State of California

The Resources Agency

Department of Water Resources

Division of Local Assistance

ANNUAL REPORT

OF THE

MUNICIPAL WATER QUALITY

INVESTIGATIONS PROGRAM

Summary of

Monitoring Results

January 1990 - December 1990

February 1993

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Secretary for Resources
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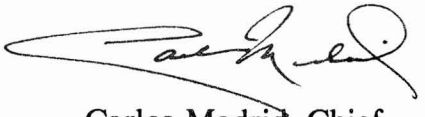
FOREWORD

In 1990 the California Department of Water Resources unified its drinking water quality studies in the Sacramento-San Joaquin Delta into the Municipal Water Quality Investigations Program. The new Program combined the Interagency Delta Health Aspects Monitoring Program, the Delta Islands Drainage Investigation, and ancillary studies into one study.

The MWQI Program's major goal is to assist water agencies in the protection and improvement of Delta drinking water supplies. Program staff examine the major sources and causes of water quality changes in the Delta that affect drinking water quality. They monitor key Delta channel and river stations and agricultural drains for contaminants such as pesticides, selenium, sodium, and trihalomethane formation potential.

This MWQI Program report focuses on data collected during 1990. The report includes a brief summary of the relationships found among different water quality parameters.

Further information about the Municipal Water Quality Investigations Program is available from Mr. Bruce Agee at the Division of Local Assistance, DWR. He can be reached by phone at (916) 327-1677.



Carlos Madrid, Chief
Division of Local Assistance

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This report was prepared under contract B-56213 by Marvin Jung & Associates, Inc., Sacramento.

SUMMARY

The drought persisted through 1990 with low Sacramento and San Joaquin River flows to the Delta. Sacramento River flows at Freeport averaged less than 15,000 cubic feet per second after January 1990 storms had passed. San Joaquin River flows near Vernalis remained nearly constant, averaging about 1300 cfs. Net Delta outflows at Chipps Island (computed Delta Outflow using the DWR DAYFLOW model) fell below 5,000 cfs during the summer.

Sodium concentrations at the Harvey O. Banks Pumping Plant Headworks did not exceed the 100 mg/L recommended limit for persons on restricted sodium diets. However, sodium levels in Rock Slough (at Old River), east of the Contra Costa Water District intake, were over 100 mg/L in April, and again during the fall. The increased sodium concentrations, as well as chloride and EC increases, are due to the low flow conditions and sea water intrusion into the western Delta. Sodium levels at the Sacramento River at Greene's Landing station averaged 10 mg/L.

During 1990, the main source of fresh water into the Delta was the Sacramento River. Pumping by the federal Tracy Pumping Plant caused most San Joaquin River flow to be diverted into the Delta Mendota Canal.

The extent of sea water intrusion caused by low fresh water Delta outflows can be monitored by measuring concentrations of bromide, a constituent of sea water. During 1990, the bromide to chloride concentration ratios in southwestern Delta waters were generally similar to sea water. However, bromide to chloride ratios varied in Delta agricultural drainage. The ratios also varied in channels to the north and east of the segment of Old River where the DMC intake and Rock Slough are located. Bromide to chloride ratios should change as a result of reduced sea water intrusion in wetter years. The main conclusion is that sea water has been the primary source of bromide to the Delta during the dry years 1987-1990.

The 1990 observations confirmed earlier data and conclusions about the significantly higher total trihalomethane formation potential (TTHMFP) concentrations in agricultural drain water, as compared to the Delta channels. Again observed in 1990 was a geographic pattern of progressively increasing TTHMFP southward from Greene's Landing toward the export pumps in the southwestern Delta.

The impact of reduced agricultural drainage on Delta water quality will be studied in 1991. Many acres of land will lay fallow due to the sale of irrigation water to the State water bank program.

Water Quality Relationships

Staff performed statistical tests to determine water quality relationships and trends. The range of correlation values (R-squared) in the data set shows a wide range of factors that affect water quality across the Delta.

Some parameters correlated well with others, but no single regression model or equation worked for all stations. Statistical determinations were inconclusive because of limited data on some water quality parameters at some stations. Unique sets of correlations and model equations may be required to represent each station or region of the Delta because of the complexities of water movement, sources, and soil types. However, until more data are collected, the results of the statistical analyses presented in this report are considered to be preliminary. The low number of observations (< 30) at some stations can result in incorrect estimates of the strength of the correlations tested. Also, it cannot be determined if the data fit a normal distribution pattern until more data are collected. A normal distribution and other assumptions are the basis for the statistical tests that were performed.

Of special interest are water quality parameters that may predict TTHMFP. The best correlations included measurements of bromide concentration and organic trihalomethane (THM) precursor. Ultraviolet absorbance (UVA) measurements at 254 nanometers (nm) yielded better correlations with TTHMFP and THM Formation Potential as Carbon (TFPC) than TTHMFP with Dissolved Organic Carbon (DOC). This is because UVA-254 is a specific measurement of the humic fraction of DOC, which contains THM precursors. DOC, on the other hand, may consist of nonhumic as well as humic matter.

In most cases, agricultural drainages from peat soil areas had the highest and most consistent correlations between different water quality parameters. These areas include Empire Tract, King Island, Bouldin Island, Bacon Island, Webb Tract, and Rindge Tract. UVA and bromide measurements may be used alone or in combination to estimate TTHMFP concentrations in these drainages.

The correlations of some water quality parameters at the San Joaquin River at Maze Road station were similar to those found at the agricultural drainage stations. This reflects upstream discharges of Central Valley farm drainage into the San Joaquin River above Maze Road.

Correlations at channel stations to predict TTHMFP from other water quality data were poor. This is likely due to the dynamic hydrology at these stations and seasonal influences on water quality from storms, drainage discharges, upstream releases and diversions, tides, and other factors.

There may be strong seasonal TTHMFP-UVA-Br relationships that may not be

evident when the data are collectively tested. Presently, there are too few data points at some stations, especially, at the channel stations, to test for seasonal differences.

The possible interference of UVA measurements by other water quality constituents (e.g., bromides, nitrites, nitrates, iron, manganese) needs to be examined in the laboratory. It may explain some of the poor TTHMFP-UVA correlations.

Statistical analyses are continuing as new data are obtained to confirm and refine the preliminary mathematical relationships.

PROGRAM DESCRIPTION

A. Purpose

In 1989, DWR established the Municipal Water Quality Investigations Program. The Program unified DWR drinking water quality studies in the Sacramento-San Joaquin Delta. The previous studies included the Interagency Delta Health Aspects Monitoring Program, the Delta Island Drainage Investigation, and special studies to monitor bromide and sea water intrusion.

Department staff monitor and assess the major sources of water quality impacts in the Delta. Included are the Bay-Delta estuary, river inflows, drainages from land surfaces, the Delta channels, and weather-related events.

The data are used to:

(1) Alert water agencies about potential contaminant sources to Delta water supplies,

(2) Document water quality under a variety of hydrologic conditions for studying water transfer alternatives, water quality standards, and predictive modeling capabilities,

(3) Determine the influence of sea water intrusion, local and external sources of farm drainage, river input, in-channel processes, weather, and State Water Project and Central Valley Project operations on Delta drinking water quality. Selenium, bromide, and other inorganic constituents are used to trace the movement and mixing of water from different sources, and

(4) Assist water agencies in planning, protecting, and improving drinking water facilities.

Over the intervening years, several water-borne contaminants and pollutants were monitored. These include asbestos, salinity, selenium, pesticides, and trihalomethane precursors. Special sampling runs are made when additional water quality concerns arise.

The evaluation of monitoring data enables an understanding of the shifts in water quality due to a variety of environmental conditions and water management operations.

In summary, MWQI data are used for planning and protecting Delta water resources. This is the first project report of the Municipal Water Quality Investigations Program.

B. Program Advisors

Advice on the program's direction and technical expertise is provided by two advisory committees and a subcommittee (Table 1). A Municipal Water Quality Advisory Committee and Technical Subcommitee provide close coordination and communication between the MWQI Program staff and major water agencies and regulatory agencies. The Advisory Committee provides policy level guidance and recommends program modifications as needed to respond to changing drinking water quality concerns.

The Technical Subcommittee provides a variety of expertise, including: knowledge about the latest analytical methods, water treatment practices, proposed drinking water standards, interpretation of monitoring data, and implemention of program changes as recommended by the Advisory Committee.

A Delta Lands Advisory Committee assists the Department in gaining access for monitoring agricultural drainages in the Delta, and provides information about farming operations and practices that may affect Delta water use.

The advisory bodies review and comment on program reports.

Table 1. Program Advisors and Participants During 1990

Municipal Water Quality Advisory Committee

Chair: James U. McDaniel ..... California Department of Water Resources

Dennis Allen ..... East Bay Municipal Utility District
James Baetge ..... State Water Resources Control Board
George Baumli ..... State Water Contractors
Doug Chun ..... Alameda County Water District
Duane Georgeson ..... The Metropolitan Water District of Southern California
Jerome B. Gilbert ..... East Bay Municipal Utility District
Lyle N. Hoag ..... California Urban Water Agencies
Roger James ..... Santa Clara Valley Water District
Bruce W. Kuebler ..... City of Los Angeles Department of Water and Power
Austin Nelson ..... Contra Costa Water District
Peter A. Rogers ..... California Department of Health Services
Leo Winternitz ..... State Water Resources Control Board

Technical Subcommittee

Chair: Richard P. Woodard ..... California Department of Water Resources

Keith Carns ..... East Bay Municipal Water Quality District
John Coburn ..... State Water Contractors
Andrew Florendo ..... Alameda County Flood Control and Water Conservation District, Zone 7
Greg Gartrell ..... Contra Costa Water District
Lyle N. Hoag ..... California Urban Water Agencies
Stuart Krasner ..... The Metropolitan Water District of Southern California
Michael Lanier ..... Alameda County Water District
Bruce Macler ..... U. S. Environmental Protection Agency
Edward Means ..... The Metropolitan Water District of Southern California
Alexis Milea ..... California Department of Health Services
Hoover Ng ..... City of Los Angeles Department of Water and Power
Walt Wadlow ..... Santa Clara Valley Water District

Delta Lands Advisory Committee

Chair: Richard P. Woodard ..... California Department of Water Resources

Jack Baber ..... Reclamation District 1004
Mike Catino ..... California Central Valley Flood Control Association
Thomas M. Hardesty ..... Reclamation District 2068
Alex Hildebrand ..... Reclamation District 2075 and South Delta Water Agency
Donald Kienlan ..... Murray, Burns, and Kienlen Engineers
James Shanks ..... Reclamation District 38
John Winther ..... Delta Wetlands, Inc.

C. Monitoring Stations

The MWQI Program staff coordinate several monitoring tasks. These include the monthly monitoring of key Delta stations, synoptic surveys to study sea water intrusion, and Delta island drainage sampling.

Water quality is a public health concern at major water supply intakes in the Delta. Five such stations that are monitored routinely include the:

(1) American River Water Treatment Plant intake that serves the City of Sacramento (Station 1).

(2) North Bay Pumping Plant (Station 87) that serves Solano and Napa Counties.

(3) Rock Slough at Old River (Station 9), 4 miles east of the Contra Costa Water District intake.

(4) Harvey O. Banks Delta Pumping Plant Headworks (Station 12), which is the headworks of the California Aqueduct.

(5) Delta Mendota Canal Intake at Lindemann Road (Station 11), which is upstream of the Tracy Pumping Plant for the Delta-Mendota Canal.

In addition to these stations, other monitoring locations in the Delta provide information about the sources of Delta waters, and enable a more comprehensive evaluation of water quality conditions.

Synoptic surveys were frequently made in the western Delta along Old River. These surveys tracked the movement of sea water entering the SWP, CVP, and CCWD pumping facilities. The relationship of bromide to chloride was examined for modeling purposes.

Drainage sampling expanded to include Webb Tract, Holland Tract, and Bacon Island. Access to these lands by permission of the Delta Wetlands Corporation is providing the opportunity to compare the drainage quality of peat soil areas in the western Delta to other Delta islands. Some previously sampled drains were abandoned because of urbanization; new homes have been constructed at Mossdale Tract and a new golf course has been built at Moss Tract.

Water quality monitoring stations that were sampled during 1990 are listed in Table 2. The Station Identification Number (assigned for convenient reference), official DWR Station Number, official Station Name, abbreviated station name, and station type (drainage or non-drainage) are shown.

Most channel or export facility monitoring stations were sampled once each month. Drainage stations were sampled during periods of major farming activity that would have increased drainage volume and affected drain water quality (e.g., summer irrigation and winter field leaching months). Some channel stations were sampled twice per month in the southwestern Delta to study bromide concentrations due to sea water intrusion.

The channel stations within the Delta are shown in Figure 1. Agricultural drain sampling stations are shown in Figure 2.

Table 2. Monitoring Stations

STATION ID	DWR STATION #	STATION NAME	STATION ABBREV.	TYPE
1	A0714010	American River at Water Treatment Plant	AMERICAN	HF
2	B9D82071327	Sacramento River at Greene's Landing	GREENES	HF
5	B9V81171369	Ag Drain on Grand Island	AGDGRAND	AD
7	B9D80371300	Little Connection Sl. @ Empire Tract	LCONNECT	HF
8	B9V80361299	Ag Drain on Empire Tract, W.end 8-Mi. Rd.	AGDEMPIRE	AD
9	B9D75841348	Rock Slough @ Old River	ROCKSL	HF
10	KA000000	Clifton Court Intake	CLIFTON	HF
11	B9C74901336	DMC Intake @ Lindemann Rd.	DMC	HF
12	KA000331	Delta P.P. Headworks	BANKS	HF
13	B9D75351293	Middle R. @ Borden Hwy.	MIDDLER	HF
14	B0702000	San Joaquin R. nr. Vernalis	VERNALIS	HF
17	E0B80261551	Sacramento River @ Mallard Island	MALLARDIS	HF
20	A0V83681312	Natomas Main Drain	NATOMAS	AD
21	B9V80541310	Ag Drain on Bouldin Tract, PP. No. 1	BOULDIN1	AD
22	B9V80611335	Ag Drain on Bouldin Tract, PP. No. 2	BOULDIN2	AD
25	B9V80461224	Ag Drain on King Island, PP. No. 1	KINGISPP01	AD
26	B9V80271262	Ag Drain on King Island, PP. No. 2	KINGISPP02	AD
27	B9V80331273	Ag Drain on King Island, PP. No. 3	KINGISPP03	AD
44	B9V74811246	Ag Drain on Pescadero Tr., PP. No. 1	PESCADERO01	AD
45	B9V74811241	Ag Drain on Pescadero Tr., PP. No. 2	PESCADERO02	AD
46	B9V74821231	Ag Drain on Pescadero Tr., PP. No. 3	PESCADERO03	AD
47	B9V81801307	Ag Drain on Pierson Tr., PP. No. 1	PIERSONPP01	AD
50	B9V80001255	Ag Drain on Rindge Tract, PP. No. 1	RINDGEPP01	AD
51	B9V80271282	Ag Drain on Rindge Tract, PP. NO. 2	RINDGEPP02	AD
59	B9V75441298	Ag Drain on Upper Jones Tr., PP. No. 1	UPJONESPP01	AD
60	B9V75641318	Ag Drain on Upper Jones Tr., PP. No. 2	UPJONESPP02	AD
61	B9V80671368	Ag Drain on Brannan Island, PP. No. 1	BRANNANPP01	AD
62	B9V80711377	Ag Drain on Brannan Island, PP. No. 2	BRANNANPP02	AD
63	B9V80721385	Ag Drain on Brannan Island, PP. No. 3	BRANNANPP03	AD
64	B9V80741398	Ag Drain on Brannan Island, PP. No. 4	BRANNANPP04	AD
65	B9V74961340	Ag Drain on Clifton Court	AGDCLIFTON	AD
68	B9V74781220	Ag Drain on Pescadero Tract, PP. No. 4	PESCADERO04	AD
69	B9V74661251	Ag Drain on Pescadero Tract, PP. No. 5	PESCADERO05	AD
75	B0704000	San Joaquin R. @ Maze Rd. Bridge	MAZE	HF
80	KA007089	CA Aqueduct, Ck 13, O'Neill Outlet	CHECK 13	HF
85	KA007089	O'NEILL FOREBAY CHECK 13	CHECK13	HF
87	B9D81661478	Barker Sl @ North Bay PP	BARKERNOBAY	HF
88	B9D80961411	Sacramento River @ Rio Vista Bridge	SACRRIOVISTA	HF
91	B9D80361275	Honker Cut at Atherton Road Bridge	HONKER	HF
100	B9D75891348	Old R. N/O Rock Sl (St 4b)	STATION04B	HF
103	B9D75351342	Old R. nr. Byron (St 9)	STATION09	HF
105	B9D74971331	West Canal at Clifton Court FB Intake	WSTCANCLIFT	HF
107	B9D81481305	Delta Cross Channel Gate nr Walnut Grove	DELTACRCHAN	HF
108	B9D81441309	Georgiana Slough at Walnut Grove Bridge	GEORGSLWALNUT	HF
110	B9D75741317	Middle River at Bacon Island Bridge	MRIVBACON	HF
111	B9D75011229	Middle River at Mowry Bridge (Undine Rd)	MIDMOWRY	HF
112	B9D75881285	Turner Cut at McDonald Island Ferry	TURNERCUT	HF
113	B9D80191348	Old River at Sand Mound Slough	SANDMOUND	HF
114	B9D80011307	Middle River nr Latham Sl (Ferry Site)	LATHAM	HF
115	B9D80031294	Connection Sl. at Mandeville Isl Bridge	CONNMAND	HF
117	B9D75651333	Santa Fe-Bacon Island Cut nr Old River	SANTAFEBACON	HF
118	B9D75481334	Woodward/N. Victoria Canal nr Old River	NVICWOOD	HF
119	B9D75171329	North Canal nr Old River	NORTHCAN	HF
121	B9D74931328	Grant Line/Fabian/Bell Canals nr Old R.	GRANTOLD	HF
122	B9D74891331	Old River U/S from DMC Intake	OLDRIVDMC	HF
123	B9V80451387	Ag Drain on Webb Tract, PP. No. 1	WEBB01	AD
124	B9V80381361	Ag Drain on Webb Tract, PP. No. 2	WEBB02	AD
125	B9V75931350	Ag Drain on Holland Tract, PP. No. 1	HOLLAND01	AD
126	B9V80011348	Ag Drain on Holland Tract, PP. No. 2	HOLLAND02	AD
127	B9V80111361	Ag Drain on Holland Tract, PP. No. 3	HOLLAND03	AD
128	B9V75881342	Ag Drain on Bacon Island, PP. No. 1	BACON01	AD

Table 2 (cont.). Monitoring Stations

STATION ID	DWR STATION #	STATION NAME	STATION ABBREV.	TYPE
129	B9V80031328	Ag Drain on Bacon Island, PP. No. 2	BACON02	AD
130	B9D80311413	San Joaquin River at Jersey Point	SJRJERSEY	HF
131	B9D80301377	False River at Southerly Tip of Webb Tr.	FALSETIP-WEBB	HF
132	B9D74951331	Old River 6/10 mile below DMC intake.	OLDR-DMC-CLIFT	HF
133	B9D7584XXXX	Contra Costa Pumping Plant @ Rock Slough	CONCOSPP1	HF
411	B9D80771345	Mokelumne R. below Georgiana Sl	MOKGEORGIANA	HF
413	B9D80691298	L. Potato Slough @ Terminous	LPOTTERM	HF
602	B9D74711184	San Joaquin R. @ Mossdale Bridge	SJRMOSSDALE	HF
604	B9D74731285	Old River nr Tracy	OLDRTRACY	HF
605	B9D75291273	Middle R @ Tracy Rd Bdg	MRIVTRACY	HF
606	B9D74921269	Grant Ln Can @ Tracy Rd Bdg	GRANTLNCAN	HF

Type Code: AD refers to agricultural drain
HF refers to non-drainage station

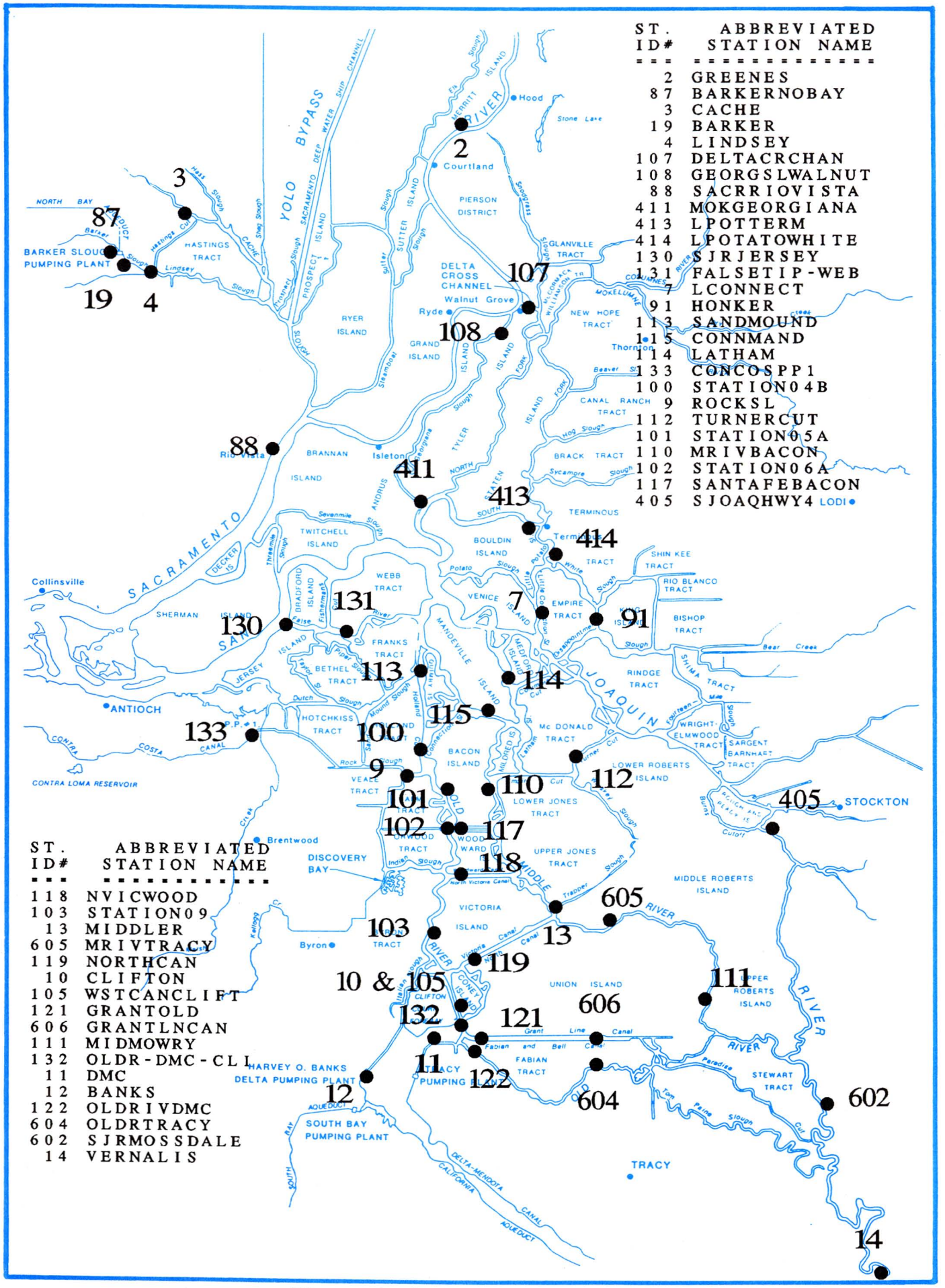


Figure 1. Channel Stations

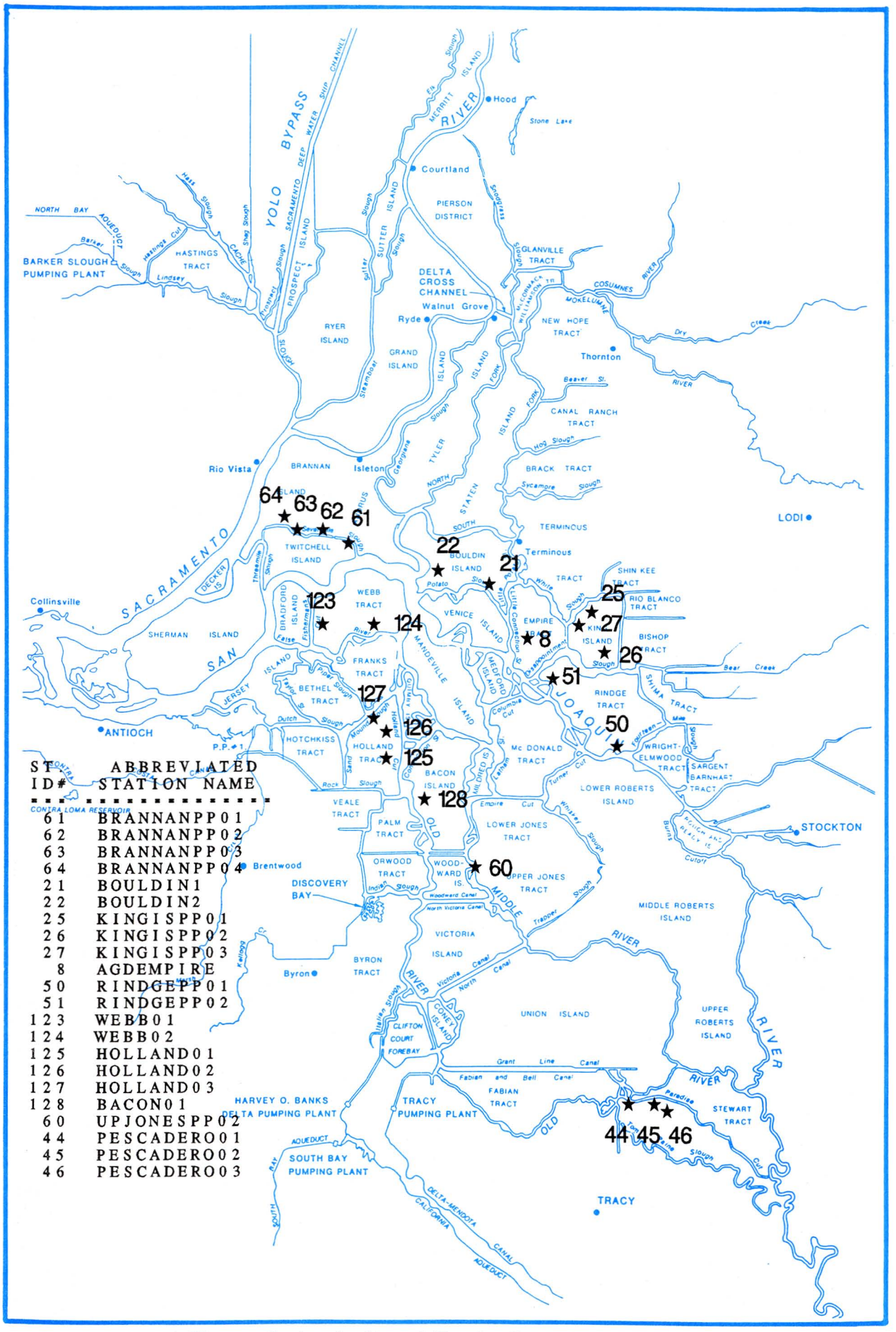


Figure 2. Agricultural Drain Sampling Stations

D. Field Sampling Methods

Samples are collected in a specially designed stainless steel bucket, developed by DWR. The sample bucket is equipped with two Teflon® valves to dispense the collected water. This is especially useful for filling volatile organic analyses (VOA) vials for TTHMFP determinations. Before the bucket is used, it is washed in detergent, rinsed in tap water, and air dried. For some analyses the samples are filtered in the field with a 0.45 μm filter using a peristaltic pump with Teflon® tubing.

