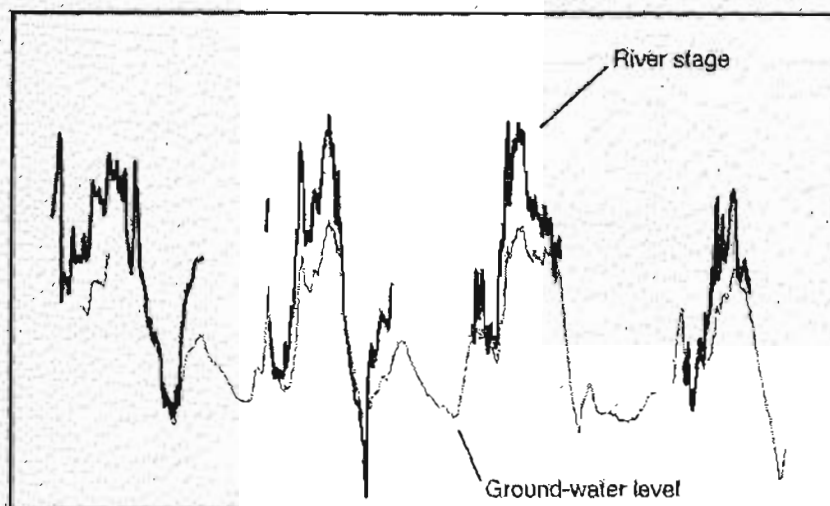


# Ground-Water and Surface-Water Elevations in the Fairbanks International Airport Area, Alaska, 1990-96, And Selected Geohydrologic Report References

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

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# **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

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U.S. GEOLOGICAL SURVEY

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Fairbanks, Alaska  
1997

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

U.S. GEOLOGICAL SURVEY  
Mark Schaefer, Acting Director

Use of trade names in this report is for identification purposes only and does not constitute endorsement by the U.S. Geological Survey.

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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

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## CONVERSION FACTORS AND VERTICAL AND HORIZONTAL DATUMS

	Multiply	By	To obtain
foot (ft)		0.3048	meter
mile (mi)		1.609	kilometer
square mile (mi <sup>2</sup> )		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.

## II Contents

# 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.

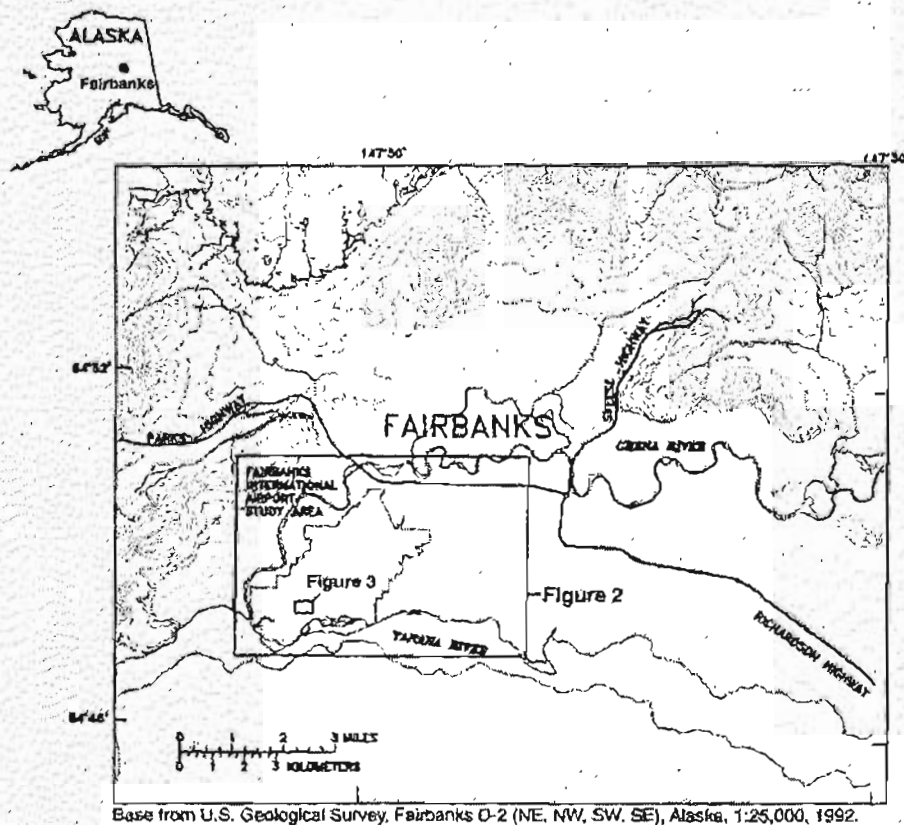


Figure 1. Location of Fairbanks, Alaska, and the Fairbanks International Airport study area.

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<sup>2</sup> 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<sup>2</sup> 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).

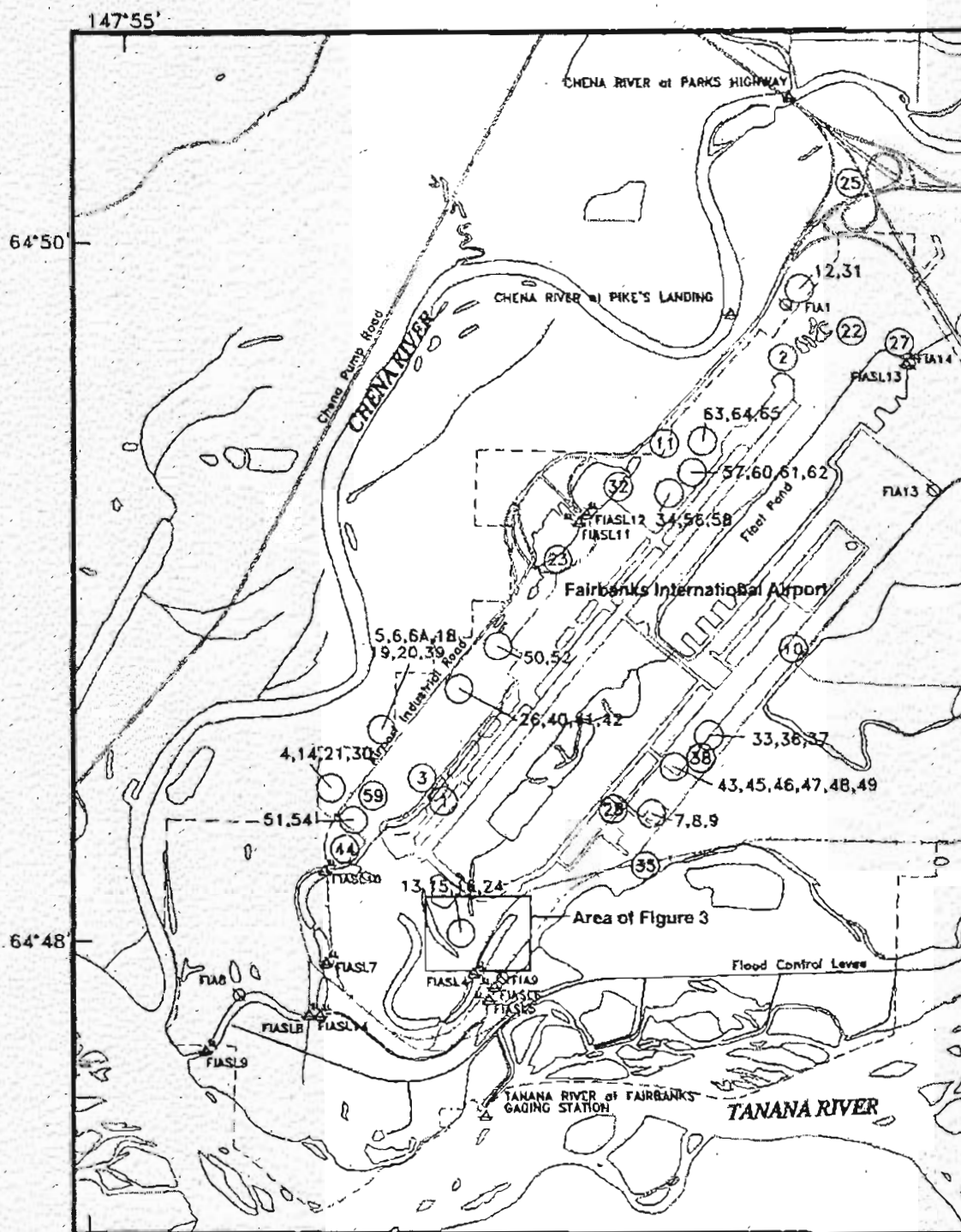
Before 1945, the Chena River entered the Chena Slough of the Tanana River east of Fairbanks. Between 1940 and 1945, the U.S. Army Corps of Engineers built a dike to block discharge from the Tanana River into the Chena Slough. The Chena Slough then became an extension of the channel of the Chena River, 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.

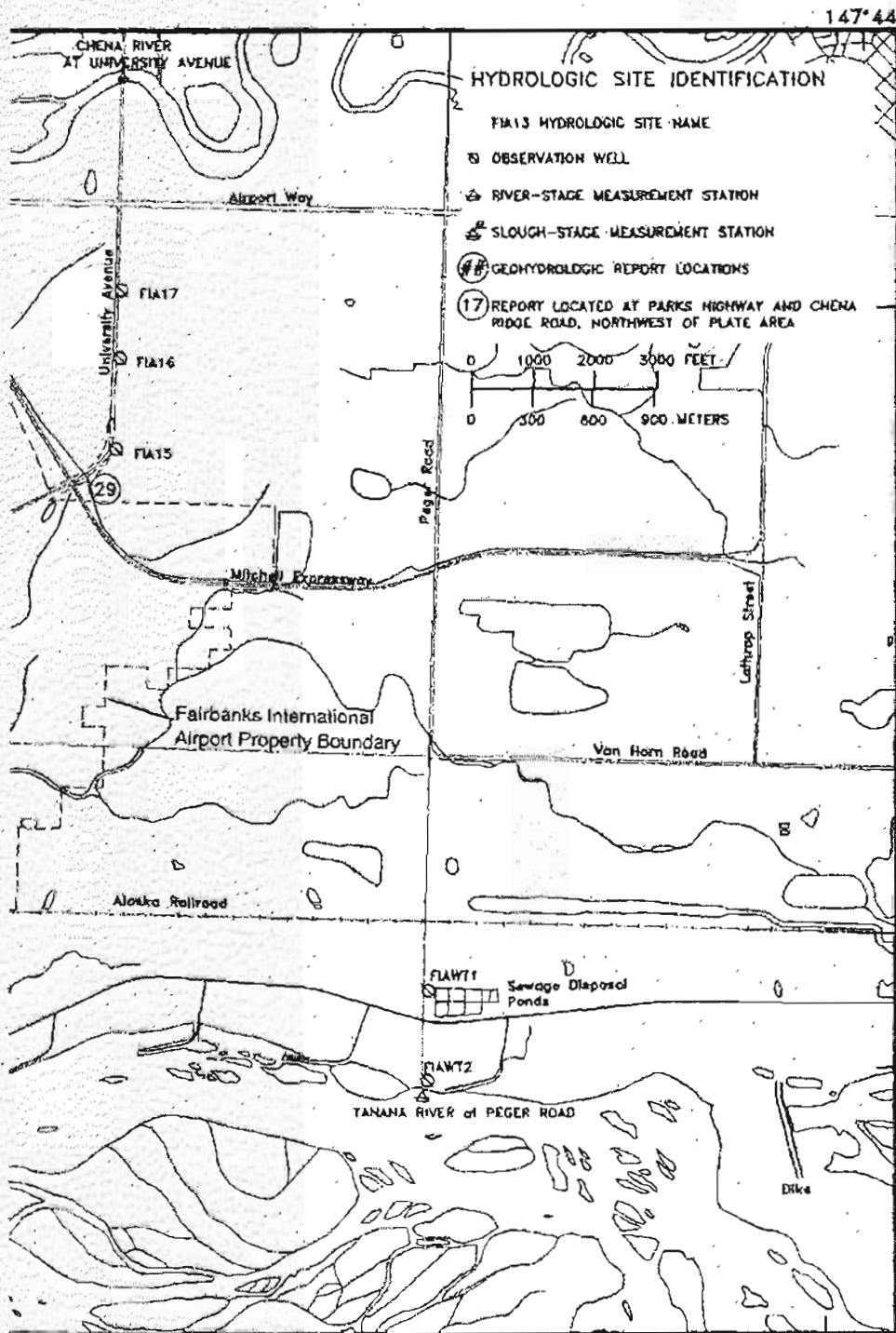
When the stage of the Tanana River rises at the mouth of the Chena River, a backwater effect causes the stage of the Chena River to rise within the study area. Three factors control the extent of backwater effects within the Chena River: (1) Tanana River stage, (2) Chena River flow, and (3) the topographically 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).



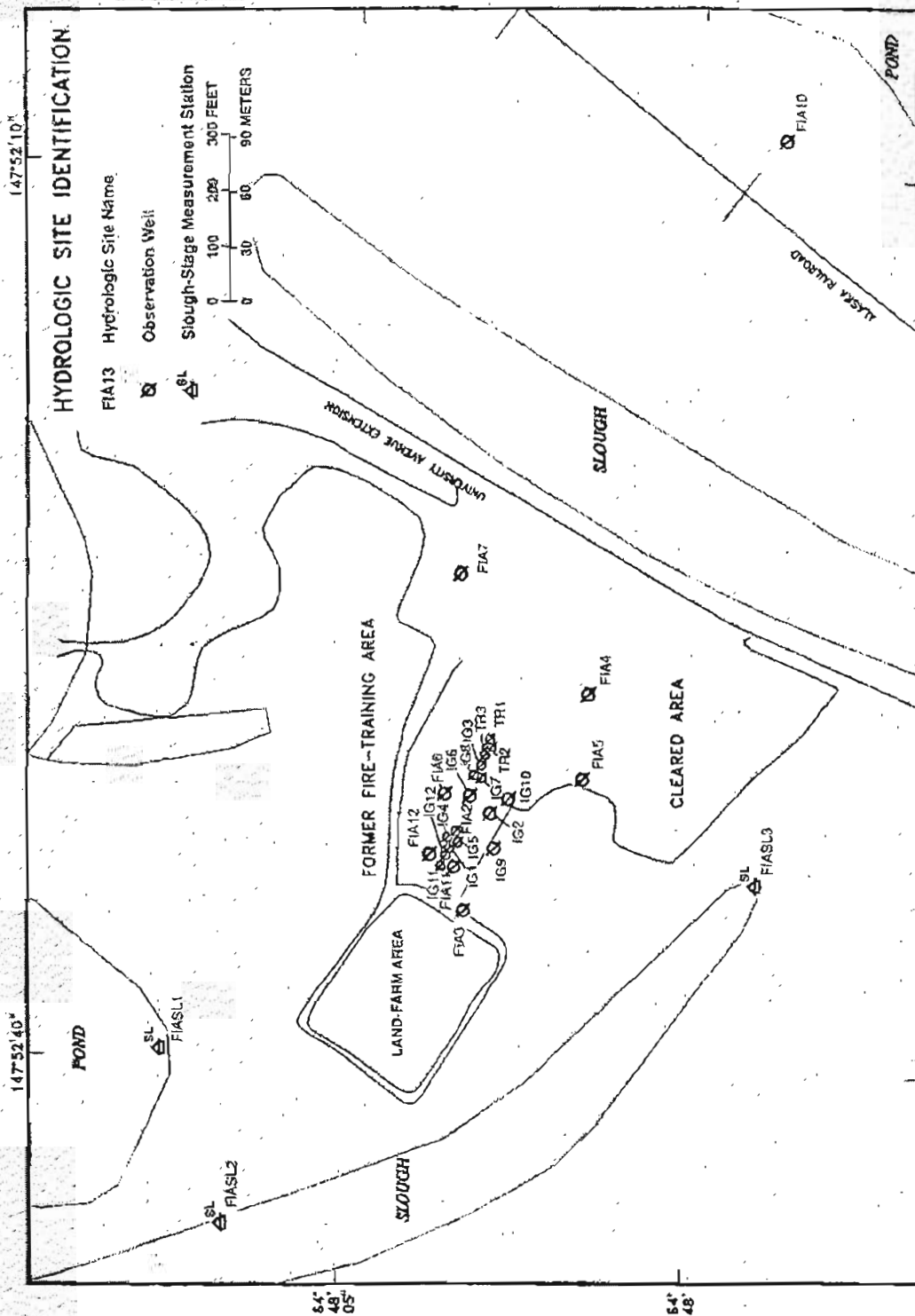
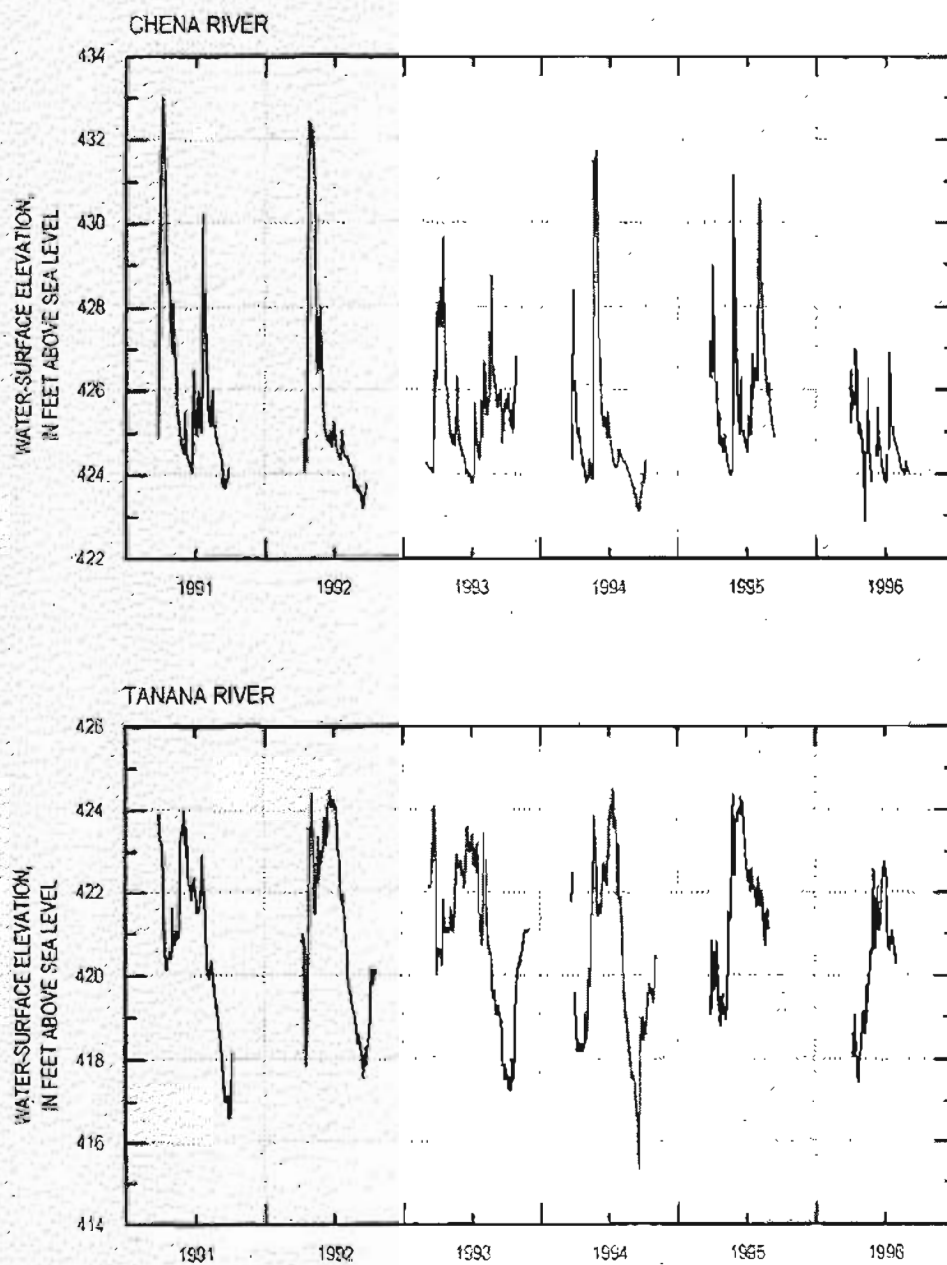


Figure 3. Hydrologic data-collection sites in the former fire-training area, Fairbanks International Airport (see figures 1 and 2 for location).



