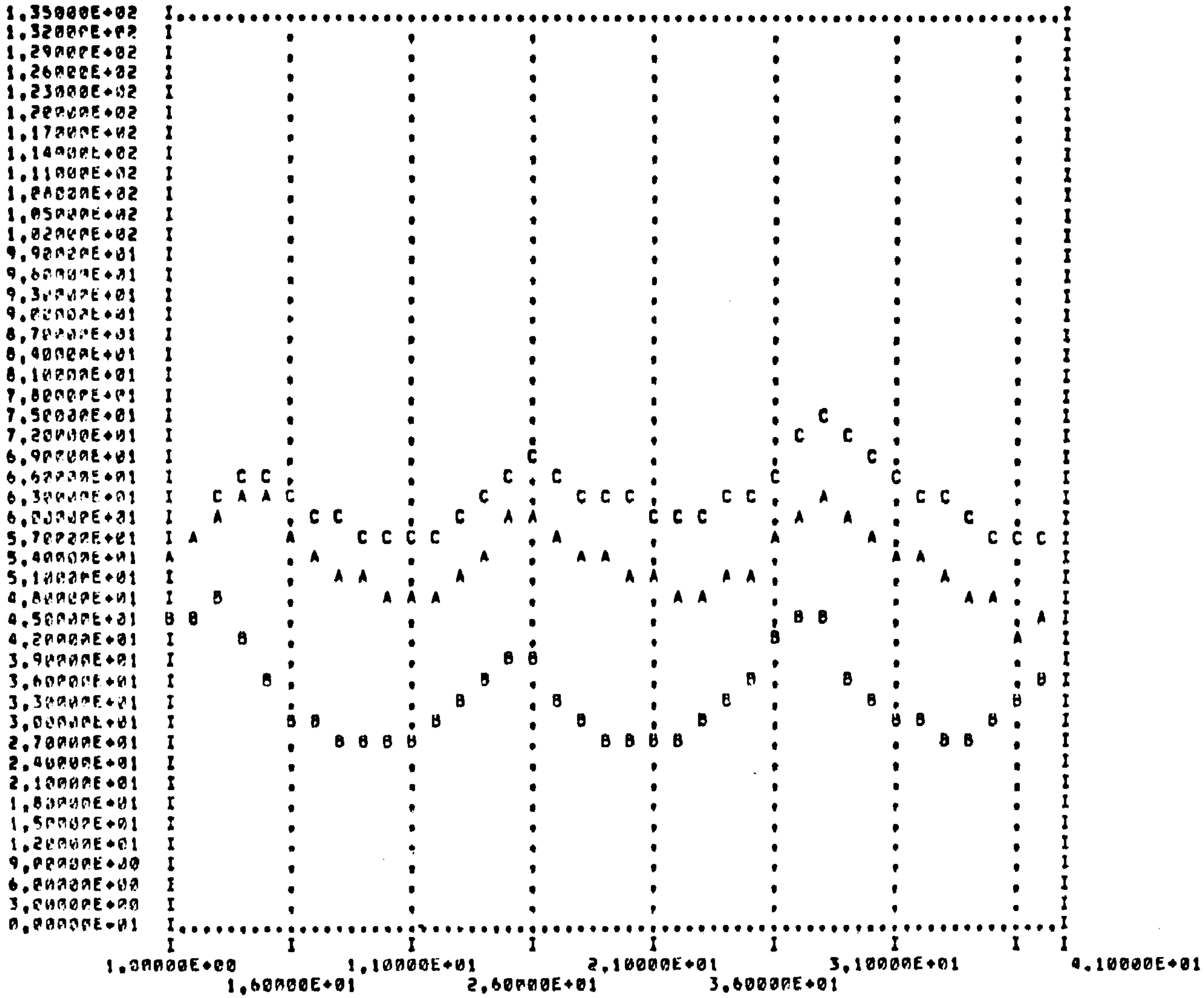

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED




UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED



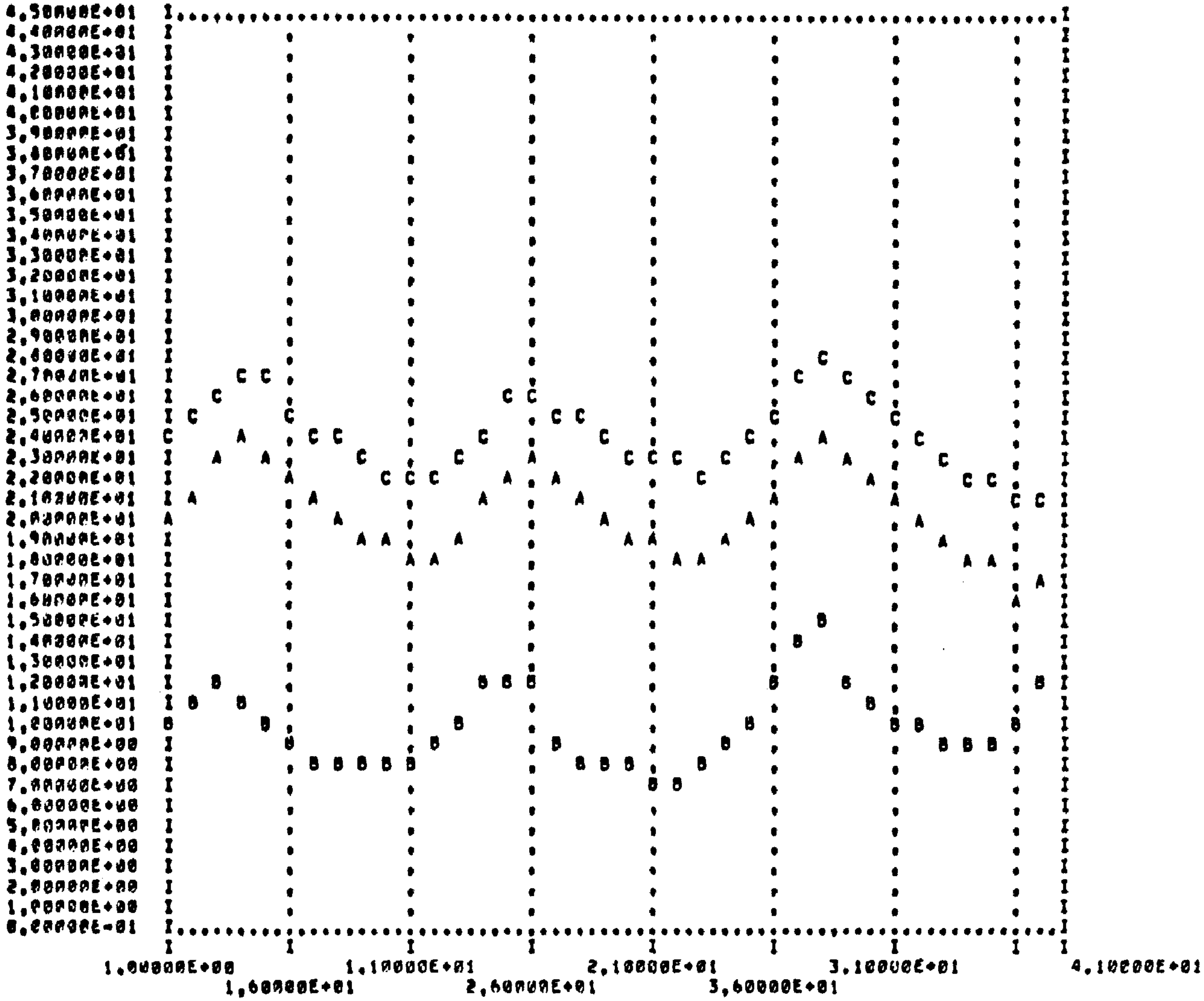

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED




MAGNESIUM ION -MG/ L

LEGEND-- MAIN LAKE AAAAA
