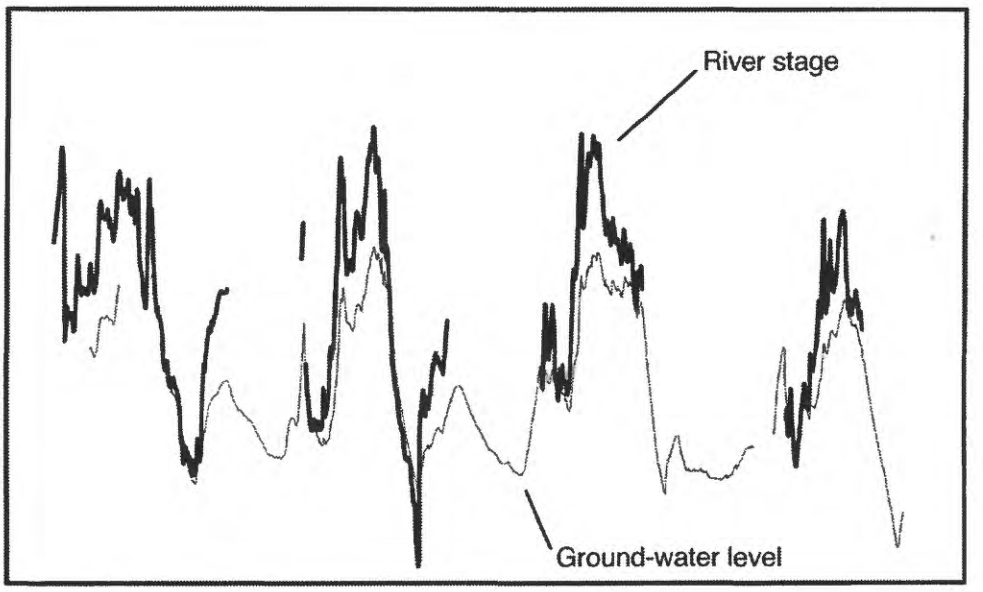
Ground-Water and Surface-Water Elevations in the Fairbanks International Airport Area, Alaska, 1990-96, And Selected Geohydrologic Report References

Open-File Report 97-597
(Supersedes Open-File Report 95-382)

Prepared in cooperation with the
ALASKA DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES, FAIRBANKS INTERNATIONAL AIRPORT



U.S. Department of the Interior
U.S. Geological Survey

USGS
science for a changing world

Ground-Water and Surface-Water Elevations in the Fairbanks International Airport Area, Alaska, 1990-96, and Selected Geohydrologic Report References

By David V. Claar and Michael R. Lilly

U.S. GEOLOGICAL SURVEY

Open-File Report 97-597

Prepared in cooperation with the

ALASKA DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES, FAIRBANKS INTERNATIONAL AIRPORT

Fairbanks, Alaska
1997

U.S. DEPARTMENT OF THE INTERIOR
BRUCE BABBITT, Secretary

U.S. GEOLOGICAL SURVEY
Mark Schaefer, Acting Director

For additional information:

District Chief
U.S. Geological Survey
4230 University Drive, Suite 201
Anchorage, AK 99508-4664

http;//www-water-ak.usgs.gov

Copies of this report may be purchased from:

U.S. Geological Survey
Branch of Information Services
Box 25286
Denver, CO 80225-0286

CONTENTS

FIGURES

TABLES

CONVERSION FACTORS AND VERTICAL AND HORIZONTAL DATUMS

Multiply	By	To obtain
foot (ft)	0.3048	meter
mile (mi)	1.609	kilometer
square mile (mi^2)	2.59	square kilometer

Vertical Datum:

In this report, "sea level" refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929), a geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929. The main reference benchmark for the study area is K60 (elevation=432.95). The USGS uses the U.S. Coast and Geodetic Survey data reported in 1966 for all recent and current hydrologic investigations in the Fairbanks area.

Horizontal Datum:

The horizontal datum for all locations in this report is the North American Datum of 1927. Multiple reference marks were used from Alaska Department of Transportation and Public Facilities surveys. Global positioning survey instruments and topographic maps were also used to determine horizontal control points.

Ground-Water and Surface-Water Elevations in the Fairbanks International Airport Area, Alaska, 1990-96, and Selected Geohydrologic Report References

By David V. Claar *and* Michael R. Lilly

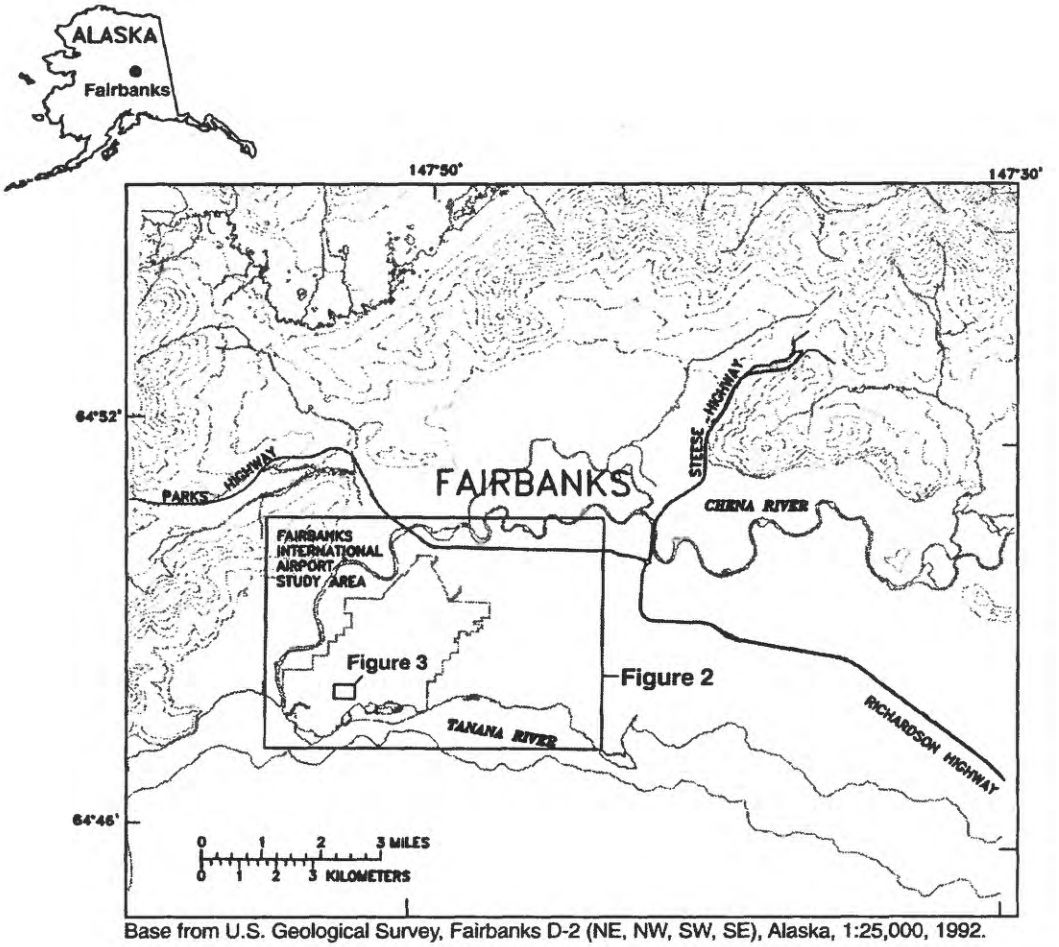
Abstract

Ground-water and surface-water elevation data were collected at 61 sites from 1990 to 1996 by the U.S. Geological Survey in cooperation with the Alaska Department of Transportation and Public Facilities, Fairbanks International Airport. Water-surface elevations were measured in 41 ground-water observation wells and at 20 surface-water sites to help characterize the geohydrology of the Fairbanks International Airport area. From 1990 to 1993, data were collected in the vicinity of the former fire-training area at the airport. From 1993 to 1996, the data-collection area was expanded to include the entire airport area. The total number of data-collection sites varied each year because of changing project objectives and increased understanding of the geohydrology in the area.

INTRODUCTION

The U.S. Geological Survey (USGS), in cooperation with the Alaska Department of Transportation and Public Facilities, Fairbanks International Airport (FIA), is presently (1997) conducting an investigation to characterize the geohydrology of the FIA area (figs. 1 and 2). The airport is southwest of and adjacent to the city of Fairbanks. From 1990 to 1993, data were collected in the vicinity of the former fire-training area at the airport to characterize the geohydrologic conditions in this area. In 1993, the study area was expanded to describe flow conditions for the entire FIA area. This report presents ground-water and surface-water elevation data that were collected from July 1991 to November 1996 at currently monitored sites, and supersedes a previous report by Claar and Lilly (1995). Data collected before July 1991 are available at our website or on disk by request from the District Chief.

Water-surface elevations at many of the ground-water and surface-water sites were collected at monthly intervals. In addition, water-surface elevation data were collected more frequently at selected sites to document short-term changes in ground-water elevations caused by rapid fluctuations in surface-water elevations in the Chena and Tanana Rivers. Continuous surface-water elevations were collected at the Chena River at Fairbanks and Tanana River at Fairbanks gaging stations through other USGS data-collection projects. Continuous water-surface elevations were recorded at three ground-water sites.



Base from U.S. Geological Survey, Fairbanks D-2 (NE, NW, SW, SE), Alaska, 1:25,000, 1992.

Figure 1. Location of Fairbanks, Alaska, and the Fairbanks International Airport study area.

Geohydrologic data-collection activities in this study were coordinated with those of other USGS projects for the University of Alaska Fairbanks (UAF) (Jackson and Lilly, 1996), the Fairbanks Railroad Industrial Area (FRIA) (Kriegler and Lilly, 1995; Lilly and others, 1996), and Fort Wainwright (FTWW). The UAF project area is directly north of the FIA study area. The FRIA project area is in downtown Fairbanks northeast of the airport. The FTWW project area is several miles east of the airport study area. The geohydrologic data collection from all of these projects is coordinated to allow sharing of data and increased understanding of the hydrology in the Fairbanks area. Information about these and other USGS projects can be found on the Worldwide Web at http://www-water-ak.usgs.gov.

All ground-water data are maintained in the USGS Ground-Water Site Inventory (GWSI) data base. Surface-water data at regular USGS gaging stations are in the USGS Automatic Data Acquisition and Processing System (ADAPS) data base. Other surface-water data collected specifically for these ground-water investigations are stored in GWSI.

GEOHYDROLOGIC SETTING

The FIA study area occupies about 8 mi^2 of the alluvial plain between the Chena and Tanana Rivers at their confluence (fig. 2). The former FIA fire-training area encompasses about 0.1 mi^2 near the south end of the FIA (figs. 2 and 3). The subsurface material at the study area and most of the surrounding area is composed of alluvial sand and gravel, known as the Chena Alluvium, deposited by the Tanana River (Péwé and others, 1976). Sediment facies within these deposits are laterally discontinuous as is typical of braided river deposits (Rust, 1978). The thickness of these deposits is unknown but may be in excess of 500 ft (Nelson, 1978). Chena Ridge, which is located north of the Chena River along the northwest boundary of the study area, is part of a metamorphic rock system that forms the Yukon-Tanana Upland (Anderson, 1970).

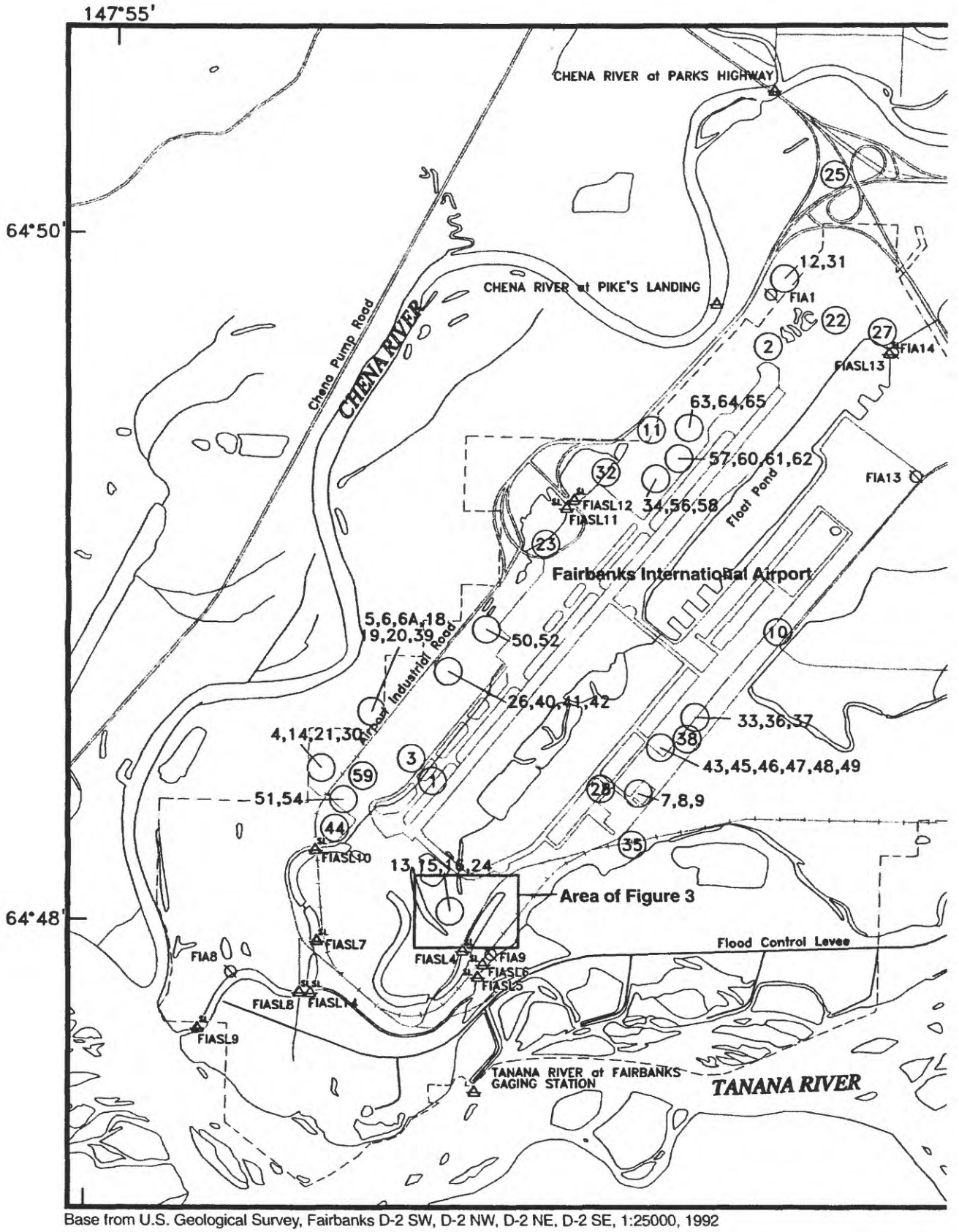
Before 1945, the Chena River entered the Chena Slough of the Tanana River east of Fairbanks. Between 1940 and 1945, the U.S. Army Corps of Engineers built a dike to block discharge from the Tanana River into the Chena Slough. The Chena Slough then became an extension of the channel of the Chena River, moving the river's mouth to its present location 7 mi southwest of Fairbanks (R.L. Burrows, USGS, written commun., 1997).

The Tanana River influences much of the alluvial aquifer in the Fairbanks area (Anderson, 1970; Nelson, 1978; Glass and others, 1996). The stage of the Tanana River typically rises for one to two weeks during the spring due to snowmelt and ice-jam effects and then recedes (fig. 4). The stage rises again for a longer period during the middle of the summer in response to glacial runoff from the Alaska Range. The flow and stage of the Tanana River decline during late summer when temperatures drop in the Alaska Range. The river stages rise after ice has completely covered the river, as a result of increased flow resistance from ice cover. Stages then fall as flow recedes throughout the winter.

The stage and flow of the Chena River fluctuate according to seasonal changes. Like the Tanana River, the stage of the Chena River rises in the spring due to snowmelt runoff and ice-jam effects (fig. 4). Precipitation during July and August can cause rapid stage changes in the Chena River, such as the peak of record measured in August 1967 (Glass and others, 1996). In late September and early October, as the dominant form of precipitation changes from rain to snow, the stage of the Chena River falls (Plumb and Lilly, 1996). Ice covers most of the Chena River during the winter, although long reaches may remain ice-free throughout the season. The same processes controlling the stage changes during the winter in the Tanana River cause the stage to rise in the Chena River when it freezes over and to fall as flow recedes throughout the winter.

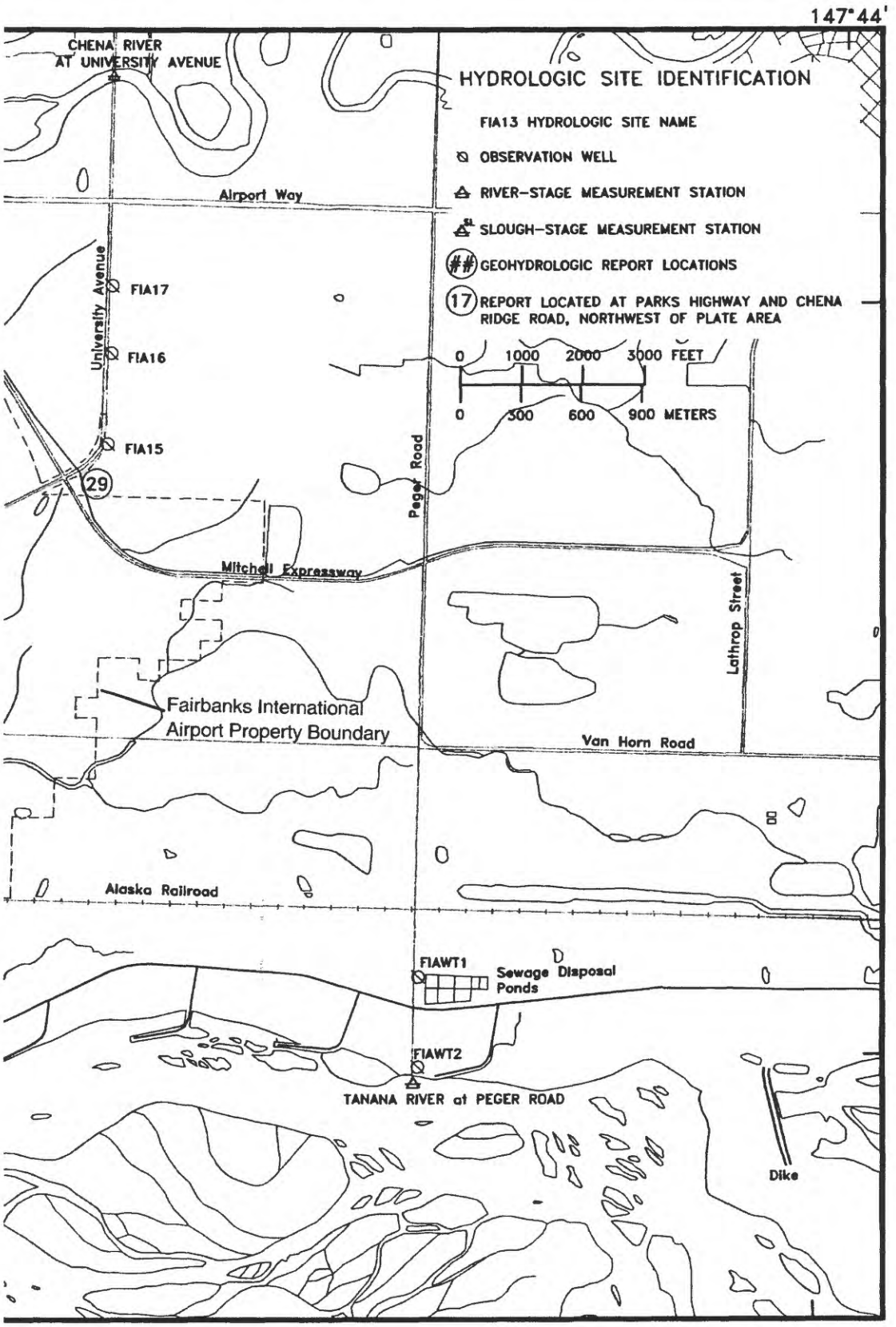
When the stage of the Tanana River rises at the mouth of the Chena River, a backwater effect causes the stage of the Chena River to rise within the study area. Three factors control the extent of backwater effects within the Chena River: (1) Tanana River stage, (2) Chena River flow, and (3) the topographically higher position of the Tanana River relative to the Chena River. As the stage of the Tanana River rises, backwater effects on the Chena River extend farther upstream. Moreover, high flow in the Chena River at the same time as high stage in the Tanana River increases the extent of backwater effects. The backwater effects are magnified because the Tanana River is topographically higher than the Chena River.

The geometry of the area bounded by the Chena and Tanana Rivers affects the configuration of the water table (Nelson, 1978; Glass and others, 1996). The depth to ground water below the land surface is less than 10 ft throughout most of the FIA study area. Ground-water elevations



Base from U.S. Geological Survey, Fairbanks D-2 SW, D-2 NW, D-2 NE, D-2 SE, 1:25000, 1992

Figure 2. Hydrologic data-collection sites and report locations, Fairbanks International Airport study area (see figure 1 for location).


147°44'
CHENA RIVER AT UNIVERSITY AVENUE
HYDROLOGIC SITE IDENTIFICATION
FIA13 HYDROLOGIC SITE NAME
OBSERVATION WELL
RIVER-STAGE MEASUREMENT STATION
SLOUGH-STAGE MEASUREMENT STATION
GEOHYDROLOGIC REPORT LOCATIONS
17 REPORT LOCATED AT PARKS HIGHWAY AND CHENA RIDGE ROAD, NORTHWEST OF PLATE AREA
0 1000 2000 3000 FEET
0 300 600 900 METERS
Airport Way
University Avenue
FIA17
FIA16
FIA15
29
Peger Road
Mitchell Expressway
Lathrop Street
Fairbanks International Airport Property Boundary
Van Horn Road
Alaska Railroad
FIAWT1
Sewage Disposal Ponds
FIAWT2
TANANA RIVER at PEGER ROAD
Dike

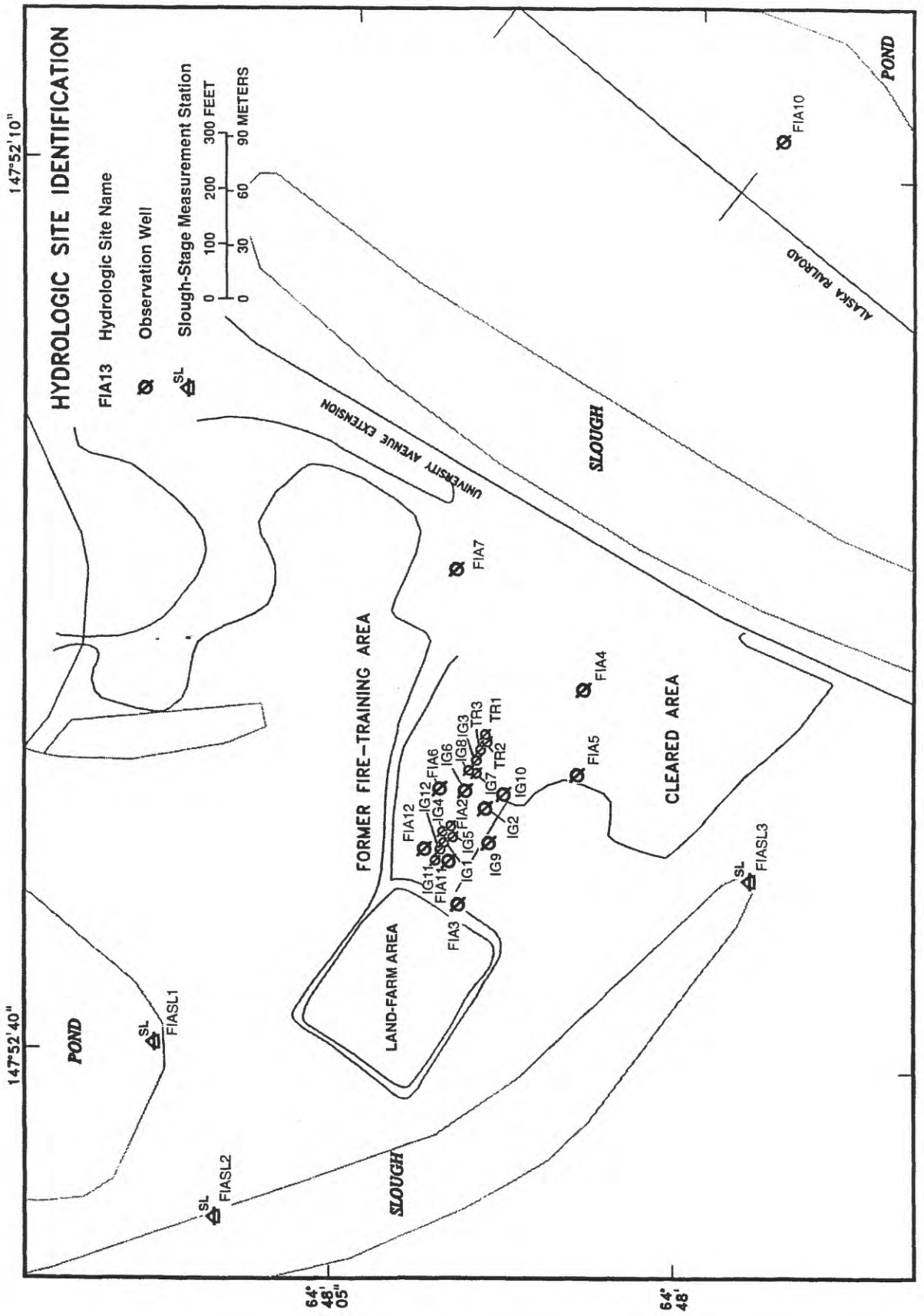


Figure 3. Hydrologic data-collection sites in the former fire-training area, Fairbanks International Airport (see figures 1 and 2 for location).

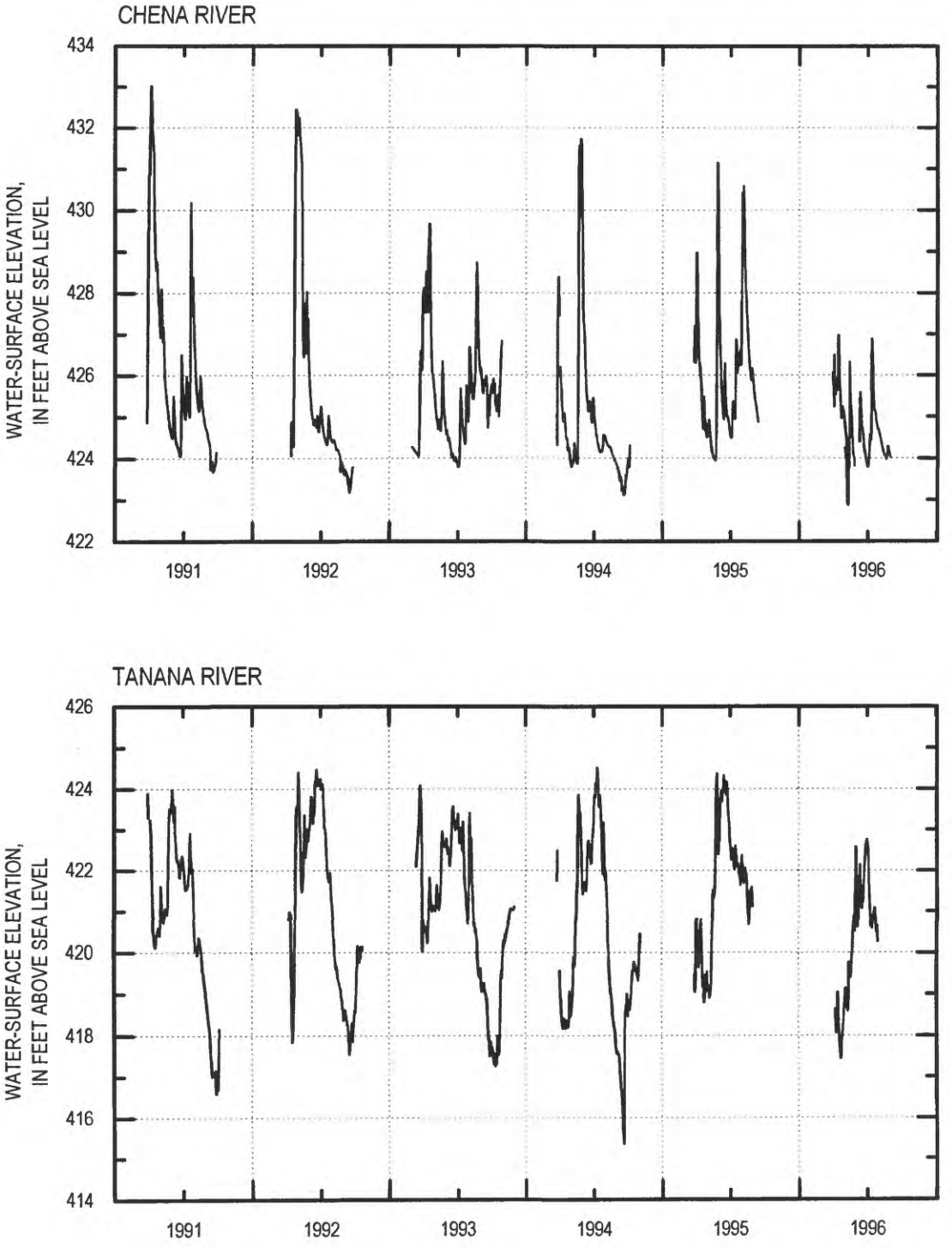


Figure 4. Water-surface elevations of the Chena River at Fairbanks, station No. 15514000, and the Tanana River at Fairbanks, station No. 15485500, for calendar years 1991 through 1996.

respond to stage changes of the Chena and Tanana Rivers (fig. 5). The only major withdrawals of ground water affecting ground-water elevations in the study area occurred in September 1996 at the north end of the FIA float pond (fig. 2). Pumping during gravel-pit dewatering affected ground-water elevations at sites near the north end of the FIA float pond, but was not a widespread or long-lasting effect. Water levels within the former fire-training area were affected by small-scale pumping during short periods of time when ground-water remediation experiments were conducted during the summer of 1992. The College Utilities Corporation also withdraws water from wells on the north side of the Chena River close to the northeast corner of the study area. The effect of these withdrawals on water levels within the study area is unknown, but is thought to be insignificant because of the distance between the pumping wells and the study sites, and because of the high hydraulic conductivity of the aquifer.

GROUND-WATER SITES

During this study, water elevations were measured in 41 wells, 23 of which are in the former fire-training area (figs. 2 and 3, and table 1). While most of the wells are shallow—less than 30 ft deep—and screened at the water table, ground-water elevation data from observation wells FIAWT1-B and FIAWT1-C are from greater depths (fig. 6).

The water-surface elevation in a well was determined by using either a steel tape and chalk or an electric tape to measure the vertical distance between a measuring point and the water surface. The electric tapes were calibrated against steel tapes and correction factors were applied. Replicate measurements were made at each well until depth-to-water readings were duplicated within 0.01 ft for measurements made by steel tapes and within 0.02 ft for those made by electric tapes. The measuring points at all wells used in this study were labeled to allow consistent measurements.

Continuous data collection of ground-water elevations was accomplished by using a full-bridge, silicon-based pressure transducer and a Campbell Scientific CR10 data logger. All pressure transducers were built and calibrated by the USGS. Calibration was done in a wall-mounted well by increasing and decreasing the head above the pressure transducer at constant intervals while recording millivolt readings from the data logger. The water used for calibration was chilled to be close to temperatures typically found in ground water in the study area.

SURFACE-WATER SITES

Water elevations were measured at 20 surface-water sites: 4 on the Chena River, 2 on the Tanana River, and 14 on miscellaneous sloughs and ponds (figs. 2 and 3, and table 2). The Chena River at Fairbanks gaging station is about 500 ft downstream from the Steese Highway bridge (fig. 1). The Chena River at Fairbanks and the Tanana River at Fairbanks continuous gaging stations are maintained by other USGS programs with the U.S. Army Corps of Engineers. The sloughs and ponds act as retention ponds for snowmelt and rainfall runoff. Water elevations in sloughs, ponds, and selected river sites were determined by reading a staff gage or by using a measuring tape to measure the distance from the water surface to a point of known elevation. At stream-gaging stations, water elevations were determined by using wire-weight gages on bridges, by surveying to the water surface, or by water-level sensors interfaced with a continuous stage recorder. In the winter, holes were cut through the ice to measure water elevations.

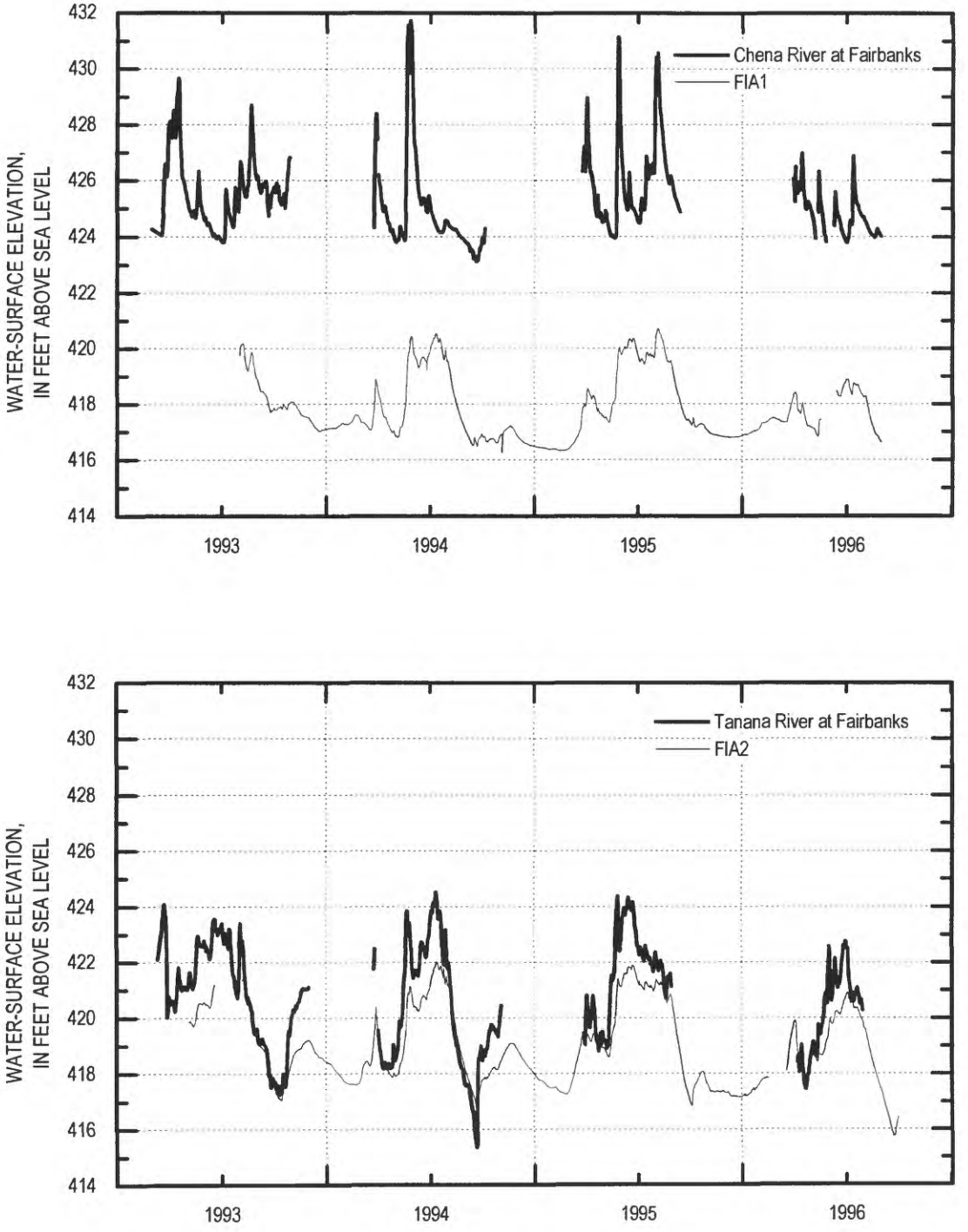


Figure 5. Water-surface elevations from 1993 through 1996 for observation well FIA1 and the Chena River at Fairbanks (above), and observation well FIA2 and the Tanana River at Fairbanks (below).

Table 1. Ground-water data-collection sites, Fairbanks International Airport study area

[-- indicates no previously used name]

Site name this report	Site name previously used	GWSI Site ID	GWSI Local Number
FIA1[a]	--	644954147502901	FC00100118BBCD1 003
FIA2[a]	IGW	644804147523201	FC00100225BCBC1 010
FIA3	LFW	644804147523501	FC00100226ADAB1 006
FIA4	B-1	644802147522701	FC00100225BCCB1 006
FIA5	B-2	644802147523001	FC00100226ADAA1 007
FIA6	B-3	644804147523101	FC00100226ADAD2 008
FIA7	B-4	644804147522301	FC00100225BCCB1 005
FIA8[a]	P111	644752147541101	FC00100226CABC1 001
FIA9	PTAN	644758147520601	FC00100225BCDD1 003
FIA10[a]	CP60	644759147521101	FC00100225BCDA1 008
FIA11	DEC1	644804147523301	FC00100226ADAD2 018
FIA12	DEC2	644805147523301	FC00100226ADAA2 019
FIA13[a]	--	644922147492701	FC00100118DCBD1 006
FIA14	--	644944147493801	FC00100118BDDD2 007
FIA15[a]	TH93-1	644936147483501	FC00100118DADB1 008
FIA16[a]	TH93-3	644950147483501	FC00100117BCBB1 003
FIA17[a]	TH93-5	645001147484001	FC00100117BBBC1 008
FIA18[a]	FP-O	645018147483901	FC00100107DADC1 014
FIA19[a]	FP-I	644757147462401	FC00100128BCCC1 004
FIA23[a]	--	645033147483501	FC00100107BCCC1 006
FIAWT1-A[a]	--	644811147463301	FC00100128BBCC1 005
FIAWT1-B[a]	--	644811147463302	FC00100128BBCC2 006
FIAWT1-C[a]	--	644811147463303	FC00100128BBCC3 007
FIAWT2-A	--	644757147463201	FC00100128BCCC2 008
FIAWT2-B	--	644757147463202	FC00100128BCCC3 009
FIAWT2-C	--	644757147463203	FC00100128BCCC4 010
IG1	--	644804147523302	FC00100226ADAA3 020

Table 1. Ground-water data-collection sites, Fairbanks International Airport study area (Continued)
[-- indicates no previously used name]

Site name this report	Site name previously used	GWSI Site ID	GWSI Local Number
IG2	--	644804147523202	FC00100226ADAD3 021
IG3	--	644804147523001	FC00100225BCBB1 011
IG4	--	644804147523203	FC00100225BCBC2 012
IG5	--	644804147523204	FC00100226ADAA4 005
IG6	--	644804147523102	FC00100225BCBC3 013
IG7	--	644804147523002	FC00100225BCBC4 014
IG8	--	644804147523003	FC00100225BCBC5 015
IG9	--	644804147523303	FC00100226ADAD4 022
IG10	--	644804147523005	FC00100225BCBC9 019
IG11	--	644804147523304	FC00100226ADAD4 022
IG12	--	644804147523305	FC00100226ADAD7 025
TR1	--	644804147522901	FC00100225BCBC7 016
TR2	--	644804147522902	FC00100225BCBC7 017
TR3	--	644804147523004	FC00100225BCBC8 018

[a]data for this site are included in this report

Data from some of the ground-water wells and surface-water sites have been previously reported or released to the public using names that are different from those used in this report. Present and previous names are cross-referenced in tables 1 and 2.

SURVEY DATA

The elevations of reference points at all water-surface elevation measuring sites in this study were surveyed to the National Geodetic Vertical Datum of 1929. The datum is called "sea level" in this report. The reference benchmark for this study is K60 (U.S. Coast and Geodetic Survey, 1966), located on the airport apron 500 ft west of the main runway. The elevation of K60 used for this study and used by the Fairbanks International Airport is 432.95 ft. This elevation is 0.02 ft higher than the elevation given by the U.S. Coast and Geodetic Survey (1966). This elevation difference should not adversely affect geohydrologic interpretation in the study area. Before June 1992, the USGS used a different benchmark; previously released elevations may differ from those given in this report. The elevations of reference points forming the FIA vertical survey net were connected to the vertical survey net used by the USGS in a study of the University of Alaska area, located northeast of the FIA. All surveys were completed with an error of less than 0.005 ft between each station within a survey loop. Survey information is shown in table 3 and appendix 1.

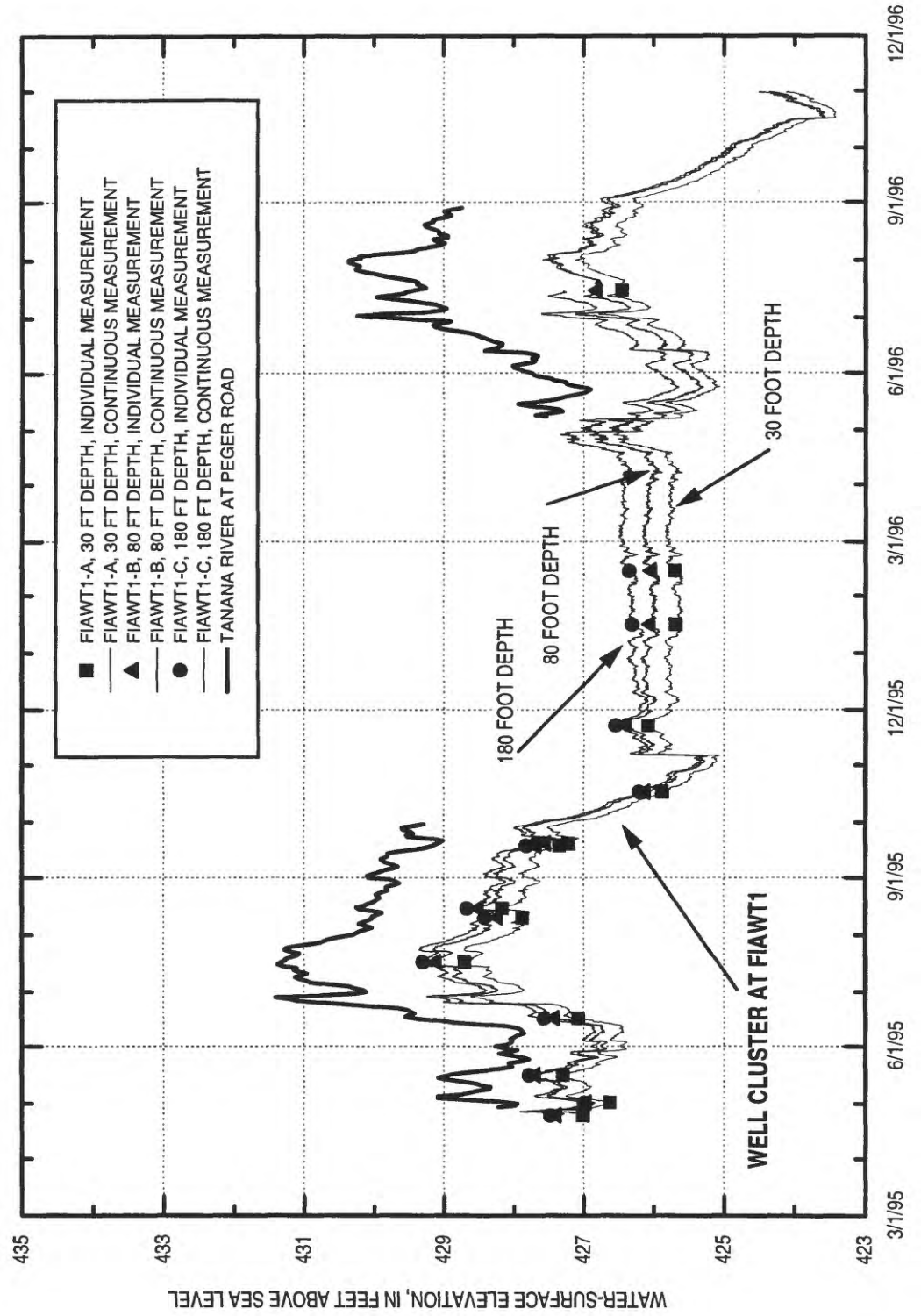


Figure 6. Water-surface elevations for observation wells FIAWT1-A, FIAWT1-B, and FIAWT1-C, and the Tanana River at Peger Road, 1995 through 1996.

Table 2. Surface-water data-collection sites, Fairbanks International Airport study area

Sloughs and ponds			
Site name this report	Site name previously used	GWSI Site ID	GWSI Local Number
FIASL1	SLS1	644944147494001	FC00100226ADAB1 010
FIASL2[a]	SLR1	644807147524501	FC00100226ADAB2 015
FIASL3	SLR2	644800147523301	FC00100226ADDA1 009
FIASL4[a]	SLR3, CU1	644757147522701	FC00100225BCCC1 007
FIASL5	SLR4	644752147522101	FC00100225CBBD1 009
FIASL6[a]	CU4	644755147521801	FC00100225CBBA1 020
FIASL7	SLR8, SLR12	644758147532701	FC00100226ACCC1 016
FIASL8[a]	CU2	644749147533301	FC00100226CADA1 013
FIASL9	SLR7b, SLR7c	644742147541501	FC00100226CCAB1 012
FIASL10[a]	SLR9, CU3	644814147532901	FC00100226ABCB1 017
FIASL11	SLR13	644915147515001	FC00100224BABA1 005
FIASL12[a]	SLR14	644916147514601	FC00100213CDCD1 002
FIASL13[a]	SLS3	644944147494001	FC00100118BDDD1 004
FIASL14	SLR6, SLR10, SLR11, SLS2	644749147533101	FC00100226DBCB1 014

River sites	
Site name	ADAPS Station ID
Chena River at Fairbanks	15514000
Chena River at University Ave.[a]	15514016
Chena River at Parks Highway[a]	15514018
Chena River at Pike's Landing[a]	15514020
Tanana River at Peger Road[a]	15485495
Tanana River at Fairbanks[a]	15485500

[a]data for this site are included in this report

Reference points and measuring points were re-surveyed as needed to check and adjust elevations. The primary cause of vertical change is frost jacking that occurs mainly in late spring or early summer, after the snow has melted. Updated measuring-point elevations are applied to water-surface elevations after the estimated time of movement. If a measuring point has changed, the new elevation is indicated on the water-level measurement tables; otherwise, no new elevations are noted. Horizontal locations of sites were determined by horizontal ground surveys, satellite-based global positioning systems, and from maps of the study area.