A Yellow Springs Instrument® (YSI) electrical conductivity/temperature meter is used to record EC and temperature. The Hellige® colorimetric pH kit or a Beckman ® model 10 portable pH meter was used to determine pH. Dissolved oxygen was measured with a Yellow Springs Instruments® Model 50 dissolved oxygen meter. All electrical conductivity meters are calibrated before use on each data collection run.

Filtered samples for VOA were collected in 40 ml. glass vials. Sample containers were completely filled to eliminate air space and air bubbles. The caps of the 40 ml. vials were fitted with Teflon® coated septa, as specified by the U.S. Environmental Protection Agency. Samples were kept on ice, or refrigerated and delivered to the laboratory within 24 hours of collection.

Separate sample containers were collected for laboratory measurements of bromide and UVA.

At least one field duplicate was collected on each sampling run (usually one duplicate in seven to ten samples). The duplicates were submitted to the laboratories with the regular samples as a quality assurance check.

E. Analytical Methods

At the receiving laboratory, water samples for TTHMFP analysis were chlorinated (inoculated) with about 120 mg/L chlorine. This high dosage was used to assure a chlorine residual after the 7-day incubation period at 25 degrees Celsius. At the end of 7 days, the chlorine residual was determined. The residual chlorine was then quenched using sodium thiosulfate, and the sample was analyzed for trihalomethanes by the gas chromatograph purge and trap methodology of EPA Method 502.2. THM analyses were performed at DWR's Bryte Laboratory.

Bryte Laboratory performed mineral, trace element, and nutrient analyses following EPA Method 600-4-79-020, Methods for Chemical Analysis of Water and Wastes (Revised March, 1983) and the U.S. Geological Survey's Methods for Determination of Inorganic Substances in Water and Fluvial Sediments. Further detail about laboratory methods used by Bryte Laboratory may be found in The Delta As A Source of Drinking Water, Monitoring Results 1983-1987, published by DWR.

Quality assurance procedures were in accordance with the DWR Bryte Chemical Laboratory Quality Assurance Program document dated April 4, 1990.

A Quality Assurance Project Plan is being adhered to by Department staff to ensure data integrity in the MWQI Program.

MONITORING RESULTS

A. Monthly Observations

Drought conditions occurred in water year 1987 (beginning October 1, 1986) and continued through 1990. Consequently, Delta water quality has reflected the prolonged dry weather hydrology.

1. Delta Outflow and River Inflows

Dry year conditions stretched into 1990 with low Sacramento and San Joaquin River flows to the Delta. The Sacramento River flows at Freeport averaged less than 15,000 cfs after January 1990 storms had passed. San Joaquin River flows near Vernalis remained nearly constant, averaging about 1300 cfs. The Net Delta outflows at Chipps Island (computed Delta Outflow using DWR DAYFLOW model) were also low, under 5,000 cfs during the 1990 summer. The monthly mean flows, as estimated by the Department's DAYFLOW computer model, are shown in Figure 3 for water year 1990.

As has been true in previous dry years, the primary source of fresh water into the Delta export facilities has been the Sacramento River. San Joaquin River flows into the Delta have been extremely low and have been largely diverted to the DMC intake.

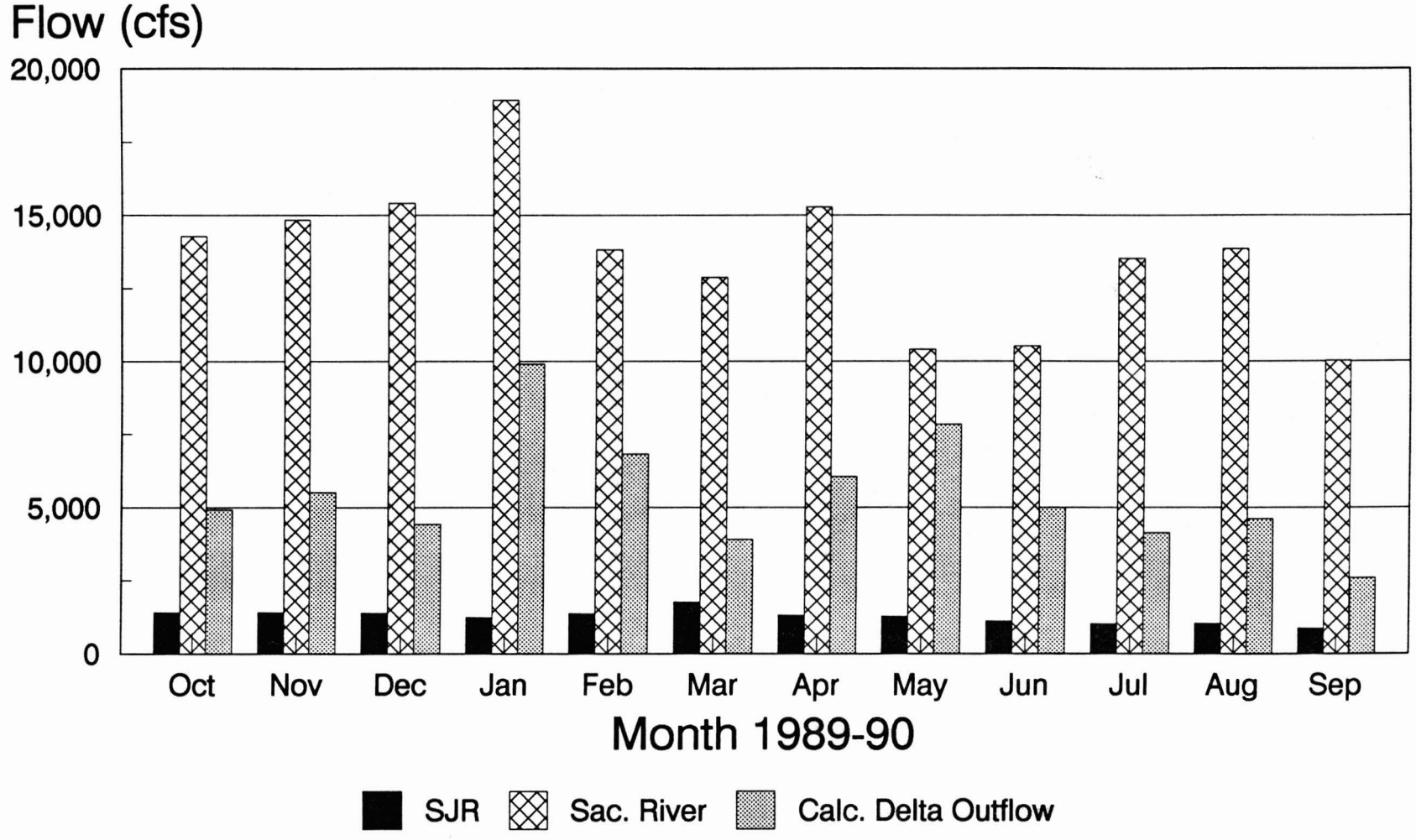
USGS gaging stations measure flows at Freeport (Sacramento River) and Vernalis (San Joaquin River). Net Delta outflow at Chipps Island is a computed estimate based on DAYFLOW model assumptions for precipitation runoff and consumptive use. Daily weather measurements at Stockton Fire Station No. 4 are used for precipitation values. The model assumes that the entire Delta receives uniform rainfall, and that the runoff is evenly distributed over a period of five days beginning at the initial storm rainfall. Consumptive use estimates, also referred to as the Deltawide Gross Channel Depletion Estimate, are fixed average values assigned to each calendar month, regardless of meteorological or hydrological conditions. Therefore, the computed DAYFLOW net Delta outflow estimate is subject to the limitations of the model assumptions.

Electrical conductivity observations are summarized for the key channel stations in Figure 4.

Figure 3

Delta Flows for Water Year 1990

Based on DWR DAYFLOW Program model run 3/25/91

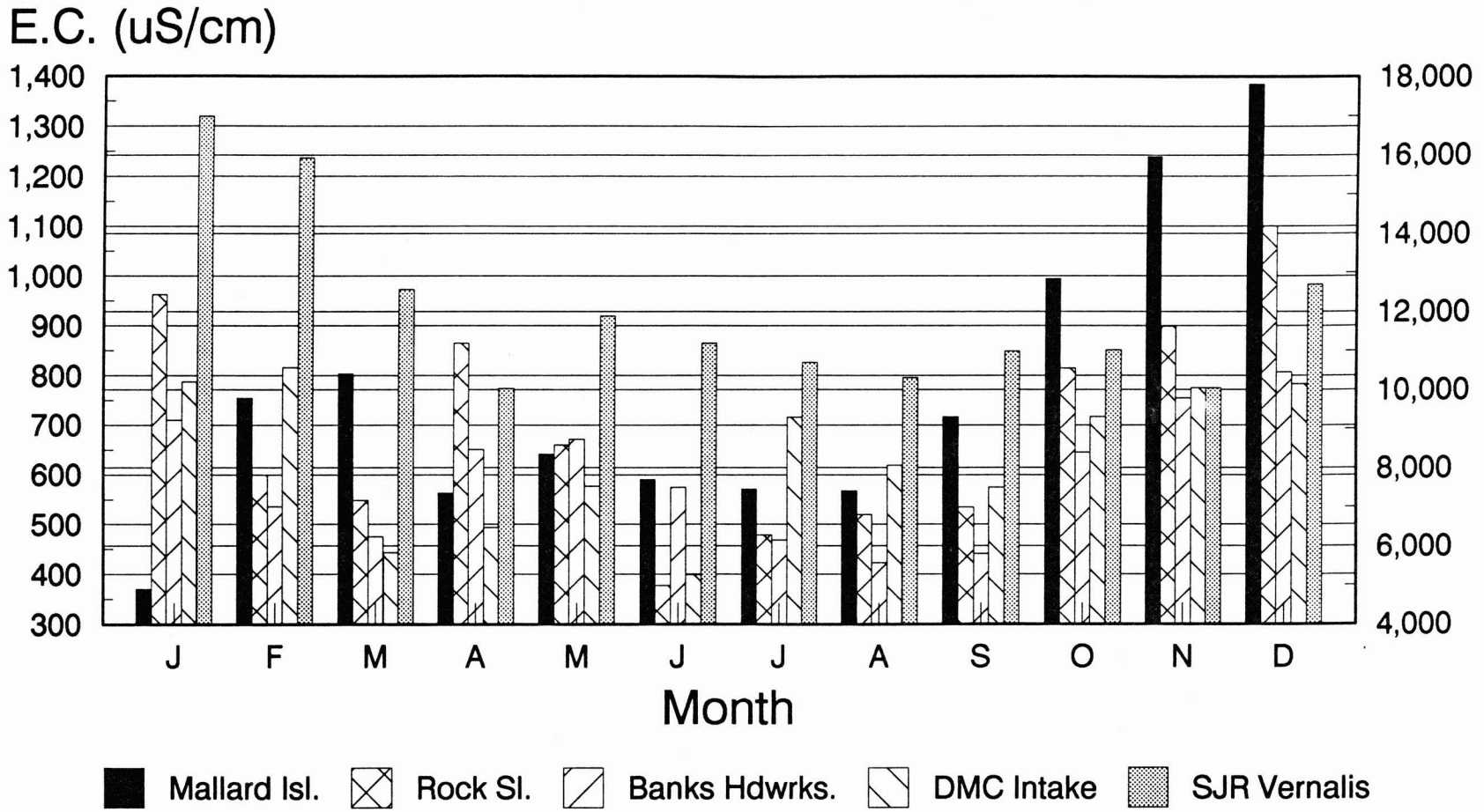


Monthly mean flows

Figure 4

Electrical Conductivity 1990

Monthly Average



Based on grab samples
Use right scale for Mallard Isl.
Left scale for other stations

2. Sodium

High levels of sodium can harm crops, corrode pipes, and make water unpalatable to drink. Excess sodium in the diet can cause health problems for people with heart conditions and high blood pressure.

The National Academy of Sciences has two advisories for sodium: 20 mg/L for people on severely restricted sodium diets, and 100 mg/L for those on moderately restricted diets. There are no federal or State drinking water standards for sodium at this time. EPA is unlikely to set a sodium standard soon, as agency staff have removed sodium from the Drinking Water Priority List. Currently, evidence is inconclusive as to whether elevated blood pressure is linked to sodium intake from drinking water; also most sodium intake comes from food.

Current EPA regulation requires all public water suppliers to monitor sodium in their drinking water and to report the levels to local authorities (40 CFR 141.41). When sodium levels are high, water suppliers must notify the State Department of Health Services which, in turn, coordinates with local health authorities to inform the public.

The major sources of sodium in the Delta are:

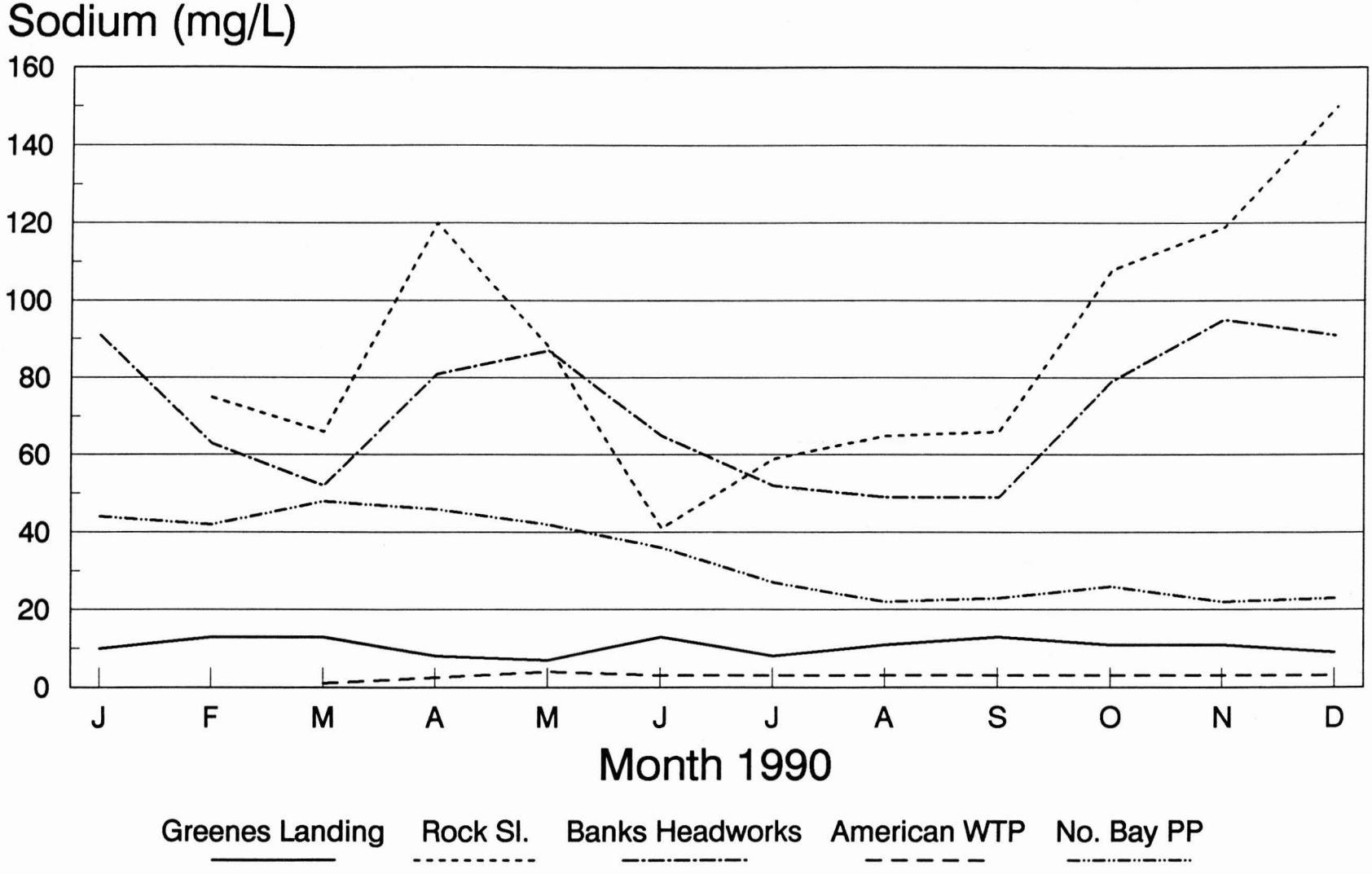
1. sea water intruding into the Delta,
2. local Delta drainages containing elevated salt concentrations due to the evaporation of applied irrigation water, and
3. Central Valley drainage discharged into the San Joaquin River.

Because San Joaquin River flows have been low (averaging less than 1300 cfs), most of the water returns to the Central Valley by way of the Delta Mendota Canal. Sodium impacts from the San Joaquin River, if any, are probably localized to the southern Delta region along Old River, and Grant Line, Fabian, and Bell canals.

Sodium concentrations at stations near drinking water supply intakes are shown Figure 5. Sodium concentrations were above 100 mg/L at the Rock Slough at Old River station in April, and again during fall 1990. In contrast, sodium averaged 10 mg/L at the Sacramento River at Greene's Landing station during the year.

Figure 5

Sodium Concentrations (mg/L) 1990



Monthly mean of grab samples

3. Trihalomethane Formation Potential

Disinfection of water supplies is a standard practice of water agencies distributing drinking water to the public. The addition of chlorine is widely used as a highly reliable and economical method of disinfection. During the chlorination process, chlorine reacts with certain complex organic compounds and bromide ions in the water to form disinfection byproduct compounds including THMs. The total THM levels in drinking water are regulated by the State and federal governments.

Four trihalomethanes are found in drinking water: chloroform ($CHCl_3$), dichlorobromomethane ($CHCl_2Br$), dibromochloromethane ($CHClBr_2$), and bromoform ($CHBr_3$). Of these, chloroform is classified as a carcinogen. Currently, the Maximum Contaminant Level for total THMs is 0.100 mg/L (equivalent to 100 μg/L or parts per billion) in treated water samples, computed as an arithmetic sum of the concentrations of the four THM chemical species. Compliance is determined as a running annual average of quarterly samples taken from representative points in the drinking water distribution system.

Since 1983, TTHMFP of Delta waters has been measured by DWR to better understand the sources and distribution of THM precursors in the Delta. The TTHMFP test is an assay designed to measure the maximum concentration of THMs that would be formed if chlorine dosage and reaction times were essentially unlimited. The purpose of the assay is to enable a comparison of untreated source water supplies with respect to their capacity to form THMs.

Water samples are collected and initially spiked with a high dosage of chlorine (120 mg/L) to ensure a chlorine residual for a seven-day reaction (incubation) period. The high dose maximizes the conversion of THM precursor material in the samples to the four THM compounds. The samples are quenched at the end of the incubation period using sodium thiosulfate. Standard EPA methodology is used to analyze the water after the incubation period. While the analytical procedures are consistent with EPA methods, they are not intended to simulate the chlorination practices at water treatment facilities. The TTHMFP measured in a source water sample cannot be compared with THMs produced in a drinking water system.

No direct mathematical relationship has been developed between the results of the TTHMPF assay and THM concentrations that might be expected from chlorination practices and THM control used by treatment plants. One reason is that treatment practices and raw water quality vary from one purveyor to the next, so a comparison is not necessarily possible. However, it is generally true that the amount of THMs formed during normal disinfection is related to the amount of precursor materials available initially. Water supplies low in THM precursors are generally more easily and

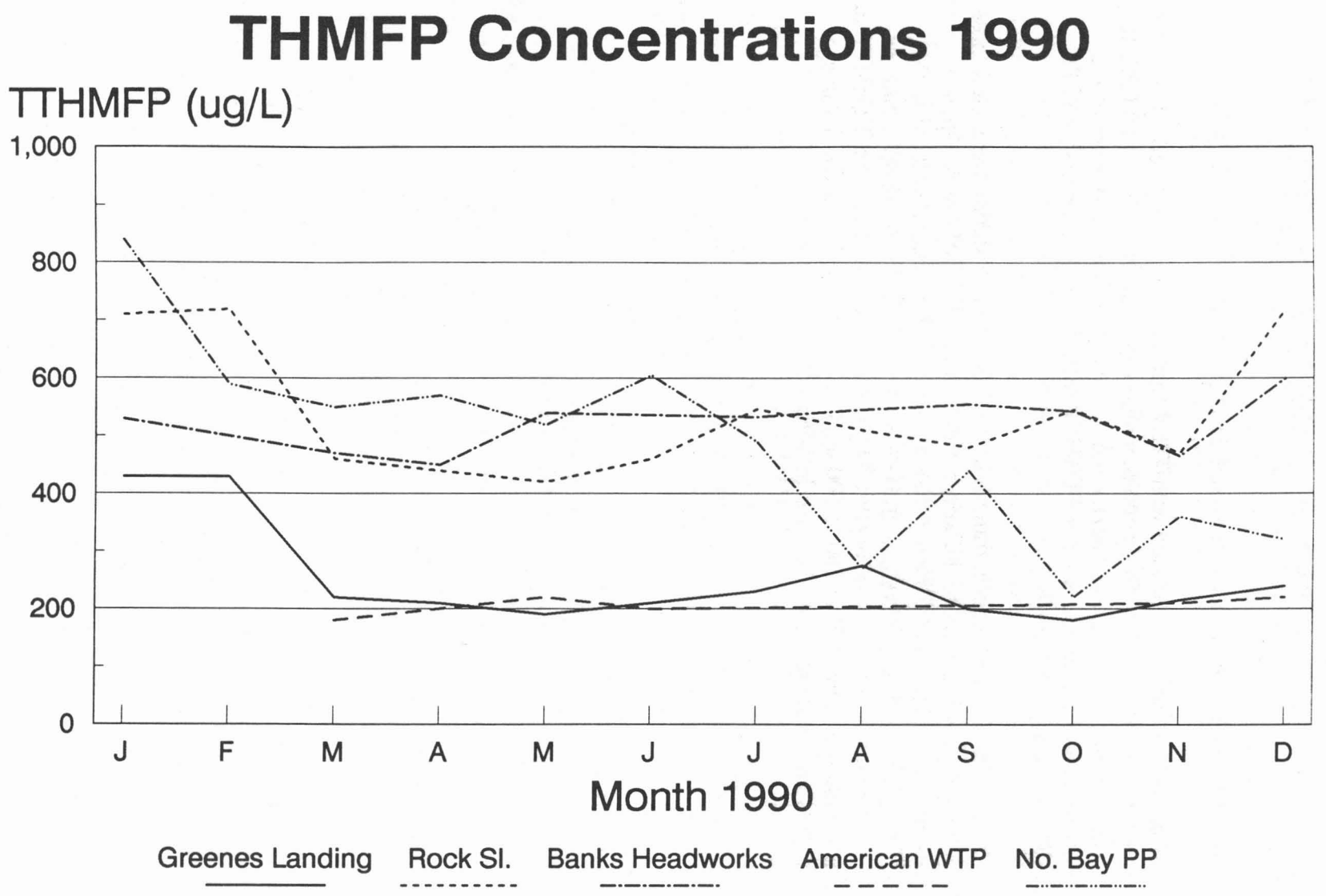
inexpensively treated to meet drinking water standards. THM concentrations are generally low in drinking water produced from sources containing low levels of THM precursors.

The TTHMFP concentrations measured during 1990 are shown in Figure 6.

The amount of carbon associated with THM formation was computed. This carbon is referred to as the THM formation potential expressed as carbon, or TFPC. It is calculated from the concentration (mg/L) and percentage of carbon in each of the four THM compounds formed during the TTHMFP test. Monthly averages of TFPC during 1990 are shown in Figure 7.

The shifts in TTHMFP concentrations at the Rock Slough station paralleled those from the Greene's Landing station. However, Rock Slough TTHMFP was higher by about 150 μg/L or 15 μg/L TFPC higher than at Greene's Landing. As stated in the report, Delta Island Drainage Investigation (DWR, June 1990), Delta island drainage discharges are a significant source of organic THM precursor material. The TTHMFP at the Banks Headworks ranged from 500 to 600 μg/L (38 to 50 μg/L TFPC). Drainage TTHMFP data are presented and discussed in Section E of this report.

