

**INTRODUCTION**

The Lake Tahoe Basin encompasses an area of 506 square miles within the Sierra Nevada of California and Nevada (see location map). The area is renowned for the natural beauty of its alpine and sub-alpine mountains and lakes, particularly Lake Tahoe. Within the Lake Tahoe Basin, elevations range from about 6,200 to 10,900 feet. As a result of public interest and concern for preservation of the natural resources of the basin, various Federal, State, and local agencies have been collecting environmental data regarding the water and land resources. In the mid-1980s, several of these agencies recognized the need to develop a data-base management system for resources planning and for analysis of the land-use and environmental information collected in the basin.

In 1988, the U.S. Geological Survey (USGS) and the Tahoe Regional Planning Agency (TRPA) initiated a cooperative project to develop a geographic information system (GIS) to meet data-base needs for the Lake Tahoe Basin. TRPA is a joint California-Nevada agency that manages and analyzes much of the land-use and environmental data collected in the basin. The Forest Service (FS) and the Natural Resources Conservation Service (NRCS) also participated informally in the cooperative efforts. The resulting project is referred to as the Tahoe Environmental Geospatial Information System (TEGIS). The TEGIS data bases (Carrier and others, 1994; Peltz and others, 1994) contain vector coordinates stored in the local Universal Transverse Mercator (UTM) zone 11 coordinate system. These data bases include surface geology, soils, timber type, riparian vegetation, land capability, stream channels, water bodies, roads, political boundaries, the Lake Tahoe Basin boundary, slope, aspect, drainage-basin boundaries, and hydrologic-monitoring sites.

The purposes of the TEGIS project were (1) to produce a set of spatial data bases of natural-resources information for the Lake Tahoe Basin and (2) to develop efficient techniques for creating spatial data bases.

This report presents graphic and tabular summaries of information from two of the TEGIS data bases, one of hydrologic basins and the other of hydrologic-monitoring sites. The areal scope of these data bases is that of the entire TEGIS project, which was limited to the 16 USGS 7.5-minute-series quadrangles encompassing the Lake Tahoe Basin (fig. 1). The thematic layers of hydrologic basins and hydrologic-monitoring sites are shown in figure 2.

**Previous Investigations**

Hydrologic basins were delineated by Jorgensen and others (1978). Hydrologic data have been collected by the USGS FS, NRCS, Nevada Division of Environmental Protection (NDEP), and Lahontan Water Quality Control Board (LWQCB). The TEGIS data bases were documented by Carrier and others (1994).

**Acknowledgments**

The USGS and TRPA gratefully acknowledge hydrologic data provided by State (NDEP), Federal (NRCS and FS), and local (LWQCB) agencies.

**MAP FEATURES**

Base features (shaded relief, major roads, stream channels, and water bodies) and thematic features (hydrologic basins and hydrologic-monitoring sites) that were generated from the TEGIS data bases are shown in figure 2. The data were processed for this publication by using the ARC/INFO software system, a vector-based GIS (Environmental Systems Research Institute, 1989).

**Base features**

The shaded-relief base was derived from USGS Digital Elevation Model (DEM) data files (U.S. Geological Survey, 1987), which are digital data of 124,000-scale-point elevations. Each DEM data file contains a regular array of elevations and covers one 7.5-minute-series map quadrangle. The array is based on a 30-meter (98-foot) spacing in the local Universal Transverse Mercator coordinate system. The DEM files were reprojected into raster grids and then shaded according to illumination from the northwest at 30 degrees above the horizon.

The road, stream-channel, and water-body features were derived from USGS Digital Line Graph (DLG) transportation and hydrography data files (U.S. Geological Survey, 1986), which consist of vector data developed from 1:24,000-scale USGS topographic maps.

**Thematic features**

Hydrologic basins for the major tributaries to Lake Tahoe and also basins above selected stream channels or surface-water monitoring sites were delineated on USGS 1:24,000-scale topographic maps. The boundaries for the major hydrologic basins and subbasins are shown in figure 2.

The hydrologic basins (table 1, fig. 2) with outflow into Lake Tahoe are numbered according to an arbitrary coding scheme modified from Jorgensen and others (1978). The hydrologic basins are numbered sequentially in a clockwise direction beginning with the first basin north of the Lake Tahoe outflow into the Truckee River. The hydrologic subbasins, which are coded sequentially in an upstream direction in the TEGIS data base, are not labeled in figure 2.