Table 3. Vertical and horizontal controls of hydrologic data-collection sites, Fairbanks International Airport study area

[The eastings and northings for each site are based on the Alaska state-plane coordinate system; LS, land surface; MP, measuring point]

Site name	Easting	Northing	LS elevation	MP elevation
Ground-water sites				
FIA1	213270	3962636	430.09	425.04
FIA2	207599	3951692	423.98	426.20
FIA3	207474	3951709	426.65	428.78
FIA4	207800	3951492	427.13	429.61
FIA5	207675	3951504	426.42	428.87
FIA6	207658	3951708	425.67	428.73
FIA7	207976	3951680	425.53	428.38
FIA8	203650	3950556	423.30	425.79
FIA9	208300	3950900	425.56	430.96
FIA10	208500	3951160	425.62	428.57
FIA11	207548	3951691	425.26	427.45
FIA12	207570	3951727	424.24	426.93
FIA13	215837	3959392	428.77	432.67
FIA14	215422	3961596	430.09	431.99
FIA15	218131	3960665	428.65	429.81
FIA16	218190	3962141	426.32	431.77
FIA17	218211	3963242	428.06	431.97
FIA18	218050	3965210	430.30	432.56
FIA19	223160	3950790	432.10	432.92
FIA23	218290	3966549	426.95	430.35
FIAWT1-A	223180	3951950	433.30	434.76
FIAWT1-B	223180	3951950	433.30	434.84
FIAWT1-C	223180	3951950	433.30	434.83
FIAWT2-A	223190	3950460	432.23	434.37
FIAWT2-B	223190	3950460	432.23	434.27
FIAWT2-C	223190	3950460	432.23	434.42
IG1	207578	3951701	423.56	426.47
IG2	207625	3951641	424.88	427.13

Table 3. Vertical and horizontal controls of hydrologic data-collection sites, Fairbanks International Airport study area (Continued)

[The eastings and northings for each site are based on the Alaska state-plane coordinate system; LS, land surface; MP, measuring point]

Site name	Easting	Northing	LS elevation	MP elevation
IG3	207697	3951653	425.93	428.21
IG4	207592	3951701	424.04	427.94
IG5	207588	3951691	424.00	425.33
IG6	207652	3951671	424.56	429.37
IG7	207680	3951655	424.66	428.72
IG8	207683	3951664	424.31	428.23
IG9	207554	3951635	424.98	429.02
IG10	207691	3951667	424.33	427.89
IG11	207554	3951712	424.28	424.78
IG12	207569	3951706	423.71	424.51
TR1	207728	3951639	425.92	427.80
TR2	207723	3951641	425.95	428.09
TR3	207710	3951647	425.86	428.19
Surface-water sites				
FIASL1	207302	3952058	418.76	422.11
FIASL2	207056	3951942	420.37	422.07
FIASL3	207533	3951217	420.09	421.24
FIASL4	207785	3950972	419.39	422.88
FIASL5	208000	3950290	418.87	419.62
FIASL6	208190	3950730	422.67	422.67
FIASL7	205196	3951133	418.09	418.09
FIASL8	204913	3950224	420.44	420.44
FIASL9	203075	3949587	417.81	417.81
FIASL10	205151	3952747	419.79	419.79
FIASL11	209645	3958839	418.63	418.93
FIASL12	209800	3958956	418.54	418.99
FIASL13	215351	3961565	419.05	425.05
FIASL14	205024	3950214	416.83	416.83

GROUND-WATER AND SURFACE-WATER ELEVATIONS

At the back of this report is a section called "Selected Water-Surface Elevation Tables and Hydrographs." This section shows ground-water and surface-water data collected from July 1991 to November 1996 at currently monitored sites in the Fairbanks International Airport area. Data for each site consist of water elevations collected during mass measurements (MM), which are nearly synoptic sets of measurements made once each month at a large group of sites, and partial measurements (PM), which are sets of measurements made as needed at a smaller selection of sites.

Each table showing water-surface elevations contains information about the site, well construction data, and each measurement made at the site. Land surface (LS) is the average elevation of the ground immediately surrounding the well, rebar, culvert, or staff gage at each site. The measuring point (MP) is the point of known elevation from which all water-elevation measurements are made. The site identification (ID) is based on latitude and longitude and is the primary identifier used in the USGS data bases GWSI and ADAPS. The local number is based on the State Rectangular Coordinate System, defined by base and meridian, township, range, section, and quarter section to the fourth order number (fig. 7). Continuous surface-water gaging stations are identified by an eight-digit downstream-order number. River stage stored in ADAPS is not always referenced to sea level, but information in annual data reports (U.S. Geological Survey, 1991-97) can be used to make such a conversion.

Hydrographs show all data presented on the corresponding table listing the water elevations: each point on the graph represents a measured water elevation. Uniform time and vertical scales for each hydrograph are used to allow direct comparison between hydrographs. Data points are plotted and connected with lines. These lines show the estimated trends between measurements; however, the connecting lines do not reflect any shorter period stage changes that may have occurred between measurements. No trend lines were drawn between points two months or more apart. The hydrographs for the two continuous ground-water data-collection sites (FIA1, FIA2) show the continuous ground-water elevations as well as the individual measurement points. The individual points are used to help calibrate and verify the pressure-transducer data for these sites.

The data for this project are maintained in the GWSI data base. Information describing the codes and fields used by GWSI (Luckey and Rogers, 1989) is presented in appendix 2. All water-surface elevation data for the project are available at http://www-water-ak.usgs.gov, by following the links to projects. The data are also available from the District Chief on a diskette; see appendix 3 for details. All investigations by the USGS at the FIA follow the appropriate American Society for Testing and Materials (ASTM) standards relating to ground-water and vadose zone investigations listed in appendix 4.

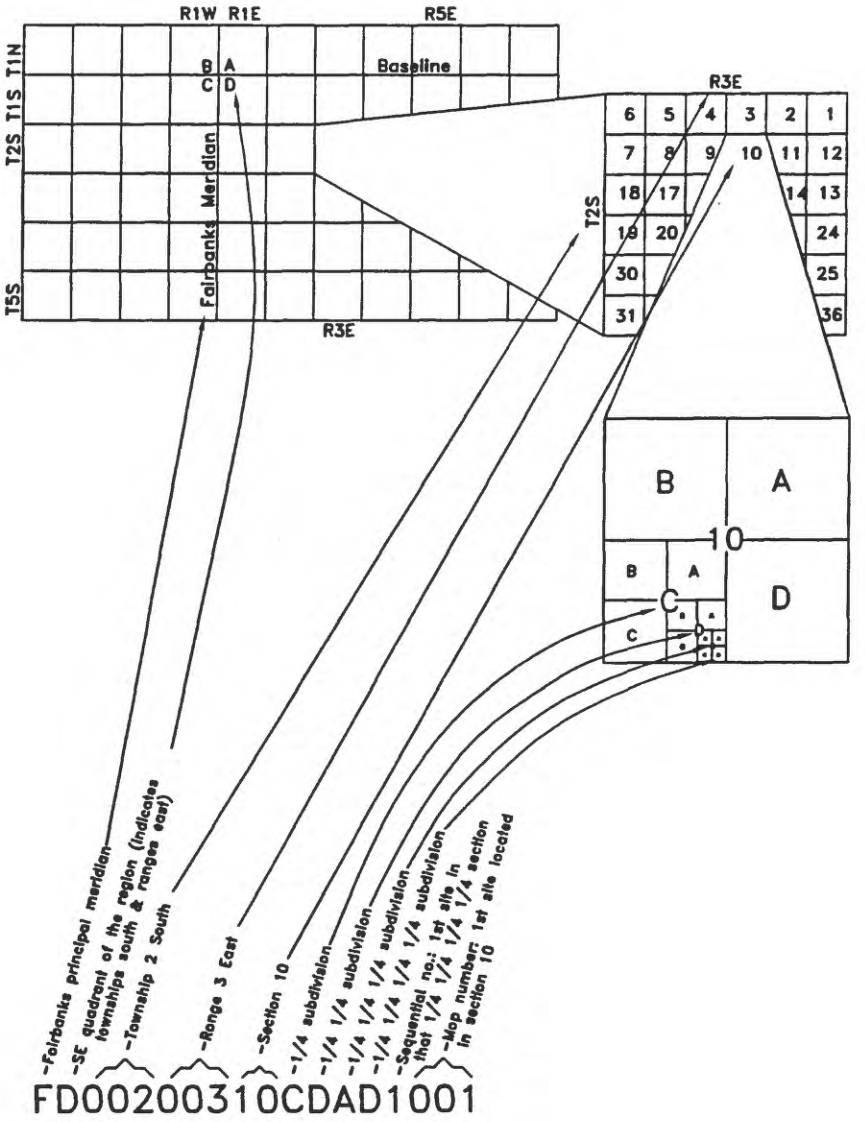


Figure 7. Derivation of local number from the official rectangular subdivision of public lands.

GEOHYDROLOGIC REPORT REFERENCES

This section contains a bibliography of pertinent geohydrologic reports by environmental contractors and others. Additional references for reports relating to the geohydrology of the greater Fairbanks area can be found in Lilly and others (1995). The subject location of each report is indicated by its number in figure 2. This report listing is also available at http://www-water-ak.usgs.gov.

1 Dames & Moore, 1991, Site assessment report for underground storage tank closure, CEM Leasing Inc., Fairbanks, Alaska: Fairbanks, Alaska, prepared for CEM Leasing Inc., 8 p. and appendixes A and B.

2 Dames & Moore, 1991, Site assessment report for underground storage tank closure, Empire Airlines, Fairbanks, Alaska: Fairbanks, Alaska, prepared for Empire Airlines, 8 p. and appendixes A and B.

3 Dames & Moore, 1991, Site assessment report for underground storage tank closure, Falcon Properties, Fairbanks, Alaska: Fairbanks, Alaska, prepared for Falcon Properties, 7 p. and miscellaneous appendixes.

4 Dames & Moore, 1992, Subsurface investigation, Tesoro Fairbanks Terminal, Fairbanks International Airport Industrial Park, Fairbanks, Alaska: Fairbanks, Alaska, prepared for Tesoro Alaska Petroleum Company, 23 p. and miscellaneous appendixes.

5 Environmental Management, Inc., 1992, Phase 1, site assessment, Mark Air Fairbanks facilities, Fairbanks, Alaska: Anchorage, Alaska, prepared for Mark Air, 8 p. and appendixes A, B, and C.

6 Environmental Management, Inc., 1993, Phase 2 - site assessment, Mark Air Fairbanks facilities, Fairbanks, Alaska, v. 1: Anchorage, Alaska, prepared for Mark Air, 40 p. and appendixes A, B, and C.

6A Environmental Management, Inc., 1993, Phase 2 - site assessment, Mark Air Fairbanks facilities, Fairbanks, Alaska, v. 2: Anchorage, Alaska, prepared for Mark Air, appendixes D, E, F, and G.

7 Gilfilian Engineering, Inc., 1993, Winter season site remediation, start-up report for ERA Helicopters, Fairbanks International Airport, Fairbanks, Alaska: Anchorage, Alaska, prepared for Alaska Department of Environmental Conservation, Fairbanks, Alaska, 6 p. and miscellaneous appendixes.

8 Gilfilian Engineering, Inc., 1993, Status report - winter season, site remediation for ERA Helicopters, Fairbanks International Airport, Fairbanks, Alaska: Anchorage, Alaska, prepared for Alaska Department of Environmental Conservation, Fairbanks, Alaska, 7 p. and an appendix.

9 Gilfilian Engineering, Inc., 1992, UST removals and clean-up for ERA Aviation, Inc., Fairbanks Facility: Anchorage, Alaska, prepared for Alaska Department of Environmental Conservation, Fairbanks, Alaska, 12 p. and an appendix.

10 Braley, W. Alan, P.E., 1992, Site assessment report for underground storage tank closure, block 101, lot 11F, Fairbanks International Airport: Fairbanks, Alaska, Fairbanks International Airport, 4 p. and appendixes A and B.

11 U.S. Fish and Wildlife, 1991, Assessment and closure report: Fairbanks, Alaska, prepared for the Alaska Department of Conservation and the Fairbanks International Airport, 14 p. and appendixes A, B, and C.

12 Ecology and Environment, Inc., 1993, Environmental compliance investigation report, Fairbanks FAA Station, Fairbanks, Alaska: Anchorage, Alaska, prepared for Department of Transportation, Federal Aviation Administration, Alaskan Region, 196 p. and appendixes A, B, C, D, E, F, and G.

13 Rawls-McAfee, L.T. and Brown, E.J., 1992, Fairbanks International Airport bioremediation demonstration project: microbiology: Fairbanks, Alaska, Water Research Center, University of Alaska Fairbanks, prepared for Alaska Department of Transportation and Public Facilities, 32 p. and appendixes A and B.

14 Dames & Moore, 1992, Subsurface investigation, Tesoro Fairbanks terminal, Fairbanks International Airport Industrial Park, Fairbanks, Alaska: Fairbanks, Alaska, prepared for Tesoro Alaska Petroleum Company, 13 p. [all figures].

15 Braley, W.A., 1993, Fairbanks International Airport bioremediation project - preliminary report: Fairbanks, Alaska, Alaska Department of Transportation and Public Facilities, and Fairbanks International Airport, 29 p. and appendixes A and B.

16 Alaska Department of Transportation and Public Facilities, and Fairbanks International Airport, 1991, Contract documents and specifications: Fairbanks, Alaska, prepared for Fairbanks International Airport, variously paged [experimental bioremediation project, project no. 65096].

17 Alaska Department of Transportation and Public Facilities, 1990, Foundation report: Parks Highway/Chena Ridge interchange, bridge no. 1878 and 1879 (bridge no. 1879 future construction): Anchorage, Alaska, 7 p. and appendixes A, B, C, and D [project no. I-OA4-5(7), state project no. 63538, northern region].

18 Environmental Management, Incorporated, 1993, Mark Air Fairbanks monitoring well report: Anchorage, Alaska, prepared for Mark Air, Inc., 9 p. and attachments A, B, C, D, and E.

19 Environmental Management, Incorporated, 1994, Mark Air Fairbanks 2nd water sampling report: Anchorage, Alaska, prepared for Mark Air, Inc., 7 p. and attachments A, B, C, and D.

20 Environmental Management, Incorporated, 1994, Mark Air Fairbanks 3rd water sampling report: Anchorage, Alaska, prepared for Mark Air, Inc., 7 p. and appendixes A, B, C, and D.

21 Dames & Moore, 1994, Report on further delineation of free product plume, Tesoro Fairbanks terminal, Fairbanks International Airport Industrial Park, Fairbanks, Alaska: Fairbanks, Alaska, prepared for Tesoro Alaska Petroleum Company, 10 p., and appendixes A and B.

22 Design Alaska, Inc., 1989, Geotechnical studies (part A) proposed ramp expansion project Fairbanks International Airport, Alaska: Fairbanks, Alaska, 14 p. and an appendix.

23 Shannon & Wilson, Inc., 1982, Soil and foundation study, Fairbanks International Airport, proposed terminal expansion: Fairbanks, Alaska, 15 p. and appendix A.

24 Shannon & Wilson, Inc., 1991, Geotechnical studies, fire training center, Fairbanks International Airport, Fairbanks, Alaska: Fairbanks, Alaska, 23 p. and an appendix.

25 Alaska Department of Transportation and Public Facilities, 1983, Parks Highway, Airport Way to Peger Road (South Fairbanks expressway-west) bridge foundation investigation, Fairbanks, Alaska: Fairbanks, Alaska, 23 p. and appendix A [project no. F-035-6(12)].

26 Interior Region Design and Construction, and Alaska Department of Transportation and Public Facilities, 1982, Engineering geology and soils report, fuel access road, Fairbanks International Airport: Fairbanks, Alaska, 13 p. [project no. D-65261].

27 Northern Region Design and Construction, Alaska Department of Transportation and Public Facilities, 1988, Engineering geology and soils report, Fairbanks International Airport, access road "A": Fairbanks, Alaska, 18 p. with various tables and figures [project no. 64174, ledger code no. 30552121].

28 Northern Region Design and Construction, and Alaska Department of Transportation and Public Facilities, 1984, Engineering geology and soils report, float pond and east ramp supplement - taxiway 6, Fairbanks International Airport: Fairbanks, Alaska, 18 p. with [project no. D-48621].

29 Alaska Department of Transportation and Public Facilities, 1993, Notes for drilling along University Ave. from Parks Ave. to the railroad tracks: Fairbanks, Alaska, variously paged [notes, maps, and boring logs].

30 Hart Crowser, Inc., 1992, Transmittal to Ken Gaylord concerning hydraulic conductivity estimation Fairbanks terminal Fairbanks, Alaska: Fairbanks, Alaska, 6 p. and appendix A [notes, maps, charts, and tables].

31 Hawkins, D.B., 1995, Environmental overview and hydrogeologic conditions at Federal Aviation Administration facilities near Fairbanks, Alaska: U.S. Geological Survey Open-File Report 95-172, 10 p.

32 Alaska Department of Transportation and Public Facilities, 1995, Scoping report, Fairbanks International Airport drainage improvements: Fairbanks, Alaska, 8 p. and appendixes A and B [charts, maps, and correspondence].

33 Shannon & Wilson, Inc., 1995, Groundwater monitoring well installation and sampling, former Friendship Air lease property, Fairbanks International Airport, Fairbanks, Alaska: Fairbanks, Alaska, prepared for the Fairbanks International Airport, 6 p. [term agreement no. 42-018-42, NTP no.12].

34 Overpeck, C.S., 1995, Brooks Fuel underground storage tanks release investigation, block 3, lot 7 Fairbanks International Airport, v. I of II: Fairbanks, Alaska, Environmental Systems, Inc., [10 sections and various notes and boring logs].

35 Alaska Department of Transportation and Public Facilities, 1996, Notes for drilling around and in Fairbanks International Airport material site east of the Fairbanks International Airport: Fairbanks, Alaska, variously paged [notes, maps, and boring logs].

36 Shannon & Wilson, Inc., 1995, Additional groundwater sampling, former Friendship Air lease property, Fairbanks International Airport, Fairbanks, Alaska: Fairbanks, Alaska, prepared for the Fairbanks International Airport, variously paged [correspondence, sampling data].

37 Shannon & Wilson, Inc., 1995, Site Cleanup Report, Former Friendship Air Lease Property, Fairbanks International Airport, Fairbanks, Alaska: Fairbanks, Alaska, 25 p., 4 figures, 6 tables, and 2 appendixes.

38 Shannon & Wilson, Inc., 1994, Underground storage tank site assessment, Frontier Flying Service, Fairbanks, Alaska: Fairbanks, Alaska, prepared for Frontier Flying Service, variously paged [correspondence, sampling data, and site maps].

39 Shannon & Wilson, Inc., 1992, Results of site survey, Fairbanks airport fuel facility, Fairbanks, Alaska: Fairbanks, Alaska, prepared for Mapco Alaska Petroleum, Inc., variously paged [correspondence, site maps, borings, appendixes].

40 Environmental Management Inc., 1994, MarkAir Fairbanks Facilities, ADEC NRO No. 100.26.043: Anchorage, Alaska, prepared for MarkAir Inc. Anchorage, Alaska, 7 p. and sampling data.

41 Environmental Management Inc., 1994, MarkAir Fairbanks 5th Water Sampling Report: Anchorage, Alaska, prepared for MarkAir Inc. Anchorage, Alaska, 5 p., 3 figures, 33 tables, and 4 appendixes [correspondence, site maps, borings, photographs, and sampling data].

42 Environmental Management Inc., 1994, MarkAir Fairbanks 4th Water Sampling Report: Anchorage, Alaska, prepared for MarkAir Inc. Anchorage, Alaska, 6 p., 3 figures, 22 tables, and 4 appendixes [correspondence, site maps, borings, photographs, and sampling data].

43 Shannon & Wilson, Inc., 1996, Fourth round groundwater sampling report, Wright Air Service, Fairbanks, Alaska: Fairbanks, Alaska, prepared for Wright Air Service variously paged [correspondence, site map, and sampling data].

44 Hart Crowser, 1993, Site characterization, United Parcel Service facility, Fairbanks, Alaska: Anchorage, Alaska 10 p., 5 figures, 6 tables, and 2 appendixes.

45 Shannon & Wilson, Inc., 1996, Third round groundwater sampling report, Wright Air Service, Fairbanks, Alaska: Fairbanks, Alaska, prepared for Wright Air Service variously paged [correspondence, site map, and sampling data].

46 Shannon & Wilson, Inc., 1996, Second round groundwater sampling report, Wright Air Service, Fairbanks, Alaska: Fairbanks, Alaska, prepared for Wright Air Service variously paged [correspondence, site map, and sampling data].

47 Shannon & Wilson, Inc., 1996, Results of monitoring well installation and groundwater sampling, Wright Air Service, 3842 University Avenue, East Ramp International Airport, Fairbanks, Alaska, ADEC grant 15056321, ADEC NRO file 100.26.037: Fairbanks, Alaska, prepared for Wright Air Service variously paged [correspondence, site map, and sampling data].

48 Shannon & Wilson, Inc., 1995, UST closure report, Wright Air Service, Fairbanks, Alaska: Fairbanks, Alaska, 12 p., 2 figures, 1 table, and appendix [site maps and sampling data].

49 Shannon & Wilson, Inc., 1995, Release investigation, Wright Air Service, Fairbanks, Alaska [ADEC grant 15056321]: Fairbanks, Alaska, 12 p., 2 figures, 1 table, and appendix [site maps, borings, and sampling data].

50 AGRA Earth & Environmental, Inc., 1995, Quarterly groundwater sampling results, July 1995, Alaska Air Cargo/GSE facility, Fairbanks International Airport: Fairbanks, Alaska, prepared for Alaska Airlines, Inc., Seattle, Washington, variously paged [correspondence, site map, and sampling data].

51 AGRA Earth & Environmental, Inc., 1996, Subsurface investigation, Alaska Aerofuel, Inc., Fairbanks International Airport, issue no. 1: Fairbanks, Alaska, prepared for Alaska Aerofuel, Inc., 11 p., 2 figures, 4 tables, and 4 appendixes [site maps, boring logs, photographs, and sampling data].

52 AGRA Earth & Environmental, Inc., 1995, Groundwater sampling results, October 1995, Alaska Air Cargo/GSE facility, Fairbanks International Airport: Fairbanks, Alaska, prepared for Alaska Airlines, Inc., Seattle, Washington, variously paged [correspondence, site map, and sampling data].

53 AGRA Earth & Environmental, Inc., 1996, Groundwater sampling results, February 1996, Alaska Air Cargo/GSE facility, Fairbanks International Airport: Fairbanks, Alaska, prepared for Alaska Airlines, Inc., Seattle, Washington, variously paged [correspondence, site map, and sampling data].

54 AGRA Earth & Environmental, Inc., 1996, Underground storage tank excavation investigation, Alaska Aerofuel, Inc., Fairbanks International Airport, issue no. 1: Fairbanks, Alaska, prepared for Alaska Aerofuel, Inc., 13 p., 2 figures, 1 table, and 2 appendixes [site maps, photographs, and sampling data].

55 AGRA Earth & Environmental, Inc., 1996, Groundwater sampling results, June 1996, Alaska Air Cargo/GSE facility, Fairbanks International Airport: Fairbanks, Alaska, prepared for Alaska Airlines, Inc., Seattle, Washington, variously paged [correspondence, site map, and sampling data].

56 Environmental Systems, Inc., 1996, Brooks Fuel, block 3, lot 7 Fairbanks International Airport, underground storage tanks 1995 remedial action program report, v. I of II: Fairbanks, Alaska, 10 p., figures, and tables [correspondence, site maps, boring logs, photographs, and sampling data].

57 AGRA Earth & Environmental, Inc., 1996, UST closure site assessment former Empire Airlines, Fairbanks International Airport: Fairbanks, Alaska, prepared for Empire Airlines, Inc., Coeur d'Alene, Idaho, 14 p., 3 figures, 2 tables, and 4 appendixes [site maps, photographs, and sampling data].

58 Environmental Systems, Inc., 1997, Corrective action plan, Brooks Fuel, Inc. Revision 7.1, 7 Fairbanks International Airport, NRO file No. 100.26.007, UST facility ID No. 0-002937: Fairbanks, Alaska, variously paged [correspondence and site map].

59 RZA AGRA Earth & Environmental, Inc., 1992, Limited phase I environmental site assessment, lots 2 and 4A, Block 1, Fairbanks International Airport: Fairbanks, Alaska, prepared for Bush Consolidators, Inc., 13 p. [site maps and photographs].

60 AGRA Earth & Environmental, Inc., 1997, Quarterly groundwater results, January 1997, former Empire Airlines, Fairbanks International Airport, Fairbanks, Alaska: Fairbanks, Alaska, prepared for Empire Airlines, Inc., Coeur d'Alene, Idaho, variously paged [correspondence, site map, and sampling data].

61 AGRA Earth & Environmental, Inc., 1996, Quarterly groundwater results, September 1996, former Empire Airlines, Fairbanks International Airport, Fairbanks, Alaska: Fairbanks, Alaska, prepared for Empire Airlines, Inc., Coeur d'Alene, Idaho, variously paged [correspondence, site map, and sampling data].

62 Dames & Moore, 1995, Release investigation report, Empire Airlines Facility, Fairbanks, Alaska: Fairbanks, Alaska, 9 p., 2 tables, 17 figures, and 1 appendix [correspondence, site maps, boring logs, and sampling data].

63 RZA AGRA Earth & Environmental, Inc., 1994, Well installation and groundwater sampling, Everts Air Fuel, Fairbanks, Alaska: Fairbanks, Alaska, prepared for Cliff Everts of Everts Air Fuel, 7 p., 2 figures, 1 table, and 3 appendixes [site maps, boring logs, photographs, and sampling data].

64 AGRA Earth & Environmental, Inc., 1995, Earth & Environmental, Inc. summary report for tank closure, Everts Air Fuel, Fairbanks, Alaska: Fairbanks, Alaska, prepared for Clifford R. Everts of Everts Air Fuel, 12 p., 3 figures, 3 table, and 2 appendixes [site maps, photographs, and sampling data].

65 AGRA Earth & Environmental, Inc., 1995, UST closure site assessment, Everts Air Fuel, Block 3, Lot 11, Fairbanks International Airport: Fairbanks, Alaska, prepared for Clifford R. Everts of Everts Air Fuel, 10 p., 2 figures, 1 table, and 3 appendixes [site maps, photographs, and sampling data].

REFERENCES CITED

Anderson, G.S., 1970, Hydrologic reconnaissance of the Tanana Basin, central Alaska: U.S. Geological Survey Hydrologic Investigations Atlas HA-319, 4 sheets.

Claar, D.V., and Lilly, M.R., 1995, Ground-water and surface-water elevations in the Fairbanks International Airport area, Alaska, 1990-94: U.S. Geological Survey Open-File Report 95-382, 155 p. + 2 plates.

Glass, R.L., Lilly, M.R., and Meyer, D.F., 1996, Ground-water levels in an alluvial plain between the Tanana and Chena Rivers near Fairbanks, Alaska, 1986-93: U.S. Geological Survey Water-Resources Investigations Report 96-4060, 39 p. + 2 appendixes.

Jackson, M.L., and Lilly, M.R., 1996, Ground-water and surface-water elevations in the University of Alaska Fairbanks area, 1992-95: U.S. Geological Survey Open-File Report 96-416, 219 p.

Kriegler, A.T., and Lilly, M.R., 1995, Water-elevation, stream-discharge, and ground-water quality data in the Alaska Railroad Industrial area, Fairbanks, Alaska, May 1993 to May 1995: U.S. Geological Survey Open-File Report 95-364, 247 p. + plate.

Lilly, M.R., DePalma, K.L., and Benson, S.L., 1995, Selected environmental and geohydrologic reports for the Fort Wainwright and Fairbanks areas, Alaska, as of July 1995: U.S. Geological Survey Open-File Report 95-420, 36 p. + appendixes and plate.

Lilly, M.R., McCarthy, K.A., Kriegler, A.T., Vohden, James, and Burno, G.E., 1996, Compilation and preliminary interpretations of hydrologic and water-quality data from the Railroad Industrial Area, Fairbanks, Alaska, 1993-94: U.S. Geological Survey Water-Resources Investigations Report 96-4049, 45 p. + appendixes and plate.

Luckey, R.R., and Rogers, G.D., 1989, Ground-water retrieval/tabling program, *in* Mathey, S.B., ed., National Water Information System user's manual, v. 2, ch. 4. Ground-Water Site Inventory system--NWIS 90.1: U.S. Geological Survey Open-File Report 89-587, p. 8.1-8.56.

Nelson, G.L., 1978, Hydrologic information for land-use planning, Fairbanks vicinity, Alaska: U.S. Geological Survey Open-File Report 78-959, 47 p.

Péwé, T.L., Bell, J.W., Forbes, R.B., and Weber, F.R., 1976, Geologic map of the Fairbanks D-2 SW quadrangle, Alaska: U.S. Geological Survey Miscellaneous Investigations Series Map I-829-A, scale, 1:24000, 1 sheet.

Plumb, E.W., and Lilly, M.R., 1996, Snow-depth and water-equivalent data for the Fairbanks area, Alaska, spring 1995: U.S. Geological Survey Open-File Report 96-414, 16 p. + 2 appendixes.

Rust, B.R., 1978, Depositional models for braided alluvium, *in* Miall, A.D., ed., Fluvial sedimentology: Canadian Society of Petroleum Geology Memoir 5, p. 605-625.

U.S. Coast and Geodetic Survey, 1966, Vertical control datum: U.S. Department of Commerce, Environmental Sciences Services Administration, September, 26 p.

U.S. Geological Survey, 1991-97, Water resources data for Alaska, water years 1990-96: U.S. Geological Survey Water-Data Report AK 90-1 to AK 96-1 (published annually).

SELECTED WATER-SURFACE ELEVATION TABLES AND HYDROGRAPHS

FIA1 OBSERVATION WELL
Well at FAA facility

Site ID: 644954147502901
Local Number: FC00100118BBCD1 003

All measurements in feet	Feet	Elevation
Depth to bottom of well from MP :	NA	NA
Depth from TOC to top of SI :	NA	NA
Depth from TOC to bottom of SI :	NA	NA
Land surface datum:		430.09

LS, land surface
MM, mass measurement
PM, partial measurement
MP, measuring point
NA, not available
ND, no data
SI, screened interval
TOC, top of casing
WS, water surface

Datum corrections, reference survey notes in site folders

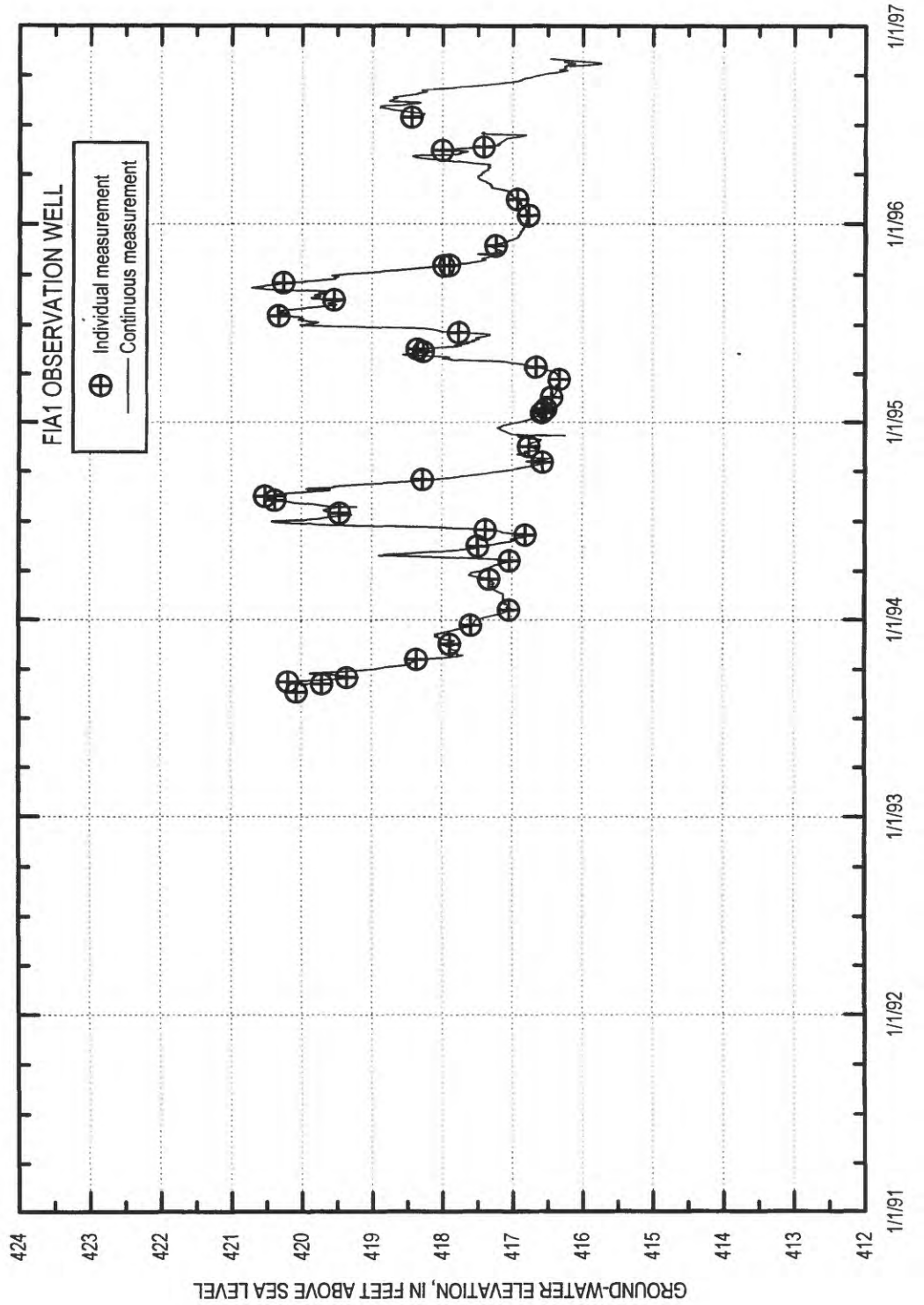
Date	MP Elevation (feet above sea level)	
10-12-93	425.04	
07-31-96	425.01	Moved MP

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
08-19-93	0920	Steel tape	4.97	0.01	10.02	420.07	MM
09-03-93	1332	Steel tape	5.33	0.01	10.38	419.71	Installed CR10, PM
09-07-93	1545	Steel tape	4.85	0.01	9.90	420.19	PM
09-15-93	1345	Steel tape	5.69	0.01	10.74	419.35	MM
10-19-93	1412	Steel tape	6.68	0.01	11.73	418.36	MM
11-16-93	1223	Steel tape	7.15	0.01	12.20	417.89	MM
12-21-93	1204	Steel tape	7.45	0.01	12.50	417.59	MM
01-18-94	1253	Steel tape	8.00	0.01	13.05	417.04	MM
03-16-94	1053	Steel tape	7.71	0.01	12.76	417.33	MM
04-19-94	1508	Steel tape	8.00	0.01	13.05	417.04	MM
05-16-94	1030	Steel tape	7.55	0.01	12.60	417.49	MM
06-06-94	0922	Steel tape	8.23	0.01	13.28	416.81	PM
06-15-94	1111	Steel tape	7.66	0.01	12.71	417.38	MM
07-15-94	1254	Steel tape	5.58	0.01	10.63	419.46	MM
08-08-94	1008	Steel tape	4.66	0.01	9.71	420.38	PM
08-15-94	1050	Steel tape	4.52	0.01	9.57	420.52	MM
09-15-94	1205	Steel tape	6.76	0.01	11.81	418.28	MM
10-17-94	1051	Steel tape	8.47	0.01	13.52	416.57	MM
11-15-94	1006	Steel tape	8.28	0.01	13.33	416.76	MM

FIA1 OBSERVATION WELL
Well at FAA facility

Site ID: 644954147502901
Local Number: FC00100118BBCD1 003

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
01-17-95	1035	Steel tape	8.46	0.01	13.51	416.58	MM
01-19-95	1310	Steel tape	8.48	0.01	13.53	416.56	MM
01-25-95	1250	Steel tape	8.52	0.01	13.57	416.52	PM
02-15-95	1330	Steel tape	8.60	0.01	13.65	416.44	MM
03-21-95	1000	Steel tape	8.71	0.01	13.76	416.33	MM
04-13-95	1035	Steel tape	8.38	0.01	13.43	416.66	MM
05-11-95	1434	Steel tape	6.77	0.01	11.82	418.27	PM
05-16-95	1016	Steel tape	6.69	0.01	11.74	418.35	MM
06-16-95	0937	Steel tape	7.27	0.01	12.32	417.77	MM
07-17-95	1029	Steel tape	4.71	0.01	9.76	420.33	MM
08-15-95	0935	Steel tape	5.50	0.01	10.55	419.54	MM
09-15-95	1419	Steel tape	4.78	0.01	9.83	420.26	MM
10-16-95	1008	Steel tape	7.06	0.01	12.11	417.98	MM
10-17-95	0913	Steel tape	7.14	0.01	12.19	417.90	PM
11-22-95	1102	Steel tape	7.80	0.01	12.85	417.24	MM
01-16-96	1121	Steel tape	8.27	0.01	13.32	416.77	MM
02-14-96	1151	Steel tape	8.11	0.01	13.16	416.93	MM
03-20-96	0945	Steel tape	ND	ND	ND	ND	Could not access
04-17-96	0932	Steel tape	ND	ND	ND	ND	Could not access
05-15-96	1012	Steel tape	7.04	0.01	12.09	418.00	MM
05-21-96	1545	Steel tape	7.63	0.01	12.68	417.41	MM
06-17-96	1315	Steel tape	ND	ND	ND	ND	Could not access
07-15-96	1010	Steel tape	6.60	0.01	11.68	418.41	Moved MP,MM
07-29-96	0902	Steel tape	6.26	0.01	11.34	418.75	PM
10-28-96	1304	Steel tape	8.79	0.01	13.87	416.22	PM
10-31-96	0939	Steel tape	8.72	0.01	13.80	416.29	MM
11-14-96	1014	Steel tape	8.80	0.01	13.88	416.21	MM


FIA1 OBSERVATION WELL
Individual measurement
Continuous measurement
GROUND-WATER ELEVATION, IN FEET ABOVE SEA LEVEL
424
423
422
421
420
419
418
417
416
415
414
413
412
1/1/91
1/1/92
1/1/93
1/1/94
1/1/95
1/1/96
1/1/97

FIA2 OBSERVATION WELL
Formerly observation well IGW

Site ID: 644804147523201
Local Number: FC00100225BCBC1 010

All measurements in feet	Feet	Elevation
Depth to bottom of well from MP :	30.0	396.2
Depth from TOC to top of SI :	25.0	401.2
Depth from TOC to bottom of SI :	30.0	396.2
Land surface datum:		423.98

LS, land surface
MM, mass measurement
PM, partial measurement
MP, measuring point
ND, no data
SI, screened interval
TOC, top of casing
WS, water surface

Datum corrections, reference survey notes in site folders

Date	MP Elevation (feet above sea level)	
10-10-91	426.20	
06-01-92	426.20	Updated MP
06-26-92	426.20	Updated MP
08-11-92	426.20	Updated MP, new datum used
06-30-93	426.20	Updated MP

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
07-17-91	ND	E-Tape	7.83	0.02	5.61	418.37	MM
08-22-91	1032	E-Tape	5.68	0.02	3.46	420.52	MM
08-26-91	0931	E-Tape	6.52	0.02	4.30	419.68	PM
09-10-91	0929	E-Tape	7.73	0.02	5.51	418.47	MM
10-01-91	1014	E-Tape	8.41	0.02	6.19	417.79	MM
01-02-92	ND	E-Tape	ND	ND	ND	ND	Frozen, MM
04-20-92	ND	E-Tape	6.33	0.02	4.11	419.87	MM
06-12-92	1612	E-Tape	5.69	0.02	3.40	420.58	Updated MP, MM
06-19-92	1436	E-Tape	5.30	0.02	3.08	420.90	PM
06-25-92	1145	E-Tape	5.44	0.02	3.22	420.76	PM
06-27-92	2100	Steel tape	6.00	0.01	3.78	420.20	Updated MP, PM
07-06-92	0745	Steel tape	5.87	0.01	3.65	420.33	PM
07-08-92	1554	Steel tape	5.64	0.01	3.42	420.56	PM
07-23-92	1256	Steel tape	5.14	0.01	2.92	421.06	MM
08-11-92	1220	Steel tape	5.56	0.01	3.34	420.64	New datum, PM
08-13-92	1238	Steel tape	5.70	0.01	3.48	420.50	MM

FIA2 OBSERVATION WELL
Formerly observation well IGW

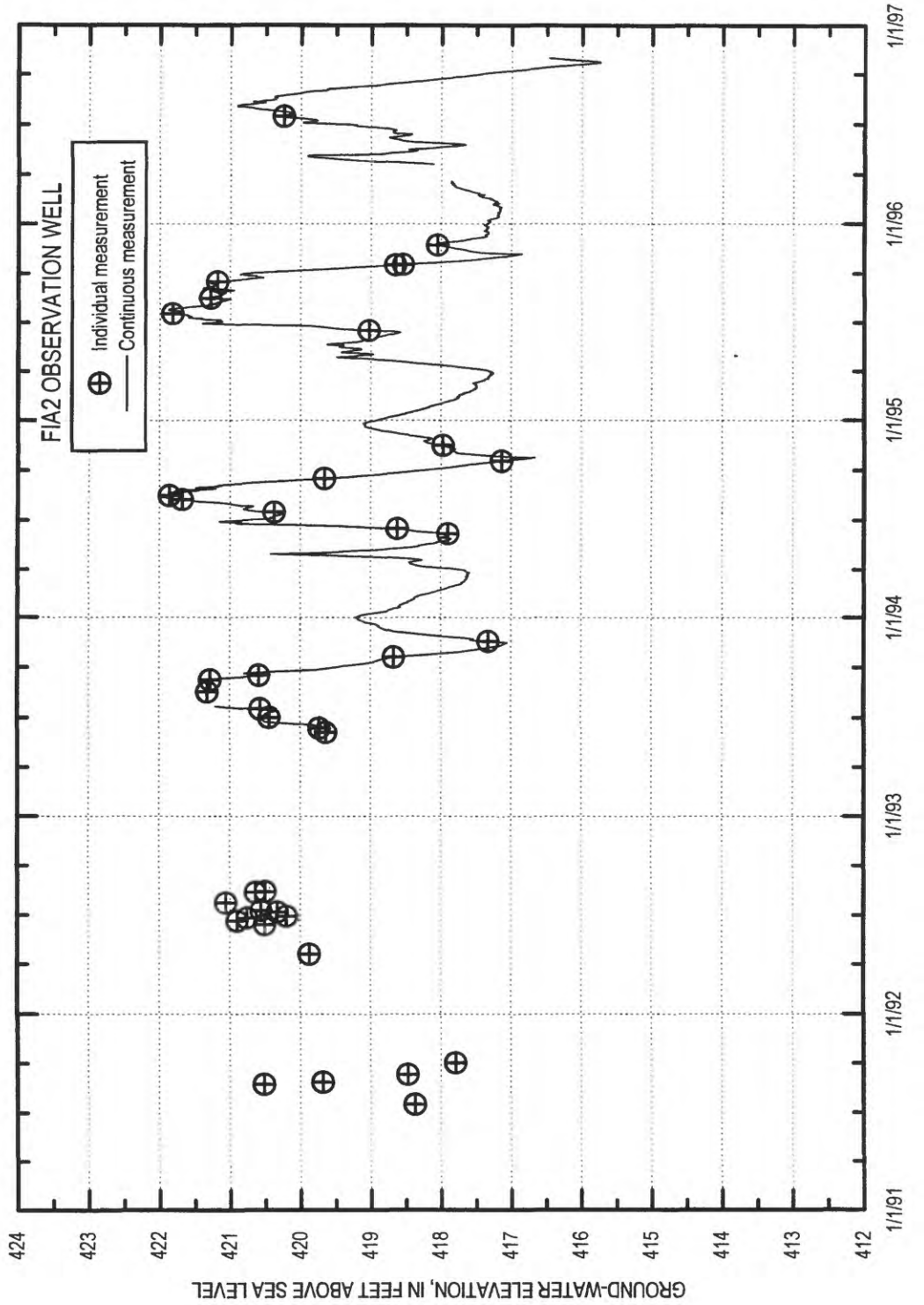
Site ID: 644804147523201
Local Number: FC00100225BCBC1 010

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
01-13-93	ND	Steel tape	ND	ND	ND	ND	Frozen, MM
04-14-93	1519	Steel tape	ND	ND	ND	ND	Frozen, MM
06-03-93	1617	Steel tape	6.56	0.01	4.34	419.64	Updated MP, PM
06-11-93	1445	Steel tape	6.47	0.01	4.25	419.73	Installed CR10, MM
06-30-93	1532	Steel tape	5.76	0.01	3.54	420.44	PM
07-16-93	1250	Steel tape	5.63	0.01	3.41	420.57	MM
08-16-93	1632	Steel tape	4.88	0.01	2.66	421.32	MM
09-07-93	1617	Steel tape	4.92	0.01	2.70	421.28	PM
09-15-93	1525	Steel tape	5.61	0.01	3.39	420.59	MM
10-19-93	1335	Steel tape	7.53	0.01	5.31	418.67	MM
11-17-93	1505	Steel tape	8.87	0.01	6.65	417.33	MM
12-21-93	1353	Steel tape	ND	ND	ND	ND	Frozen, MM
01-18-94	1456	Steel tape	ND	ND	ND	ND	Frozen, MM
02-25-94	1209	Steel tape	ND	ND	ND	ND	Frozen, MM
03-16-94	1332	Steel tape	ND	ND	ND	ND	Frozen, MM
04-18-94	1551	Steel tape	ND	ND	ND	ND	Frozen, MM
05-16-94	1330	Steel tape	ND	ND	ND	ND	Frozen, MM
06-06-94	0942	Steel tape	8.30	0.01	6.08	417.90	PM
06-15-94	1337	Steel tape	7.58	0.01	5.36	418.62	MM
07-15-94	1505	Steel tape	5.83	0.01	3.61	420.37	MM
08-08-94	1054	Steel tape	4.52	0.01	2.30	421.68	PM
08-15-94	1329	Steel tape	4.34	0.01	2.12	421.86	MM
09-15-94	1428	Steel tape	6.54	0.01	4.32	419.66	MM
10-17-94	1303	Steel tape	9.06	0.01	6.84	417.14	MM
11-15-94	1100	Steel tape	8.23	0.01	6.01	417.97	MM
01-17-95	1113	Steel tape	ND	ND	ND	ND	Frozen, MM
02-03-95	1010	Steel tape	ND	ND	ND	ND	Frozen, PM
02-15-95	1416	Steel tape	ND	ND	ND	ND	Frozen, MM
03-21-95	1055	Steel tape	ND	ND	ND	ND	Frozen, MM
04-13-95	1125	Steel tape	ND	ND	ND	ND	Frozen, MM
05-11-95	1450	Steel tape	ND	ND	ND	ND	Frozen, PM

FIA2 OBSERVATION WELL
Formerly observation well IGW

Site ID: 644804147523201
Local Number: FC00100225BCBC1 010

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
05-16-95	1125	Steel tape	ND	ND	ND	ND	Frozen, MM
06-16-95	1029	Steel tape	7.17	0.01	4.95	419.03	MM
07-17-95	1106	Steel tape	4.38	0.01	2.16	421.82	MM
08-15-95	1201	Steel tape	4.92	0.01	2.70	421.28	MM
09-15-95	1539	Steel tape	5.02	0.01	2.80	421.18	MM
10-16-95	1147	Steel tape	7.55	0.01	5.33	418.65	MM
10-17-95	0929	Steel tape	7.66	0.01	5.44	418.54	PM
11-22-95	1237	Steel tape	8.15	0.01	5.93	418.05	MM
01-16-96	1200	Steel tape	ND	ND	ND	ND	Frozen, MM
02-14-96	1230	Steel tape	ND	ND	ND	ND	Frozen, MM
04-17-96	1015	Steel tape	ND	ND	ND	ND	Frozen, MM
05-15-96	1109	Steel tape	ND	ND	ND	ND	Frozen, MM
06-17-96	1440	Steel tape	ND	ND	ND	ND	Frozen, MM
07-15-96	1153	Steel tape	5.96	0.01	3.74	420.24	MM
10-31-96	1053	Steel tape	9.73	0.01	7.51	416.47	MM
11-14-96	1101	Steel tape	8.96	0.01	6.74	417.24	MM


FIA2 OBSERVATION WELL
Individual measurement
Continuous measurement
GROUND-WATER ELEVATION, IN FEET ABOVE SEA LEVEL
424
423
422
421
420
419
418
417
416
415
414
413
412
1/1/91
1/1/92
1/1/93
1/1/94
1/1/95
1/1/96
1/1/97

FIA8 OBSERVATION WELL
Formerly observation well P111

Site ID: 644752147541101
Local Number: FC00100226CABC1 001

All measurements in feet	Feet	Elevation
Depth to bottom of well from MP :	29.40	396.4
Depth from TOC to top of SI :	25.40	400.4
Depth from TOC to bottom of SI :	29.40	396.4
Land surface datum:		423.30

LS, land surface
MM, mass measurement
PM, partial measurement
MP, measuring point
ND, no data
SI, screened interval
TOC, top of casing
WS, water surface