**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

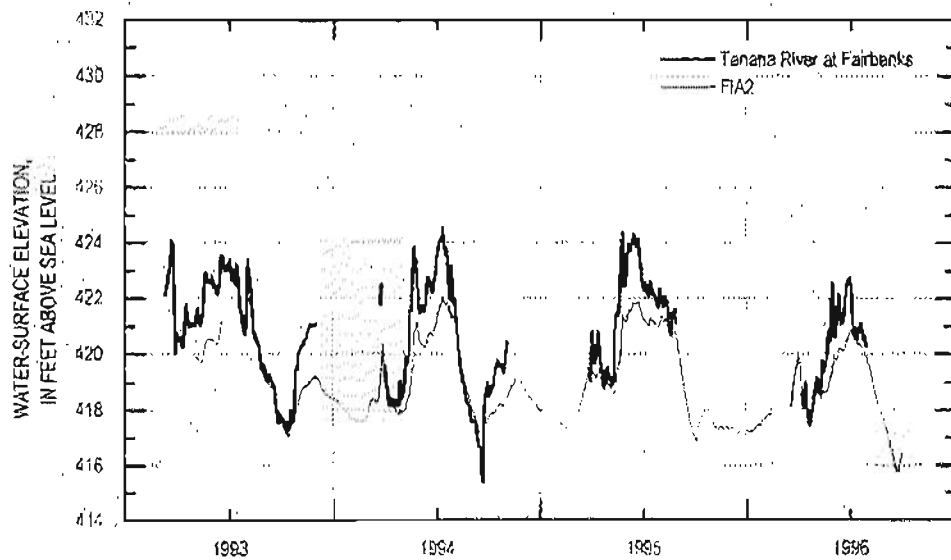
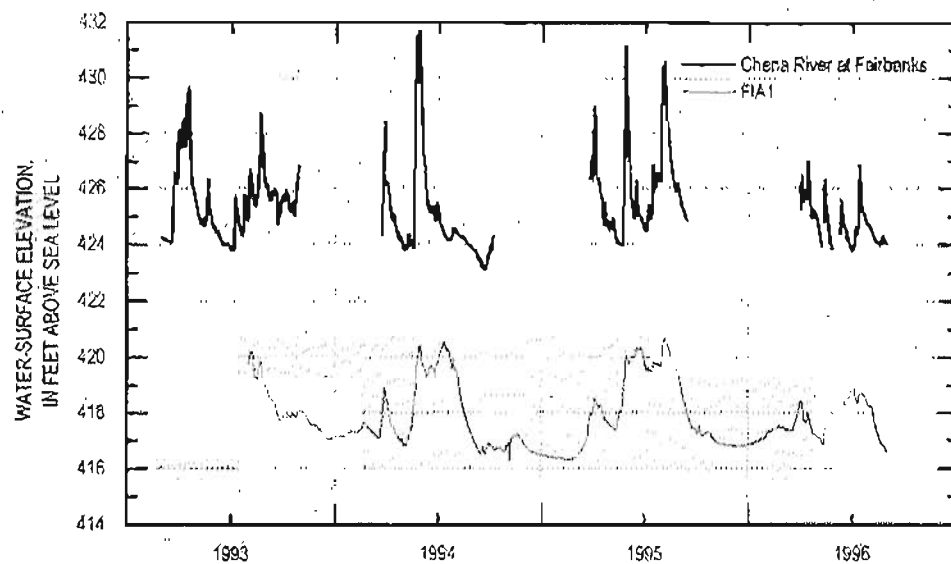
During this study, water elevations were measured in 41 wells, 23 of which are in the former fire-training area (figs. 2 and 3, and table 1). While most of the wells are shallow—less than 30 ft deep—and screened at the water table, ground-water elevation data from observation wells FIAWT1-B and FIAWT1-C 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 <sup>a</sup>	--	644954147502901	FC00100118BBCD1 003
FIA2 <sup>a</sup>	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 <sup>u</sup>	PI11	644752147541101	FC00100226CABC1 001
FIA9	PTAN	644758147520601	FC00100225BCDD1 003
FIA10 <sup>a</sup>	CP60	644759147521101	FC00100225BCDA1 008
FIA11	DEC1	644804147523301	FC00100226ADAD2 018
FIA12	DEC2	644805147523301	FC00100226ADAA2 019
FIA13 <sup>a</sup>	--	644922147492701	FC00100118DCBD1 006
FIA14	--	644944147493801	FC00100118BDDD2 007
FIA15 <sup>a</sup>	TH93-1	644936147483501	FC00100118DADB1 008
FIA16 <sup>a</sup>	TH93-3	644950147483501	FC00100117BCBB1 003
FIA17 <sup>a</sup>	TH93-5	645001147484001	FC00100117BBBC1 008
FIA18 <sup>a</sup>	FP-O	645018147483901	FC00100107DADC1 014
FIA19 <sup>u</sup>	FP-I	644757147462401	FC00100128BCCC1 004
FIA23 <sup>a</sup>	--	645033147483501	FC00100107BCCC1 006
FAWT1-A <sup>a</sup>	--	644811147463301	FC00100128BBCC1 005
FAWT1-B <sup>a</sup>	--	644811147463302	FC00100128BBCC2 006
FAWT1-C <sup>a</sup>	--	644811147463303	FC00100128BBCC3 007
FAWT2-A	--	644757147463201	FC00100128BCCC2 008
FAWT2-B	--	644757147463202	FC00100128BCCC3 009
FAWT2-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

<sup>a</sup>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.

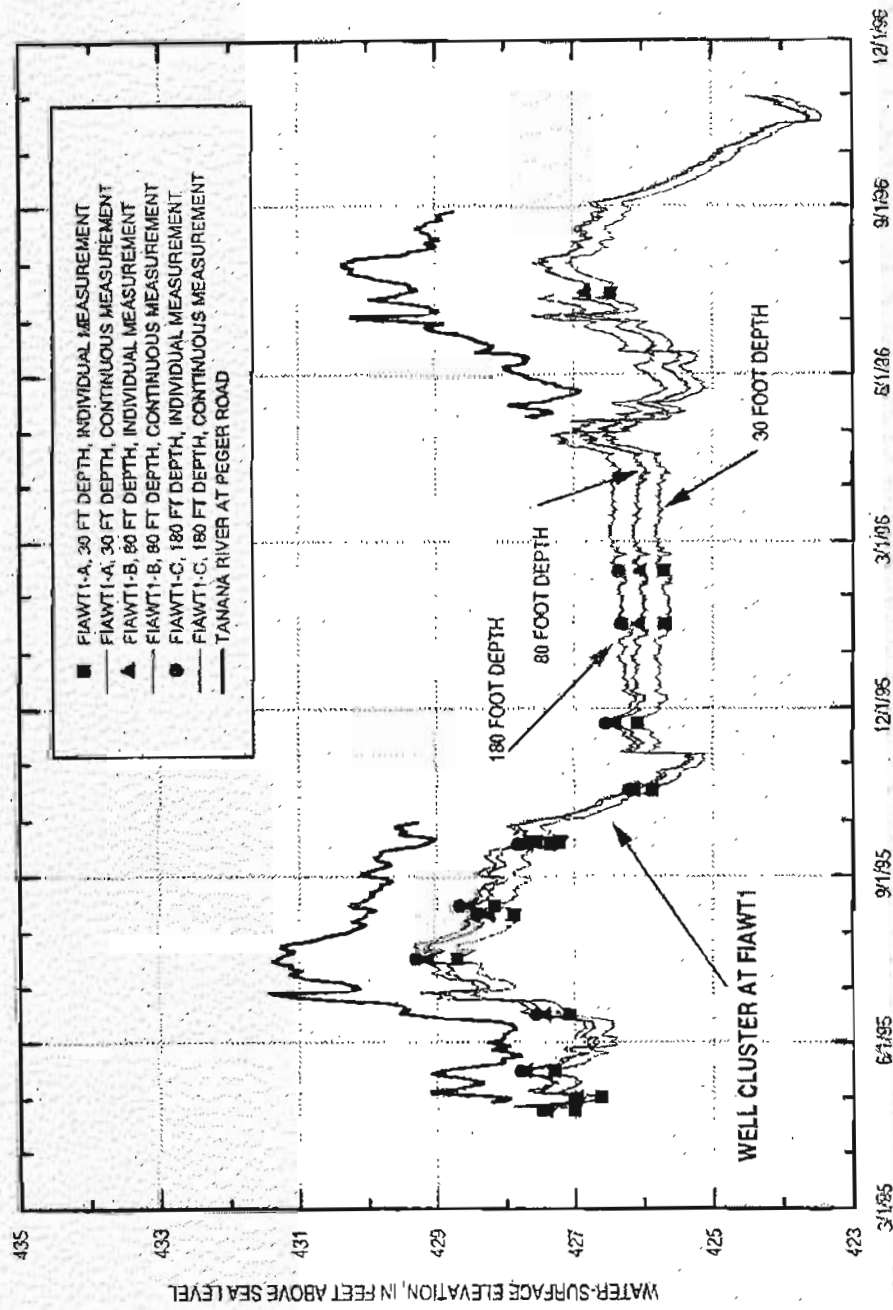


Figure 5. Water-surface elevations for observation wells FIAWT1-A, FIAWT1-B, and FIAWT1-C, and the Tanana River at Peger Road, 1995 through 1996.

**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 <sup>a</sup>	SLR1	644807147524501	FC00100226ADAB2 015
FIASL3	SLR2	644800147523301	FC00100226ADDA1 009
FIASL4 <sup>a</sup>	SLR3, CU1	644757147522701	FC00100225BCCCC 007
FIASL5	SLR4	644752147522101	FC00100225CBBD1 009
FIASL6 <sup>a</sup>	CU4	644755147521801	FC00100225CBBA1 020
FIASL7	SLR8, SLR12	644758147532701	FC00100226ACCC1 016
FIASL8 <sup>a</sup>	CU2	644749147533301	FC00100226CADA1 013
FIASL9	SLR7b, SLR7c	644742147541501	FC00100226CCAB1 012
FIASL10 <sup>a</sup>	SLR9, CU3	644814147532901	FC00100226ABCB1 017
FIASL11	SLR13	644915147515001	FC00100224BABA1 005
FIASL12 <sup>a</sup>	SLR14	644916147514601	FC00100213CDCD1 002
FIASL13 <sup>a</sup>	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. <sup>a</sup>		15514016	
Chena River at Parks Highway <sup>a</sup>		15514018	
Chena River at Pike's Landing <sup>a</sup>		15514020	
Tanana River at Peger Road <sup>a</sup>		15485495	
Tanana River at Fairbanks <sup>a</sup>		15485500	

<sup>a</sup>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
<b>Ground-water sites</b>				
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
FLAWT1-A	223180	3951950	433.30	434.76
FLAWT1-B	223180	3951950	433.30	434.84
FLAWT1-C	223180	3951950	433.30	434.83
FLAWT2-A	223190	3950460	432.23	434.37
FLAWT2-B	223190	3950460	432.23	434.27
FLAWT2-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
<b>Surface-water sites</b>				
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

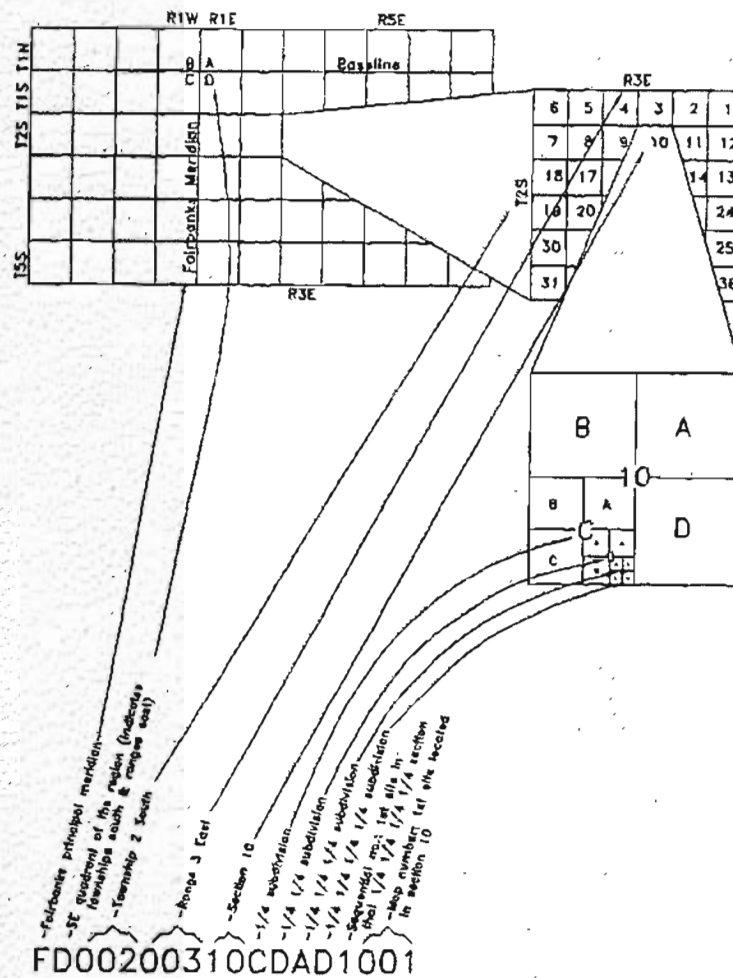
## GROUND-WATER AND SURFACE-WATER ELEVATIONS

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

- 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].
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- 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 5<sup>th</sup> 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 4<sup>th</sup> 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).

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- 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.
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## SELECTED WATER-SURFACE ELEVATION TABLES AND HYDROGRAPHS

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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

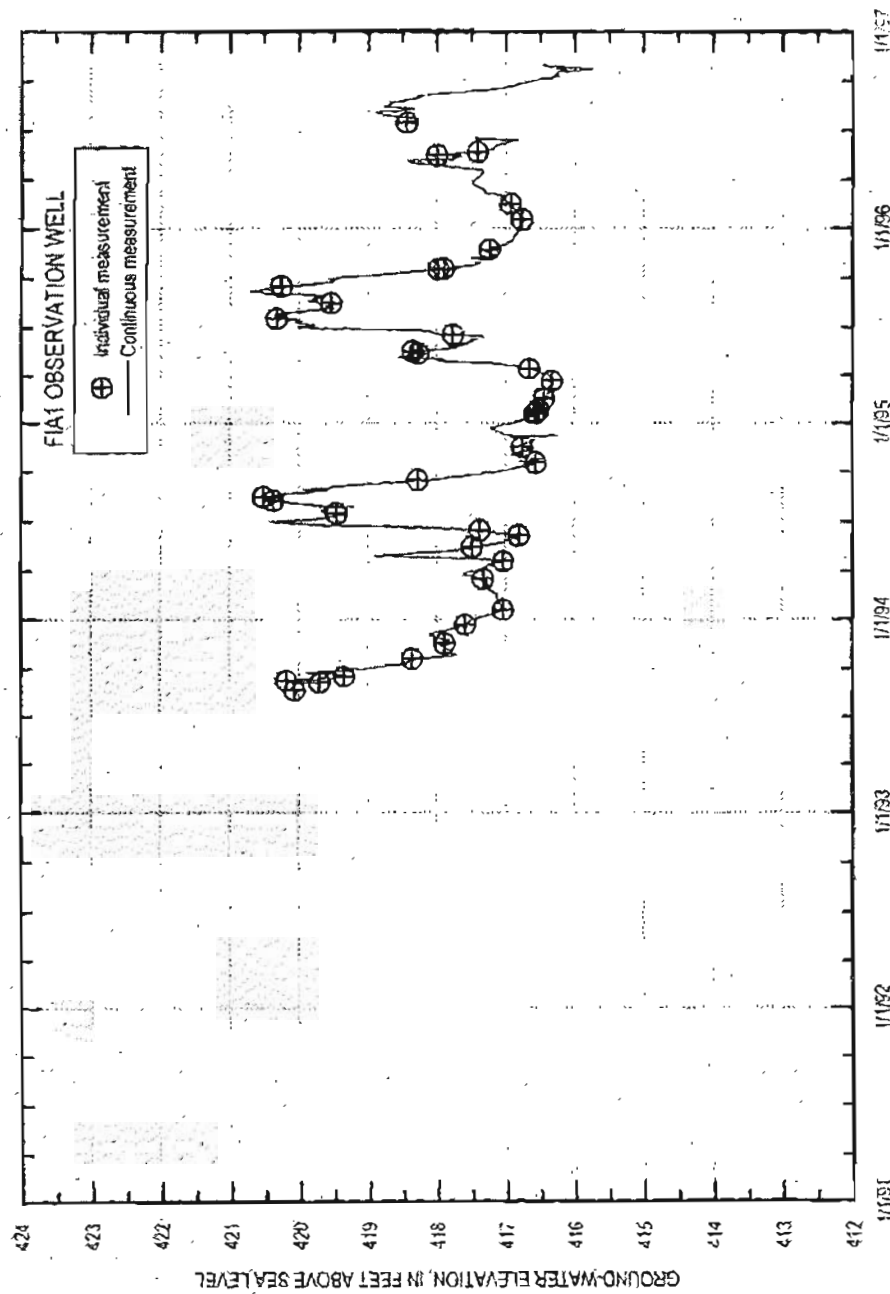
Date	MP Elevation (feet above sea level)
10-12-93	425.04
07-31-96	425.01 Moved MP

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	13.06	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	13.62	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: 544954147502901  
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	8.77	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	4.75	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	0802	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



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	Updated MP
06-26-92	Updated MP
08-11-92	Updated MP, new datum used
06-30-93	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	421.08	MM
08-11-92	1220	Steel tape	5.58	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	421.66	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: FC00100225BC8C1 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



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	398.4
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