Tabulated information about hydrologic-monitoring sites was obtained from Federal, State, and local agencies working in the Lake Tahoe Basin. Data were compiled from records of monitoring sites for surface water, ground water, and snow through water year 1991 (September 1991). These data were evaluated for quality and significance by the monitoring staff of each agency. The staff members considered the completeness and duration of record as well as the hydrologic significance of each site and determined which monitoring sites were to be included in the GIS data base and in this publication. They also evaluated each of the surface-water monitoring sites for inclusion in a list of sites used to delineate hydrologic divides.

The hydrologic-monitoring sites are distinguished by type (surface water, ground water, or snow) in figure 2 and are arranged by agency and site identification number in table 2.

**SUMMARY TABLES**

Data for the hydrologic basins that have outflow into Lake Tahoe, as shown in figure 2, are listed in table 1. The values for drainage area were computed by (1) converting the vector coordinates in the TEGIS data base to the Albers equal-area conic projection, (2) determining the drainage area for each sub-basin, and (3) summing the drainage areas for the subbasins within each hydrologic basin. The values for drainage perimeter were computed by (1) converting the vector coordinates in the TEGIS data base to the Albers equal-area conic projection, (2) merging the subbasins within each hydrologic basin, and (3) determining the drainage perimeter for each hydrologic basin. Many of the values for drainage area do not agree exactly with the values reported by Jorgensen and others (1978). These variations result from discrepancies in the delineation of the hydrologic-basin boundaries between the two studies and less significantly from discrepancies in analytical technique.

Data for the hydrologic-monitoring sites, as shown in figure 2, are listed in table 2. Drainage-area values were computed for selected surface-water monitoring sites by the procedure described in the previous paragraph. Elevation values were determined from the records of the responsible agency or from inspection of USGS 7.5-minute-series topographic maps. The latitude and longitude of each site were determined by projecting the site location in the GIS coverage from UTM into geographic coordinates. All other values were compiled from the records of the monitoring agencies.