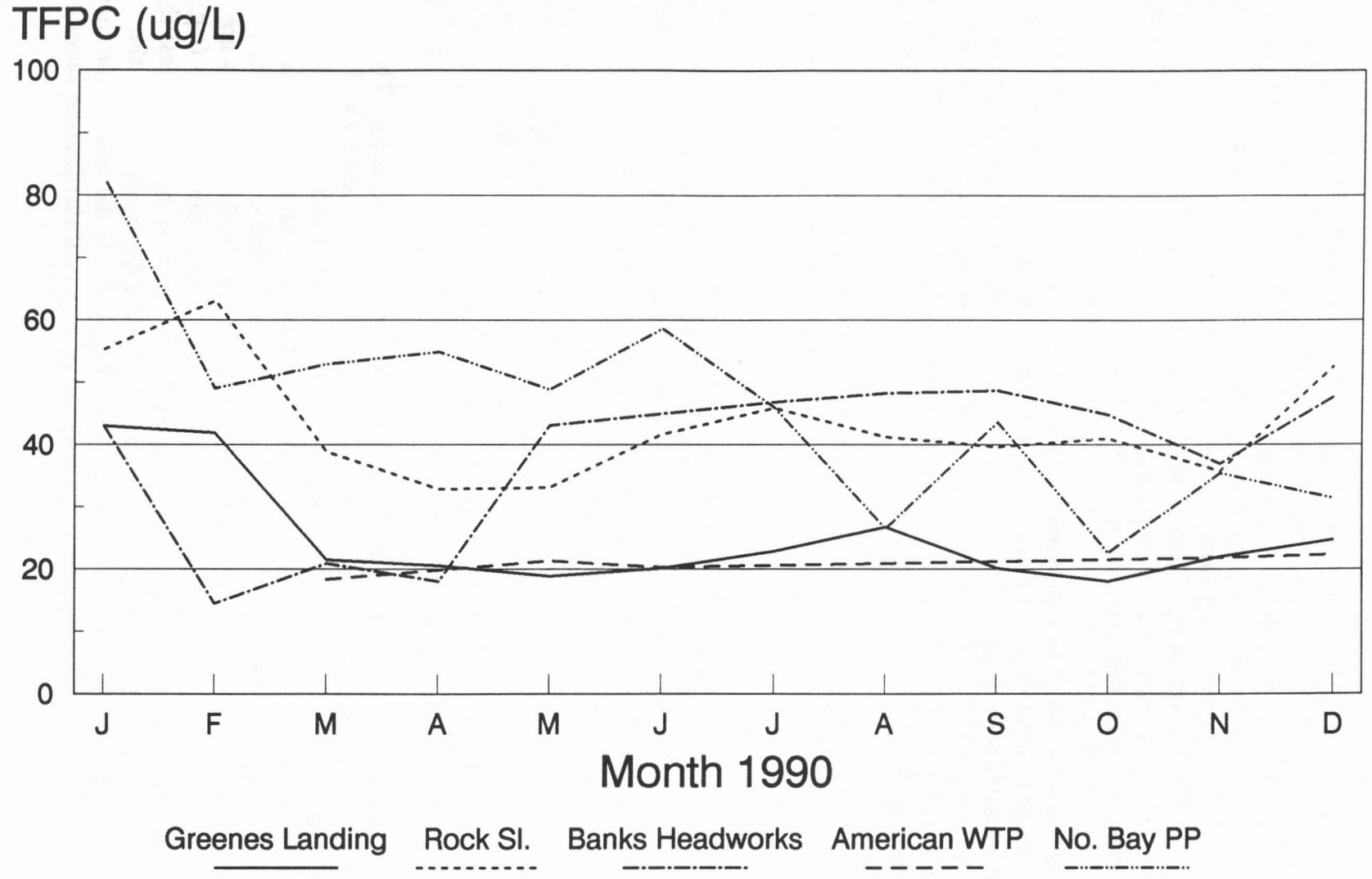
Figure 6



Monthly mean of grab samples

Figure 7

THM Formation Potential Carbon (TFPC) 1990



Monthly mean of grab samples

B. Water Quality Relationships

Statistical analyses were performed on the data set to determine if any relationships among different water quality measurements could predict total THM formation potential. If consistent and proven relationships could be determined, surrogate parameters could be measured which would have the potential of reducing laboratory analytical costs. Data on surrogate parameters could also be used to model THM formation potential in the Delta. All data collected at the major stations were evaluated. However, most of the correlations that were tested were limited to 1990 data. This is because earlier measurements did not include bromide and UVA.

Statistical analyses were performed on the data for each monitoring station or, in the case of agricultural drains, all data collected from an island or tract. A station-by-station or tract-by-tract analysis was necessary because of the nonhomogeneity of data sets resulting from island drainage monitoring. The combining of data sets from peat soil islands with mineral soil islands was considered but was not done in this first round of statistical analyses. The reasons were:

(1) The total number of observations and time of sampling varied among the stations; the results, if grouped, would be skewed and biased.

(2) Because of the geographical spread of the stations, the data would reflect differences in channel (siphon) water quality, as well as the multitude of soil variations between mineral and organic soils. Therefore, the grouped data would be more scattered and more difficult to interpret.

(3) The decision was made to wait for more data to be collected. Permission was granted to sample more drain sites in 1991. Data collected from these new monitoring sites will be evaluated in 1992 along with data from existing sites.

R-squared (R^2) values were calculated for each regression analysis. The strength of the tested correlation increases as the R-squared value approaches 1.0 and decreases as it approaches 0.0. High R-squared values do not necessarily show a cause and effect relationship but are one of many statistical tools used to study data and determine possible relationships. R-squared values are generally estimated incorrectly when sample sizes are small, and may also yield incorrect estimates when multiple variables are tested. Therefore, until more data are collected at some stations, descriptive statistics (e.g., mean, range) and regression results (e.g., R-squared) for small sample sizes (less than 30) should be evaluated with caution. The basis for testing hypotheses about the existence of a relationship between variables (e.g., EC vs. Cl) is the assumption that the data has a normal distribution. The determination of a normal distribution relies on

increasing the number of observations taken.

Poor correlations may result from collective treatment of data from different points in the Delta. Since water quality in the Delta changes with season, there can also be seasonal relationships that may not be evident when the data are collectively tested. Presently, these seasonal correlations, especially at the channel stations, could not be tested because of too few data points. Until more data are collected, the following results are limited in the depth of analysis and must be considered preliminary.

The R-squared results of the statistical analyses are summarized in Table 3. Low R-squared values for linear models (e.g., $Y = a + bX$) do not necessarily indicate a lack of relationship between variables. A nonlinear relationship such as curvilinear might exist. High R-squared values may indicate a possible relationship but other statistical considerations must be evaluated. These include sample size, type of model tested (e.g., linear, power, exponential), residuals (the difference between the observed value and the predicted value from the regression equation), degree of normal distribution, and the result of other statistical tests (e.g., t-test, F ratio). Some R-squared values may be overestimated if the variability of the dependent variable increases as the dependent variable increases or if the data are clustered. This would be a heteroscedastic correlation.

In cases where there are few data points, the intercepts, slopes, and equations presented may change significantly as more data are collected. Therefore, the preliminary regression equations presented reflect the limited pool of observations and cannot be used to predict future observations.

Table 3. R-Squared Regression Results

The R^2 regression results for each station are presented below. The n size refers to the number of data points (samples) used to test the regression model. All results must be considered preliminary because of the small sample sizes (n < 30). The R^2 values may be overestimated due to clustering and heteroscedasticity.

Regression Result		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Variables Tested		Br to Cl conc.	Cl to EC	Br to EC	TTHMFP to Br	TTHMFP to Color	TTHMFP to UVA	UVA to DOC	TTHMFP to DOC	TFPC to DOC	TFPC to UVA	THMFP to Br + DOC	THMFP to Cl + UVA	TTHMFP to Br + UVA	TFPC to Br + UVA	TFPC to Cl + UVA
Station	Station ID #															
AMERICAN	1	0.966	*		1	0.004	0.638	0.483	0.008	0.005	0.437		0.673			0.607
n size		4			2	14	6	5	14	14	6		6			6
GREENES	2	0.199	*	0.119	0.017	0.255	0.009	0.443	0.354	0.347	0.033	0.316	0.035	0.024	0.033	0.065
n size		15		15	15	94	12	9	20	20	12	12	12	12	12	12
CACHESL	3		*			0.163										
n size						15										
LINDSEYSL	4		*			0.047			0.021	0.02						
n size						68			8	8						
AGDGRAND	5		*			0.334			0.803	0.813						
n size						58			33	33						
AGDTYLER	6		*			0.011			1	1						
n size						19			2	2						
LCONNECTSL	7	0.085	*	0.286	0.959	0.389	0.367	0.268	0.623	0.629	0.367	1	0.528	1	1	0.534
n size		3		3	3	62	4	4	13	13	4	3	4	3	3	4

Table 3. (continued)

Regression Result		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Variables Tested		Br to Cl conc.	Cl to EC	Br to EC	TTHMFP to Br	TTHMFP to Color	TTHMFP to UVA	UVA to DOC	TTHMFP to DOC	TFPC to DOC	TFPC to UVA	THMFP to Br + DOC	THMFP to Cl + UVA	TTHMFP to Br + UVA	TFPC to Br + UVA	TFPC to Cl + UVA
Station	Station ID #															
AGDEMPIRE	8	0.887	*	0.852	0.788	0.056	0.968	0.996	0.004	0.009	0.95	0.947	0.972	0.971	0.962	0.964
n size		10		10	8	75	7	7	46	46	7	8	7	7	7	7
ROCKSL	9	0.938	*	0.939	0.095	0.01	0.009	0.412	0.137	0.155	0	0.459	0.07	0.093	0.001	0.008
n size		29		29	29	77	25	7	15	15	25	10	25	25	25	25
CLIFTON GATE	10	0.129	*	0.11	0.617	0.028	0.238	0.698	0.346	0.297	0.254	0.636	0.529	0.654	0.24	0.415
n size		10		10	8	76	8	8	13	13	8	8	8	8	9	8
DMC	11	0.829	*	0.747	0.146	0.024	0.007	0.756	0.077	0.113	0.028	0.741	0.135	0.161	0.079	0.055
n size		29		29	28	87	23	9	20	20	23	12	23	23	24	23
BANKS HDWRKS	12	0.874	*	0.87	0.005	0.007	0.17	0.497	0.111	0.133	0.096	0.298	0.191	0.197	0.137	0.29
n size		29		29	27	93	24	10	16	16	24	10	24	24	26	24
MIDDLE RIV	13	0.926	*	0.905	0.493	0.03	0.288	0.602	0.348	0.318	0.269	0.607	0.439	0.597	0.387	0.286
n size		11		11	11	91	9	9	38	38	9	10	9	9	9	9
VERNALIS	14	0.49	*	0.337	0.032	0.034	0.314	0.43	0.39	0.41	0.332	0.39	0.318	0.318	0.184	0.353
n size		16		16	15	91	13	10	34	37	13	11	13	13	14	13

Table 3. (continued)

Regression Result		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Variables Tested		Br to Cl conc.	Cl to EC	Br to EC	TTHMFP to Br	TTHMFP to Color	TTHMFP to UVA	UVA to DOC	TTHMFP to DOC	TFPC to DOC	TFPC to UVA	THMFP to Br + DOC	THMFP to Cl + UVA	TTHMFP to Br + UVA	TFPC to Br + UVA	TFPC to Cl + UVA
Station	Station ID #															
MALLARD ISL.	17	0.868	*	0.876	0.001	0.005	0.091	0.36	0.035	0.006	0.108	0.115	0.166	0.143	0.117	0.128
n size		28		28	28	61	25	9	17	17	17	10	25	24	24	25
NO BAY	18		*			0.284										
n size						46										
BARKER SL	19		*			0.193										
n size						13										
NATOMAS DR	20	0.677	*	0.727	0.169	0.038	0.783	0.832	0.197	0.207	0.77	0.227	0.785		0.765	0.782
n size		10		10	10	44	12	10	40	40	12	8	12		9	12
MAZE	75	0.408	*	0.45	0.208	0.147	0.804	0.835	0.357	0.373	0.831	0.518	0.806	0.804	0.833	0.84
n size		14		14	14	35	10	9	24	24	10	13	10	10	10	10
BKR NO BAY	87	0.405	*	0.338	0.187	0.146	0.493	0	0.359	0.238	0.518	0.35	0.38	0.184	0.165	0.746
n size		12		12	11	32	12	9	15	15	12	9	13	11	11	12
SACRIO-VISTA	88	0.15	*	0.126	0.001	0.378	0.008	0.429	0.529	0.551	0.009	0.773	0.038	0.053	0.04	0.068
n size		27		27	26	27	25	10	16	16	25	9	26	24	24	25
BACON DRAINS	1000	0.831	*	0.498	0.003	0.292	0.956	0.94	0.468	0.515	0.965	0.798	0.957	0.964	0.756	0.967
n size		9		9	8	13	8	10	13	13	8	8	8	7	8	8

Table 3. (continued)

Regression Result		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Variables Tested		Br to Cl conc.	Cl to EC	Br to EC	TTHMFP to Br	TTHMFP to Color	TTHMFP to UVA	UVA to DOC	TTHMFP to DOC	TFPC to DOC	TFPC to UVA	THMFP to Br + DOC	THMFP to Cl + UVA	TTHMFP to Br + UVA	TFPC to Br + UVA	TFPC to Cl + UVA
Station	Station ID #															
BOULDIN DRS.	1001	0.45	*	0.488	0.805	0.255	0.903	0.942	0.333	0.308	0.907	0.987	0.932	0.973	0.97	0.931
n size		12		12	12	79	13	13	67	67	13	12	13	10	10	13
BRANNAN DRS.	1002	0.755	*	0.681	0.023	0.13	0.293	0.703	0.462	0.454	0.292	0.475	0.428	0.371	0.401	0.454
n size		13		13	13	88	18	20	43	43	18	13	18	13	13	18
HOLLAND DRS.	1003	0.238	*	0.042	0.015	0.195	0.682	0.768	0.549	0.569	0.686	0.327	0.683	0.599	0.602	0.69
n size		11		11	11	20	14	17	20	20	14	11	14	10	10	14
KING IS. DR.	1004	0.935	*	0.749	0.178	0.471	0.867	0.876	0.519	0.54	0.893	0.926	0.915	0.927	0.926	0.917
n size		11		11	11	53	14	13	31	31	14	11	14	11	11	14
PESCADERO DRS.	1005	0.93	*	0.962	0.264	0.167	0.195	0.684	0.19	0.235	0.317	0.354	0.593	0.664	0.64	0.582
n size		11		11	11	43	14	17	33	33	14	11	14	11	11	14
RINDGE DRS.	1006	0.168	*	0.809	0.110	0.193	0.445	0.388	0.426	0.363	0.601	0.877	0.471	0.598	0.624	0.619
n size		7		7	7	34	9	9	20	20	9	7	9	7	7	9
UP JONES DRS.	1007	0.285	*	0.386	0.281	0.402	0.651	0.315	0.901	0.91	0.523	0.368	0.655	1	1	0.542
n size		4		4	4	38	5	6	32	32	5	4	5	3	3	5

Table 3. (continued)

Regression Result		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Variables Tested		Br to Cl conc.	Cl to EC	Br to EC	TTHMFP to Br	TTHMFP to Color	TTHMFP to UVA	UVA to DOC	TTHMFP to DOC	TFPC to DOC	TFPC to UVA	THMFP to Br + DOC	THMFP to Cl + UVA	TTHMFP to Br + UVA	TFPC to Br + UVA	TFPC to Cl + UVA
Station	Station ID #															
WEBB DRS.	1008	0.212	*	0.216	0.007	0.226	0.928	0.909	0.781	0.805	0.922	0.776	0.93	0.945	0.638	0.924
n size		10		10	9	11	9	11	11	11	9	9	9	8	9	9

* The chloride to EC relationships are specific to each reach of the Delta and treated as such in mathematical water quality models of the Delta. These correlations were not calculated in this evaluation.

1. Bromide and Chloride Concentrations

The relationship between two major sea water ions, bromide and chloride, was examined. Channel stations in the western Delta were expected to have the best bromide to chloride correlations. Stations further inland and less affected by sea water intrusion were expected to have poorer bromide to chloride relationships. Island drainage water samples in the western Delta, and samples of drainage water overlying connate ground water, were also expected to have a good bromide to chloride correlation. The linear model Br (mg/L)= constant + Cl (mg/L) was tested.

The following channel stations had R^2 values of at least 0.8 for about 30 observations:

Rock Slough:	Br = 0.052+0.003 Cl	(n = 29, R^2 = 0.94)
DMC intake:	Br = 0.003 Cl	(n = 29, R^2 = 0.83)
Banks Headworks:	Br = 0.052+0.003 Cl	(n = 29; R^2 = 0.88)
North Bay:	Br = 0.003 Cl	(n = 28; R^2 = 0.87)

The American River station had a 0.966 R^2, but it is based on only four samples. Samples collected at the Clifton Court Forebay intake gate (channel side) correlated poorly. However, data from the Banks Pumping Plant Headworks correlated well and these data are representative of water entering the SWP.

2. Chloride and EC

The chloride to EC relationships are specific to each reach of the Delta and are treated as such in mathematical water quality models of the Delta. These correlations were not calculated for this evaluation.

3. Bromide and EC

The linear model Br (mg/L) = constant + EC (μS/cm) was tested. The correlations of bromide to electrical conductivity (EC) were similar to those of bromide to chloride. This probably reflects sea water influence during the 1990 drought year.

The following stations had R-squared values greater than 0.80 based on about 30 observations:

Rock Slough:	Br = -0.087+0.001 EC	(n = 29; R^2 = 0.94)
Banks Headworks:	Br = 0.001 EC	(n = 29; R^2 = 0.87)
Mallard Island:	Br = 0.001 EC	(n = 28; R^2 = 0.88)

Results for the other stations are shown in Table 3.

4. TTHMFP and Bromide

The correlation of bromide concentrations to total THM formation potential concentrations was computed. Correlations were poor for the linear model TTHMFP (μg/L) = constant + Br (mg/L). These results agreed with work by Amy, Chadick, and Chowdhury (1987).

5. TTHMFP and Color

Color in water may result from the presence of humus and peat materials, algae, minerals, metals, plants, and wastes. Since humic substances are well documented THM precursors, color measurements and TTHMFP data were compared.

The linear model TTHMFP (μg/L) = constant + Color (units) was tested. The regression analyses showed extremely poor correlations between TTHMFP and color in all water samples. Color is, therefore, not a useful indicator of TTHMFP. Consideration may be given to eliminating color measurements from the sampling program. However, color measurements of the source water can be useful to water treatment operators who must deal with color problems.

6. TTHMFP and UVA-254nm

Aromatic organic compounds (e.g., humic substances) and compounds having conjugated double bonds will absorb ultraviolet light. UVA measurements at 254 nm indicate the amount of naturally occurring organic matter, such as humic acid and fulvic acid, present in a water sample. UVA data were, therefore, compared to TTHMFP data. The linear model TTHMFP (μg/L) = constant + UVA-254 nm was tested.

The strongest correlations between TTHMFP and UVA were from drain water samples collected from Empire Tract (R^2 = 0.968), Bacon Island (0.956), Bouldin (0.903), King Island (0.867), and Webb Tract (0.928). The San Joaquin River at Maze Road station had the highest R^2 (0.804) of all channel stations. However, the data collected at the Maze station reflects upstream discharges of agricultural drainage into the San Joaquin River.

The correlations suggest that UVA-254 may be a good surrogate for TTHMFP for drain water samples collected from peat island areas. Data collected from drains on Bouldin Island are shown in Figures 8 - 10. Figure 8 shows the range of TTHMFP concentrations by month (1987-90). Figure 9 shows the range in UVA-254 nm measurements at the same location by month. UVA measurements began in 1990. Figure 10 shows the linear regression line between UVA and TTHMFP.

It is unclear if UVA can be used successfully to predict TTHMFP in Delta channel waters. The correlations vary widely. Interferences in UVA may occur because of certain inorganics, such as nitrite and bromide, that absorb light in the UV range when present in high concentrations. Laboratory experiments that measure the effect of bromide and nitrite concentrations on UVA measurements are needed.

Figure 8

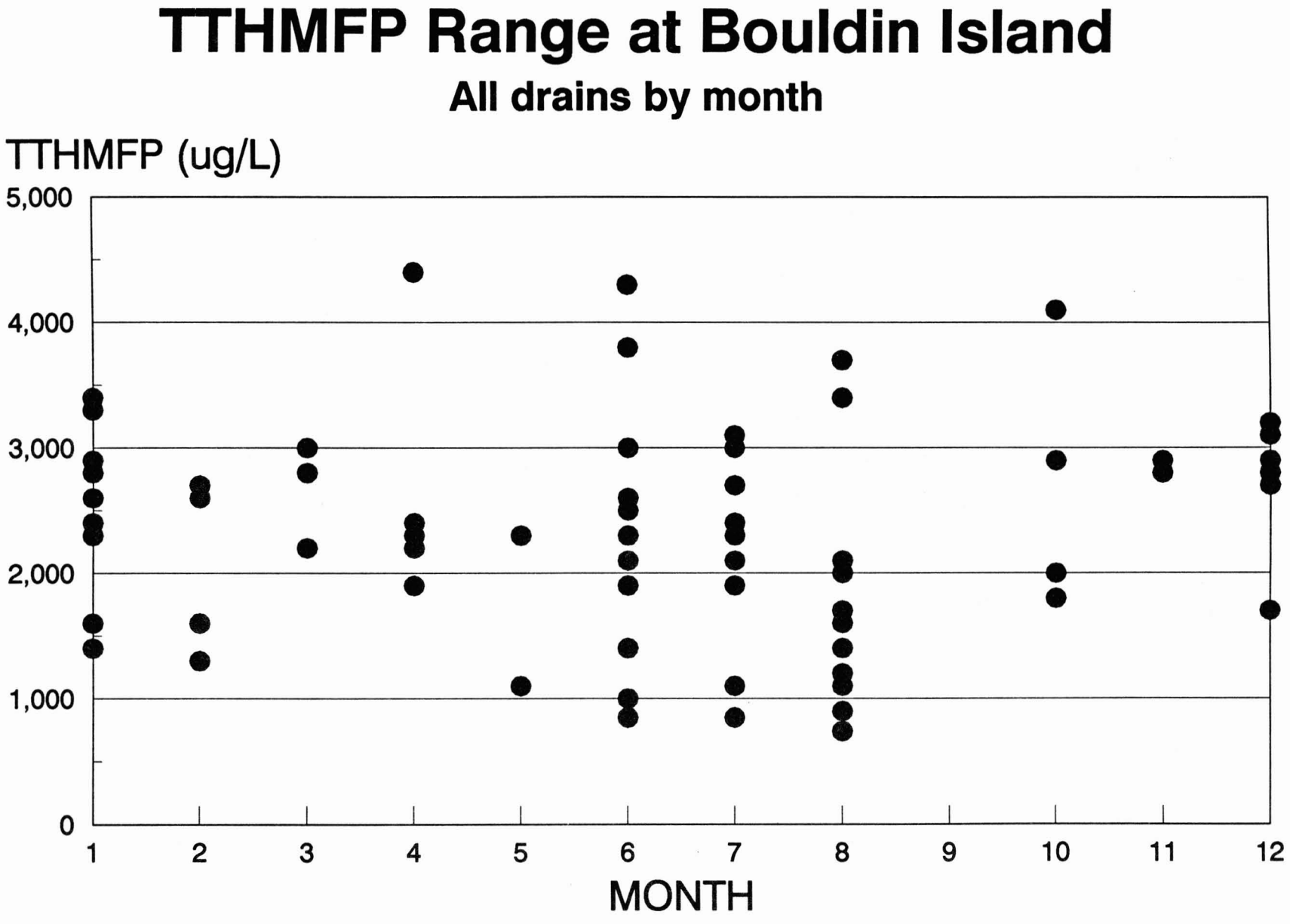

TTHMFP Range at Bouldin Island
All drains by month
TTHMFP (ug/L)
5,000
4,000
3,000
2,000
1,000
0
1
2
3
4
5
6
7
8
9
10
11
12
MONTH