Datum corrections, reference survey notes in site folders

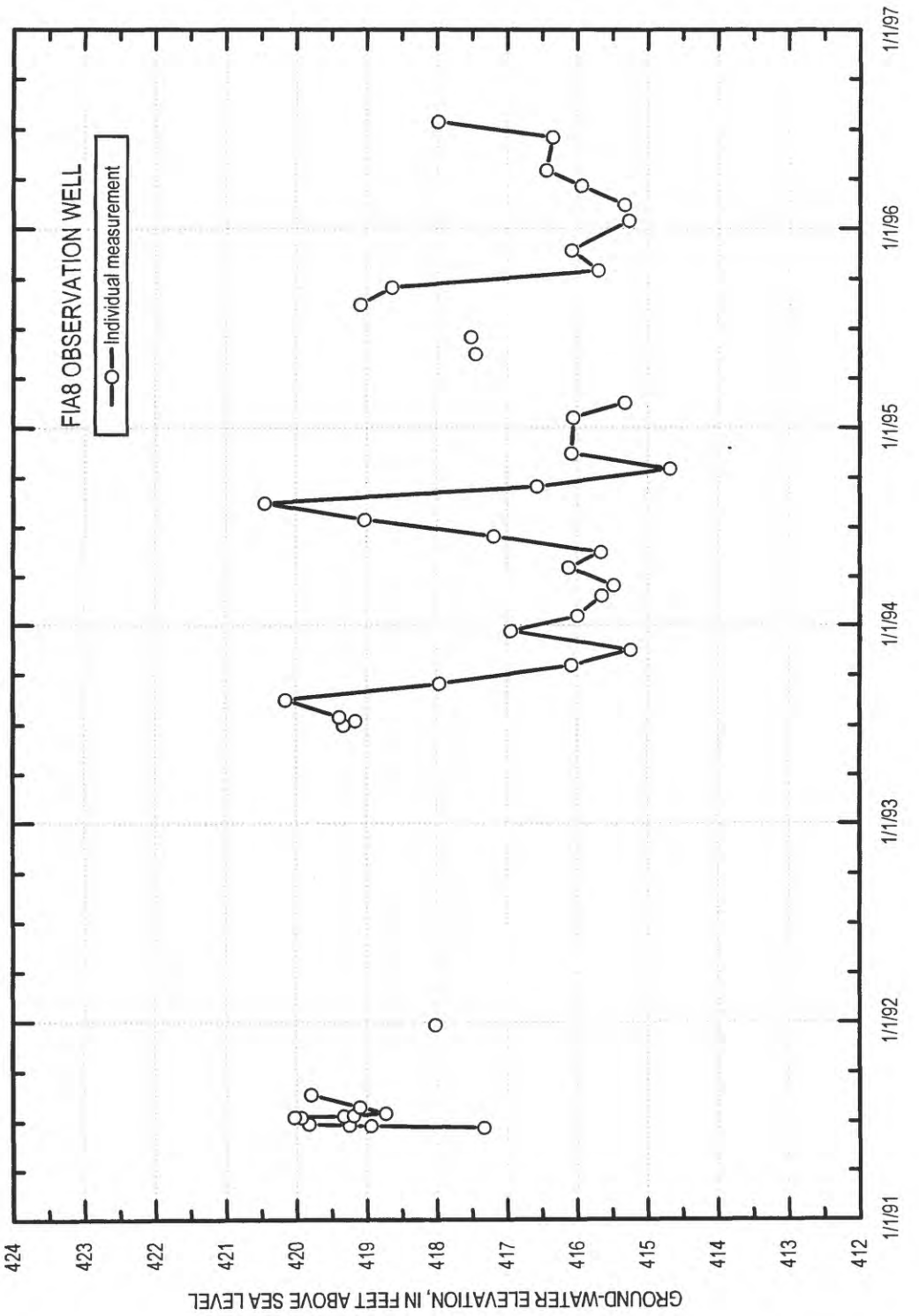
Date	MP Elevation (feet above sea level)	
07-01-93	425.79	New datum

Date	Time	Method	MP to WS	(error)	LS to WS	WS Elevation	Remarks
06-20-91	1445	E-Tape	8.46	0.02	5.97	417.33	Non-USGS E-Tape, PM
06-24-91	0950	E-Tape	6.85	0.02	4.36	418.94	Non-USGS E-Tape, MM
06-25-91	0950	E-Tape	6.54	0.02	4.05	419.25	Non-USGS E-Tape, PM
06-27-91	ND	E-Tape	5.97	0.02	3.48	419.82	Non-USGS E-Tape, PM
07-09-91	1325	E-Tape	5.86	0.02	3.37	419.93	Non-USGS E-Tape, PM
07-10-91	1312	E-Tape	5.76	0.02	3.27	420.03	Non-USGS E-Tape, PM
07-12-91	1254	E-Tape	6.46	0.02	3.97	419.33	PM
07-13-91	1314	E-Tape	6.60	0.02	4.11	419.19	PM
07-17-91	1235	E-Tape	7.06	0.02	4.57	418.73	MM
07-29-91	1350	E-Tape	6.69	0.02	4.20	419.10	PM
08-20-91	1406	E-Tape	6.00	0.02	3.51	419.79	MM
12-27-91	ND	E-Tape	7.77	0.02	5.28	418.02	MM
07-01-93	1250	Steel tape	6.46	0.01	3.97	419.33	PM
07-09-93	1200	Steel tape	6.63	0.01	4.14	419.16	PM
07-16-93	1130	Steel tape	6.40	0.01	3.91	419.39	MM
08-16-93	1430	Steel tape	5.64	0.01	3.15	420.15	MM
09-15-93	1418	Steel tape	7.83	0.01	5.34	417.96	MM
10-19-93	1150	Steel tape	9.71	0.01	7.22	416.08	MM
11-16-93	1344	Steel tape	10.55	0.01	8.06	415.24	MM
12-21-93	1247	Steel tape	8.85	0.01	6.36	416.94	MM

FIA8 OBSERVATION WELL
Formerly observation well P111

Site ID: 644752147541101
Local Number: FC00100226CABC1 001

Date	Time	Method	MP to WS	(error)	LS to WS	WS Elevation	Remarks
01-18-94	1324	Steel tape	9.80	0.01	7.31	415.99	MM
02-25-94	1034	Steel tape	10.14	0.01	7.65	415.65	MM
03-16-94	1420	Steel tape	10.31	0.01	7.82	415.48	MM
04-18-94	1448	Steel tape	9.67	0.01	7.18	416.12	MM
05-16-94	1105	Steel tape	10.13	0.01	7.64	415.66	MM
06-15-94	1208	Steel tape	8.60	0.01	6.11	417.19	MM
07-15-94	1406	Steel tape	6.76	0.01	4.27	419.03	MM
08-15-94	1240	Steel tape	5.34	0.01	2.85	420.45	MM
09-15-94	1322	Steel tape	9.22	0.01	6.73	416.57	MM
10-17-94	1137	Steel tape	11.11	0.01	8.62	414.68	MM
11-15-94	1029	Steel tape	9.71	0.01	7.22	416.08	MM
01-19-95	1100	Steel tape	9.74	0.01	7.25	416.05	MM
02-15-95	1355	Steel tape	10.47	0.01	7.98	415.32	MM
05-16-95	1045	Steel tape	8.34	0.01	5.85	417.45	MM
06-16-95	0959	Steel tape	8.28	0.01	5.79	417.51	MM
08-15-95	1010	Steel tape	6.70	0.01	4.21	419.09	MM
09-15-95	1459	Steel tape	7.15	0.01	4.66	418.64	MM
10-16-95	1058	Steel tape	10.09	0.01	7.60	415.70	MM
11-22-95	1119	Steel tape	9.71	0.01	7.22	416.08	MM
01-16-96	1137	Steel tape	10.52	0.01	8.03	415.27	MM
02-14-96	1210	Steel tape	10.46	0.01	7.97	415.33	MM
03-20-96	1005	Steel tape	9.85	0.01	7.36	415.94	MM
04-17-96	0953	Steel tape	9.35	0.01	6.86	416.44	MM
06-17-96	1350	Steel tape	9.44	0.01	6.95	416.35	MM
07-15-96	1111	Steel tape	7.81	0.01	5.32	417.98	MM
10-28-96	1345	Steel tape	11.32	0.01	8.83	414.47	PM
10-31-96	1026	Steel tape	10.97	0.01	8.48	414.82	MM
11-14-96	1038	Steel tape	10.61	0.01	8.12	415.18	MM


FIA8 OBSERVATION WELL
Individual measurement
GROUND-WATER ELEVATION, IN FEET ABOVE SEA LEVEL
424
423
422
421
420
419
418
417
416
415
414
413
412
1/1/91
1/1/92
1/1/93
1/1/94
1/1/95
1/1/96
1/1/97

FIA10 OBSERVATION WELL
Formerly observation well CP60

Site ID: 644759147521101
Local Number: FC00100225BCDA1 008

All measurements in feet	Feet	Elevation
Depth to bottom of well from MP :	15.83	412.7
Depth from TOC to top of SI :	NA	NA
Depth from TOC to bottom of SI :	NA	NA
Land surface datum:		425.62

LS, land surface
MM, mass measurement
PM, partial measurement
MP, measuring point
NA, not available
ND, no data
SI, screened interval
TOC, top of casing
WS, water surface

Datum corrections, reference survey notes in site folders

Date	MP Elevation (feet above sea level)	
06-25-91	428.64	
07-09-93	428.57	New datum(All water levels reflect datum change)

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
06-20-91	1513	E-Tape	8.77	0.02	5.68	419.94	PM
06-24-91	0835	E-Tape	8.48	0.02	5.39	420.23	Non-USGS E-Tape, MM
06-25-91	1114	E-Tape	8.24	0.02	5.15	420.47	Non-USGS E-Tape, PM
06-27-91	1122	E-Tape	7.93	0.02	4.84	420.78	Non-USGS E-Tape, PM
07-09-91	1246	E-Tape	7.57	0.02	4.48	421.14	Non-USGS E-Tape, PM
07-10-91	1237	E-Tape	7.45	0.02	4.36	421.26	Non-USGS E-Tape, PM
07-12-91	1328	E-Tape	7.85	0.02	4.76	420.86	PM
07-13-91	1226	E-Tape	7.94	0.02	4.85	420.77	PM
07-17-91	1155	E-Tape	8.19	0.02	5.10	420.52	MM
07-29-91	1438	E-Tape	8.20	0.02	5.11	420.51	PM
08-20-91	1434	E-Tape	7.86	0.02	4.77	420.85	MM
12-27-91	0915	E-Tape	ND	ND	ND	ND	Frozen, MM
04-20-92	ND	E-Tape	9.34	0.02	6.25	419.37	MM
06-08-92	1952	E-Tape	7.66	0.02	4.57	421.05	PM
06-12-92	1335	E-Tape	8.20	0.02	5.11	420.51	MM
06-19-92	0927	E-Tape	7.63	0.02	4.54	421.08	PM
06-30-92	1105	Steel tape	7.96	0.01	4.87	420.75	PM
08-13-92	1653	Steel tape	7.64	0.01	4.55	421.07	MM
06-11-93	1525	Steel tape	8.64	0.01	5.69	419.93	New datum, MM

FIA10 OBSERVATION WELL
Formerly observation well CP60

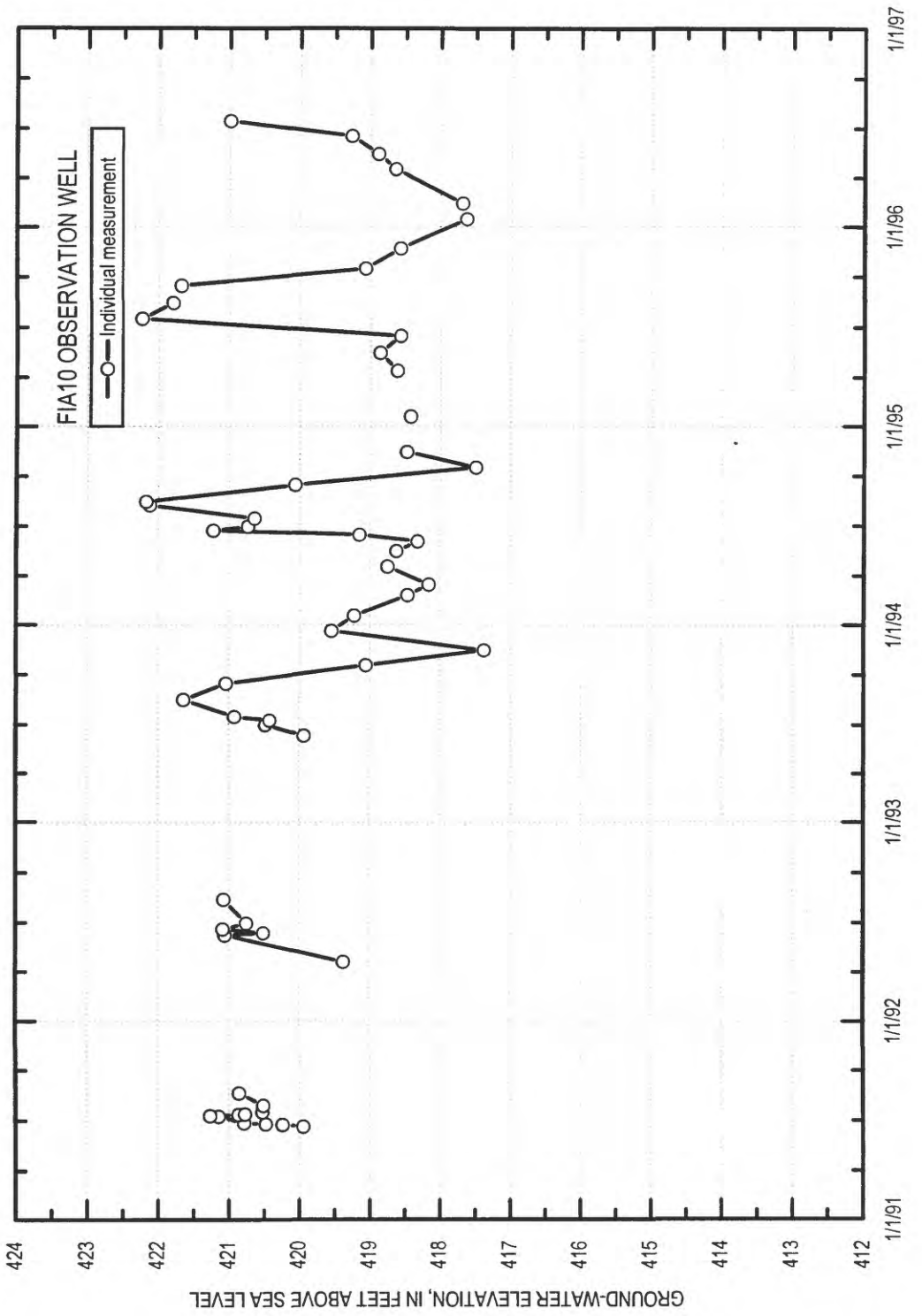
Site ID: 644759147521101
Local Number: FC00100225BCDA1 008

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
07-01-93	1130	Steel tape	8.09	0.01	5.14	420.48	PM
07-09-93	1730	Steel tape	8.15	0.01	5.20	420.42	PM
07-16-93	1319	Steel tape	7.65	0.01	4.70	420.92	MM
08-16-93	1527	Steel tape	6.93	0.01	3.98	421.64	MM
09-15-93	1445	Steel tape	7.53	0.01	4.58	421.04	MM
10-19-93	1221	Steel tape	9.52	0.01	6.57	419.05	MM
11-16-93	1358	Steel tape	11.20	0.01	8.25	417.37	MM
12-21-93	1308	Steel tape	9.03	0.01	6.08	419.54	MM
01-18-94	1400	Steel tape	9.35	0.01	6.40	419.22	MM
02-25-94	1050	Steel tape	10.11	0.01	7.16	418.46	MM
03-16-94	1359	Steel tape	10.41	0.01	7.46	418.16	MM
04-18-94	1515	Steel tape	9.82	0.01	6.87	418.75	MM
05-16-94	1250	Steel tape	9.95	0.01	7.00	418.62	MM
06-03-94	1150	Steel tape	10.25	0.01	7.30	418.32	PM
06-15-94	1150	Steel tape	9.42	0.01	6.47	419.15	MM
06-23-94	0945	Steel tape	7.35	0.01	4.40	421.22	PM
06-30-94	1612	Steel tape	7.84	0.01	4.89	420.73	PM
07-15-94	1433	Steel tape	7.93	0.01	4.98	420.64	MM
08-08-94	1044	Steel tape	6.45	0.01	3.50	422.12	PM
08-15-94	1300	Steel tape	6.40	0.01	3.45	422.17	MM
09-15-94	1347	Steel tape	8.51	0.01	5.56	420.06	MM
10-17-94	1245	Steel tape	11.08	0.01	8.13	417.49	MM
11-15-94	1050	Steel tape	10.10	0.01	7.15	418.47	MM
01-19-95	ND	Steel tape	10.15	0.01	7.20	418.42	MM
04-13-95	1111	Steel tape	9.96	0.01	7.01	418.61	MM
05-16-95	1109	Steel tape	9.71	0.01	6.76	418.86	MM
06-16-95	1014	Steel tape	10.00	0.01	7.05	418.57	MM
07-17-95	1056	Steel tape	6.33	0.01	3.38	422.24	MM
08-15-95	1010	Steel tape	6.77	0.01	3.82	421.80	MM
09-15-95	1525	Steel tape	6.89	0.01	3.94	421.68	MM
10-16-95	1127	Steel tape	9.50	0.01	6.55	419.07	MM

FIA10 OBSERVATION WELL
Formerly observation well CP60

Site ID: 644759147521101
Local Number: FC00100225BCDA1 008

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
11-22-95	1131	Steel tape	10.00	0.01	7.05	418.57	MM
01-16-96	1153	Steel tape	10.94	0.01	7.99	417.63	MM
02-14-96	1224	Steel tape	10.88	0.01	7.93	417.69	MM
04-17-96	1005	Steel tape	9.93	0.01	6.98	418.64	MM
05-15-96	1102	Steel tape	9.68	0.01	6.73	418.89	MM
06-17-96	1415	Steel tape	9.30	0.01	6.35	419.27	MM
07-15-96	1137	Steel tape	7.58	0.01	4.63	420.99	MM
10-31-96	1043	Steel tape	11.71	0.01	8.76	416.86	MM
11-14-96	1051	Steel tape	10.78	0.01	7.83	417.79	MM


FIA10 OBSERVATION WELL
Individual measurement
GROUND-WATER ELEVATION, IN FEET ABOVE SEA LEVEL
424
423
422
421
420
419
418
417
416
415
414
413
412
1/1/91
1/1/92
1/1/93
1/1/94
1/1/95
1/1/96
1/1/97

FIA13 OBSERVATION WELL
Airport campground well

Site ID: 644922147492701
Local Number: FC00100118DCBD1 006

All measurements in feet	Feet	Elevation
Depth to bottom of well from MP :	17.80	414.9
Depth from TOC to top of SI :	15.80	416.9
Depth from TOC to bottom of SI :	17.80	414.9
Land surface datum:		428.77

LS, land surface
MM, mass measurement
PM, partial measurement
MP, measuring point
SI, screened interval
TOC, top of casing
WS, water surface

Datum corrections, reference survey notes in site folders

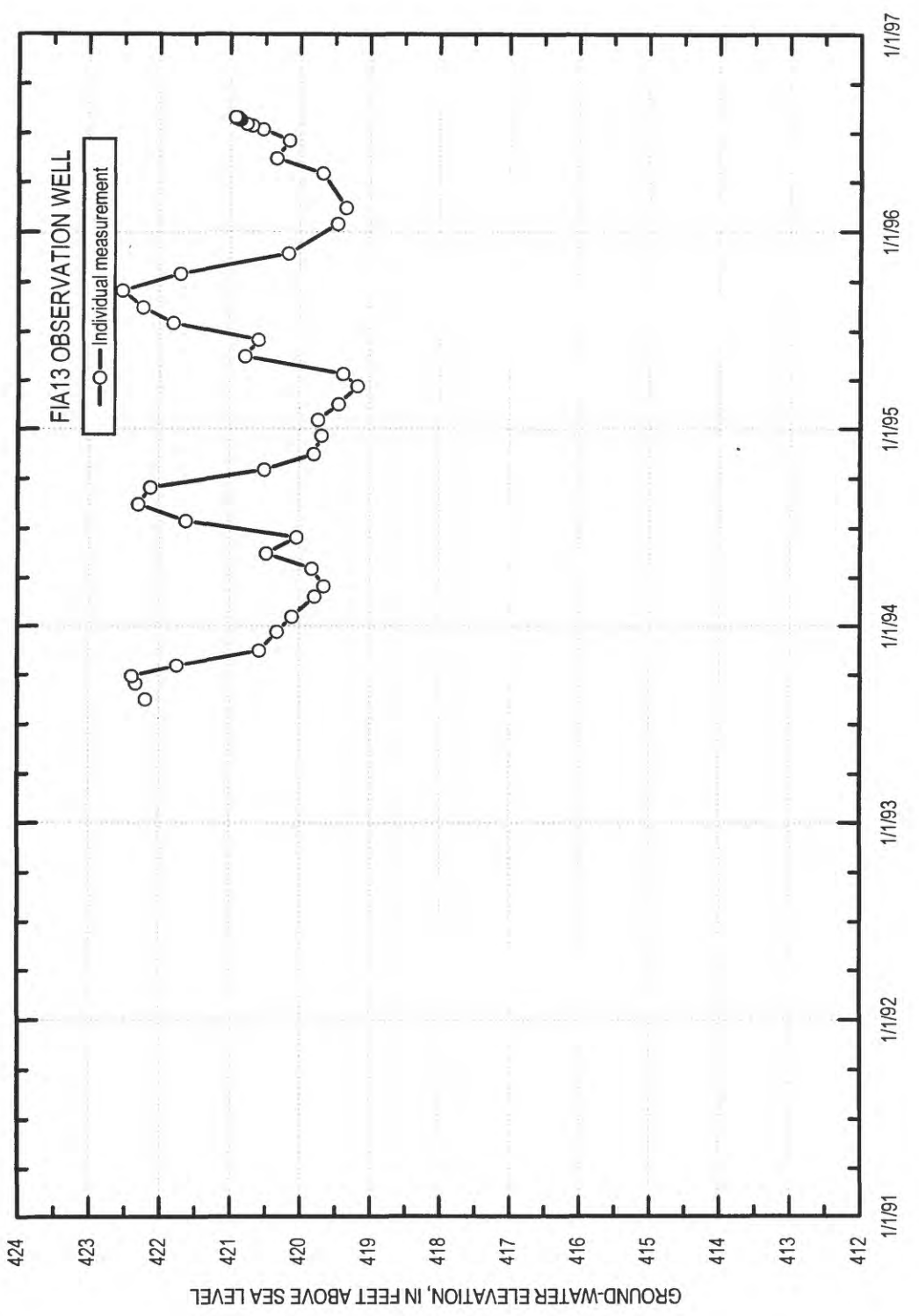
Date	MP Elevation (feet above sea level)	
10-12-93	432.67	
05-19-95	432.69	Updated MP

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
08-16-93	1836	Steel tape	10.48	0.01	6.58	422.19	MM
09-15-93	1551	Steel tape	10.34	0.01	6.44	422.33	MM
09-29-93	1504	Steel tape	10.29	0.01	6.39	422.38	PM
10-19-93	1351	Steel tape	10.93	0.01	7.03	421.74	MM
11-16-93	1450	Steel tape	12.10	0.01	8.20	420.57	MM
12-21-93	1422	Steel tape	12.36	0.01	8.46	420.31	MM
01-18-94	1510	Steel tape	12.57	0.01	8.67	420.10	MM
02-25-94	1229	Steel tape	12.89	0.01	8.99	419.78	MM
03-16-94	1304	Steel tape	13.02	0.01	9.12	419.65	MM
04-18-94	1625	Steel tape	12.85	0.01	8.95	419.82	MM
05-16-94	1404	Steel tape	12.20	0.01	8.30	420.47	MM
06-15-94	1404	Steel tape	12.63	0.01	8.73	420.04	MM
07-15-94	1542	Steel tape	11.05	0.01	7.15	421.62	MM
08-15-94	1404	Steel tape	10.38	0.01	6.48	422.29	MM
09-15-94	1506	Steel tape	10.55	0.01	6.65	422.12	MM
10-17-94	1329	Steel tape	12.17	0.01	8.27	420.50	MM
11-15-94	1113	Steel tape	12.88	0.01	8.98	419.79	MM
12-19-94	1432	Steel tape	12.99	0.01	9.09	419.68	MM
01-17-95	1130	Steel tape	12.94	0.01	9.04	419.73	MM

FIA13 OBSERVATION WELL
Airport campground well

Site ID: 644922147492701
Local Number: FC00100118DCBD1 006

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
02-15-95	1426	Steel tape	13.23	0.01	9.33	419.44	MM
03-21-95	1113	Steel tape	13.51	0.01	9.61	419.16	MM
04-13-95	1136	Steel tape	13.29	0.01	9.39	419.38	MM
05-16-95	1132	Steel tape	11.91	0.01	7.99	420.78	Updated MP, MM
06-16-95	1039	Steel tape	12.10	0.01	8.18	420.59	MM
07-17-95	1117	Steel tape	10.89	0.01	6.97	421.80	MM
08-15-95	1215	Steel tape	10.46	0.01	6.54	422.23	MM
09-15-95	1550	Steel tape	10.16	0.01	6.24	422.53	MM
10-16-95	1150	Steel tape	10.99	0.01	7.07	421.70	MM
11-22-95	1253	Steel tape	12.53	0.01	8.61	420.16	MM
01-16-96	1212	Steel tape	13.23	0.01	9.31	419.46	MM
02-14-96	1233	Steel tape	13.35	0.01	9.43	419.34	MM
04-17-96	1047	Steel tape	13.02	0.01	9.10	419.67	MM
05-15-96	1134	Steel tape	12.36	0.01	8.44	420.33	MM
06-17-96	1508	Steel tape	12.54	0.01	8.62	420.15	MM
07-08-96	1425	Steel tape	12.16	0.01	8.24	420.53	PM
07-15-96	1228	Steel tape	12.01	0.01	8.09	420.68	MM
07-18-96	1706	Steel tape	11.93	0.01	8.01	420.76	PM
07-26-96	1313	Steel tape	11.84	0.01	7.92	420.85	PM
07-26-96	1350	E-Tape	11.83	0.02	7.91	420.86	PM
07-27-96	1522	Steel tape	11.82	0.01	7.90	420.87	PM
07-28-96	1535	Steel tape	11.80	0.01	7.88	420.89	PM
07-28-96	1601	Steel tape	11.80	0.01	7.88	420.89	PM
07-29-96	0922	Steel tape	11.78	0.01	7.86	420.91	PM
07-30-96	1049	Steel tape	11.80	0.01	7.88	420.89	PM
07-31-96	1026	Steel tape	11.77	0.01	7.85	420.92	PM
08-05-96	1213	Steel tape	11.70	0.01	7.78	420.99	PM
08-07-96	1534	Steel tape	11.70	0.01	7.78	420.99	PM
08-09-96	1347	Steel tape	11.74	0.01	7.82	420.95	PM
10-31-96	1125	Steel tape	13.58	0.01	9.66	419.11	MM
11-14-96	1130	Steel tape	13.72	0.01	9.80	418.97	MM


FIA13 OBSERVATION WELL
Individual measurement
GROUND-WATER ELEVATION, IN FEET ABOVE SEA LEVEL
424
423
422
421
420
419
418
417
416
415
414
413
412
1/1/91
1/1/92
1/1/93
1/1/94
1/1/95
1/1/96
1/1/97

FIA15 OBSERVATION WELL
Formerly observation well TH93-1

Site ID: 644936147483501
Local Number: FC00100118DADB1 008

All measurements in feet	Feet	Elevation
Depth to bottom of well from MP :	21.00	408.8
Depth from TOC to top of SI :	21.00	408.8
Depth from TOC to bottom of SI :	23.60	406.2
Land surface datum:		428.65

LS, land surface
MM, mass measurement
PM, partial measurement
MP, measuring point
ND, no data
SI, screened interval
TOC, top of casing
WS, water surface

Datum corrections, reference survey notes in site folders

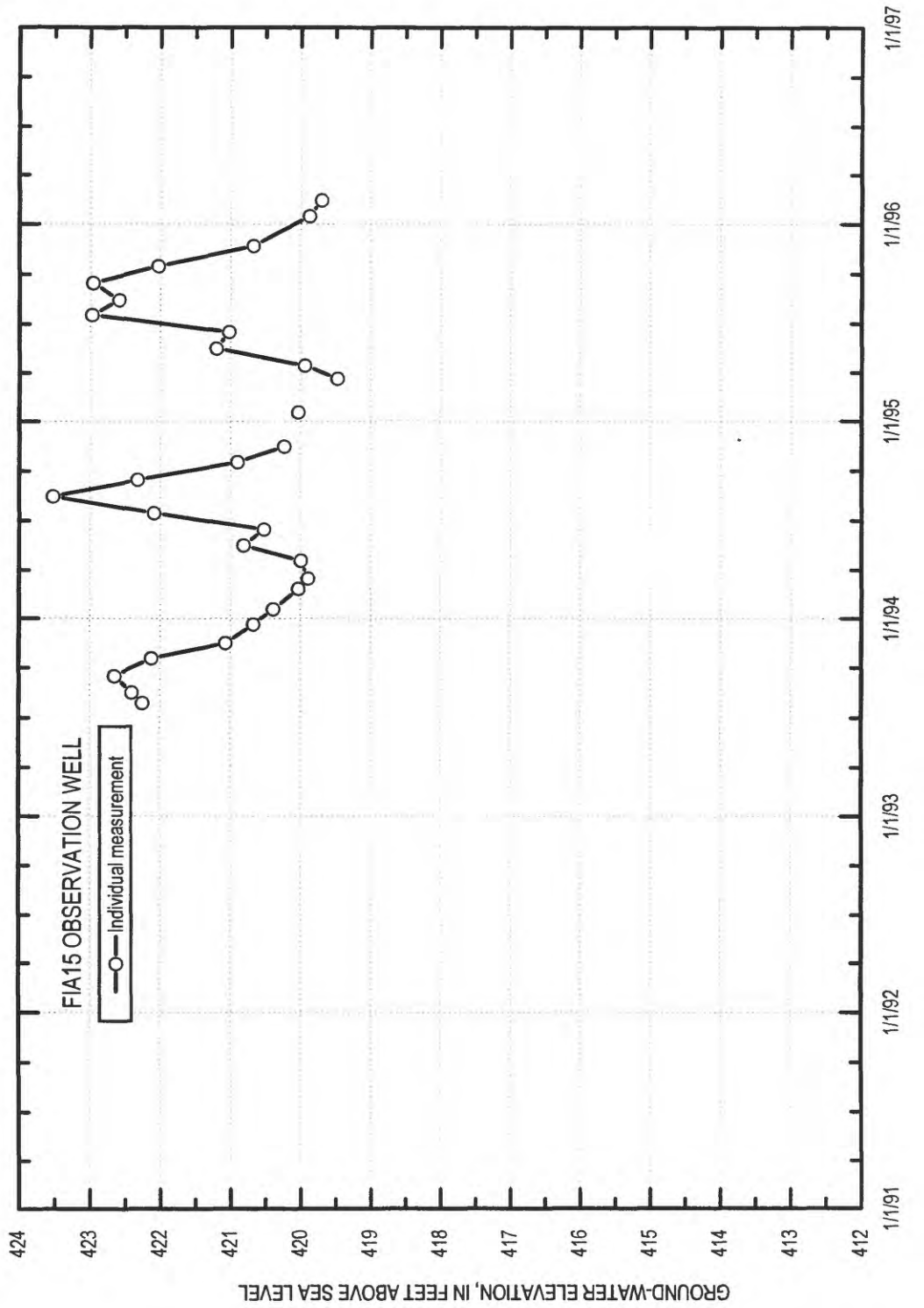
Date	MP Elevation (feet above sea level)	
11-09-93	429.81	
11-07-94	429.89	Updated MP

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
07-28-93	1816	Steel tape	7.56	0.01	6.40	422.25	PM
08-16-93	1841	Steel tape	7.41	0.01	6.25	422.40	MM
09-16-93	1024	Steel tape	7.16	0.01	6.00	422.65	MM
10-19-93	1454	Steel tape	7.69	0.01	6.53	422.12	MM
11-16-93	1049	Steel tape	8.74	0.01	7.58	421.07	MM
12-21-93	1430	Steel tape	9.14	0.01	7.98	420.67	MM
01-18-94	1644	Steel tape	9.42	0.01	8.26	420.39	MM
02-25-94	1235	Steel tape	9.78	0.01	8.62	420.03	MM
03-16-94	1119	Steel tape	9.92	0.01	8.76	419.89	MM
04-18-94	1132	Steel tape	9.82	0.01	8.66	419.99	MM
05-16-94	1455	Steel tape	9.00	0.01	7.84	420.81	MM
06-15-94	1414	Steel tape	9.37	0.01	8.13	420.52	Updated MP, MM
07-15-94	1139	Steel tape	7.80	0.01	6.56	422.09	MM
08-15-94	1447	Steel tape	6.37	0.01	5.13	423.52	MM
09-15-94	1514	Steel tape	7.57	0.01	6.33	422.32	MM
10-17-94	1343	Steel tape	8.99	0.01	7.75	420.90	MM
11-15-94	1135	Steel tape	9.66	0.01	8.42	420.23	MM
01-17-95	1154	Steel tape	9.86	0.01	8.62	420.03	MM
03-21-95	1118	Steel tape	10.42	0.01	9.18	419.47	MM

FIA15 OBSERVATION WELL
Formerly observation well TH93-1

Site ID: 644936147483501
Local Number: FC00100118DADB1 008

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
04-14-95	1015	Steel tape	9.95	0.01	8.71	419.94	MM
05-16-95	1143	Steel tape	8.69	0.01	7.45	421.20	MM
06-16-95	1047	Steel tape	8.87	0.01	7.63	421.02	MM
07-18-95	0838	Steel tape	6.92	0.01	5.68	422.97	MM
08-15-95	1223	Steel tape	7.30	0.01	6.06	422.59	MM
09-15-95	1600	Steel tape	6.93	0.01	5.69	422.96	MM
10-16-95	1206	Steel tape	7.86	0.01	6.62	422.03	MM
11-22-95	1237	Steel tape	9.22	0.01	7.98	420.67	MM
01-16-96	1354	Steel tape	10.02	0.01	8.78	419.87	MM
02-14-96	1320	Steel tape	10.19	0.01	8.95	419.70	MM
04-17-96	1104	ND	ND	ND	ND	ND	Well destroyed


FIA15 OBSERVATION WELL
Individual measurement
GROUND-WATER ELEVATION, IN FEET ABOVE SEA LEVEL
424
423
422
421
420
419
418
417
416
415
414
413
412
1/1/91
1/1/92
1/1/93
1/1/94
1/1/95
1/1/96
1/1/97

FIA16 OBSERVATION WELL
Formerly observation well TH93-3

Site ID: 644950147483501
Local Number: FC00100117BCBB1 003

All measurements in feet	Feet	Elevation
Depth to bottom of well from MP :	23.60	408.2
Depth from TOC to top of SI :	21.00	410.8
Depth from TOC to bottom of SI :	23.60	408.2
Land surface datum:		426.32

LS, land surface
MM, mass measurement
PM, partial measurement
MP, measuring point
SI, screened interval
TOC, top of casing
WS, water surface

Datum corrections, reference survey notes in site folders

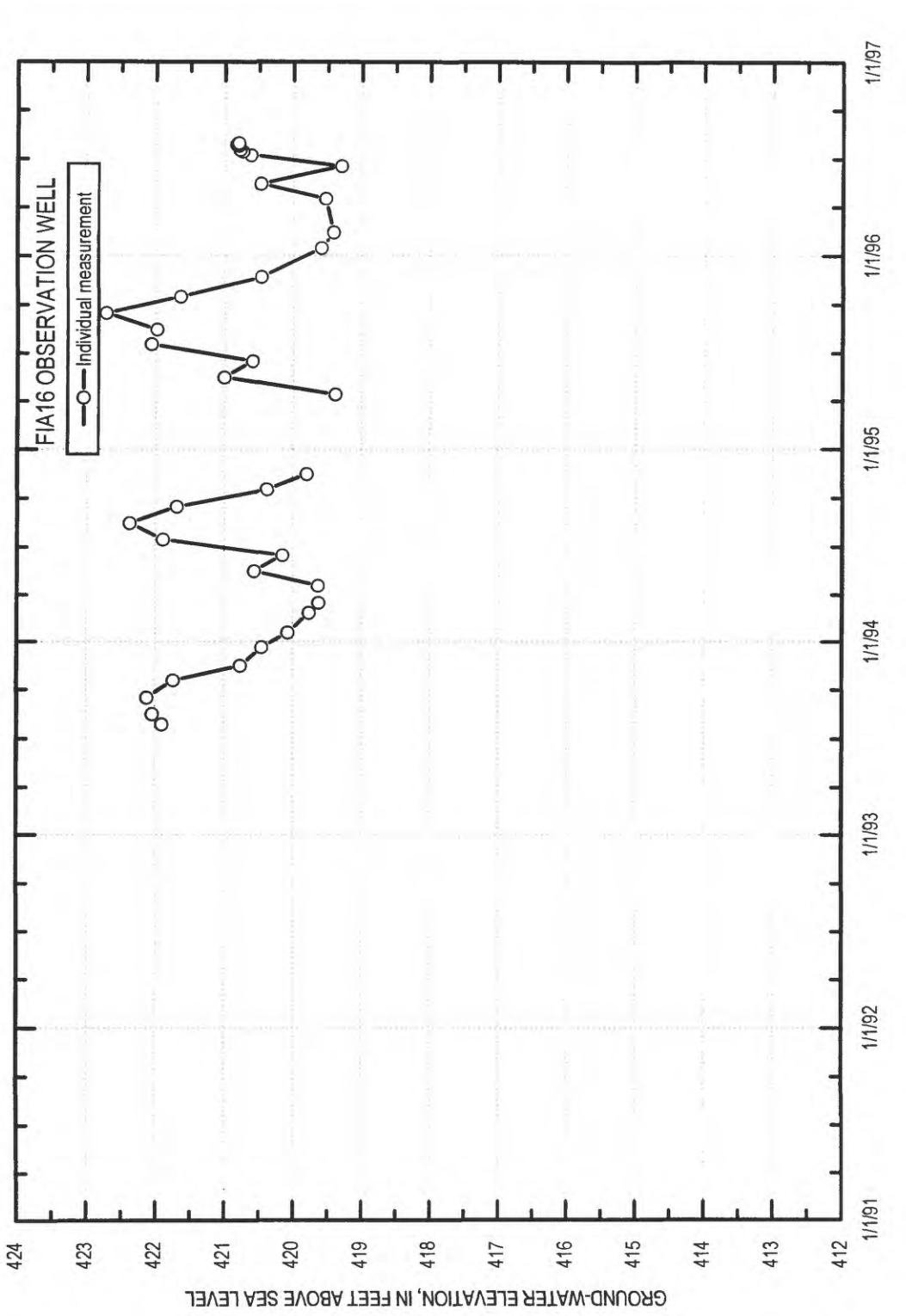
Date	MP Elevation (feet above sea level)	
10-14-93	431.77	
11-07-94	431.80	Updated MP

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
07-28-93	1813	Steel tape	9.87	0.01	4.42	421.90	PM
08-16-93	1846	Steel tape	9.73	0.01	4.28	422.04	MM
09-16-93	1030	Steel tape	9.65	0.01	4.20	422.12	MM
10-19-93	1503	Steel tape	10.04	0.01	4.59	421.73	MM
11-16-93	1059	Steel tape	11.01	0.01	5.56	420.76	MM
12-21-93	1437	Steel tape	11.32	0.01	5.87	420.45	MM
01-18-94	1655	Steel tape	11.70	0.01	6.25	420.07	MM
02-25-94	1242	Steel tape	12.01	0.01	6.56	419.76	MM
03-16-94	1129	Steel tape	12.15	0.01	6.70	419.62	MM
04-18-94	1138	Steel tape	12.14	0.01	6.69	419.63	MM
05-16-94	1500	Steel tape	11.21	0.01	5.76	420.56	MM
06-15-94	1420	Steel tape	11.65	0.01	6.17	420.15	Updated MP, MM
07-15-94	1144	Steel tape	9.91	0.01	4.43	421.89	MM
08-15-94	1450	Steel tape	9.43	0.01	3.95	422.37	MM
09-15-94	1519	Steel tape	10.11	0.01	4.63	421.69	MM
10-17-94	1344	Steel tape	11.43	0.01	5.95	420.37	MM
11-15-94	1142	Steel tape	12.01	0.01	6.53	419.79	MM
04-13-95	1142	Steel tape	12.42	0.01	6.94	419.38	MM
05-16-95	1149	Steel tape	10.80	0.01	5.32	421.00	MM

FIA16 OBSERVATION WELL
Formerly observation well TH93-3

Site ID: 644950147483501
Local Number: FC00100117BCBB1 003

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
06-16-95	1050	Steel tape	11.21	0.01	5.73	420.59	MM
07-18-95	0842	Steel tape	9.74	0.01	4.26	422.06	MM
08-15-95	1227	Steel tape	9.82	0.01	4.34	421.98	MM
09-15-95	1602	Steel tape	9.08	0.01	3.60	422.72	MM
10-16-95	1210	Steel tape	10.16	0.01	4.68	421.64	MM
11-22-95	1240	Steel tape	11.34	0.01	5.86	420.46	MM
01-16-96	1400	Steel tape	12.21	0.01	6.73	419.59	MM
02-14-96	1325	Steel tape	12.39	0.01	6.91	419.41	MM
04-17-96	1104	Steel tape	12.27	0.01	6.79	419.53	MM
05-15-96	1146	Steel tape	11.33	0.01	5.85	420.47	MM
06-17-96	1520	Steel tape	12.50	0.01	7.02	419.30	MM
07-08-96	1430	Steel tape	11.18	0.01	5.70	420.62	PM
07-15-96	1523	Steel tape	11.06	0.01	5.58	420.74	MM
07-18-96	1709	Steel tape	11.02	0.01	5.54	420.78	PM
07-26-96	1318	Steel tape	11.00	0.01	5.52	420.80	PM
07-27-96	1527	Steel tape	11.00	0.01	5.52	420.80	PM
07-28-96	1538	Steel tape	10.97	0.01	5.49	420.83	PM
07-29-96	0927	Steel tape	10.98	0.01	5.50	420.82	PM
07-30-96	1056	Steel tape	10.99	0.01	5.51	420.81	PM
07-31-96	1031	Steel tape	11.00	0.01	5.52	420.80	PM
08-05-96	1219	Steel tape	11.05	0.01	5.57	420.75	PM
08-07-96	1541	Steel tape	11.14	0.01	5.66	420.66	PM
08-09-96	1541	Steel tape	11.20	0.01	5.72	420.60	PM
10-31-96	1229	Steel tape	12.48	0.01	7.00	419.32	MM
11-14-96	1138	Steel tape	12.55	0.01	7.07	419.25	MM


FIA16 OBSERVATION WELL
Individual measurement
GROUND-WATER ELEVATION, IN FEET ABOVE SEA LEVEL
424
423
422
421
420
419
418
417
416
415
414
413
412
1/1/91
1/1/92
1/1/93
1/1/94
1/1/95
1/1/96
1/1/97

FIA17 OBSERVATION WELL
Formerly observation well TH93-5

Site ID: 645001147483501
Local Number: FC00100117BBBC1 008

All measurements in feet	Feet	Elevation
Depth to bottom of well from MP :	21.00	411.0
Depth from TOC to top of SI :	21.00	411.0
Depth from TOC to bottom of SI :	23.60	408.4
Land surface datum:		428.06

LS, land surface
MM, mass measurement
PM, partial measurement
MP, measuring point
SI, screened interval
TOC, top of casing
WS, water surface

Datum corrections, reference survey notes in site folders

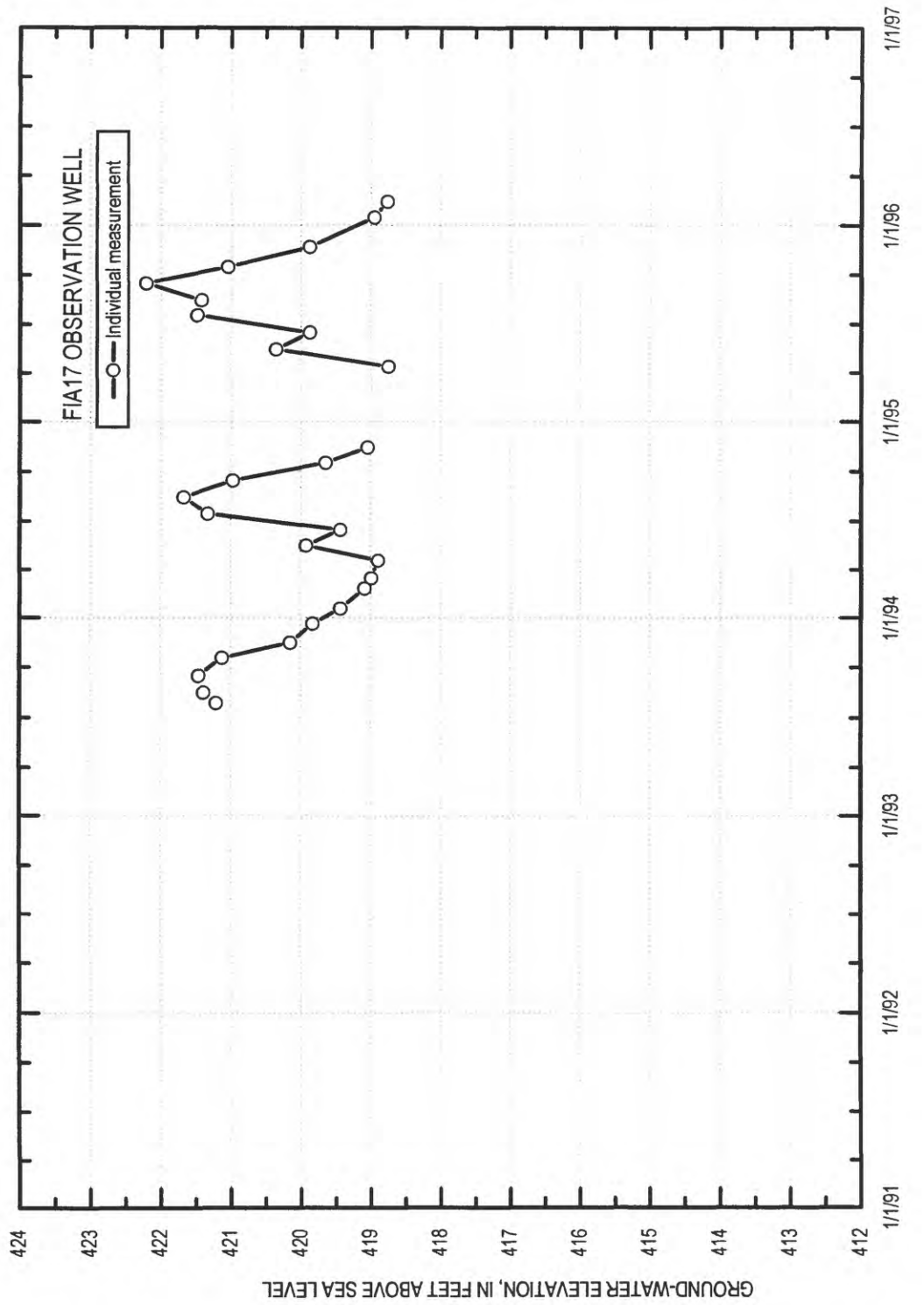
Date	MP Elevation (feet above sea level)	
08-19-93	431.97	
11-07-94	431.99	Updated MP

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
07-28-93	1810	Steel tape	10.76	0.01	6.85	421.21	PM
08-16-93	1852	Steel tape	10.58	0.01	6.67	421.39	MM
09-16-93	1034	Steel tape	10.51	0.01	6.60	421.46	MM
10-19-93	1503	Steel tape	10.85	0.01	6.94	421.12	MM
11-16-93	1107	Steel tape	11.82	0.01	7.91	420.15	MM
12-21-93	1445	Steel tape	12.14	0.01	8.23	419.83	MM
01-18-94	1701	Steel tape	12.54	0.01	8.63	419.43	MM
02-25-94	1247	Steel tape	12.88	0.01	8.97	419.09	MM
03-16-94	1136	Steel tape	12.98	0.01	9.07	418.99	MM
04-18-94	1143	Steel tape	13.08	0.01	9.17	418.89	MM
05-16-94	1505	Steel tape	12.05	0.01	8.14	419.92	MM
06-15-94	1424	Steel tape	12.54	0.01	8.63	419.43	MM
07-15-94	1550	Steel tape	10.66	0.01	6.73	421.33	Updated MP, MM
08-15-94	1455	Steel tape	10.32	0.01	6.39	421.67	MM
09-15-94	1526	Steel tape	11.02	0.01	7.09	420.97	MM
10-17-94	1350	Steel tape	12.35	0.01	8.42	419.64	MM
11-15-94	1148	Steel tape	12.95	0.01	9.02	419.04	MM
04-13-95	1149	Steel tape	13.25	0.01	9.32	418.74	MM
05-16-95	1152	Steel tape	11.64	0.01	7.71	420.35	MM