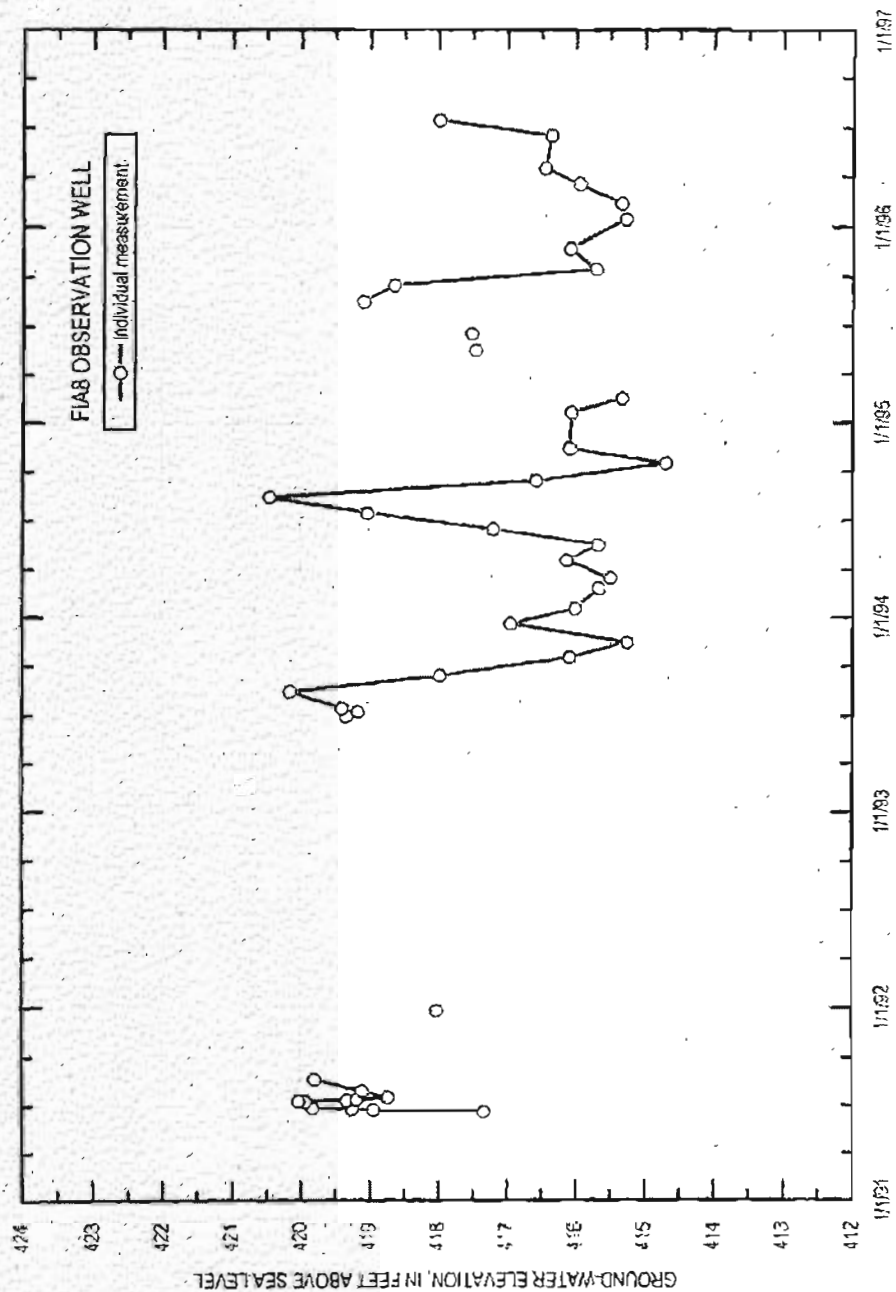
Date	MP Elevation (feet above sea level)
07-01-93	425.79 New datum

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
05-18-94	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	1408	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



FIA10 OBSERVATION WELL  
Formerly observation well CP60

Site ID: 644759147521:01  
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

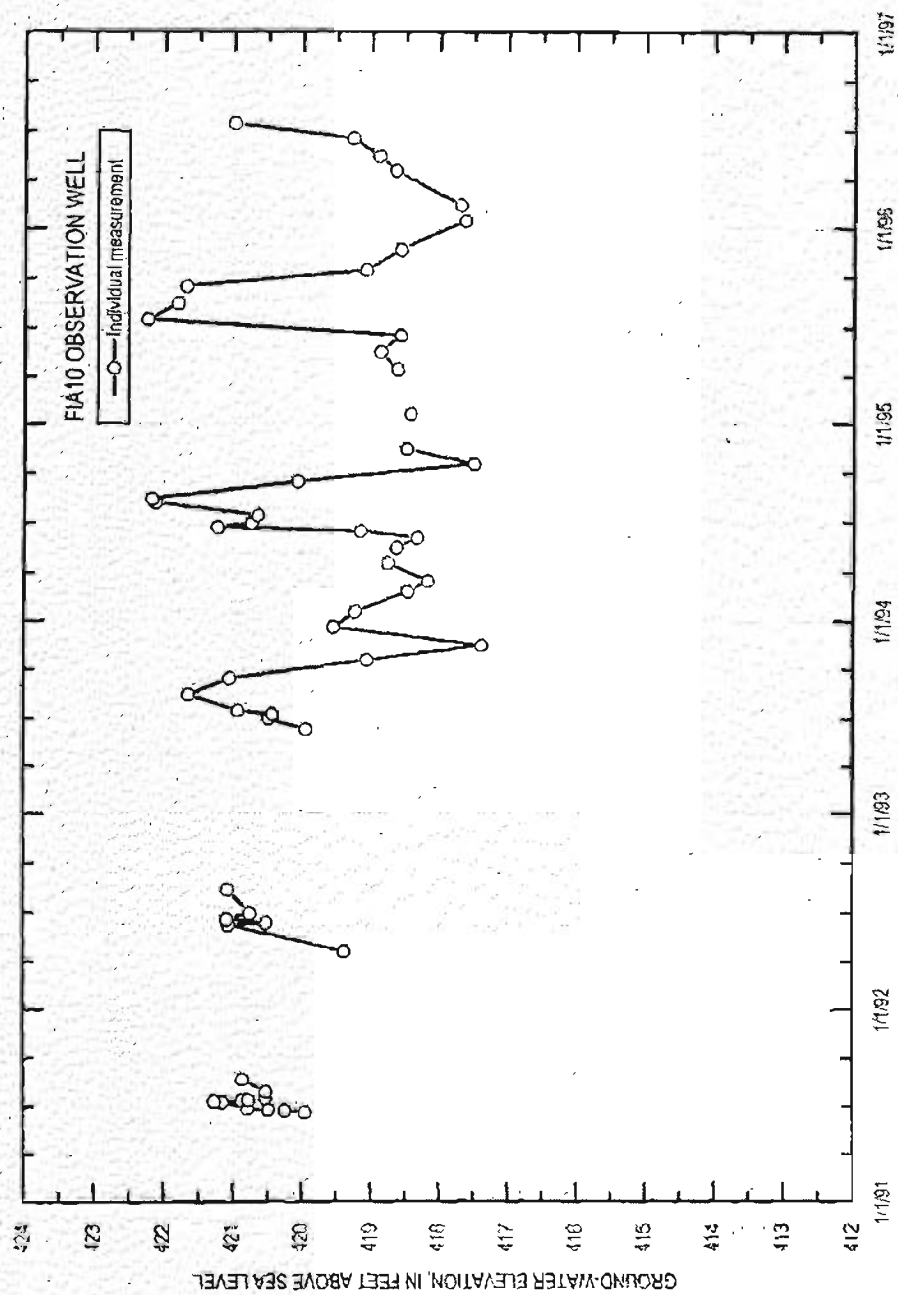
Site ID: 644759147521101  
Local Number: FC00100225BCDA1 008

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	420.89	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



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

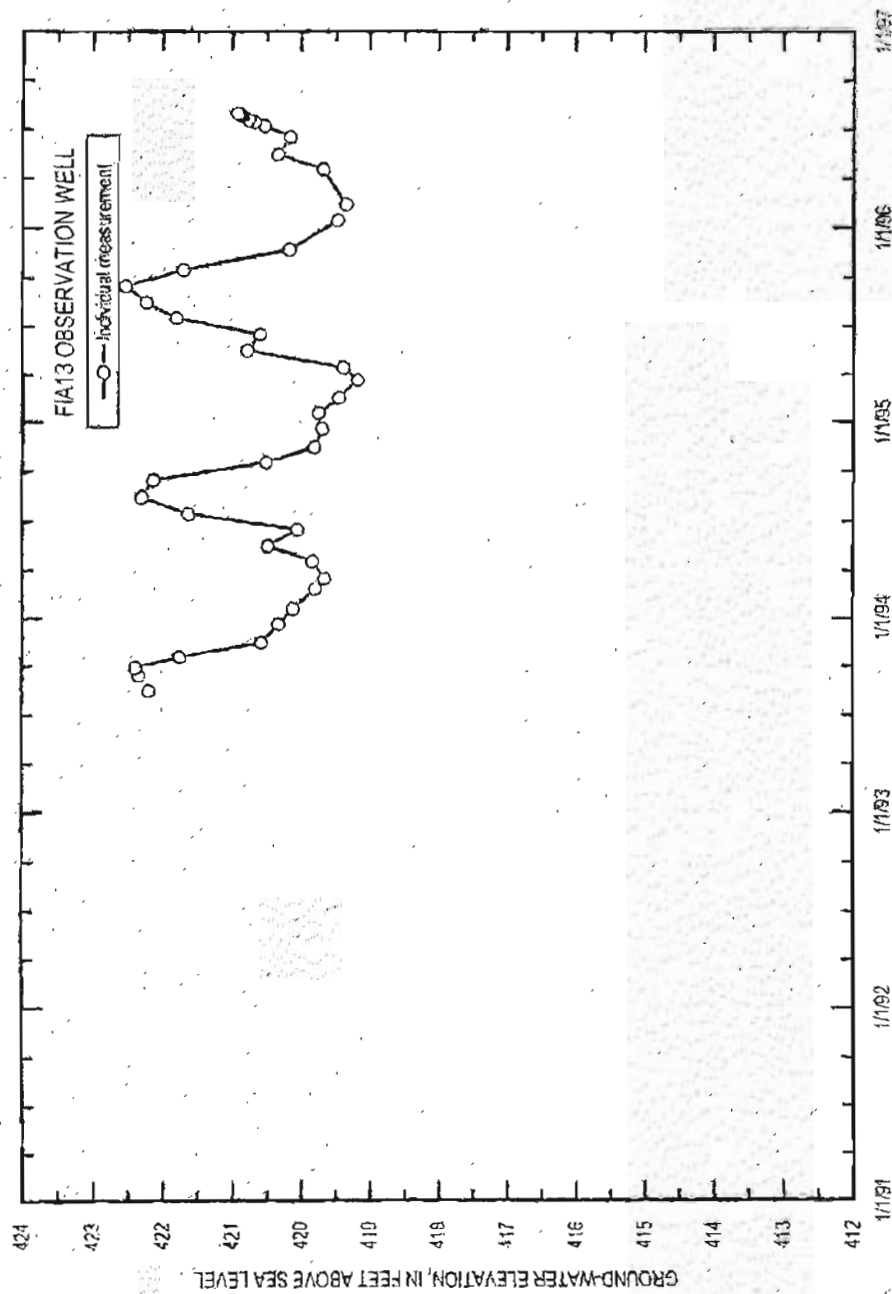
Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
08-16-93	1836	Steel tape	10.48	0.01	6.58	422.19	MM
09-15-93	1551	Steel tape	10.34	0.01	6.44	422.33	MM
09-29-93	1504	Steel tape	10.29	0.01	6.39	422.38	PM
10-19-93	1351	Steel tape	10.93	0.01	7.03	421.74	MM
11-16-93	1450	Steel tape	12.10	0.01	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





**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

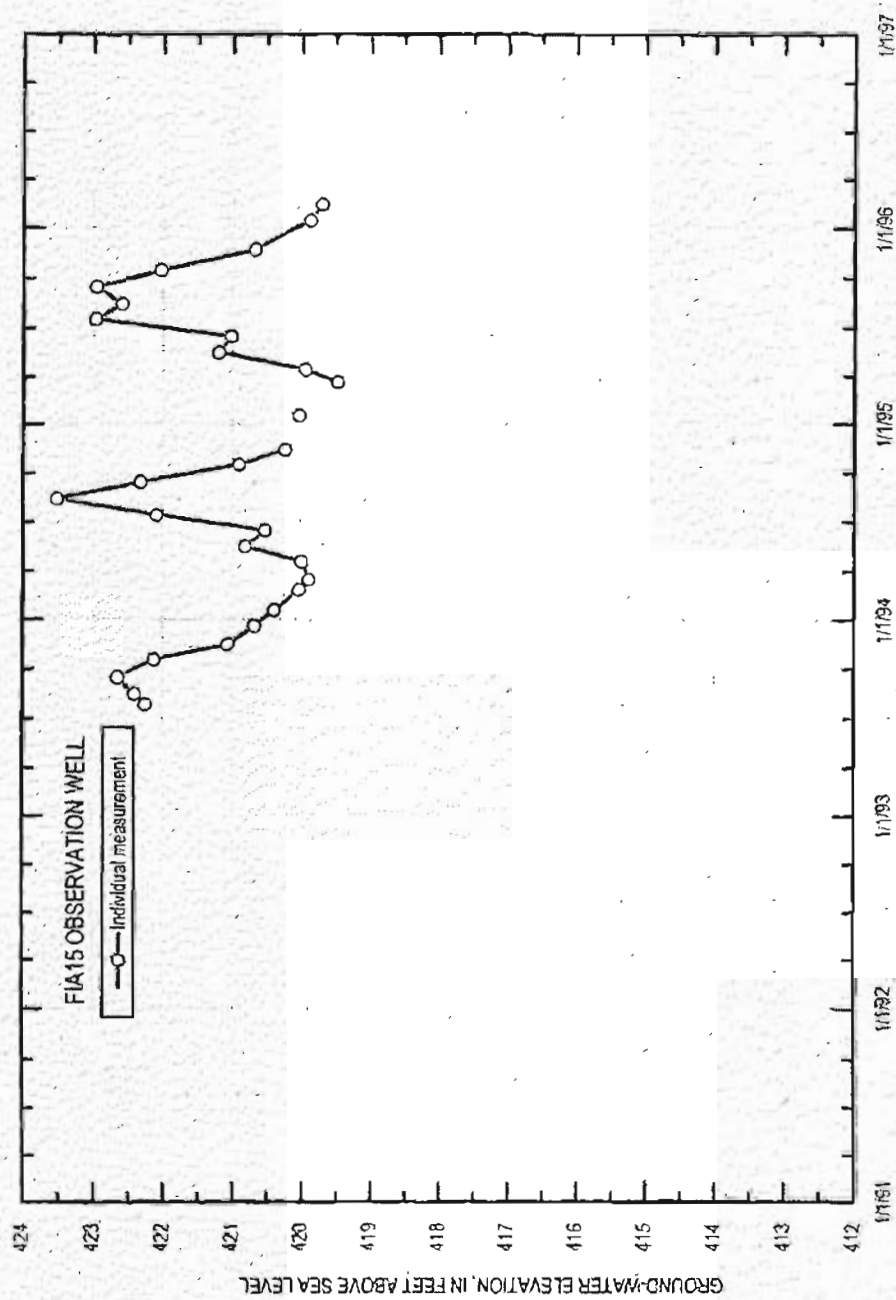
Date	MP Elevation (feet above sea level)
11-09-93	429.81
11-07-94	429.89 Updated MP

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
07-28-93	1815	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
03-15-94	1119	Steel tape	9.92	0.01	8.76	419.89	MM
04-18-94	1132	Steel tape	9.82	0.01	8.68	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	9.85	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



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

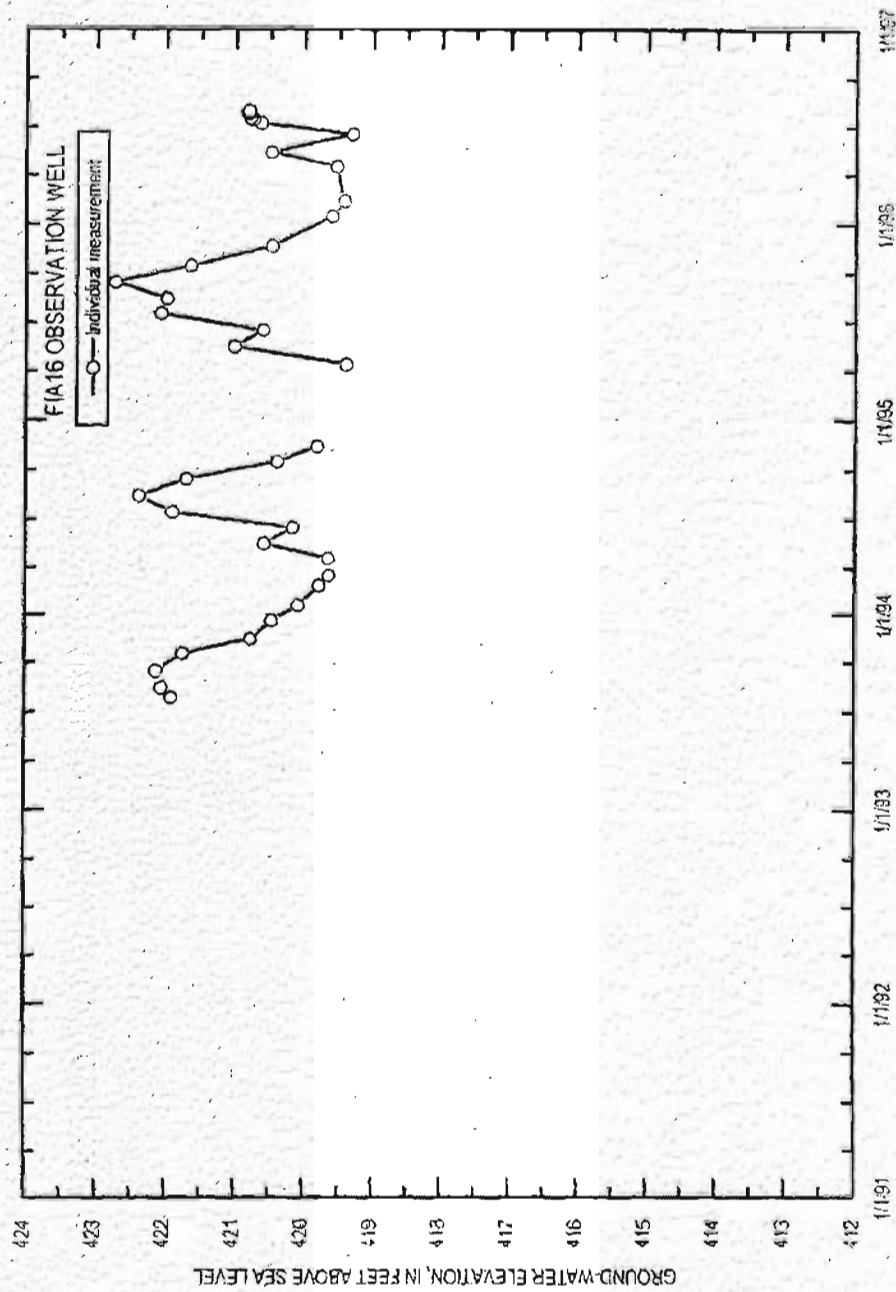
Date	MP Elevation (feet above sea level)
10-14-93	431.77
11-07-94	431.80 Updated MP