PROVO BAY BBBBB
GOSHEN BAY CCCCC

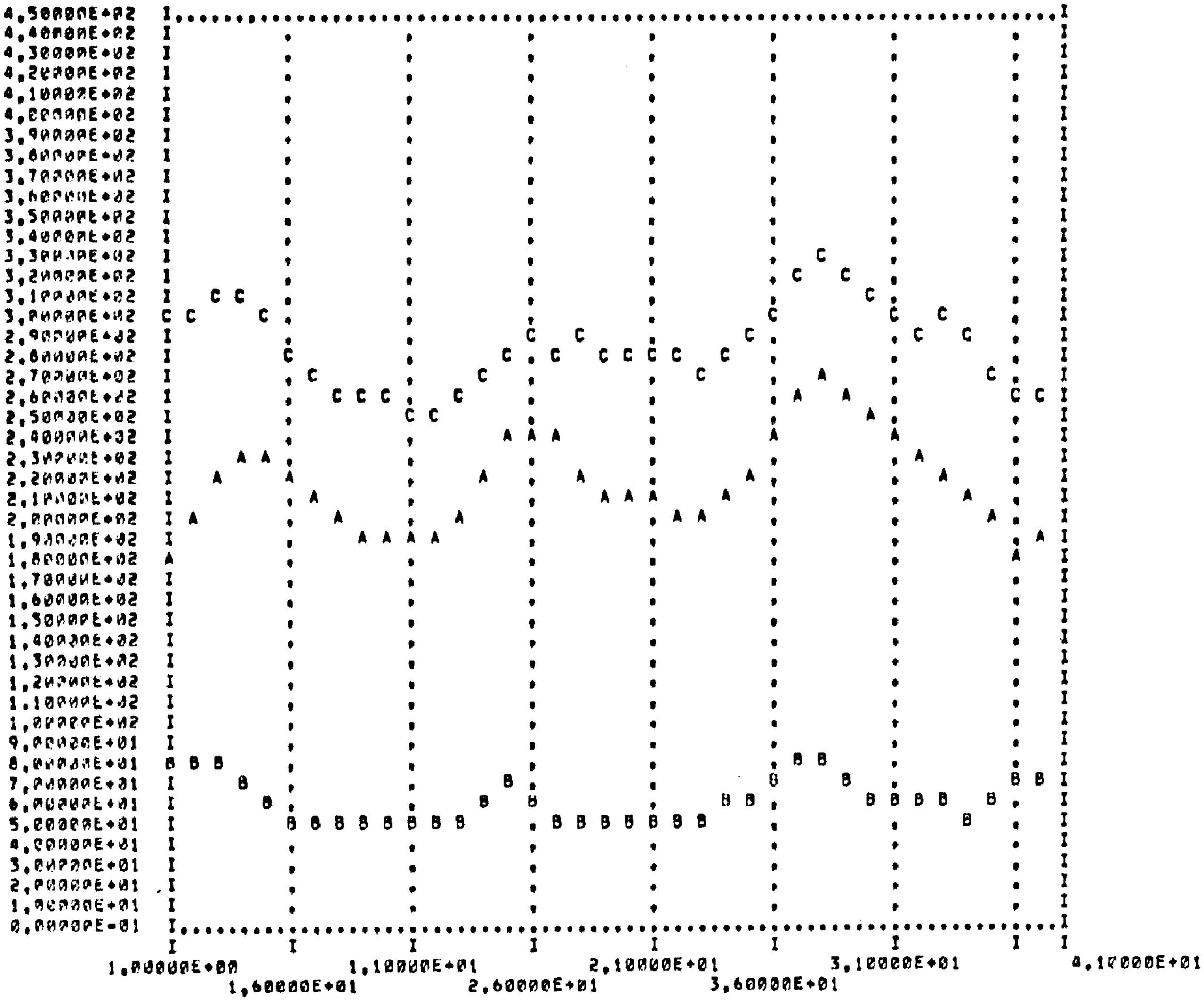
UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED




POTASSIUM ION --MG/L

LEGEND-- MAIN LAKE AAAAA
PROVO BAY BBBBB
GOSHEN BAY CCCCC

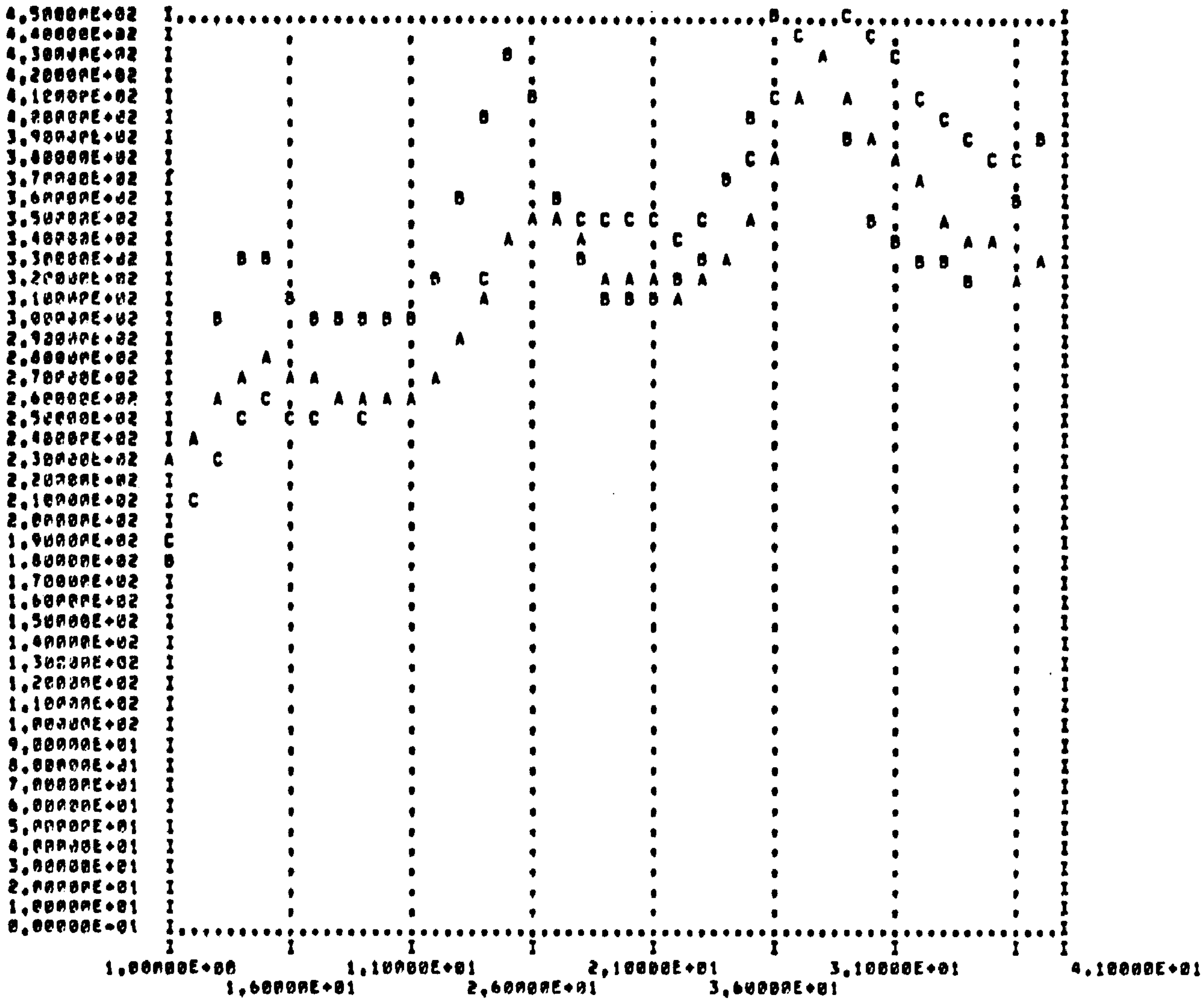
UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED




CHLORIDE ION--M G/L

LEGEND-- MAIN LAKE AAAAA
PROVO BAY BBBBB
GOSHEN BAY CCCCC

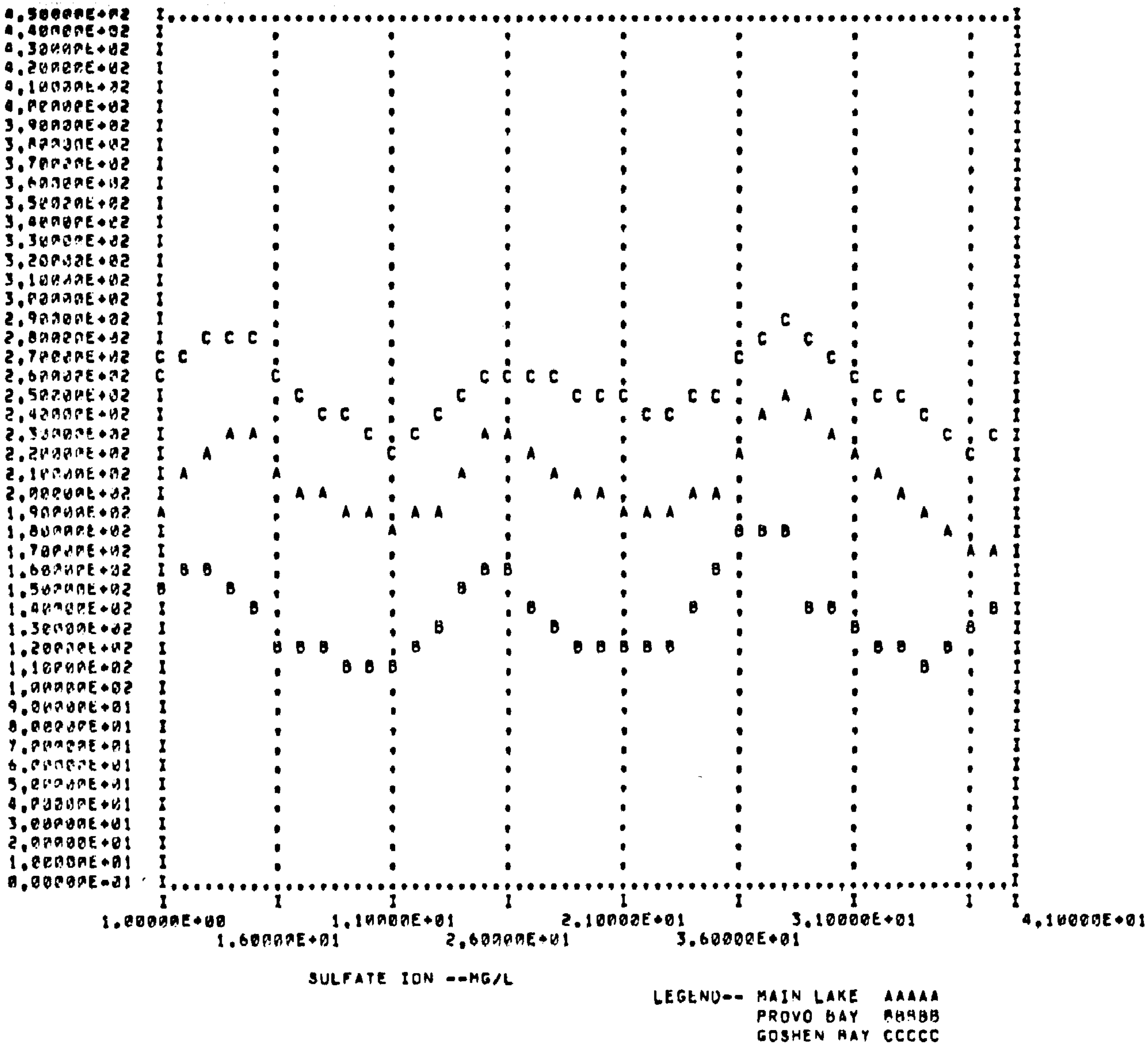
UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED



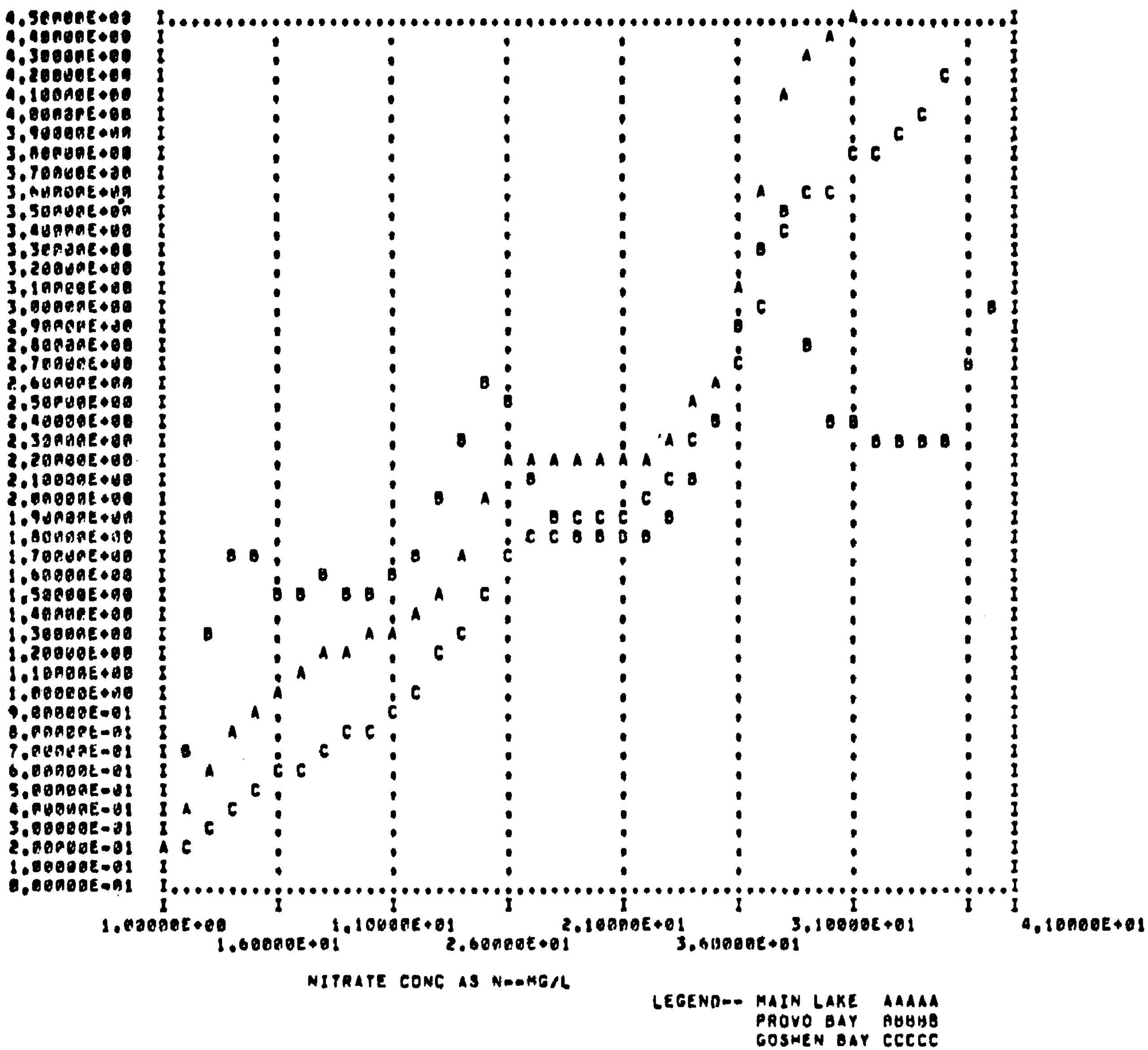

BICARBONATE -MGL

LEGEND-- MAIN LAKE AAAAA
PROVO BAY BBBBB
GOSHEN BAY CCCCC

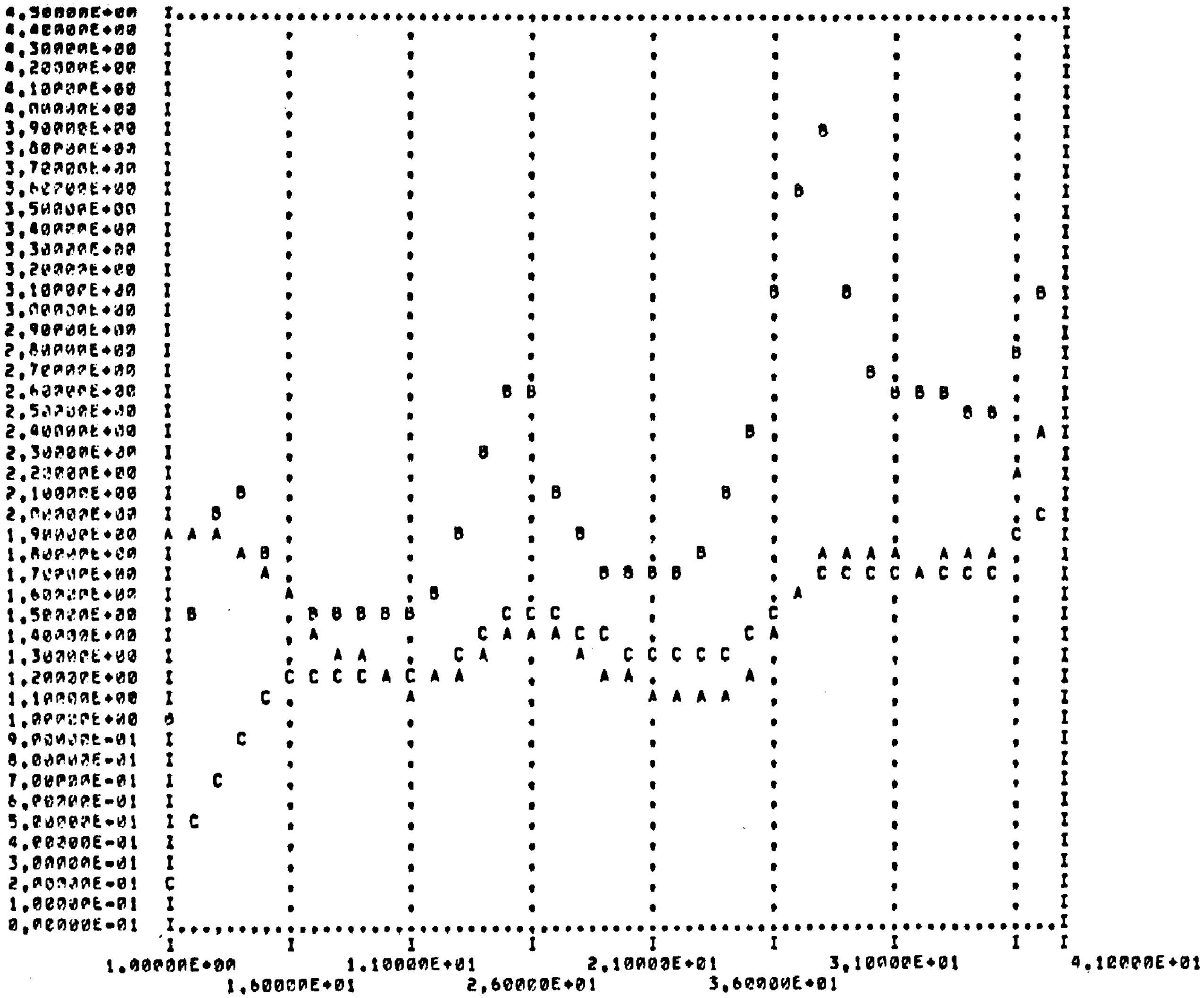
UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED




UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED



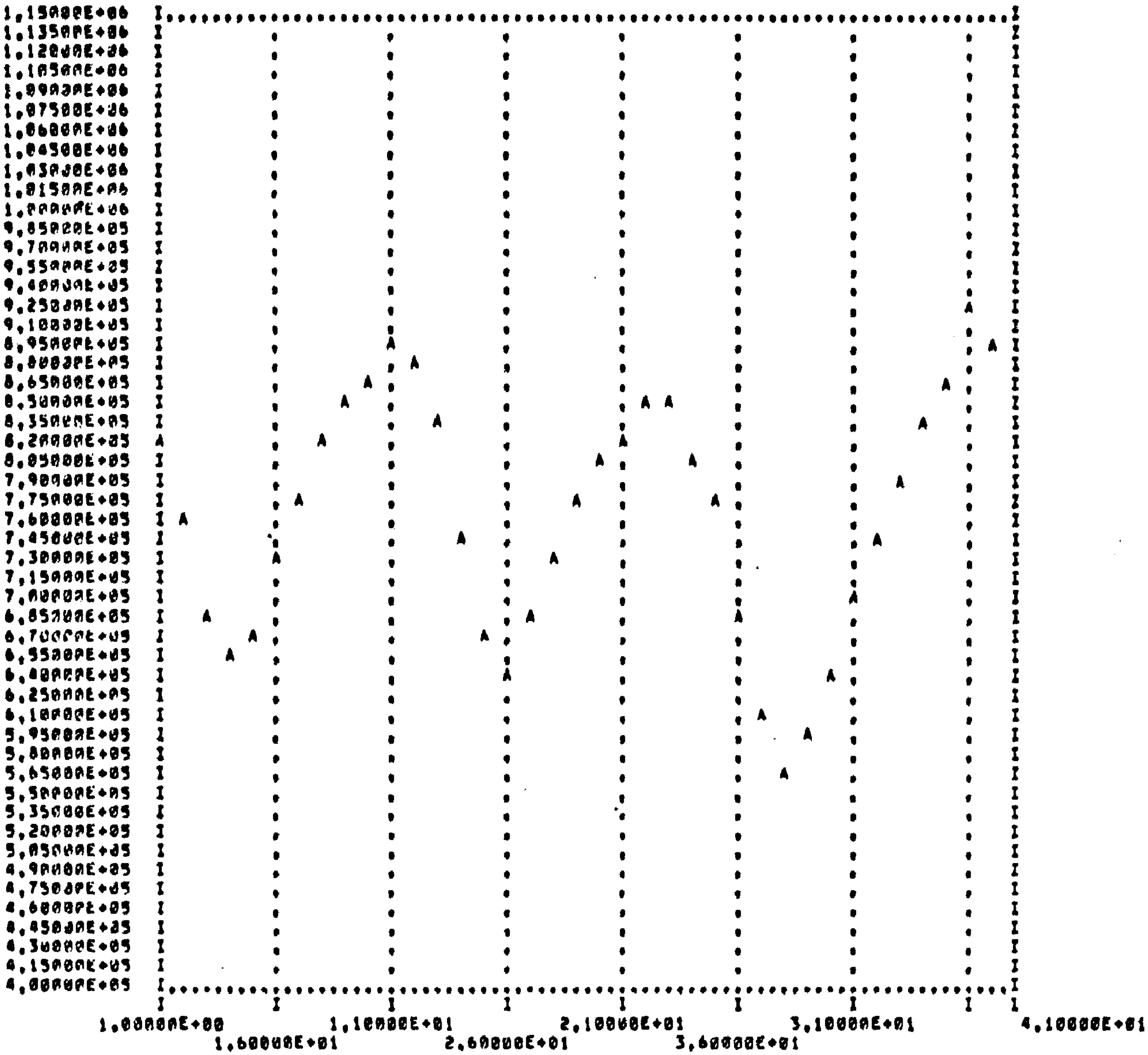

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED



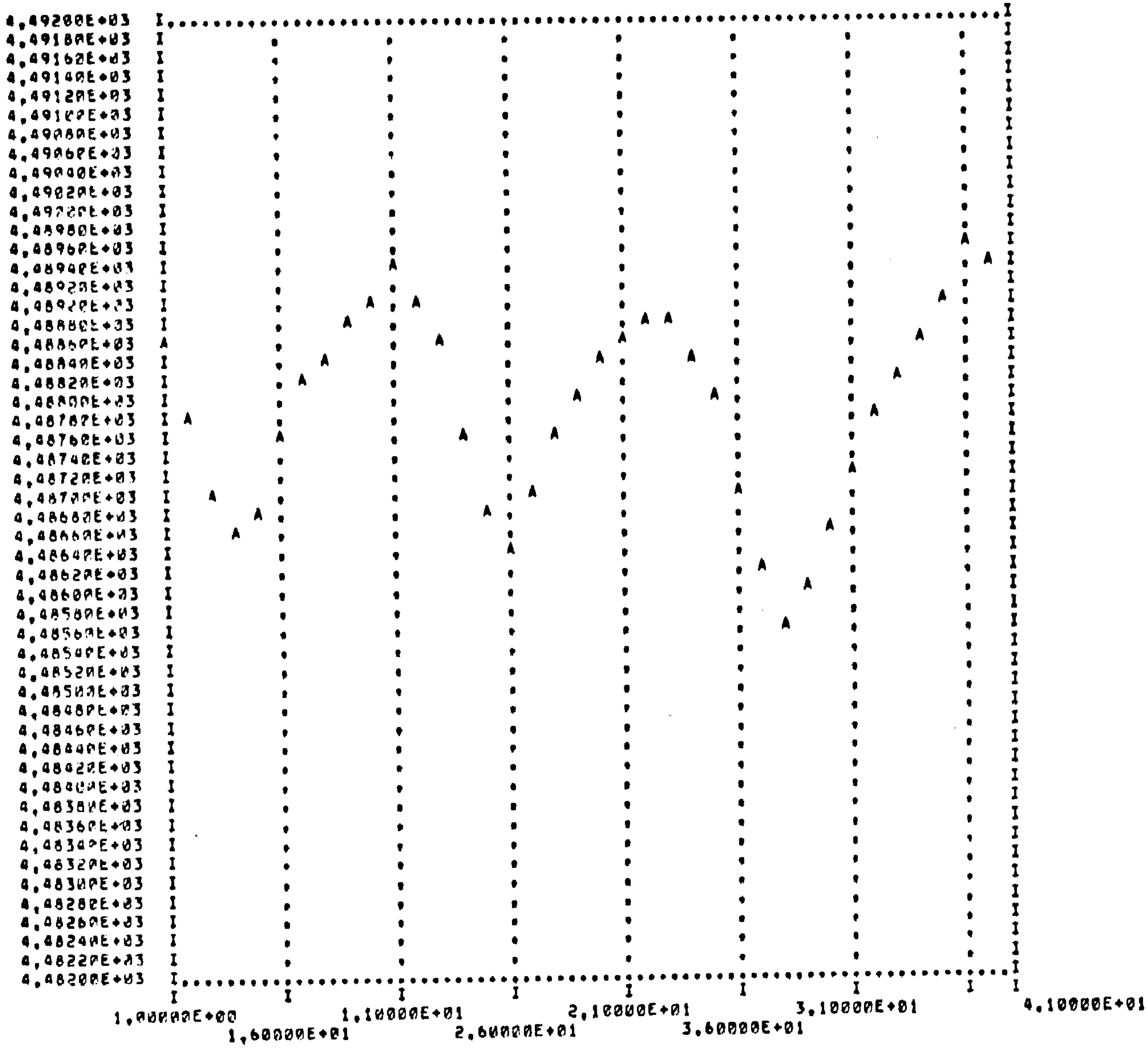

PHOSPHATE AS P --MG/L

LEGEND-- MAIN LAKE AAAAA
PROVO BAY BBBBB
GOSHEN BAY CCCCC

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED




TOTAL LAKE VOLUME--AC-FT
UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED




LAKE LEVEL IN FEET -MSL

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***TOTAL SALT SUMMARY FOR THE SIMULATION

| BAY | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | T O N S | | | | | | | | |
| TRIB, INFLOW | 1641885, | 200962, | 166092, | 72231, | 26772, | 318454, | 620995, | 280986, | 10595, | 3298, |
| LAKE OUTFLOW | 1446854, | 208297, | 112452, | 75863, | 28555, | 302594, | 444826, | 288510, | 3313, | 2074, |
| LAKE . . | | | | | | | | | | |
| BEGINNING | 1045026, | 166658, | 57914, | 61519, | 23320, | 233494, | 245634, | 233702, | 248, | 1634, |
| ENDING | 1240057, | 159324, | 111554, | 57887, | 21537, | 249354, | 421803, | 226178, | 7530, | 2857, |

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***TRIBUTARY FLOWS AND SALT QUANTITIES

SALTS-- TONS TOTAL FOR THE SIMULATION

BAY 1

| TRIB. | | BAY FLOW AC-FT | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 258. | 126. | 17.53 | 19.64 | 5.26 | 3.16 | 4.21 | 78.89 | 25.25 | 0.379 | 0.154 |
| | PCT | 0.014 | 0.008 | 0.009 | 0.012 | 0.007 | 0.012 | 0.001 | 0.013 | 0.009 | 0.004 | 0.005 |
| 2 | | 258. | 110. | 4.91 | 19.64 | 4.56 | 2.10 | 2.10 | 78.89 | 25.25 | 0.140 | 0.028 |
| | PCT | 0.014 | 0.007 | 0.002 | 0.012 | 0.006 | 0.008 | 0.001 | 0.013 | 0.009 | 0.001 | 0.001 |
| 3 | | 212. | 121. | 14.98 | 20.74 | 13.25 | 0.52 | 14.69 | 121.01 | 28.52 | 0.300 | 0.127 |
| | PCT | 0.012 | 0.007 | 0.007 | 0.012 | 0.018 | 0.002 | 0.005 | 0.019 | 0.010 | 0.003 | 0.004 |
| 4 | | 746. | 669. | 44.61 | 101.39 | 28.39 | 9.30 | 30.42 | 304.16 | 98.85 | 1.784 | 0.041 |
| | PCT | 0.041 | 0.041 | 0.022 | 0.061 | 0.039 | 0.035 | 0.010 | 0.049 | 0.035 | 0.017 | 0.001 |
| 5 | | 515. | 315. | 14.00 | 42.00 | 25.38 | 1.26 | 12.60 | 199.48 | 29.40 | 0.504 | 0.056 |
| | PCT | 0.028 | 0.019 | 0.007 | 0.025 | 0.035 | 0.005 | 0.004 | 0.032 | 0.010 | 0.005 | 0.002 |
| 6 | | 2411. | 2163. | 104.86 | 283.05 | 95.51 | 25.56 | 98.30 | 1327.07 | 235.92 | 8.578 | 0.393 |
| | PCT | 0.132 | 0.132 | 0.052 | 0.170 | 0.132 | 0.095 | 0.031 | 0.214 | 0.084 | 0.081 | 0.012 |
| 7 | | 1909. | 1427. | 103.78 | 166.05 | 108.97 | 20.24 | 44.11 | 934.01 | 212.75 | 2.698 | 0.208 |
| | PCT | 0.104 | 0.087 | 0.052 | 0.100 | 0.151 | 0.076 | 0.014 | 0.150 | 0.076 | 0.025 | 0.006 |
| 8 | | 7399. | 6637. | 442.45 | 724.02 | 402.23 | 103.70 | 331.84 | 3770.91 | 724.02 | 31.676 | 10.056 |
| | PCT | 0.405 | 0.404 | 0.220 | 0.436 | 0.557 | 0.387 | 0.104 | 0.607 | 0.258 | 0.299 | 0.305 |
| 9 | | 48006. | 27402. | 1565.85 | 6263.38 | 2479.26 | 274.02 | 1304.87 | 20551.73 | 5871.92 | 150.151 | 13.049 |
| | PCT | 2.627 | 1.669 | 0.779 | 3.771 | 3.432 | 1.024 | 0.410 | 3.309 | 2.090 | 1.417 | 0.396 |
| 10 | | 5101. | 3744. | 117.85 | 623.94 | 194.11 | 29.12 | 103.99 | 2391.75 | 623.94 | 14.974 | 0.277 |
| | PCT | 0.279 | 0.228 | 0.059 | 0.376 | 0.269 | 0.109 | 0.033 | 0.385 | 0.222 | 0.141 | 0.008 |
| 11 | | 4202. | 3541. | 542.53 | 394.05 | 137.06 | 45.69 | 890.89 | 1810.33 | 428.31 | 22.272 | 98.797 |
| | PCT | 0.230 | 0.216 | 0.270 | 0.237 | 0.190 | 0.171 | 0.280 | 0.292 | 0.152 | 0.210 | 2.996 |