FIA17 OBSERVATION WELL
Formerly observation well TH93-5

Site ID: 645001147483501
Local Number: FC00100117BBBC1 008

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
06-16-95	1056	Steel tape	12.12	0.01	8.19	419.87	MM
07-18-95	0846	Steel tape	10.51	0.01	6.58	421.48	MM
08-15-95	1229	Steel tape	10.57	0.01	6.64	421.42	MM
09-15-95	1604	Steel tape	9.78	0.01	5.85	422.21	MM
10-16-95	1213	Steel tape	10.95	0.01	7.02	421.04	MM
11-22-95	1243	Steel tape	12.12	0.01	8.19	419.87	MM
01-16-96	1403	Steel tape	13.04	0.01	9.11	418.95	MM
02-14-96	1330	Steel tape	13.23	0.01	9.30	418.76	MM
04-17-96	1201	ND	ND	ND	ND	ND	Well destroyed


FIA17 OBSERVATION WELL
Individual measurement
GROUND-WATER ELEVATION, IN FEET ABOVE SEA LEVEL
424
423
422
421
420
419
418
417
416
415
414
413
412
1/1/91
1/1/92
1/1/93
1/1/94
1/1/95
1/1/96
1/1/97

FIA18 OBSERVATION WELL
Formerly well FP-O, by DNR state office

Site ID: 645018147483901
Local Number: FC00100107DADC1 014

All measurements in feet	Feet	Elevation
Depth to bottom of well from MP :	25.50	407.1
Depth from TOC to top of SI :	23.50	409.1
Depth from TOC to bottom of SI :	25.50	407.1
Land surface datum:	430.3	

LS, land surface
MM, mass measurement
PM, partial measurement
MP, measuring point
ND, no data
SI, screened interval
TOC, top of casing
WS, water surface

Datum corrections, reference survey notes in site folders

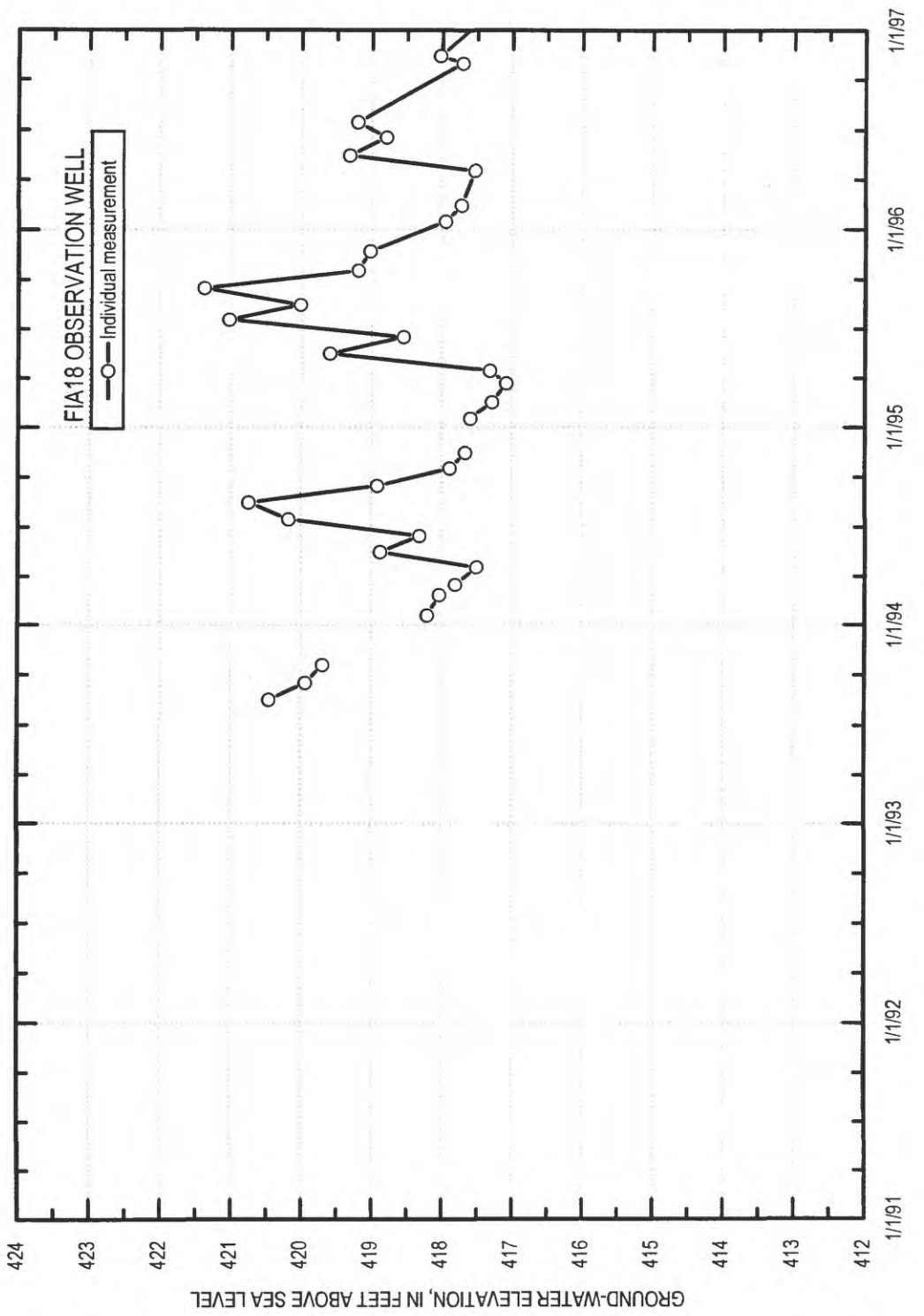
Date	MP Elevation (feet above sea level)
10-27-95	432.56

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
08-16-93	1901	Steel tape	12.18	0.01	9.85	420.45	MM
09-16-93	1043	Steel tape	12.70	0.01	10.37	419.93	MM
10-19-93	1520	Steel tape	12.94	0.01	10.61	419.69	MM
11-16-93	1120	ND	ND	ND	ND	ND	Could not open, MM
12-21-93	1456	ND	ND	ND	ND	ND	Could not open, MM
01-18-94	1235	Steel tape	14.43	0.01	12.10	418.20	MM
02-25-94	1302	Steel tape	14.60	0.01	12.27	418.03	MM
03-16-94	1145	Steel tape	14.83	0.01	12.50	417.80	MM
04-18-94	1150	Steel tape	15.13	0.01	12.80	417.50	MM
05-16-94	1510	Steel tape	13.76	0.01	11.43	418.87	MM
06-15-94	1432	Steel tape	14.32	0.01	11.99	418.31	MM
07-15-94	1155	Steel tape	12.46	0.01	10.13	420.17	MM
08-15-94	1501	Steel tape	11.89	0.01	9.56	420.74	MM
09-15-94	1535	Steel tape	13.72	0.01	11.39	418.91	MM
10-17-94	1403	Steel tape	14.75	0.01	12.42	417.88	MM
11-15-94	1201	Steel tape	14.97	0.01	12.64	417.66	MM
01-17-95	1203	Steel tape	15.04	0.01	12.71	417.59	MM
02-15-95	1440	Steel tape	15.35	0.01	13.02	417.28	MM
03-22-95	1015	Steel tape	15.55	0.01	13.22	417.08	MM
04-14-95	1005	Steel tape	15.32	0.01	12.99	417.31	MM

FIA18 OBSERVATION WELL
Formerly well FP-O, by DNR state office

Site ID: 645018147483901
Local Number: FC00100107DADC1 014

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
05-16-95	1157	Steel tape	13.04	0.01	10.71	419.59	MM
06-16-95	1100	Steel tape	14.09	0.01	11.76	418.54	MM
07-18-95	0830	Steel tape	11.61	0.01	9.28	421.02	MM
08-15-95	1608	Steel tape	12.62	0.01	10.29	420.01	MM
09-15-95	1404	Steel tape	11.26	0.01	8.93	421.37	MM
10-17-95	1201	Steel tape	13.44	0.01	11.11	419.19	MM
11-22-95	1252	Steel tape	13.61	0.01	11.28	419.02	MM
01-16-96	1412	Steel tape	14.68	0.01	12.35	417.95	MM
02-14-96	1341	Steel tape	14.91	0.01	12.58	417.72	MM
04-17-96	1243	Steel tape	15.10	0.01	12.77	417.53	MM
05-15-96	1240	Steel tape	13.32	0.01	10.99	419.31	MM
06-17-96	1529	Steel tape	13.84	0.01	11.51	418.79	MM
07-15-96	1529	Steel tape	13.43	0.01	11.10	419.20	MM
10-31-96	1235	Steel tape	14.92	0.01	12.59	417.71	MM
11-14-96	1144	Steel tape	14.60	0.01	12.27	418.03	MM


FIA18 OBSERVATION WELL
Individual measurement
GROUND-WATER ELEVATION, IN FEET ABOVE SEA LEVEL
424
423
422
421
420
419
418
417
416
415
414
413
412
1/1/91
1/1/92
1/1/93
1/1/94
1/1/95
1/1/96
1/1/97

FIA19 OBSERVATION WELL
Formerly observation well FP-I, at end of Peger

Site ID: 644757147462401
Local Number: FC00100128BCCC1 004

All measurements in feet	Feet	Elevation
Depth to bottom of well from MP :	18.90	415.2
Depth from TOC to top of SI :	16.90	417.2
Depth from TOC to bottom of SI :	18.90	415.2
Land surface datum:		432.10

LS, land surface
MM, mass measurement
PM, partial measurement
MP, measuring point
SI, screened interval
TOC, top of casing
WS, water surface

Datum corrections, reference survey notes in site folders

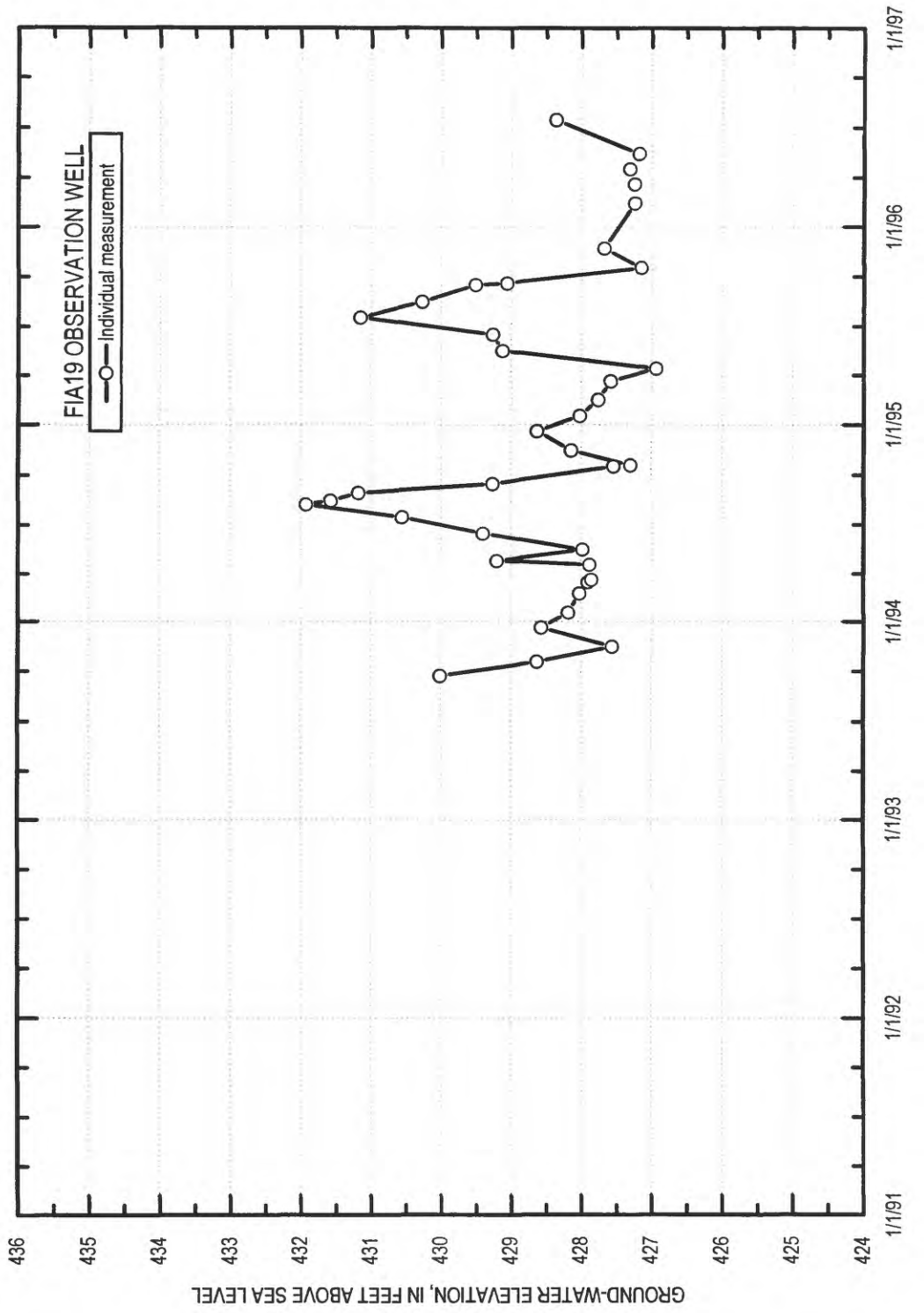
Date	MP Elevation (feet above sea level)	
09-23-93	433.24	
08-16-95	434.06	Updated MP
09-03-96	434.48	Updated MP

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
09-23-93	1145	Steel tape	4.67	0.01	2.71	428.57	PM
10-19-93	1427	Steel tape	6.05	0.01	4.09	427.19	MM
11-16-93	1035	Steel tape	7.12	0.01	5.16	426.12	MM
12-21-93	1138	Steel tape	6.11	0.01	4.15	427.13	MM
01-18-94	1546	Steel tape	6.50	0.01	4.54	426.74	MM
02-23-94	1533	Steel tape	6.66	0.01	4.70	426.58	MM
03-16-94	1208	Steel tape	6.78	0.01	4.82	426.46	MM
03-21-94	1400	Steel tape	6.83	0.01	4.87	426.41	MM
04-18-94	1053	Steel tape	6.80	0.01	4.84	426.44	MM
04-25-94	1535	Steel tape	5.48	0.01	3.52	427.76	PM
05-16-94	1410	Steel tape	6.70	0.01	4.74	426.54	MM
06-15-94	1030	Steel tape	5.28	0.01	3.32	427.96	MM
07-15-94	1112	Steel tape	4.13	0.01	2.17	429.11	MM
08-08-94	1122	Steel tape	2.76	0.01	0.80	430.48	PM
08-15-94	1439	Steel tape	3.11	0.01	1.15	430.13	MM
08-29-94	1611	Steel tape	3.51	0.01	1.55	429.73	PM
09-15-94	1150	Steel tape	5.42	0.01	3.46	427.82	MM
10-17-94	1021	Steel tape	7.14	0.01	5.18	426.10	MM

FIA19 OBSERVATION WELL
Formerly observation well FP-I, at end of Peger

Site ID: 644757147462401
Local Number: FC00100128BCCC1 004

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
10-19-94	1000	Steel tape	7.38	0.01	5.42	425.86	PM
11-15-94	0927	Steel tape	6.54	0.01	4.58	426.70	MM
12-20-94	1356	Steel tape	6.05	0.01	4.09	427.19	MM
01-17-95	1329	Steel tape	6.66	0.01	4.70	426.58	MM
02-15-95	1304	Steel tape	6.92	0.01	4.96	426.32	MM
03-21-95	1142	Steel tape	7.10	0.01	5.14	426.14	MM
04-13-95	1007	Steel tape	7.75	0.01	5.79	425.49	MM
05-16-95	1222	Steel tape	5.56	0.01	3.60	427.68	MM
06-16-95	1151	Steel tape	5.42	0.01	3.46	427.82	MM
07-17-95	1140	Steel tape	3.53	0.01	1.57	430.53	Updated MP, MM
08-15-95	1307	Steel tape	4.41	0.01	2.45	429.65	MM
09-15-95	1615	Steel tape	5.17	0.01	3.21	428.89	MM
09-18-95	0956	Steel tape	5.62	0.01	3.66	428.44	MM
10-17-95	0957	Steel tape	7.53	0.01	5.57	426.53	MM
11-22-95	1258	Steel tape	7.01	0.01	5.05	427.05	MM
02-14-96	1126	Steel tape	7.44	0.01	5.48	426.62	MM
03-20-96	1337	Steel tape	7.43	0.01	5.47	426.63	MM
04-17-96	1221	Steel tape	7.37	0.01	5.41	426.69	MM
05-15-96	1155	Steel tape	7.50	0.01	5.54	426.56	MM
07-15-96	1450	Steel tape	6.32	0.01	3.94	428.16	Updated MP, MM
10-31-96	1219	Steel tape	9.23	0.01	6.85	425.25	MM
11-14-96	1214	Steel tape	8.51	0.01	6.13	425.97	MM


FIA19 OBSERVATION WELL
Individual measurement
GROUND-WATER ELEVATION, IN FEET ABOVE SEA LEVEL
436
435
434
433
432
431
430
429
428
427
426
425
424
1/1/91
1/1/92
1/1/93
1/1/94
1/1/95
1/1/96
1/1/97

FIA23 OBSERVATION WELL
Well by the Chena River at University Ave.

Site ID: 645033147483501
Local Number: FC00100107BCCC1 006

All measurements in feet	Feet	Elevation
Depth to bottom of well from MP :	NA	NA
Depth from TOC to top of SI :	NA	NA
Depth from TOC to bottom of SI :	NA	NA
Land surface datum:		426.9

LS, land surface
MM, mass measurement
PM, partial measurement
MP, measuring point
NA, not available
ND, no data
SI, screened interval
TOC, top of casing
WS, water surface

Datum corrections, reference survey notes in site folders

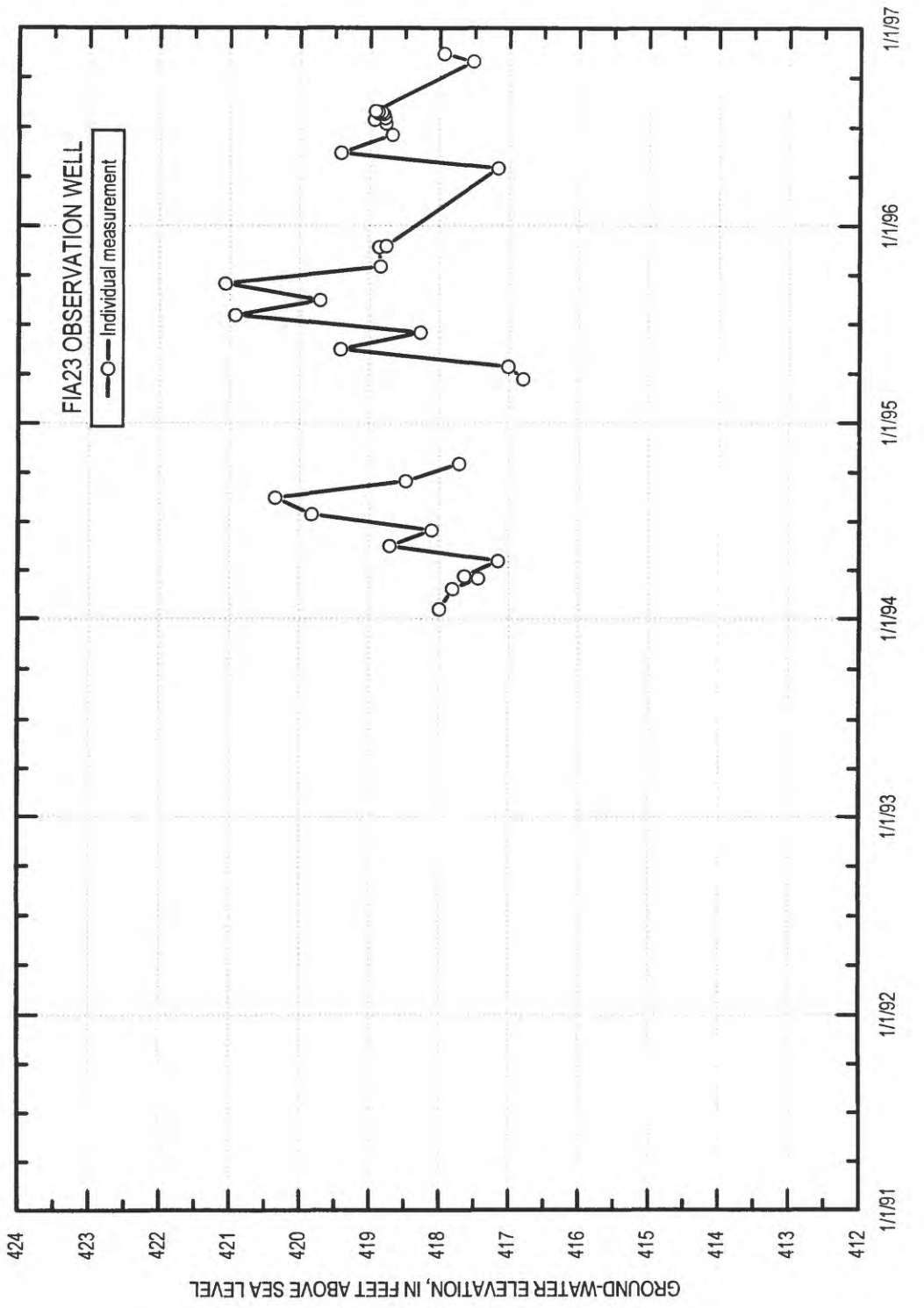
Date	MP Elevation (feet above sea level)
10-27-95	430.35

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
01-18-94	1608	Steel tape	12.36	0.01	8.96	417.99	MM
02-25-94	1311	Steel tape	12.55	0.01	9.15	417.80	MM
03-16-94	1153	Steel tape	12.92	0.01	9.52	417.43	MM
03-21-94	1226	Steel tape	12.72	0.01	9.32	417.63	MM
04-18-94	1158	Steel tape	13.20	0.01	9.80	417.15	MM
05-16-94	ND	Steel tape	11.65	0.01	8.25	418.70	MM
06-15-94	1439	Steel tape	12.25	0.01	8.85	418.10	MM
07-15-94	1204	Steel tape	10.53	0.01	7.13	419.82	MM
08-15-94	1510	Steel tape	10.01	0.01	6.61	420.34	MM
09-15-94	1538	Steel tape	11.88	0.01	8.48	418.47	MM
10-17-94	1413	Steel tape	12.64	0.01	9.24	417.71	MM
03-22-95	1025	Steel tape	13.56	0.01	10.16	416.79	MM
04-14-95	1002	Steel tape	13.34	0.01	9.94	417.01	MM
05-16-95	1536	Steel tape	10.94	0.01	7.54	419.41	MM
06-16-95	1108	Steel tape	12.08	0.01	8.68	418.27	MM
07-18-95	0900	Steel tape	9.43	0.01	6.03	420.92	MM
08-15-95	1603	Steel tape	10.64	0.01	7.24	419.71	MM
09-15-95	1355	Steel tape	9.29	0.01	5.89	421.06	MM
10-17-95	1210	Steel tape	11.51	0.01	8.11	418.84	MM
11-22-95	1259	Steel tape	11.49	0.01	8.09	418.86	MM

FIA23 OBSERVATION WELL
Well by the Chena River at University Ave.

Site ID: 645033147483501
Local Number: FC00100107BCCC1 006

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
11-24-95	1346	Steel tape	11.59	0.01	8.19	418.76	MM
04-17-96	1255	Steel tape	13.19	0.01	9.79	417.16	MM
05-15-96	1244	Steel tape	10.94	0.01	7.54	419.41	MM
06-17-96	1543	Steel tape	11.67	0.01	8.27	418.68	MM
07-08-96	1440	Steel tape	11.58	0.01	8.18	418.77	PM
07-15-96	1535	Steel tape	11.42	0.01	8.02	418.93	MM
07-18-96	1712	Steel tape	11.57	0.01	8.17	418.78	PM
07-26-96	1326	Steel tape	11.55	0.01	8.15	418.80	PM
07-27-96	1534	Steel tape	11.47	0.01	8.07	418.88	PM
07-28-96	1544	Steel tape	11.49	0.01	8.09	418.86	PM
07-29-96	0936	Steel tape	11.52	0.01	8.12	418.83	PM
07-30-96	1101	Steel tape	11.47	0.01	8.07	418.88	PM
07-31-96	1039	Steel tape	11.43	0.01	8.03	418.92	PM
08-05-96	1226	Steel tape	11.62	0.01	8.22	418.73	PM
08-07-96	1548	Steel tape	11.60	0.01	8.20	418.75	PM
08-09-96	1415	Steel tape	11.72	0.01	8.32	418.63	PM
10-31-96	1302	Steel tape	12.83	0.01	9.43	417.52	MM
11-14-96	1240	Steel tape	12.41	0.01	9.01	417.94	MM


FIA23 OBSERVATION WELL
Individual measurement
GROUND-WATER ELEVATION, IN FEET ABOVE SEA LEVEL
424
423
422
421
420
419
418
417
416
415
414
413
412
1/1/91
1/1/92
1/1/93
1/1/94
1/1/95
1/1/96
1/1/97

FIAWT1-A OBSERVATION WELL
Part of diffusivity well cluster at the end of Peger Road

Site ID: 644811147463301
Local Number: FC00100128BBCC1 005

All measurements in feet	Feet	Elevation
Depth to bottom of well from MP :	35.0	399.8
Depth from TOC to top of SI :	15.0	419.8
Depth from TOC to bottom of SI :	25.0	409.8
Land surface datum:		433.30

LS, land surface
MM, mass measurement
PM, partial measurement
MP, measuring point
ND, no data
SI, screened interval
TOC, top of casing
WS, water surface

Datum corrections, reference survey notes in site folders

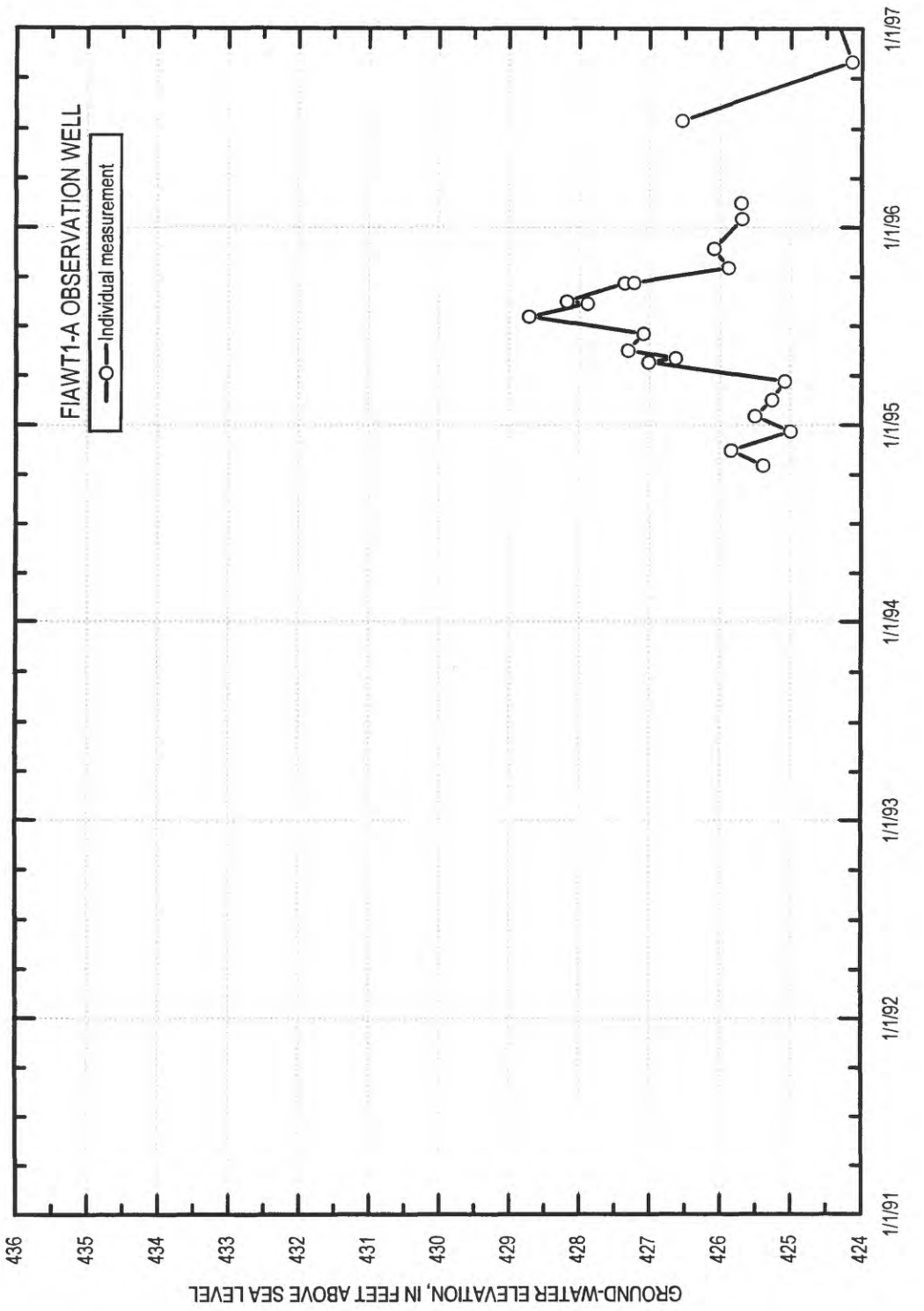
Date	MP Elevation (feet above sea level)
08-16-95	434.76
07-15-96	434.84

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
10-17-94	1030	Steel tape	9.37	0.01	7.91	425.39	MM
11-15-94	0938	Steel tape	8.92	0.01	7.46	425.84	MM
12-20-94	1345	Steel tape	9.76	0.01	8.30	425.00	MM
01-17-95	1321	Steel tape	9.26	0.01	7.80	425.50	MM
02-15-95	1315	Steel tape	9.50	0.01	8.04	425.26	MM
03-21-95	1137	Steel tape	9.68	0.01	8.22	425.08	MM
04-24-95	1600	Steel tape	7.75	0.01	6.29	427.01	PM
05-01-95	1404	Steel tape	8.13	0.01	6.67	426.63	PM
05-16-95	1206	Steel tape	7.46	0.01	6.00	427.30	MM
06-16-95	1128	Steel tape	7.68	0.01	6.22	427.08	MM
07-17-95	1145	Steel tape	6.05	0.01	4.59	428.71	MM
08-10-95	1150	Steel tape	6.88	0.01	5.42	427.88	PM
08-15-95	1255	Steel tape	6.59	0.01	5.13	428.17	MM
09-18-95	0931	Steel tape	7.41	0.01	5.95	427.35	MM
09-19-95	1054	Steel tape	7.54	0.01	6.08	427.22	PM
10-17-95	0952	Steel tape	8.88	0.01	7.42	425.88	MM
11-22-95	1203	Steel tape	8.68	0.01	7.22	426.08	MM
01-16-96	1212	Steel tape	9.07	0.01	7.61	425.69	MM
02-14-96	1139	Steel tape	9.06	0.01	7.60	425.70	MM

FIAWT1-A OBSERVATION WELL
Part of diffusivity well cluster at the end of Peger Road

Site ID: 644811147463301
Local Number: FC00100128BBCC1 005

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
04-17-96	1227	Steel tape	ND	ND	ND	ND	Frozen, MM
05-15-96	1223	Steel tape	ND	ND	ND	ND	Frozen, MM
07-15-96	1457	Steel tape	8.30	0.01	6.76	426.54	MM
10-31-96	1138	Steel tape	10.70	0.01	9.16	424.14	MM


FIAWT1-A OBSERVATION WELL
Individual measurement
GROUND-WATER ELEVATION, IN FEET ABOVE SEA LEVEL
436
435
434
433
432
431
430
429
428
427
426
425
424
1/1/91
1/1/92
1/1/93
1/1/94
1/1/95
1/1/96
1/1/97

FIAWT1-B OBSERVATION WELL
Part of diffusivity well cluster at the end of Peger Road

Site ID: 644811147463302
Local Number: FC00100128BBCC2 006

All measurements in feet	Feet	Elevation
Depth to bottom of well from MP :	90.0	344.8
Depth from TOC to top of SI :	70.0	364.8
Depth from TOC to bottom of SI :	80.0	354.8
Land surface datum:		433.30

LS, land surface
MM, mass measurement
PM, partial measurement
MP, measuring point
ND, no data
SI, screened interval
TOC, top of casing
WS, water surface

Datum corrections, reference survey notes in site folders

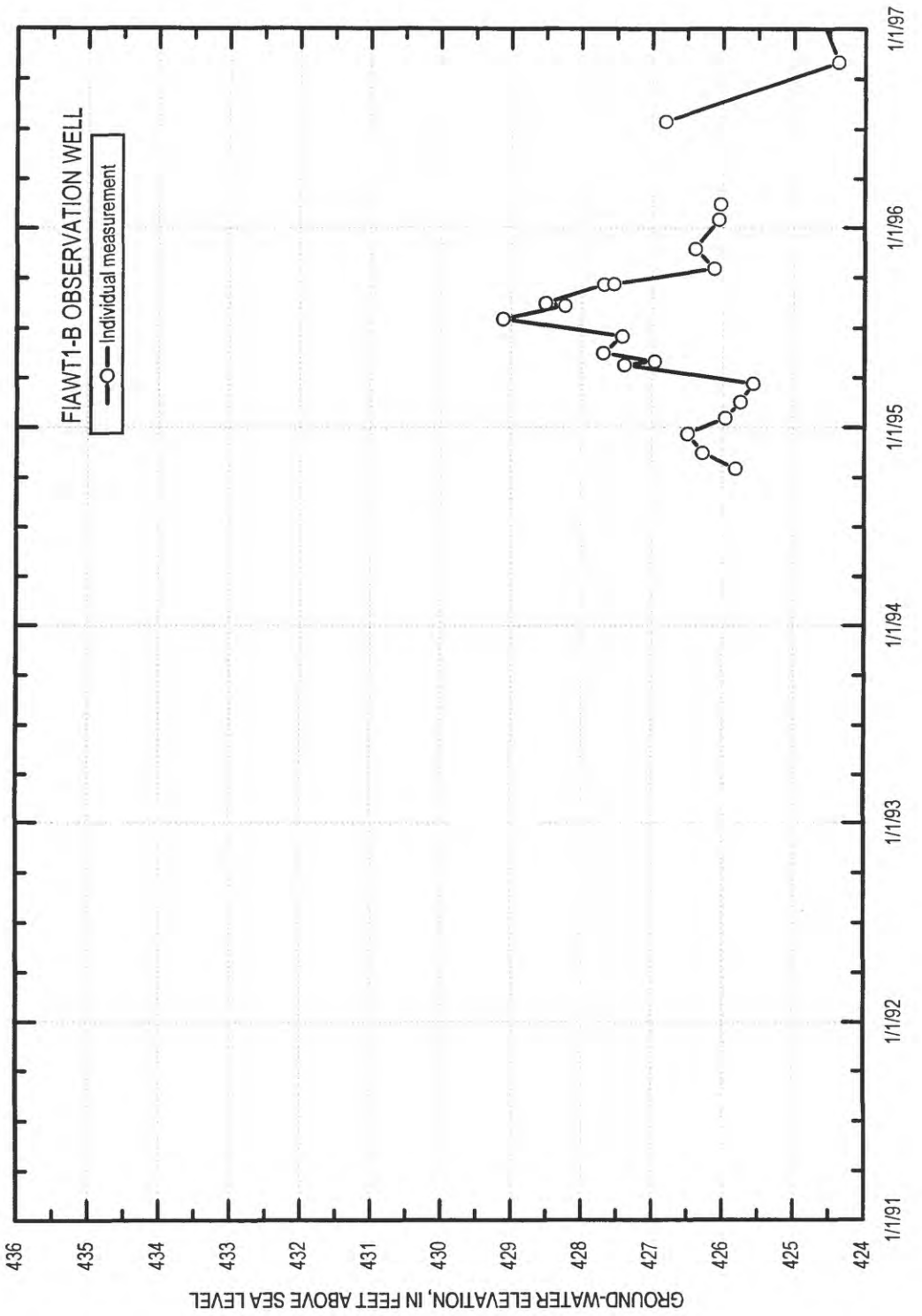
Date	MP Elevation (feet above sea level)
08-16-95	434.84

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
10-17-94	1030	Steel tape	9.03	0.01	7.49	425.81	MM
11-15-94	0938	Steel tape	8.56	0.01	7.02	426.28	MM
12-20-94	1345	Steel tape	8.35	0.01	6.81	426.49	MM
01-17-95	1321	Steel tape	8.88	0.01	7.34	425.96	MM
02-15-95	1315	Steel tape	9.09	0.01	7.55	425.75	MM
03-21-95	1137	Steel tape	9.27	0.01	7.73	425.57	MM
04-24-95	1600	Steel tape	7.45	0.01	5.91	427.39	PM
05-01-95	1404	Steel tape	7.88	0.01	6.34	426.96	PM
05-16-95	1206	Steel tape	7.15	0.01	5.61	427.69	MM
06-16-95	1128	Steel tape	7.42	0.01	5.88	427.42	MM
07-17-95	1145	Steel tape	5.73	0.01	4.19	429.11	MM
08-10-95	1150	Steel tape	6.61	0.01	5.07	428.23	PM
08-15-95	1255	Steel tape	6.33	0.01	4.79	428.51	MM
09-18-95	0931	Steel tape	7.16	0.01	5.62	427.68	MM
09-19-95	1054	Steel tape	7.30	0.01	5.76	427.54	PM
10-17-95	0952	Steel tape	8.72	0.01	7.18	426.12	MM
11-22-95	1203	Steel tape	8.45	0.01	6.91	426.39	MM
01-16-96	1212	Steel tape	8.79	0.01	7.25	426.05	MM
02-14-96	1139	Steel tape	8.81	0.01	7.27	426.03	MM
04-17-96	1227	Steel tape	ND	ND	ND	ND	Frozen, MM

FIAWT1-B OBSERVATION WELL
Part of diffusivity well cluster at the end of Peger Road

Site ID: 644811147463302
Local Number: FC00100128BBCC2 006

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
05-15-96	1223	Steel tape	ND	ND	ND	ND	Frozen, MM
07-15-96	1457	Steel tape	8.03	0.01	6.49	426.81	MM
10-31-96	1138	Steel tape	10.47	0.01	8.93	424.37	MM


FIAWT1-B OBSERVATION WELL
Individual measurement
GROUND-WATER ELEVATION, IN FEET ABOVE SEA LEVEL
436
435
434
433
432
431
430
429
428
427
426
425
424
1/1/91
1/1/92
1/1/93
1/1/94
1/1/95
1/1/96
1/1/97

FIAWT1-C OBSERVATION WELL
Part of diffusivity well cluster at the end of Peger Road

Site ID: 644811147463303
Local Number: FC00100128BBCC3 007

All measurements in feet	Feet	Elevation
Depth to bottom of well from MP :	200.0	234.8
Depth from TOC to top of SI :	180.0	254.8
Depth from TOC to bottom of SI :	190.0	244.8
Land surface datum:		433.30

LS, land surface
MM, mass measurement
PM, partial measurement
MP, measuring point
ND, no data
SI, screened interval
TOC, top of casing
WS, water surface

Datum corrections, reference survey notes in site folders

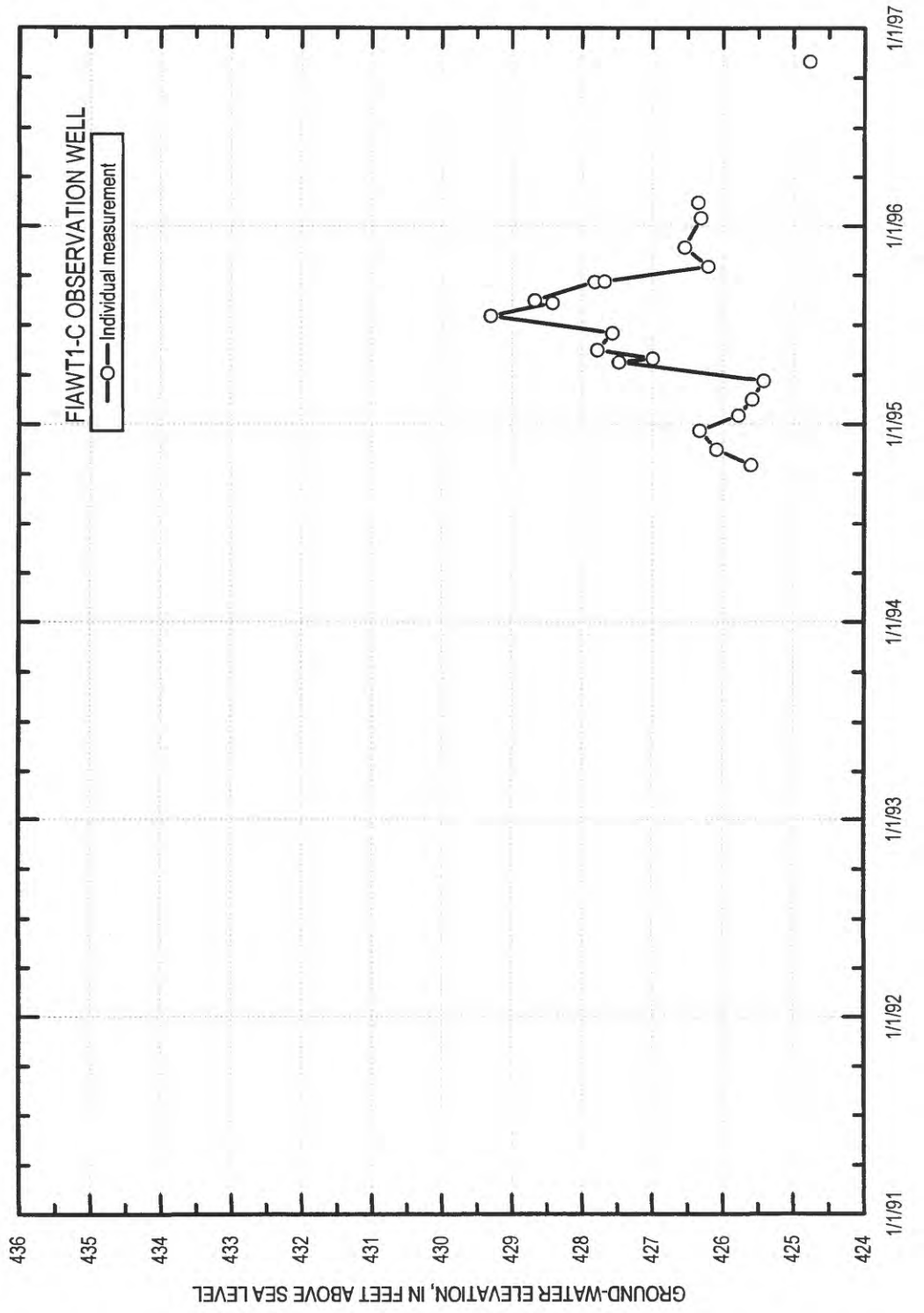
Date	MP Elevation (feet above sea level)
08-16-95	434.83
07-15-96	434.57

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
10-17-94	1030	Steel tape	9.23	0.01	7.70	425.60	MM
11-15-94	0938	Steel tape	8.74	0.01	7.21	426.09	MM
12-20-94	1345	Steel tape	8.50	0.01	6.97	426.33	MM
01-17-95	1321	Steel tape	9.05	0.01	7.52	425.78	MM
02-15-95	1315	Steel tape	9.25	0.01	7.72	425.58	MM
03-21-95	1137	Steel tape	9.41	0.01	7.88	425.42	MM
04-24-95	1600	Steel tape	7.36	0.01	5.83	427.47	PM
05-01-95	1404	Steel tape	7.84	0.01	6.31	426.99	PM
05-16-95	1206	Steel tape	7.05	0.01	5.52	427.78	MM
06-16-95	1128	Steel tape	7.26	0.01	5.73	427.57	MM
07-17-95	1145	Steel tape	5.53	0.01	4.00	429.30	MM
08-10-95	1150	Steel tape	6.41	0.01	4.88	428.42	PM
08-15-95	1255	Steel tape	6.16	0.01	4.63	428.67	MM
09-18-95	0931	Steel tape	7.01	0.01	5.48	427.82	MM
09-19-95	1054	Steel tape	7.15	0.01	5.62	427.68	PM
10-17-95	0952	Steel tape	8.62	0.01	7.09	426.21	MM
11-22-95	1203	Steel tape	8.29	0.01	6.76	426.54	MM
01-16-96	1212	Steel tape	8.52	0.01	6.99	426.31	MM
02-14-96	1139	Steel tape	8.48	0.01	6.95	426.35	MM

FIAWT1-C OBSERVATION WELL
Part of diffusivity well cluster at the end of Peger Road

Site ID: 644811147463303
Local Number: FC00100128BBCC3 007

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
04-17-96	1227	Steel tape	ND	ND	ND	ND	Frozen, MM
05-15-96	1223	Steel tape	ND	ND	ND	ND	Frozen, MM
07-15-96	1457	Steel tape	ND	ND	ND	ND	Frozen, MM
10-31-96	1138	Steel tape	10.06	0.01	8.53	424.77	MM


FIAWT1-C OBSERVATION WELL
Individual measurement
GROUND-WATER ELEVATION, IN FEET ABOVE SEA LEVEL
436
435
434
433
432
431
430
429
428
427
426
425
424
1/1/91
1/1/92
1/1/93
1/1/94
1/1/95
1/1/96
1/1/97

FIASL2 OBSERVATION SITE
Slough site south west of bioremediation area

Site ID: 644807147524501
Local Number: FC00100226ADAB2 015

Best reading from rebar and culvert at this site
Rebar: SLR1
Culvert: CU5

Land surface datum: 418.67

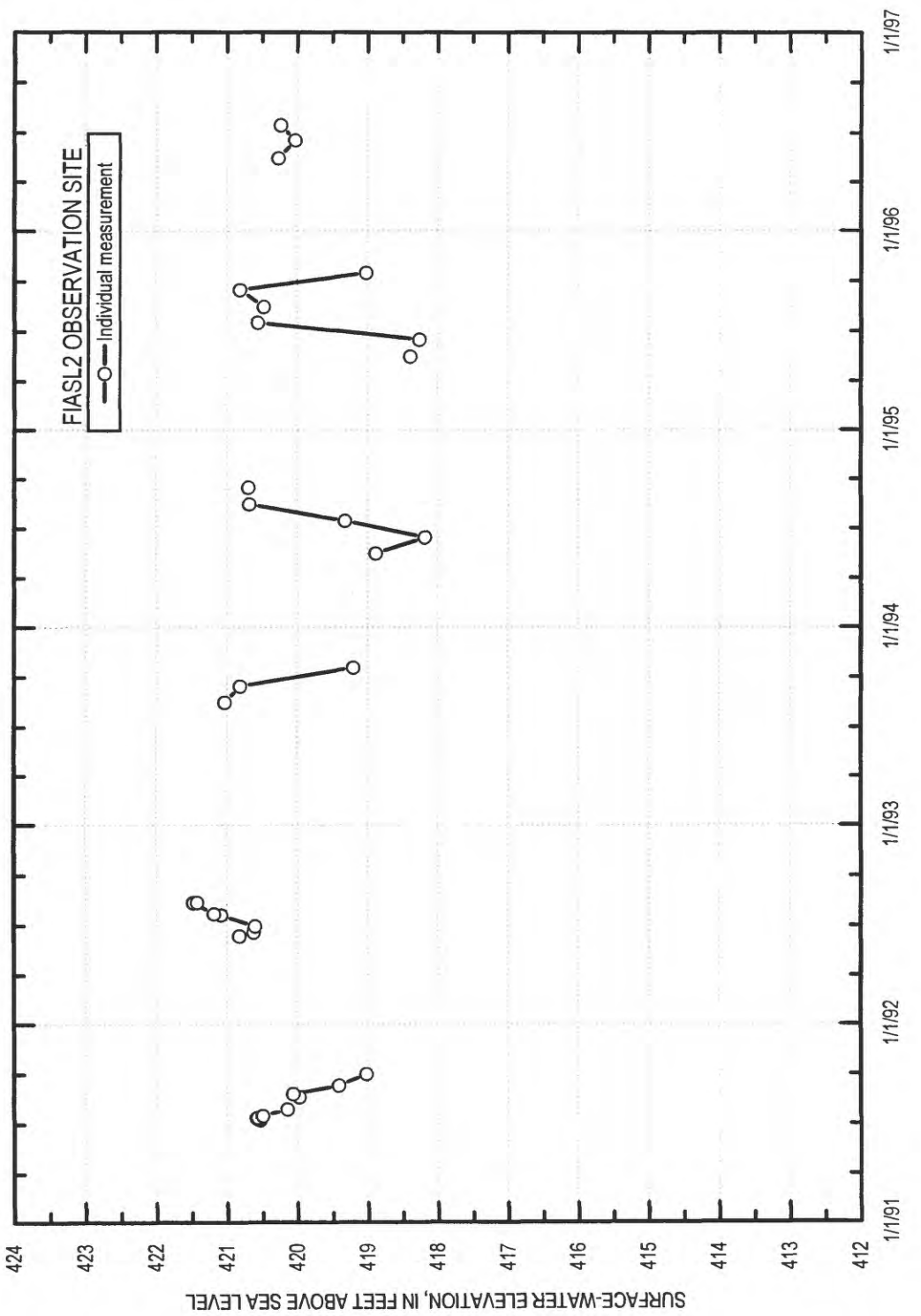
LS, land surface
MM, mass measurement
PM, partial measurement
MP, measuring point
ND, not available
WS, water surface