**REFERENCES CITED**

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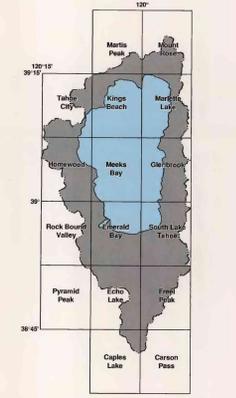
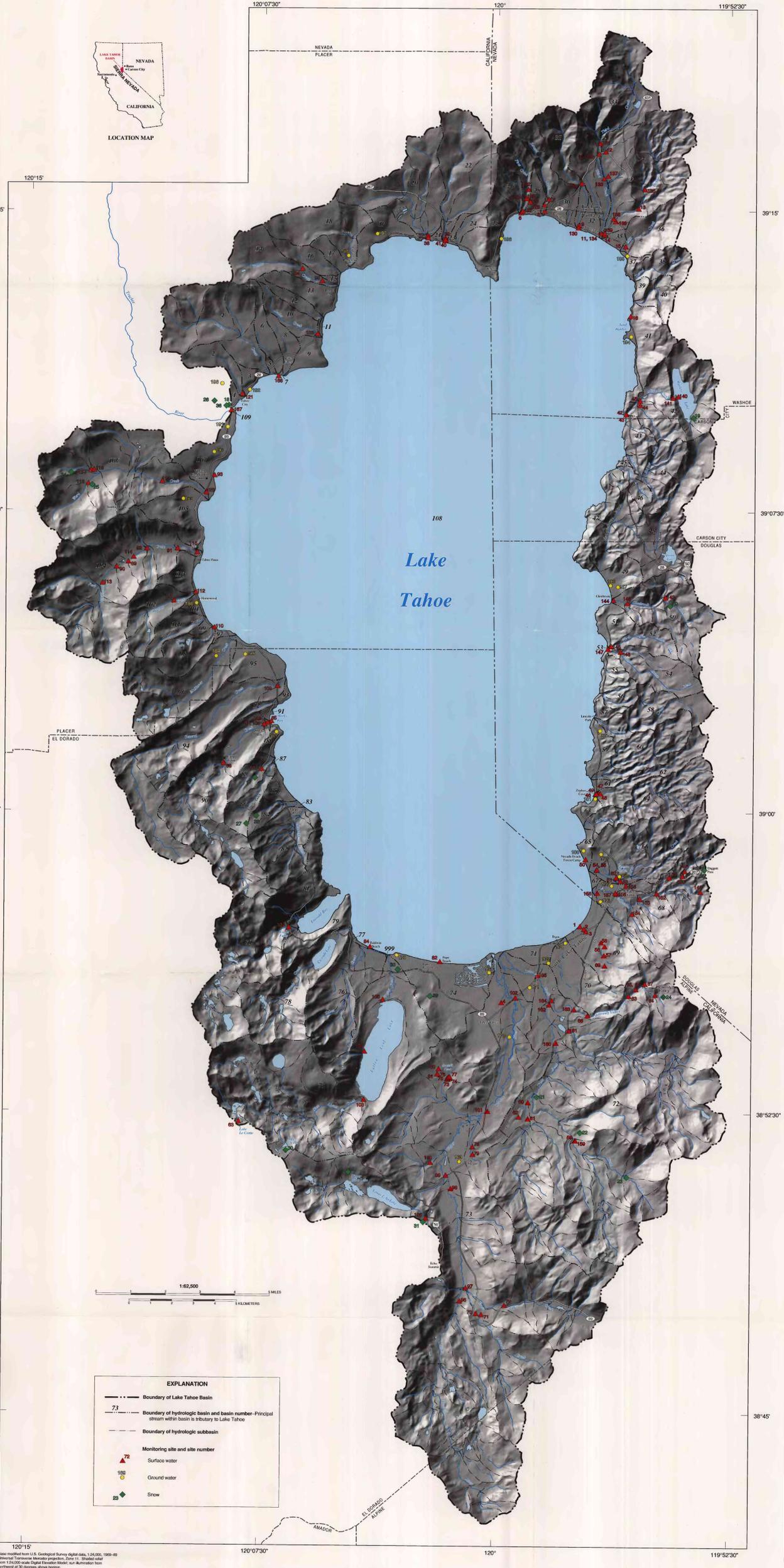


Figure 1. U.S. Geological Survey 7.5-minute quadrangles encompassing Lake Tahoe Basin.