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED
---CONTINUED

BAY 1

| TRIB. | | BAY FLOW AC-FT | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 | | 2058. | 1594. | 44.75 | 246.13 | 72.72 | 11.75 | 39.16 | 839.09 | 251.73 | 4.475 | 0.112 |
| | PCT | 0.113 | 0.097 | 0.022 | 0.148 | 0.101 | 0.044 | 0.012 | 0.135 | 0.090 | 0.042 | 0.003 |
| 13 | | 1838. | 1136. | 67.34 | 179.85 | 104.91 | 11.24 | 29.98 | 674.45 | 169.64 | 2.598 | 0.100 |
| | PCT | 0.101 | 0.069 | 0.034 | 0.108 | 0.145 | 0.042 | 0.009 | 0.109 | 0.060 | 0.025 | 0.003 |
| 14 | | 3344. | 2045. | 63.63 | 405.64 | 118.16 | 13.63 | 54.54 | 1431.59 | 409.03 | 7.272 | 0.182 |
| | PCT | 0.183 | 0.125 | 0.032 | 0.244 | 0.164 | 0.051 | 0.017 | 0.231 | 0.146 | 0.069 | 0.006 |
| 15 | | 3689. | 2106. | 60.16 | 421.14 | 110.30 | 15.04 | 60.16 | 1428.88 | 330.90 | 13.236 | 0.301 |
| | PCT | 0.202 | 0.128 | 0.030 | 0.254 | 0.153 | 0.056 | 0.019 | 0.230 | 0.118 | 0.125 | 0.009 |
| 16 | | 2577. | 2101. | 84.06 | 392.26 | 133.09 | 10.51 | 84.06 | 1050.70 | 231.15 | 7.285 | 0.140 |
| | PCT | 0.141 | 0.128 | 0.042 | 0.236 | 0.184 | 0.039 | 0.026 | 0.169 | 0.082 | 0.069 | 0.004 |
| 17 | | 6624. | 5672. | 148.62 | 828.23 | 306.08 | 43.21 | 162.04 | 3240.90 | 1260.35 | 25.207 | 0.720 |
| | PCT | 0.362 | 0.345 | 0.074 | 0.499 | 0.424 | 0.161 | 0.051 | 0.522 | 0.449 | 0.238 | 0.022 |
| 18 | | 66795. | 57191. | 3260.05 | 8714.80 | 3812.73 | 490.21 | 2904.93 | 33588.29 | 10076.49 | 204.253 | 59.914 |
| | PCT | 3.655 | 3.483 | 1.626 | 5.247 | 5.279 | 1.831 | 0.912 | 5.409 | 3.586 | 1.928 | 1.817 |
| 19 | | 14. | 11. | 0.57 | 1.33 | 0.88 | 0.51 | 0.40 | 6.75 | 1.48 | 0.014 | 0.003 |
| | PCT | 0.001 | 0.001 | 0.000 | 0.001 | 0.001 | 0.002 | 0.000 | 0.001 | 0.001 | 0.000 | 0.000 |
| 20 | | 80120. | 67511. | 5226.66 | 9255.55 | 3375.55 | 1960.00 | 6968.88 | 29944.42 | 20797.76 | 4028.865 | 76.222 |
| | PCT | 4.384 | 4.112 | 2.601 | 5.573 | 4.673 | 7.321 | 2.188 | 4.822 | 7.402 | 38.027 | 2.311 |
| 21 | | 0. | 0. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 |
| | PCT | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 22 | | 106. | 86. | 4.32 | 10.08 | 6.63 | 3.89 | 3.03 | 51.14 | 11.24 | 0.108 | 0.024 |
| | PCT | 0.006 | 0.005 | 0.002 | 0.006 | 0.009 | 0.015 | 0.001 | 0.008 | 0.004 | 0.001 | 0.001 |
| 23 | | 86. | 70. | 3.51 | 8.18 | 5.38 | 3.16 | 2.45 | 41.49 | 9.12 | 0.088 | 0.020 |
| | PCT | 0.005 | 0.004 | 0.002 | 0.005 | 0.007 | 0.012 | 0.001 | 0.007 | 0.003 | 0.001 | 0.001 |

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED
*--CONTINUED

BAY 1

| TRIB. | | BAY FLOW AC-FT | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 24 | | 362. | 251. | 11,81 | 44,28 | 20,66 | 20,66 | 7,38 | 162,35 | 19,68 | 0,354 | 0,030 |
| | PCT | 0,020 | 0,015 | 0,006 | 0,027 | 0,029 | 0,077 | 0,002 | 0,026 | 0,007 | 0,003 | 0,001 |
| 25 | | 1885. | 1768. | 92,23 | 174,21 | 92,23 | 41,50 | 69,17 | 1114,40 | 199,82 | 2,049 | 0,410 |
| | PCT | 0,103 | 0,108 | 0,046 | 0,105 | 0,128 | 0,155 | 0,022 | 0,179 | 0,071 | 0,019 | 0,012 |
| 26 | | 9918. | 6457. | 1078,34 | 727,88 | 283,06 | 134,79 | 1590,55 | 4394,24 | 660,48 | 57,961 | 296,544 |
| | PCT | 0,543 | 0,393 | 0,537 | 0,438 | 0,392 | 0,503 | 0,499 | 0,708 | 0,235 | 0,547 | 8,993 |
| 27 | | 50340. | 41049. | 9509,77 | 3352,37 | 3557,61 | 1299,90 | 12725,31 | 15461,94 | 14435,70 | 68,416 | 27,366 |
| | PCT | 2,754 | 2,500 | 4,732 | 2,018 | 4,925 | 4,855 | 3,996 | 2,490 | 5,138 | 0,646 | 0,830 |
| 28 | | 1532. | 1187. | 54,13 | 212,37 | 47,89 | 9,37 | 37,48 | 812,02 | 237,36 | 2,124 | 0,083 |
| | PCT | 0,084 | 0,072 | 0,027 | 0,128 | 0,066 | 0,035 | 0,012 | 0,131 | 0,084 | 0,020 | 0,003 |
| 29 | | 507267. | 227506. | 8272,94 | 41364,72 | 11030,59 | 2068,24 | 12409,42 | 124094,16 | 35160,01 | 220,612 | 82,729 |
| | PCT | 27,754 | 13,856 | 4,117 | 24,905 | 15,271 | 7,725 | 3,897 | 19,983 | 12,513 | 2,082 | 2,509 |
| 48 | | 223112. | 136762. | 12432,92 | 17406,09 | 7459,75 | 1243,29 | 17406,09 | 74597,52 | 22379,26 | 124,329 | 49,732 |
| | PCT | 12,207 | 8,330 | 6,187 | 10,480 | 10,328 | 4,644 | 5,466 | 12,013 | 7,965 | 1,173 | 1,508 |
| 49 | | 1120. | 2101. | 502,31 | 97,42 | 148,41 | 19,18 | 429,25 | 898,07 | 593,64 | 1,461 | 0,913 |
| | PCT | 0,061 | 0,128 | 0,250 | 0,059 | 0,205 | 0,072 | 0,135 | 0,145 | 0,211 | 0,014 | 0,028 |
| 50 | | 6277. | 25934. | 5630,39 | 1160,20 | 1322,29 | 87,02 | 5118,53 | 6142,24 | 6654,09 | 4,095 | 1,024 |
| | PCT | 0,343 | 1,580 | 2,802 | 0,699 | 1,831 | 0,325 | 1,607 | 0,989 | 2,368 | 0,039 | 0,031 |
| 51 | | 99498. | 124700. | 22177,89 | 11358,89 | 9063,80 | 2271,78 | 17158,14 | 63580,41 | 24566,97 | 129,816 | 70,993 |
| | PCT | 5,444 | 7,595 | 11,036 | 6,839 | 12,548 | 8,486 | 5,388 | 10,238 | 8,743 | 1,225 | 2,153 |
| 53 | | -1052366. | 1446854, | 208296,58 | 112451,82 | 75862,87 | 28555,34 | 302594,04 | 444826,30 | 288509,63 | 3312,584 | 2073,942 |
| | PCT | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 |
| 54 | | 17424. | 33153. | 5209,70 | 2202,28 | 236,80 | 734,09 | 7814,55 | 5470,19 | 9708,99 | 0,000 | 0,000 |
| | PCT | 0,953 | 2,019 | 2,592 | 1,326 | 0,328 | 2,742 | 2,454 | 0,881 | 3,455 | 0,000 | 0,000 |