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
07-09-91	1700	Rebar	0.74	0.01	-1.86	420.53	PM, RB1
07-10-91	1117	Rebar	0.76	0.01	-1.88	420.55	PM, RB1
07-12-91	1056	Rebar	0.79	0.01	-1.91	420.58	PM, RB1
07-13-91	1139	Rebar	0.78	0.01	-1.90	420.57	PM, RB1
07-16-91	1527	Rebar	0.71	0.01	-1.83	420.50	PM, RB1
07-17-91	1032	Rebar	0.70	0.01	-1.82	420.49	MM, RB1
07-29-91	1555	Rebar	0.35	0.01	-1.47	420.14	PM, RB1
08-20-91	1205	Rebar	0.18	0.01	-1.30	419.97	MM, RB1
08-26-91	1136	Rebar	0.27	0.01	-1.39	420.06	PM, RB1
09-10-91	0845	Rebar	-0.38	0.01	-0.74	419.41	MM, RB1
10-01-91	0940	Rebar	-0.77	0.01	-0.35	419.02	Dry, MM
06-12-92	1530	Rebar	0.45	0.01	-2.15	420.82	MM, RB1
06-19-92	1845	Rebar	0.25	0.01	-1.95	420.62	PM, RB1
06-30-92	0904	Rebar	0.23	0.01	-1.93	420.60	PM, RB1
07-21-92	ND	Rebar	0.71	0.01	-2.41	421.08	MM, RB1
07-23-92	1457	Rebar	0.81	0.01	-2.51	421.18	PM, RB1
08-12-92	1247	Rebar	1.10	0.01	-2.80	421.47	PM, RB1
08-13-92	1404	Rebar	1.05	0.01	-2.75	421.42	MM, RB1
08-16-93	1616	Rebar	0.66	0.01	-2.36	421.03	MM, RB1
09-15-93	1542	Rebar	0.44	0.01	-2.14	420.81	MM, RB1
10-19-93	1335	Rebar	-1.17	0.01	-0.53	419.20	MM, RB1
11-17-93	1520	ND	ND	ND	ND	ND	Frozen, MM
12-21-93	1345	ND	ND	ND	ND	ND	Frozen, MM
01-18-94	1441	ND	ND	ND	ND	ND	Frozen, MM

FIASL2 OBSERVATION SITE
Slough site south west of bioremediation area

Site ID: 644807147524501
Local Number: FC00100226ADAB2 015

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
05-16-94	1318	Rebar	-1.49	0.01	-0.21	418.88	MM, RB1
06-15-94	1348	Rebar	-2.19	0.01	0.49	418.18	MM, RB1
07-15-94	1543	Culvert	2.11	0.01	-0.65	419.32	MM, CU5
08-15-94	1339	Culvert	0.75	0.01	-2.01	420.68	MM, CU5
09-15-94	1444	Culvert	0.74	0.01	-2.02	420.69	MM, CU5
05-16-95	1120	Culvert	3.04	0.01	0.28	418.39	MM, CU5
06-16-95	1025	Culvert	3.17	0.01	0.41	418.26	MM, CU5
07-17-95	1109	Culvert	0.87	0.01	-1.89	420.56	MM, CU5
08-15-95	1159	Culvert	0.96	0.01	-1.80	420.47	MM, CU5
09-15-95	1536	Culvert	0.62	0.01	-2.14	420.81	MM, CU5
10-16-95	1143	Culvert	2.41	0.01	-0.35	419.02	Ice, MM, CU5
11-22-95	1144	Culvert	ND	ND	ND	ND	Frozen, MM
05-15-96	1118	Culvert	2.58	0.01	-1.60	420.27	MM, CU5
06-17-96	1434	Culvert	2.82	0.01	-1.36	420.03	MM, CU5
07-15-96	1205	Culvert	2.62	0.01	-1.56	420.23	MM, CU5


FIASL2 OBSERVATION SITE
Individual measurement
SURFACE-WATER ELEVATION, IN FEET ABOVE SEA LEVEL
424
423
422
421
420
419
418
417
416
415
414
413
412
1/1/91
1/1/92
1/1/93
1/1/94
1/1/95
1/1/96
1/1/97

FIASL4 OBSERVATION SITE
Slough site immediately across road east of bioremediation area

Site ID: 644757147522701
Local Number: FC00100225BCCC1 007

Best reading from rebar and culverts at this site
Rebars: SLR3
Culverts: CU1a, CU1b, CU1c

LS, land surface
MM, mass measurement
PM, partial measurement
MP, measuring point
ND, no data
WS, water surface

Land surface datum: 422.35

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
06-27-91	1058	Culvert	2.23	0.01	2.24	420.11	PM, CU1a
07-09-91	1231	Culvert	1.52	0.01	1.53	420.82	PM, CU1a
07-10-91	1225	Culvert	1.48	0.01	1.49	420.86	PM, CU1a
07-11-91	1748	Rebar	1.02	0.01	1.51	420.84	PM, SLR3
07-12-91	1350	Rebar	0.97	0.01	1.56	420.79	PM, SLR3
07-13-91	ND	Rebar	0.89	0.01	1.64	420.71	PM, SLR3
07-16-91	1615	Rebar	0.63	0.01	1.90	420.45	PM, SLR3
07-17-91	1142	Rebar	0.56	0.01	1.97	420.38	MM, SLR3
07-29-91	1453	Rebar	0.32	0.01	2.21	420.14	PM, SLR3
08-20-91	ND	Rebar	0.32	0.01	2.21	420.14	MM, SLR3
08-26-91	1206	Rebar	0.38	0.01	2.15	420.20	MM, SLR3
09-10-91	1017	Rebar	-0.73	0.01	3.26	419.09	MM, SLR3
10-01-91	1138	Rebar	-1.33	0.01	3.86	418.49	MM, SLR3
05-27-92	0822	Rebar	-1.22	0.01	3.02	419.33	MM, SLR3
06-08-92	1935	Culvert	1.16	0.01	1.19	421.16	PM, CU1a
06-12-92	1511	Culvert	1.59	0.01	1.62	420.73	MM, CU1a
06-19-92	1852	Rebar	0.11	0.01	1.69	420.66	PM, SLR3
06-30-92	0847	Culvert	1.54	0.01	1.57	420.78	PM, CU1a
07-21-92	1300	Rebar	1.00	0.01	0.80	421.55	MM, SLR3
07-23-92	1511	Rebar	1.13	0.01	0.67	421.68	PM, SLR3
08-11-92	1652	Rebar	0.86	0.01	0.94	421.41	PM, SLR3
08-13-92	1647	Rebar	0.71	0.01	1.09	421.26	MM, SLR3
04-14-93	ND	ND	ND	ND	ND	ND	Frozen, MM
06-03-93	1207	Culvert	2.51	0.01	2.51	419.84	PM, CU1c

FIASL4 OBSERVATION SITE
Slough site immediately across road east of bioremediation area

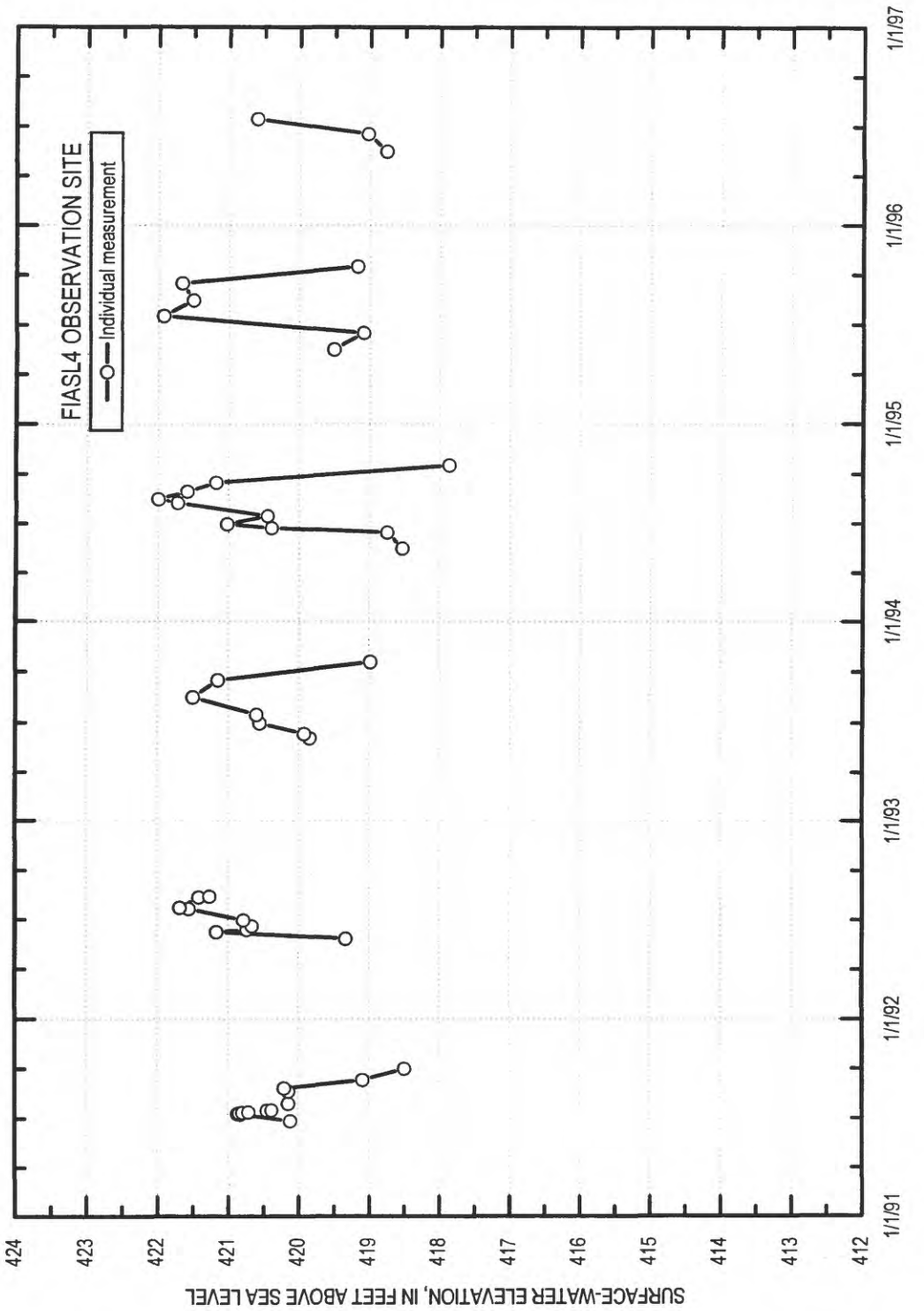
Site ID: 644757147522701
Local Number: FC00100225BCCC1 007

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
06-11-93	1510	Culvert	0.49	0.01	2.43	419.92	MM, CU1a
06-30-93	1700	Culvert	1.80	0.01	1.80	420.55	PM, CU1c
07-16-93	1201	Culvert	-0.19	0.01	1.75	420.60	MM, CU1a
08-16-93	1542	Culvert	0.85	0.01	0.85	421.50	MM, CU1a
09-16-93	1502	Culvert	1.20	0.01	1.20	421.15	MM, CU1a
10-19-93	1258	Culvert	3.02	0.01	3.37	418.98	MM, CU1b
11-16-93	1420	ND	ND	ND	ND	ND	Frozen, MM
12-21-93	1325	ND	ND	ND	ND	ND	Frozen, MM
01-18-94	1416	ND	ND	ND	ND	ND	Frozen, MM
02-25-94	ND	ND	ND	ND	ND	ND	Frozen, MM
03-16-94	ND	ND	ND	ND	ND	ND	Frozen, MM
04-18-94	ND	ND	ND	ND	ND	ND	Frozen, MM
05-16-94	ND	Culvert	1.88	0.01	3.82	418.53	MM, CU1c
06-15-94	1308	Culvert	1.66	0.01	3.60	418.75	MM, CU1c
06-23-94	0954	Culvert	0.02	0.01	1.96	420.39	PM, CU1c
06-30-94	1618	Culvert	0.98	0.01	1.33	421.02	PM, CU1b
07-15-94	1446	Culvert	1.55	0.01	1.90	420.45	MM, CU1b
08-08-94	1051	Culvert	0.63	0.01	0.63	421.72	PM, CU1a
08-15-94	1315	Culvert	0.36	0.01	0.36	421.99	MM, CU1a
08-29-94	1644	Culvert	0.42	0.01	0.77	421.58	PM, CU1a
09-15-94	1407	Culvert	0.83	0.01	1.18	421.17	MM, CU1c
10-17-94	1253	Rebar	-1.09	0.01	4.49	417.86	MM, SLR3
05-16-95	1116	Culvert	2.49	0.01	2.84	419.51	MM, CU1b
06-16-95	1020	Culvert	1.32	0.01	3.26	419.09	MM, CU1c
07-17-95	1100	Culvert	0.43	0.01	0.43	421.92	MM, CU1a
08-15-95	1156	Culvert	0.85	0.01	0.85	421.50	MM, CU1a
09-15-95	1533	Culvert	0.69	0.01	0.69	421.66	MM, CU1a
10-16-95	1136	Culvert	1.24	0.01	3.18	419.17	MM, CU1c
11-22-95	1135	ND	ND	ND	ND	ND	Frozen, MM
04-17-96	1011	ND	ND	ND	ND	ND	Frozen, MM
05-15-96	1106	Culvert	1.66	0.01	3.59	418.76	MM, CU1c

FIASL4 OBSERVATION SITE
Slough site immediately across road east of bioremediation area

Site ID: 644757147522701
Local Number: FC00100225BCCC1 007

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
06-17-96	1427	Culvert	1.39	0.01	3.32	419.03	MM, CU1c
07-15-96	1146	Culvert	1.75	0.01	1.75	420.60	MM, CU1a


FIASL4 OBSERVATION SITE
Individual measurement
SURFACE-WATER ELEVATION, IN FEET ABOVE SEA LEVEL
424
423
422
421
420
419
418
417
416
415
414
413
412
1/1/91
1/1/92
1/1/93
1/1/94
1/1/95
1/1/96
1/1/97

FIASL6 OBSERVATION SITE
Site on the west side of old Tanana River channel

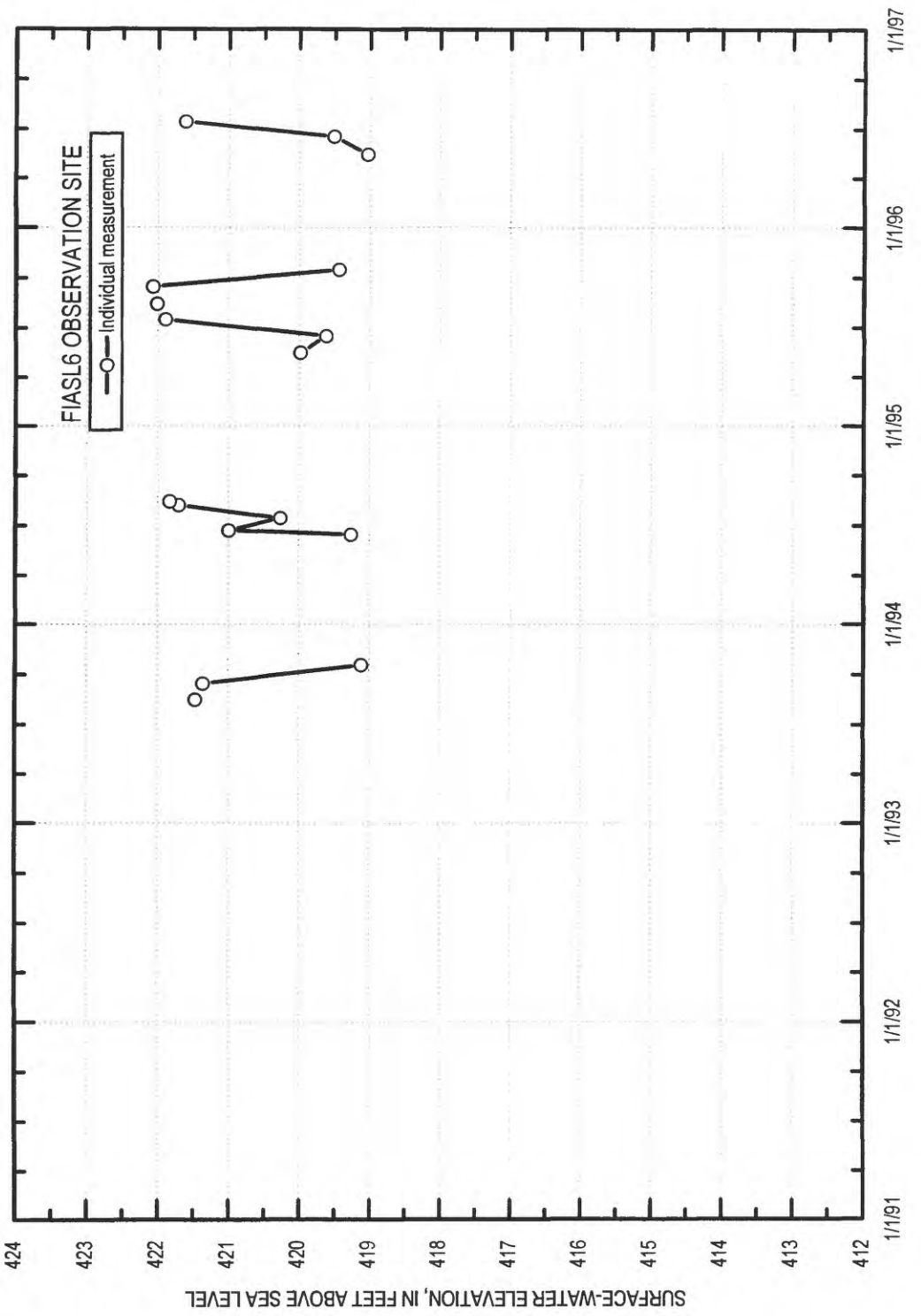
Site ID: 644755147521801
Local Number: FC00100225CBBA1 020

Best reading from culvert at this site
Culvert: CU4

LS, land surface
MM, mass measurement
PM, partial measurement
MP, measuring point
ND, no data
WS, water surface

Land surface datum: 422.67

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
08-16-93	1534	Culvert	1.21	0.01	1.21	421.46	MM
09-15-93	1452	Culvert	1.32	0.01	1.32	421.35	MM
10-19-93	1248	Culvert	3.56	0.01	3.56	419.11	MM
11-16-93	1412	Culvert	ND	ND	ND	ND	Frozen, MM
12-21-93	1313	Culvert	ND	ND	ND	ND	Frozen, MM
01-18-94	1403	Culvert	ND	ND	ND	ND	Frozen, MM
02-25-94	ND	ND	ND	ND	ND	ND	Frozen, MM
03-16-94	ND	ND	ND	ND	ND	ND	Frozen, MM
04-18-94	1523	Culvert	ND	ND	ND	ND	Frozen, MM
05-16-94	ND	Culvert	ND	ND	ND	ND	Dry , MM
06-15-94	1259	Culvert	3.41	0.01	3.41	419.26	MM
06-23-94	0949	Culvert	1.68	0.01	1.68	420.99	PM
07-15-94	1439	Culvert	2.41	0.01	2.41	420.26	MM
08-08-94	1049	Culvert	0.97	0.01	0.97	421.70	PM
08-15-94	1305	Culvert	0.84	0.01	0.84	421.83	MM
05-16-95	1113	Culvert	2.69	0.01	2.69	419.98	MM
06-16-95	1017	Culvert	3.06	0.01	3.06	419.61	MM
07-17-95	1059	Culvert	0.78	0.01	0.78	421.89	MM
08-15-95	1150	Culvert	0.66	0.01	0.66	422.01	MM
09-15-95	1529	Culvert	0.60	0.01	0.60	422.07	MM
10-16-95	1131	Culvert	3.24	0.01	3.24	419.43	Ice, MM
11-22-95	1130	ND	ND	ND	ND	ND	Frozen, MM
05-15-96	1103	Culvert	3.64	0.01	3.64	419.03	MM
06-17-96	1422	Culvert	3.16	0.01	3.16	419.51	MM
07-15-96	1141	Culvert	1.06	0.01	1.06	421.61	MM


FIASL6 OBSERVATION SITE
Individual measurement
SURFACE-WATER ELEVATION, IN FEET ABOVE SEA LEVEL
424
423
422
421
420
419
418
417
416
415
414
413
412
1/1/91
1/1/92
1/1/93
1/1/94
1/1/95
1/1/96
1/1/97

FIASL8 OBSERVATION SITE
Slough site immediately south of flight shed

Site ID: 644749147533301
Local Number: FC00100226CADA1 013

Best reading from culvert at this site
Culvert: CU2

LS, land surface
MM, mass measurement
PM, partial measurement
MP, measuring point
ND, no data
WS, water surface

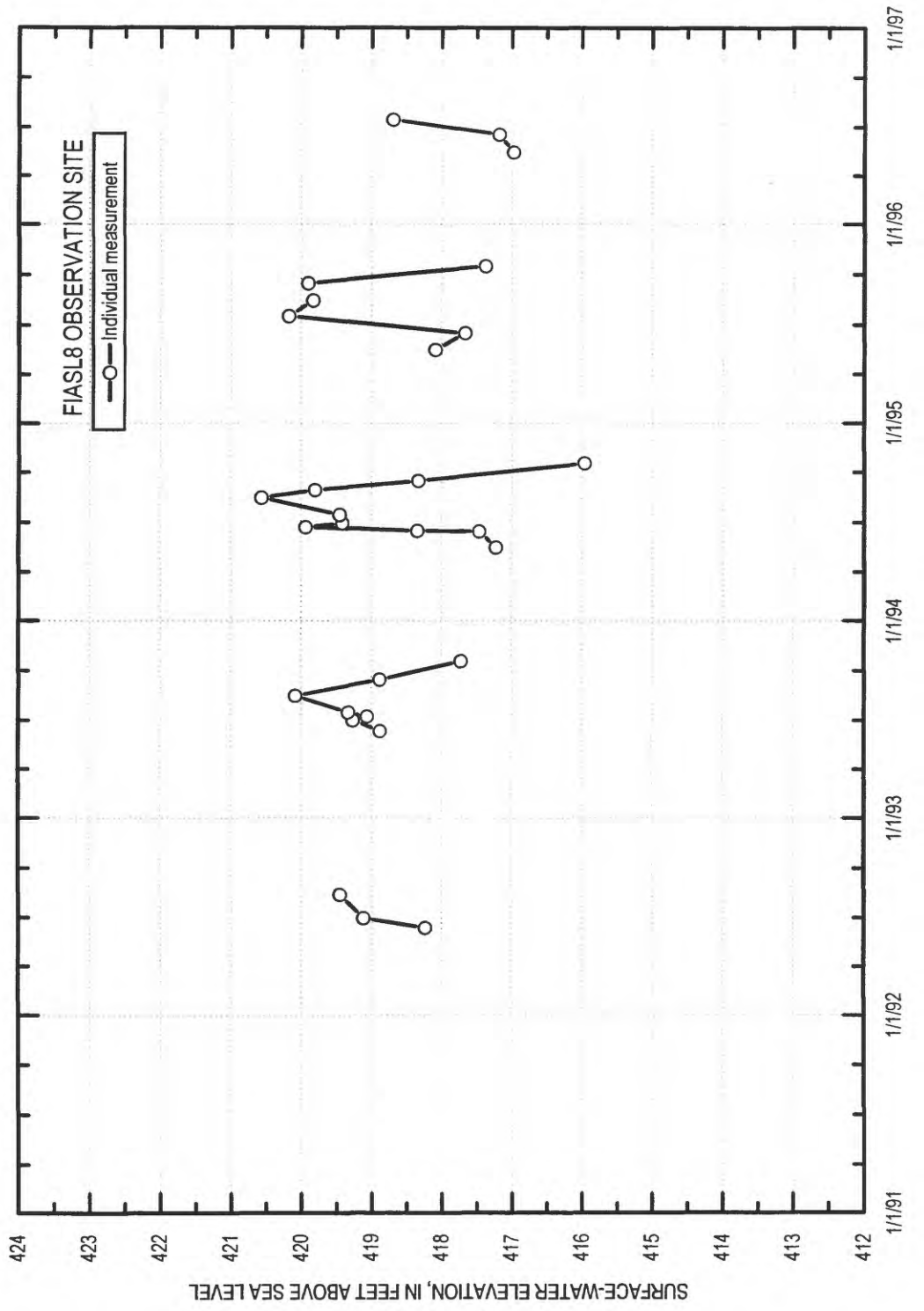
Land surface datum: 420.44

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
06-12-92	1442	Culvert	2.21	0.01	2.21	418.23	MM
06-30-92	0812	Culvert	1.33	0.01	1.33	419.11	PM
08-13-92	1728	Culvert	0.99	0.01	0.99	419.45	PM
06-11-93	1545	Culvert	1.57	0.01	1.57	418.87	MM
07-01-93	1235	Culvert	1.18	0.01	1.18	419.26	PM
07-08-93	1433	Culvert	1.38	0.01	1.38	419.06	PM
07-16-93	1104	Culvert	1.11	0.01	1.11	419.33	MM
08-16-93	1444	Culvert	0.36	0.01	0.36	420.08	MM
09-15-93	1429	Culvert	1.56	0.01	1.56	418.88	MM
10-19-93	1213	Culvert	2.72	0.01	2.72	417.72	MM
11-16-93	1305	ND	ND	ND	ND	ND	Frozen, MM
12-21-93	1227	ND	ND	ND	ND	ND	Frozen, MM
01-18-94	1343	ND	ND	ND	ND	ND	Frozen, MM
02-25-94	ND	ND	ND	ND	ND	ND	Frozen, MM
03-16-94	ND	ND	ND	ND	ND	ND	Frozen, MM
04-18-94	1505	ND	ND	ND	ND	ND	Frozen, MM
05-16-94	1158	Culvert	3.22	0.01	3.22	417.22	MM
06-15-94	1240	Culvert	2.98	0.01	2.98	417.46	MM
06-16-94	1720	Culvert	2.10	0.01	2.10	418.34	PM
06-23-94	0925	Culvert	0.51	0.01	0.51	419.93	PM
06-30-94	1556	Culvert	1.03	0.01	1.03	419.41	PM
07-15-94	1355	Culvert	0.99	0.01	0.99	419.45	MM
08-15-94	1125	Culvert	-0.12	0.01	-0.12	420.56	MM
08-29-94	1639	Culvert	0.64	0.01	0.64	419.80	PM

FIASL8 OBSERVATION SITE
Slough site immediately south of flight shed

Site ID: 644749147533301
Local Number: FC00100226CADA1 013

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
09-15-94	1258	Culvert	2.11	0.01	2.11	418.33	MM
10-17-94	1150	Culvert	4.48	0.01	4.48	415.96	MM
05-16-95	1103	Culvert	2.35	0.01	2.35	418.09	MM
06-16-95	1010	Culvert	2.78	0.01	2.78	417.66	MM
07-17-95	1044	Culvert	0.27	0.01	0.27	420.17	MM
08-15-95	1136	Culvert	0.61	0.01	0.61	419.83	MM
09-15-95	1510	Culvert	0.54	0.01	0.54	419.90	MM
10-16-95	1127	Culvert	3.07	0.01	3.07	417.37	Ice, MM
11-22-95	1111	ND	ND	ND	ND	ND	Frozen, MM
05-15-96	1040	Culvert	3.47	0.01	3.47	416.97	MM
06-17-96	1406	Culvert	3.26	0.01	3.26	417.18	MM
07-15-96	1129	Culvert	1.75	0.01	1.75	418.69	MM


FIASL8 OBSERVATION SITE
Individual measurement
SURFACE-WATER ELEVATION, IN FEET ABOVE SEA LEVEL
424
423
422
421
420
419
418
417
416
415
414
413
412
1/1/91
1/1/92
1/1/93
1/1/94
1/1/95
1/1/96
1/1/97

FIASL10 OBSERVATION SITE
Slough site in slough near United Postal Service

Site ID: 644814147532901
Local Number: FC00100226ABCB1 017

Best reading from culvert and rebar at this site
Culvert: CU3
Rebar: SLR9

Land surface datum: 419.79

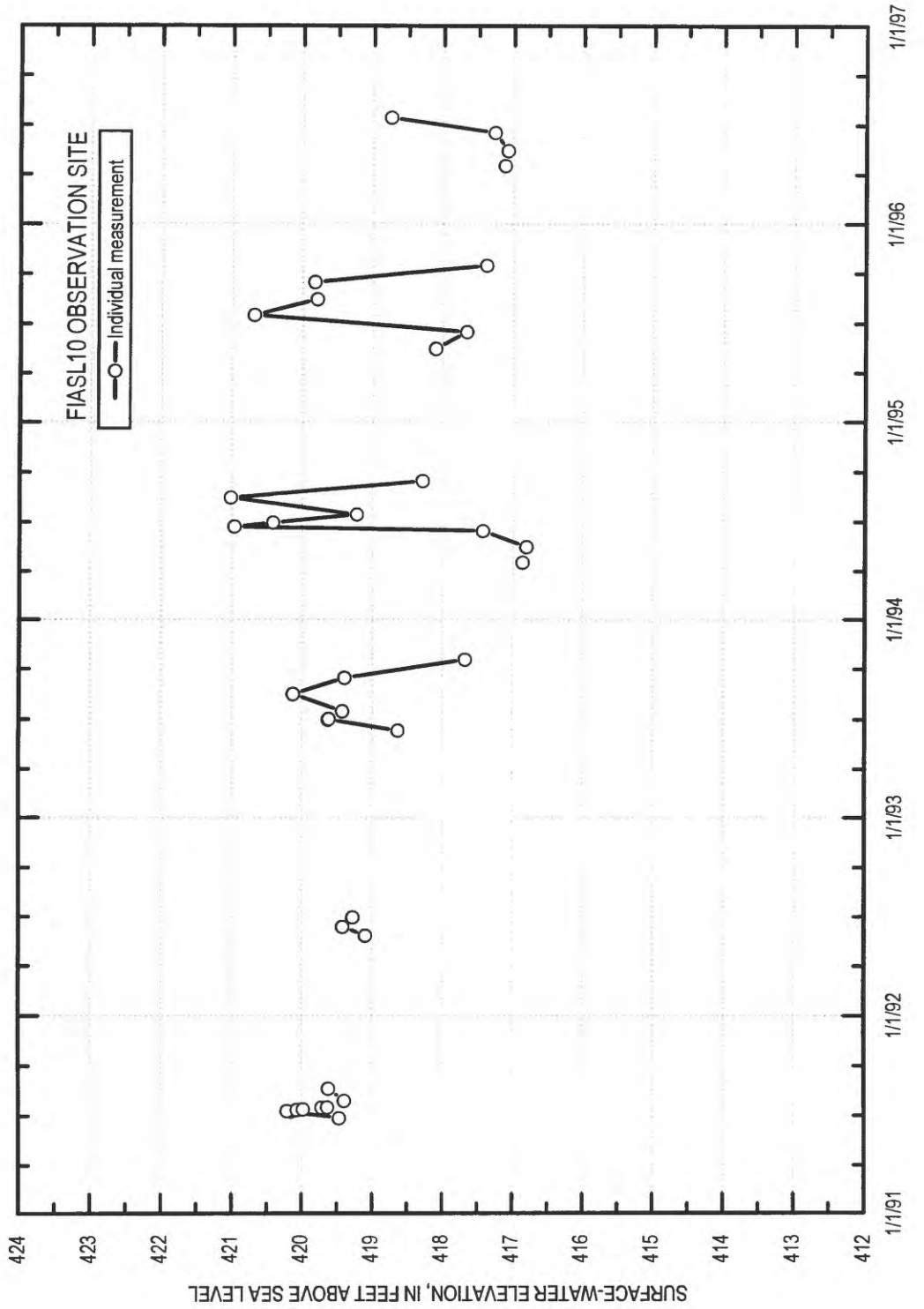
LS, land surface
MM, mass measurement
PM, partial measurement
MP, measuring point
ND, no data
WS, water surface

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
06-27-91	1233	Rebar	0.43	0.01	0.33	419.46	PM, SLR9
07-09-91	1342	Rebar	1.12	0.01	-0.36	420.15	PM, SLR9
07-10-91	1332	Rebar	1.17	0.01	-0.41	420.20	PM, SLR9
07-12-91	1320	Rebar	1.03	0.01	-0.27	420.06	PM, SLR9
07-13-91	1334	Rebar	0.94	0.01	-0.18	419.97	PM, SLR9
07-16-91	1641	Rebar	0.68	0.01	0.08	419.71	PM, SLR9
07-17-91	1303	Rebar	0.60	0.01	0.16	419.63	MM, SLR9
07-29-91	1415	Rebar	0.36	0.01	0.40	419.39	PM, SLR9
08-20-91	1427	Rebar	0.58	0.01	0.18	419.61	MM, SLR9
09-10-91	1043	Rebar	ND	ND	ND	ND	Dry, MM, SLR9
10-01-91	ND	Rebar	ND	ND	ND	ND	Dry, MM, SLR9
05-27-92	0912	Rebar	0.06	0.01	0.70	419.09	MM, SLR9
06-12-92	1700	Culvert	0.38	0.01	0.38	419.41	MM, CU3
06-30-92	0755	Culvert	0.52	0.01	0.52	419.27	PM, CU3
06-11-93	1615	Culvert	1.16	0.01	1.16	418.63	Raining, MM, CU3
07-01-93	1313	Culvert	0.17	0.01	0.17	419.62	PM, CU3
07-02-93	1700	Culvert	0.18	0.01	0.18	419.61	PM, CU3
07-16-93	1144	Culvert	0.37	0.01	0.37	419.42	MM, CU3
08-16-93	1513	Culvert	-0.33	0.01	-0.33	420.12	MM, CU3
09-15-93	1355	Culvert	0.40	0.01	0.40	419.39	MM, CU3
10-19-93	1102	Culvert	2.12	0.01	2.12	417.67	MM, CU3
11-16-93	1255	ND	ND	ND	ND	ND	Frozen, MM
12-21-93	1224	ND	ND	ND	ND	ND	Frozen, MM
01-18-94	1306	ND	ND	ND	ND	ND	Frozen, MM

FIASL10 OBSERVATION SITE
Slough site in slough near United Postal Service

Site ID: 644814147532901
Local Number: FC00100226ABCB1 017

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
02-25-94	ND	ND	ND	ND	ND	ND	Frozen, MM
03-16-94	ND	ND	ND	ND	ND	ND	Frozen, MM
04-18-94	1440	Culvert	2.94	0.01	2.94	416.85	MM, CU3
05-16-94	1055	Culvert	2.99	0.01	2.99	416.80	MM, CU3
06-15-94	1150	Culvert	2.37	0.01	2.37	417.42	MM, CU3
06-23-94	0916	Culvert	-1.17	0.01	-1.17	420.96	PM, CU3
06-30-94	1545	Culvert	-0.62	0.01	-0.62	420.41	PM, CU3
07-15-94	1338	Culvert	0.57	0.01	0.57	419.22	MM, CU3
08-15-94	1118	Rebar	1.98	0.01	-1.22	421.01	MM, SLR9
09-15-94	1245	Culvert	1.51	0.01	1.51	418.28	MM, CU3
10-17-94	1127	Culvert	ND	ND	ND	ND	Out of water, MM
05-16-95	1036	Culvert	1.69	0.01	1.69	418.10	MM, CU3
06-16-95	1010	Culvert	2.13	0.01	2.13	417.66	MM, CU3
07-17-95	1038	Culvert	-0.90	0.01	-0.90	420.69	MM, CU3
08-15-95	0953	Culvert	0.00	0.01	0.00	419.79	MM, CU3
09-15-95	1446	Rebar	0.80	0.01	-0.04	419.83	MM, SLR9
10-16-95	1047	Culvert	2.41	0.01	2.41	417.38	Ice, MM, CU3
11-22-95	1110	ND	ND	ND	ND	ND	Frozen, MM
04-17-96	0938	Culvert	2.67	0.01	2.67	417.12	MM, CU3
05-15-96	1035	Culvert	2.71	0.01	2.71	417.08	MM, CU3
06-17-96	1335	Culvert	2.52	0.01	2.52	417.27	MM, CU3
07-15-96	1104	Culvert	1.04	0.01	1.04	418.75	MM, CU3


FIASL10 OBSERVATION SITE
Individual measurement
SURFACE-WATER ELEVATION, IN FEET ABOVE SEA LEVEL
424
423
422
421
420
419
418
417
416
415
414
413
412
1/1/91
1/1/92
1/1/93
1/1/94
1/1/95
1/1/96
1/1/97

FIASL12 OBSERVATION SITE
Slough site at pond north west of airport terminal

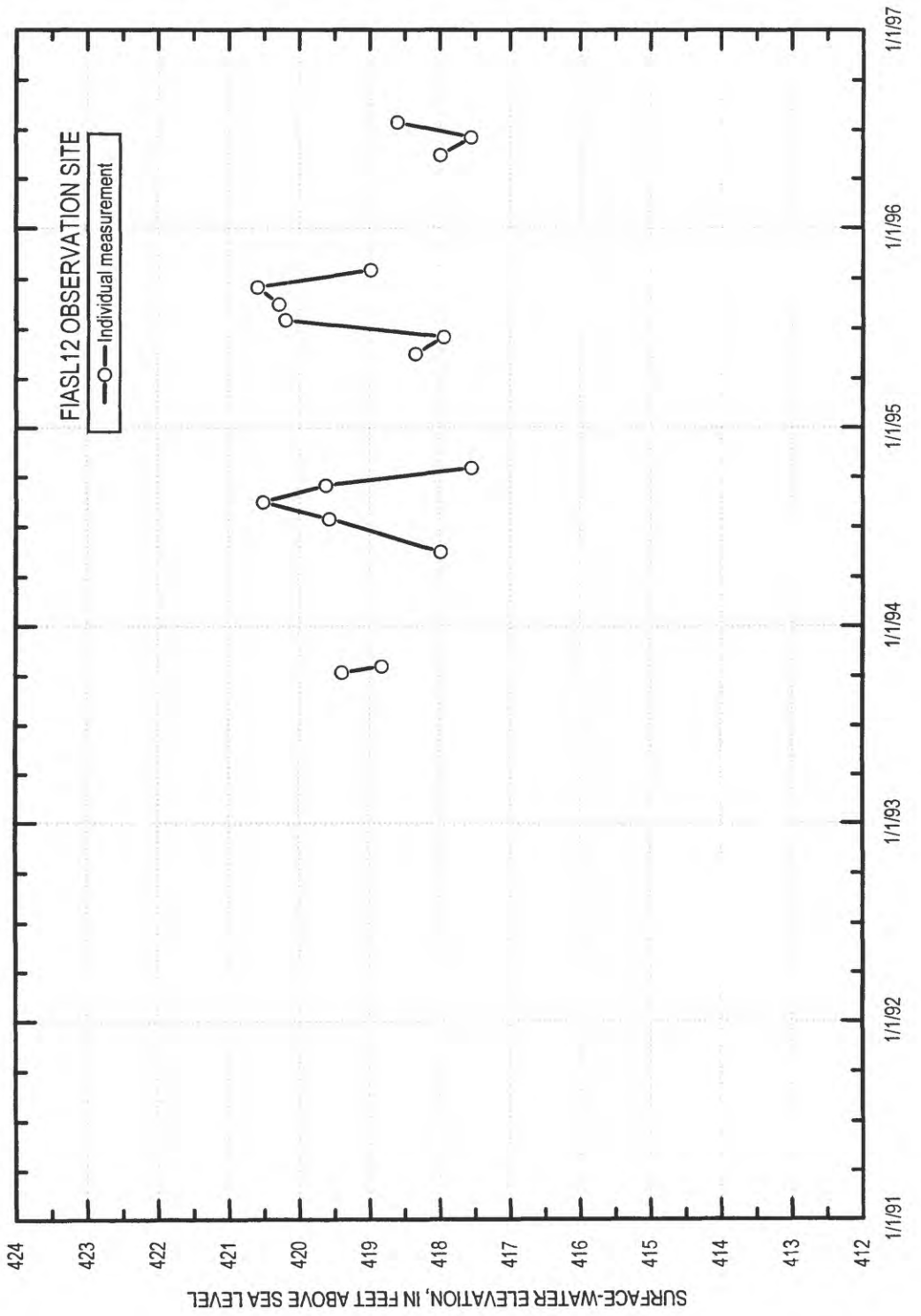
Site ID: 644916147514601
Local Number: FC00100213CDCD1 002

Best reading from culvert and rebars at this site
Rebars: SLR14, SLR14b
Culvert: CU6

LS, land surface
MM, mass measurement
PM, partial measurement
MP, measuring point
ND, no data
WS, water surface

Land surface datum: 418.09

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
10-07-93	1105	Rebar	0.85	0.01	-1.30	419.39	MM, SLR14
10-19-93	1048	Rebar	0.28	0.01	-0.73	418.82	MM, SLR14
11-16-93	1240	ND	ND	ND	ND	ND	Frozen, MM
12-21-93	1209	ND	ND	ND	ND	ND	Frozen, MM
01-18-94	1302	ND	ND	ND	ND	ND	Frozen, MM
02-25-94	ND	ND	ND	ND	ND	ND	Frozen, MM
03-16-94	ND	ND	ND	ND	ND	ND	Frozen, MM
04-18-94	1428	ND	ND	ND	ND	ND	Frozen & buried, MM
05-16-94	1040	Rebar	-0.56	0.01	0.11	417.98	MM, SLR14
06-15-94	1120	Rebar	0.08	0.01	-0.53	418.62	MM, SLR14b
07-15-94	1319	Rebar	1.03	0.01	-1.48	419.57	MM, SLR14
08-15-94	1053	Culvert	1.48	0.01	-2.42	420.51	MM, CU6
09-15-94	1225	Culvert	2.38	0.01	-1.52	419.61	MM, CU6
10-17-94	1115	Rebar	-1.00	0.01	0.55	417.54	MM, SLR14
05-16-95	1029	Culvert	3.62	0.01	-0.25	418.34	MM, CU6
06-16-95	0945	Culvert	4.02	0.01	0.15	417.94	MM, CU6
07-17-95	1032	Culvert	1.77	0.01	-2.10	420.19	MM, CU6
08-15-95	0945	Culvert	1.68	0.01	-2.19	420.28	MM, CU6
09-15-95	1428	Culvert	1.37	0.01	-2.50	420.59	MM, CU6
10-16-95	1025	Culvert	2.98	0.01	-0.89	418.98	Ice, MM, CU6
11-22-95	1106	ND	ND	ND	ND	ND	Frozen, MM
05-15-96	1028	Culvert	3.97	0.01	0.10	417.99	MM, CU6
06-17-96	1335	Culvert	4.41	0.01	0.54	417.55	MM, CU6
07-15-96	1055	Culvert	3.36	0.01	-0.51	418.60	MM, CU6


FIASL12 OBSERVATION SITE
Individual measurement
SURFACE-WATER ELEVATION, IN FEET ABOVE SEA LEVEL
424
423
422
421
420
419
418
417
416
415
414
413
412
1/1/91
1/1/92
1/1/93
1/1/94
1/1/95
1/1/96
1/1/97

FIASL13 OBSERVATION SITE
Site at the north end of airport float pond

Site ID: 644944147494001
Local Number: FC00100118BDDD1 004

Best reading from staff at this site
Staff: SLS3

LS, land surface
MM, mass measurement
PM, partial measurement
MP, measuring point
ND, no data
WS, water surface

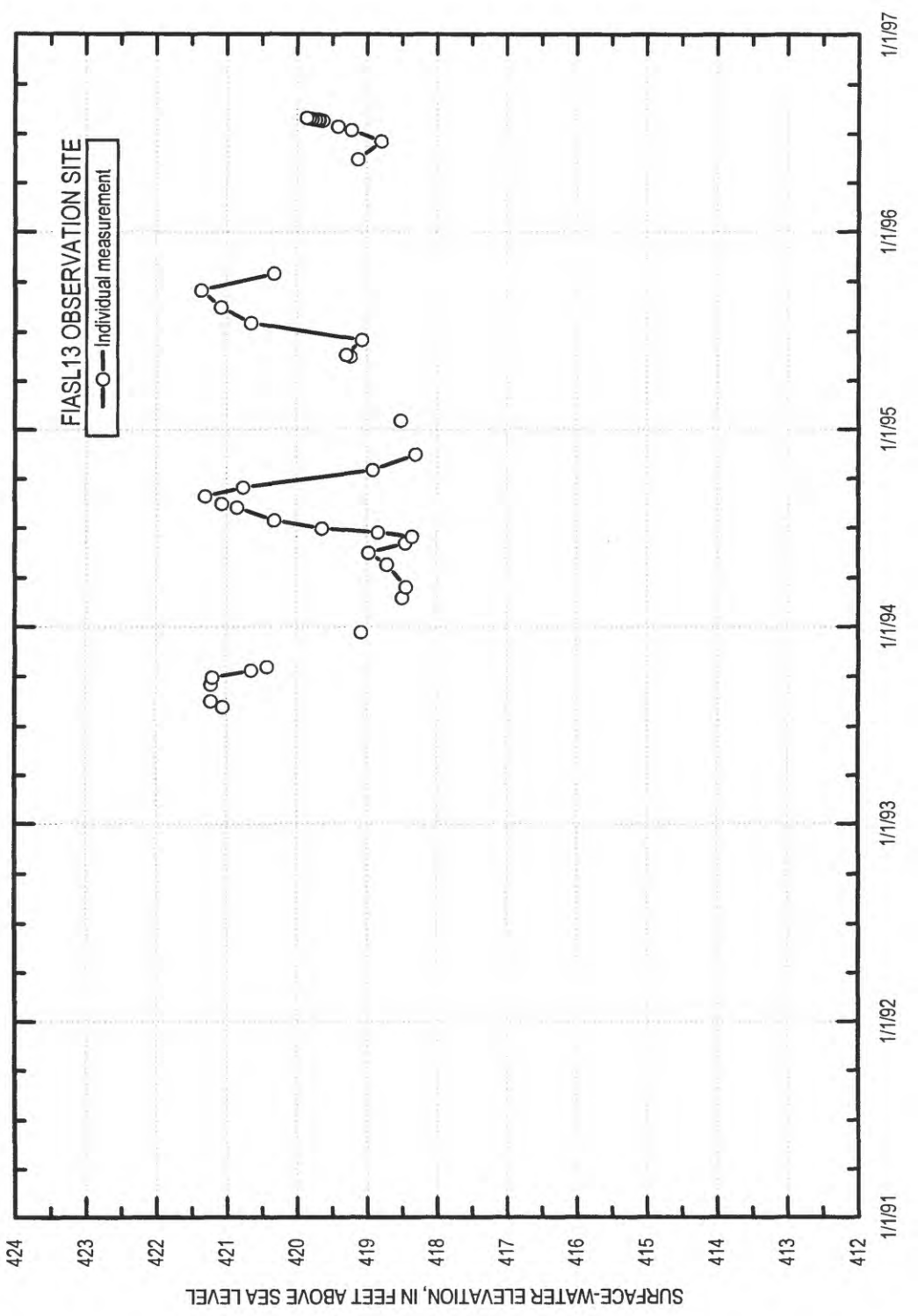
Land surface datum: 419.05

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
08-06-93	1005	Staff	2.00	0.05	-2.00	421.05	Waves, PM
08-16-93	1158	Staff	2.17	0.04	-2.17	421.22	Waves, MM
09-16-93	0944	Staff	2.17	0.01	-2.17	421.22	MM
09-29-93	1454	Staff	2.15	0.01	-2.15	421.20	PM
10-12-93	1525	Staff	1.60	0.01	-1.60	420.65	PM
10-19-93	1356	Staff	1.37	0.01	-1.37	420.42	MM
11-16-93	1443	ND	ND	ND	ND	ND	Frozen, MM
12-22-93	ND	Level	12.17	0.01	-0.03	419.08	Frozen, MM
01-18-94	1520	ND	ND	ND	ND	ND	Frozen, MM
02-23-94	1429	Level	12.76	0.01	0.56	418.49	Frozen, MM
03-15-94	1529	Level	12.81	0.01	0.61	418.44	Frozen, MM
04-25-94	1443	Level	12.54	0.01	0.34	418.71	Frozen, MM
05-16-94	1400	Staff	0.24	0.02	0.08	418.97	MM
06-03-94	1202	Staff	-0.28	0.02	0.60	418.45	PM
06-15-94	1408	Staff	-0.38	0.03	0.70	418.35	MM
06-23-94	1002	Staff	0.11	0.02	0.21	418.84	PM
06-30-94	1627	Staff	0.91	0.02	-0.59	419.64	PM
07-15-94	1552	Staff	1.59	0.02	-1.27	420.32	MM
08-08-94	1105	Staff	2.12	0.01	-1.80	420.85	PM
08-15-94	1410	Staff	2.34	0.04	-2.02	421.07	MM
08-29-94	1651	Staff	2.57	0.03	-2.25	421.30	PM
09-15-94	1502	Staff	2.03	0.03	-1.71	420.76	MM
10-17-94	1335	Staff	0.18	0.03	0.14	418.91	MM
11-15-94	1124	Staff	-0.43	0.01	0.75	418.30	MM