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



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

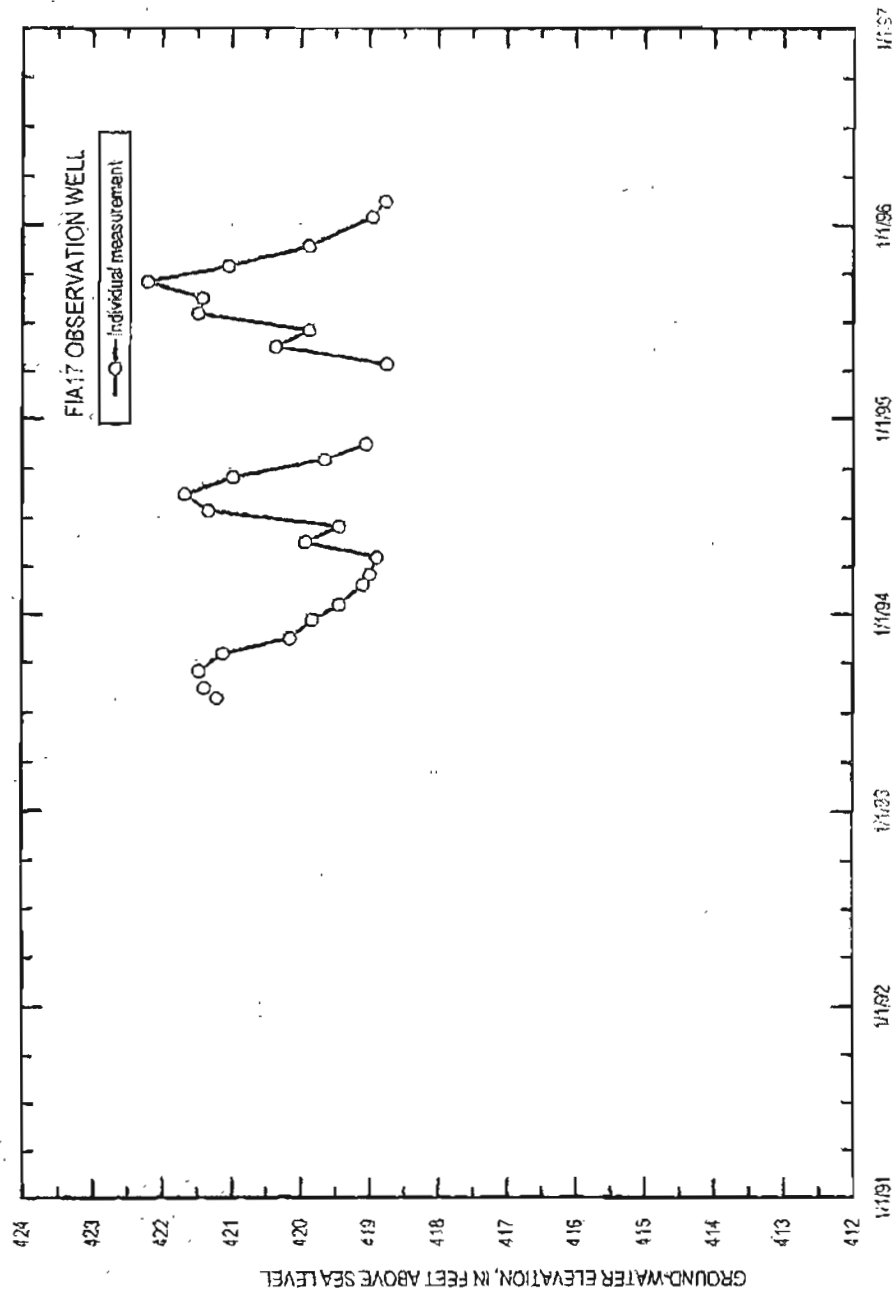
Date	MP Elevation (feet above sea level)
08-19-93	431.97
11-07-94	431.99 Updated MP

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



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

Site ID: 645018147483901  
Local Number: FC00100107DADC1 014

All measurements in feet

Depth to bottom of well from MP

Depth from TOC to top of SI

Depth from TOC to bottom of SI

Land surface datum:

Feet	Elevation
25.50	407.1
23.50	409.1
25.50	407.1
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

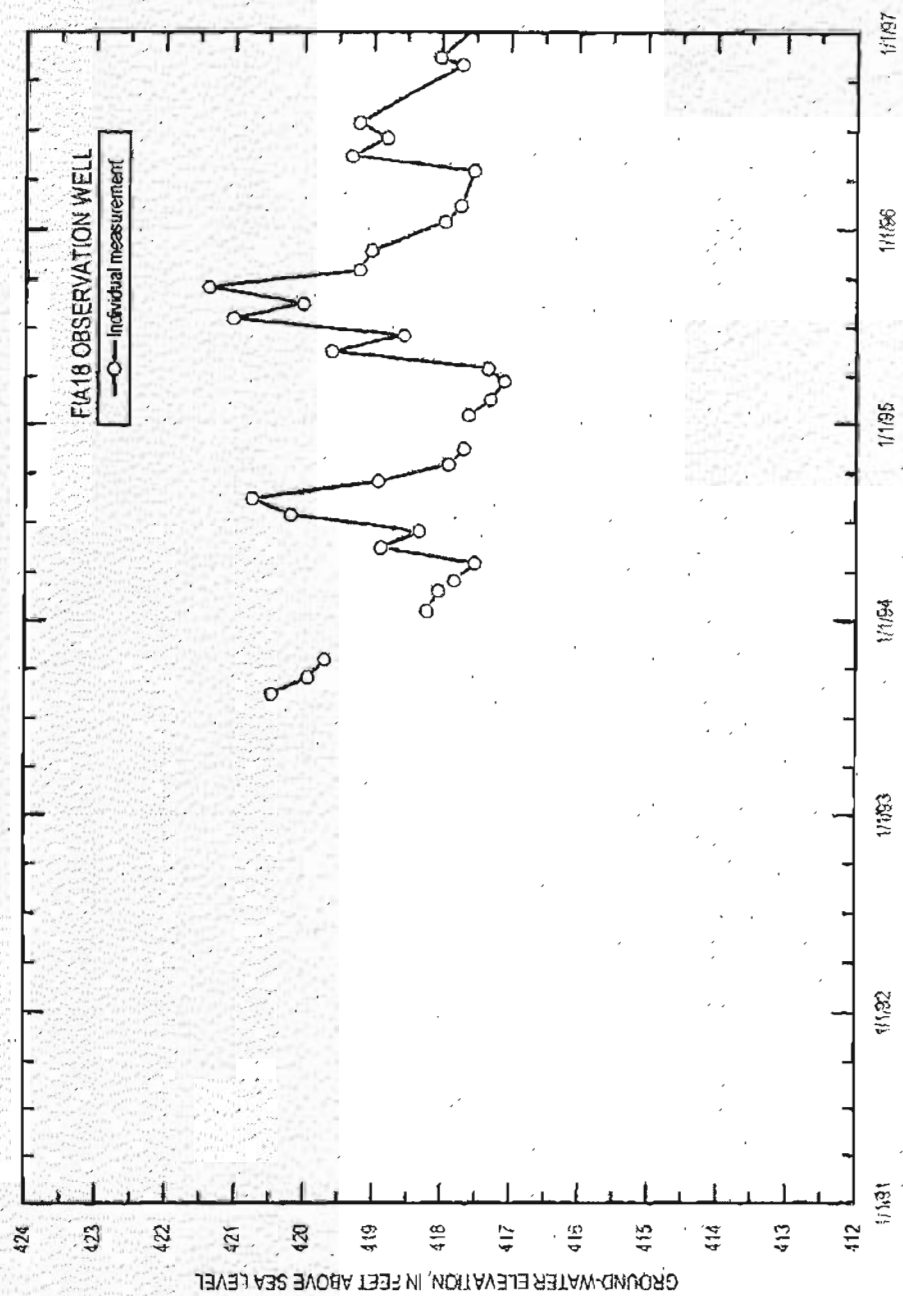
Date	MP Elevation (feet above sea level)
10-27-95	432.56

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



FIA19 OBSERVATION WELL  
Formerly observation well FP-1, at end of Peger

Site ID: 644757147462401  
Local Number: FC00100128BCCC1 004

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

Feet	Elevation
18.90	415.2
16.90	417.2
18.90	415.2
	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	Updated MP
09-03-96	Updated MP

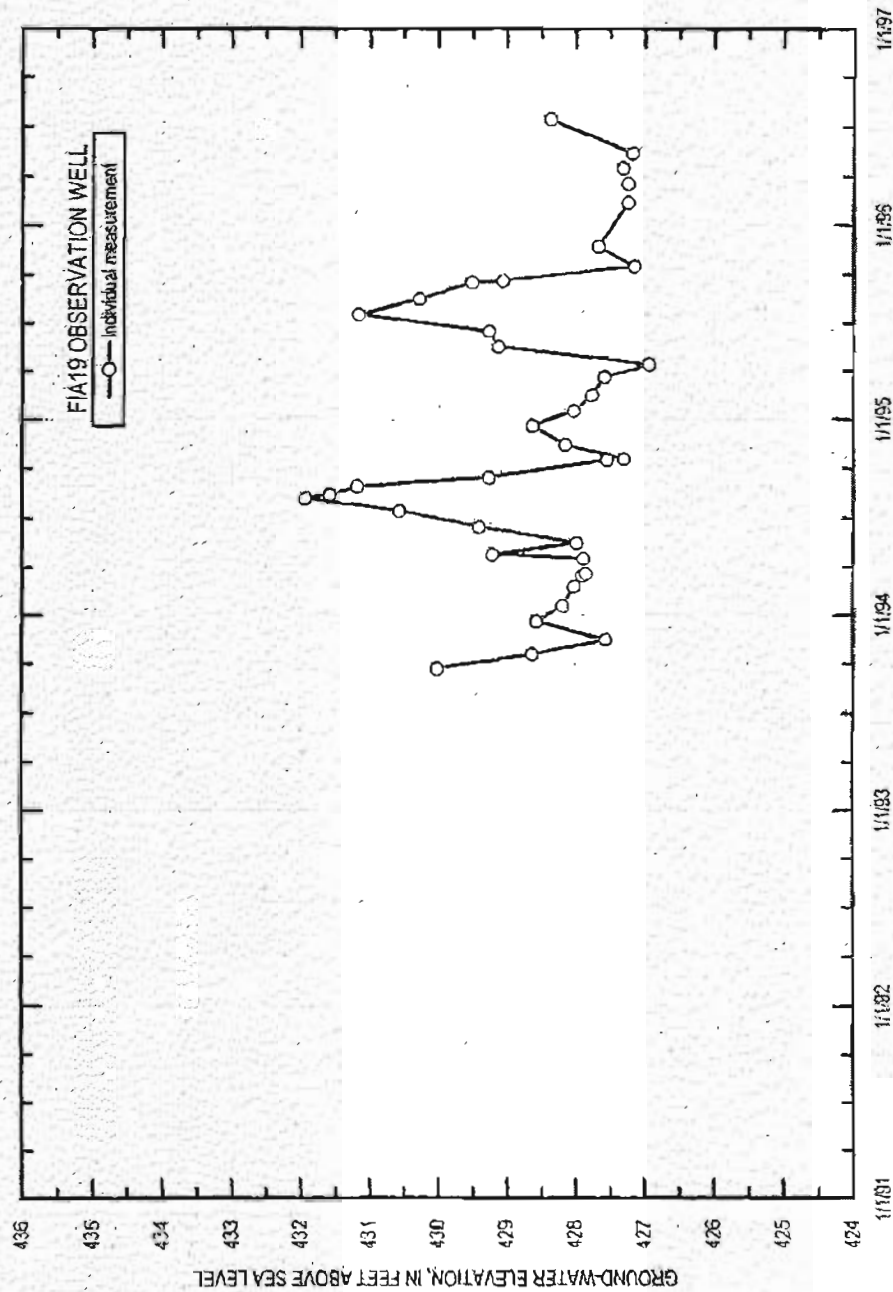
Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
09-23-93	1145	Steel tape	4.67	0.01	2.71	428.57	PM
10-19-93	1427	Steel tape	6.05	0.01	4.09	427.19	MM
11-16-93	1035	Steel tape	7.12	0.01	5.16	426.12	MM
12-21-93	1138	Steel tape	6.11	0.01	4.15	427.13	MM
01-18-94	1546	Steel tape	6.50	0.01	4.54	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-1, at end of Peger

Site ID: 644757147462401  
Local Number: FC00100128BCCCC1 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



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

Site ID: 645033147483501  
Local Number: FC00100107BCCCC1 008

All measurements in feet	Feet	Elevation	LS, land surface
Depth to bottom of well from MP:	NA	NA	MM, mass measurement
Depth from TOC to top of SI:	NA	NA	PM, partial measurement
Depth from TOC to bottom of SI:	NA	NA	MP, measuring point
Land surface datum:	NA	425.9	NA, not available
			ND, no data
			SI, screened interval
			TOC, top of casing
			WS, water surface

Datum corrections, reference survey notes in site folders.

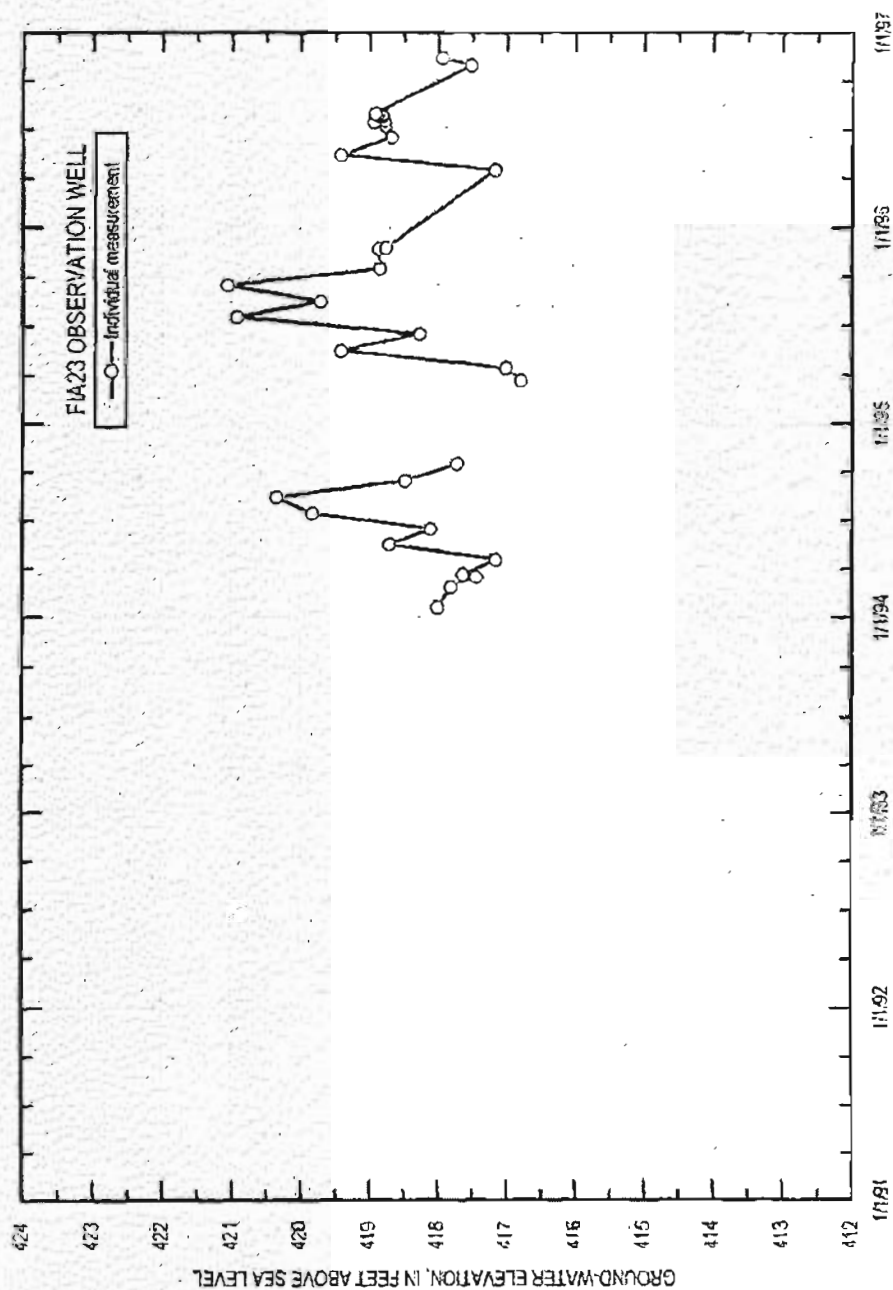
Date	MP Elevation (feet above sea level)
10-27-95	430.35

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

Site ID: 645033147483501  
Local Number: FC00100107BCCCC1 006

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

Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
11-24-95	1345	Steel tape	11.59	0.01	8.19	418.76	MM
04-17-96	1255	Steel tape	13.19	0.01	9.79	417.18	MM
05-15-96	1244	Steel tape	10.94	0.01	7.54	419.41	MM
06-17-96	1543	Steel tape	11.57	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



# FIA/WT1-A OBSERVATION WELL

Part of diffusivity well cluster at the end of Peger Road

Site ID: 644811147463301

Local Number: FC00100128BCCC1 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

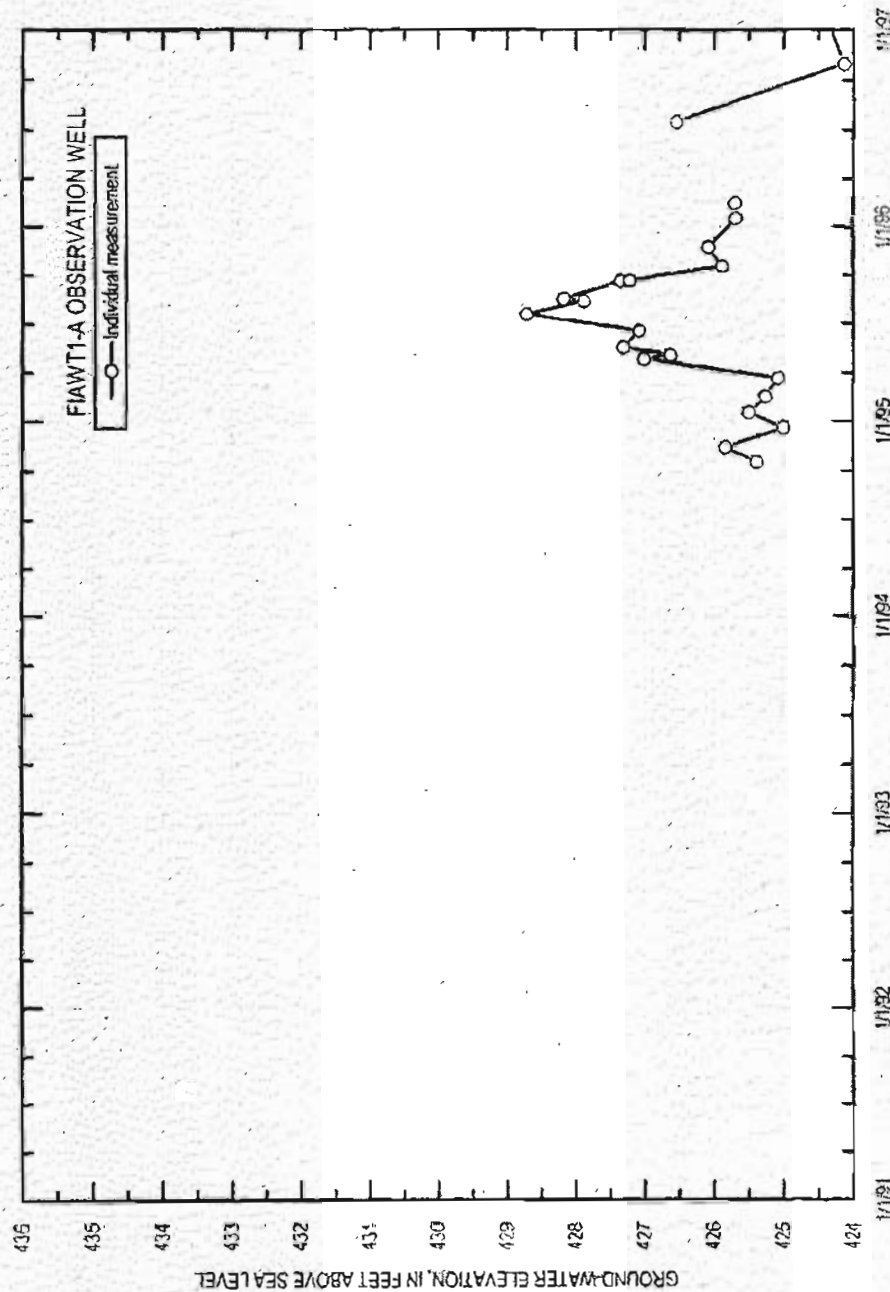
Date	MP Elevation (feet above sea level)
08-18-95	434.76
07-15-96	434.84