Figure 9

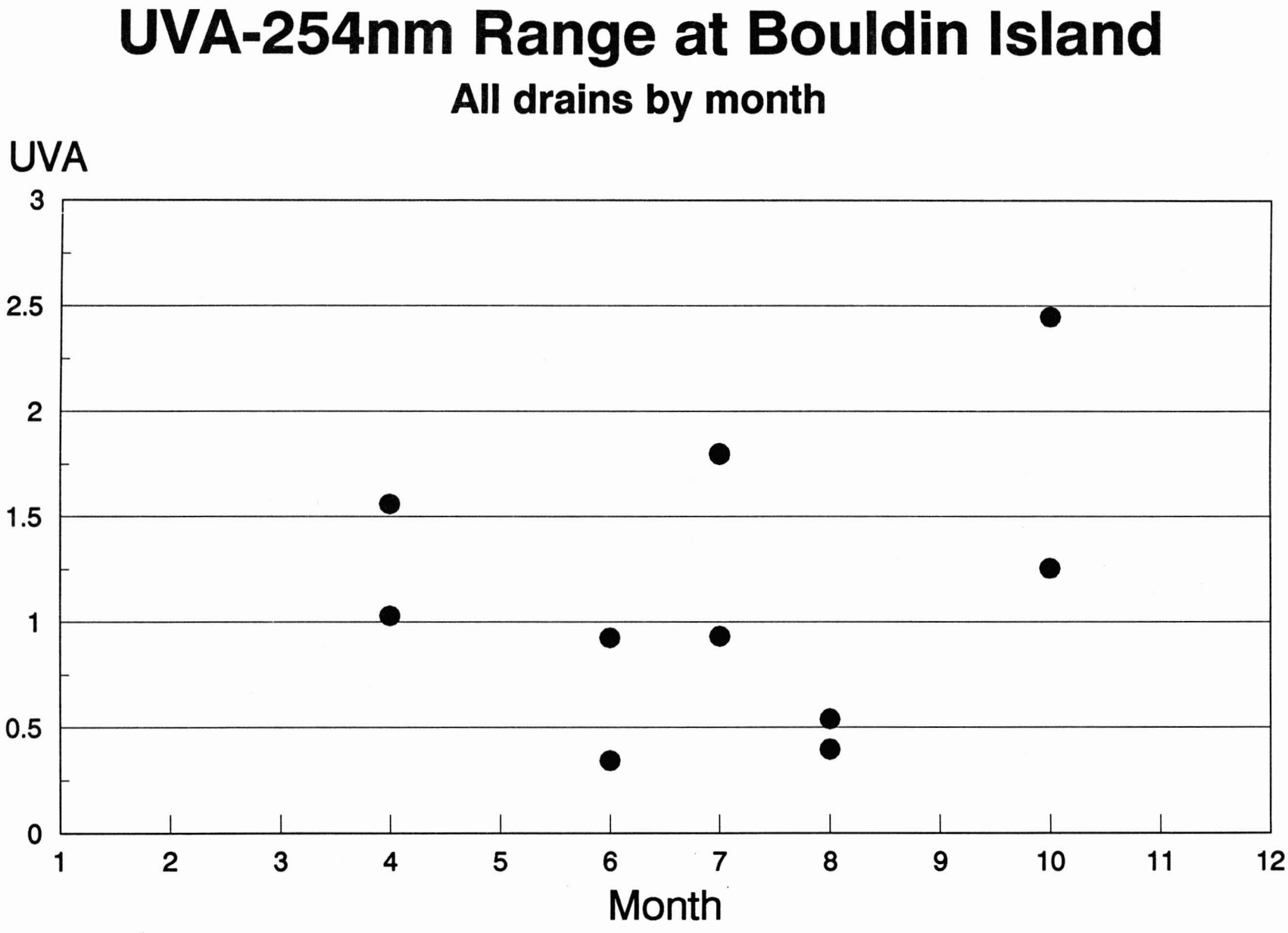
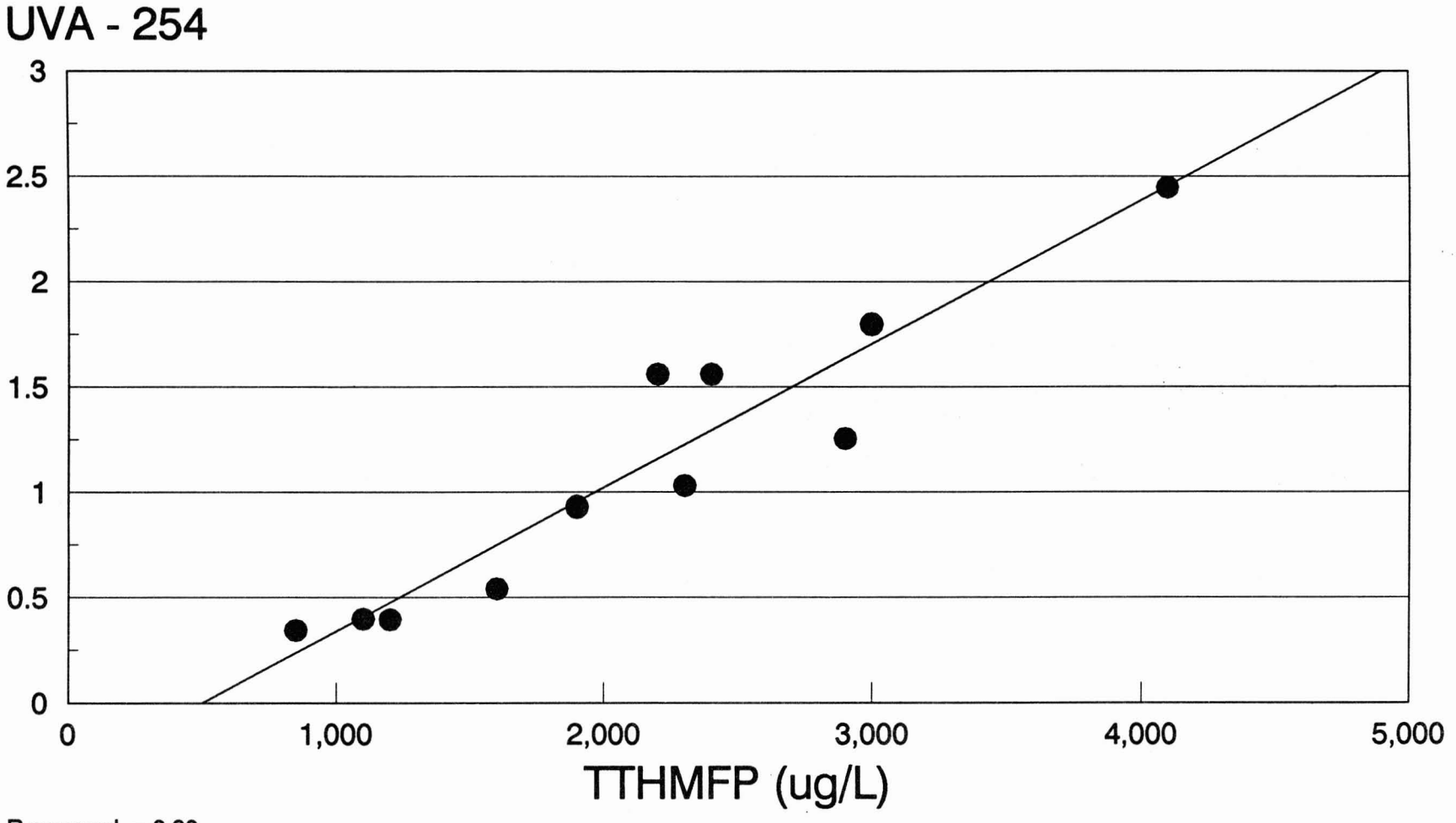

UVA-254nm Range at Bouldin Island
All drains by month
UVA
3
2.5
2
1.5
1
0.5
0
1
2
3
4
5
6
7
8
9
10
11
12
Month

Figure 10

UVA - TTHMFP Regression at Bouldin Island

All drains



R-squared = 0.90
n = 13

7. UVA and DOC

UVA-254nm data were also compared against DOC data. In some cases, the correlations were higher than the R^2 values computed for UVA and TTHMFP. The linear model UVA = constant + DOC (mg/L) was tested.

The strongest correlations were from drain water samples taken from Empire Tract (R^2 = 0.996), Bacon Island (0.94), Bouldin Island (0.942), King Island (0.876), Webb Tract (0.909), and Natomas Drain (0.832). San Joaquin River at Maze Road had a R^2 of 0.835. UVA increased proportionately to DOC. The strong correlation found at these drains may be due to the high amount and consistent proportion of humic material in the dissolved fraction of organic matter. The UVA to DOC regression for Bouldin Island drains is shown in Figure 11.

Since water supplies contain a mixture of UV and non-UV absorbing organic compounds, a UVA of zero will not necessarily correspond to a DOC or Total Organic Carbon (TOC) of zero. The poor correlations of UVA and DOC at the other stations, particularly the channel stations, indicate a much lower concentration of humic materials in the water and a variable proportion of humics in the DOC, as compared to drainage samples.

8. TTHMFP and DOC

The TTHMFP and DOC data sets were compared because humic materials (THM precursors) are dissolved organic material. The correlation was poor at all stations except for drain water samples taken from Upper Jones Tract (R^2 = 0.901) and Webb Tract (0.781). Three models were tested. These were the linear model $y = a + bx$, the power regression model $y = ax^b$, where $a > 0$, and logarithmic model $y = a + b(\ln X)$, where y is TTHMFP, x is DOC, and a and b are constants.

The poor correlation further indicates the type of dissolved organic matter is more important in THM formation than the total amount of DOC present. The range of DOC by month at Bouldin Island is shown in Figure 12. The power and logarithmic regression results are shown in Figures 13 and 14.

9. TFPC and DOC

The amount of carbon incorporated on a molar basis into trihalomethanes in the TTHMFP assay is called the THM Formation Potential Carbon (TFPC). The TFPC data were compared to the DOC data. The linear model TFPC (μg/L) = constant + DOC (mg/L) was tested.

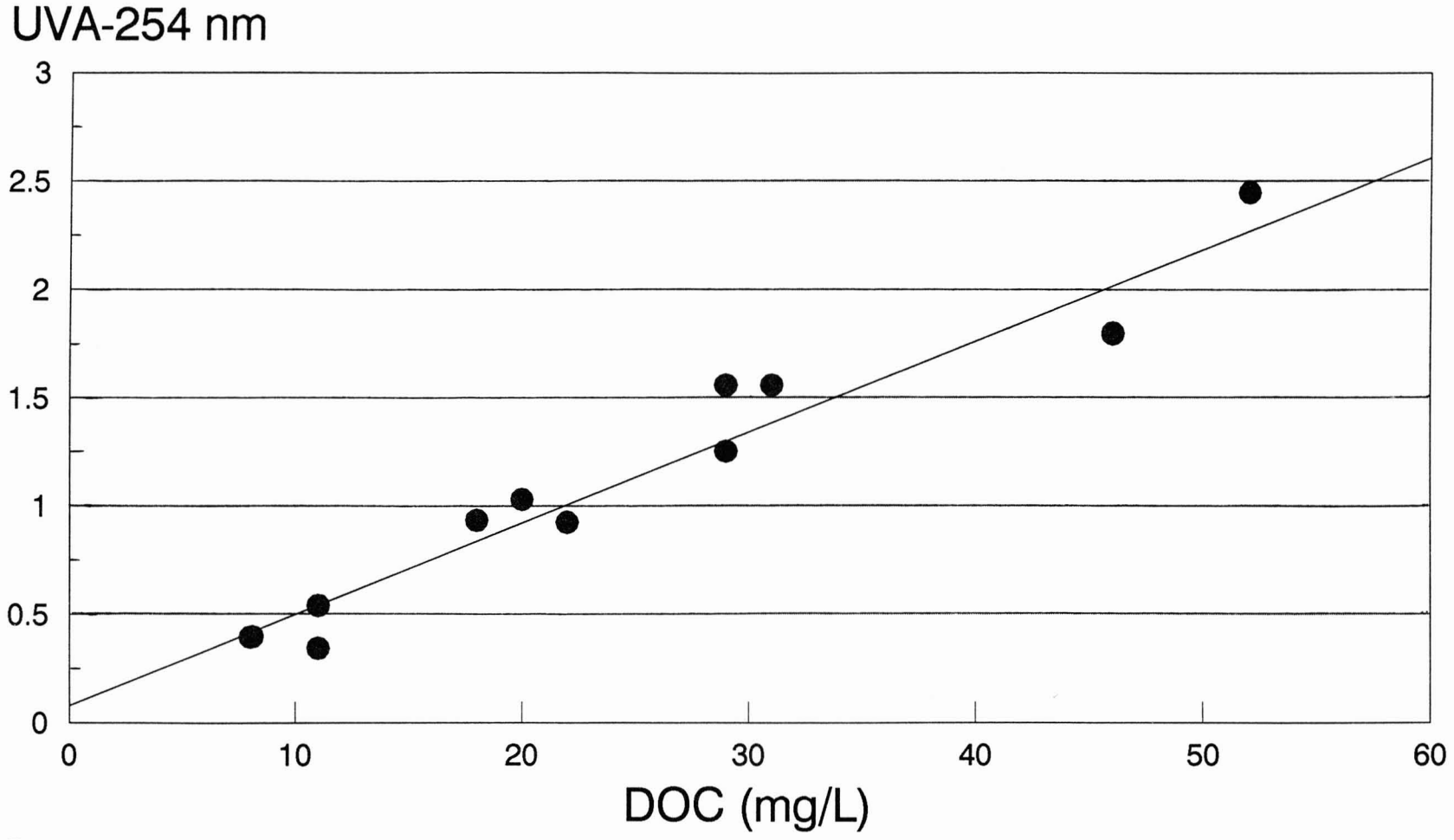
The highest correlations were found in drain water samples collected from Grand Island (R^2 = 0.813), Upper Jones Tract (0.91), and Webb Tract (0.805). Correlations were poor at all other drain and channel station sites.

The poor correlations again show that the type of organic matter, not the total DOC concentration, affects THM formation.

Figure 11

UVA-DOC Regression at Bouldin Island

All drains



R-squared=0.942
n=13

Figure 12

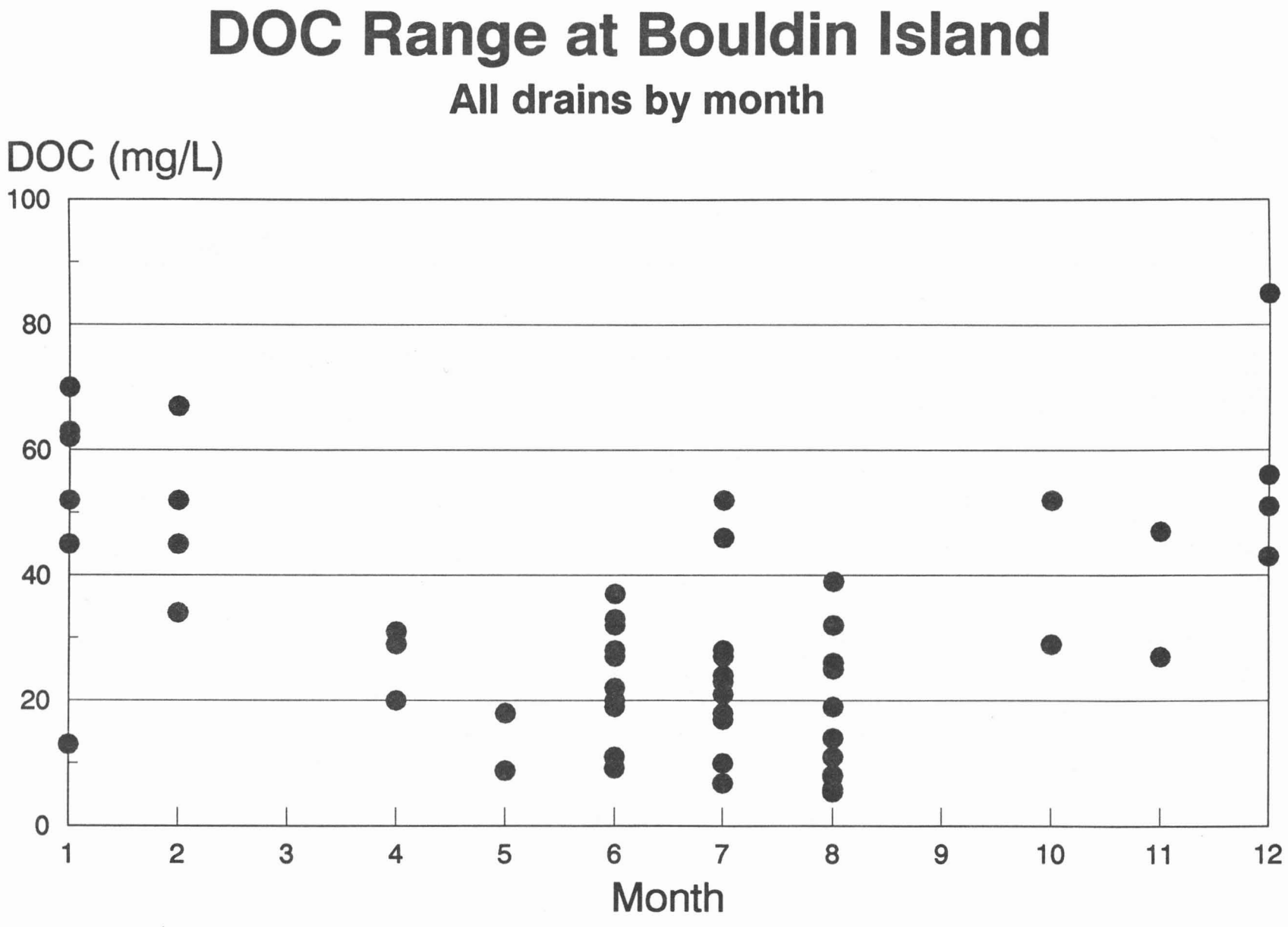

DOC Range at Bouldin Island
All drains by month
DOC (mg/L)
100
80
60
40
20
0
1
2
3
4
5
6
7
8
9
10
11
12
Month

Figure 13

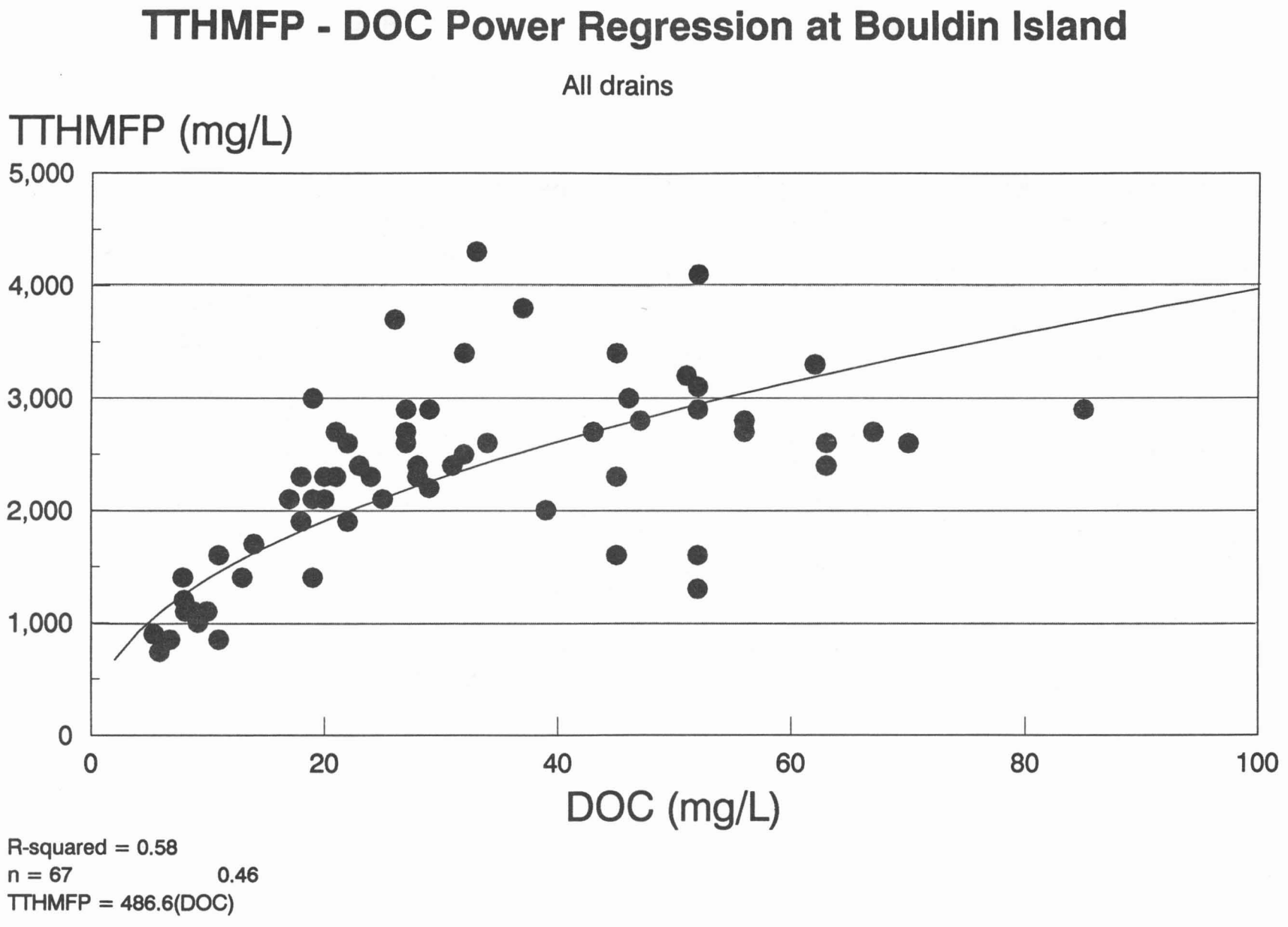
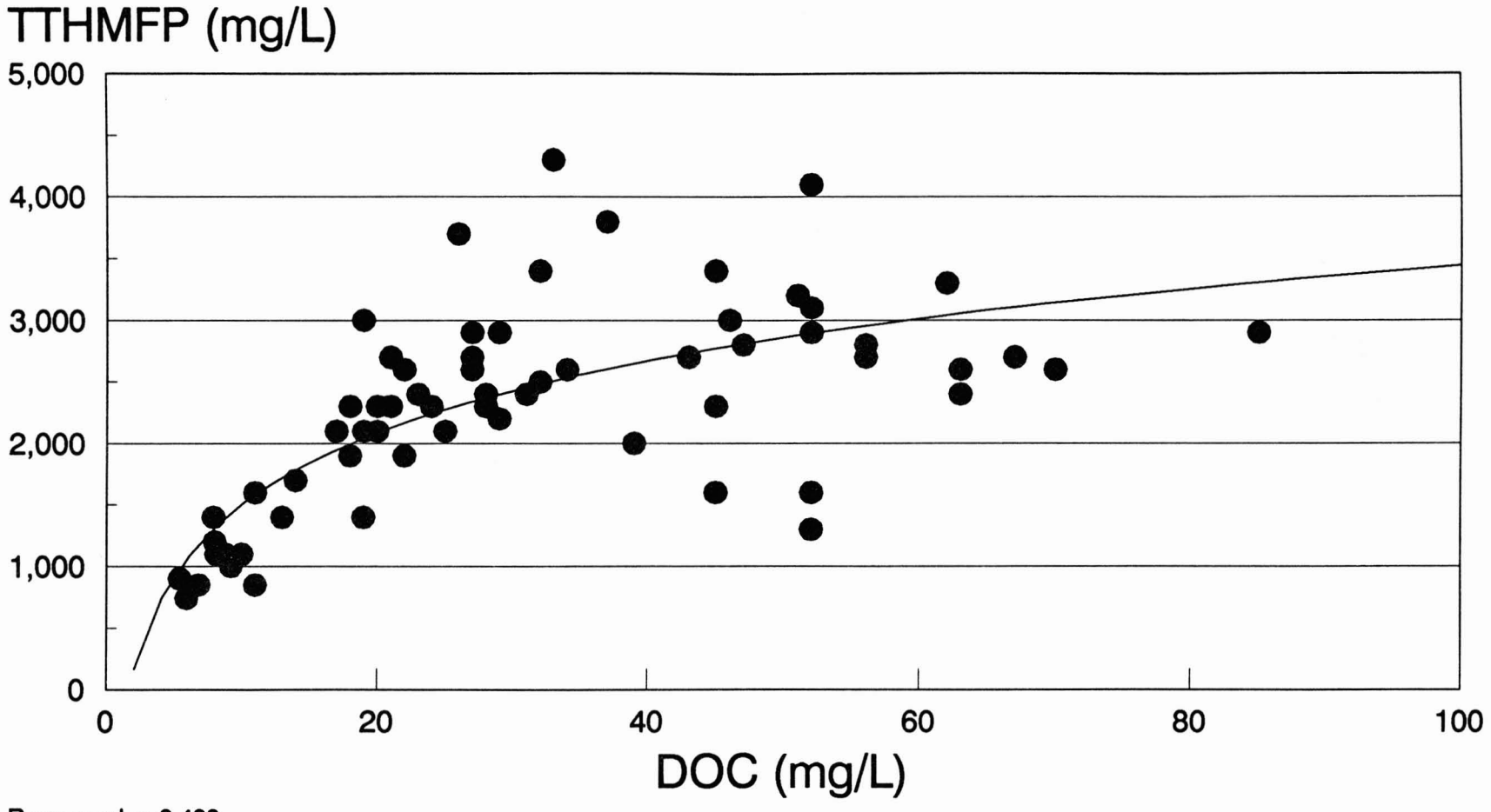

TTHMFP - DOC Power Regression at Bouldin Island
All drains
TTHMFP (mg/L)
5,000
4,000
3,000
2,000
1,000
0
0
20
40
60
80
100
DOC (mg/L)
R-squared = 0.58
n = 67
0.46
TTHMFP = 486.6(DOC)

Figure 14

TTHMFP - DOC Log Regression at Bouldin Island

All drains



R-squared = 0.498
n = 67
TTHMFP = -433+842(ln DOC)

10. TFPC and UVA

The linear model TFPC (μg/L) = constant + UVA was tested. The highest TFPC to UVA correlations were at the following stations: Empire Tract (R^2 = 0.950), Natomas Drain (0.770), San Joaquin River at Maze (0.831), Bacon Island (0.965), Bouldin Island (0.907), King Island (0.893), and Webb Tract (0.922).

11. TTHMFP vs. Bromide and DOC

Regression testing advanced to testing multiple parameter correlations. The model TTHMFP = constant + Br + DOC concentrations was tested.

The best correlations were found in data sets for the Bouldin Island drains (R^2 = 0.987), King Island drains (0.926), Empire Tract drain (0.947), Rindge Tract drains (0.877), Webb Tract drains (0.776), Bacon Island drains (0.798), Sacramento River at Rio Vista (0.773), and DMC (0.741). However, as previously mentioned, the R^2 values tend to be distorted when sample size is small or if the data are clustered. Therefore, the strength of the multiple regressions for these data sets may be overestimated.

12. TTHMFP vs. Chloride and UVA

Regression testing included the model TTHMFP = constant + Cl + UVA. Chloride concentration was tested because of possible bromide to chloride relationships that exist at some stations. Where bromide concentration data was unavailable, chloride data might serve as a surrogate for bromide data. UVA was selected because previous regression testing indicated UVA may be a better measurement of THM precursors than DOC at some stations.

The regressions were in some cases better than the previous model using Br and DOC to predict TTHMFP. Empire Tract had a R^2 of 0.972, Natomas Drain 0.785, Bacon Island 0.957, Bouldin 0.932, King Island 0.915, Webb Tract 0.93, and the San Joaquin River at Maze Road 0.806.

13. TTHMFP vs. Bromide and UVA

The model relationship TTHMFP = constant + Br + UVA was tested since bromide and UV absorbing substances comprised of humic substances are both THM precursors.

The best R^2regression values were found for data from the Empire Tract drain (0.971), San Joaquin River at Maze Road (0.804), Bacon Island drains (0.964), Bouldin Island drains (0.973), King Island drains (0.927), and Webb Tract (0.945).

Regressions for Little Connection Slough and Upper Jones Tract were 1.0, but were based on 3 samples at each station. Therefore, more data needs to be collected prior to concluding any correlations at these two locations.

14. TFPC vs. Bromide and UVA

The model TFPC = constant + Br + UVA was tested.

The highest correlations were found in data from Empire Tract (0.962), Natomas Drain (0.765), San Joaquin River at Maze Road (0.833), Bacon Island (0.756), Bouldin Island (0.970), and King Island (0.926).