FIASL13 OBSERVATION SITE
Site at the north end of airport float pond

Site ID: 644944147494001
Local Number: FC00100118BDDD1 004

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
01-17-95	1135	Level	12.74	0.03	0.54	418.51	MM
05-16-95	1138	Staff	0.50	0.01	-0.18	419.23	MM
05-19-95	1224	Staff	0.56	0.04	-0.24	419.29	MM
06-16-95	1042	Staff	0.34	0.02	-0.02	419.07	MM
07-17-95	1121	Staff	1.92	0.05	-1.60	420.65	MM
08-15-95	1217	Staff	2.35	0.01	-2.03	421.08	MM
09-15-95	1553	Staff	2.63	0.01	-2.31	421.36	MM
10-16-95	1200	Staff	1.59	0.01	-1.27	420.32	MM
11-22-95	1149	ND	ND	ND	ND	ND	Frozen, MM
04-17-96	1100	ND	ND	ND	ND	ND	Frozen, MM
05-15-96	1138	Staff	0.40	0.01	-0.08	419.13	MM
06-17-96	1514	Staff	0.06	0.01	0.26	418.79	MM
07-08-96	1420	Staff	0.49	0.02	-0.17	419.22	PM
07-15-96	1234	Staff	0.68	0.04	-0.36	419.41	MM
07-26-96	1308	Staff	0.92	0.05	-0.60	419.65	PM
07-26-96	1330	Staff	0.90	0.10	-0.58	419.63	PM
07-27-96	1517	Staff	0.95	0.01	-0.63	419.68	PM
07-28-96	1530	Staff	0.96	0.05	-0.64	419.69	PM
07-28-96	1550	Staff	1.00	0.10	-0.68	419.73	PM
07-29-96	0917	Staff	1.05	0.01	-0.73	419.78	PM
07-30-96	1044	Staff	1.09	0.05	-0.77	419.82	PM
07-31-96	1017	Staff	1.13	0.05	-0.81	419.86	PM
08-05-96	1205	Staff	1.44	0.05	-1.12	420.17	PM
08-07-96	1531	Staff	1.65	0.05	-1.33	420.38	PM
08-09-96	1342	Staff	1.77	0.05	-1.45	420.50	PM


FIASL13 OBSERVATION SITE
Individual measurement
SURFACE-WATER ELEVATION, IN FEET ABOVE SEA LEVEL
424
423
422
421
420
419
418
417
416
415
414
413
412
1/1/91
1/1/92
1/1/93
1/1/94
1/1/95
1/1/96
1/1/97

Chena River at Parks Highway at Fairbanks
Wire Weight Gage

Site ID: 15514018
Local Number: FC00100212DA

All measurements in feet
Datum corrections, reference survey notes in site folders

Land Surface Datum: 420.00

Date	CB elevation (feet above sea level)
08-05-92	448.99

CB, check bar
ND, no data
MM, mass measurement
PM, partial measurement
WS, water surface

Date	Time	Check bar	WS	Error	WS elevation	Remarks
05-19-92	1630	90.89	57.20	0.02	415.30	Installed, PM
05-21-92	0846	90.91	57.92	0.02	416.00	Installed backing plate, PM
05-24-92	0800	90.90	62.48	0.02	420.57	PM
05-24-92	1830	90.90	62.48	0.02	420.57	PM
05-26-92	0641	90.90	64.37	0.02	422.46	PM
05-26-92	1240	90.90	64.38	0.03	422.47	PM
05-27-92	0724	90.90	64.73	0.02	422.82	Snowmelt rise, PM
05-29-92	1611	90.91	65.20	0.02	423.28	PM
05-30-92	1050	90.91	65.25	0.02	423.33	PM
06-01-92	2016	90.91	64.87	0.02	422.95	After heavy rains, PM
06-02-92	0704	90.91	64.84	0.02	422.92	PM
06-02-92	2240	90.91	64.94	0.02	423.02	PM
06-04-92	0740	90.91	65.48	0.02	423.56	PM
06-16-92	0735	90.91	60.88	0.02	418.96	MM
06-17-92	1006	90.91	61.30	0.02	419.38	PM
06-22-92	0833	90.91	61.25	0.02	419.33	PM
07-17-92	1150	90.91	62.25	0.02	420.33	MM
07-21-92	1830	90.90	62.65	0.02	420.74	PM
08-13-92	0747	90.91	61.43	0.02	419.51	MM
09-14-92	1115	90.90	57.63	0.02	415.72	MM
11-05-92	1055	90.90	57.60	0.10	415.69	Ice, MM
02-20-93	1500	90.86	58.06	0.04	416.19	Ice, MM
03-12-93	1600	90.85	58.69	0.02	416.83	Ice, MM

Chena River at Parks Highway at Fairbanks
Wire Weight Gage

Site ID: 15514018
Local Number: FC00100212DA

Date	Time	Check bar	WS	Error	WS elevation	Remarks
04-02-93	1035	90.86	58.45	0.02	416.58	Ice, PM
04-02-93	1540	90.86	58.48	0.02	416.61	Ice, PM
04-09-93	1353	90.88	58.78	0.02	416.89	Flowing water, PM
04-12-93	1620	90.88	58.96	0.02	417.07	Rough water surface, PM
04-14-93	1420	90.88	58.86	0.02	416.97	Open water, PM
04-16-93	1150	90.88	59.25	0.02	417.36	Open water, MM
04-19-93	1735	90.88	59.69	0.02	417.80	PM
04-21-93	1612	90.88	60.22	0.03	418.33	Rough water surface, PM
04-23-93	1615	90.88	61.25	0.03	419.36	Rough water surface, PM
05-01-93	1927	90.86	61.15	0.02	419.28	PM
05-02-93	2214	90.85	61.39	0.02	419.53	PM
05-03-93	1103	90.86	61.34	0.02	419.47	PM
05-05-93	1158	90.86	61.24	0.02	419.37	Rough water surface, PM
05-08-93	2112	90.86	61.14	0.02	419.27	PM
05-14-93	1020	90.90	60.84	0.02	418.93	PM
05-18-93	1542	90.90	62.91	0.02	421.00	MM
05-24-93	1357	90.90	60.24	0.02	418.33	PM
05-26-93	1700	90.90	60.19	0.02	418.28	PM
05-29-93	1400	90.90	59.02	0.02	417.11	PM
06-02-93	1536	90.90	59.72	0.02	417.81	PM
06-08-93	1355	90.89	59.03	0.02	417.13	PM
06-11-93	1218	90.90	59.66	0.02	417.75	PM
06-14-93	2000	90.90	59.57	0.02	417.66	PM
06-15-93	1940	90.90	59.50	0.02	417.59	MM
06-21-93	1043	90.90	61.88	0.02	419.97	PM
06-25-93	1646	90.90	61.18	0.02	419.27	PM
06-30-93	1925	90.90	60.06	0.02	418.15	PM
07-02-93	1800	90.90	62.50	0.02	420.59	PM
07-09-93	0902	90.90	60.78	0.02	418.87	PM
07-16-93	1337	90.90	60.10	0.02	418.19	MM
07-21-93	1650	90.90	61.01	0.02	419.10	PM

Chena River at Parks Highway at Fairbanks
Wire Weight Gage

Site ID: 15514018
Local Number: FC00100212DA

Date	Time	Check bar	WS	Error	WS elevation	Remarks
07-28-93	1747	90.90	61.51	0.02	419.60	PM
08-05-93	1830	90.90	61.47	0.02	419.56	PM
08-11-93	1423	90.90	61.73	0.02	419.82	PM
08-16-93	1110	90.90	61.98	0.02	420.07	MM
08-27-93	1933	90.90	59.55	0.02	417.64	PM
09-08-93	0852	90.90	61.73	0.02	419.82	PM
09-16-93	1553	90.90	59.83	0.02	417.92	MM
09-29-93	1645	90.90	59.53	0.02	417.62	PM
10-14-93	1310	90.89	59.00	0.02	417.10	PM
10-19-93	1345	90.89	58.92	0.02	417.02	MM
11-16-93	1300	90.90	ND	0.02	ND	Frozen, MM
11-18-93	1300	90.90	59.33	0.02	417.42	MM
12-02-93	1210	90.90	59.25	0.02	417.34	PM
12-22-93	1147	90.90	58.43	0.02	416.52	MM
01-19-94	1355	90.90	57.82	0.02	415.91	MM
02-22-94	1610	90.91	58.41	0.02	416.49	MM
04-21-94	1530	90.90	57.94	0.02	416.03	MM
04-25-94	1255	90.89	59.87	0.02	417.97	PM
04-28-94	1227	90.89	62.78	0.03	420.88	PM
05-03-94	1546	90.90	59.63	0.03	417.72	PM
05-10-94	1507	90.90	57.03	0.02	415.12	PM
05-13-94	1135	90.90	58.14	0.02	416.23	MM
05-20-94	0943	90.90	57.57	0.02	415.66	PM
05-23-94	1700	90.90	57.43	0.02	415.52	PM
05-27-94	0923	90.89	57.44	0.02	415.54	PM
05-31-94	1019	90.90	57.38	0.02	415.47	PM
06-03-94	1054	90.90	57.14	0.02	415.23	PM
06-06-94	1528	90.90	57.54	0.02	415.63	PM
06-09-94	1523	90.91	58.48	0.02	416.56	PM
06-10-94	1434	90.89	58.34	0.02	416.44	PM
06-13-94	1056	90.89	58.40	0.02	416.50	PM

Chena River at Parks Highway at Fairbanks
Wire Weight Gage

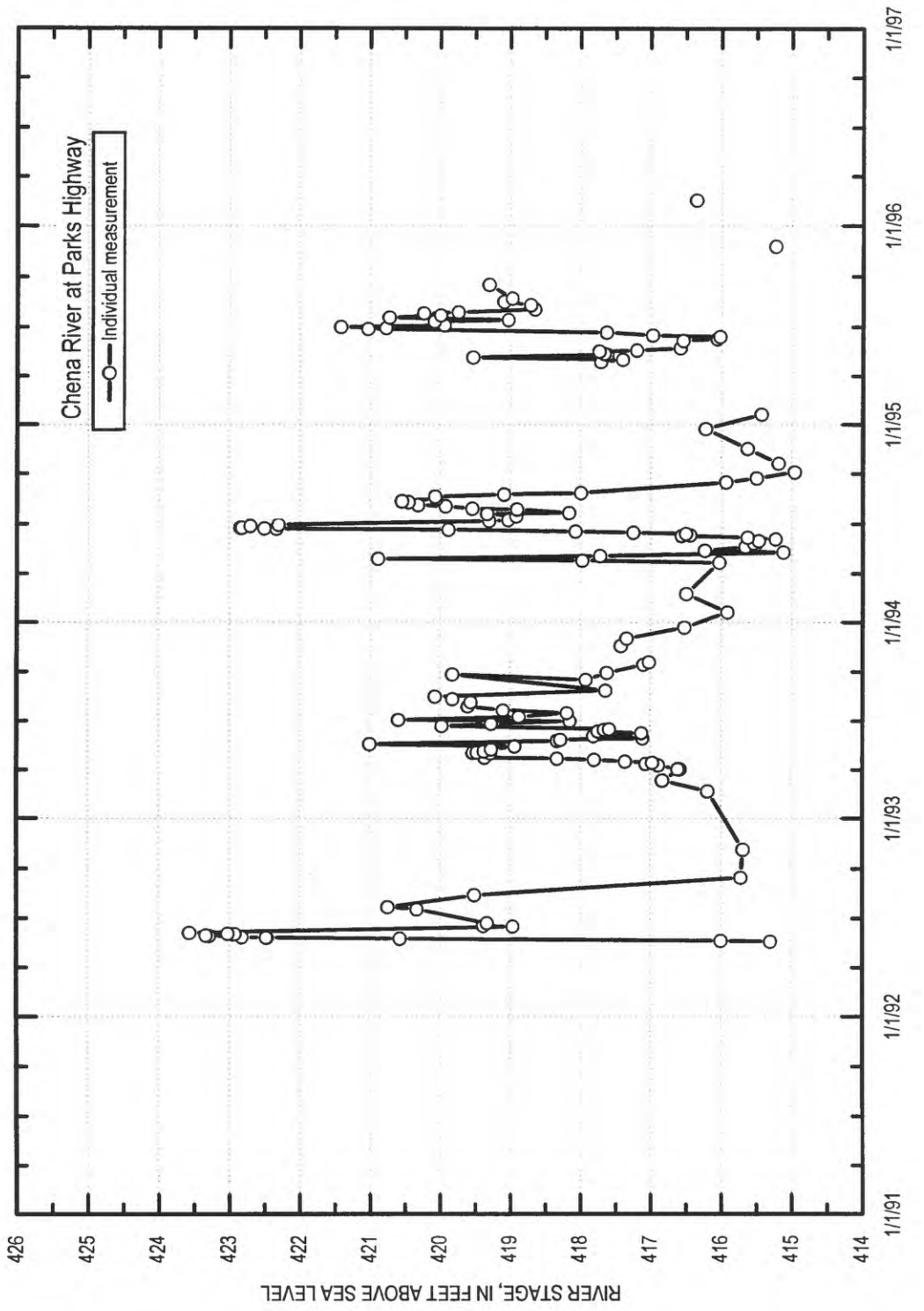
Site ID: 15514018
Local Number: FC00100212DA

Date	Time	Check bar	WS	Error	WS elevation	Remarks
06-15-94	1445	90.89	59.15	0.02	417.25	MM
06-17-94	1522	90.90	59.98	0.02	418.07	PM
06-20-94	1715	90.90	61.79	0.02	419.88	PM
06-22-94	0911	90.90	64.24	0.02	422.33	PM
06-22-94	1158	90.90	64.41	0.02	422.50	PM
06-24-94	0903	90.90	64.75	0.02	422.84	PM
06-24-94	1151	90.90	64.73	0.02	422.82	PM
06-27-94	1623	90.90	64.61	0.02	422.70	PM
06-29-94	1613	90.90	64.21	0.02	422.30	PM
07-06-94	1715	90.89	61.20	0.02	419.30	PM
07-08-94	1527	90.89	60.93	0.02	419.03	PM
07-15-94	0750	90.90	60.82	0.02	418.91	MM
07-19-94	1703	90.90	61.24	0.02	419.33	PM
07-21-94	1613	90.89	60.06	0.02	418.16	PM
07-27-94	1256	90.90	60.81	0.02	418.90	PM
07-29-94	1127	90.90	61.45	0.02	419.54	PM
08-02-94	1602	90.89	61.82	0.02	419.92	PM
08-04-94	1645	90.89	62.21	0.02	420.31	PM
08-09-94	1611	90.89	62.35	0.02	420.45	PM
08-11-94	1110	90.89	62.44	0.02	420.54	PM
08-15-94	0855	90.90	61.96	0.02	420.05	MM
08-19-94	1557	90.90	61.98	0.02	420.07	PM
08-23-94	1515	90.90	61.00	0.02	419.09	PM
08-26-94	1607	90.90	59.90	0.02	417.99	PM
09-15-94	1204	90.89	57.83	0.02	415.93	MM
09-22-94	1007	90.90	57.41	0.02	415.50	PM
10-03-94	1104	90.90	56.87	0.02	414.96	PM
10-19-94	1245	90.90	57.10	0.03	415.19	MM
11-16-94	1140	90.90	57.54	0.02	415.63	MM
12-23-94	1247	90.90	58.13	0.02	416.22	MM
01-19-95	1200	90.90	57.34	0.02	415.43	MM

Chena River at Parks Highway at Fairbanks
Wire Weight Gage

Site ID: 15514018
Local Number: FC00100212DA

Date	Time	Check bar	WS	Error	WS elevation	Remarks
04-27-95	0930	90.86	59.58	0.02	417.71	PM
05-01-95	1236	90.86	59.27	0.02	417.40	PM
05-05-95	1200	90.85	61.39	0.02	419.53	PM
05-10-95	1439	90.85	59.48	0.02	417.62	PM
05-12-95	1217	90.85	59.52	0.02	417.66	PM
05-16-95	1547	90.85	59.59	0.02	417.73	MM
05-18-95	1140	90.85	59.06	0.02	417.20	PM
05-22-95	1417	90.85	58.44	0.02	416.58	PM
06-05-95	1255	90.85	58.40	0.02	416.54	PM
06-08-95	1036	90.85	57.92	0.05	416.06	PM
06-12-95	1329	90.85	57.88	0.02	416.02	PM
06-15-95	1056	90.86	58.84	0.02	416.97	MM
06-20-95	1533	90.86	59.50	0.02	417.63	PM
06-26-95	1635	90.86	62.90	0.02	421.03	PM
06-28-95	1305	90.86	62.64	0.02	420.77	PM
06-30-95	1255	90.86	63.28	0.02	421.41	PM
07-03-95	1136	90.86	61.81	0.02	419.94	PM
07-10-95	1056	90.86	61.95	0.02	420.08	PM
07-13-95	1256	90.86	60.90	0.02	419.03	PM
07-17-95	1522	90.86	62.59	0.02	420.72	MM
07-21-95	1530	90.86	61.86	0.02	419.99	PM
07-25-95	0947	90.86	62.10	0.02	420.23	PM
07-27-95	1030	90.87	61.62	0.02	419.74	PM
08-01-95	1330	90.87	60.53	0.02	418.65	PM
08-09-95	1034	90.87	60.59	0.02	418.71	PM
08-15-95	1620	90.87	60.97	0.02	419.09	MM
08-21-95	1312	90.87	60.85	0.02	418.97	PM
09-15-95	1643	90.86	61.17	0.02	419.30	MM
10-17-95	ND	90.86	ND	0.02	ND	Bridge construction, MM
11-24-95	1405	90.87	57.11	0.02	415.23	Flowing water, MM
02-16-96	0957	90.88	58.24	0.02	416.35	MM


Chena River at Parks Highway
Individual measurement
RIVER STAGE, IN FEET ABOVE SEA LEVEL
426
425
424
423
422
421
420
419
418
417
416
415
414
1/1/91
1/1/92
1/1/93
1/1/94
1/1/95
1/1/96
1/1/97

Chena River at Pike's Landing at Fairbanks

Site ID: 15514020
Local Number: FC00100213A

Land Surface Datum: 422.00

Datum corrections, reference survey notes in site folders

Date	MP Elevation (feet above sea level)	
10-12-93	428.68	RMPL1
05-16-94	423.97	RMPL2
05-23-94	414.75	brass cap
07-19-94	419.15	REBAR 2
08-28-94	418.18	REBAR 3

LS, land surface
MM, mass measurement
PM, partial measurement
NA, not available
MP, measuring point
WS, water surface

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
10-12-93	1015	Level	13.67	0.01	-6.99	415.01	PM, RMPL1
10-19-93	1007	Level	12.30	0.01	-5.62	416.38	MM, RMPL1
11-18-93	NA	Level	11.57	0.01	-4.89	417.11	MM, RMPL1
12-22-93	1340	Level	12.54	0.01	-5.86	416.14	MM, RMPL1
02-23-94	1030	Level	12.52	0.01	-5.84	416.16	MM, RMPL1
03-15-94	1400	Level	12.19	0.01	-5.51	416.49	MM, RMPL1
04-19-94	1527	Level	12.99	0.01	-6.31	415.69	MM, RMPL1
05-10-94	1526	Level	13.09	0.01	-6.41	415.59	PM, RMPL1
05-16-94	0922	Level	13.01	0.01	-6.33	415.67	MM, RMPL1
05-23-94	1746	Tape	0.28	0.01	-6.97	415.03	PM, brass cap
05-27-94	1506	Tape	0.28	0.01	-6.97	415.03	PM, brass cap
05-31-94	1030	Level	8.96	0.01	-6.99	415.01	MM, RMPL2
06-03-94	1104	Tape	0.21	0.01	-7.04	414.96	PM, brass cap
06-06-94	1537	Level	8.63	0.01	-6.66	415.34	PM, RMPL1
06-09-94	1600	Level	7.62	0.01	-5.65	416.35	PM, RMPL1
06-10-94	1445	Level	7.77	0.01	-5.80	416.20	PM, RMPL1
06-13-94	1115	Level	7.65	0.01	-5.68	416.32	PM, RMPL1
06-15-94	1500	Level	6.81	0.01	-4.84	417.16	MM, RMPL1
06-17-94	1528	Level	5.99	0.01	-4.02	417.98	PM, RMPL1
06-20-94	1733	Tape	0.59	0.01	-2.26	419.74	PM, RB2

Chena River at Pike's Landing at Fairbanks

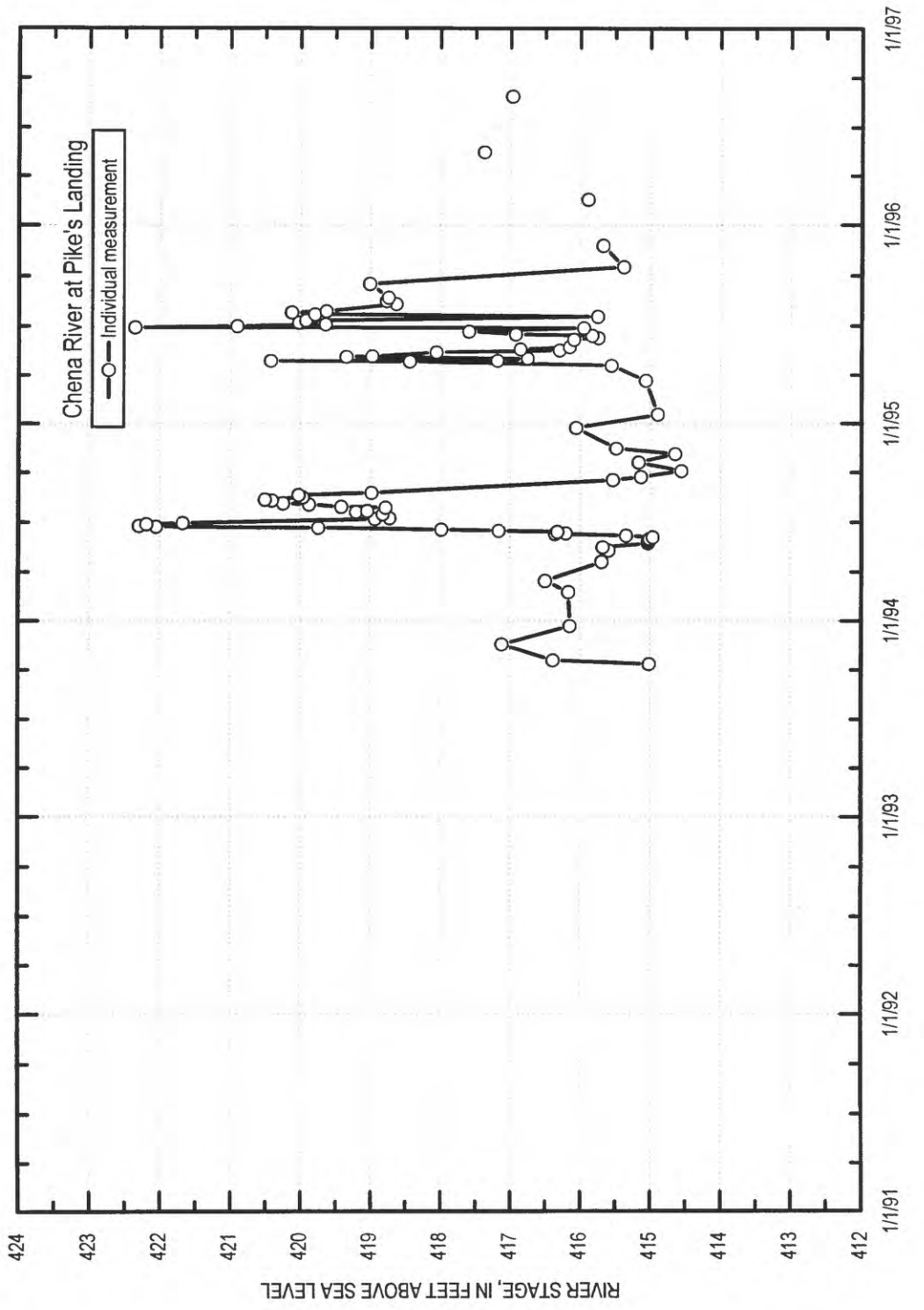
Site ID: 15514020
Local Number: FC00100213A

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
06-22-94	1205	Tape	1.92	0.02	0.05	422.05	PM, RMPL2
06-24-94	1141	Tape	1.68	0.02	0.29	422.29	PM, RMPL2
06-27-94	1636	Tape	1.78	0.02	0.19	422.19	PM, RMPL2
06-29-94	1624	Tape	2.30	0.02	-0.33	421.67	PM, RMPL2
07-06-94	1729	Tape	-0.22	0.02	-3.07	418.93	PM, RB2
07-08-94	1539	Tape	-0.43	0.02	-3.28	418.72	PM, RB2
07-15-94	1311	Tape	-0.33	0.02	-3.18	418.82	MM, RB2
07-19-94	1712	Tape	0.05	0.02	-2.80	419.20	PM, RB2
07-21-94	1625	Tape	-0.11	0.02	-2.96	419.04	PM, RB2
07-27-94	1309	Tape	-0.37	0.02	-3.22	418.78	PM, RB2
07-29-94	1139	Tape	0.26	0.02	-2.59	419.41	PM, RB2
08-02-94	1615	Tape	0.72	0.02	-2.13	419.87	PM, RB2
08-04-94	1653	Tape	1.09	0.02	-1.76	420.24	PM, RB2
08-09-94	1621	Tape	1.25	0.02	-1.60	420.40	PM, RB2
08-11-94	1115	Tape	1.35	0.02	-1.50	420.50	PM, RB2
08-15-94	1038	Tape	0.81	0.02	-2.04	419.96	MM, RB2
08-19-94	1609	Tape	0.87	0.02	-1.98	420.02	PM, RB2
08-23-94	1525	Tape	-0.17	0.02	-3.02	418.98	PM, RB2
09-16-94	1517	Level	8.44	0.02	-6.47	415.53	MM, RMPL2
09-22-94	1109	Level	8.84	0.02	-6.87	415.13	PM, RMPL2
10-03-94	1110	Level	9.42	0.02	-7.45	414.55	PM, RMPL2
10-19-94	1613	Hand level	-3.99	0.02	-6.84	415.16	MM, RB2
11-04-94	1503	Hand level	-3.54	0.02	-7.36	414.64	PM, RB2
11-14-94	1515	Level	-8.49	0.02	-6.52	415.48	MM, RMPL2
12-23-94	1226	Level	-7.92	0.02	-5.95	416.05	MM, RMPL2
01-17-95	1055	Level	-9.08	0.02	-7.11	414.89	MM, RMPL2
03-21-95	1015	Level	-8.91	0.02	-6.94	415.06	MM, RMPL2
04-18-95	1111	Level	-8.42	0.02	-6.45	415.55	MM, RMPL2
04-25-95	1100	Tape	0.25	0.02	-3.57	418.43	PM, RB3
04-26-95	1200	Level	-3.55	0.02	-1.58	420.42	High water mark, RMPL2
04-27-95	1007	Level	-6.79	0.02	-4.82	417.18	PM, RMPL2

Chena River at Pike's Landing at Fairbanks

Site ID: 15514020
Local Number: FC00100213A

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
05-01-95	1030	Hand level	-2.40	0.02	-5.25	416.75	PM, RB2
05-04-95	1000	Tape	0.19	0.02	-2.66	419.34	PM, RB2
05-05-95	1216	Level	-0.18	0.02	-3.03	418.97	PM, RB2
05-12-95	1511	Hand level	-1.10	0.02	-3.95	418.05	PM, RB2
05-16-95	1024	Hand level	-2.86	0.02	-5.71	416.29	MM, RB2
05-18-95	1150	Hand level	-2.30	0.02	-5.15	416.85	PM, RB2
05-22-95	1433	Hand level	-3.00	0.02	-5.85	416.15	PM, RB2
06-05-95	1223	Hand level	-3.06	0.02	-5.91	416.09	PM, RB2
06-08-95	1053	Hand level	-3.41	0.02	-6.26	415.74	PM, RB2
06-12-95	1344	Hand level	-2.35	0.02	-6.17	415.83	PM, RB3
06-15-95	1110	Hand level	-1.26	0.02	-5.08	416.92	MM, RB3
06-20-95	1610	Hand level	-0.59	0.02	-4.41	417.59	PM, RB3
06-26-95	1645	Hand level	-3.20	0.02	-6.05	415.95	PM, RB2
06-28-95	1320	Tape	-1.62	0.02	0.35	422.35	PM, RMPL2
06-30-95	1310	Hand level	-3.07	0.02	-1.10	420.90	PM, RMPL2
07-03-95	1151	Hand level	-4.33	0.02	-2.36	419.64	PM, RMPL2
07-06-95	1520	Hand level	-3.95	0.02	-1.98	420.02	PM, RMPL2
07-10-95	1110	Hand level	-4.05	0.02	-2.08	419.92	PM, RMPL2
07-17-95	1020	Hand level	-3.40	0.02	-6.25	415.75	MM, RB2
07-21-95	1547	Hand level	-4.18	0.02	-2.21	419.79	PM, RMPL2
07-25-95	1003	Hand level	-3.85	0.02	-1.88	420.12	PM, RMPL2
07-27-95	1111	Hand level	-4.34	0.02	-2.37	419.63	PM, RMPL2
08-09-95	1117	Tape	0.45	0.02	-3.37	418.63	PM, RMPL2
08-15-95	0938	Hand level	0.59	0.02	-3.23	418.77	MM, RB3
08-21-95	1327	Tape	0.56	0.02	-3.26	418.74	PM, RB3
09-15-95	1410	Hand level	-4.96	0.02	-2.99	419.01	MM, RMPL2
10-16-95	1015	Hand level	-2.80	0.02	-6.62	415.38	MM, RB3
11-24-95	1459	Level	-8.30	0.02	-6.33	415.67	MM, RMPL2
02-16-96	0901	Level	-8.08	0.02	-6.11	415.89	MM, RMPL2
05-15-96	1000	Level	-6.60	0.02	-4.63	417.37	MM, RMPL2
08-27-96	1050	Level	-7.00	0.02	-5.03	416.97	MM, RMPL2


Chena River at Pike's Landing
Individual measurement
RIVER STAGE, IN FEET ABOVE SEA LEVEL
424
423
422
421
420
419
418
417
416
415
414
413
412
1/1/91
1/1/92
1/1/93
1/1/94
1/1/95
1/1/96
1/1/97

Chena River at University Avenue at Fairbanks
Wire Weight Gage

Site ID: 15514016
Local Number: FC00100108CBBB

All measurements in feet
Datum corrections, reference survey notes in site folders

Land Surface Datum : 420.00

CB, check bar
MM, mass measurement
ND, no data
PM, partial measurement
WS, water surface

Date	CB elevation (feet above sea level)	
08-10-92	438.90	
06-22-93	438.86	Updated datum

Date	Time	Check bar	WS	Error	WS elevation	Remarks
05-07-92	1011	38.85	17.42	0.02	417.47	PM
05-14-92	1031	38.85	18.85	0.02	418.90	MM
05-24-92	1900	38.85	22.56	0.02	422.61	Turbid, floating debris, PM
05-26-92	1254	38.85	24.30	0.02	424.35	PM
05-26-92	1400	38.85	24.33	0.02	424.38	Moderate debris, PM
05-27-92	0810	38.85	24.58	0.02	424.63	PM
05-29-92	1630	38.85	25.97	0.02	426.02	PM
05-30-92	1030	38.85	24.97	0.02	425.02	PM
05-31-92	1810	38.85	24.78	0.02	424.83	PM
06-01-92	2155	38.85	24.51	0.02	424.56	PM
06-02-92	0737	38.85	24.50	0.02	424.55	PM
06-02-92	2316	38.85	24.56	0.02	424.61	PM
06-03-92	2322	38.85	24.89	0.02	424.94	PM
06-04-92	1000	38.85	25.10	0.02	425.15	PM
06-08-92	1913	38.85	24.08	0.02	424.13	PM
06-16-92	0830	38.85	20.28	0.02	420.33	MM
06-17-92	0805	38.85	20.42	0.02	420.47	PM
06-22-92	0733	38.85	20.48	0.02	420.53	PM
07-08-92	1400	38.85	20.24	0.02	420.29	PM
07-17-92	1058	38.85	20.59	0.02	420.64	MM
07-24-92	1745	38.85	20.71	0.02	420.76	PM
08-13-92	1813	38.85	19.79	0.02	419.84	MM

Chena River at University Avenue at Fairbanks
Wire Weight Gage

Site ID: 15514016
Local Number: FC00100108CBBB

Date	Time	Check bar	WS	Error	WS elevation	Remarks
09-14-92	0820	38.85	18.15	0.02	418.20	PM
11-05-92	0930	38.85	17.23	0.02	417.28	Ice, MM
12-15-92	1200	38.85	17.96	0.02	418.01	Ice, MM
02-20-93	1333	38.85	17.41	0.02	417.46	Ice, MM
03-12-93	1520	38.85	17.11	0.04	417.16	Ice, MM
04-02-93	1004	38.85	16.97	0.04	417.02	Ice, PM
04-02-93	1532	38.85	16.98	0.04	417.03	Ice, PM
04-02-93	1605	38.85	16.99	0.04	417.04	Ice, PM
04-09-93	1335	38.85	17.21	0.04	417.26	Flowing water, PM
04-12-93	1633	38.85	17.39	0.02	417.44	Clear of ice, PM
04-14-93	1408	38.85	17.48	0.02	417.53	PM
04-16-93	1210	38.85	17.67	0.02	417.72	MM
04-19-93	1745	38.85	18.24	0.02	418.29	PM
04-21-93	1620	38.85	19.04	0.02	419.09	PM
04-23-93	1630	38.85	20.02	0.02	420.07	PM
04-25-93	0840	38.85	20.66	0.02	420.71	Velocity 1 ft/s, PM
05-01-93	1959	38.85	21.12	0.02	421.17	PM
05-02-93	2150	38.85	21.18	0.02	421.23	PM
05-03-93	1111	38.85	21.30	0.02	421.35	PM
05-05-93	1205	38.85	21.15	0.02	421.20	PM
05-08-93	2142	38.85	21.12	0.02	421.17	PM
05-10-93	1355	38.85	21.72	0.02	421.77	PM
05-12-93	1130	38.85	21.10	0.02	421.15	PM
05-14-93	1100	38.85	20.90	0.02	420.95	PM
05-18-93	1550	38.85	22.69	0.02	422.74	MM
05-24-93	1405	38.85	19.94	0.02	419.99	PM
05-26-93	1715	38.85	19.77	0.02	419.82	PM
05-29-93	1410	38.85	19.63	0.03	419.68	PM
06-02-93	1545	38.84	19.24	0.02	419.30	PM
06-08-93	1405	38.85	19.07	0.02	419.12	PM
06-11-93	1228	38.85	18.84	0.02	418.89	MM

Chena River at University Avenue at Fairbanks
Wire Weight Gage

Site ID: 15514016
Local Number: FC00100108CBBB

Date	Time	Check bar	WS	Error	WS elevation	Remarks
06-15-93	1930	38.85	18.83	0.02	418.88	PM
06-21-93	1045	38.85	20.76	0.02	420.81	PM
06-25-93	1652	38.84	19.89	0.02	419.91	Surveyed, PM
06-30-93	1935	38.85	19.57	0.02	419.58	PM
07-02-93	1830	38.85	20.84	0.02	420.85	PM
07-08-93	1447	38.85	19.29	0.02	419.30	PM
07-17-93	1709	38.84	19.68	0.02	419.70	MM
07-21-93	1700	38.84	20.21	0.02	420.23	PM
07-28-93	1802	38.84	19.17	0.02	419.19	PM
08-05-93	1852	38.84	19.77	0.02	419.79	PM
08-11-93	1435	38.85	20.31	0.02	420.32	PM
08-16-93	1134	38.85	20.35	0.02	420.36	MM
08-27-93	1940	38.85	19.34	0.02	419.35	PM
09-08-93	1844	38.85	20.45	0.02	420.46	PM
09-15-93	1600	38.85	19.47	0.02	419.48	MM
09-29-93	1655	38.84	19.86	0.02	419.88	PM
10-08-93	1602	38.85	19.35	0.02	419.36	PM
10-14-93	1317	38.85	19.49	0.02	419.50	PM
10-19-93	1317	38.85	19.45	0.02	419.46	MM
11-04-93	1634	38.85	18.34	0.02	418.35	PM
11-16-93	1315	38.85	18.38	0.02	418.39	MM
12-02-93	1237	38.85	19.03	0.02	419.04	PM
12-22-93	1125	38.86	18.55	0.02	418.55	MM
01-19-94	1315	38.85	17.93	0.02	417.94	MM
02-22-94	1549	38.86	17.75	0.02	417.75	MM
03-31-94	1500	38.85	17.13	0.02	417.14	MM
04-18-94	2019	38.85	17.96	0.02	417.97	MM
04-21-94	1538	38.85	17.10	0.02	417.11	MM
04-25-94	1245	38.85	18.51	0.02	418.52	PM
04-28-94	1215	38.85	21.57	0.02	421.58	PM
05-03-94	1557	38.85	19.74	0.02	419.75	MM

Chena River at University Avenue at Fairbanks
Wire Weight Gage

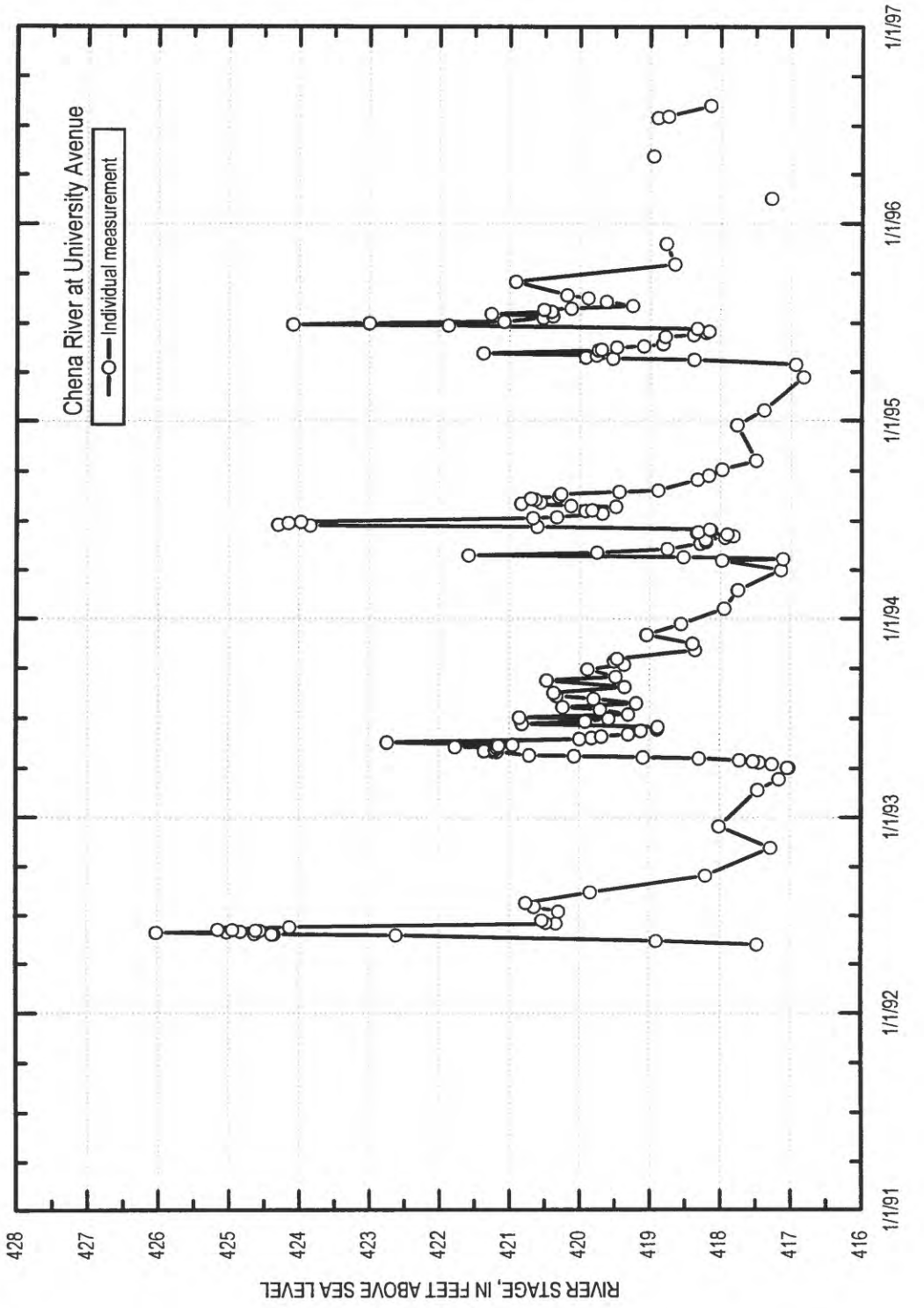
Site ID: 15514016
Local Number: FC00100108CBBB

Date	Time	Check bar	WS	Error	WS elevation	Remarks
05-10-94	1455	38.85	18.74	0.02	418.75	PM
05-20-94	1132	38.85	18.27	0.02	418.28	PM
05-23-94	1628	38.85	18.19	0.02	418.20	PM
05-27-94	0928	38.85	18.20	0.02	418.21	PM
05-31-94	1005	38.85	17.92	0.02	417.93	PM
06-03-94	1215	38.85	17.80	0.02	417.81	PM
06-06-94	1519	38.85	17.89	0.02	417.90	PM
06-09-94	1545	38.85	18.32	0.02	418.33	PM
06-10-94	1606	38.85	18.30	0.02	418.31	PM
06-13-94	1606	38.85	18.12	0.02	418.13	PM
06-15-94	1557	38.85	18.14	0.02	418.15	MM
06-20-94	1703	38.85	20.59	0.02	420.60	PM
06-22-94	1145	38.85	23.83	0.02	423.84	PM
06-24-94	1127	38.85	24.28	0.02	424.29	PM
06-27-94	1612	38.85	24.14	0.02	424.15	PM
06-29-94	1601	38.85	23.96	0.02	423.97	PM
07-06-94	1705	38.85	20.65	0.02	420.66	PM
07-08-94	1514	38.85	20.31	0.02	420.32	PM
07-15-94	0738	38.85	19.66	0.02	419.67	MM
07-19-94	1703	38.85	19.90	0.02	419.91	PM
07-21-94	1600	38.85	19.81	0.02	419.82	PM
07-27-94	1234	38.85	19.47	0.02	419.48	PM
07-29-94	1115	38.85	20.11	0.02	420.12	PM
08-02-94	1550	38.85	20.82	0.02	420.83	PM
08-04-94	1627	38.85	20.54	0.02	420.55	PM
08-09-94	1558	38.85	20.62	0.02	420.63	PM
08-11-94	1054	38.85	20.68	0.02	420.69	PM
08-15-94	0910	38.85	20.28	0.02	420.29	MM
08-19-94	1544	38.85	20.25	0.02	420.26	PM
08-23-94	1502	38.85	19.42	0.02	419.43	PM
08-26-94	1600	38.85	18.87	0.02	418.88	PM

Chena River at University Avenue at Fairbanks
Wire Weight Gage

Site ID: 15514016
Local Number: FC00100108CBBB

Date	Time	Check bar	WS	Error	WS elevation	Remarks
09-15-94	1212	38.85	18.31	0.02	418.32	MM
09-22-94	0955	38.85	18.15	0.02	418.16	PM
10-03-94	1049	38.85	17.96	0.02	417.97	PM
10-19-94	1225	38.85	17.48	0.02	417.49	MM
12-23-94	1302	38.85	17.75	0.02	417.76	MM
01-19-95	1200	38.84	17.36	0.02	417.38	MM
03-22-95	1025	38.85	16.81	0.02	416.82	MM
04-14-95	0958	38.86	16.93	0.02	416.93	MM
04-23-95	1059	38.85	18.36	0.02	418.37	PM
04-25-95	1140	38.85	19.52	0.02	419.53	PM
04-27-95	1326	38.85	19.90	0.02	419.91	PM
05-01-95	1225	38.85	19.75	0.02	419.76	PM
05-05-95	1145	38.85	21.36	0.02	421.37	PM
05-10-95	1427	38.85	19.72	0.02	419.73	PM
05-12-95	1212	38.85	19.68	0.02	419.69	PM
05-16-95	1536	38.85	19.46	0.02	419.47	MM
05-18-95	1126	38.85	19.08	0.02	419.09	PM
05-22-95	1404	38.85	18.80	0.02	418.81	PM
06-05-95	1310	38.85	18.77	0.02	418.78	PM
06-08-95	1024	38.85	18.37	0.02	418.38	PM
06-12-95	1328	38.85	18.19	0.02	418.20	PM
06-15-95	1045	38.85	18.15	0.02	418.16	MM
06-20-95	1520	38.85	18.32	0.02	418.33	PM
06-26-95	16:25 ?	38.85	21.86	0.02	421.87	PM
06-28-95	1235	38.85	24.08	0.02	424.09	PM
06-30-95	1245	38.85	22.99	0.02	423.00	PM
07-03-95	1125	38.85	21.07	0.02	421.08	PM
07-10-95	1046	38.85	20.51	0.02	420.52	PM
07-13-95	1244	38.85	20.37	0.02	420.38	PM
07-17-95	1511	38.85	21.25	0.02	421.26	MM
07-21-95	1514	38.85	20.39	0.02	420.40	PM


Chena River at University Avenue
Individual measurement
RIVER STAGE, IN FEET ABOVE SEA LEVEL
428
427
426
425
424
423
422
421
420
419
418
417
416
1/1/91
1/1/92
1/1/93
1/1/94
1/1/95
1/1/96
1/1/97

Chena River at University Avenue at Fairbanks
Wire Weight Gage

Site ID: 15514016
Local Number: FC00100108CBBB

Date	Time	Check bar	WS	Error	WS elevation	Remarks
07-25-95	0937	38.85	20.50	0.02	420.51	PM
07-27-95	1018	38.85	20.11	0.02	420.12	PM
08-01-95	1319	38.85	19.24	0.02	419.25	PM
08-09-95	1023	38.85	19.61	0.02	419.62	PM
08-15-95	1603	38.85	19.87	0.02	419.88	MM
08-21-95	1300	38.85	20.17	0.02	420.18	PM
09-15-95	1355	38.85	20.90	0.02	420.91	MM
10-17-95	1216	38.85	18.64	0.02	418.65	MM
11-24-95	1346	38.85	18.76	0.02	418.77	MM
02-16-96	0937	38.85	17.27	0.02	417.28	MM
05-05-96	ND	38.85	18.94	0.02	418.95	PM
07-15-96	1543	38.85	18.88	0.02	418.89	MM
07-18-96	1716	38.85	18.73	0.02	418.74	PM
08-07-96	1551	38.85	18.13	0.02	418.14	PM