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	6.87	426.63	PM
05-16-95	1206	Steel tape	7.46	0.01	6.00	427.30	MM
06-16-95	1128	Steel tape	7.58	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: FC001001288BCC1 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



# FIAWT 1-B OBSERVATION WELL

Part of diffusivity well cluster at the end of Peger Road

Site ID: 64481147463302  
Local Number: FC00100128BCCC2 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

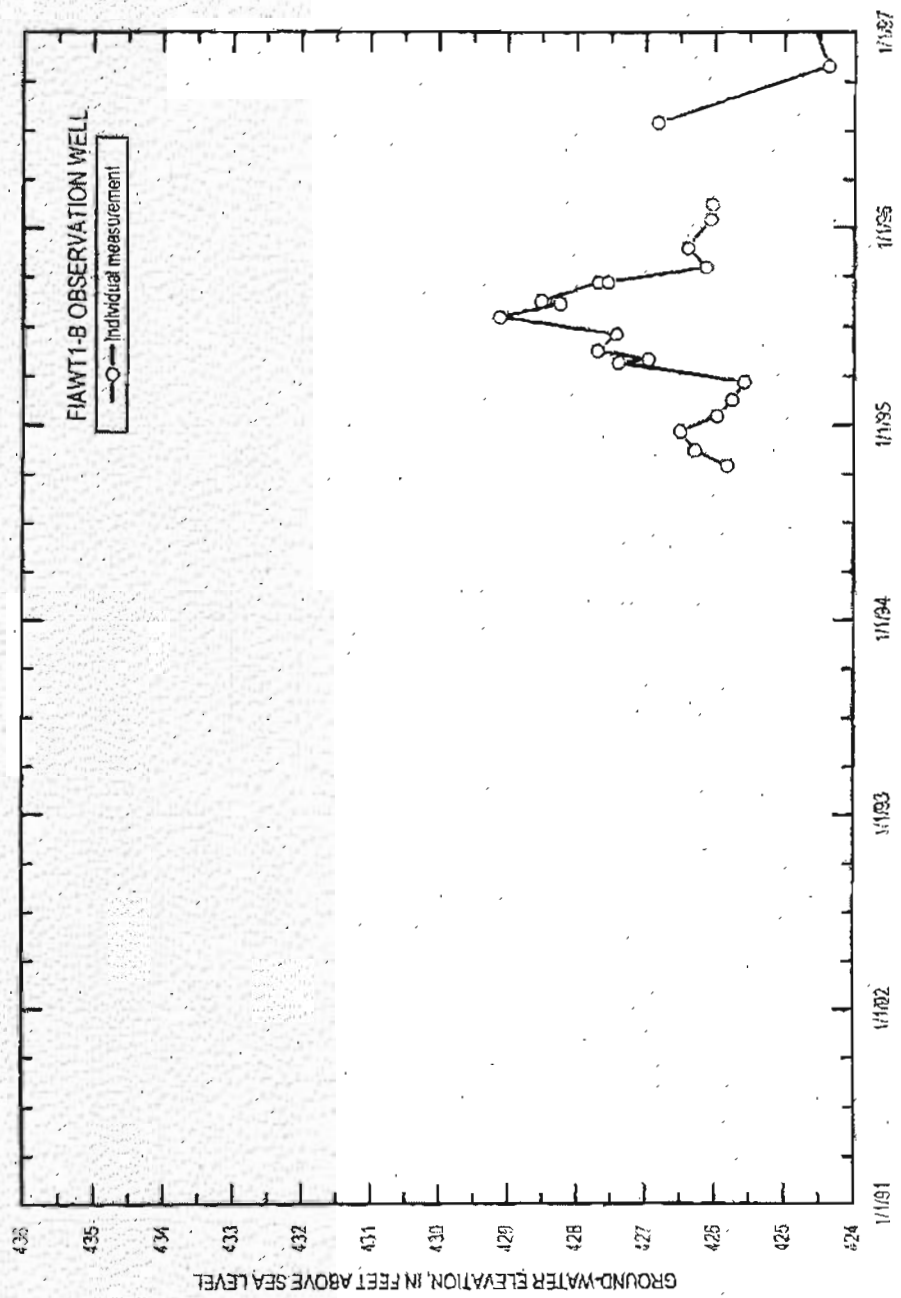
Date	MP Elevation (feet above sea level)
08-16-95	434.84

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	5.86	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-C OBSERVATION WELL

Part of diffusivity well cluster at the end of Peger Road

Site ID: 644811147453303

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

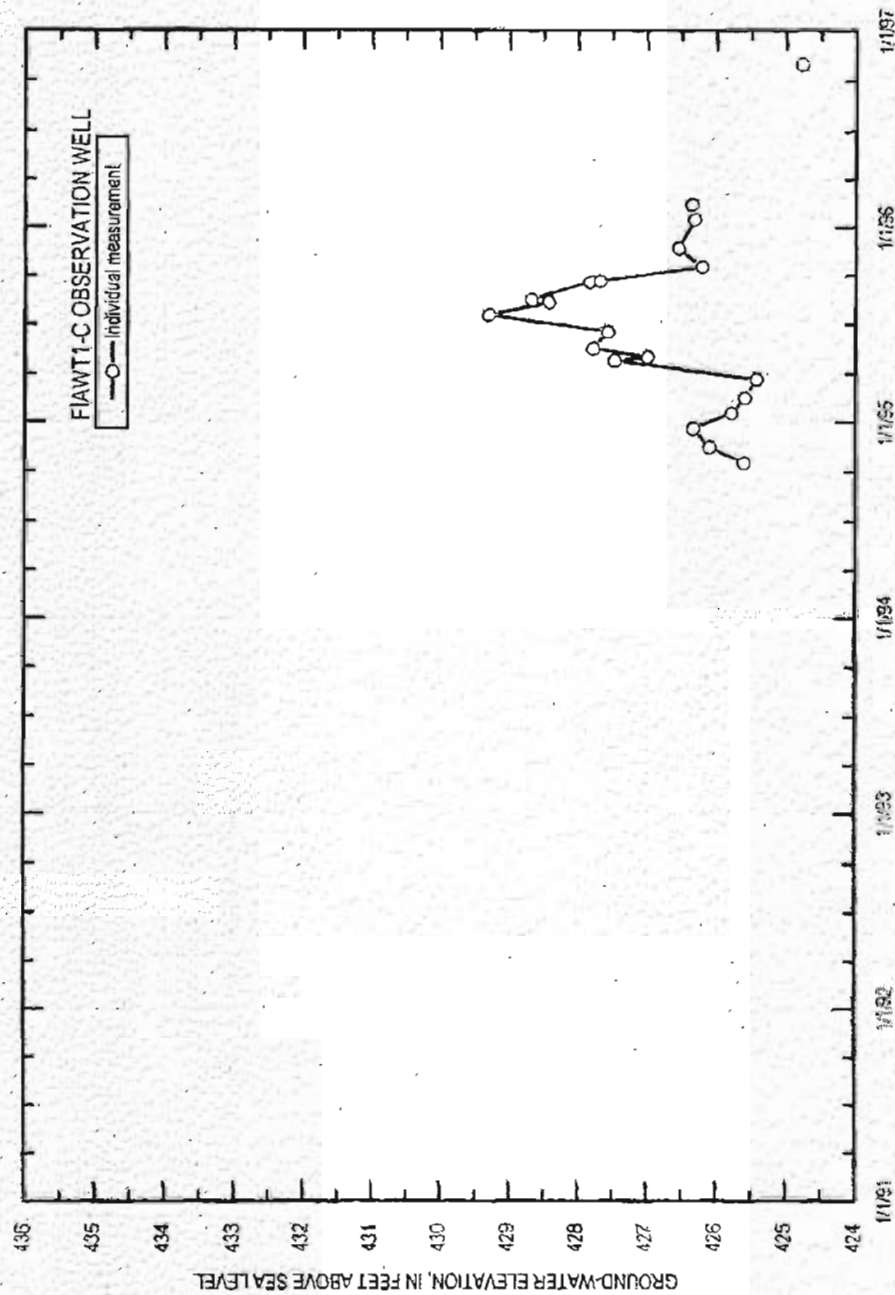
Date	MP Elevation (feet above sea level)
08-16-95	434.83
07-15-96	434.57

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 Pager 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



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

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

Land surface datum: 418.67

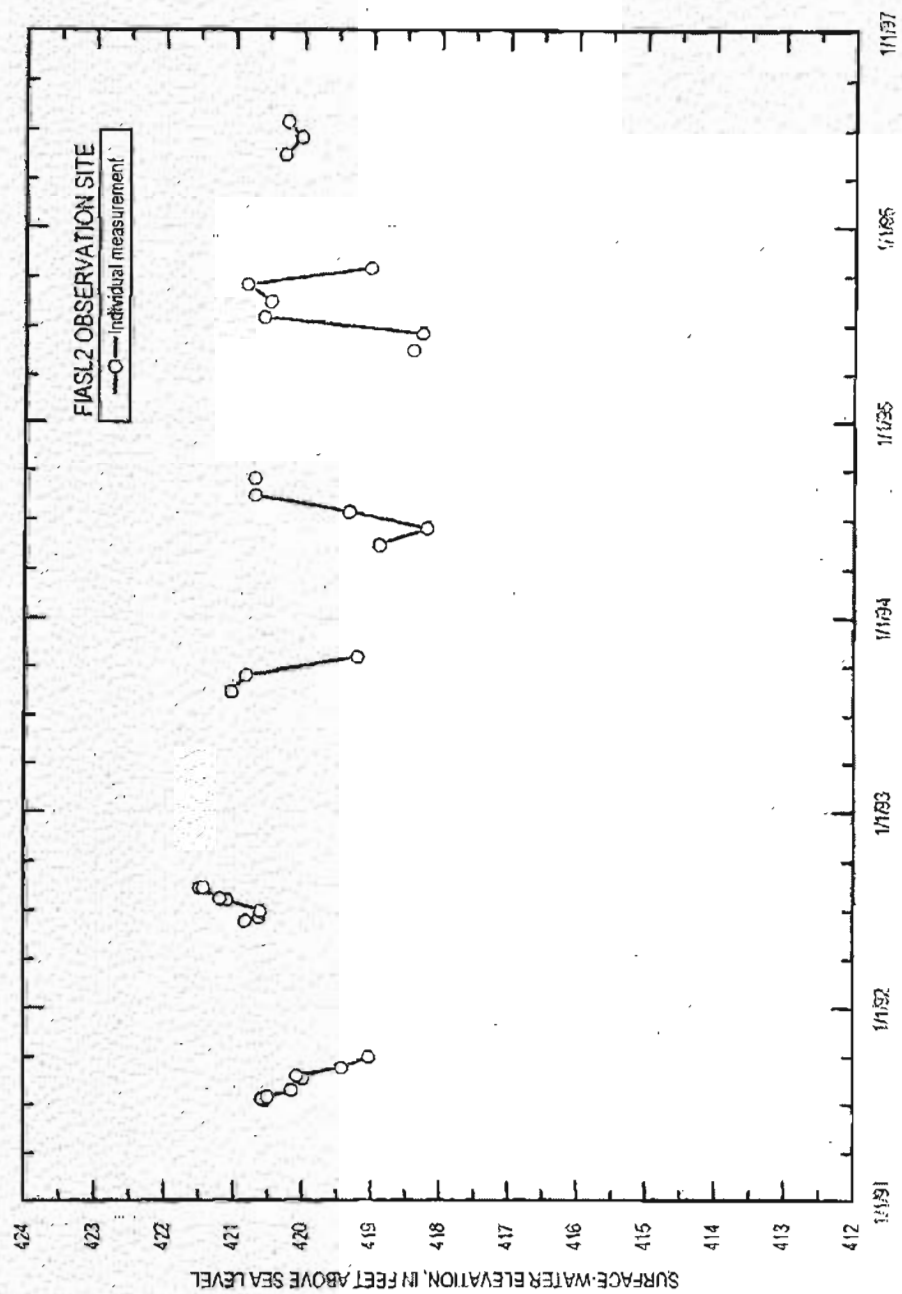
Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
07-09-91	1700	Rebar	0.74	0.01	-1.88	420.53	PM, RB1
07-10-91	1117	Rebar	0.76	0.01	-1.88	420.55	PM, RB1
07-12-91	1056	Rebar	0.79	0.01	-1.91	420.58	PM, RB1
07-13-91	1139	Rebar	0.78	0.01	-1.90	420.57	PM, RB1
07-16-91	1527	Rebar	0.71	0.01	-1.83	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	-1.83	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
08-17-96	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





# FIASL4 OBSERVATION SITE

Slough site immediately across road east of bioremediation area.

Best reading from rebar and culverts at this site

Rebars: SLR3

Culverts: CU1a, CU1b, CU1c

Site ID: 644757147522701

Local Number: FC00100225BCCCC1 007

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	1.54	420.71	PM, SLR3
07-16-91	1615	Rebar	0.63	0.01	1.80	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
05-19-92	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: FC00100225BCCCC1 007

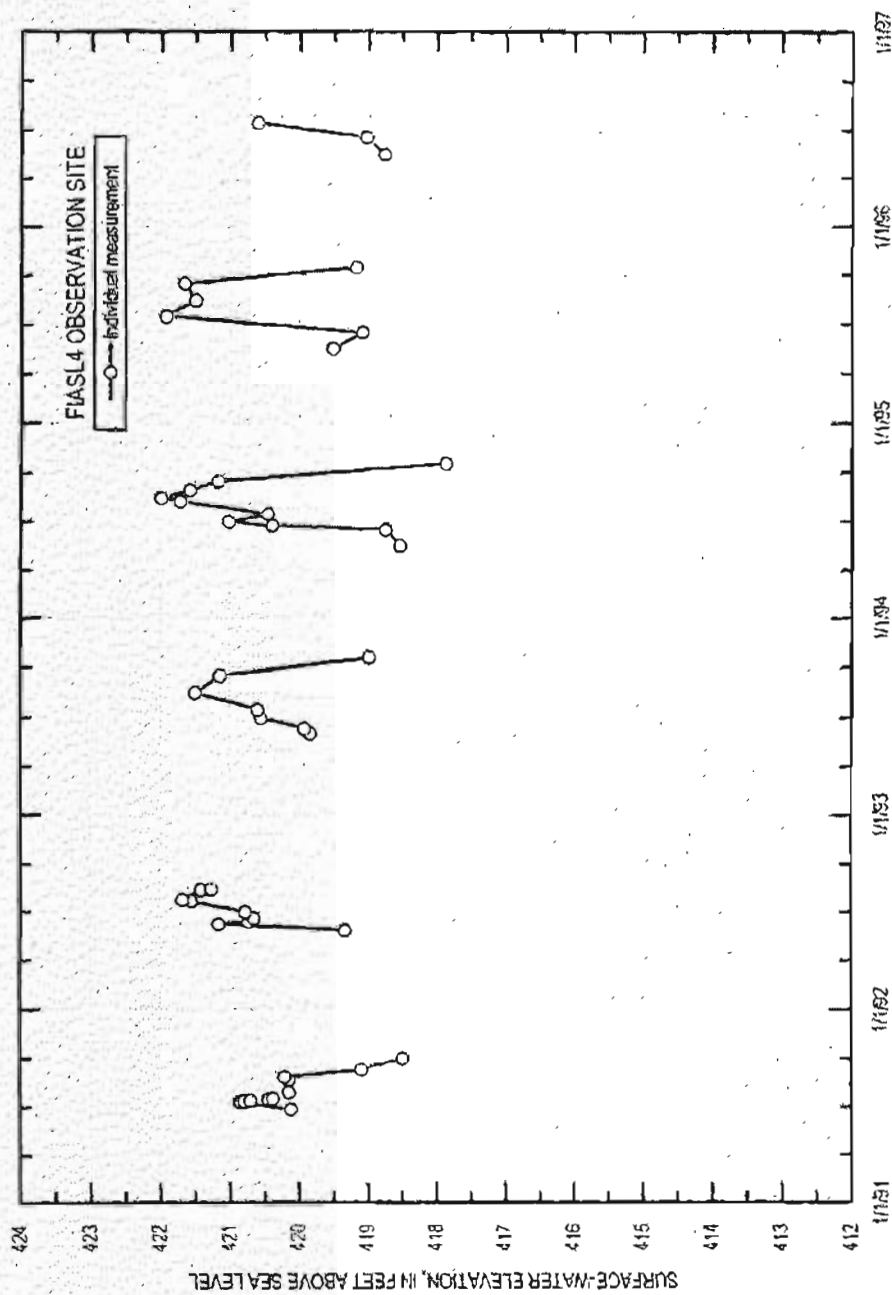
Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
06-11-93	1510	Culvert	0.49	0.01	2.43	419.92	MM, CU1a
06-30-93	1700	Culvert	1.80	0.01	1.80	420.55	PM, CU1c
07-16-93	1201	Culvert	-0.19	0.01	1.75	420.60	MM, CU1a
08-16-93	1542	Culvert	0.85	0.01	0.85	421.50	MM, CU1a
09-16-93	1502	Culvert	1.20	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	1105	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: FC00100225BCCCC1 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