15. TFPC vs. Chloride and UVA

The model TFPC = constant + Cl + UVA was tested.

The highest R^2 values were in data sets from Empire Tract (0.964), Natomas Drain (0.782), San Joaquin River at Maze Road (0.840), Barker North Bay Pumping Plant (0.746), Bacon Island (0.967), Bouldin Island (0.931), King Island (0.917), and Webb Tract (0.924).

C. TFPC Range of Observations

Cumulative relative frequency diagrams showing the distribution of TFPC at the key channel stations and drainages in the Delta from 1987 to 1990 (four consecutive dry years) were also prepared. This information is being used to compile a water characterization database report. The results are presented in Appendix A.

D. Sea Water Bromide Intrusion

The reduction of bromide in raw water supplies is beneficial in helping water treatment plants meet the THM standard. Reduced bromide levels favors lower production of the three brominated methane compounds: bromoform, bromodichloromethane, and dibromochloromethane.

Sea water is the largest source of bromide to the Delta. Because of the drought and resulting low Delta inflows, the effects of sea water intrusion on Delta water quality have been significant.

Ocean water is higher in sodium, chloride, bromide, and electrical conductivity than fresh water. Although EC is used frequently to track saline water, the proportion of fresh water, drain water, and sea water in some regions of the Delta cannot be easily

discriminated by EC measurements alone. Chemical analyses of specific ions such as sodium, chloride, and bromide serve as chemical tracers of different water sources.

Frequent monitoring in the lower western Delta was conducted to track the movement of sea water and mixing of Sacramento River inflows along Old River enroute to the pump stations of the CCWD, CVP, and SWP. Water samples were analyzed for bromide, chloride, and EC. The bromide to chloride concentration relationships were compared by computing the ratio of the two concentations.

The ratio of bromide to chloride concentrations in open ocean water is about 0.0034. Water quality data at the Sacramento River at Mallard Island station indicate good agreement with that ratio. The monthly average bromide to chloride concentration ratios are shown in Table 4.

Figures 15-20 are examples of the sea water intrusion monitoring results for EC, bromide, and the Br:Cl ratios observed on August 20-22, 1990. Comparisons of such plots over time provide an illustrative approach in analyzing the movement and mixing of Delta waters.

Table 4. Monthly Average Br to Cl Concentration Ratios (x 10^4)

Month	American WTP intake	Sacramento River at Greene's Lndg.	Barker No. Bay Pumping Plant	Sacramento River at Mallard Island	Rock Slough at Old River	Clifton Court Forebay intake (channel)	H.O. Banks Headworks	DMC intake at Lindemann Rd.	Middle River at Borden Hwy.	San Joaquin River near Vernalis
Jan		43		36	31		34	34	36	15
Feb		34	18	35	32	11	11	13	16	10
Mar		41	22	38	33	35	17	12	37	21
Apr		66	27	36	34		17	17	35	19
May	50	40	52		30	26	31	29	31	30
Jun		41	15	33	34	18	35	34		34
Jul		37	33	45	38	14	35	37	33	37
Aug		44	44	39	39	41	41	39	49	38
Sep		49		43	43	47	41	37	44	41
Oct		25	29	35	38	38	39	35	37	39
Nov	<33	13	18	37	35		35	33	31	33
Dec	<33	20	18	35	36	34	35	34	32	32

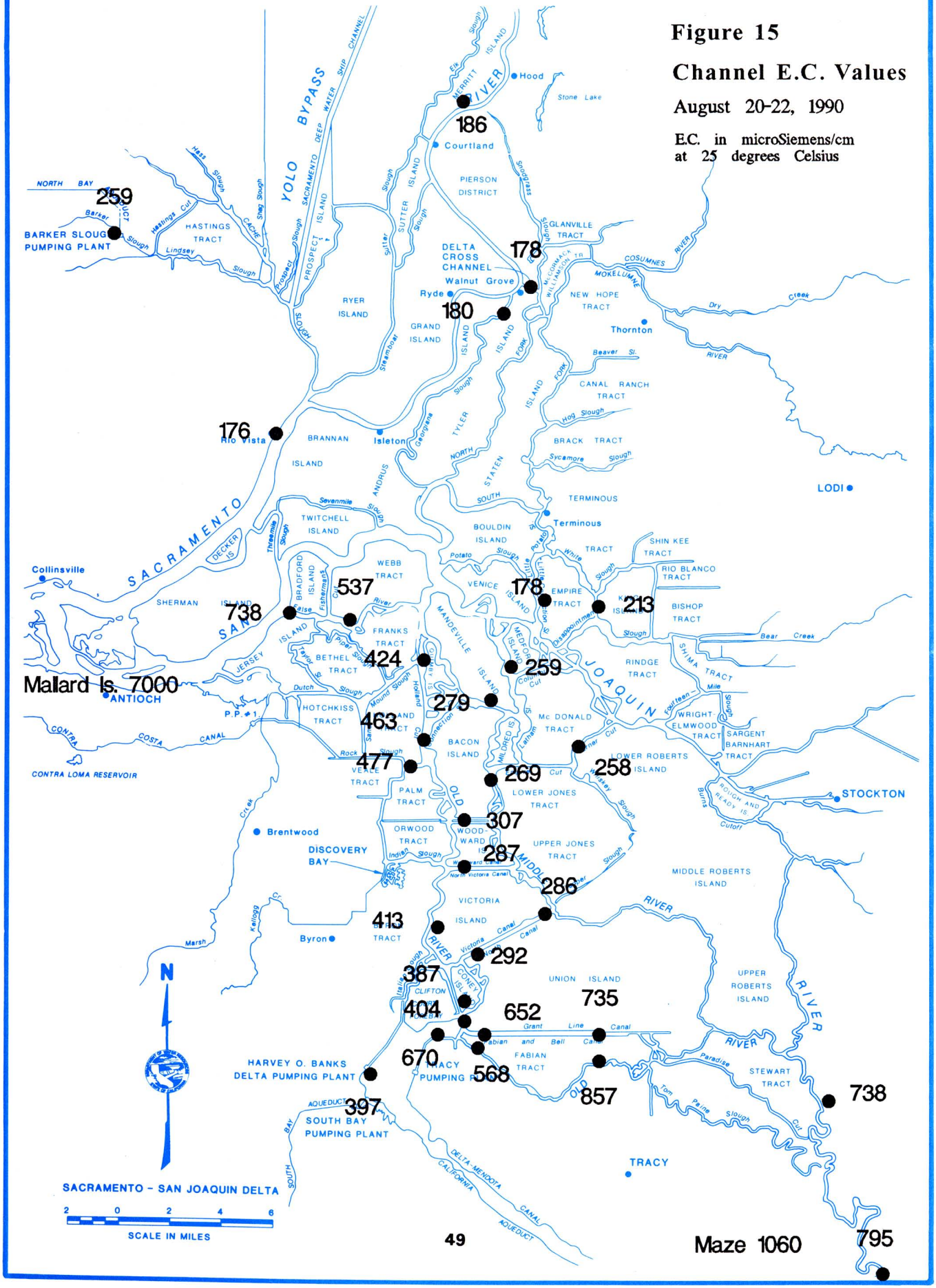
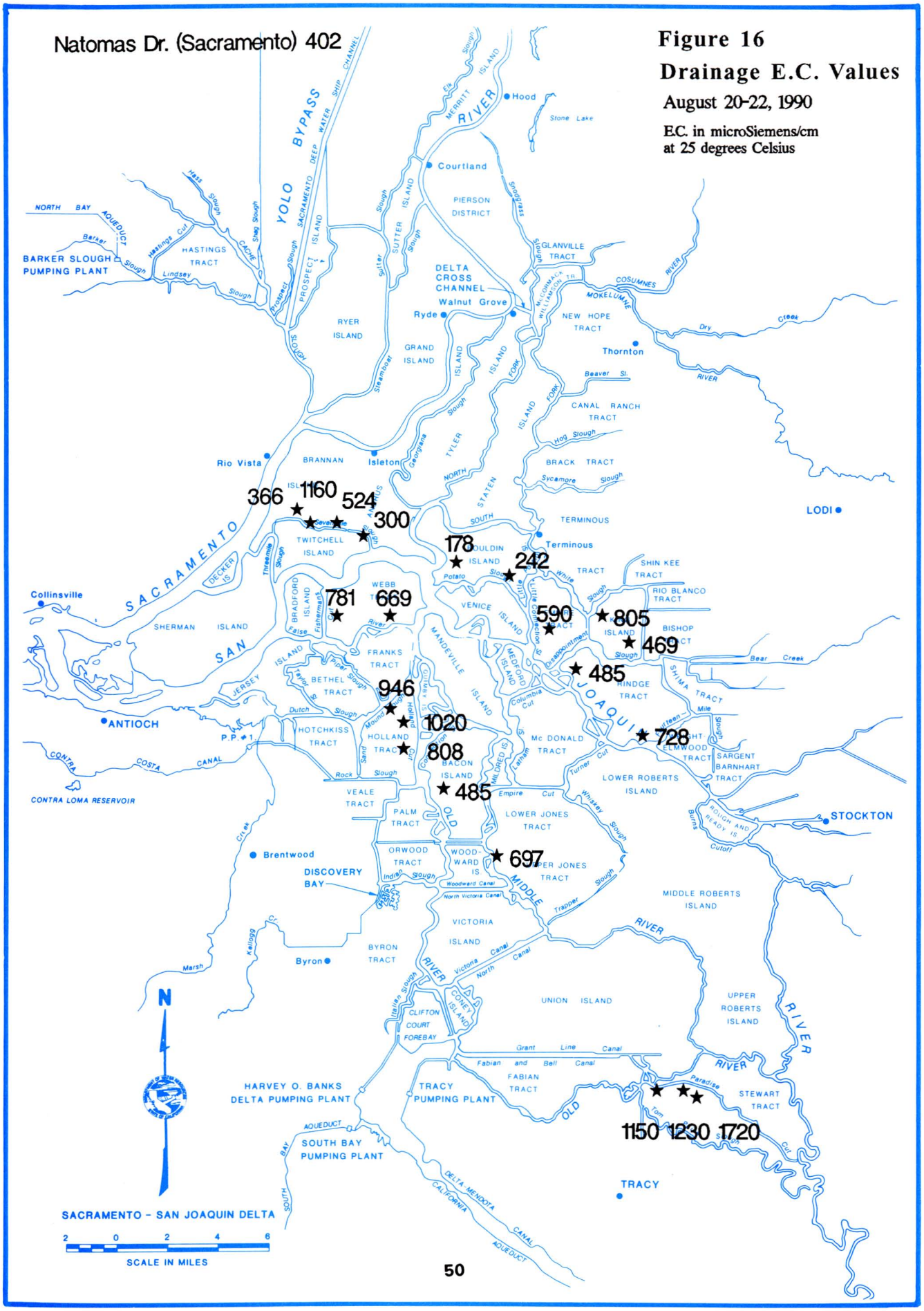
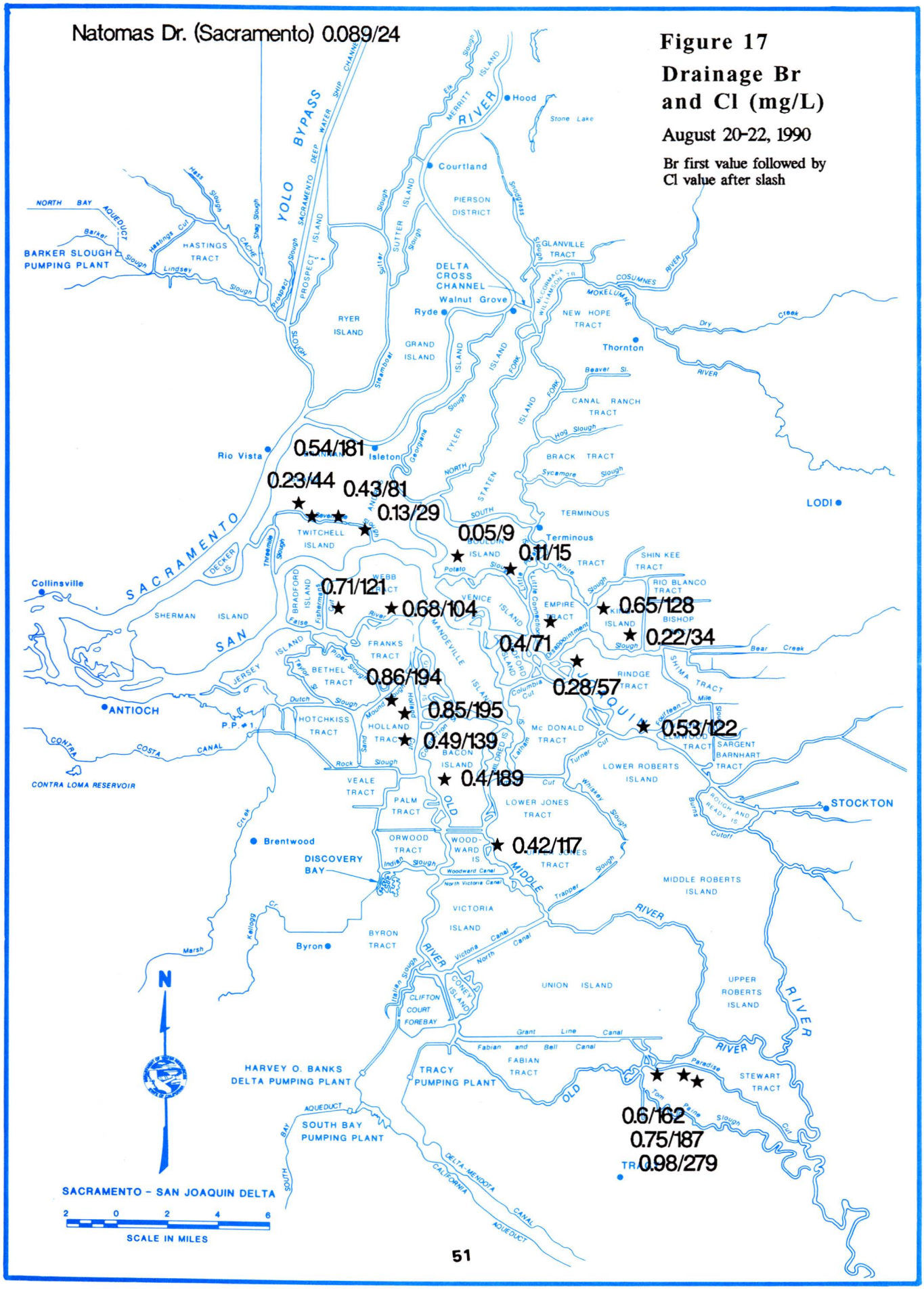


Figure 15
Channel E.C. Values
August 20-22, 1990
E.C. in microSiemens/cm
at 25 degrees Celsius
259
BARKER SLOUGH PUMPING PLANT
186
Courtland
178
DELTA CROSS CHANNEL
Walnut Grove
180
Ryde
176
Rio Vista
Isleton
Thornton
LODI
Terminous
Collinsville
537
738
178
213
424
259
Mallard Is. 7000
ANTIOCH
279
463
477
269
258
307
287
286
413
292
387
404
652
735
670
568
857
738
397
795
Maze 1060
Brentwood
DISCOVERY BAY
Byron
TRACY
STOCKTON
CONTRA LOMA RESERVOIR
HARVEY O. BANKS DELTA PUMPING PLANT
SOUTH BAY PUMPING PLANT
SACRAMENTO - SAN JOAQUIN DELTA
SCALE IN MILES
49


Natomas Dr. (Sacramento) 402
Figure 16
Drainage E.C. Values
August 20-22, 1990
E.C. in microSiemens/cm
at 25 degrees Celsius
366
1160
524
300
178
242
781
669
590
805
469
485
946
1020
728
808
485
697
1150
1230
1720
Hood
Courtland
Walnut Grove
Ryde
Thornton
Rio Vista
Isleton
Terminous
LODI
Collinsville
ANTIOCH
Brentwood
Byron
STOCKTON
TRACY
BARKER SLOUGH PUMPING PLANT
HARVEY O. BANKS DELTA PUMPING PLANT
TRACY PUMPING PLANT
SOUTH BAY PUMPING PLANT
CONTRA LOMA RESERVOIR
DISCOVERY BAY
SACRAMENTO - SAN JOAQUIN DELTA
SCALE IN MILES
N


Natomas Dr. (Sacramento) 0.089/24
Figure 17
Drainage Br and Cl (mg/L)
August 20-22, 1990
Br first value followed by Cl value after slash
0.54/181
0.23/44
0.43/81
0.13/29
0.05/9
0.11/15
0.71/121
0.68/104
0.65/128
0.22/34
0.4/71
0.28/57
0.86/194
0.85/195
0.53/122
0.49/139
0.4/189
0.42/117
0.6/162
0.75/187
0.98/279
Hood
Courtland
Rio Vista
Isleton
Ryde
Walnut Grove
Thornton
Terminous
LODI
Collinsville
ANTIOCH
Brentwood
STOCKTON
Byron
DISCOVERY BAY
CONTRA LOMA RESERVOIR
HARVEY O. BANKS DELTA PUMPING PLANT
TRACY PUMPING PLANT
SOUTH BAY PUMPING PLANT
BARKER SLOUGH PUMPING PLANT
DELTA CROSS CHANNEL
SACRAMENTO - SAN JOAQUIN DELTA
SCALE IN MILES
N

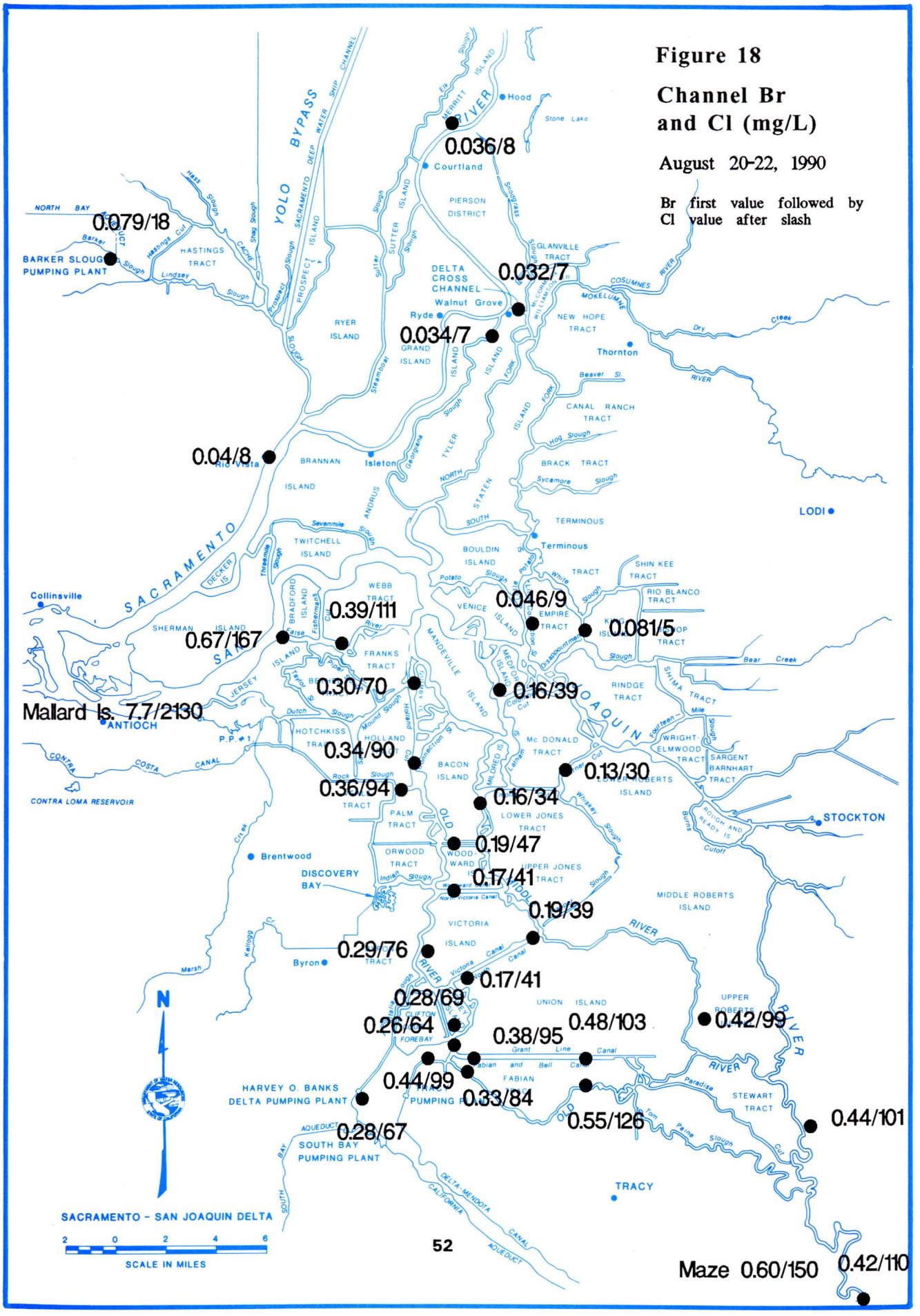


Figure 18
Channel Br and Cl (mg/L)
August 20-22, 1990
Br first value followed by Cl value after slash
0.036/8
0.079/18
0.032/7
0.034/7
0.04/8
0.046/9
0.081/5
0.39/111
0.67/167
0.30/70
0.16/39
Mallard Is. 7.7/2130
0.34/90
0.13/30
0.36/94
0.16/34
0.19/47
0.17/41
0.19/39
0.29/76
0.17/41
0.28/69
0.26/64
0.48/103
0.42/99
0.38/95
0.44/99
0.33/84
0.55/126
0.44/101
0.28/67
Maze 0.60/150
0.42/110
Hood
Courtland
Walnut Grove
Ryde
Thornton
Isleton
Rio Vista
Terminous
LODI
Collinsville
ANTIOCH
STOCKTON
Brentwood
Byron
TRACY
DISCOVERY BAY
CONTRA LOMA RESERVOIR
HARVEY O. BANKS DELTA PUMPING PLANT
SOUTH BAY PUMPING PLANT
BARKER SLOUGH PUMPING PLANT
SACRAMENTO - SAN JOAQUIN DELTA
SCALE IN MILES
2 0 2 4 6
N
52

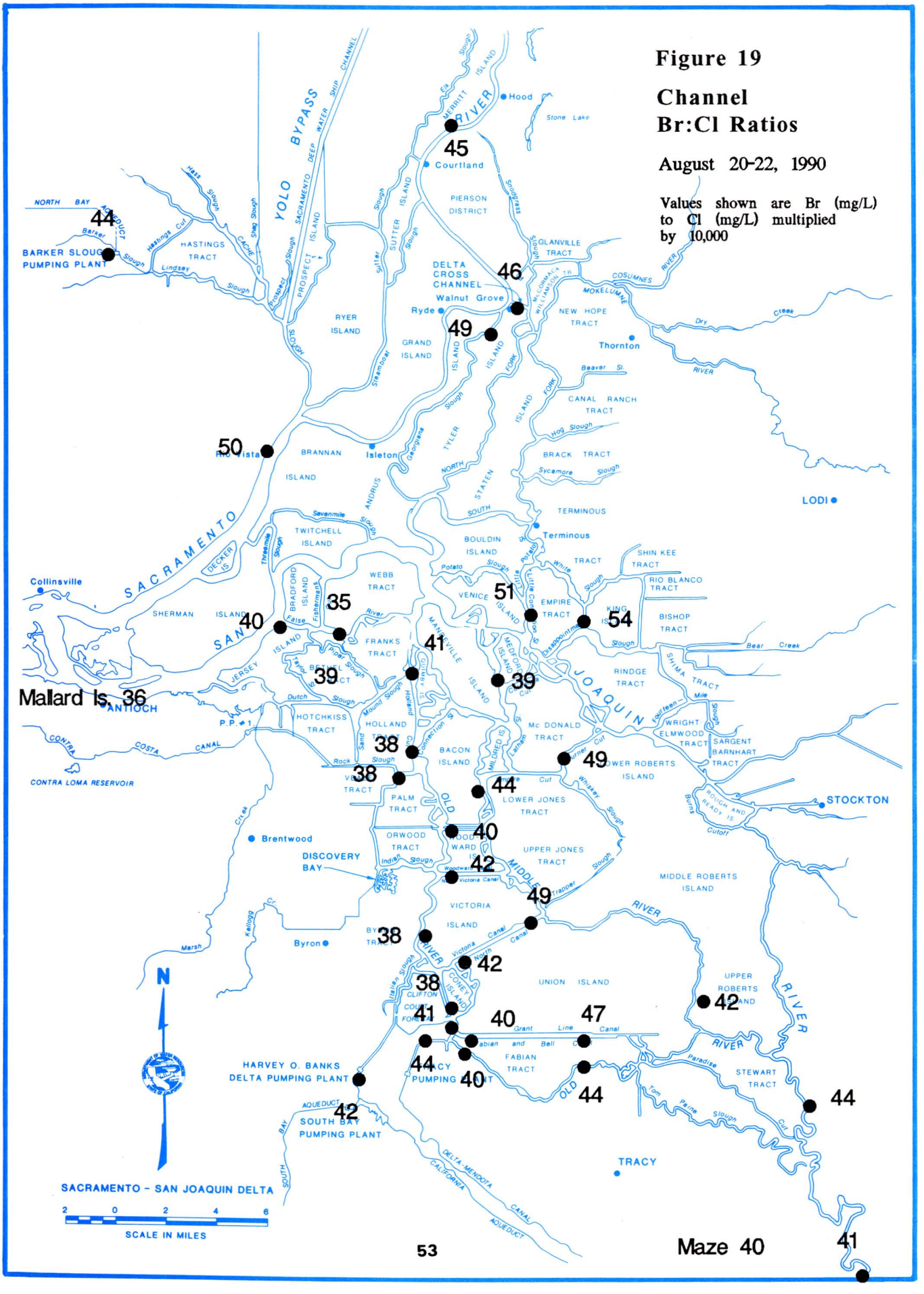
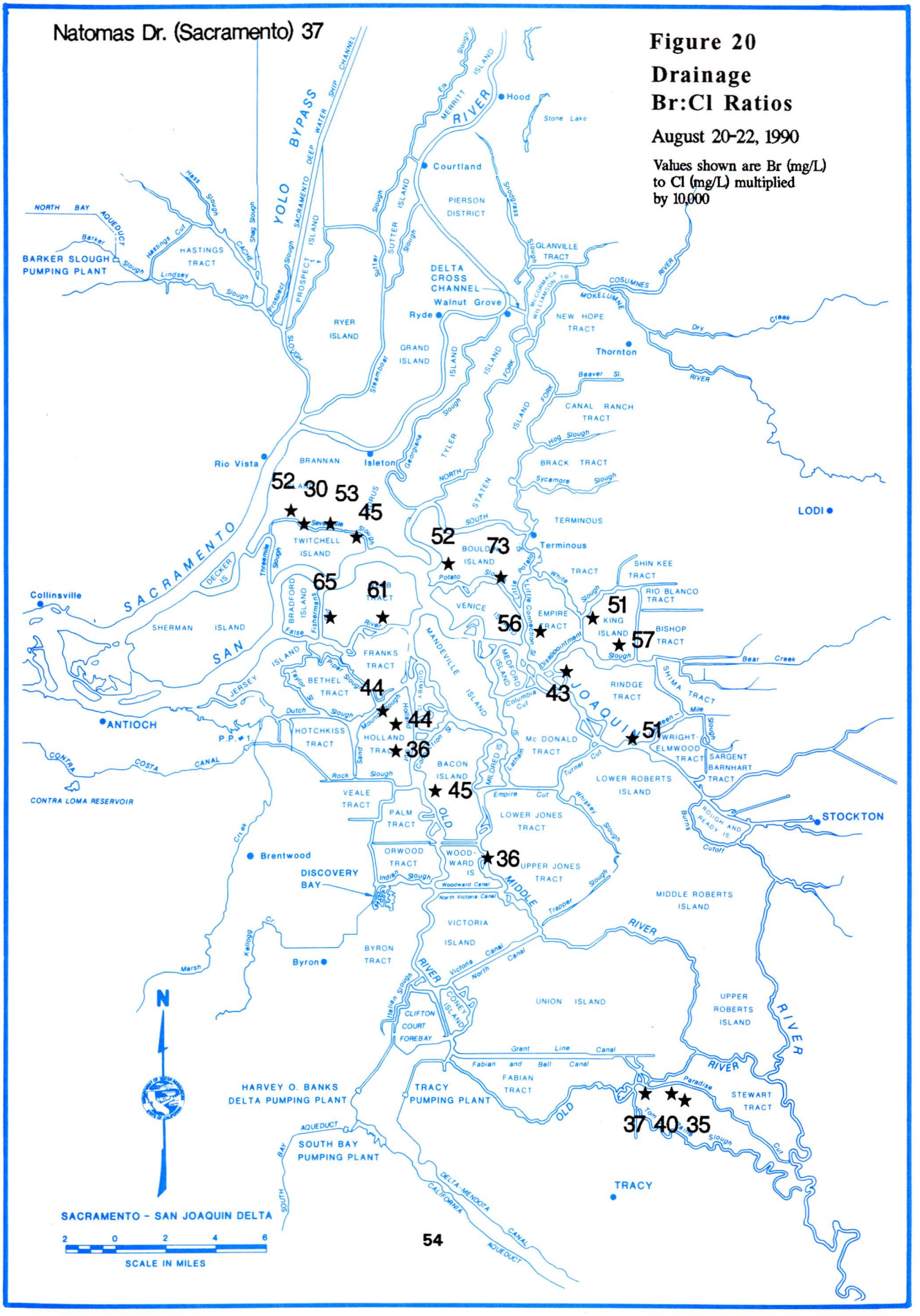