Tanana River at Fairbanks

Site ID: 644734147502001
Local Number: FC00100225CCA

Land surface datum: 432.16

Datum corrections, reference survey notes in site folders

Date	MP Elevation (feet above sea level)	
10-19-93	432.16	RM-1
03-31-94	424.20	RM-4

PM. partial measurement
MM, mass measurement
MP, measuring point
RM, reference mark
WS, water surface

Date	Time	Method	MP to WS	Error	WS elevation	Remarks
09-14-93	1745	Level	3.34	0.01	420.86	MM, RM-4
10-19-93	1759	Level	5.36	0.01	418.84	MM, RM-4
02-04-94	1705	Level	4.11	0.01	420.09	MM, RM-4
02-24-94	1549	Level	4.97	0.01	419.23	MM, RM-4
03-31-94	1212	Level	5.13	0.01	419.07	PM, RM-4
04-07-94	1445	Level	4.22	0.01	419.98	PM, RM-4
04-25-94	1554	Level	2.45	0.01	421.75	MM, RM-4
04-25-94	1745	Hand level	1.97	0.02	422.23	PM, RM-4
04-26-94	1434	Level	2.09	0.01	422.11	PM, RM-4
04-27-94	1718	Level	1.70	0.01	422.50	PM, RM-4
04-29-94	1057	Hand level	0.72	0.02	423.48	PM, RM-4
05-02-94	1500	Hand level	4.63	0.02	419.57	PM, RM-4
05-11-94	1306	Hand level	6.00	0.02	418.20	PM, RM-4
05-16-94	1221	Level	5.80	0.01	418.40	MM, RM-4
05-17-94	1100	Level	5.94	0.01	418.26	PM, RM-4
05-20-94	1047	Level	6.00	0.01	418.20	PM, RM-4
05-23-94	1800	Level	5.90	0.01	418.30	PM, RM-4
05-27-94	1536	Level	5.97	0.01	418.23	PM, RM-4
05-31-94	1113	Level	5.51	0.01	418.69	PM, RM-4
06-03-94	1135	Level	5.64	0.01	418.56	PM, RM-4
06-06-94	1600	Level	5.20	0.01	419.00	PM, RM-4
06-09-94	1610	Level	4.23	0.01	419.97	PM, RM-4
06-10-94	1513	Level	4.40	0.01	419.80	PM, RM-4
06-13-94	1207	Level	4.28	0.01	419.92	PM, RM-4

Tanana River at Fairbanks

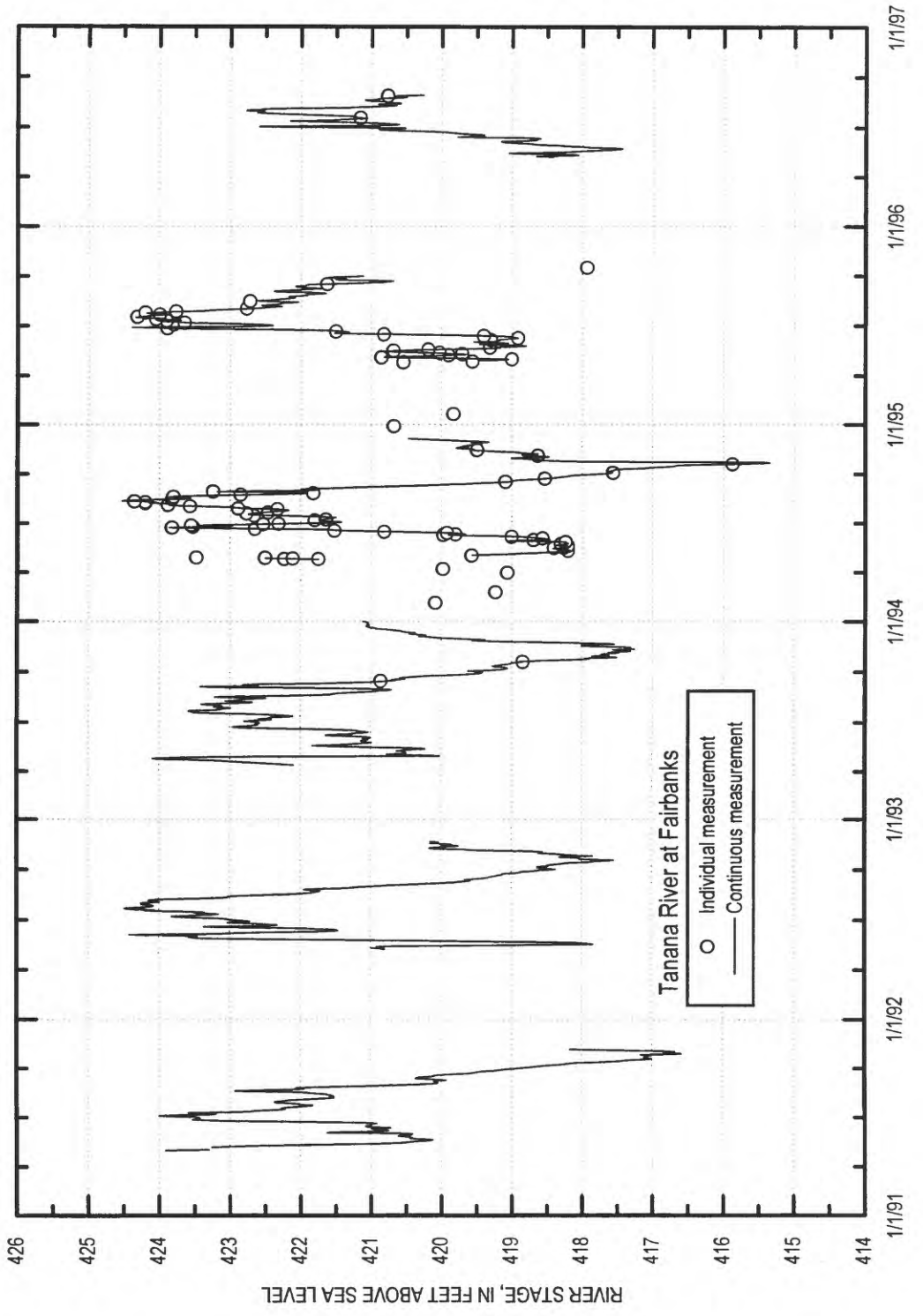
Site ID: 644734147502001
Local Number: FC00100225CCA

Date	Time	Method	MP to WS	Error	WS elevation	Remarks
06-15-94	1526	Level	3.39	0.01	420.81	MM, RM-4
06-17-94	1543	Level	2.68	0.01	421.52	PM, RM-4
06-20-94	1356	Level	1.55	0.05	422.65	PM, RM-4
06-23-94	0931	Hand level	0.38	0.05	423.82	PM, RM-4
06-24-94	1545	Hand level	0.67	0.05	423.53	PM, RM-4
06-27-94	1649	Hand level	0.65	0.05	423.55	PM, RM-4
06-29-94	1650	Hand level	1.67	0.05	422.53	PM, RM-4
06-30-94	1602	Hand level	1.89	0.05	422.31	PM, RM-4
07-06-94	1741	Hand level	2.40	0.05	421.80	PM, RM-4
07-08-94	1550	Hand level	2.56	0.05	421.64	PM, RM-4
07-15-94	1347	Hand level	1.54	0.05	422.66	MM, RM-4
07-19-94	1813	Hand level	1.43	0.05	422.77	PM, RM-4
07-21-94	1637	Hand level	1.74	0.05	422.46	PM, RM-4
07-27-94	1320	Hand level	1.87	0.05	422.33	PM, RM-4
07-29-94	1151	Hand level	1.31	0.05	422.89	PM, RM-4
08-02-94	1628	Hand level	0.63	0.05	423.57	PM, RM-4
08-04-94	1706	Hand level	0.32	0.10	423.88	PM, RM-4
08-08-94	1030	Hand level	0.00	0.10	424.20	PM, RM-4
08-09-94	1336	Tape	0.00	0.10	424.20	PM, RM-4
08-11-94	1127	Tape	-0.15	0.10	424.35	PM, RM-4
08-15-94	1130	Hand level	0.38	0.10	423.82	MM, RM-4
08-19-94	1622	Hand level	0.40	0.10	423.80	PM, RM-4
08-23-94	1538	Hand level	1.35	0.10	422.85	PM, RM-4
08-26-94	1629	Hand level	2.38	0.10	421.82	PM, RM-4
08-29-94	1630	Hand level	0.96	0.10	423.24	PM, RM-4
09-16-94	1453	Level	5.11	0.10	419.09	MM, RM-4
09-22-94	1055	Level	5.67	0.10	418.53	PM, RM-4
10-03-94	1130	Level	6.64	0.10	417.56	PM, RM-4
10-19-94	1640	Level	8.33	0.10	415.87	MM, RM-4
11-04-94	1525	Level	5.57	0.05	418.63	PM, RM-4
11-14-94	1445	Level	4.71	0.05	419.49	MM, RM-4
12-28-94	1400	Level	3.53	0.05	420.67	MM, RM-4

Tanana River at Fairbanks

Site ID: 644734147502001
Local Number: FC00100225CCA

Date	Time	Method	MP to WS	Error	WS elevation	Remarks
01-20-95	1030	Level	4.37	0.05	419.83	MM, RM-4
04-25-95	1033	Level	3.66	0.05	420.54	MM, RM-4
04-27-95	0946	Level	4.64	0.05	419.56	PM, RM-4
05-01-95	1010	Level	5.20	0.05	419.00	PM, RM-4
05-04-95	0938	Level	3.35	0.05	420.85	PM, RM-4
05-08-95	1540	Hand level	4.30	0.05	419.90	PM, RM-4
05-10-95	1505	Hand level	4.49	0.05	419.71	PM, RM-4
05-12-95	1540	Hand level	4.17	0.05	420.03	PM, RM-4
05-16-95	1057	Hand level	3.52	0.05	420.68	MM, RM-4
05-18-95	1208	Hand level	4.01	0.05	420.19	PM, RM-4
05-22-95	1446	Hand level	4.89	0.05	419.31	PM, RM-4
06-05-95	1202	Hand level	4.90	0.05	419.30	PM, RM-4
06-08-95	1104	Hand level	5.29	0.05	418.91	PM, RM-4
06-12-95	1355	Hand level	4.80	0.05	419.40	PM, RM-4
06-15-95	1124	Hand level	3.38	0.05	420.82	MM, RM-4
06-20-95	1600	Hand level	2.70	0.05	421.50	PM, RM-4
06-26-95	1700	Hand level	0.31	0.05	423.89	PM, RM-4
07-03-95	1205	Hand level	0.40	0.05	423.80	PM, RM-4
07-06-95	1505	Hand level	0.55	0.05	423.65	PM, RM-4
07-10-95	1125	Hand level	0.30	0.05	423.90	PM, RM-4
07-13-95	1321	Hand level	0.15	0.05	424.05	PM, RM-4
07-17-95	1050	Hand level	-0.11	0.05	424.31	MM, RM-4
07-21-95	1557	Hand level	0.20	0.05	424.00	PM, RM-4
07-25-95	1015	Hand level	0.00	0.05	424.20	PM, RM-4
07-27-95	1027	Hand level	0.43	0.05	423.77	PM, RM-4
08-01-95	1352	Hand level	1.43	0.05	422.77	PM, RM-4
08-15-95	1130	Hand level	1.48	0.05	422.72	MM, RM-4
09-15-95	1513	Hand level	2.57	0.05	421.63	MM, RM-4
10-16-95	1112	Hand level	6.27	0.05	417.93	MM, RM-4
07-18-96	1610	Level	3.04	0.05	421.16	MM, RM-4
08-27-96	1115	Level	3.43	0.05	420.77	MM, RM-4


RIVER STAGE, IN FEET ABOVE SEA LEVEL
426
425
424
423
422
421
420
419
418
417
416
415
414
1/1/91
1/1/92
1/1/93
1/1/94
1/1/95
1/1/96
1/1/97
Tanana River at Fairbanks
Individual measurement
Continuous measurement

Tanana River at Peger Road
Bolt in south west corner base of flow valve plate

Site ID: 15485495
Local Number: FC00100128BCCC

Land surface datum: 434.00

Datum corrections, reference survey notes in site folders

Date	MP Elevation (feet above sea level)	
08-16-95	434.06	RM1-south west valve bolt
08-16-95	432.56	RM2-TBM

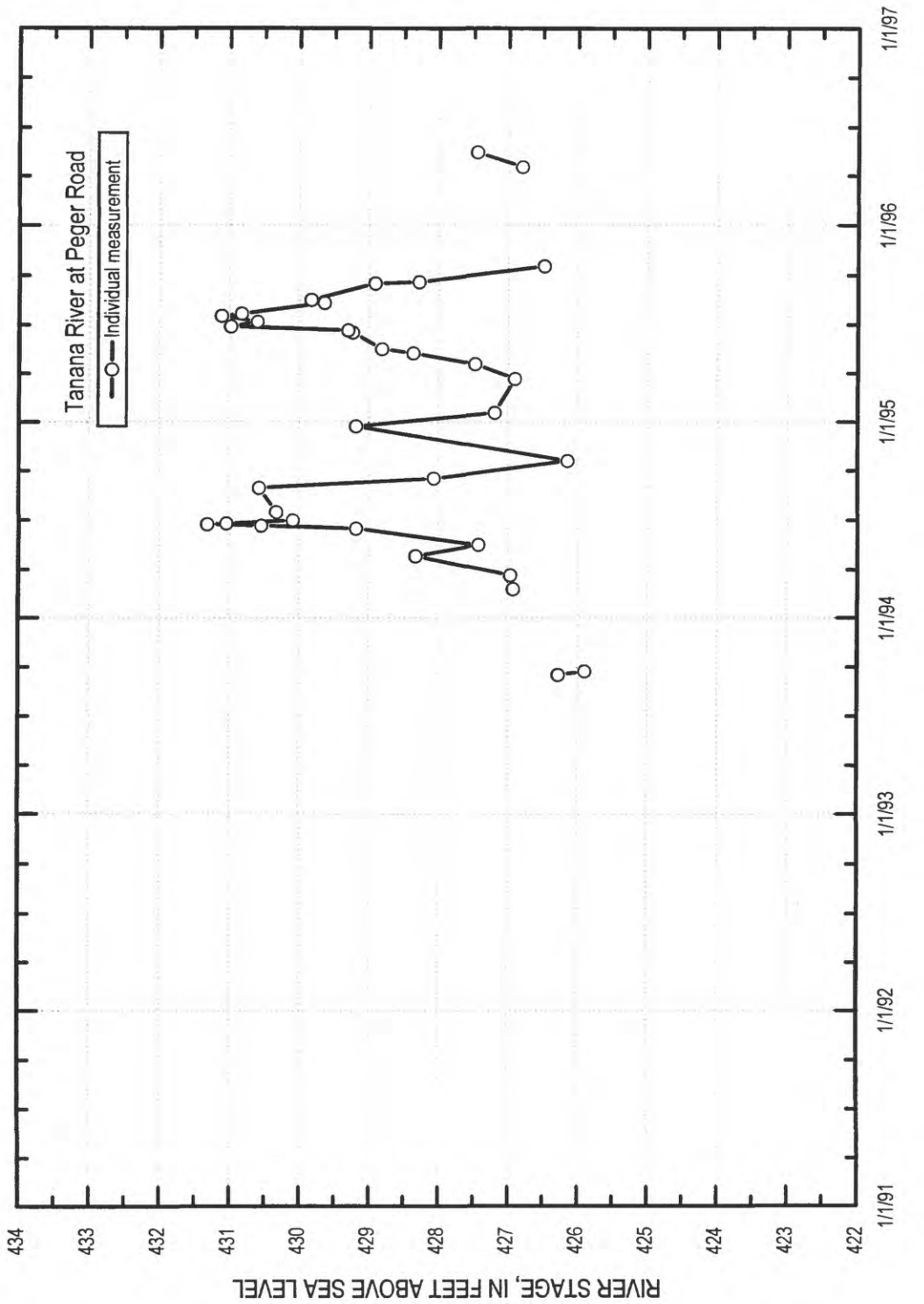
PM. partial measurement
MM, mass measurement
MP, measuring point
RM, reference mark
WS, water surface

Date	Time	Method	MP to WS	Error	WS elevation	Remarks
09-16-93	1640	Level	7.79	0.05	426.27	MM, RM1
09-23-93	1125	Level	8.17	0.05	425.89	PM, RM1
02-23-94	1522	Level	7.14	0.05	426.92	MM, RM1
03-21-94	1048	Level	7.10	0.05	426.96	MM, RM1
04-25-94	1520	Level	5.74	0.05	428.32	MM, RM1
05-16-94	1419	Level	6.64	0.05	427.42	MM, RM1
06-15-94	1046	Level	4.88	0.05	429.18	MM, RM1
06-20-94	1422	Level	3.52	0.05	430.54	PM, RM1
06-23-94	1012	Level	2.75	0.05	431.31	PM, RM1
06-24-94	1611	Level	3.02	0.05	431.04	PM, RM1
06-30-94	1647	Level	3.97	0.05	430.09	PM, RM1
07-15-94	1126	Level	3.74	0.05	430.32	MM, RM1
08-29-94	1537	Level	3.49	0.05	430.57	PM, RM1
09-16-94	1416	Level	6.00	0.05	428.06	MM, RM1
10-19-94	0944	Level	7.92	0.05	426.14	MM, RM1
12-23-94	1215	Level	4.88	0.05	429.18	MM, RM1
01-17-95	1334	Level	5.37	0.05	427.19	MM, RM2
03-21-95	1144	Level	5.66	0.05	426.90	MM, RM2
04-18-95	1154	Level	5.09	0.05	427.47	MM, RM2
05-08-95	1506	Level	4.20	0.05	428.36	PM, RM2
05-16-95	1230	Level	3.75	0.05	428.81	MM, RM2
06-16-95	1156	Level	3.33	0.05	429.23	MM, RM2
06-20-95	1631	Level	3.26	0.05	429.30	PM, RM2

Tanana River at Peger Road — Site ID: 15485495

Bolt in south west corner base of flow valve plate — Local Number: FC00100128BCCC

Date	Time	Method	MP to WS	Error	WS elevation	Remarks
06-27-95	1545	Level	1.58	0.05	430.98	PM, RM2
07-06-95	1445	Level	1.96	0.05	430.60	PM, RM2
07-17-95	1130	Level	1.45	0.05	431.11	MM, RM2
07-21-95	1535	Level	1.73	0.05	430.83	PM, RM2
08-10-95	1602	Level	2.92	0.05	429.64	PM, RM2
08-16-95	1315	Level	2.73	0.05	429.83	MM, RM2
09-15-95	1630	Level	3.65	0.05	428.91	MM, RM2
09-18-95	0950	Level	4.28	0.05	428.28	PM, RM2
10-17-95	1015	Level	6.08	0.05	426.48	MM, RM2
04-17-96	1210	Level	5.76	0.05	426.80	MM, RM2
05-15-96	1157	Level	5.11	0.05	427.45	MM, RM2


Tanana River at Peger Road
Individual measurement
RIVER STAGE, IN FEET ABOVE SEA LEVEL
434
433
432
431
430
429
428
427
426
425
424
423
422
1/1/91
1/1/92
1/1/93
1/1/94
1/1/95
1/1/96
1/1/97

APPENDIX 1

Survey-benchmark control information

SEPTEMBER 1966

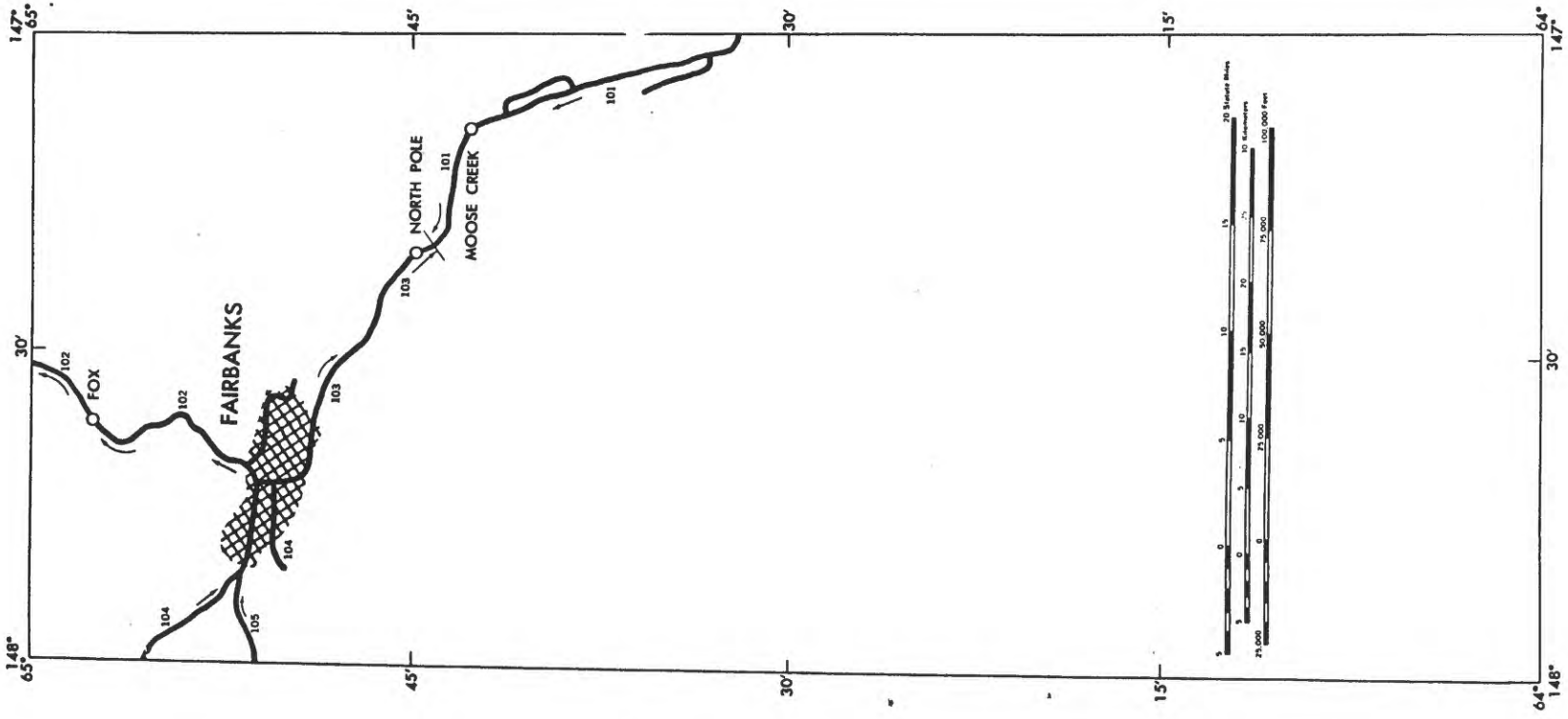
U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

VERTICAL CONTROL DATA

by the
Coast and Geodetic Survey

QUAD 64147 PAGE NO. 1
ALASKA
LATITUDE 64° to 65°
LONGITUDE 147° to 148°
DIAGRAM YUKON RIVER

64147



U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

VERTICAL CONTROL DATA

by the
Coast and Geodetic Survey

CORD 64147 PAGE NO. 2
ADDSAM
LATITUDE 64° to 65°
LONGITUDE 147° to 148°
DIAGRAM 77 YUKON RIVER

LINE 102 (Continued)

BENCH MARK	ADJUSTED ELEVATION (METERS)	(FEET)
X 52	234.525	769.437
L 53	252.568	828.634
M 53	268.635	881.347
K 13	287.873	944.463
C 53	309.489	1015.382
L 13	317.207	1040.703

LINE 103 (First-order)

The field work (L-20399) was done in the summer of 1965 by a party supervised by R. J. Lee.

The adjusted elevation in this list should be considered TENTATIVE at this time since additional field work may require a readjustment.

These elevations are fitted to the February 1965 supplementary adjustment.

BENCH MARK	ADJUSTED ELEVATION (METERS)	(FEET)
LFC 26 (USE)	NOT RECOVERED	
LFC 25 (USE)	DESTROYED	
LF 34 (USE)	NOT RECOVERED	
B 121	133.942	439.441
S 53	DESTROYED	
LF 36 (USE)	DESTROYED	
C 121	133.813	439.018
LFC 38 (USE)	134.221	440.357
*RANGE ASTRO AZI	134.557	441.459
RANGE ASTRO	NOT RECOVERED	

LINE 103 (Continued)

BENCH MARK	ADJUSTED ELEVATION (METERS)	(FEET)
D 121	DESTROYED *	
M 128	136.893	449.123
T 53	DESTROYED	
U 53	137.720	451.836
V 53	DESTROYED	
E 121	139.030	456.134
*T 5	140.124	459.723
*A 54	141.740	465.025
Z 53	142.677	468.099
*U 5 RM 2	144.019	472.502
U 5 RESET 1941	144.400	473.752
U 5 AZI	144.550	474.244
DIKE 31 (USE)	144.566	474.297
DIKE 30 (USE)	NOT LEVELED TO	
DIKE 29 (USE)	145.488	477.322
DIKE 28 (USE)	NOT RECOVERED	
F 121	146.315	480.035
V 5	NOT RECOVERED	
*DIKE 26 (USE)	146.861	481.826
*DIKE 25 (USE)	147.142	482.748
*DIKE 24 (USE)	147.607	484.274
DIKE 23 (USE)	148.077	485.816
DIKE 22 (USE)	DESTROYED	
DIKE 21 (USE)	149.504	490.498
DIKE 19 (USE)	150.962	495.281

LINE 104 (First-order)

The field work (L-20399) was done in the summer of 1965 by a party supervised by R. J. Lee.

The adjusted elevations in this list should be considered TENTATIVE at this time since additional field work may require a readjustment.

These elevations are fitted to the February 1965 supplementary adjustment.

BENCH MARK	ADJUSTED ELEVATION (METERS)	(FEET)
K 5	DESTROYED	
L 5	DESTROYED	
*N 53	183.106	600.740
*P 53	164.876	540.931
Z 120	154.033	505.357
N 5	146.913	481.997
CHENA WEST BASE 1941	141.374	463.825
CHENA WEST BASE RM 1	NOT RECOVERED	
CHENA WEST BASE RM 2	NOT RECOVERED	
CHENA WEST BASE RM 3	141.298	463.575
Y 52	145.136	476.167
MAGNETIC AZI	189.722	622.446
G 53	189.301	621.065
F 53	157.078	515.347
E 53	NOT RECOVERED	
U 4 (USE)	DESTROYED	
MAGNETIC STA	155.970	511.712
CE 314 RESET 1965 (U OF A)	157.819	517.778
UNIVERSITY 2	150.070	492.355
UNIVERSITY RM 2	DESTROYED	

LINE 104 (Continued)

BENCH MARK	ADJUSTED ELEVATION (METERS)	(FEET)
UNIVERSITY RM 1	DESTROYED	
Z 52	131.825	432.496
UNIVERSITY AZI	DESTROYED	
FAIRBANKS WEST BASE (GLO)	NOT LEVELED TO	
Y 120	133.869	439.202
X 120	133.441	437.798
O 5	DESTROYED	
BM (GLO)	DESTROYED	
W 120	133.559	438.185
512 (USGS)	133.618	438.378
P 5 RESET 1959	134.586	441.554
J 53	DESTROYED	
H 53	DESTROYED	
*D 53	133.963	439.510
Q 5	DESTROYED	

SPUR LINE SOUTHWEST TO FAIRBANKS INTERNATIONAL AIRPORT

A 121	133.508	438.017
D 60	DESTROYED	
*A 60	132.414	434.428
B 60	132.415	434.432
*Z 59	131.974	432.985
WEST GATE	132.071	433.303
*C 60	131.274	430.688
*Y 59	131.159	430.311
H 60	131.957	432.929
¼ SEC. COR. (GLO)	132.828	435.787
J 60	132.806	435.714
HIGH POINT	132.170	433.628
*K 60	131.958	432.932
427.07 (CAA)	DESTROYED	
R 5	DESTROYED	

END OF THE SPUR LINE

*Changed elevation.

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

RECOVERY NOTE, BENCH MARK **R**

Designation 512 (USGS) State Alaska County 4th Judicial Division
Nearest town Fairbanks County 4th Jud. Div. Chief of Party Rodney J. Lee
Distance and direction from nearest town At Fairbanks Recovery Date August 1965
Character of mark A U.S. Geological Survey Aluminum/Disk/ Stamping 512 F
Established by U.S. Geological Survey
Present condition Good
Detailed report This bench mark was recovered as described.

At Fairbanks, 75 yards south of the intersection of Pennsylvania Avenue and Illinois Street, at Saint Joseph's Hospital, 27.3 feet northeast of the southeast corner of the building, 31 feet west of the centerline of the street, 3.1 feet east of the east wall of the building, 3.3 feet west of a fence, 0.1 foot underground, and welded on top of a 2½-inch iron pipe.

Note: This iron pipe was dug up and the base of it set in concrete at its original elevation and location. One edge of disk has been broken off.

DESCRIPTION OF BENCH MARK

Designation P 5 RESET 1959 State Alaska County 4th Judicial Division
Nearest town Fairbanks County 4th Jud. Div. Chief of party Rodney J. Lee
Distance and direction from nearest town At Fairbanks Leveling date August 1965
Character of mark A C&GS Bench Mark Disk Stamping P 5 RESET 1959
Established by C&GS
Detailed description At Fairbanks, at the intersection of Cushman Street and 1st Avenue, set in the top of the south end of the west concrete sidewalk of the Cushman Street concrete bridge over the Chena River, 4.8 feet west of the west curb, 1.2 feet east of the base of the southwest light pole, 1.0 foot southeast of the south end of the west metal guardrail, and about 1 foot higher than the street.

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

RECOVERY NOTE, BENCH MARK **R**

Designation J 53 State Alaska County 4th Judicial Division
Nearest town Fairbanks County 4th Jud. Div. Chief of Party Rodney J. Lee
Distance and direction from nearest town At Fairbanks Recovery Date August 1965
Character of mark A C&GS Bench Mark Disk Stamping
Established by C&GS
Present condition Not recovered-Consider destroyed
Detailed report This bench mark was searched for but not recovered. Two man-hours were spent searching for this mark and it is believed to have been destroyed during the construction of a water treatment building.

Not Recovered - 1961 .

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

RECOVERY NOTE, BENCH MARK **R**

Designation H 53 State Alaska County 4th Judicial Division
Nearest town Fairbanks County 4th Jud. Div. Chief of Party Rodney J. Lee
Distance and direction from nearest town At Fairbanks Recovery Date August 1965
Character of mark A C&GS Bench Mark Disk Stamping
Established by C&GS
Present condition Not recovered-Consider destroyed
Detailed report This bench mark was searched for but not recovered. A considerable amount of dirt has been filled in around this area and the mark is believed to have either been destroyed or covered over.

Not Recovered - 1961 .

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

RECOVERY NOTE, BENCH MARK **R**

Designation D 53 State Alaska County 4th Judicial Division
Nearest town Fairbanks County 4th Jud. Div. Chief of Party Rodney J. Lee
Distance and direction from nearest town At Fairbanks Recovery Date August 1965
Character of mark A C&GS Bench Mark Disk Stamping D 53 1951
Established by C&GS
Present condition Good
Detailed report This bench mark was recovered as described.

At Fairbanks, 181 feet west of the center of the intersection of 9th Avenue and Cushman Street, at Fairbanks Public School, 30 feet north of the centerline of the avenue, 4.7 feet southwest of the southwest corner of the school building, 3.8 feet south of the south wall, 2.9 feet north of the north edge of a concrete sidewalk, and set in the top of a concrete post flush with the ground.

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

RECOVERY NOTE, BENCH MARK **R**

Designation Q 5 State Alaska County 4th Judicial Division
Nearest town Fairbanks County 4th Jud. Div. Chief of Party Rodney J. Lee
Distance and direction from nearest town At Fairbanks Recovery Date August 1965
Character of mark A C&GS Bench Mark Disk Stamping
Established by C&GS
Present condition Not recovered-Consider destroyed
Detailed report This bench mark was searched for but not recovered. The bottom portion of a concrete post was found at the described location and this mark is believed to have been destroyed.

SPUR LINE SOUTHWEST TO FAIRBANKS INTERNATIONAL AIRPORT

DESCRIPTION OF BENCH MARK

Designation A 121 State Alaska County 4th Judicial Division
Nearest town Fairbanks County 4th Jud. Div. Chief of party Rodney J. Lee
Distance and direction from nearest town 0.8 mile southwest Leveling date August 1965
Character of mark A C&GS Bench Mark Disk Stamping A 121 1965
Established by C&GS
Detailed description 0.4 mile south along Cushman Street or the Richardson Highway from the post office at Fairbanks, thence 0.4 mile west along Airport Way, set vertically in the north face of the concrete foundation of a projection of the Austin E. Lathrop High School Building on the west side of the main entrance to the auditorium, 136½ feet west of the center of the main entrance doors to Hering Auditorium, 10.7 feet west of a wall-mounted fire hose connection, 1.2 feet west of the west side of a small overhead door, 0.6 foot east of the northwest corner of the projection foundation, and about 0.1 foot higher than the ground.

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

RECOVERY NOTE, BENCH MARK **R**

Designation D 60 State Alaska County 4th Judicial Division
Nearest town Fairbanks County 4th Jud. Div. Chief of Party Rodney J. Lee
Distance and direction from nearest town 0.7 mile southwest Recovery Date August 1965
Character of mark A C&GS Bench Mark Disk Stamping D 60 1951
Established by C&GS
Present condition Destroyed
Detailed report This bench mark has been destroyed by heavy equipment during the construction of a new school.

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

VERTICAL CONTROL DATA
by the
Coast and Geodetic Survey

QUAD 64147 PAGE NO. 24
ALASKA
LATITUDE 64° to 65°
LONGITUDE 147° to 148°
DIAGRAM YUKON RIVER

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

RECOVERY NOTE, BENCH MARK R

Designation A 60 State Alaska County 4th Judicial Division
Nearest town Fairbanks County 4th Jud. Div. Chief of Party Rodney J. Lee
Distance and direction from nearest town 1.6 miles southwest Recovery Date August 1965
Character of mark A C&GS Bench Mark Disk Stamping A 60 1951
Established by C&GS
Present condition Good
Detailed report 0.4 mile south along Cushman Street and Richardson Highway from the post office at Fairbanks, thence 1.2 miles west along Airport Way, at the southwest corner of the intersection of Wilbur Street, 50.4 feet north-northeast of the northeast corner of a residence at 2001 Airport Way, 42½ feet south of the center line of the street, 35 feet west of the center line of Wilbur Street, 9½ feet south of a power pole braced by a guy wire, set in the top of a 4-inch cast iron pipe that is filled and anchored with concrete, 1.2 feet west of a metal witness post, about level with Airport Way, and projecting 0.2 foot.

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

DESCRIPTION NOTE, BENCH MARK

Designation WEST GATE State Alaska County 4th Judicial Division
Nearest town Fairbanks County 4th Jud. Div. Chief of Party Rodney J. Lee
Distance and direction from nearest town 2.65 miles southwest Recovery Date August 1965
Character of mark A C&GS Triangulation Station Disk Stamping WEST GATE 1953
Established by C&GS
Present condition Good
Detailed report 0.4 mile south along Cushman Street and the Richardson Highway from the post office at Fairbanks, thence 2.25 miles west along Airport Way, 2 3/4 telephone poles west of bench mark "Z 59 1951", 38 feet south of the center line of Airport Way, 77 feet east of the extended center line of a road leading north to the Boatel, 33 feet east of a telephone pole braced by foot pegs, 0.9 foot south of a metal witness post, about level with Airport Way, a disk brazed on the top of a 2-inch iron pipe which projects 0.6 foot.

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

RECOVERY NOTE, BENCH MARK R

Designation B 60 State Alaska County 4th Judicial Division
Nearest town Fairbanks County 4th Jud. Div. Chief of Party Rodney J. Lee
Distance and direction from nearest town 2.1 miles southwest Recovery Date August 1965
Character of mark A C&GS Bench Mark Disk Stamping B 60 1951
Established by C&GS
Present condition Good
Detailed report 0.4 mile south along Cushman Street and the Richardson Highway from the post office at Fairbanks, thence 1.7 miles west along Airport Way, at the southwest corner of the intersection of Peger Road, 35 feet south of the center line of Airport Way, 194 feet west of the center line of Peger Road, 181 feet north-northeast of the northeast corner of a Catholic church, 9½ feet west of a telephone pole, 2.3 feet west of a metal witness post, about level with Airport Way, and set in the top of a concrete post projecting 0.5 foot.

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

RECOVERY NOTE, BENCH MARK R

Designation C 60 State Alaska County 4th Judicial Division
Nearest town Fairbanks County 4th Jud. Div. Chief of Party Rodney J. Lee
Distance and direction from nearest town 3.2 miles west Recovery Date August 1965
Character of mark A C&GS Bench Mark Disk Stamping C 60 1951
Established by C&GS
Present condition Good
Detailed report 0.4 mile south along Cushman Street and the Richardson Highway from the post office at Fairbanks, thence 2.8 miles west along Airport Way, 58 feet north of the center line of Airport Way, 33 feet east of the center line of the entrance road to the Fairbanks District Resource Management Branch, 13 feet southwest of a wire mesh fence, 10 feet east of a forked spruce tree, 20 feet north of a power pole, 1.0 foot south of a metal witness post, about level with Airport Way, and set in the top of a 4-inch cast iron pipe that is filled with concrete and anchored in concrete flush with the ground.

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

RECOVERY NOTE, BENCH MARK R

Designation Z 59 State Alaska County 4th Judicial Division
Nearest town Fairbanks County 4th Jud. Div. Chief of Party Rodney J. Lee
Distance and direction from nearest town 2.6 miles southwest Recovery Date August 1965
Character of mark A C&GS Bench Mark Disk Stamping Z 59 1951
Established by C&GS
Present condition Good
Detailed report 0.4 mile south along Cushman Street end the Richardson Highway from the post office at Fairbanks, thence 2.2 miles west along Airport Way, 109 yards west of the center line of Park Street, 45 feet south of the center line of Airport Way, 145 feet east of the center line of a dirt road lesding south, 65 feet west of the west end of the south concrete head wall of a pipe culvert, 10 feet south of a telephone pole braced by a guy wire, 1.0 foot south of a witness post, about level with the road, and set in the top of a concrete post flush with the ground.

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

RECOVERY NOTE, BENCH MARK R

Designation Y 59 State Alaska County 4th Judicial Division
Nearest town Fairbanks County 4th Jud. Div. Chief of Party Rodney J. Lee
Distance and direction from nearest town 3.65 miles west Recovery Date August 1965
Character of mark A C&GS Bench Mark Disk Stamping Y 59 1951
Established by C&GS
Present condition Good
Detailed report 0.4 mile south along Cushman Street and the Richardson Highway from the post office at Fairbanks, thence 3.25 miles west along Airport Way, 0.1 mile west of the junction of Pike's Landing Road, 55 feet north of the center line of Airport Way, 82 feet east of the center line of a short graveled road leading north, 72 feet east of a power pole, 6 feet north of a point in line with a row of poles, 2.2 feet east of a metal witness post, about 2 feet lower than Airport Way, and set in the top of a 4-inch iron pipe filled and anchored in concrete and flush with the ground.

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

VERTICAL CONTROL DATA
by the
Coast and Geodetic Survey

QUAD 64147 PAGE NO. 25
ALASKA
LATITUDE 64° to 65°
LONGITUDE 147° to 148°
DIAGRAM YUKON RIVER

LINE 104

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

RECOVERY NOTE, BENCH MARK R

Designation H 60 State Alaska County 4th Judicial Division
Nearest town Fairbanks County 4th Jud. Div. Chief of Party Rodney J. Lee
Distance and direction from nearest town 4.45 miles west Recovery Date August 1965
Character of mark A C&GS Bench Mark Disk Stamping H 60 1951
Established by C&GS
Present condition Good
Detailed report 0.4 mile south along Cushman Street and the Richardson Highway from the post office at Fairbanks, thence 4.05 miles west along Airport Way, at the Fairbanks International Airport, at the second elephant ear southwest of the northeast end of a runway, 20.0 feet southeast of runway light 223, 12.0 feet southeast of the northwest edge of the elephant ear, and set in the top of a concrete post flush with the asphalt surface of the elephant ear and marked by a large yellow painted cross.

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

RECOVERY NOTE, BENCH MARK R

Designation 1/4 Sec. Cor. (GLO) State Alaska County 4th Judicial Division
Nearest town Fairbanks County 4th Jud. Div. Chief of Party Rodney J. Lee
Distance and direction from nearest town At Fairbanks Recovery Date August 1965
Character of mark A General Land Office Cap Stamping S 13 S 24 1911
Established by U.S. General Land Office
Present condition Fair
Detailed report At Fairbanks International Airport, 0.4 mile southwest along the northwest edge of a taxiway from bench mark "H 60 1951", 400 feet northeast of bench mark "J 60 1951", 250 feet southwest of the northeast end of an apron, 56.1 feet south of the south corner of the Alaska Airlines Cargo Office, 20.4 feet northeast of the east corner of a 4 x 4-foot concrete foundation which projects 0.6 foot, 0.3 foot southeast of the northwest edge of the asphalt apron, and set in the top of a concrete post flush with the asphalt surface.
NOTE: Cap has been hit but is very solid at present time.

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

RECOVERY NOTE, BENCH MARK R

Designation J 60 State Alaska County 4th Judicial Division
Nearest town Fairbanks County 4th Jud. Div. Chief of Party Rodney J. Lee
Distance and direction from nearest town At Fairbanks Recovery Date August 1965
Character of mark A C&GS Bench Mark Disk Stamping J 60 1951
Established by C&GS
Present condition Good
Detailed report At Fairbanks International Airport, 400 feet southwest along the northwest edge of an asphalt apron from bench mark "1/4 Sec. Cor(GLO)", about 245 yards northeast of the control tower, 84.5 feet south of the south corner of Wien Alaska Airlines, Inc. hangar, 22.4 feet east of the center of a cast iron manhole cover, 10.1 feet southeast of the northwest edge of an asphalt apron, and set in the top of a concrete post flush with the surface of the apron.

DESCRIPTION OF SUPPLEMENTARY ELEVATION POINT SP

Extra Foresight No. High Point State Alaska County 4th Judicial Division
Distance and direction from bench mark 0.2 mile east of J 60 1951 Chief of Party Rodney J. Lee
Detailed description Date August 1965
The high point of the Fairbanks International Airport is 0.2 mile east of bench mark "J 60 1951, in the center line of the runway east of light number 3.

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

RECOVERY NOTE, BENCH MARK R

Designation K 60 State Alaska County 4th Judicial Division
Nearest town Fairbanks County 4th Jud. Div. Chief of Party Rodney J. Lee
Distance and direction from nearest town At Fairbanks Recovery Date August 1965
Character of mark A C&GS Bench Mark Disk Stamping K 60 1961
Established by C&GS
Present condition Good
Detailed report At Fairbanks International Airport, 0.55 mile southwest along the northwest asphalt taxiway from bench mark "J 60 1951", at the elephant ear directly southeast of the maintenance station shop, 153 feet northwest of the center line of the northwest taxiway, 41 feet southwest of the center line of a paved road leading northwest to the maintenance shop from the taxiway, 20 feet southeast of runway light T 522, 10.0 feet southeast of the northwest edge of the asphalt surface of the elephant ear, and set in the top of a concrete post flush with the asphalt surface.

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

RECOVERY NOTE, BENCH MARK R

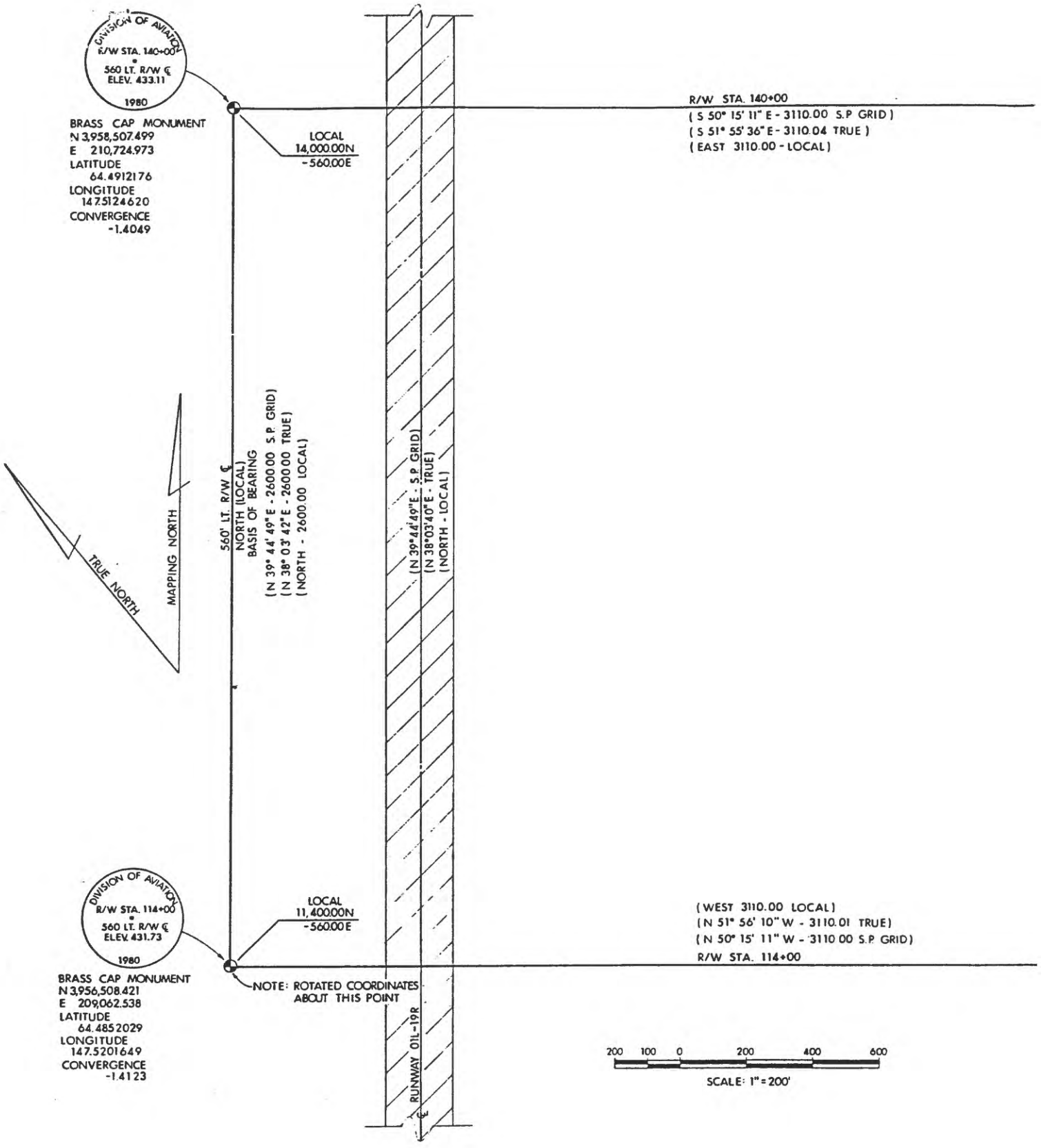
Designation 427.07 (CAA) State Alaska County 4th Judicial Division
Nearest town Fairbanks County 4th Jud. Div. Chief of Party Rodney J. Lee
Distance and direction from nearest town 5.4 miles southwest Recovery Date August 1965
Character of mark 40-penny nail upside down Stamping
Established by U.S. Civil Aeronautics Administration
Present condition Not recovered-Consider destroyed
Detailed report This bench mark was searched for but not recovered. The southwest end of the runway has been extended and it ie believed that this mark was destroyed at that time.