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

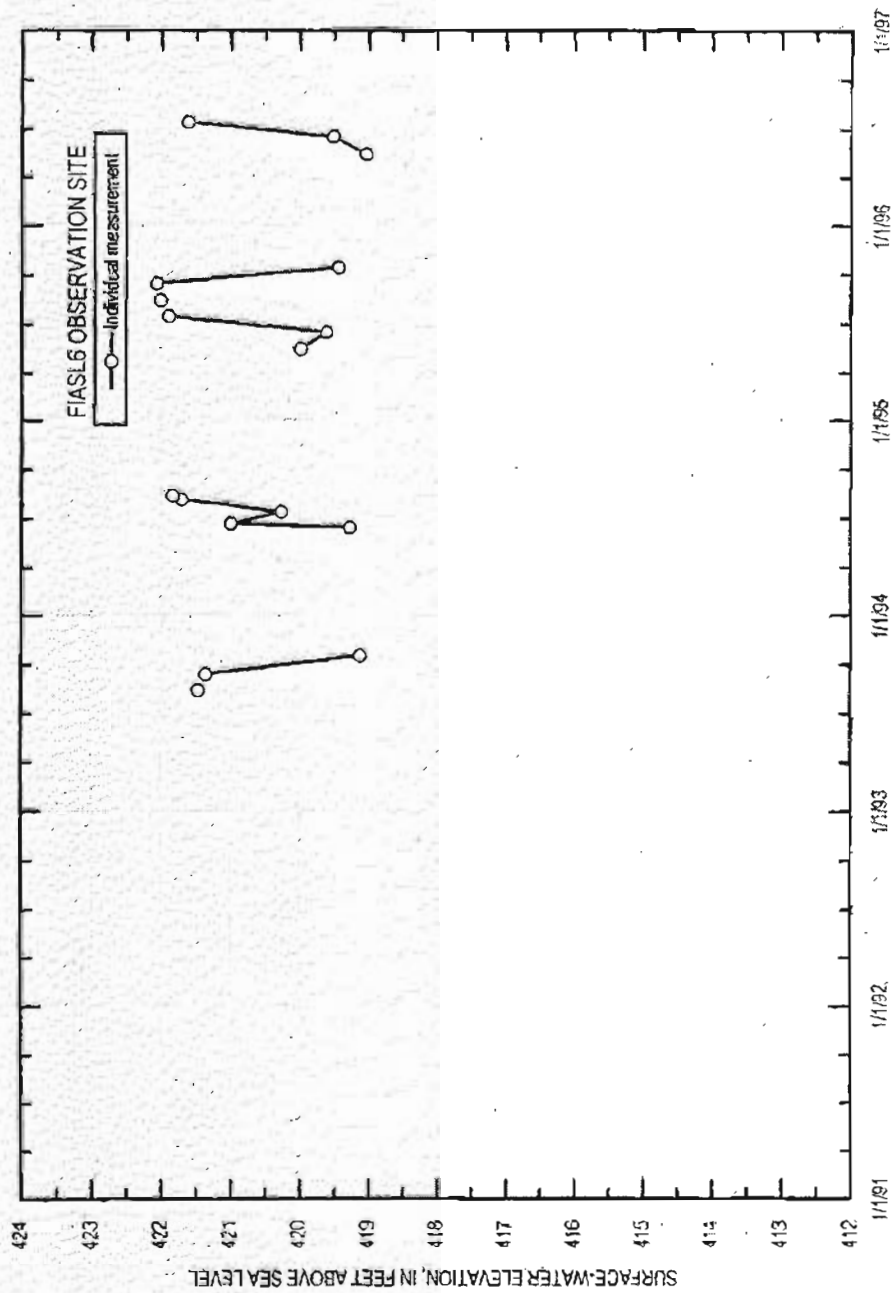
Site ID: 644755147521801  
Local Number: FC00-100225CBA1 020

Best reading from culvert at this site  
Culvert: CU4

Land surface datum: 422.67

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
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



Site ID: 644749147533301  
Local Number: FC00100226CADA1 013

FIASLB OBSERVATION SITE  
Slough site immediately south of flight shed

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

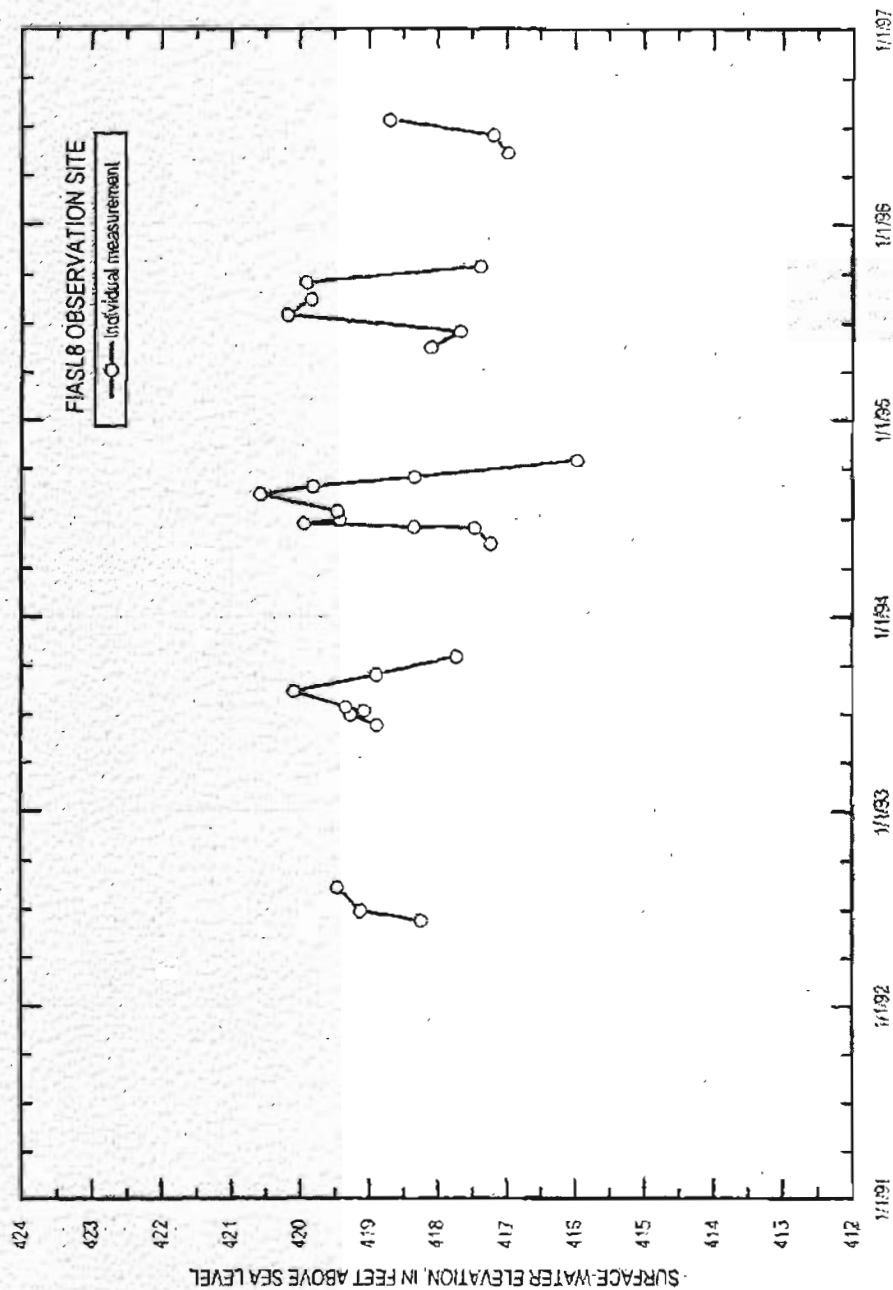
Land surface datum: 420.44

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	1039	Culvert	0.64	0.01	0.64	419.80	PM

FIASLB 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	417.68	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
08-17-96	1406	Culvert	3.26	0.01	3.26	417.18	MM
07-15-96	1129	Culvert	1.75	0.01	1.75	418.68	MM



FIASL10 OBSERVATION SITE  
Slough site in slough near United Postal Service

Site ID: 644814147532901  
Local Number: FC00100226ABC81 017

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

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

Land surface datum: 419.79

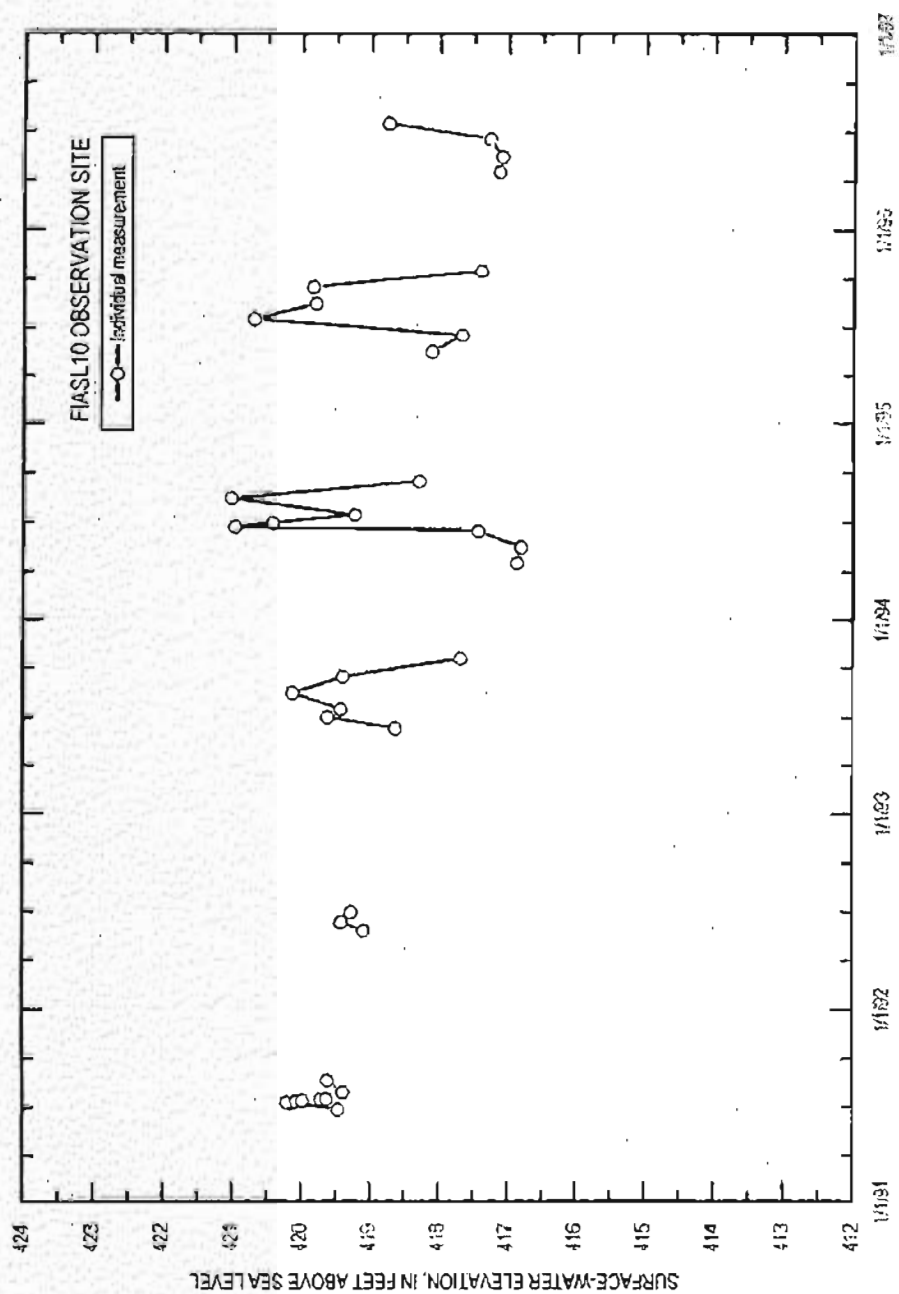
Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
06-27-91	1233	Rebar	0.43	0.01	0.33	419.46	PM, SLR9
07-09-91	1342	Rebar	1.12	0.01	-0.36	420.15	PM, SLR9
07-10-91	1332	Rebar	1.17	0.01	-0.41	420.20	PM, SLR9
07-12-91	1320	Rebar	1.03	0.01	-0.27	420.06	PM, SLR9
07-13-91	1334	Rebar	0.94	0.01	-0.18	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



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

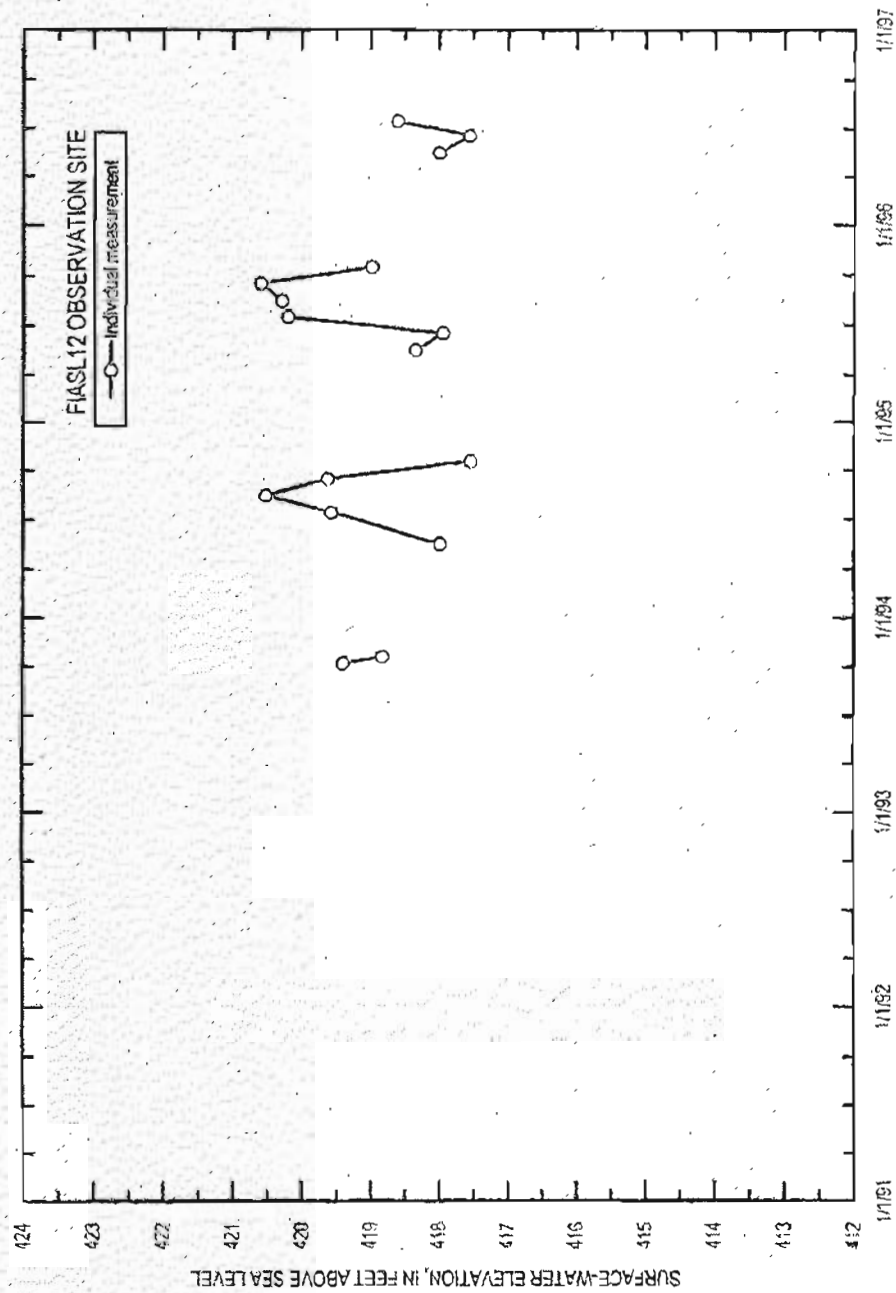
Site ID: 644916147514601  
Local Number: FC001002130CDDCD1 002

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

Land surface datum: 418.09

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
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	3.82	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



# FIASL 13 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

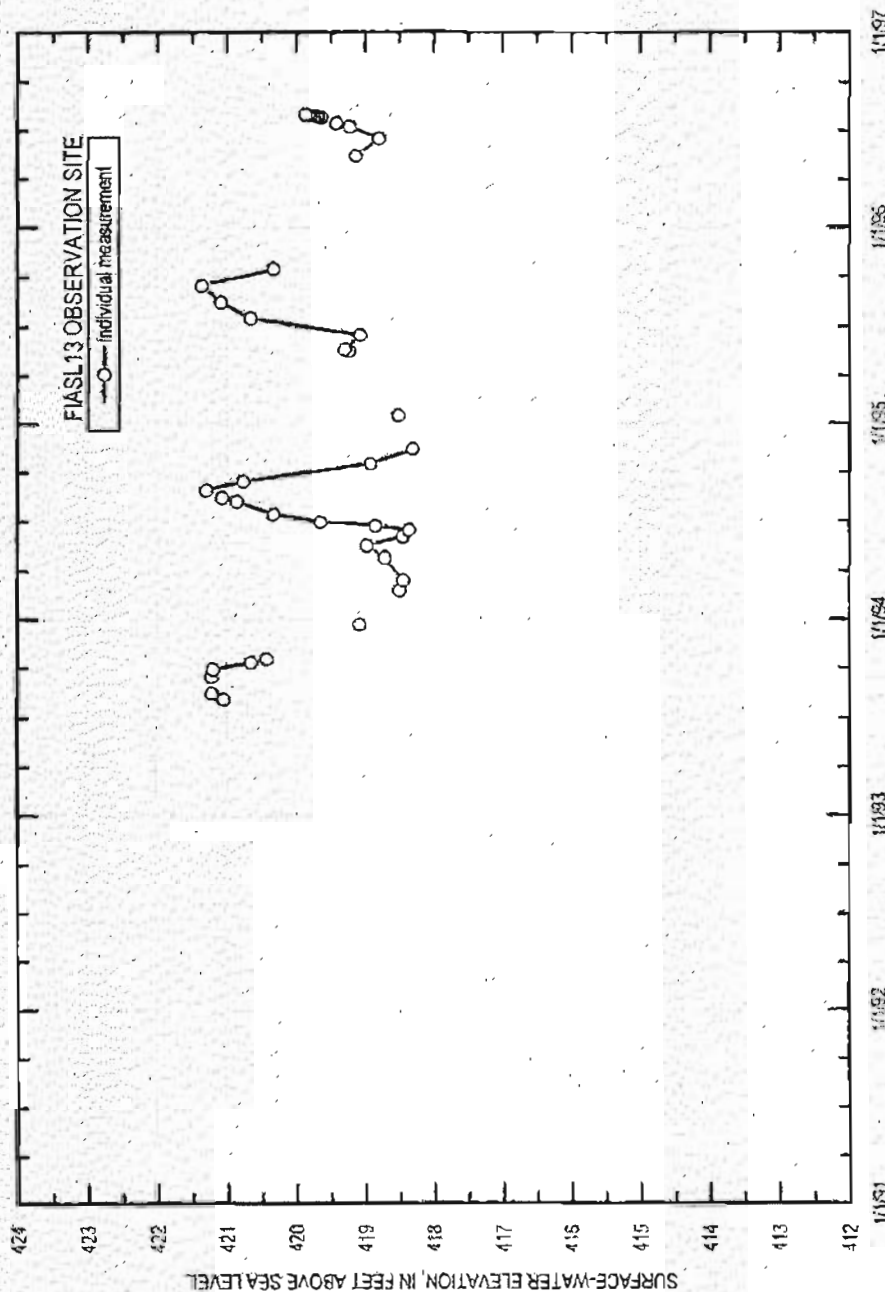
Land surface datum: 419.05

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	420.85	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: FC00100118BDDDD1 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
06-18-95	1042	Staff	0.34	0.02	-0.02	419.07	MM
07-17-95	1121	Staff	1.92	0.05	-1.80	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