Figure 19
Channel
Br:Cl Ratios
August 20-22, 1990
Values shown are Br (mg/L) to Cl (mg/L) multiplied by 10,000
44
BARKER SLOUGH PUMPING PLANT
45
Courtland
Hood
Stone Lake
46
DELTA CROSS CHANNEL
Walnut Grove
49
Ryde
50
Rio Vista
Isleton
Thornton
LODI
Terminous
51
54
35
40
41
39
Mallard Is. 36
ANTIOCH
38
44
49
STOCKTON
Brentwood
DISCOVERY BAY
42
Byron
47
HARVEY O. BANKS DELTA PUMPING PLANT
SOUTH BAY PUMPING PLANT
TRACY
Maze 40
41
SACRAMENTO - SAN JOAQUIN DELTA
SCALE IN MILES
53


Natomas Dr. (Sacramento) 37
Figure 20
Drainage
Br:Cl Ratios
August 20-22, 1990
Values shown are Br (mg/L) to Cl (mg/L) multiplied by 10,000
Hood
Courtland
Walnut Grove
Ryde
Thornton
Rio Vista
Isleton
Terminous
LODI
Collinsville
ANTIOCH
Brentwood
Byron
STOCKTON
TRACY
DISCOVERY BAY
CONTRA LOMA RESERVOIR
BARKER SLOUGH PUMPING PLANT
HARVEY O. BANKS DELTA PUMPING PLANT
TRACY PUMPING PLANT
SOUTH BAY PUMPING PLANT
SACRAMENTO - SAN JOAQUIN DELTA
SCALE IN MILES
52
30
53
45
52
73
65
61
51
56
57
44
44
43
51
36
45
36
37
40
35
54

E. Drainage Sampling

Drainage sampling extended into the central Delta with Holland Tract, Webb Tract, and Bacon Island added to the list of monitored areas. Table 5 shows the monthly range of TTHMFP concentrations at the drainage stations. In most cases, January and February levels were higher than the corresponding August concentrations. Differences among drains on the same island or tract were seen (e.g., Brannan Island).

Data collected from Delta drains will be used to improve the precision of previous work in modeling the sources and distribution of THM organic precursors (e.g., TFPC). This work was reported in the DWR's Delta Island Drainage Investigation Report dated June 1990.

Table 5. 1990 TTHMFP at Drainage Stations

Units in $\mu g/L$

STATION	JAN	FEB	APR	JUN	JUL	AUG	OCT
AGDCLIFTON	910	1500-3500	1400-1500		1200		1100
AGDEMPIRE	3600	3200	2000	1800	1600	2500	4400
BACON01	1200	790	1200		1600	750	740
BACON02	1700-1800	750	980		920	960	970
BOULDIN1	1400	2700	2300	850	1900	1600	2900
BOULDIN2	3400	2600	2200-2400	1900	3000	1100-1200	4100
BRANNANPP01	2500		1700		1300	1400	1300
BRANNANPP02	1100	1000			1800	1500	810
BRANNANPP03	1300	2000	470	840	1400-1600	1100	1800
BRANNANPP04	3000	2700	2100	1500	3100	2000	1500
HOLLAND01	2400	2100	2100		1900	1900-2500	2400
HOLLAND02	2600	2200	2200		1800	3200	1400
HOLLAND03	1600	2400	3000		810	1300	1000
KINGISPP01	880-920	1100	350	790	740		970
KINGISPP02	1000	1200	1100	880	880	1500	2200
KINGISPP03	1200	1300	470	1100	930	1800	1500
PESCADERO01	320		750		730	420	720
PESCADERO02	250		740		760	960	810
PESCADERO03	300		810		720	910	640
PESCADERO04	650-670	580			710		1400
RINDGEPP01	2600	1900	1500		2000	1900	1300
RINDGEPP02	2700	2400	2100		2200	2100	2200
UPJONESPP01	3900						
UPJONESPP02	1300		1000		910	1000	1100-1300
WEBB01		1900	1400		1700	1800	1700
WEBB02		2900	2500		2900	3600	1600

F. Water Characterization Studies

Delta water samples are analyzed for minerals as well as TTHMFP. The purpose of performing mineral analyses has been to characterize the major water types (e.g., bay water, fresh water, drain water) and their sources. By developing a chemical fingerprint or profile of specific water types, the movement and degradation of water under specific hydrologic conditions in the Delta can be assessed. This information will assist modelers and planners in the examination of alternatives to improve the management and distribution of Delta water supplies.

There are several techniques available to characterize water and trace its movement. Each method has its unique advantages and limitations, and several methods are used to confirm specific relationships that exist among individual water samples. The use of specific ion ratio comparisons of bromide to chloride to track bay water intrusion and mixing was described earlier.

Mineral ion data for calcium, magnesium, sodium, potassium, chloride, sulfate, and alkalinity (carbonate and bicarbonate) were plotted on trilinear diagrams for comparison. Separate diagrams were made for the following monitoring stations (station name in Figure 1 shown in parentheses):

Station Number	Station Name
2	Sacramento River at Greene's Landing (GREENES)
17	Sacramento River at Mallard Island (MALLARDIS)
9	Rock Slough at Old River (ROCKSL)
12	H.O. Banks Headworks (BANKS)
13	Middle River at Borden Highway (MIDDLER)
11	Delta Mendota Canal intake at Lindemann Road (DMC)
14	San Joaquin River near Vernalis (VERNALIS)
8	Agricultural drain on Empire Tract (AGDEMPIRE)
6	Agricultural drain on Tyler Island (AGDTYLER)
5	Agricultural drain on Grand Island (AGDGRAND)

For comparison, the Central Valley Regional Water Quality Control Board provided trilinear diagrams of agricultural drainage of the southern Delta islands, western Stanislaus County, and subsurface tile drainage of the Panoche Fan area. Mineral data collection began in January 1986 for most stations. Record storms resulted in flooding some parts of the Delta (e.g., Tyler Island) in February and March 1986. Following that period, drought conditions persisted through 1990. Therefore, most of the data reflect extreme and prolonged drought conditions.

Trilinear diagrams combine mineral ion data into two groups of cationic and two groups of anionic constituents. The points are expressed as percentages with the sums of the cations and anions equaling 100 percent. This is equivalent to specifying two variables and allows the analysis to be expressed as a single point in a two-coordinate diagram.

In the following trilinear diagrams (Figures 21, 22, and 23), the anion and cation triangles occupy positions at the lower left and lower right and have their bases aligned vertically and their vertices pointing toward each other. The upper central portion of the diagram is diamond shaped.

The proportions of cations and anions are plotted as points in each lower triangle. The points are then extended into the central plotting field by projecting them along lines parallel to the upper edges of the central field. The intersection of these projections represents the composition of the water with respect to the combination of ions shown. The units are percent of total milliequivalents per liter.

The technical details of composing and reading actual percentages of anion and cation distribution shown in the trilinear diagrams are not described here. We present the use of trilinear diagrams to graphically summarize the differences between water types.

The pattern in each trilinear diagram represents the chemical fingerprint of the water at a given location. By overlaying the data points from several stations, we can compare the similarities and differences and make inferences about the mixing of water types downstream from a distinct source.

As more data are collected under different hydrologic conditions, trilinear diagrams and other methods of expressing data can help determine the consistency or inconsistency of water quality at a station and possible causes for inconsistencies.

Distinct profiles based on trilinear diagrams of major cations and anions were observed at the major sources of water entering the Delta. These stations were located at the Sacramento River at Greene's Landing, Sacramento River at Mallard Island, and San Joaquin River near Vernalis. The profiles characterized Sacramento River fresh water, sea water, and San Joaquin Valley drainage, respectively.

Water samples taken from agricultural drains on Grand Island and Tyler Island resembled the mineral profile of Sacramento River at Greene's Landing water. These mineral profiles are probably similar because the Sacramento River provides the applied irrigation water source for the two islands.

In the case of farm drainage from Empire Tract, the mineral profile was unique and most likely reflects saline connate water source which is believed to lie beneath the

island.

Water samples from Rock Slough at Old River reflected bay water intrusion into the lower western Delta. The trilinear diagram resembled that of the Sacramento River at Mallard Island.

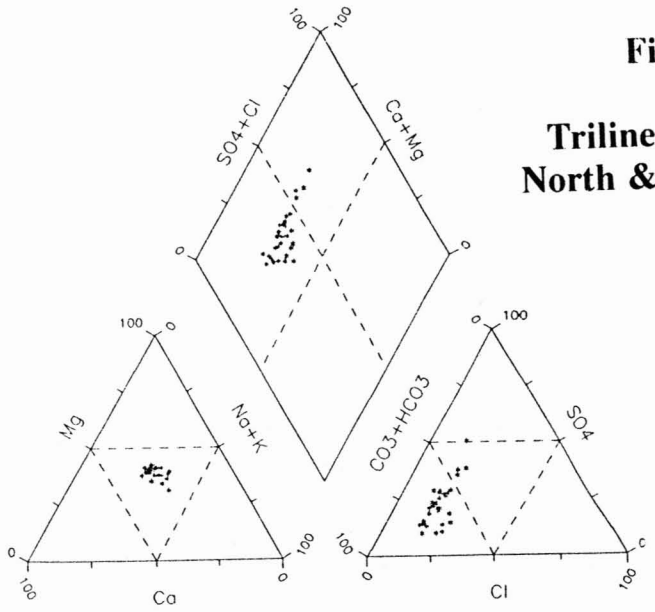
Mineral profiles of water samples taken from the H. O. Banks Headworks resembled those from Rock Slough at Old River.

Samples collected at the DMC intake at Lindemann Road resembled a mixture of water from the San Joaquin River near Vernalis, and from Rock Slough.

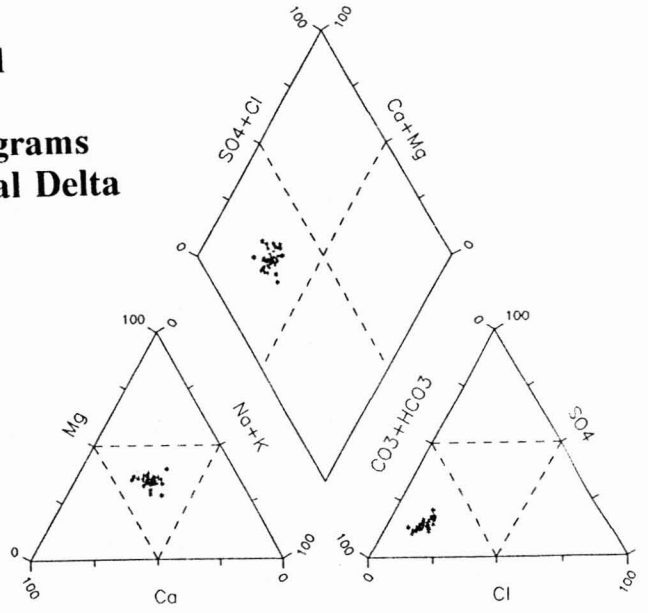
Drainage from western Stanislaus County and the southern Delta islands was significantly different in chemical composition from subsurface tile drainage of the Panoche Fan area.

Figure 21

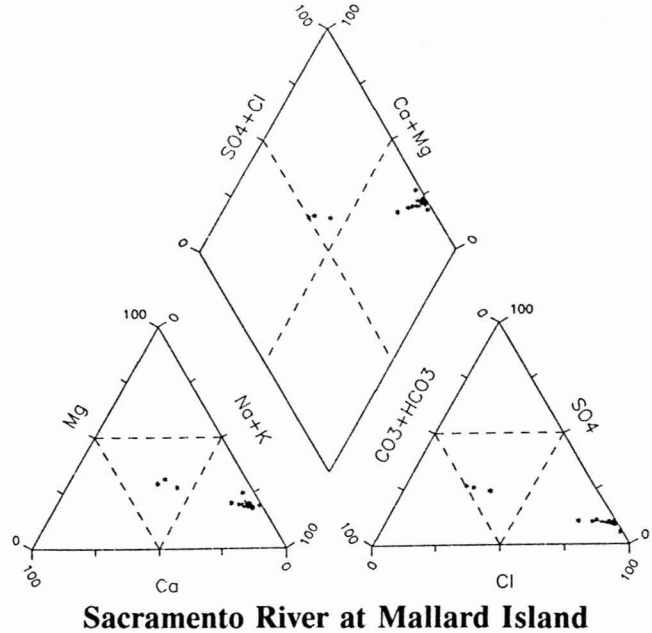
Trilinear Diagrams
North & Central Delta



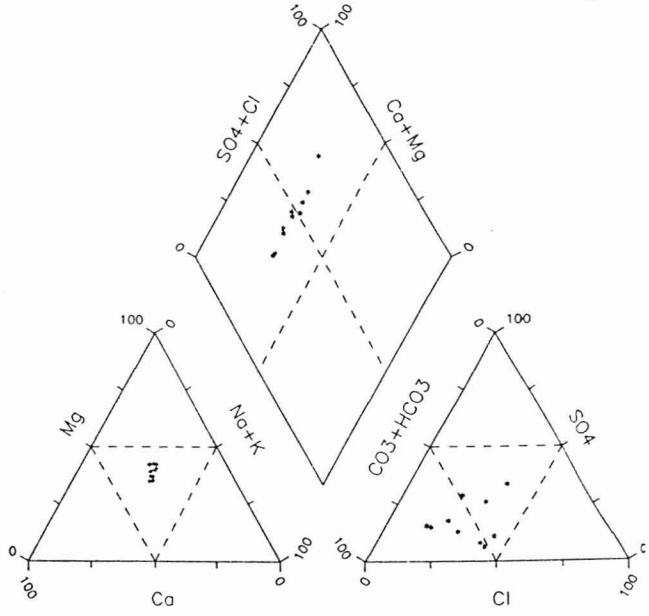
Grand Island farm drain



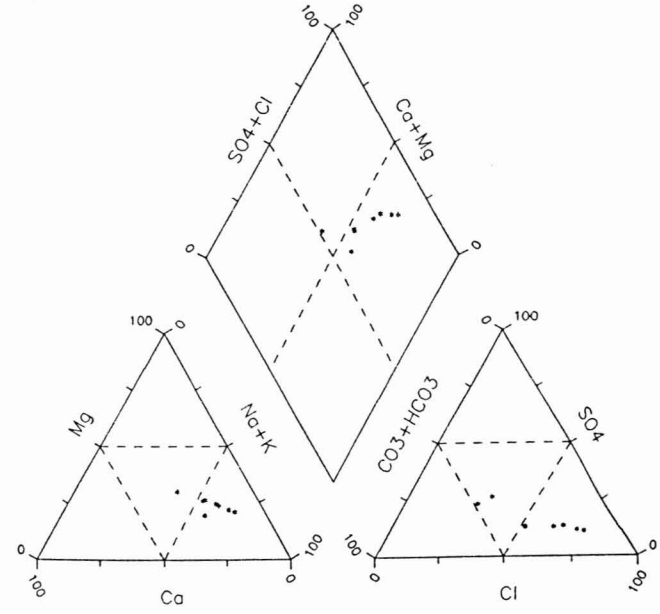
Sacramento River at Greenes Landing



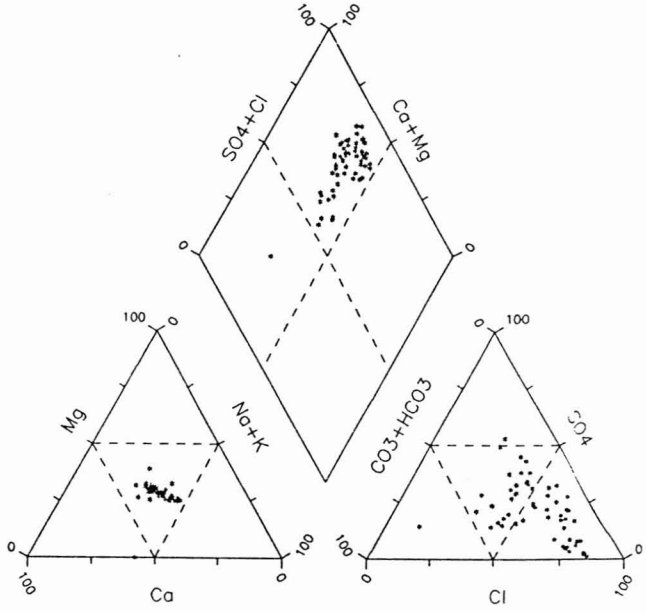
Sacramento River at Mallard Island



Tyler Island farm drain



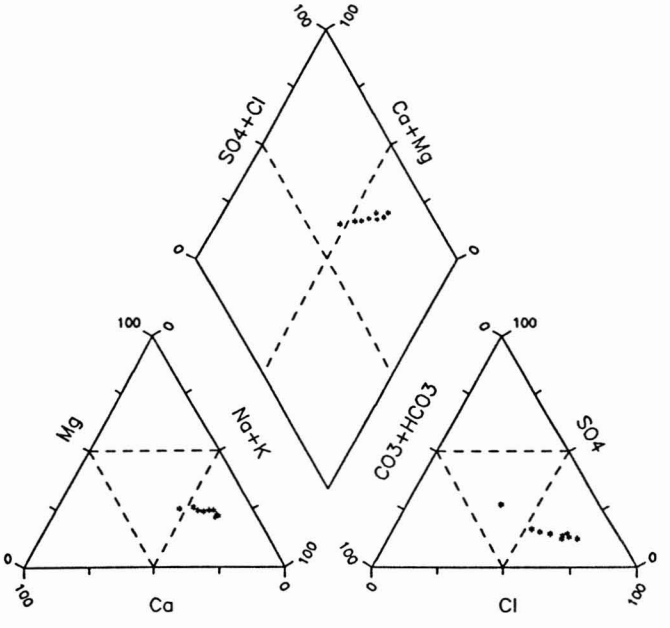
Rock Slough at Old River



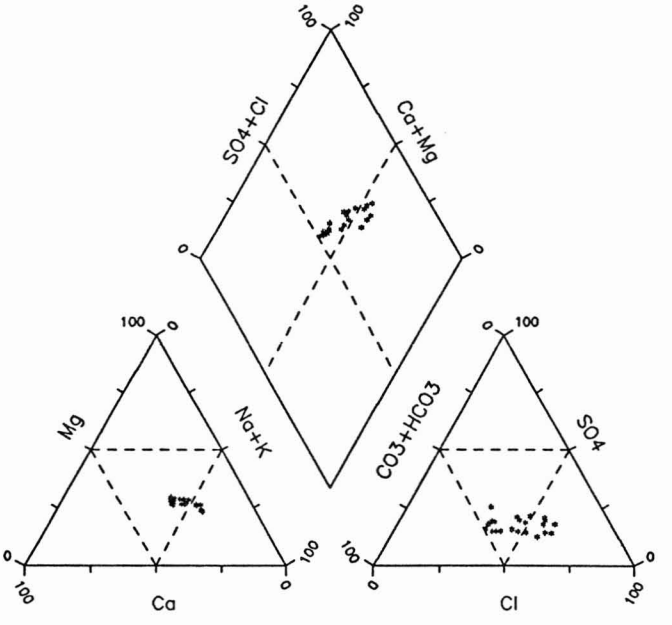
Empire Tract farm drain

Figure 22

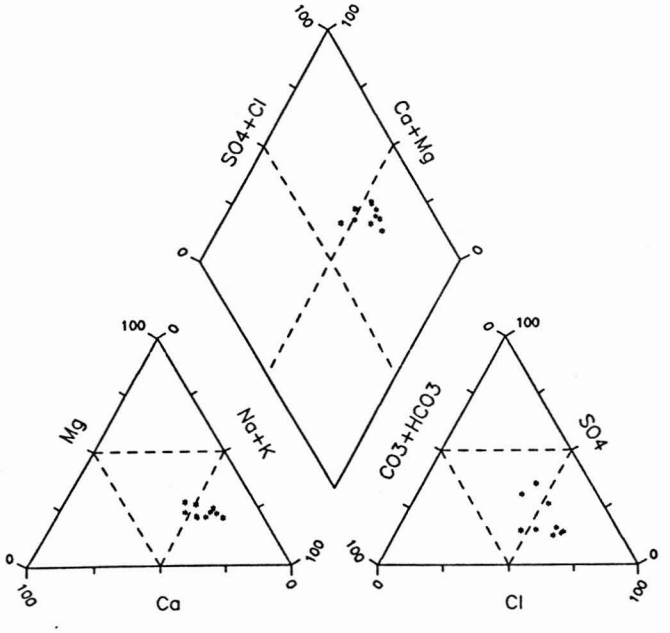
Trilinear Diagrams
Central & Southern Delta



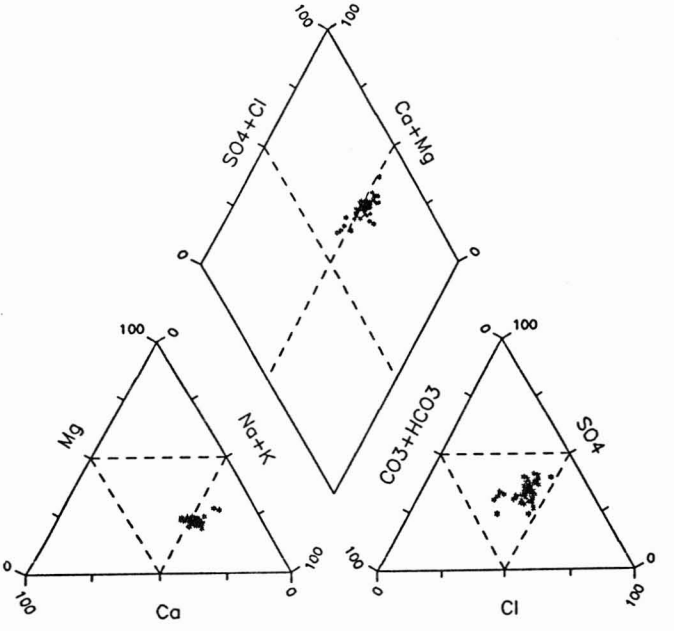
H. O. Banks Headworks



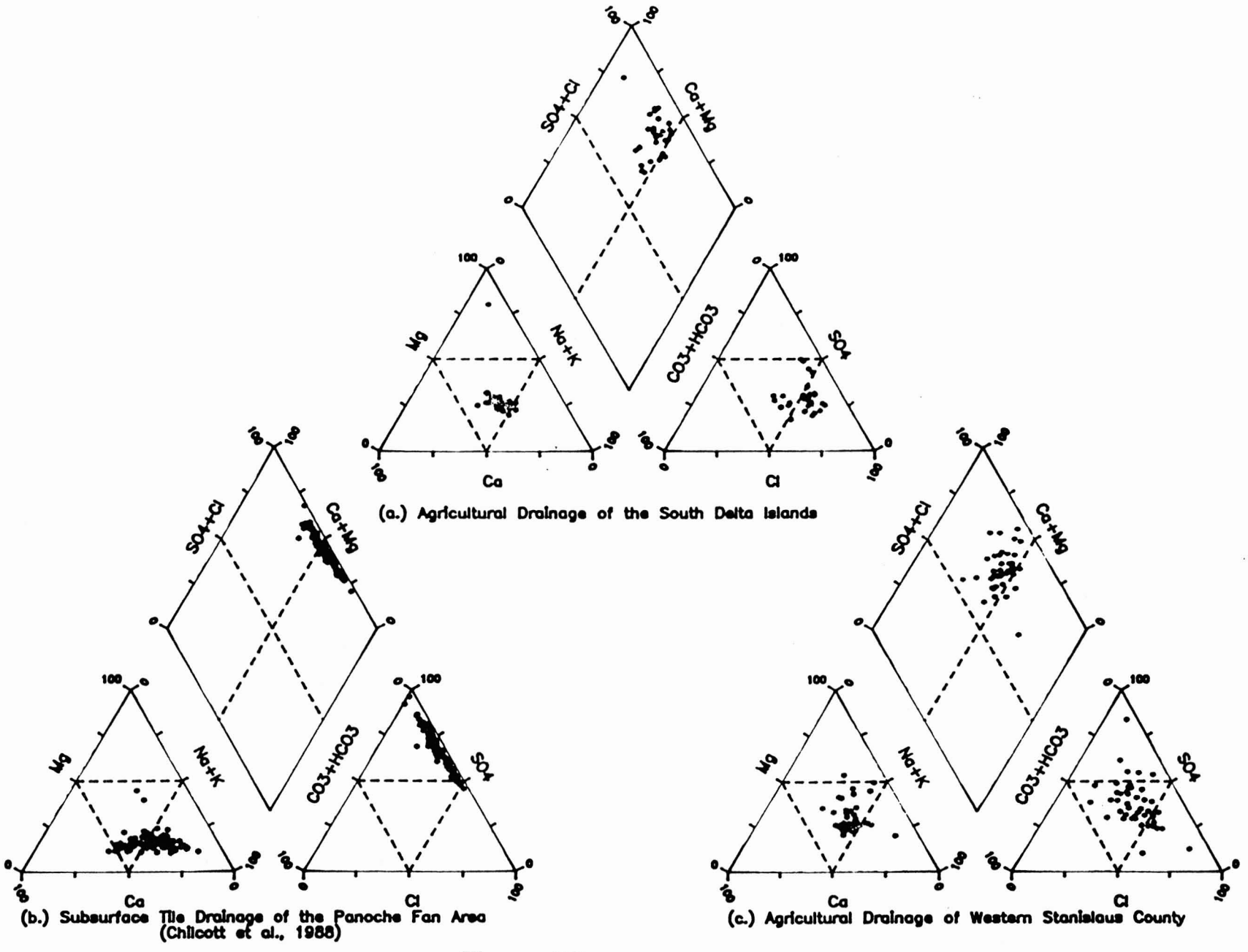
Middle River at Borden Hwy.