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED
---CONTINUED

BAY 1

| TRIB. | | BAY FLOW AC-FT | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 55 | | 24120. | 157348. | 23110.46 | 8096.86 | 5146.59 | 4523.75 | 59661.05 | 4810.78 | 21635.33 | 0.000 | 0.000 |
| | PCT | 1.320 | 9.583 | 11.500 | 4.875 | 7.125 | 16.898 | 18.735 | 0.776 | 7.700 | 0.000 | 0.000 |
| 56 | | 24120. | 229466. | 60316.67 | 4589.31 | 3737.01 | 5244.93 | 96703.36 | 24388.92 | 23602.18 | 0.000 | 0.000 |
| | PCT | 1.320 | 13.976 | 30.014 | 2.763 | 5.174 | 19.591 | 30.366 | 3.927 | 8.400 | 0.000 | 0.000 |
| 59 | | 109557. | 84871. | 1786.75 | 8933.75 | 2382.33 | 446.69 | 2680.12 | 26801.24 | 7593.68 | 4764.665 | 1786.749 |
| | PCT | 5.994 | 5.169 | 0.889 | 5.379 | 3.298 | 1.669 | 0.842 | 4.316 | 2.703 | 44.972 | 54.184 |
| 60 | | 207000. | 44702. | 2416.32 | 7248.96 | 2416.32 | 1208.16 | 1812.24 | 32620.32 | 6040.80 | 1.208 | 6.041 |
| | PCT | 11.326 | 2.723 | 1.202 | 4.364 | 3.345 | 4.513 | 0.569 | 5.253 | 2.150 | 0.011 | 0.183 |

SALTS-- TONS TOTAL FOR THE SIMULATION

BAY 2

| TRIB. | | BAY FLOW AC-FT | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 31 | | 2744. | 1982. | 67.13 | 328.18 | 78.32 | 13.43 | 67.13 | 1230.67 | 212.57 | 0.746 | 0.298 |
| | PCT | 0.150 | 0.116 | 0.033 | 0.198 | 0.108 | 0.050 | 0.021 | 0.198 | 0.076 | 0.007 | 0.009 |
| 32 | | 1169. | 986. | 41.31 | 162.05 | 36.54 | 7.15 | 28.60 | 619.61 | 181.12 | 1.621 | 0.064 |
| | PCT | 0.064 | 0.055 | 0.021 | 0.098 | 0.051 | 0.027 | 0.009 | 0.100 | 0.064 | 0.015 | 0.002 |
| 33 | | 154. | 88. | 6.28 | 12.14 | 4.40 | 0.88 | 5.02 | 54.94 | 3.77 | 0.025 | 0.025 |
| | PCT | 0.008 | 0.005 | 0.003 | 0.007 | 0.006 | 0.003 | 0.002 | 0.009 | 0.001 | 0.000 | 0.001 |
| 34 | | 16140. | 9213. | 394.84 | 1886.45 | 460.64 | 120.18 | 526.45 | 6221.55 | 1184.51 | 28.077 | 3.590 |
| | PCT | 0.883 | 0.561 | 0.196 | 1.136 | 0.638 | 0.449 | 0.165 | 1.002 | 0.422 | 0.265 | 0.109 |
| 35 | | 2666. | 1196. | 50.73 | 210.15 | 59.78 | 10.87 | 43.48 | 1032.64 | 173.92 | 2.609 | 0.290 |
| | PCT | 0.146 | 0.073 | 0.025 | 0.127 | 0.083 | 0.041 | 0.014 | 0.166 | 0.062 | 0.025 | 0.009 |
| 36 | | 1142. | 559. | 31.04 | 62.08 | 41.91 | 5.59 | 18.62 | 349.21 | 46.56 | 0.497 | 0.124 |
| | PCT | 0.062 | 0.034 | 0.015 | 0.037 | 0.058 | 0.021 | 0.006 | 0.056 | 0.017 | 0.005 | 0.004 |
| 37 | | 1681. | 1371. | 45.69 | 228.46 | 59.40 | 11.88 | 41.12 | 913.84 | 130.22 | 3.107 | 0.183 |
| | PCT | 0.092 | 0.083 | 0.023 | 0.138 | 0.082 | 0.044 | 0.013 | 0.147 | 0.046 | 0.029 | 0.006 |
| 38 | | 33147. | 17569. | 720.79 | 3063.34 | 765.84 | 135.15 | 720.79 | 11487.53 | 1892.06 | 36.039 | 4.505 |
| | PCT | 1.814 | 1.070 | 0.359 | 1.844 | 1.060 | 0.505 | 0.226 | 1.850 | 0.673 | 0.340 | 0.137 |