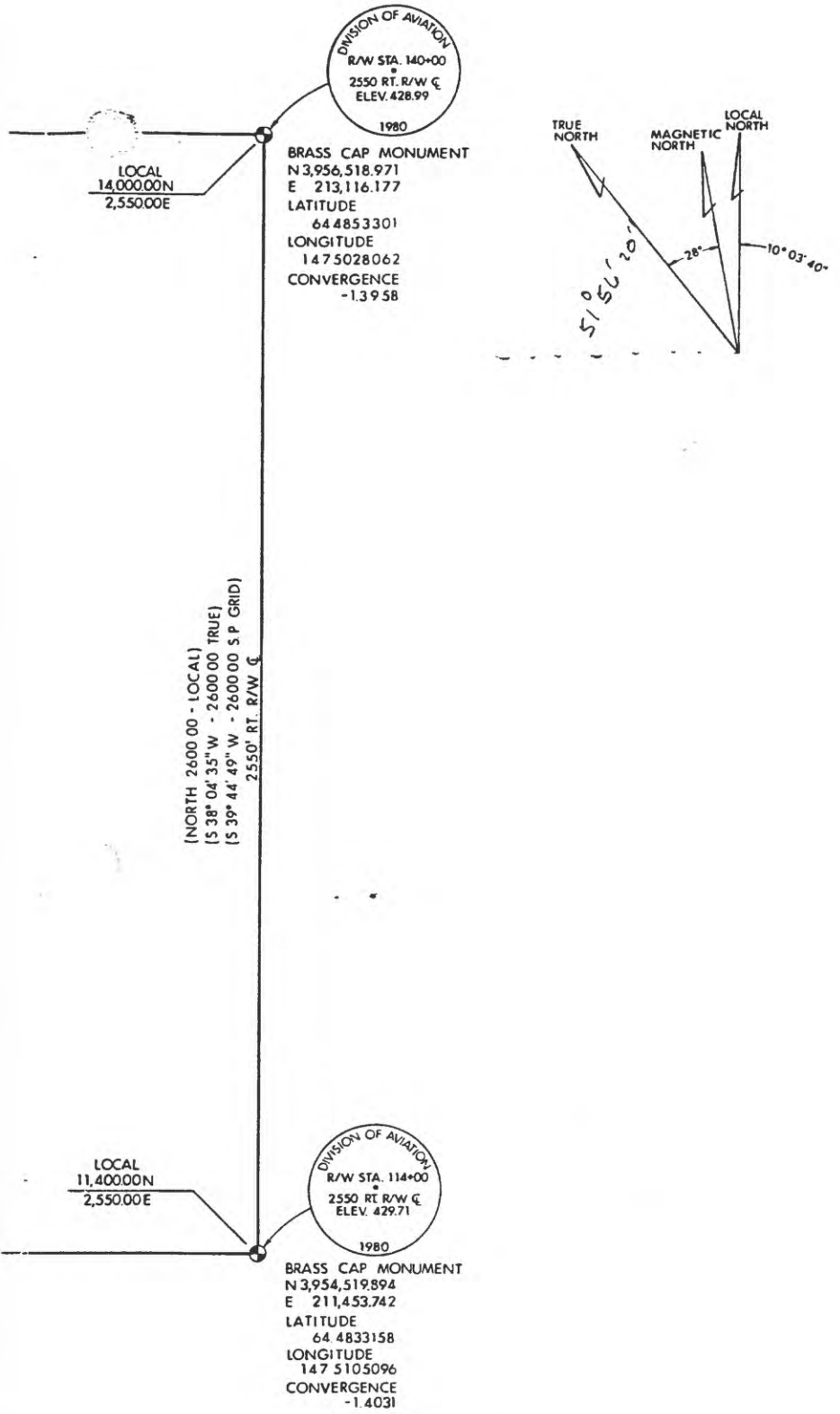
U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

RECOVERY NOTE, BENCH MARK R

Designation R 5 State Alaska County 4th Judicial Division
Nearest town Fairbanks County 4th Jud. Div. Chief of Party Rodney J. Lee
Distance and direction from nearest town At Fairbanks Recovery Date August 1965
Character of mark A C&GS Bench Mark Disk Stamping R 5 1922
Established by C&GS
Present condition Destroyed
Detailed report This mark has been destroyed. The tower and foundation were removed about 2 years ago and according to reports from officials, this markwas destroyed at that time.

END OF THE SPUR LINE


DIVISION OF AVIATION
R/W STA. 140+00
560 LT. R/W ℄
ELEV. 433.11
1980
BRASS CAP MONUMENT
N 3,958,507.499
E 210,724.973
LATITUDE
64.4912176
LONGITUDE
147.5124620
CONVERGENCE
-1.4049
LOCAL
14,000.00N
-560.00E
R/W STA. 140+00
(S 50° 15' 11" E - 3110.00 S.P GRID)
(S 51° 55' 36" E - 3110.04 TRUE)
(EAST 3110.00 - LOCAL)
560' LT. R/W ℄
NORTH (LOCAL)
BASIS OF BEARING
(N 39° 44' 49" E - 2600.00 S.P. GRID)
(N 38° 03' 42" E - 2600.00 TRUE)
(NORTH - 2600.00 LOCAL)
(N 39°44'49"E - S.P GRID)
(N 38°03'40"E - TRUE)
(NORTH - LOCAL)
TRUE NORTH
MAPPING NORTH
DIVISION OF AVIATION
R/W STA. 114+00
560 LT. R/W ℄
ELEV. 431.73
1980
LOCAL
11,400.00N
-560.00E
(WEST 3110.00 LOCAL)
(N 51° 56' 10" W - 3110.01 TRUE)
(N 50° 15' 11" W - 3110.00 S.P. GRID)
R/W STA. 114+00
BRASS CAP MONUMENT
N 3,956,508.421
E 209,062.538
LATITUDE
64.4852029
LONGITUDE
147.5201649
CONVERGENCE
-1.4123
NOTE: ROTATED COORDINATES
ABOUT THIS POINT
RUNWAY 01L-19R
200 100 0 200 400 600
SCALE: 1" = 200'



UNIVIN SCHEBEN KORYNTA HUETTL
USKH
ARCHITECTS ENGINEERS SURVEYORS
2515 A STREET
ANCHORAGE, AK. 99503 272-4648

FAIRBANKS INTERNATIONAL AIRPORT

HORIZONTAL AND VERTICAL CONTROL

NOTES:

1. SEA LEVEL DATUM USED ON THIS PLAT FOR VERTICAL CONTROL WAS BASED ON THE RECORD DATA FOR K-60. (SEA LEVEL)
2. REF. USKH F.B. 128.
3. "S.P. GRID" EQUALS STATE PLANE GRID.
4. REFERENCE USED: STUTZMAN SURVEY OF SHOWN MONUMENTS.
5. ALASKA STATE PLANE ZONE 3. AVERAGE SCALE FACTOR 0.9999949.

APPENDIX 2

U.S. Geological Survey Ground-Water Site Inventory data base components list

(from Luckey and Rogers, 1989)

8.11 List of Components (by number)

Component Number	Description and Coding Manual Page Number	Coding Manual Article
C001	Site ID (station number), p. 2-10	1.2
C002	Type of site, p. 2-26	1.36
	C - Collector or Ranney type well D - Drain (dug: intercept water table/potentiometric surface; to lower water level or serve as water supply) E - Excavation H - Sinkhole I - Interconnected wells (interconnected via an underground lateral) M - Multiple wells (pumped through a single header) O - Outcrop P - Pond (dug: intercept water table/potentiometric surface; serve as water supply S - Spring (used only on spring schedule) T - Tunnel, shaft, or mine from which ground water is obtained W - Well (single well other than collector or Ranney type) X - Test hole, not completed as a well	
C003	Record classification, p. 2-25	1.34
	C - Data have been field checked by the reporting agency. L - Location not accurate. M - Minimal data. U - Data have not been field checked by the reporting agency, but the reporting agency considers the data reliable.	
C004	Source agency code, p. 2-9	1.1
C005	Project number, p. 2-35	1.49
C006	District code, p. 2-13	1.7
C007	State code, p. 2-13	1.8
C008	County code, p. 2-13	1.9
C009	Latitude, p. 2-12	1.4
C010	Longitude, p. 2-12	1.5

Component Number	Description and Coding Manual Page Number	Coding Manual Article
C011	Lat-long accuracy code, p. 2-12	1.6
	S - The measurement is accurate to + 1 second. F - The measurement is accurate to + 5 seconds. T - The measurement is accurate to + 10 seconds. M - The measurement is accurate to + 1 minute.	
C012	Local well number, p. 2-11	1.3
C013	Land-net location, p. 2-13	1.10
C014	Name of location map, p. 2-14	1.11
C015	Scale of location map, p. 2-14	1.12
C016	Altitude of land surface, p. 2-14	1.13
C017	Method altitude determined, p. 2-14	1.14
	A - Altimeter L - Level or other surveying method M - Interpolated from topographic map - Blank field implies that the method is unknown.	
C018	Altitude accuracy, p. 2-15	1.15
	nn - Possible error in feet.	
C019	Topographic setting, p. 2-16	1.18
	A - Alluvial fan B - Playa C - Stream channel D - Local depression E - Dunes F - Flat surface G - Flood plain H - Hilltop K - Sinkhole L - Lake, swamp, or marsh M - Mangrove swamp O - Offshore (estuary) P - Pediment S - Hillside (slope) T - Alluvial or marine terrace U - Undulating V - Valley flat (valleys of all sizes) W - Upland draw	

Component Number	Description and Coding Manual Page Number	Coding Manual Article
C020	Hydrologic unit code, p. 2-15	1.16
C021	Date well constructed, p. 2-26	1.37
C023	Primary use of site, p. 2-27	1.38

A - Anode
C - Standby emergency supply
D - Drain
E - Geothermal
G - Seismic
H - Heat reservoir
M - Mine
O - Observation
P - Oil or gas well
R - Recharge
S - Repressurize
T - Test
U - Unused
W - Withdrawal of water
X - Waste disposal
Z - Destroyed

C024	Primary use of water, p. 2-30	1.41

A - Air conditioning
B - Bottling
C - Commercial
D - Dewater
E - Power
F - Fire
H - Domestic
I - Irrigation
J - Industrial (cooling)
K - Mining
M - Medicinal
N - Industrial
P - Public supply
Q - Aquaculture
R - Recreation
S - Stock
T - Institutional
U - Unused
Y - Desalination
Z - Other

C025	Secondary use of water (see list w/C024), p. 2-33	1.42
C026	Tertiary use of water (see list w/C024), p. 2-33	1.43
C027	Hole depth (depth drilled), p. 2-34	1.46
C028	Depth of well (finished depth), p. 2-34	1.47
C029	Source of depth data, p. 2-35	1.48

A - Reported by another government agency.
B - From driller's log or report.
G - Private geologist-consultant or university associate.
L - Depth interpreted from geophysical logs by personnel of source agency.
M - Memory (owner, operator, driller).
O - Reported by the owner of the well.
R - Reported by other than owner, driller, or another government agency.
S - Measured by personnel of reporting agency.
Z - Other.

C030	Water level, p. 2-35	1.50
C031	Date water level measured, p. 2-36	1.51
C033	Source of water-level data (see list w/C029), p.2-37	1.54

Component Number	Description and Coding Manual Page Number	Coding Manual Article
C034	Method water level measured, p. 2-36	1.52

A - Airline measurement
B - Analog or graphic recorder
C - Calibrated airline measurement
E - Estimated
G - Pressure-gage measurement
H - Calibrated pressure-gage measurement
L - Interpreted from geophysical logs
M - Manometer measurement
N - Nonrecording gage
R - Reported, method not known
S - Steel-tape measurement
T - Electric-tape measurement
V - Calibrated electric-tape measurement
Z - Other

C037	Site status at water-level measurement, p. 2-37	1.53

D - The site was dry (no water level is recorded).
E - The site was flowing recently.
F - The site was flowing, but the head could not be measured (no water level is recorded).
G - A nearby site that taps the same aquifer was flowing.
H - A nearby site that taps the same aquifer had been flowing recently.
I - Injector site (recharges water being injected into the aquifer).
J - Injector site monitor (a nearby site that taps the same aquifer is injecting recharge water).
N - The measurement was discontinued.
O - An obstruction was encountered in the well above the water surface (no water level is recorded).
P - The site was being pumped.
R - The site had been pumped recently.
S - A nearby site that taps the same aquifer was being pumped.
T - A nearby site that taps the same aquifer had been pumped recently.
V - A foreign substance was present on the surface of the water.
W - The well was destroyed.
X - The water level was affected by stage in nearby surface-water site.
Z - Other conditions that would affect the measured water level.

Component Number	Description and Coding Manual Page Number	Coding Manual Article
C038	Date lift data collected, p. 2-44	2.6.1.2
C040	Date site record last updated, p. 2-23	1.26
C043	Type of lift, p. 2-42	2.6.1.1
	A - Air lift B - Bucket C - Centrifugal pump J - Jet pump P - Piston pump R - Rotary pump S - Submergible pump T - Turbine pump U - Unknown Z - Other	
C044	Depth to intake, p. 2-44	2.6.1.3
C045	Type of power, p. 2-44	2.6.1.4
	D - Diesel engine E - Electric motor G - Gasoline engine H - Hand L - LP-gas engine N - Natural-gas engine W - Windmill Z - Other	
C046	Horsepower rating, p. 2-44	2.6.1.5
C048	Manufacturer of lift device, p. 2-45	2.6.1.6
C049	Serial number of lift device, p. 2-45	2.6.1.7
C050	Name of power company, p. 2-45	2.6.1.8
C051	Power company account number, p. 2-45	2.6.1.9
C052	Power meter number, p. 2-45	2.6.1.10
C053	Pump rating, p. 2-45	2.6.1.11
C054	Company that maintains lift device, p. 2-46	2.6.1.13
C056	Type of standby power, p. 2-46	2.6.1.15
C057	Horsepower of standby power source (see list w/C045), p. 2-46	2.6.1.16
C059	Parent sequence number for HOLE subrecord of CONS file, p. 2-53	2.6.3.1
C060	Date of construction, p. 2-47	2.6.2.1
C063	Name of contractor, p. 2-48	2.6.2.2
C064	Source of construction data (see list w/C029), p. 2-48	2.6.2.3
C065	Method of construction, p. 2-48	2.6.2.4
	A - Air-rotary B - Bored or augered C - Cable-tool D - Dug H - Hydraulic rotary J - Jetted P - Air percussion R - Reverse rotary T - Trenching V - Driven W - Drive and wash Z - Other	

Component Number	Description and Coding Manual Page Number	Coding Manual Article
C066	Type of finish, p. 2-50	2.6.2.5
	C - Porous concrete F - Gravel pack w/perforations G - Gravel pack w/screen H - Horizontal gallery O - Open end P - Perforated or slotted S - Screen T - Sand point W - Walled X - Open hole Z - Other	
C067	Type of surface seal, p. 2-51	2.6.2.6
	B - Bentonite C - Clay or cuttings G - Cement grout N - None Z - Other	
C068	Depth to bottom of seal, p. 2-52	2.6.2.7
C069	Method of development, p. 2-52	2.6.2.8
	A - Pumped w/air lift B - Bailed C - "Blown" or surged N - None P - Pumped	
C070	Hours of development, p. 2-52	2.6.2.9
C071	Special treatment during development, p. 2-52	2.6.2.10
	C - Chemical (acid, and so forth) D - Dry ice E - Explosives F - Deflocculent H - Hydrofracturing M - Mechanical abrasion Z - Other	
C073	Depth to top of this hole interval, p. 2-53	2.6.3.2
C074	Depth to bottom of this hole interval, p. 2-54	2.6.3.3
C075	Diameter of this hole interval, p. 2-54	2.6.3.4
C077	Depth to top of this casing string, p. 2-55	2.6.4.2
C078	Depth to bottom of this casing string, p. 2-55	2.6.4.3
C079	Diameter of this casing string, p. 2-55	2.6.4.4

Component Number	Description and Coding Manual Page Number	Coding Manual Article
C080	Casing material, p. 2-56	2.6.4.5
	B - Brick C - Concrete D - Copper G - Galvanized iron I - Wrought iron M - Other metal P - PVC, fiberglass, other plastic R - Rock or stone S - Steel T - Tile U - Coated steel W - Wood Z - Other material	
C081	Wall thickness of this casing, p. 2-56	2.6.4.6
C083	Depth to top of this open interval, p. 2-58	2.6.5.2
C084	Depth to bottom of this open interval, p. 2-58	2.6.5.3
C085	Type of openings in this interval, p. 2-59	2.6.5.6
	F - Fractured rock L - Louvered or shutter-type screen M - Mesh screen P - Perforated, porous, or slotted casing R - Wire-wound screen S - Screen, type not known T - Sand point W - Walled or shored X - Open hole Z - Other	
C086	Material in this interval, p. 2-58	2.6.5.5
	B - Brass or bronze C - Concrete G - Galvanized iron I - Wrought iron M - Other metal P - PVC, fiberglass, or other plastic R - Stainless steel S - Steel T - Tile Z - Other	
C087	Diameter of this open interval, p. 2-58	2.6.5.4
C088	Width of openings, p. 2-59	2.6.5.8
C089	Length of openings, p. 2-59	2.6.5.7
C091	Depth to top of geohydrologic interval, p. 109	6.7.1.1
C092	Depth to bottom of geohydrologic interval, p. 109	6.7.1.2
C093	Aquifer code (see Appendix F in the WATSTORE User's Guide), p. 2-109	6.7.1.3
C095	Aquifer date -geohydrologic, p. 113	6.7.2.1

Component Number	Description and Coding Manual Page Number	Coding Manual Article
C096 Lithology code, p. 2-109		6.7.1.4

Alluvium	ALVM	Lignite	LGNT
Anhydrite	ANDR	Limestone	LMSN
Anorthosite	ANRS	Limestone and Dolomite	LMDM
Arkose	ARKS	Loam	LOAM
Basalt	BSLT	Loess	LOSS
Bentonite	BNTN	Marble	MRBL
Boulders	BLDR	Marl	MARL
Boulders and Sand	BLSD	Marlstone	MRLS
Boulders, silt, clay	BLSC	Metamorphis (undifferentiated)	MMPC
Breccia	BRCC	Muck	MUCK
Calcite	CLCT	Mud	MUD
Caliche (hard pan)	CLCH	Mudstone	MDSN
Chalk	CHLK	Other	OTHR
Chert	CHRT	Outwash	OTSH
Clay	CLAY	Overburden	OBDN
Clay, some sand	CLSD	Peat	PEAT
Claystone	CLSN	Quartzite	QRTZ
Coal	COAL	Residium	RSDM
Cobbles	COBB	Rhyolite	RYLT
Cobbles and sand	COSD	Rock	ROCK
Cobbles, silt, clay	COSC	Rubble	RBBL
Colluvium	CLVM	Sand	SAND
Conglomerate	CGLM	Sand and clay	SDCL
Coquina	CQUN	Sand and gravel	SDGL
Diabase	DIBS	Sand and silt	SDST
Diorite	DORT	Sand, gravel, clay	SGVC
Dolomite	DLMT	Sand, some clay	SNCL
Drift	DRFT	Sandstone	SNDS
Evaporite	EVPR	Sandstone and shale	SDSL
Gabbro	GBBR	Saprolite	SPRL
Glacial (undifferentiated)	GLCL	Schist	SCST
Gneiss	GNSS	Sedimentary (undifferentiated)	SDMN
Granite	GRNT	Serpentine	SRPN
Granite, gneiss	GRGN	Shale	SHLE
Gravel	GRVL	Silt	SILT
Gravel and clay	GRCL	Silt and clay	STCL
Gravel, cemented	GRCM	Siltstone	SLSN
Gravel, sand, silt	GRDS	Slate	SLTE
Gravel, silt, clay	GRSC	Soil	SOIL
Graywacke	GRCK	Syenite	SYNT
Greenstone	GNST	Till	TILL
Gypsum	GPSM	Travertine	TRVR
Hard pan	HRDP	Tuff	TUFF
Igneous (undifferentiated)	IGNS	Volcanic (undifferentiated)	VLCC

Component Number	Description and Coding Manual Page Number	Coding Manual Article
C097	Description of material, p. 2-112	6.7.1.7
C099	Parent sequence number -hydraulic, p. 2-118	8.5
C100	Hydraulic unit id (see Appendix F in the WATSTORE User's Guide, p. 2-120)	8.7.1.1
C101	Test interval -top, p. 2-120	8.7.1.2
C102	Test interval -bottom, p. 2-120	8.7.1.3
C103	Hydraulic unit type, p. 120	8.7.1.4
	A - Aquifer C - Confining layer	
C104	Hydraulic remarks, p. 2-120	8.7.1.5
C106	Sequence number for COEF subrecord of HYDR file, p. 2-118	8.4
C107	Transmissivity, p. 2-122	8.7.2.1
C108	Horizontal conductivity, p. 2-122	8.7.2.2
C109	Vertical conductivity, p. 2-122	8.7.2.3
C110	Storage coefficient, p. 2-122	8.7.2.4
C111	Leakance, p. 2-122	8.7.2.5
C112	Diffusivity, p. 2-123	8.7.2.6
C113	Specific storage, p. 2-123	8.7.2.7
C115	Begin year of data collection, p. 2-94	5.6.7.2
C116	End year of data collection, p. 2-94	5.6.7.3
C117	Source agency for network data p. 2-95	5.6.7.5
C118	Frequency of data collection, p. 2-95	5.6.7.6

A - Annually	Q - Quarterly
B - Bimonthly (every 2 months)	S - Semiannually
C - Continuously (recorder)	W - Weekly
D - Daily	Z - Other
F - Semimonthly (twice a month)	2 - Biannually
I - Intermittently	3 - Every 3 years
M - Monthly	4 - Every 4 years
O - One time only	5 - Every 5 years
	X - Every 10 years

Component Number	Description and Coding Manual Page Number	Coding Manual Article

C120 Type of analyses - QW network, p. 2-95 5.6.7.4

A - Physical properties	I - Common ions/trace elements
B - Common ions	J - Sanitary analysis and common ions
C - Trace elements	K - Pesticides and nutrients
D - Pesticides	L - Trace elements, pesticides, and nutrients
E - Nutrients	M - All or most of the above
F - Sanitary analysis (organisms)	N - Common ions, trace elements and radioactive
G - Pesticides and common ions	P - Common, trace, and physical
H - Nutrients and common ions	Z - Other

C126 Aquifer static level, p. 2-114 6.7.2.2
C132 Aquifer contribution (percent), p. 2-114 6.7.2.3
C133 Method of data collection, p. 2-96 5.6.7.7

C - Calculated from power-consumption records	M - Metered
E - Estimated	U - Unknown
	Z - Other

C147 Record sequence number, p. 2-76 4.3
C148 Date discharge measured, p. 2-76 4.4
C150 Discharge, p. 2-77 4.7
C151 Source of discharge data (see list w/C029), p. 2-77 4.8
C152 Method discharge measured, p. 2-77 4.9

A - Accoustic meter (transient-time meter)
B - Bailer
C - Current meter
D - Doppler meter
E - Estimated
F - Flume
M - Totaling meter
O - Orifice
P - Pitot-tube meter, includes Cox meter, Collins meter, and the like.
R - Reported, method not known
T - Trajectory method (free-fall method)
U - Venturi meter
V - Volumetric measurement: bucket or barrel and stopwatch
W - Weir
Z - Other

Component Number	Description and Coding Manual Page Number	Coding Manual Article
C153	Production level, p. 2-78	4.10
C154	Static water level, p. 2-78	4.11
C155	Source of water-level data (see list w/C029), p. 2-78	4.12
C156	Method water level measured (see list w/C034), p. 2-78	4.13
C157	Duration of discharge before producing level, p. 2-78	4.14
C159	Date of ownership, p. 2-83	5.6.1.1
C161	Owner, p. 2-83	5.6.1.2
C165	Record number for repairs subrecord, p. 2-40	2.4
C166	Nature of repairs, p. 2-60	2.6.6.1

B - Blocked off
C - Cleaned
D - Deepened
I - Pump intake lowered
O - Slotted or perforated
P - Plugged back
S - Screen replaced
Z - Other

C167	Date of repairs, p. 2-61	2.6.6.2
C169	Name of contractor who made repairs, p. 2-61	2.6.6.3
C170	Percent change in performance after repairs, p. 2-61	2.6.6.4
C172	Name of spring, p. 2-62	2.6.7.1
C173	Type of spring, p. 2-63	2.6.7.2

A - Artesian
B - Perched and contact
C - Contact
D - Depression
E - Perched and depression
F - Fracture
G - Geyser
H - Perched and tubular
J - Artesian and depression
K - Artesian and seepage or filtration
L - Fracture and depression
P - Perched
O - Perched and fracture
R - Perched and seepage or filtration
S - Seepage or filtration
T - Tubular--cave
Z - Other

C174	Permanence of spring, p. 2-65	2.6.7.3

E - Periodic, ebb and flow
G - Geyser
I - Intermittent
P - Perennial
R - Response to precipitation
S - Seasonal
Z - Other

C175	Sphere of discharge, p. 2-65	2.6.7.4

A - Subaerial
W - Subaqueous

Component Number	Description and Coding Manual Page Number	Coding Manual Article
C176	Improvements, p. 2-66	2.6.7.5

B - Boxed or small covered basin
C - Concrete basin
G - Gallery
H - Spring house
L - Lined
N - None
P - Pond
R - Pipe (not for conduction of water from spring)
T - Trough
Z - Other

C177	Number of spring openings, p. 2-66	2.6.7.6
C178	Flow variability, p. 2-66	2.6.7.7

$V = 100 \times [(a-b)/c]$

where: V = Variability, in percent
a = Maximum discharge
b = Minimum discharge
c = Average discharge

C179	Accuracy of flow variability, p. 2-67	2.6.7.8

A - Calculated from less than 1 year of continuous discharge record.
B - Calculated from 1 to 5 years of continuous discharge record.
C - Calculated from more than 5 years of continuous discharge record.
D - Calculated from intermittent measurements made over a period of more than 1 year.
E - Calculated from less than 1 year of record, or estimated.
Z - Determined by other method.

C181	Other data type, p. 2-85	5.6.3.1
C182	Other data location, p. 2-86	5.6.3.2

C - Cooperator's office
D - District office (USGS only)
R - Reporting agency office
Z - Other

C184	Remark-date, p. 2-104	5.6.11.1
C185	Remarks -misc, p. 2-104	5.6.11.2
C187	Date of visit, p. 2-87	5.6.4.1
C188	Person who made visit, p. 2-87	5.6.4.2

Component Number	Description and Coding Manual Page Number	Coding Manual Article
C190	Other identifier, p. 2-84	5.6.2.1
C191	Assignor of other identifier, p. 2-84	5.6.2.2
C193	Date of water-quality measurement, p. 2-88	5.6.5.1
C195	Aquifer sampled (see Appendix F in the WATSTORE User's Guide), p. 2-89	5.6.5.2
C196	Water-quality parameter code, p. 2-89	5.6.5.3
C197	Value of water-quality parameter, p. 2-90	5.6.5.4
C199	Type of log, p. 2-92	5.6.6.1

A - Drilling time
B - Casing collar
C - Caliper
D - Drillers
E - Electric
F - Fluid-conductivity
G - Geologists or sample
H - Magnetic
I - Induction
J - Gamma ray
L - Lateral log
M - Microlog
N - Neutron
O - Microlateral log
P - Photographic
Q - Radioactive-tracer
S - Sonic
T - Temperature
U - Gamma-gamma
V - Fluid velocity
X - Core
Z - Other

C200	Depth to top of logged interval, p. 2-92	5.6.6.2
C201	Depth to bottom of logged interval, p. 2-92	5.6.6.3
C202	Source of log data (see list w/C029), p. 2-92	5.6.6.4
C204	Number of wells/laterals in a group, p. 2-97	5.6.8.1
C205	Depth of deepest well in group, p. 2-98	5.6.8.2
C206	Depth of shallowest well in group, p. 2-98	5.6.8.3
C207	Method wells in group constructed, p. 2-98	5.6.8.4

D - Drilled
J - Jetted
V - Driven
W - Drive-wash
Z - Other

C209	Length of pond, tunnel, or drain, p. 2-98	5.6.8.6
C210	Width of pond, tunnel, or drain, p. 2-98	5.6.8.7
C211	Depth of pond, tunnel, or drain, p. 2-99	5.6.8.8
C213	Cooperator's id -misc, p. 2-102	5.6.10.1
C214	Registration number, p. 2-102	5.6.10.2
C215	Inspection status -misc, p. 2-103	5.6.10.3
C216	Reason unapproved -misc, p. 2-103	5.6.10.4
C217	Date inspected -misc, p. 2-103	5.6.10.5
C218	Cooperator's remarks, p. 2-103	5.6.10.6
C220	Number of wells/laterals in a group, p. 2-97	5.6.8.1
C221	Depth of lateral in collector well, p. 2-99	5.6.8.11

Component Number	Description and Coding Manual Page Number	Coding Manual Article
C222	Length of lateral in collector well, p. 2-99	5.6.8.12
C223	Diameter of lateral in collector well, p. 2-99	5.6.8.13
C224	Mesh of screen in lateral, p. 2-100	5.6.8.14
C235	Water-level measurement date, p. 2-71	3.3
C236	Date accuracy code -water level, p. 2-74	3.10
	M - to nearest month Y - to nearest year D - to nearest day	
C237	Water level, p. 2-71	3.5
C238	Water-level status (see list w/C037), p. 2-71	3.6
C239	Water-level method (see list w/C034), p. 2-73	3.7
C240	Water-level reference code, p. 2-73	3.8
	M - Water level shown is a daily maximum. N - Water level shown is a daily minimum. A - Water level is 12 noon reading. P - Water level is 12 midnight reading.	
C251	Value-1 -misc, p. 2-100	5.6.9.1
C252	Value-2 -misc, p. 2-101	5.6.9.2
C253	Value-3 -misc, p. 2-101	5.6.9.3
C254	Record number for lift subrecord, p. 2-40	2.4
C255	Additional lift (above land surface), p. 2-46	2.6.1.12
C256	Parent sequence number f/AQFR subrecord, p. 2-107	6.5
C257	Primary network, p. 2-96	5.6.7.9
	1 - National 3 - Project 2 - District 4 - Cooperator	
C261	Format of other data, p. 2-86	5.6.3.3
	F - Files (raw data) P - Published M - Machine readable Z - Other	
C262	Diameter of well group, p. 2-98	5.6.8.5
C263	Bearing (azimuth) of pond, tunnel, drain, p. 2-99	5.6.8.9
C264	Dip of tunnel, p. 2-99	5.6.8.10
C268	Rated pump capacity, p. 2-46	2.6.1.14
C270	Well heading line -observation, p. 2-116	7.5
C271	Barometric efficiency, p. 2-123	8.7.2.8
C272	Specific capacity -disch, p. 2-79	4.15

Component Number	Description and Coding Manual Page Number	Coding Manual Article
C276	Accuracy code, p. 2-74	3.9
	0 - Water-level accuracy to nearest foot 1 - Water-level accuracy to nearest tenth of a foot 2 - Water-level accuracy to nearest one-hundredth of a foot	
C278	Certificate number, p. 2-125	9.5
C279	Water use, legal diversion, cfs, p. 2-126	9.9
C280	Application Number, p. 2-125	9.7
C281	Water-use permit number, p. 2-125	9.8
C282	Priority date, p. 2-125	9.6
C285	Legal irrigation seasons begins, p. 2-126	9.12
C286	Legal irrigation season ends, p. 2-126	9.13
C288	Water use, irrigated acreage, p. 2-126	9.10
C298	Water use, legal allowance, p. 2-126	9.11
C301	Secondary use of site (see list w/C023), p. 2-29	1.39
C302	Tertiary use of site (see list w/C023), p. 2-29	1.40
C303	Date site record created, p. 2-23	1.25
C304	Contributing unit, p. 2-112	6.7.1.5
C305	Hydraulic source agency, p. 2-121	8.7.1.6
C306	Porosity, p. 2-123	8.7.2.9
C307	Agency that analyzes samples, p. 2-96	5.6.7.8
C309	Water-level drawdown, p. 2-79	4.16
C311	Sequence no. f/RMKS subrecord of MISC file, p.2-81	5.4
C312	Sequence no. f/OTDT subrecord of MISC file, p.2-81	5.4
C313	Sequence no. f/MSVL subrecord of MISC file, p.2-81	5.4
C314	Value-4 -miscellaneous, p. 101	5.6.9.4
C315	Sequence number -observation, p. 115	7.3
C321	Begin date for use of this measuring point, p.2-68	2.6.8.1
C322	End date for use of this measuring point, p.2-68	2.6.8.2
C323	Height of this measuring point, p. 2-69	2.6.8.3
C324	Description of this measuring point, p. 2-69	2.6.8.4
C702	Last update -discharge, p. 2-76	4.5
C703	Discharge type, p. 2-76	4.6
	P - Pumped discharge F - Flow discharge	
C706	Network data type -miscellaneous, p. 2-94	5.6.7.1
	QW - Water-quality network station WL - Water-levels network station WD - Pumpage or withdrawals network station	

Component Number	Description and Coding Manual Page Number	Coding Manual Article
C707	Last update -obs, p. 2-116	7.4
C708	Network secondary -misc (see list w/C257), p. 2-96	5.6.7.10
C709	Measurement time -wl, p. 2-71	3.4
C711	Date site established/inventoried, p. 2-22	1.24
C712	Data availability in other GW files, p. 2-25	1.35

Y, in a position - Yes, file exists.
Blank - No, file does not exist.

Position 1 - Construction (GW.CONS) data for site.
2 - Miscellaneous (GW.MISC) data for site.
3 - Discharge (GW.DISC) data for site.
4 - Geohydrologic (GW.GEOH) data for site.
5 - Hydraulic (GW.HYDR) data for site.
6 - Water-level (GW.LEV) data for site.
7 - Observation-heading (GW.OBS) data for site.
8 - State water-use (GW.STWU) data for site.

C713	Aquifer type code, p. 2-33	1.44

U - Unconfined single aquifer
N - Unconfined multiple aquifers
C - Confined single aquifer
M - Confined multiple aquifers
X - Mixed (confined and unconfined) multiple aquifers

C714	Aquifer code (see Appendix F in the WATSTORE User's Guide,) p. 2-34	1.45
C715	Water-use record number, p. 2-125	9.3
C716	Water-use date of last update, p. 2-125	9.4
C718	Sequence no. f/QWNR subrecord of MISC file, p. 2-81	5.4
C721	Sequence no. f/GEOH subrecord of GEOH file, p. 2-107	6.4
C723	Record number for construction subrecord, p. 2-40	2.4
C724	Record number for hole subrecord, p. 2-40	2.4
C725	Record number for casing subrecord, p. 2-40	2.4
C726	Record number for openings subrecord, p. 2-40	2.4
C727	Record number for spring subrecord, p. 2-40	2.4
C728	Record number f/measuring point subrecord, p. 2-40	2.4
C729	Sequence no. f/SPEC subrecord of MISC file, p. 2-81	5.4
C730	Sequence no. f/NETW subrecord of MISC file, p. 2-81	5.4
C734	Sequence no. f/COOP subrecord of MISC file, p. 2-81	5.4
C736	Sequence no. f/OTID subrecord of MISC file, p. 2-81	5.4
C737	Sequence no. f/VIST subrecord of MISC file, p. 2-81	5.4
C738	Sequence no. f/QUAL subrecord of MISC file, p. 2-81	5.4

Component Number	Description and Coding Manual Page Number	Coding Manual Article
C739	Sequence no. f/LOGS subrecord of MISC file, p. 2-81	5.4
C742	Sequence no. f/AQFR subrecord of GEOH file, p. 2-107	6.4
C744	Record type f/HYDR subrecord of HYDR file, p. 2-118	8.3
C745	Last update f/HYDR subrecord of HYDR file, p. 2-119	8.6
C746	Record type f/COEF subrecord of HYDR file, p. 2-119	8.6
C747	Last update f/COEF subrecord of HYDR file, p. 2-119	8.6
C748	Record type f/GEOH subrecord of GEOH file, p. 2-107	6.3
C749	Last update f/GEOH subrecord of GEOH file, p. 2-108	6.6
C750	Record type f/AQFR subrecord of GEOH file, p. 2-107	6.3
C751	Last update f/AQFR subrecord of GEOH file, p. 2-108	6.6
C752	Record type f/LIFT subrecord of CONS file, p. 2-40	2.3
C753	Last update f/LIFT subrecord of CONS file, p. 2-41	2.5
C754	Record type f/CONS subrecord of CONS file, p. 2-40	2.3
C755	Last update f/CONS subrecord of CONS file, p. 2-41	2.5
C756	Record type f/HOLE subrecord of CONS file, p. 2-40	2.3
C757	Last update f/HOLE subrecord of CONS file, p. 2-41	2.5
C758	Record type f/CSNG subrecord of CONS file, p. 2-40	2.3
C759	Last update f/CSNG subrecord of CONS file, p. 2-41	2.5
C760	Record type f/OPEN subrecord of CONS file, p. 2-40	2.3
C761	Last update f/OPEN subrecord of CONS file, p. 2-41	2.5
C762	Record type f/REPR subrecord of CONS file, p. 2-40	2.3
C763	Last update f/REPR subrecord of CONS file, p. 2-41	2.5
C764	Record type f/SPNG subrecord of CONS file, p. 2-40	2.3
C765	Last update f/SPNG subrecord of CONS file, p. 2-41	2.5
C766	Record type f/MPNT subrecord of CONS file, p. 2-40	2.3
C767	Last update f/MPNT subrecord of CONS file, p. 2-41	2.5
C768	Record type f/OWNR subrecord of MISC file, p. 2-81	5.3
C769	Last update f/OWNR subrecord of MISC file, p. 2-82	5.5
C770	Record type f/OTID subrecord of MISC file, p. 2-81	5.3
C771	Last update f/OTID subrecord of MISC file, p. 2-82	5.5
C772	Record type f/OTDT subrecord of MISC file, p. 2-81	5.3
C773	Last update f/OTDT subrecord of MISC file, p. 2-82	5.5
C774	Record type f/VIST subrecord of MISC file, p. 2-81	5.3
C775	Last update f/VIST subrecord of MISC file, p. 2-82	5.5
C776	Record type f/QUAL subrecord of MISC file, p. 2-81	5.3
C777	Last update f/QUAL subrecord of MISC file, p. 2-82	5.5
C778	Record type f/LOGS subrecord of MISC file, p. 2-81	5.3
C779	Last update f/LOGS subrecord of MISC file, p. 2-82	5.5
C780	Record type f/NETW subrecord of MISC file, p. 2-81	5.3
C781	Last update f/NETW subrecord of MISC file, p. 2-82	5.5
C782	Record type f/SPEC subrecord of MISC file, p. 2-81	5.3
C783	Last update f/SPEC subrecord of MISC file, p. 2-82	5.5
C784	Record type f/MSVL subrecord of MISC file, p. 2-81	5.3

Component Number	Description and Coding Manual Page No.	Coding Manual Article
C785	Last update f/MSVL subrecord of MISC file, p. 2-82	5.5
C786	Record type f/COOP subrecord of MISC file, p. 2-81	5.3
C787	Last update f/COOP subrecord of MISC file, p. 2-82	5.5
C788	Record type f/RMKS subrecord of MISC file, p. 2-81	5.3
C789	Last update f/RMKS subrecord of MISC file, p. 2-82	5.5
C790	Sequence no. f/HYDR subrecord of HYDR file, p. 2-118	8.4
C801	Drainage basin code (not presently functional), p. 2-16	1.17
C802	Station type codes, p. 2-20	1.19

Y, in a position - Yes, this is the site type.
Blank - No, this is not the site type.

Position 1 - Stream
2 - Lake or reservoir
3 - Estuary
4 - Coastal other than estuary
5 - Spring
6 - Ground water other than spring
7 - Meteorological

C803	Agency use of site code, p. 2-21	1.20

A - Active data-collection site
I - Inactive or discontinued data-collection site
O - Inventory data site only

Component Number	Description and Coding Manual Page Number	Coding Manual Article
C804	Flags type of data collected (30), p. 2-21	1.21

A - Active data-collection site
I - Inactive or discontinued data-collection
O - Inventory data
Blank - Data type not applicable

Position 1 - Stage or water levels--continuous
2 - Stage or water levels--intermittent
3 - Water quality--continuous
4 - Water quality--intermittent
5 - Precipitation--continuous
6 - Precipitation--intermittent
7 - Evaporation--continuous
8 - Evaporation--intermittent
9 - Wind velocity
10 - Tide--continuous
11 - Tide--intermittent
12 - Sediment concentration
13 - Sediment particle size
14 - Peak flows
15 - Low flows
16 - State water use

C805	Flags instruments at site, p. 2-22	1.22

Y, in a position - Yes, this instrument is at site.
Blank - No, this instrument is not at site.

Position 1 - Digital recorder
2 - Graphic recorder
3 - Telemetry--land line
4 - Telemetry--radio
5 - Telemetry--satellite relay
6 - AHDAS
7 - Crest-stage gage
8 - Tide gage
9 - Deflection meter
10 - Bubble gage
11 - Stilling well
12 - CR-type recorder
13 - Weighing rain gage
14 - Tipping-bucket rain gage

Component Number	Description and Coding Manual Page Number	Coding Manual Article
C806	Station remarks field, p. 2-22	1.23
C807	Base discharge, p. 2-23	1.27
C808	Drainage area, p. 2-23	1.28
C809	Contributing drainage area, p. 2-24	1.29
C810	Crest stage upstream elevation, p. 2-24	1.30
C811	Crest stage downstream elevation, p. 2-24	1.31
C812	Gage height of zero flow, p. 2-24	1.32
C813	Mean Greenwich time offset, p. 2-24	1.33
C814	Local standard time flag, p. 2-38	1.55
C815	Station locator sequence number, p. 2-38	1.56
C900	Station name, p. 2-11	1.3
C901	Parent sequence number for CSNG subrecord of CONS file, p. 2-55	2.6.4.1
C902	Parent sequence number for OPEN subrecord of CONS file, p. 2-57	2.6.5.1

APPENDIX 3

Data-retrieval information

Appendix 3. Data-retrieval information

The data for the Fairbanks International Airport project are available on the Worldwide Web at http://www-water-ak.usgs.gov. Additionally, a data disk may be requested from the District Chief at the address listed below. In the root directory on the disk is an ASCII file named README.TXT. It says:

This text file contains an overview of the files available on this data disk and how to access them.

Report title:
Ground-Water and Surface-Water Elevations in the Fairbanks International Airport Area, Alaska, 1990-96, and Selected Geohydrologic Report References
by DV Claar and MR Lilly, 1997
U.S. Geological Survey Open-File Report 97-597

For additional information write to:
District Chief
U.S. Geological Survey
4230 University Drive, Suite 201
Anchorage, Alaska 99508-4664

This disk contains the water-level tables for all sites that have been monitored for the Fairbanks International Airport project. It is a 3.5-inch, double-sided, high-density, IBM formatted disk for use on any IBM compatible computer. Files on the disk are compressed and self-extracting, and contain data tables in two formats: ASCII comma-separated text and Microsoft Excel 5.0 spreadsheet.

Compressed File Name	Table Description
ASCIICSV.EXE	compressed ASCII files
MSEXCEL5.EXE	compressed Excel files

APPENDIX 4

Selected ASTM Standards relating to ground-water and vadose zone investigations

Appendix 4. Selected ASTM standards relating to ground-water and vadose zone investigations

These standards are available from the ASTM individually at 1916 Race Street, Philadelphia, PA 19103, or may be found in Volumes 4.08 and 4.09 of the Annual Book of ASTM Standards. Information on these standards may also be found at http://www.astm.org/index.html.

Number	Title
D1973	Design of a Liner System for Containment of Wastes
D3385	Infiltration Rate of Soils in Field Using Double-Ring Infiltrometer
D3404	Measuring Matric Potential in the Vadose Zone Using Tensiometers
D4043	Selection of Aquifer-Test Method in Determining Hydraulic Properties by Well Techniques
D4044	(Field Procedure) for Instantaneous Change in Head (Slug Tests) for Determining Hydraulic Properties of Aquifiers
D4050	(Field Procedure) for Withdrawal and Injection Well Tests for Determining Hydraulic Properties of Aquifer Systems
D4104	(Analytical Procedure) for Determining Transmissivity of Nonleaky Confined Aquifers by Overdamped Well Response to Instantaneous Change in Head (Slug Test)
D4105	(Analytical Procedure) for Determining Transmissivity and Storage Coefficient of Nonleaky Confined Aquifers by the Modified Theis Nonequilibrium Method
D4106	(Analytical Procedure) for Determining Transmissivity and Storage Coefficient of Nonleaky Confined Aquifers by the Theis Nonequilibrium Method
D420	Site Characterization for Engineering, Design, and Construction Purposes
D4448	Sampling Groundwater Monitoring Wells
D4696	Pore-Liquid Sampling from the Vadose Zone
D4750	Determining Subsurface Liquid Levels in a Borehole or Monitoring Well (Observation Well)
D5088	Decontamination of Field Equipment Used at Nonradioactive Waste Sites
D5092	Design and Installation of Ground Water Monitoring Wells in Aquifers
D5246	Isolation and Enumeration of Pseudomonas aeruginosa from Water
D5254	Minimum Set of Data Elements to Identify a Ground-Water Site
D5269	Determining Transmissivity of Nonleaky Confined Aquifers by the Theis Recovery Method

D5270 Determining Transmissivity and Storage Coefficient of Bounded, Nonleaky, Confined Aquifers

D5299 Decommissioning of Ground Water Wells, Vadose Zone Monitoring Devices, Boreholes, and Other Devices for Environmental Activities

D5314 Soil Gas Monitoring in the Vadose Zone

D5408 Set of Data Elements to Describe a Ground-Water Site; Part One-Additional Identification Descriptors

D5409 Set of Data Elements to Describe a Ground-Water Site; Part Two-Physical Descriptors

D5410 Set of Data Elements to Describe a Ground-Water Site; Part Three-Usage Descriptors

D5434 Field Logging of Subsurface Explorations of Soil and Rock

D5447 Application of a Ground-Water Flow Model to a Site-Specific Problem

D5463 Use of Test Kits to Measure Inorganic Constituents in Water

D5472 Determining Specific Capacity and Estimating Transmissivity at the Control Well

D5473 (Analytical Procedure for) Analyzing the Effects of Partial Penetration of Control Well and Determining the Horizontal and Vertical Hydraulic Conductivity in a Nonleaky Confined Aquifer

D5474 Selection of Data Elements for Ground-Water Investigations

D5490 Comparing Ground-Water Flow Model Simulations to Site-Specific Information

D5521 Development of Ground-Water Monitoring Wells in Granular Aquifers

D5609 Defining Boundary Conditions in Ground-Water Flow Modeling

D5610 Defining Initial Conditions in Ground-Water Flow Modeling

D5611 Conducting a Sensitivity Analysis for a Ground-Water Flow Model Application

D5660 Assessing the Microbial Detoxification of Chemically Contaminated Water and Soil Using a Toxicity Test with a Luminescent Marine Bacterium

D5716 Measuring the Rate of Well Discharge by Circular Orifice Weir </A>

D5717 Design of Ground-Water Monitoring Systems in Karst and Fractured-Rock Aquifers

D5718 Documenting a Ground-Water Flow Model Application

D5719 Simulation of Subsurface Airflow Using Ground-Water Flow Modeling Codes

D5730 Site Characteristics for Environmental Purposes With Emphasis on Soil, Rock, the Vadose Zone and Ground Water

D5738 Displaying the Results of Chemical Analyses of Ground Water for Major Ions and Trace Elements-Diagrams for Single Analyses

D5754 Displaying the Results of Chemical Analyses of Ground Water for Major Ions and Trace Elements-Trilinear Diagrams for Two or More Analyses

D5781 Use of Dual-Wall Reverse-Circulation Drilling for Geoenvironmental Exploration and the Installation of Subsurface Water-Quality Monitoring Devices

D5782 Use of Direct Air-Rotary Drilling for Geoenvironmental Exploration and the Installation of Subsurface Water-Quality Monitoring Devices

D5783 Use of Direct Rotary Drilling with Water-Based Drilling Fluid for Geoenvironmental Exploration and the Installation of Subsurface Water-Quality Monitoring Devices

D5787 Monitoring Well Protection

D5850 Determining Transmissivity, Storage Coefficient, and Anisotropy Ratio from a Network of Partially Penetrating Wells

D5851 Planning and Implementing a Water Monitoring Program

D5856 Measurement of Hydraulic Conductivity of Porous Material Using a Rigid-Wall, Compaction-Mold Permeameter

D5880 Subsurface Flow and Transport Modeling

D5881 (Analytical Procedure) Determining Transmissivity of Confined Nonleaky Aquifers by Critically Damped Well Response to Instantaneous Change in Head (Slug)

D5891 Fluid Loss of Clay Component of Geosynthetic Clay Liners

D5912 (Analytical Procedure) Determining Hydraulic Conductivity of an Unconfined Aquifer by Overdamped Well Response to Instantaneous Change in Head (Slug)

D596 Reporting Results of Analysis of Water

E1430 Using Release Detection Devices with Underground Storage Tanks

E1768 Ventilatory Behavioral Toxicology Testing of Freshwater Fish

F1522 Use of the Steam Stripping Process in Mitigating Chemical Spills

F1524 Use of Advanced Oxidation Process for the Mitigation of Chemical Spills

F1525 Use of Membrane Technology in Mitigating Hazardous Chemical Spills

F480 Thermoplastic Well Casing Pipe and Couplings Made in Standard Dimension Ratios (SDR), SCH 40 and SCH 80