DMC intake - Lindemann Rd.



San Joaquin River - Vernalis



(a.) Agricultural Drainage of the South Delta Islands

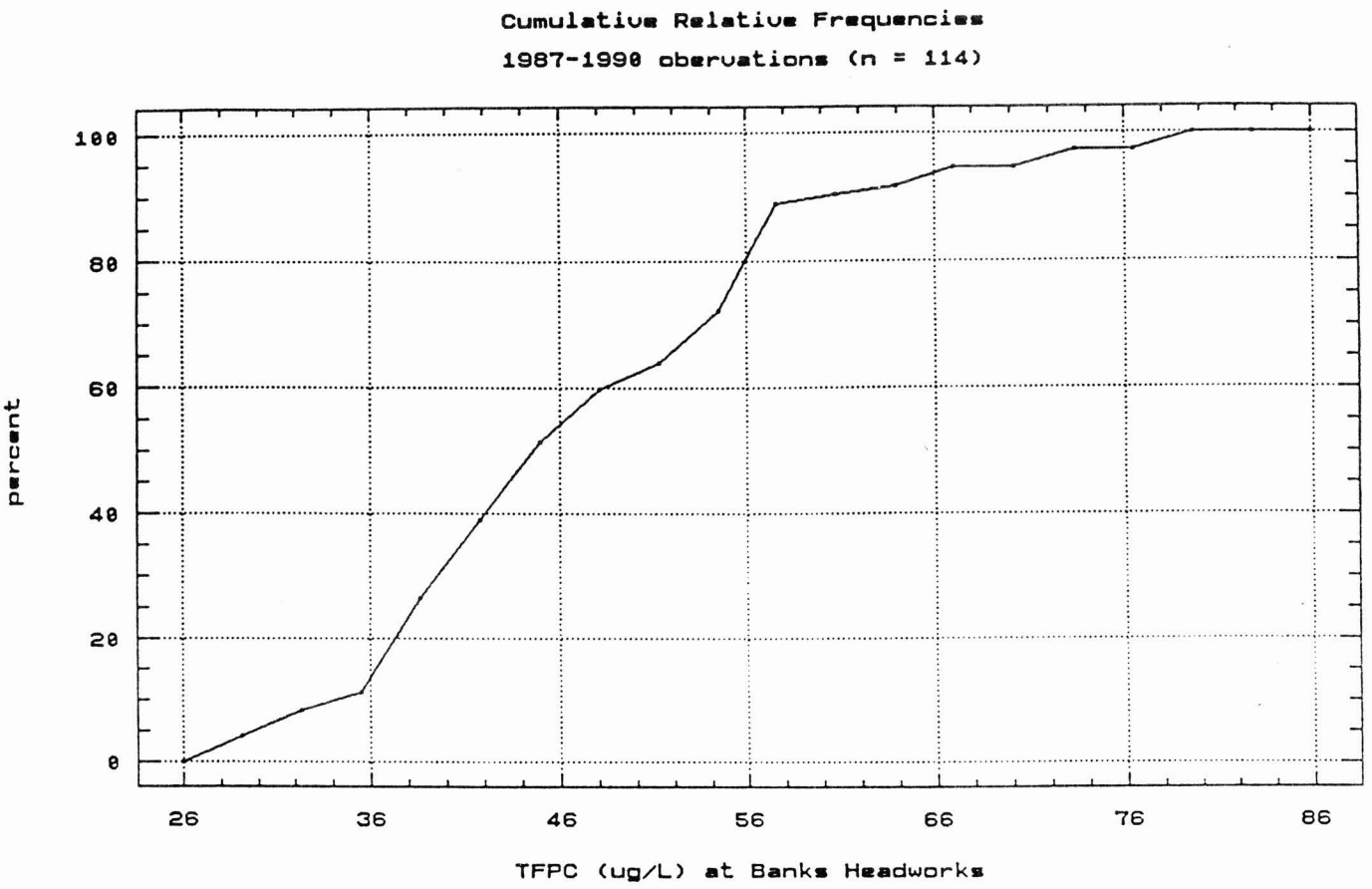
(b.) Subsurface Tile Drainage of the Panoche Fan Area (Chilcott et al., 1988)

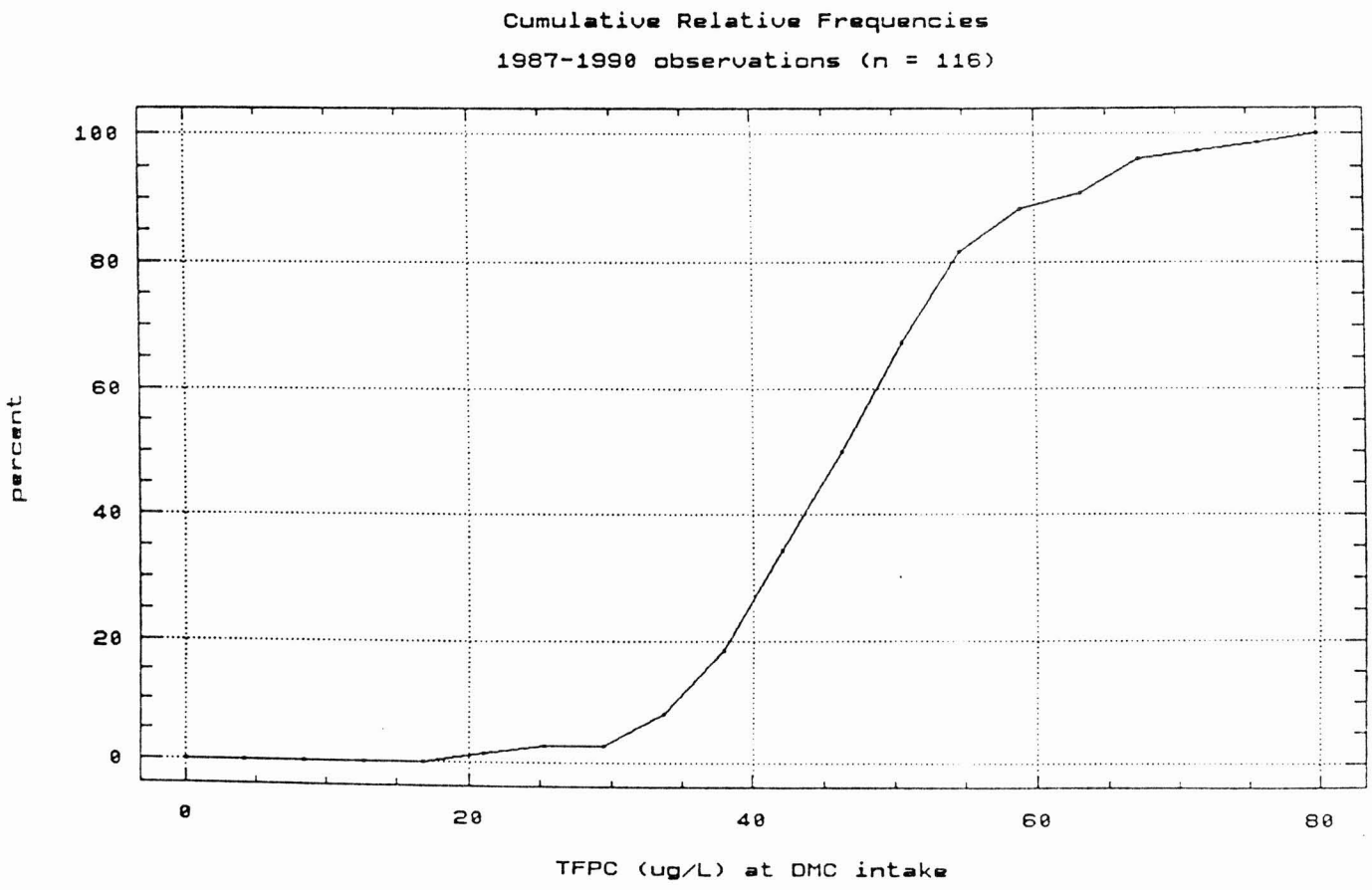
(c.) Agricultural Drainage of Western Stanislaus County

Figure 23

Trilinear Diagrams
Agricultural Drainage Areas

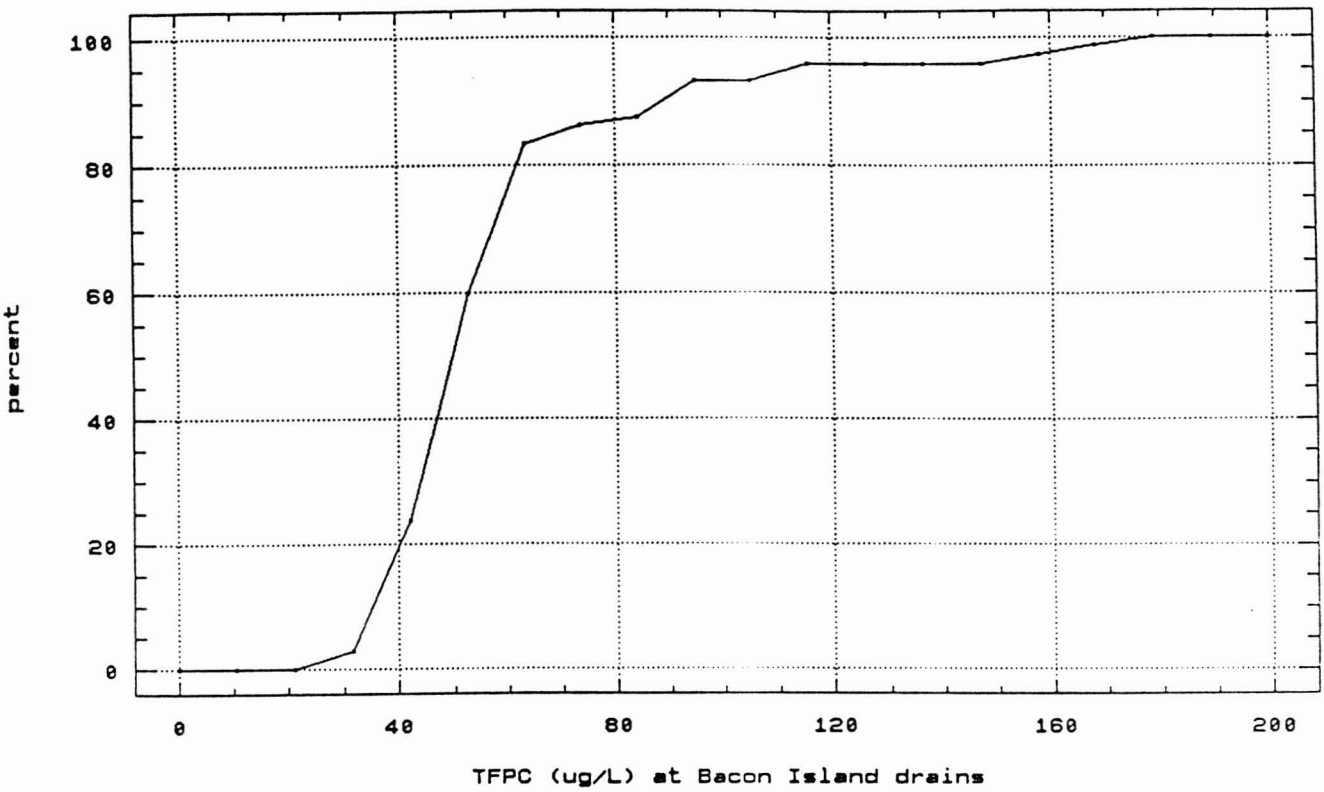
Appendix A: TFPC Cumulative Relative Frequency


Cumulative Relative Frequencies
1987-1990 observations (n = 114)
percent
100
80
60
40
20
0
26
36
46
56
66
76
86
TFPC (ug/L) at Banks Headworks


Cumulative Relative Frequencies
1987-1990 observations (n = 116)
percent
100
80
60
40
20
0
0
20
40
60
80
TFPC (ug/L) at DMC intake

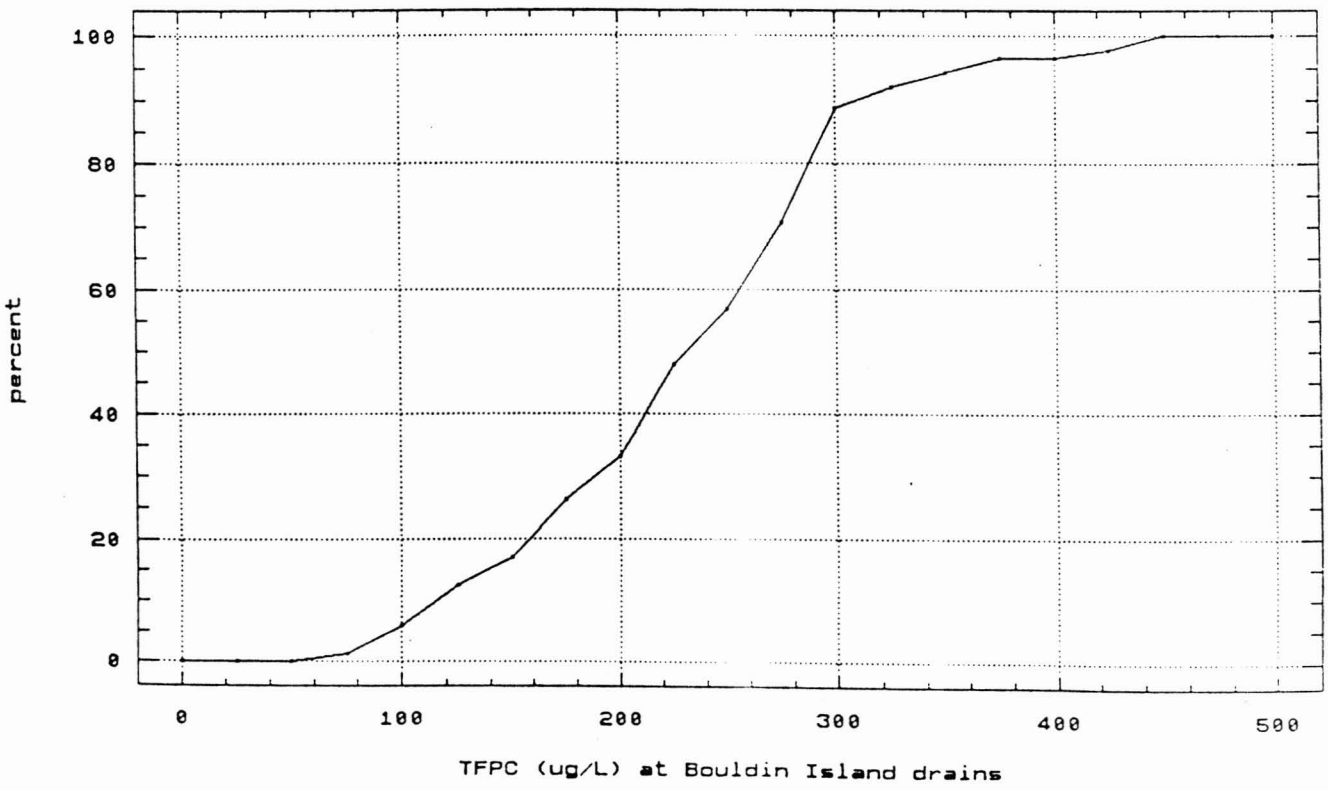
Cumulative Relative Frequencies

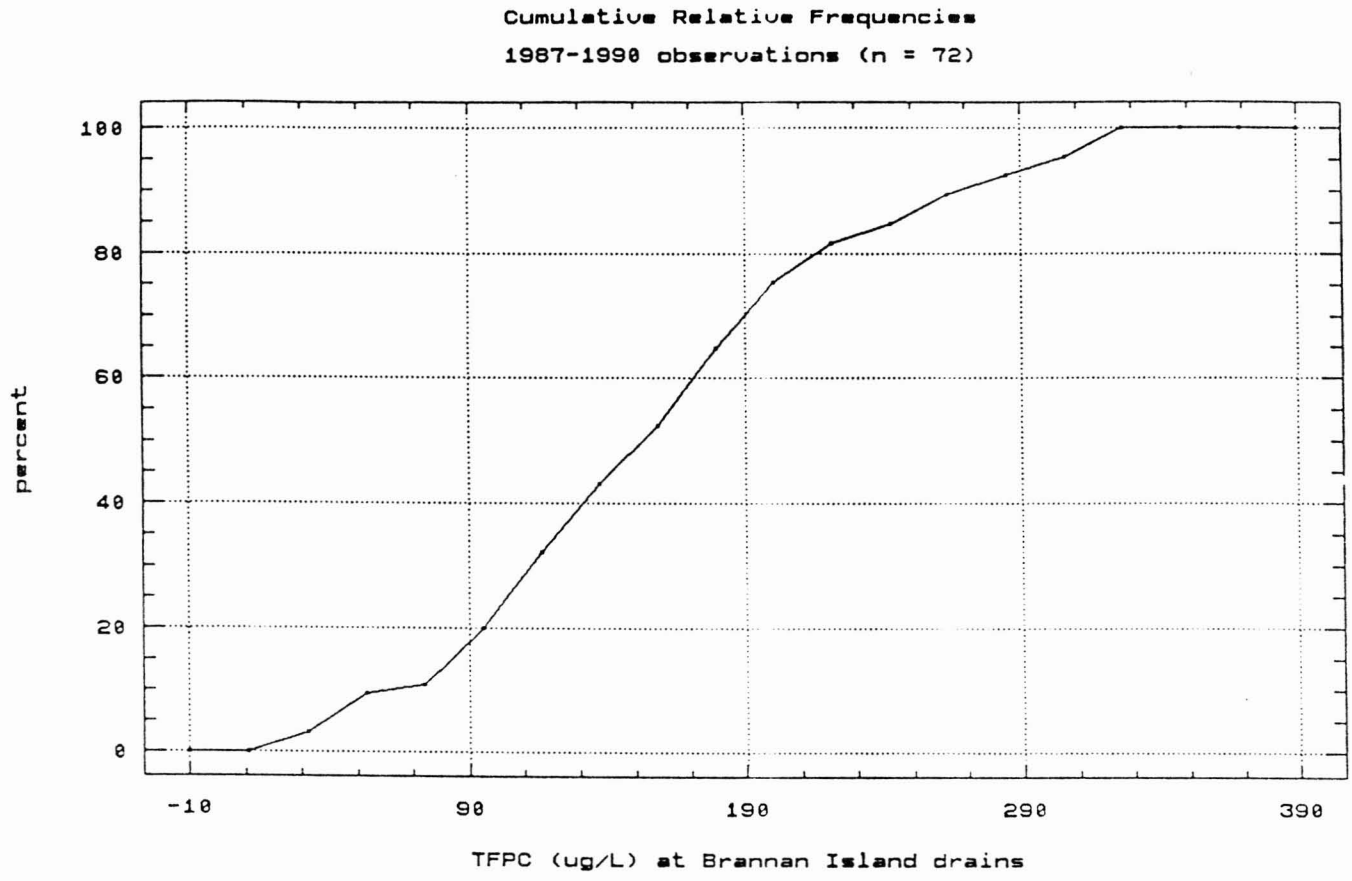
1987-1990 (n = 74)