Table 2. Hydrologic-monitoring sites

Number (this report)	Identification (used by agency)	Monitoring site (from agency listing)	Corresponding drainage area (square miles)	Elevation (feet)	Location (Latitude Longitude)	Site type
1	0918	Wildwood drainage at outlet to Lake Tahoe	—	6,230	39°17'30" N 120°17'30" W	SNOW
2	0919	Wildwood drainage at Wildwood Avenue	—	6,230	39°17'30" N 120°17'30" W	SN
3	1700	D stream drainage at Meads Bay	—	6,230	39°17'30" N 120°17'30" W	SN
4	10005A-1B	First Creek at Lake Tahoe Forest Camp	1,003	6,230	39°17'30" N 120°17'30" W	SN, QW
5	10005A-2A	First Creek at Crystal Show development	1,131	6,230	39°17'30" N 120°17'30" W	SN, QW
6	10005B-1B	Second Creek at Lakeshore Boulevard	1,131	6,230	39°17'30" N 120°17'30" W	SN, QW
7	10005B-2B	Second Creek at Lakeshore Boulevard	1,131	6,230	39°17'30" N 120°17'30" W	SN, QW
8	10006-1B	East Fork Third Creek at Lake Tahoe 431	4,39	7,120	39°17'30" N 120°17'30" W	SN, QW
9	10006-2B	Third Creek at Lakeshore Boulevard	4,39	7,120	39°17'30" N 120°17'30" W	SN, QW
10	10006-3B	North Fork Inlet Creek at Lake Tahoe 411	41	7,300	39°17'30" N 120°17'30" W	SN, QW
11	10006-4B	North Fork Inlet Creek at Lakeshore Boulevard	41	7,300	39°17'30" N 120°17'30" W	SN, QW
12	10006-5B	Inlet Creek at Lakeshore Boulevard	41	7,300	39°17'30" N 120°17'30" W	SN, QW
13	10006-6B	North Fork Inlet Creek at Lakeshore Boulevard	41	7,300	39°17'30" N 120°17'30" W	SN, QW
14	10006-7B	North Fork Inlet Creek at Lakeshore Boulevard	41	7,300	39°17'30" N 120°17'30" W	SN, QW
15	10006-8B	Lake Tahoe off road gate at Sand Harbor	—	6,230	39°17'30" N 120°17'30" W	SN, QW
16	10020-1B	Lake Tahoe off road gate at Sand Harbor	—	6,230	39°17'30" N 120°17'30" W	SN, QW
17	10020-2B	Johnson #1	—	6,300	39°18'00" N 120°17'00" W	SN
18	10020-3B	Johnson #2	—	6,300	39°18'00" N 120°17'00" W	SN
19	10020-4B	Johnson #3	—	6,300	39°18'00" N 120°17'00" W	SN
20	10020-5B	Johnson #4	—	6,300	39°18'00" N 120°17'00" W	SN
21	10020-6B	Johnson #5	—	6,300	39°18'00" N 120°17'00" W	SN
22	10020-7B	Johnson #6	—	6,300	39°18'00" N 120°17'00" W	SN
23	10020-8B	Johnson #7	—	6,300	39°18'00" N 120°17'00" W	SN
24	10020-9B	Johnson #8	—	6,300	39°18'00" N 120°17'00" W	SN
25	10020-10B	Johnson #9	—	6,300	39°18'00" N 120°17'00" W	SN
26	10020-11B	Johnson #10	—	6,300	39°18'00" N 120°17'00" W	SN
27	10020-12B	Johnson #11	—	6,300	39°18'00" N 120°17'00" W	SN
28	10020-13B	Johnson #12	—	6,300	39°18'00" N 120°17'00" W	SN
29	10020-14B	Johnson #13	—	6,300	39°18'00" N 120°17'00" W	SN
30	10020-15B	Johnson #14	—	6,300	39°18'00" N 120°17'00" W	SN
31	10020-16B	Johnson #15	—	6,300	39°18'00" N 120°17'00" W	SN
32	10020-17B	Johnson #16	—	6,300	39°18'00" N 120°17'00" W	SN
33	10020-18B	Johnson #17	—	6,300	39°18'00" N 120°17'00" W	SN
34	10020-19B	Johnson #18	—	6,300	39°18'00" N 120°17'00" W	SN
35	10020-20B	Johnson #19	—	6,300	39°18'00" N 120°17'00" W	SN
36	10020-21B	Johnson #20	—	6,300	39°18'00" N 120°17'00" W	SN
37	10020-22B	Johnson #21	—	6,300	39°18'00" N 120°17'00" W	SN
38	10020-23B	Johnson #22	—	6,300	39°18'00" N 120°17'00" W	SN
39	10020-24B	Johnson #23	—	6,300	39°18'00" N 120°17'00" W	SN
40	10020-25B	Johnson #24	—	6,300	39°18'00" N 120°17'00" W	SN
41	10020-26B	Johnson #25	—	6,300	39°18'00" N 120°17'00" W	SN
42	10020-27B	Johnson #26	—	6,300	39°18'00" N 120°17'00" W	SN