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

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

Date CB elevation (feet above sea level)

08-05-92 448.99

Date	Time	Check bar	WS	Error	WS elevation	Remarks
05-19-92	1830	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	0841	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	62.55	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  
Wira 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	90.88	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	419.58	PM
08-11-93	1423	90.90	61.73	0.02	419.82	PM
08-18-93	1110	90.90	61.98	0.02	420.07	MM
08-27-93	1933	90.90	59.55	0.02	417.84	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
05-03-94	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

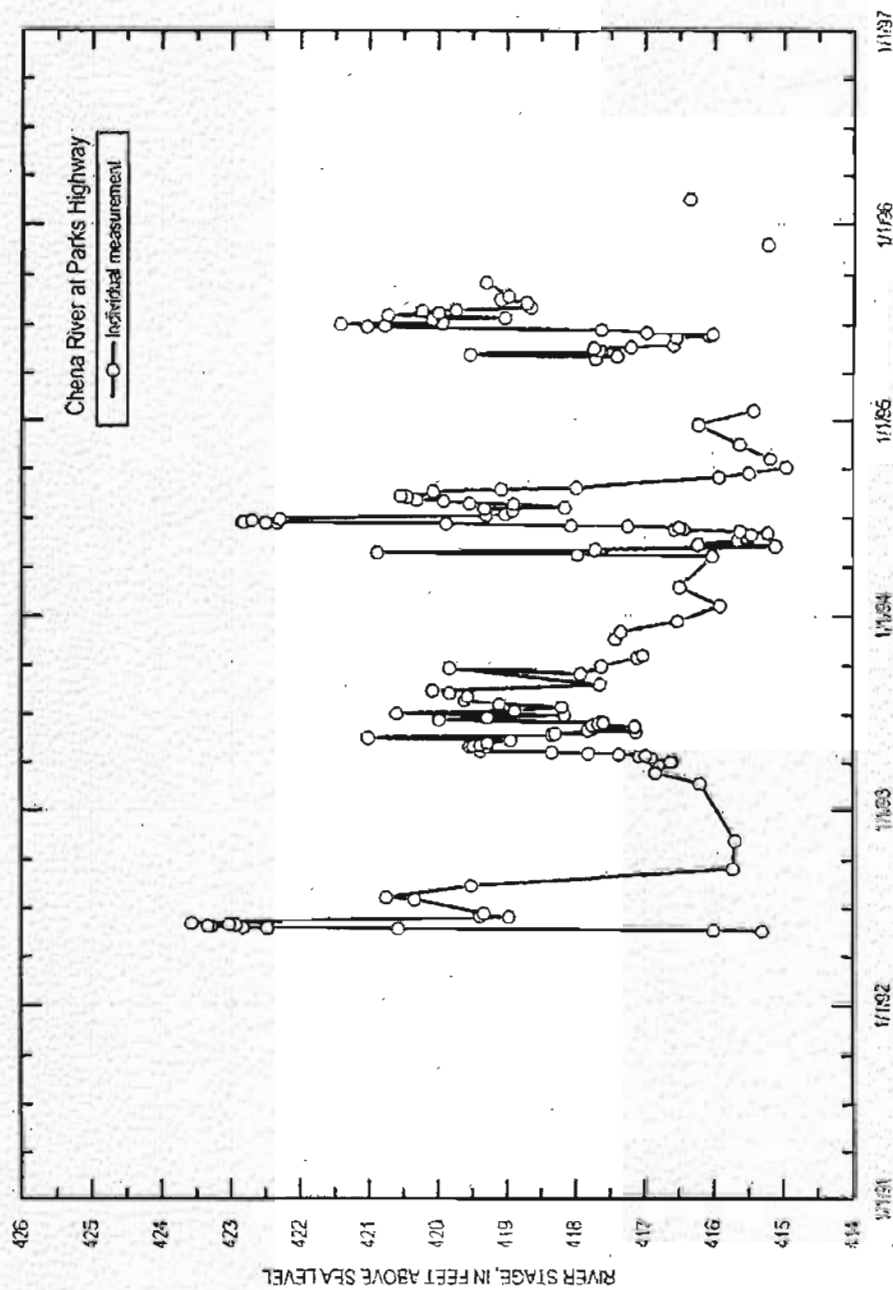
Local Number: FC00100212DA

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	50.93	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	90.80	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	415.83	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	61.82	0.02	419.74	PM
08-01-95	1330	90.87	60.53	0.02	418.85	PM
08-09-95	1034	90.87	60.59	0.02	418.71	PM
08-15-95	1620	90.87	50.97	0.02	419.09	MM
08-21-95	1312	90.87	50.85	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 Pike's Landing at Fairbanks

Site ID: 15514020  
Local Number: FC00100213A

Land Surface Datum: 422.00

Datum corrections, reference survey notes in site folders

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

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

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	415.38	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

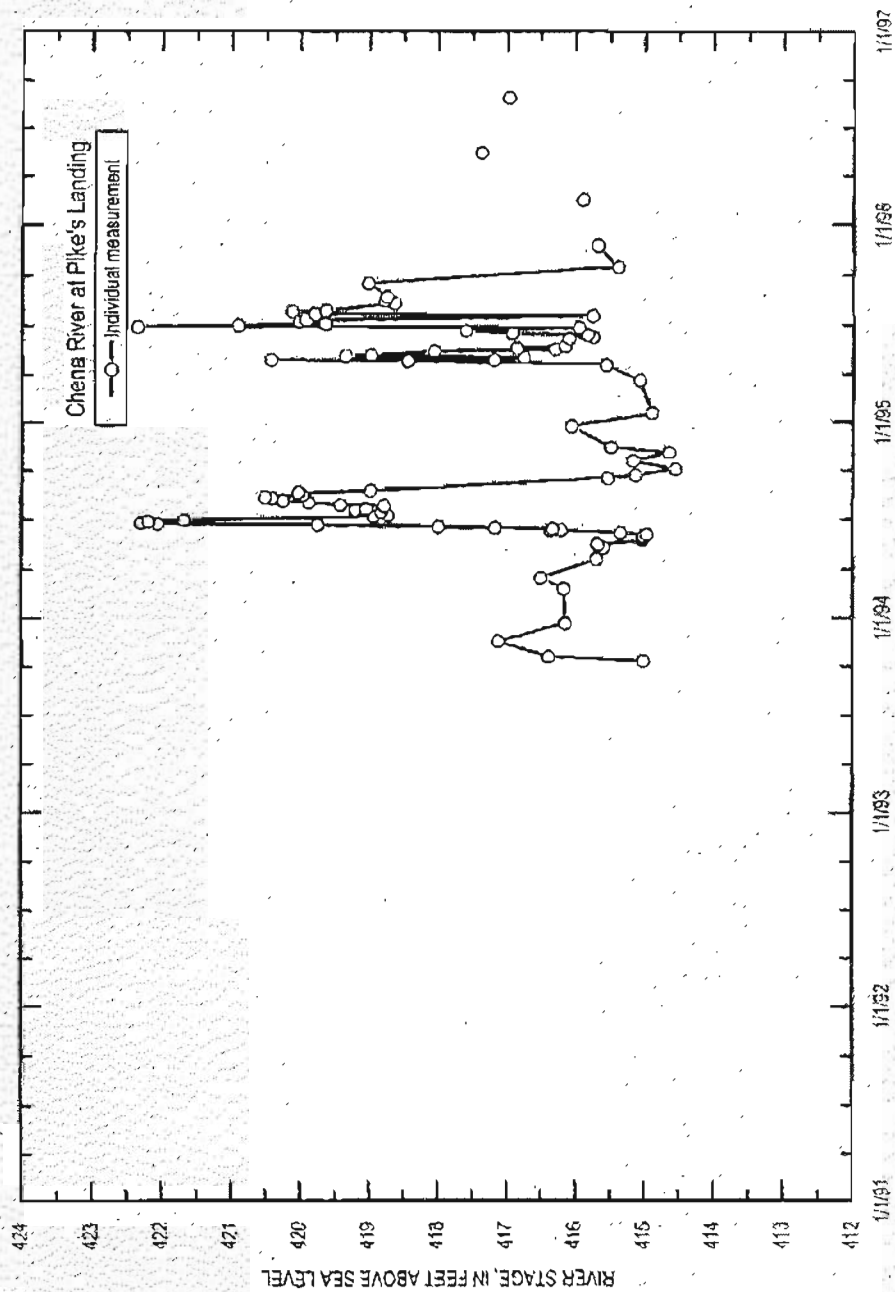
Date	Time	Method	MP to WS	Error	LS to WS	WS elevation	Remarks
06-22-94	1205	Tape	1.92	0.02	0.05	422.05	PM, RMPL2
06-24-94	1141	Tape	1.68	0.02	0.29	422.29	PM, RMPL2
06-27-94	1636	Tape	1.78	0.02	0.19	422.19	PM, RMPL2
06-29-94	1624	Tape	2.30	0.02	-0.33	421.67	PM, RMPL2
07-06-94	1729	Tape	-0.22	0.02	-3.07	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	0.58	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

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



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	1056	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

Chana 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	1126	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.

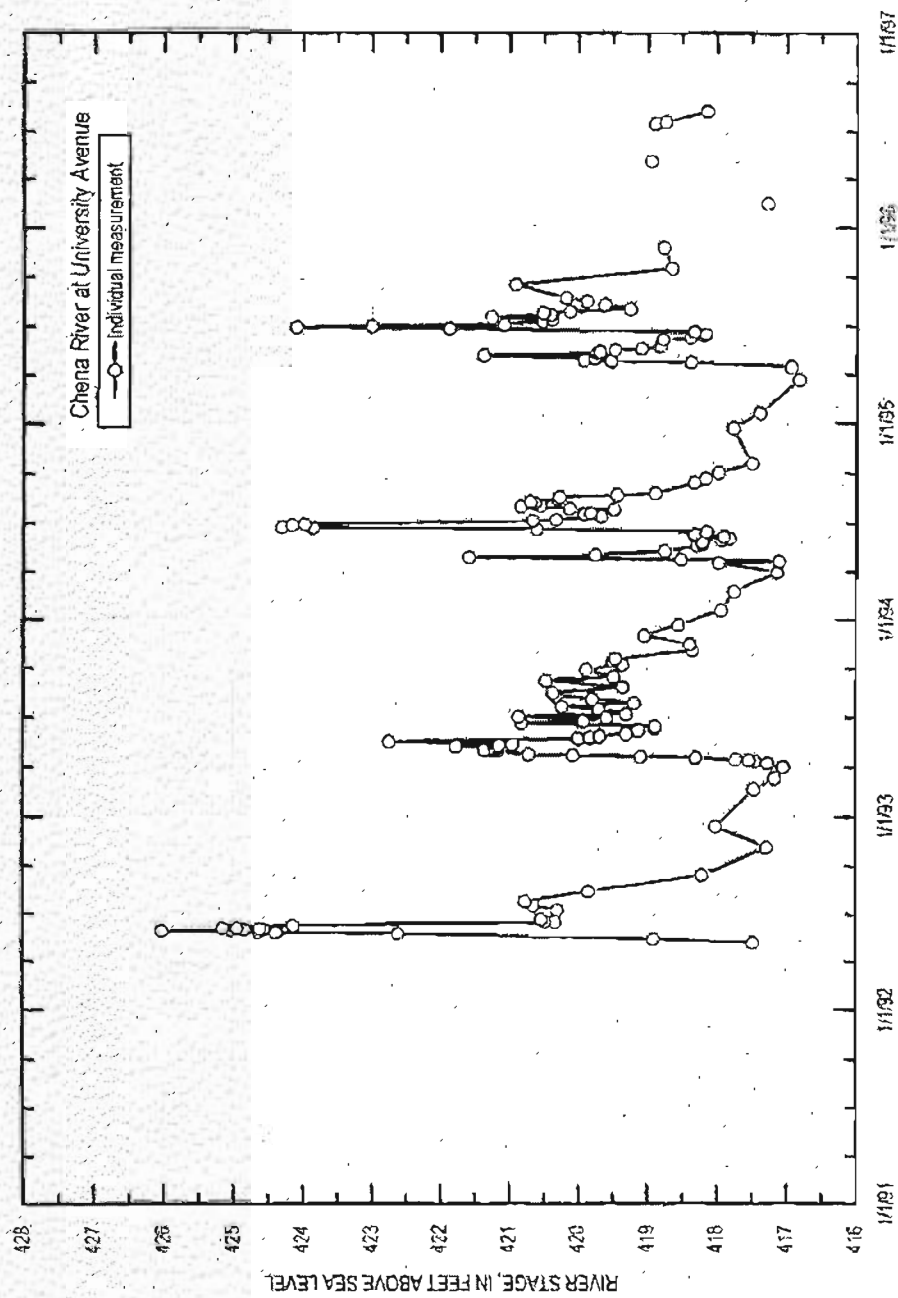
Site ID: 15514016  
Local Number: FC00100108CBBB

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
05-18-95	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 at Fairbanks  
Wire Weight Gage

Site ID: 15514016  
Local Number: FC00100108CEBB

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

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

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

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	4.83	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

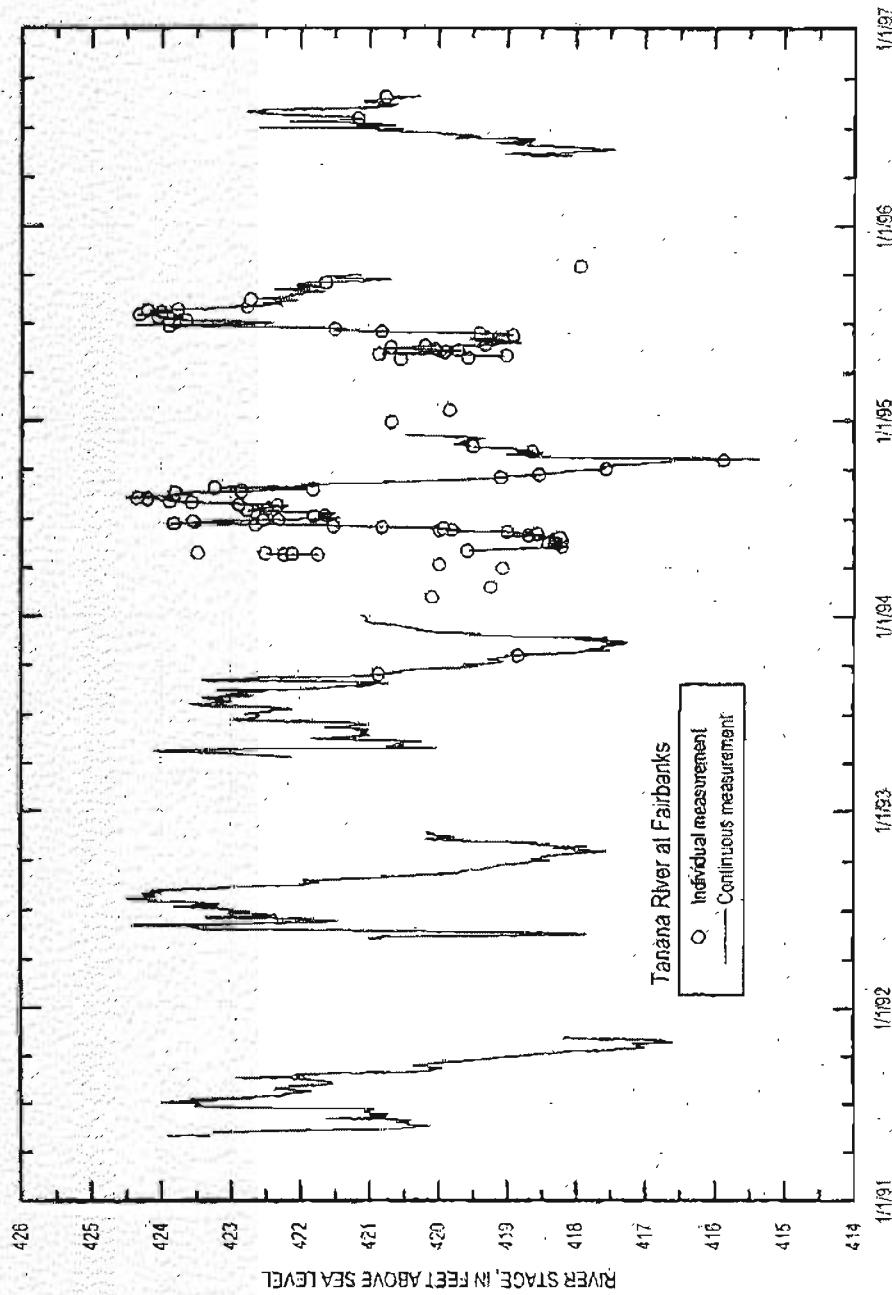
Site ID: 644734147502001  
Local Number: FC00100225CCA

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	0.98	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	3.65	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
05-05-95	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



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

Land surface datum: 434.00

Datum corrections, reference survey notes in site folders

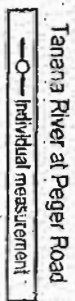
Date	MP Elevation (feet above sea level)
08-16-95	434.06 RM1-south west valve bolt
08-16-95	432.56 RM2-TBM

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

Site ID: 15485495  
Local Number: FC00100128BCCC

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	426.93	MM, RM1
04-25-94	1520	Level	5.74	0.05	428.32	MM, RM1
05-16-94	1419	Level	8.64	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
05-23-94	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
08-27-95	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	3.85	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





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## APPENDIX 1

### Survey-benchmark control information

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SEPTEMBER 1966

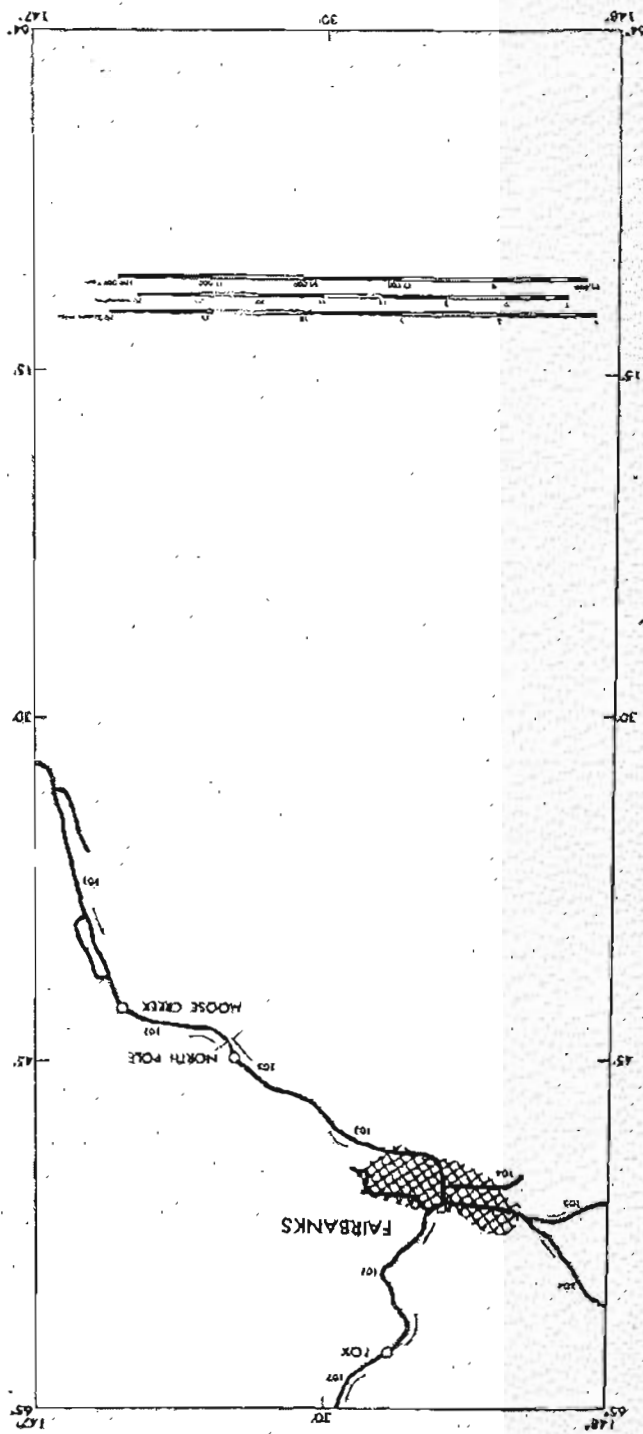
U.S. DEPARTMENT OF COMMERCE  
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION  
COAST AND GEODETIC SURVEY

VERTICAL CONTROL DATA  
by the  
Coast and Geodetic Survey

QUAD 6417 PAGE NO. 1  
ALASKA  
LATITUDE 64° to 65°  
LONGITUDE 147° to 148°  
TUGSON RIVER  
DIAGRAM

Appendix 1 119

64147



Changed also to:

# VERTICAL CONTROL DATA

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

by the  
Coast and Geodetic Survey

CSD 60147 PAGE NO. 73  
ALASKA  
LAKES 64 to 65  
LAKES 147 to 148  
YUKON RIVER  
DIAGRAM

U.S. DEPARTMENT OF COMMERCE  
COAST AND GEODETIC SURVEY

## RECOVERY NOTE, BENCH MARK

**Designation** H 53  
**Nearest town** Fairbanks  
**Distance and direction from nearest town** At Fairbanks  
**Character of mark** A U.S. Geological Survey Aluminum Disk  
**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, 1.3 feet west of a fence, 0.1 foot underground, and welded on top of a 2 1/2-inch iron pipe.