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED
---CONTINUED

BAY 2

| TRIB. | BAY FLOW AC-FT | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 39 | 42770. | 25402. | 2673.86 | 4010.80 | 1162.55 | 406.89 | 4533.94 | 17147.61 | 2208.84 | 360.390 | 482.458 |
| PCT | 2.340 | 1.547 | 1.331 | 2.415 | 1.609 | 1.520 | 1.424 | 2.761 | 0.786 | 3.402 | 14.631 |
| 40 | 4043. | 2473. | 153.85 | 373.64 | 164.84 | 208.80 | 98.91 | 1483.58 | 230.78 | 4.396 | 0.330 |
| PCT | 0.221 | 0.151 | 0.077 | 0.225 | 0.228 | 0.780 | 0.031 | 0.239 | 0.082 | 0.041 | 0.010 |
| 41 | 12093. | 7396. | 460.19 | 1117.60 | 493.06 | 624.54 | 295.83 | 4437.52 | 690.28 | 13.148 | 0.986 |
| PCT | 0.662 | 0.450 | 0.229 | 0.673 | 0.683 | 2.333 | 0.093 | 0.715 | 0.246 | 0.124 | 0.030 |
| 42 | 51680. | 54785. | 3371.37 | 7288.70 | 2649.39 | 421.42 | 2528.52 | 21071.04 | 18191.33 | 39.333 | 53.731 |
| PCT | 2.828 | 3.337 | 1.678 | 4.388 | 3.668 | 1.574 | 0.794 | 3.393 | 6.474 | 0.371 | 1.629 |
| 43 | 19427. | 15842. | 844.89 | 2772.28 | 844.89 | 409.54 | 1584.16 | 7128.72 | 3326.74 | 36.964 | 56.766 |
| PCT | 1.063 | 0.965 | 0.420 | 1.669 | 1.170 | 1.530 | 0.497 | 1.148 | 1.184 | 0.349 | 1.721 |
| 44 | 31798. | 13396. | 432.16 | 2765.81 | 691.45 | 77.79 | 777.88 | 9075.31 | 2060.18 | 31.115 | 4.322 |
| PCT | 1.740 | 0.816 | 0.215 | 1.665 | 0.957 | 0.291 | 0.244 | 1.461 | 0.733 | 0.294 | 0.131 |
| 45 | 6617. | 7326. | 884.78 | 755.41 | 433.03 | 82.44 | 699.28 | 4130.50 | 1491.35 | 13.669 | 2.878 |
| PCT | 0.362 | 0.446 | 0.440 | 0.455 | 0.600 | 0.308 | 0.220 | 0.665 | 0.531 | 0.129 | 0.087 |
| 46 | 6567. | 6426. | 499.80 | 535.50 | 374.85 | 32.13 | 285.60 | 3614.63 | 1071.00 | 12.852 | 0.714 |
| PCT | 0.359 | 0.391 | 0.249 | 0.322 | 0.519 | 0.120 | 0.090 | 0.582 | 0.381 | 0.121 | 0.022 |
| 47 | 33047. | 41769. | 5254.85 | 2335.49 | 1616.88 | 458.11 | 4581.15 | 22232.05 | 8084.38 | 104.199 | 101.055 |
| PCT | 1.808 | 2.544 | 2.615 | 1.406 | 2.238 | 1.711 | 1.439 | 3.580 | 2.877 | 0.983 | 3.065 |

SALTS-- TONS TOTAL FOR THE SIMULATION

BAY 3

| TRIB. | BAY FLOW AC-FT | TDS | NA | CA | MG | K | CL | HCO3 | SO4 | NO3 | PO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 52 | 21025. | 96867. | 11429.79 | 1285.85 | 3000.32 | 714.36 | 40004.26 | 13572.88 | 22288.09 | 2.000 | 1.714 |
| PCT | 1.150 | 5.900 | 5.688 | 0.774 | 4.154 | 2.668 | 12.562 | 2.186 | 7.932 | 0.019 | 0.052 |
| 57 | 9000. | 17614. | 4403.39 | 452.57 | 452.57 | 293.56 | 6605.09 | 2984.52 | 1100.85 | 0.000 | 0.000 |
| PCT | 0.492 | 1.073 | 2.191 | 0.272 | 0.627 | 1.097 | 2.074 | 0.481 | 0.392 | 0.000 | 0.000 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 58 | 9800. | 16757. | 4648.02 | 354.72 | 354.72 | 305.79 | 6238.14 | 2984.52 | 1076.38 | 0.000 | 0.000 |
| PCT | 0.492 | 1.021 | 2.313 | 0.214 | 0.491 | 1.142 | 1.959 | 0.481 | 0.383 | 0.000 | 0.000 |

UTAH LAKE --JULY 1970-JULY 1973--MIN SPRS ADDED

***WATER BALANCE FOR THE SIMULATION

| | BAY | PRECIP AC-FT | EVAP AC-FT | TRIB INFLOW AC-FT | BEGINNING STAGE | BEGINNING VOLUME | ENDING STAGE | ENDING VOLUME |
|---|---|---|---|---|---|---|---|---|
| MAIN LK | 1 | 161951. | 633970. | 1521799. | 4488.58 | 595789.0 | 4489.33 | 641850.1 |
| PROVO B | 2 | 19050. | 63356. | 266885. | 4488.58 | 21771.5 | 4489.33 | 26844.5 |
| GOSHEN B | 3 | 81293. | 268882. | 39025. | 4488.58 | 209400.7 | 4489.33 | 229695.1 |

***TOTAL LAKE -- AC-FT (EXCLUDING DIKED BAYS, IF ANY)

TOTAL PRECIPITATION= 262293.6
TOTAL EVAPORATION = 966207.6
TOTAL TRIB. INFLOW = 1827709.1
TOTAL TRIB. OUTFLOW= -1052366.4
OTHER OVERFLOW = 0.0 (ENDING VOLUME HAS BEEN ADJUSTED FOR OVERFLOW)
BEGINNING VOLUME = 826961.1 STAGE= 4488.58
ENDING VOLUME = 898389.8 STAGE= 4489.33

CHECK= -0.0 (IF NOT ZERO--PROG ERROR)

## TECHNICAL REPORT DATA
*(Please read Instructions on the reverse before completing)*

| | | |
|---|---|---|
| 1. REPORT NO. EPA-660/2-75-007 | 2. | 3. RECIPIENT'S ACCESSION NO. |
| 4. TITLE AND SUBTITLE WATER QUALITY EFFECT OF DIKING A SHALLOW ARID-REGION LAKE | | 5. REPORT DATE APRIL 1975 |
| | | 6. PERFORMING ORGANIZATION CODE |
| 7. AUTHOR(S) Dean K. Fuhriman, LaVere B. Merritt, Jerald S. Bradshaw, and James R. Barton | | 8. PERFORMING ORGANIZATION REPORT NO. |
| 9. PERFORMING ORGANIZATION NAME AND ADDRESS Brigham Young University Provo, Utah 84602 | | 10. PROGRAM ELEMENT NO. 1BB045 (ROAP 21-ACC, Task 10) |
| | | 11. CONTRACT/GRANT NO. R-801400 (Formerly 16080 EVT) |
| 12. SPONSORING AGENCY NAME AND ADDRESS U. S. Environmental Protection Agency, OR&D NERC-Corvallis Robert S. Kerr Environmental Research Laboratory Ada, Oklahoma 74820 | | 13. TYPE OF REPORT AND PERIOD COVERED Final (6/1/70 - 6/30/74) |
| | | 14. SPONSORING AGENCY CODE |

15. SUPPLEMENTARY NOTES

16. ABSTRACT

The inflow, outflow, and in-lake water quality and quantity of Utah Lake in Central Utah was studied over a 36-month period. The work was undertaken to determine the effect of a proposed diking project on the quality and quantity of lake water and to develop methodology for determining the effect of diking or other management practices on the quality of water in any lake system.

A computer simulation model was developed which is able to analyze the effect of a given management program on the water quality of the lake, particularly as related to the "conservative salts" present. The simulation model was also used to evaluate the evaporation from the lake by use of a salt balance technique.

Results of the research indicate that the diking of Utah Lake will have a positive beneficial effect upon the water quality of the lake and will also result in considerable saving of water and reclamation of valuable land.

17. KEY WORDS AND DOCUMENT ANALYSIS

| a. DESCRIPTORS | b. IDENTIFIERS/OPEN ENDED TERMS | c. COSATI Field/Group |
|---|---|---|
| Lakes, Dikes, Water Quality, Evaporation, Seepage, Arid Land, Sodium, Chloride | Dissolved Solids, Lake Diking, Shallow Lakes | 08 08 |

| | | |
|---|---|---|
| 18. DISTRIBUTION STATEMENT Release to public | 19. SECURITY CLASS *(This Report)* Unclassified | 21. NO. OF PAGES 234 |
| | 20. SECURITY CLASS *(This page)* Unclassified | 22. PRICE |

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