43	10020-28B	Johnson #27	—	6,300	39°18'00" N 120°17'00" W	SN
44	10020-29B	Johnson #28	—	6,300	39°18'00" N 120°17'00" W	SN
45	10020-30B	Johnson #29	—	6,300	39°18'00" N 120°17'00" W	SN
46	10020-31B	Johnson #30	—	6,300	39°18'00" N 120°17'00" W	SN
47	10020-32B	Johnson #31	—	6,300	39°18'00" N 120°17'00" W	SN
48	10020-33B	Johnson #32	—	6,300	39°18'00" N 120°17'00" W	SN
49	10020-34B	Johnson #33	—	6,300	39°18'00" N 120°17'00" W	SN
50	10020-35B	Johnson #34	—	6,300	39°18'00" N 120°17'00" W	SN
51	10020-36B	Johnson #35	—	6,300	39°18'00" N 120°17'00" W	SN
52	10020-37B	Johnson #36	—	6,300	39°18'00" N 120°17'00" W	SN
53	10020-38B	Johnson #37	—	6,300	39°18'00" N 120°17'00" W	SN
54	10020-39B	Johnson #38	—	6,300	39°18'00" N 120°17'00" W	SN
55	10020-40B	Johnson #39	—	6,300	39°18'00" N 120°17'00" W	SN
56	10020-41B	Johnson #40	—	6,300	39°18'00" N 120°17'00" W	SN
57	10020-42B	Johnson #41	—	6,300	39°18'00" N 120°17'00" W	SN
58	10020-43B	Johnson #42	—	6,300	39°18'00" N 120°17'00" W	SN
59	10020-44B	Johnson #43	—	6,300	39°18'00" N 120°17'00" W	SN
60	10020-45B	Johnson #44	—	6,300	39°18'00" N 120°17'00" W	SN
61	10020-46B	Johnson #45	—	6,300	39°18'00" N 120°17'00" W	SN
62	10020-47B	Johnson #46	—	6,300	39°18'00" N 120°17'00" W	SN
63	10020-48B	Johnson #47	—	6,300	39°18'00" N 120°17'00" W	SN
64	10020-49B	Johnson #48	—	6,300	39°18'00" N 120°17'00" W	SN
65	10020-50B	Johnson #49	—	6,300	39°18'00" N 120°17'00" W	SN
66	10020-51B	Johnson #50	—	6,300	39°18'00" N 120°17'00" W	SN
67	10020-52B	Johnson #51	—	6,300	39°18'00" N 120°17'00" W	SN
68	10020-53B	Johnson #52	—	6,300	39°18'00" N 120°17'00" W	SN
69	10020-54B	Johnson #53	—	6,300	39°18'00" N 120°17'00" W	SN
70	10020-55B	Johnson #54	—	6,300	39°18'00" N 120°17'00" W	SN
71	10020-56B	Johnson #55	—	6,300	39°18'00" N 120°17'00" W	SN
72	10020-57B	Johnson #56	—	6,300	39°18'00" N 120°17'00" W	SN
73	10020-58B	Johnson #57	—	6,300	39°18'00" N 120°17'00" W	SN
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75	10020-60B	Johnson #59	—	6,300	39°18'00" N 120°17'00" W	SN
76	10020-61B	Johnson #60	—	6,300	39°18'00" N 120°17'00" W	SN
77	10020-62B	Johnson #61	—	6,300	39°18'00" N 120°17'00" W	SN
78	10020-63B	Johnson #62	—	6,300	39°18'00" N 120°17'00" W	SN
79	10020-64B	Johnson #63	—	6,300	39°18'00" N 120°17'00" W	SN
80	10020-65B	Johnson #64	—	6,300	39°18'00" N 120°17'00" W	SN
81	10020-66B	Johnson #65	—	6,300	39°18'00" N 120°17'00" W	SN
82	10020-67B	Johnson #66	—	6,300	39°18'00" N 120°17'00" W	SN
83	10020-68B	Johnson #67	—	6,300	39°18'00" N 120°17'00" W	SN
84	10020-69B	Johnson #68	—	6,300	39°18'00" N 120°17'00" W	SN
85	10020-70B	Johnson #69	—	6,300	39°18'00" N 120°17'00" W	SN
86	10020-71B	Johnson #70	—	6,300	39°18'00" N 120°17'00" W	SN
87	10020-72B	Johnson #71	—	6,300	39°18'00" N 120°17'00" W	SN
88	10020-73B	Johnson #72	—	6,300	39°18'00" N 120°17'00" W	SN
89	10020-74B	Johnson #73	—	6,300	39°18'00" N 120°17'00" W	SN
90	10020-75B	Johnson #74	—	6,300	39°18'00" N 120°17'00" W	SN
91	10020-76B	Johnson #75	—	6,300	39°18'00" N 120°17'00" W	SN
92	10020-77B	Johnson #76	—	6,300	39°18'00" N 120°17'00" W	SN
93	10020-78B	Johnson #77	—	6,300	39°18'00" N 120°17'00" W	SN
94	10020-79B	Johnson #78	—	6,300	39°18'00" N 120°17'00" W	SN
95	10020-80B	Johnson #79	—	6,300	39°18'00" N	