**Notes:** 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 1957  
**Nearest town** Fairbanks  
**Distance and direction from nearest town** At Fairbanks  
**Character of mark** A CAGS Bench Mark Disk  
**Established by** CAGS  
**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, 6.8 feet west of the east curb, 1.2 feet east of the base of the touchmark light pole, 1.0 foot south 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

**Designation** J 53  
**Nearest town** Fairbanks  
**Distance and direction from nearest town** At Fairbanks  
**Character of mark** A CAGS Bench Mark Disk  
**Established by** CAGS  
**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 - 1957

U.S. DEPARTMENT OF COMMERCE  
COAST AND GEODETIC SURVEY

## RECOVERY NOTE, BENCH MARK

**Designation** H 53  
**Nearest town** Fairbanks  
**Distance and direction from nearest town** At Fairbanks  
**Character of mark** A CAGS Bench Mark Disk  
**Established by** CAGS  
**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 - 1957

U.S. DEPARTMENT OF COMMERCE  
COAST AND GEODETIC SURVEY

## RECOVERY NOTE, BENCH MARK

**Designation** D 53  
**Nearest town** Fairbanks  
**Distance and direction from nearest town** At Fairbanks  
**Character of mark** A CAGS Bench Mark Disk  
**Established by** CAGS  
**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 street, 1.1 feet southeast 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

**Designation** Q 5  
**Nearest town** Fairbanks  
**Distance and direction from nearest town** At Fairbanks  
**Character of mark** A CAGS Bench Mark Disk  
**Established by** CAGS  
**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.

## SPOT LINE SOUTHWEST TO FAIRBANKS INTERNATIONAL AIRPORT

## DESCRIPTION OF BENCH MARK

**Designation** A 121  
**Nearest town** Fairbanks  
**Distance and direction from nearest town** 0.8 mile southeast  
**Character of mark** A CAGS Bench Mark Disk  
**Established by** CAGS  
**Detailed description** 0.8 mile south along Cushman Street or the Richardson Highway from the post office at Fairbanks, thence 0.1 mile west along Airport Way, set vertically in the north face of the concrete foundation of a projection of the building, 1.2 feet north of the center of the main entrance to the auditorium, 16.7 feet west of the center of the main entrance doors to the auditorium, 10.7 feet west of a well-sounded fire hose connection, 1.2 feet west of the west side of a small overhanging 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

**Designation** D 60  
**Nearest town** Fairbanks  
**Distance and direction from nearest town** 0.7 mile southwest  
**Character of mark** A CAGS Bench Mark Disk  
**Established by** CAGS  
**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 64187 PAGE NO. 74  
ALASKA  
LATITUDE 64° to 65°  
LONGITUDE 147° 30' to 148°  
YUKON RIVER

U.S. DEPARTMENT OF COMMERCE  
COAST AND GEODETIC SURVEY

RECOVERY NOTE, BENCH MARK

**R**  
Designation A 60  
Nearest town Fairbanks  
Distance and direction from nearest town 1.6 miles southwest  
Character of mark A C&GS Bench Mark Disk  
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 Wilbur Street, 30.4 feet north-northeast of the northeast corner of a residence at 2001 Airport Way, 42.5 feet south of the center line of the street, 35 feet west of the center line of Wilbur Street, 91 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

RECOVERY NOTE, BENCH MARK

**R**  
Designation WEST GATE  
Nearest town Fairbanks  
Distance and direction from nearest town 2.65 miles southwest  
Character of mark A C&GS Triangulation Station Disk  
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 -2 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 Botsel, 31 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 braced 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  
Nearest town Fairbanks  
Distance and direction from nearest town 2.1 miles southwest  
Character of mark A C&GS Bench Mark Disk  
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 Pagar Road, 35 feet south of the center line of Airport Way, 194 feet west of the center line of Pagar Road, 181 feet north-northeast of the northeast corner of a Catholic church, 94 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  
Nearest town Fairbanks  
Distance and direction from nearest town 3.2 miles west  
Character of mark A C&GS Bench Mark Disk  
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 2.6 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  
Nearest town Fairbanks  
Distance and direction from nearest town 2.6 miles southwest  
Character of mark A C&GS Bench Mark Disk  
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 2.2 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 leading 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  
Nearest town Fairbanks  
Distance and direction from nearest town 3.85 miles west  
Character of mark A C&GS Bench Mark Disk  
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 Pagar Road, 55 feet north of the center line of Airport Way, 82 feet east of the center line of a short gravelled road leading north, 72 feet east of a power pole, 6 feet north of a point in line with a row of poles, 5.2 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.

SEPTEMBER 1966

# VERTICAL CONTROL DATA

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

QUAD 6A187 PAGE NO. 23  
ALASKA  
LATITUDES 69° to 65°  
LONGITUDES 157° to 159°  
YUKON RIVER  
DIAGRAMS

LINE 194

U.S. DEPARTMENT OF COMMERCE  
COAST AND GEODETIC SURVEY

## RECOVERY NOTE, BENCH MARK

**R**  
Designation R 60  
Nearest town Fairbanks  
Distance and direction from nearest town 6.45 miles west  
Character of mark A CAGS Bench Mark Disk  
Established by CAGS  
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 221, 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.

## RECOVERY NOTE, BENCH MARK

**R**  
Designation K 60  
Nearest town Fairbanks  
Distance and direction from nearest town At Fairbanks  
Character of mark A CAGS Bench Mark Disk  
Established by CAGS  
Present condition Good  
Detailed report At Fairbanks International Airport, 0.55 mile southwest along the northwest asphalt taxiway from bench mark WJ 60 1951, at the elephant ear directly southeast of the maintenance station shop, 153 feet northwest of the center line of the northeast taxiway, 41 feet southeast of the center line of a paved road leading northwest to the maintenance shop from the taxiway, 20 feet southeast of runway light 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 1/4 Sec. Cor. (610)  
Nearest town Fairbanks  
Distance and direction from nearest town At Fairbanks  
Character of mark A General Land Office Cap  
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 WJ 60 1951, 400 feet northwest of bench mark WJ 60 1951, 250 feet southwest of the northeast corner of the southeast corner of the southeast corner of the Alaska Airlines Cargo Office, 20 feet southeast of the southeast corner of a 4 x 1 foot concrete foundation which projects 0.6 foot, 0.1 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.

## RECOVERY NOTE, BENCH MARK

**R**  
Designation 427.07 (CAA)  
Nearest town Fairbanks  
Distance and direction from nearest town 5.4 miles southwest  
Character of mark 40-penny nail upside down  
Established by U.S. Civil Aeronautics Administration  
Present condition Not recovered-Considered destroyed  
Detailed report This bench mark was searched for but not recovered. The southwest end of the runway has been extended and it is believed that this mark was destroyed at that time.

U.S. DEPARTMENT OF COMMERCE  
COAST AND GEODETIC SURVEY

## RECOVERY NOTE, BENCH MARK

**R**  
Designation J 60  
Nearest town Fairbanks  
Distance and direction from nearest town At Fairbanks  
Character of mark A CAGS Bench Mark Disk  
Established by CAGS  
Present condition Good  
Detailed report At Fairbanks International Airport, 400 feet southeast along the northwest edge of an asphalt apron from bench mark WJ 60 1951, about 2.5 yards northeast of the control tower, 4.5 feet south of the south corner of Men 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.

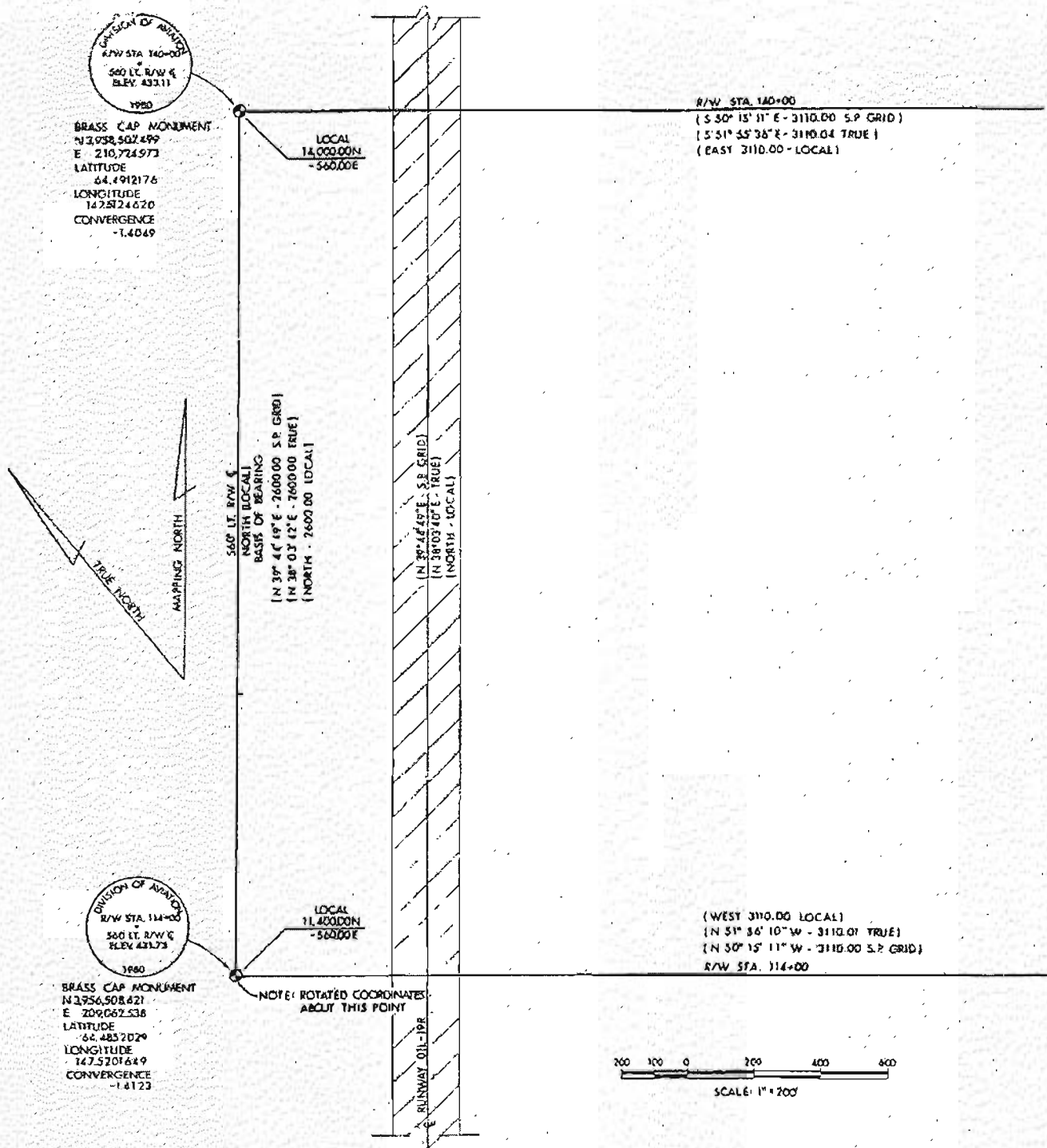
## RECOVERY NOTE, BENCH MARK

**R**  
Designation R 5  
Nearest town Fairbanks  
Distance and direction from nearest town At Fairbanks  
Character of mark A CAGS Bench Mark Disk  
Established by CAGS  
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 mark was destroyed at that time.

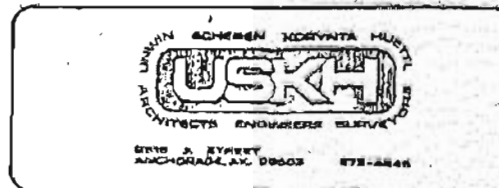
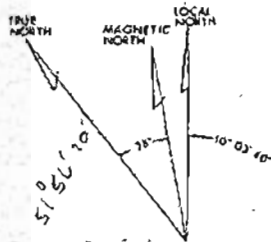
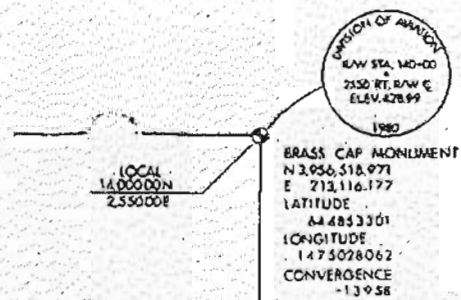
## DESCRIPTION OF SUPPLEMENTARY ELEVATION POINT

**SP**  
Name Fairlight Mt. High Point  
Distance and direction from nearest town 0.2 mile east of J 60 1951  
Detailed description The high point of the Fairbanks International Airport is 0.2 mile east of bench mark WJ 60 1951, in the center line of the runway east of light number 3.

END OF THE SPUR LINE



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

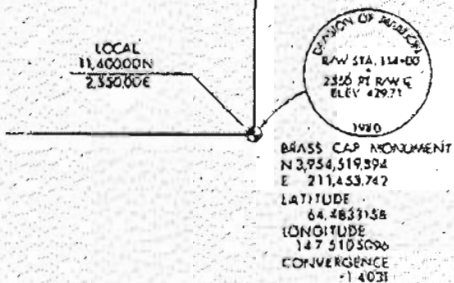


# FAIRBANKS INTERNATIONAL AIRPORT

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.





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## APPENDIX 2

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

(from Luckey and Rogers, 1989)

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## 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. C - 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
	<ul style="list-style-type: none"> <li>A - Airline measurement</li> <li>B - Analog or graphic recorder</li> <li>C - Calibrated airline measurement</li> <li>E - Estimated</li> <li>G - Pressure-gage measurement</li> <li>H - Calibrated pressure-gage measurement</li> <li>L - Interpreted from geophysical logs</li> <li>M - Manometer measurement</li> <li>N - Nonrecording gage</li> <li>R - Reported, method not known</li> <li>S - Steel-tape measurement</li> <li>T - Electric-tape measurement</li> <li>V - Calibrated electric-tape measurement</li> <li>Z - Other</li> </ul>	
C037	Site status at water-level measurement, p. 2-37	1.53
	<ul style="list-style-type: none"> <li>D - The site was dry (no water level is recorded).</li> <li>E - The site was flowing recently.</li> <li>F - The site was flowing, but the head could not be measured (no water level is recorded).</li> <li>G - A nearby site that taps the same aquifer was flowing.</li> <li>H - A nearby site that taps the same aquifer had been flowing recently.</li> <li>I - Injector site (recharges water being injected into the aquifer).</li> <li>J - Injector site monitor (a nearby site that taps the same aquifer is injecting recharge water).</li> <li>N - The measurement was discontinued.</li> <li>O - An obstruction was encountered in the well above the water surface (no water level is recorded).</li> <li>P - The site was being pumped.</li> <li>R - The site had been pumped recently.</li> <li>S - A nearby site that taps the same aquifer was being pumped.</li> <li>T - A nearby site that taps the same aquifer had been pumped recently.</li> <li>V - A foreign substance was present on the surface of the water.</li> <li>W - The well was destroyed.</li> <li>X - The water level was affected by stage in nearby surface-water site.</li> <li>Z - Other conditions that would affect the measured water level.</li> </ul>	

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	R - Rotary pump
	B - Bucket	S - Submergible pump
	C - Centrifugal pump	T - Turbine pump
	J - Jet pump	U - Unknown
	P - Piston pump	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	L - LP-gas engine
	E - Electric motor	N - Natural-gas engine
	G - Gasoline engine	W - Windmill
	H - Hand	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	P - Air percussion
	B - Bored or augered	R - Reverse rotary
	C - Cable-tool	T - Trenching
	D - Dug	V - Driven
	H - Hydraulic rotary	W - Drive and wash
	J - Jetted	Z - Other

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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

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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	ORDN
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	REBL
Colluvium	CLVM	Sand	SAND
Conglomerate	CGLM	Sand and clay	SDCL
Covina	CQUN	Sand and gravel	SDGL
Diabase	DIBS	Sand and silt	SDST
Diorite	DORT	Sand, gravel, clay	SGVC
Dolomite	DLMT	Sand, some clay	SNCL
Drift	DRPT	Sandstone	SNDS
Evaporite	EVPR	Sandstone and shale	SDSL
Gabbro	GBBR	Saprolite	SPRL
Glacial (undifferentiated)	GLCL	Schist	SCST
Gneiss	GNSE	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 - Acoustic 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
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
C266	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.CONC) 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/NSVL 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
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C804	Flags type of data collected (30), p. 2-21	1.21
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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
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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



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## APPENDIX 3

### Data-retrieval information

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### 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
MSEXCELS.EXE	compressed Excel files

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## **APPENDIX 4**

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

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#### 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 Aquifers
- 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><BR>
- 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