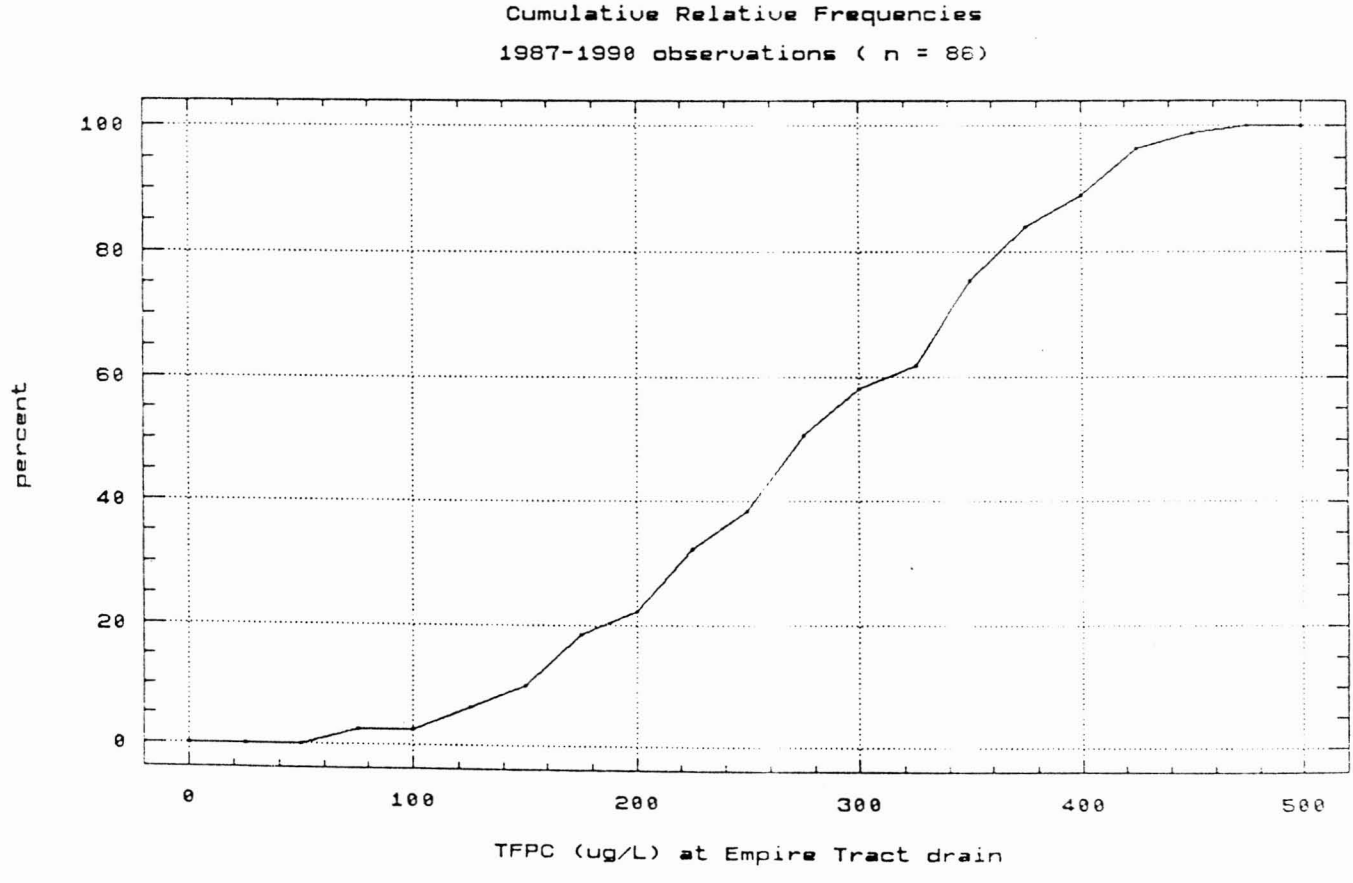


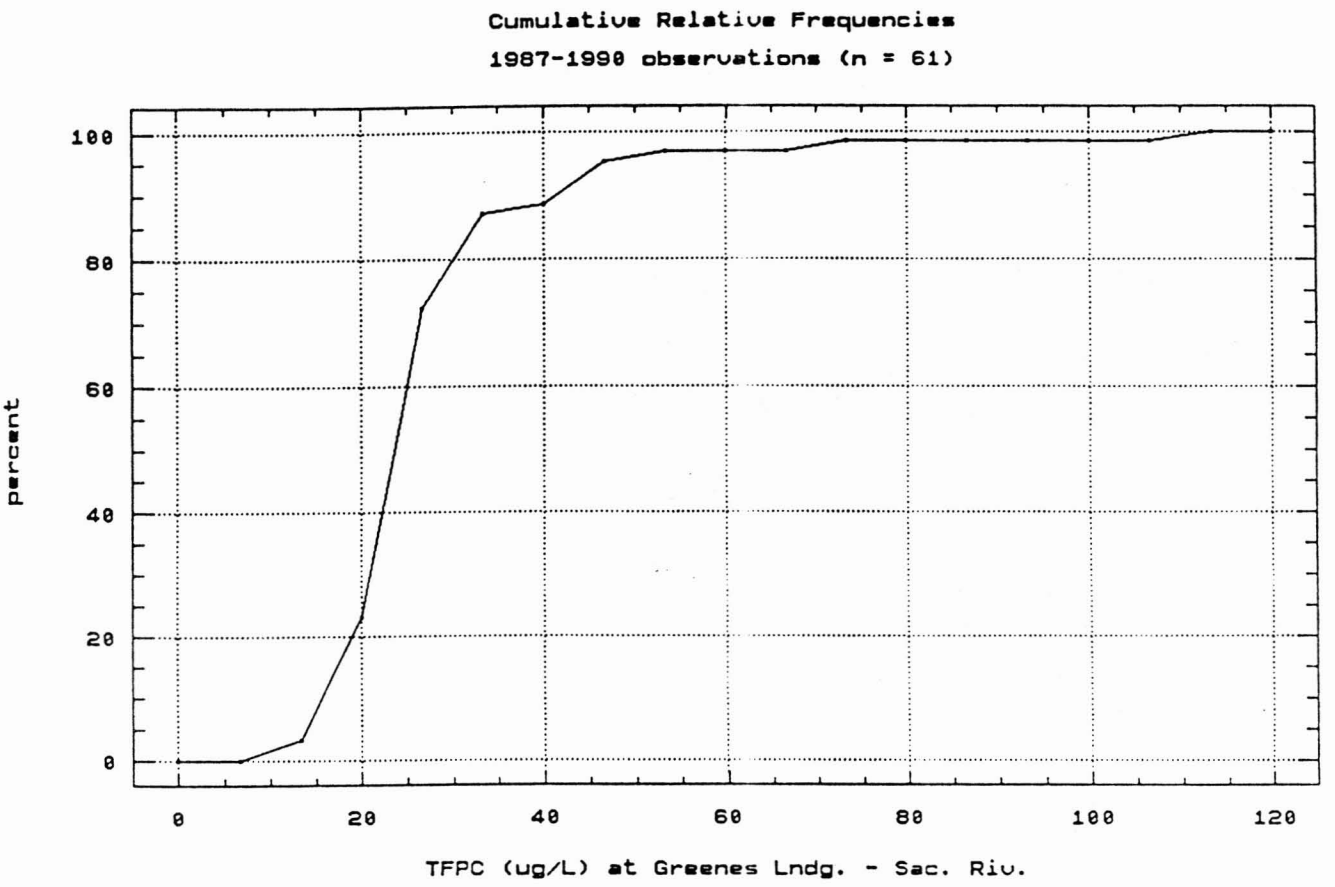
Cumulative Relative Frequencies

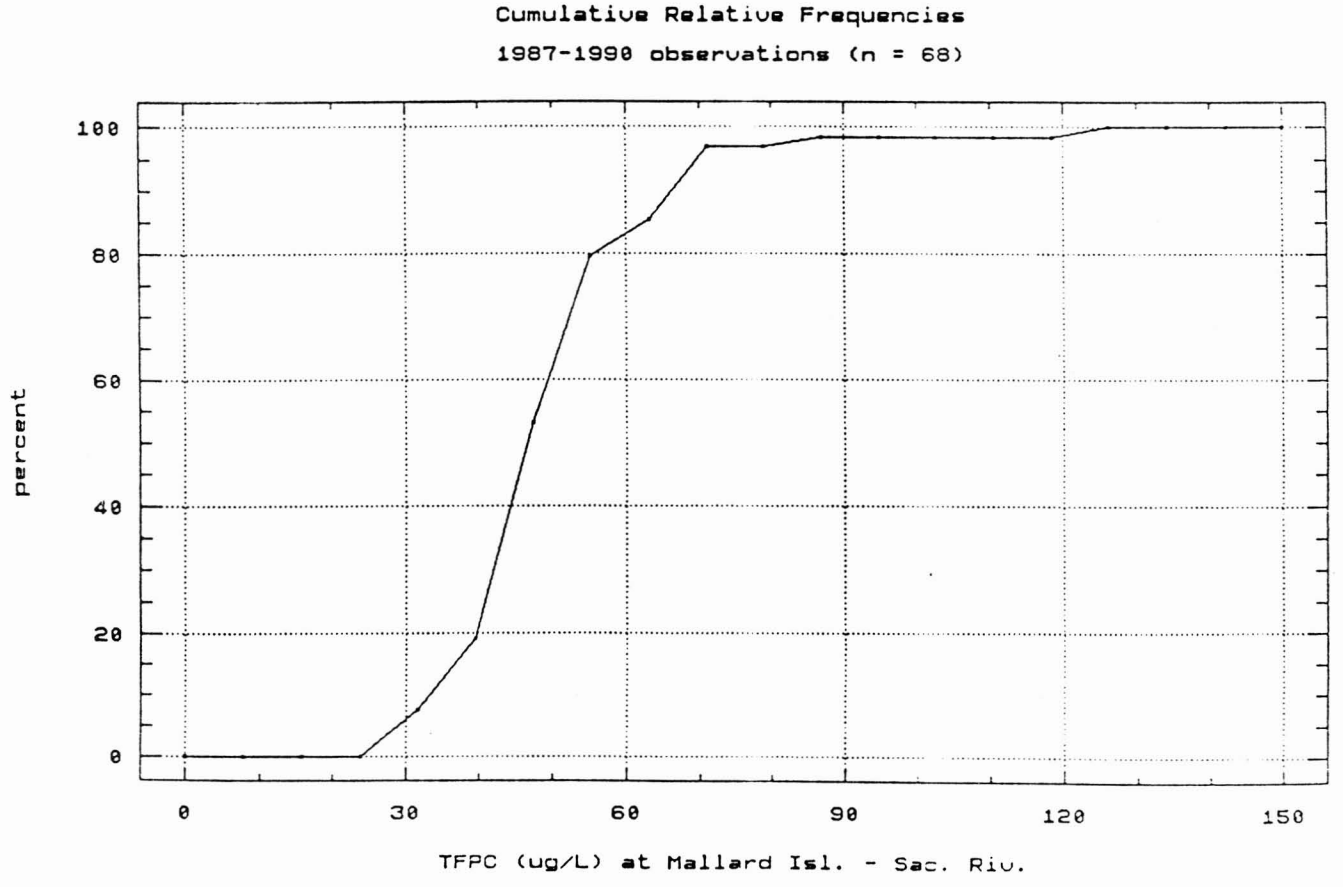
1987-1990 observations (n = 90)

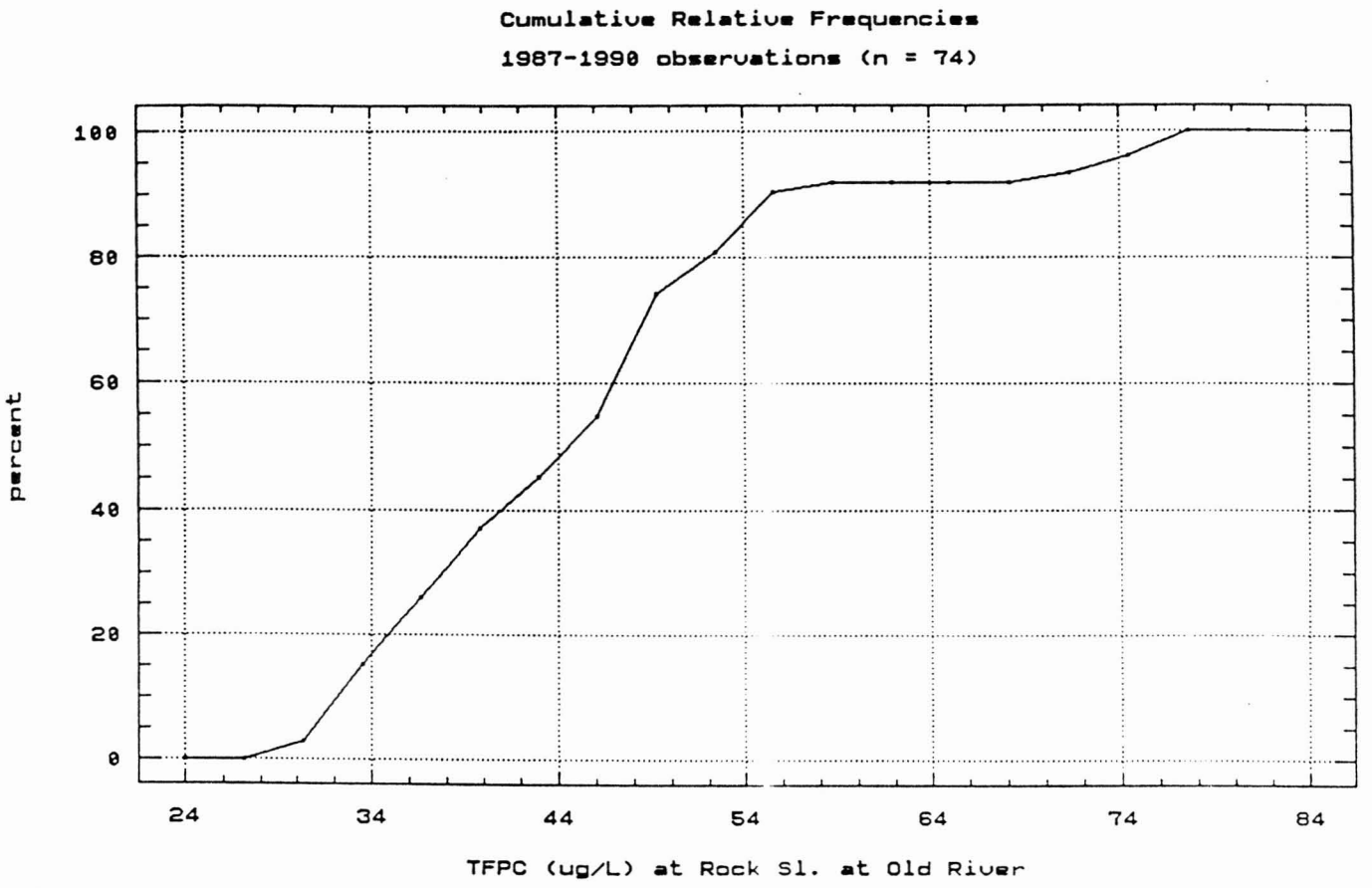


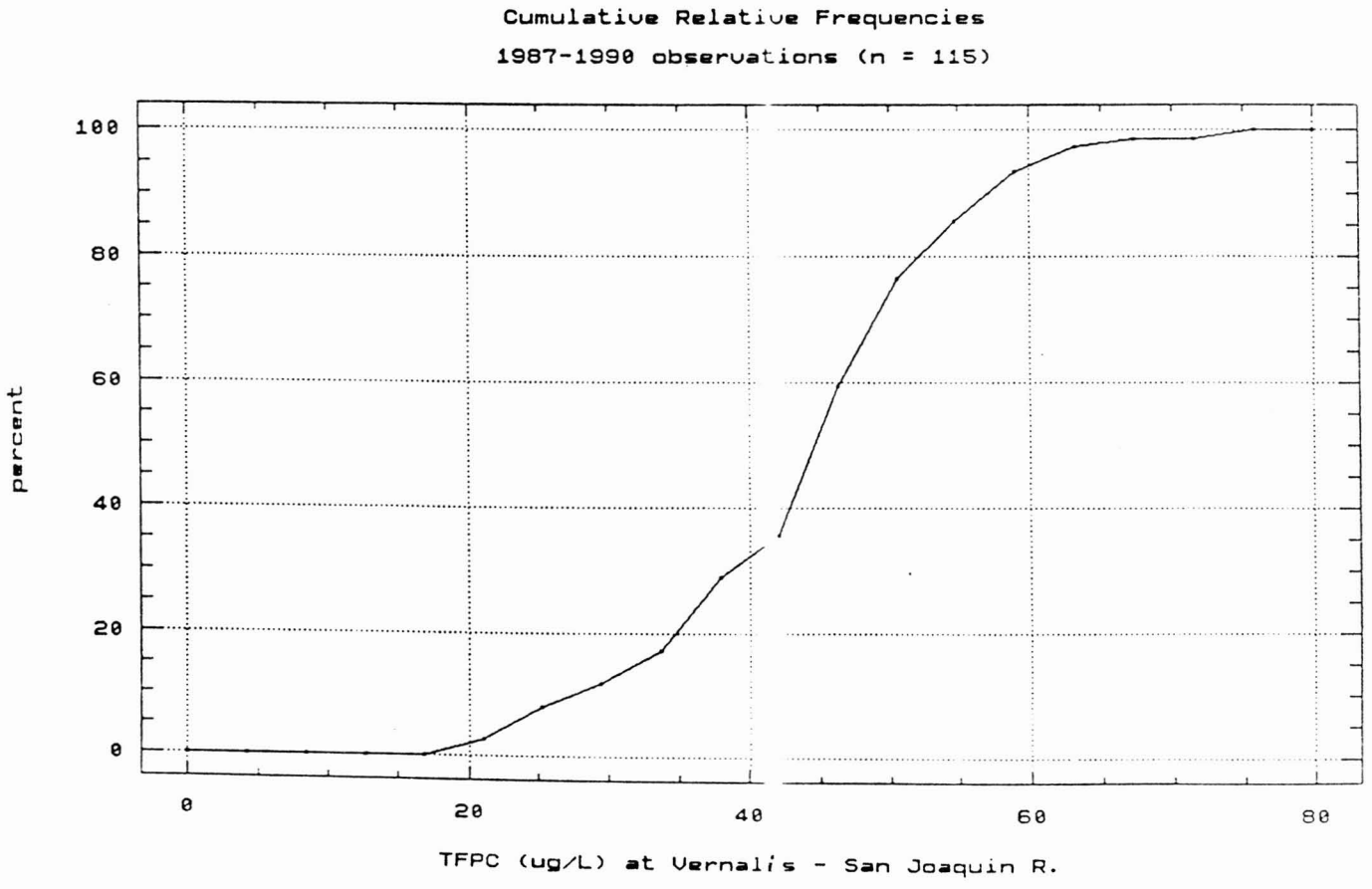

Cumulative Relative Frequencies
1987-1990 observations (n = 72)
percent
100
80
60
40
20
0
-10
90
190
290
390
TFPC (ug/L) at Brannan Island drains


Cumulative Relative Frequencies
1987-1990 observations (n = 86)
percent
100
80
60
40
20
0
0
100
200
300
400
500
TFPC (ug/L) at Empire Tract drain


Cumulative Relative Frequencies
1987-1990 observations (n = 61)
percent
100
80
60
40
20
0
0
20
40
60
80
100
120
TFPC (ug/L) at Greenes Lndg. - Sac. Riv.


Cumulative Relative Frequencies
1987-1990 observations (n = 68)
percent
100
80
60
40
20
0
0
30
60
90
120
150
TFPC (ug/L) at Mallard Isl. - Sac. Riv.


Cumulative Relative Frequencies
1987-1990 observations (n = 74)
percent
100
80
60
40
20
0
24
34
44
54
64
74
84
TFPC (ug/L) at Rock Sl. at Old River


Cumulative Relative Frequencies
1987-1990 observations (n = 115)
percent
100
80
60
40
20
0
0
20
40
60
80
TFPC (ug/L) at Vernalis - San Joaquin R.

Appendix B: Monitoring Program Data

MONITORING PROGRAM DATA

Data for the Interagency Delta Health Aspects Monitoring Program are divided into three tables: THM Data Report, Mineral Data Report, and Minor Elements Data Report.

The **THM DATA REPORT** primarily contains laboratory results of trihalomethane formation potential analyses. The four THM species are included. In addition, basic reference information about each sample is included. The records include:

LAB# - laboratory sample identification number
STA. NAME - abbreviated station name
SAMP. DATE - sampling date
TIME - sampling time (24-hour clock)
TEMP °C - field water temperature (Celsius degrees)
PH - field pH of water sample
DO mg/L - field dissolved oxygen measurement (milligrams per liter)
EC μS/cm - laboratory measured electrical conductivity of water sample (microSiemens per centimeter corrected to 25 degrees Celsius).
TURB T.U. - laboratory turbidity measurement (turbidity units)
COLOR C.U. - laboratory measured color (color units)
TOC mg/L - laboratory measured total organic carbon (milligrams per liter)

THM Formation Potential

CHCL3 - chloroform (micrograms per liter)
CHBRCL2 - dichlorobromomethane (micrograms per liter)
CHBRCL - dibromochloromethane (micrograms per liter)
CHBR3 - bromoform (micrograms per liter)
TTHMFP - total trihalomethane formation potential (micrograms per liter)

Flow cfs - average river or stream measured flow (cubic feet per second) at that station for that sampling date. Flow at most stations is not measured.

The **MINERAL DATA REPORT** primarily contains data on the mineral composition of the water samples. The table includes data on water hardness and concentrations of sodium, chloride, selenium, asbestos, calcium, magnesium, potassium, alkalinity, sulfate, nitrate, boron, and total dissolved solids. The table includes:

LAB#	- laboratory sample identification number
STA. NAME	- abbreviated station name
SAMP. DATE	- sampling date
TIME	- sampling time (24-hour clock)
TEMP °C	- field water temperature (degrees Celsius)
PH	- field pH of water sample
DO mg/L	- field dissolved oxygen measurement (milligrams per liter)
EC µS/cm	- laboratory measured electrical conductivity of water sample (microSiemens per centimeter corrected to 25 degrees Celsius)
NA mg/L	- sodium concentration (milligrams per liter)
CL mg/L	- chloride concentration (milligrams per liter)
Se mg/L	- selenium concentration (milligrams per liter)
Asbest MF/L	- asbestos concentration (million fibers per liter)
Hard.	- water hardness (milligrams per liter as calcium carbonate)
Ca	- calcium concentration (milligrams per liter)
Mg	- magnesium concentration (milligrams per liter)
K	- potassium concentration (milligrams per liter)
ALK	- total alkalinity (milligrams per liter as calcium carbonate)
SO4	- sulfate concentration (milligrams per liter)
NO3	- nitrate concentration (milligrams per liter as nitrogen)
B	- boron concentration (milligrams per liter)
TDS	- total dissolved solids (milligrams per liter) dried at 180 degrees C.
Flow cfs	- average river or stream measured flow (cubic feet per second) at that station for that sampling date. Flow at most stations is not measured.

The **MINOR ELEMENTS DATA REPORT** provides the results of trace element analyses. The table lists the dissolved concentrations of barium, iron, chromium, copper, manganese, mercury, zinc, lithium, and nickel.

LAB# - laboratory sample identification number
STA. NAME - abbreviated station name
SAMP. DATE - sampling date
TIME - sampling time (24-hour clock)
TEMP °C - field water temperature (Celsius degrees)
PH - field pH of water sample
DO mg/L - field dissolved oxygen measurement (milligrams per liter)
EC µS/cm - laboratory measured electrical conductivity of water sample (microSiemens per centimeter corrected to 25 degrees Celsius)
Ba mg/L - barium concentration (milligrams per liter)
Fe mg/L - iron concentration (milligrams per liter)
Cr mg/L - chromium concentration (milligrams per liter)
Cu mg/L - copper concentration (milligrams per liter)
Mn mg/L - manganese concentration (milligrams per liter)
Hg mg/L - mercury concentration (milligrams per liter)
Zn mg/L - zinc concentration (milligrams per liter)
Li mg/L - lithium concentration (milligrams per liter)
Ni mg/L - nickel concentration (milligrams per liter)

TFPC DATA REPORT

LAB#	STA. NAME	SAMP.DATE	TIME	TEMP oC	pH	DO mg/L	EC uS/cm	TURB T.U.	COLOR C.U.	DOC mg/L	UVA mg/L	THMFP ug/L	TFPC ug/L
900019	AGDCLIFTON	01/23/90	9:50	15.4	7.4	5.2	6090	38	30	6.2		910	61
900143	AGDCLIFTON	02/27/90	12:00	15.0	6.8	8.2	6150	64	50	8.7		1500	97
900200	AGDCLIFTON	04/24/90	10:40	17.5	7.4	9.0	6270	26	140	7.4	0.317	1400	91
900261	AGDCLIFTON	05/23/90	10:00	17.5	7.5	7.7	2530	63	80	13.0	0.392	1500	130
900303	AGDCLIFTON	06/27/90	10:00	21.0	6.7	4.6	3690	15	50	9.0	0.323		
900386	AGDCLIFTON	07/25/90	11:10	22.0	7.5	7.5	2640	29	50	12.0	0.295	1200	91
900764	AGDCLIFTON	10/23/90	8:50	19.0	7.4	5.8	5790	23	25	6.1	0.970	1100	74
900016	AGDEMPIRE	01/22/90	10:00	7.8	6.8	7.7	2310	9	160	42.0		3600	330
900116	AGDEMPIRE	02/19/90	10:50	6.8	7.1	11.1	2320	11	120	30.0		3200	300
900197	AGDEMPIRE	04/23/90	10:25	18.0	6.8	5.9	680	13	120	24.0	1.000	2000	190
900256	AGDEMPIRE	05/23/90	7:29	17.9	7.5	2.6	761	15	160	24.0			
900269	AGDEMPIRE	05/23/90	7:29	17.9	7.5	2.6				24.0			
900309	AGDEMPIRE	06/28/90	7:00	21.2	7.1	3.7	1060	93	160	18.0	0.696	1800	170
900381	AGDEMPIRE	07/24/90	11:29	25.3		1.7	593	15	100	15.0	0.711	1600	160
900493	AGDEMPIRE	08/20/90	11:28	24.4	7.1	3.3	590	21	200	24.0	1.049	2500	250
900759	AGDEMPIRE	10/22/90	10:05	16.8	6.9	3.9	1710	7	400	68.0	3.228	4400	420
900158	AMERICAN	03/21/90	13:50	17.2	8.0	10.2	77	1	5	1.5	0.023	190	19
900265	AMERICAN	05/22/90	6:25	15.9	7.4	9.4	78	2	5	2.1	0.051	240	23
900278	AMERICAN	06/26/90	13:15	19.2	8.1	10.3	70	1	5	2.0	0.030	210	21
900851	AMERICAN	11/13/90	7:30	13.0	8.6	9.5	58	1	0	1.6	0.033	220	22
900920	AMERICAN	12/11/90	6:30	10.2	9.2	9.5	62	1	10	2.3	0.047	230	23
900033	BACON01	01/23/90	16:01	11.6	6.7	3.4	894	58	160	11.0		1200	120
900131	BACON01	02/23/90	9:30	11.5	7.3	4.4	834	60	70	10.0		790	76
900210	BACON01	04/24/90	15:07	20.9	7.5	11.4	652	23	120	10.0	0.462	1200	120
900296	BACON01	06/26/90	13:55	24.2	7.0	5.7	416	23	80	9.3	0.270		
900394	BACON01	07/25/90	9:15	26.8	6.6	9.5	735	9	100	18.0	0.810	1700	160
900506	BACON01	08/21/90	12:01	23.9		6.4	485	13	60	4.1	0.175	750	67
900772	BACON01	10/23/90	10:25	18.4	9.8	5.5	794	22	100	4.0	0.165	740	61
900035	BACON02	01/23/90	15:20	12.2	6.7	7.3	950	23	140	18.0		1800	180
900034	BACON02	01/23/90	15:20	12.2	6.7	7.3	949	24	140	18.0		1700	170
900132	BACON02	02/23/90	9:50	11.5	6.8	8.4	1100	31	120	19.0		750	72
900211	BACON02	04/24/90	16:50	20.9	7.4	7.8	573	11	50	7.0	0.301	980	91
900297	BACON02	06/26/90	14:25	25.0	7.0	5.9	394	28	80	6.8	0.273		
900395	BACON02	07/25/90	9:45	23.6	6.9	8.7	491	14	50	8.4	0.350	920	89
900507	BACON02	08/21/90	11:07	22.7		5.4	454	21	125	6.5	0.300	970	91
900773	BACON02	10/23/90	9:55	18.8	8.8	5.4	642	22	50	5.9	0.240	980	88

Note: "<" values signify reporting limits. Concentration of analyte below reporting limit.

TFPC DATA REPORT

LAB#	STA. NAME	SAMP.DATE	TIME	TEMP oC	pH	DO mg/L	EC uS/cm	TURB T.U.	COLOR C.U.	DOC mg/L	UVA mg/L	THMFP ug/L	TFPC ug/L
900037	BANKS	01/24/90	9:20	9.0	7.4	10.6	710	10	25	3.9		530	43
900096	BANKS	02/21/90	9:21	9.0	8.1	12.6	482	10	25	4.0		500	44
900152	BANKS	03/20/90	11:00	16.7	8.4	10.1	453	7	25	3.4	0.100	470	42
900218	BANKS	04/25/90	8:00	18.3	7.7	8.9	683	9	30	2.6	0.077	450	36
900259	BANKS	05/23/90	10:35	18.2	8.3	9.1	671	15	40	3.0	0.089	540	43
900298	BANKS	06/27/90	9:15	20.4	8.1	8.2	570	10	30	3.3	0.092		
900326	BANKS	07/09/90	15:40	22.5	8.3	7.8	518	7		3.5		630	55
900346	BANKS	07/16/90	10:30	24.5	8.4	7.4	391	9		3.2	0.098	650	59
900402	BANKS	07/26/90	10:10	23.0	7.4	10.1	440	13	15	2.9	0.096	360	32
900436	BANKS	07/30/90	11:00	24.2	7.3	7.6	523	11		2.9	0.093	490	43
900456	BANKS	08/06/90	9:30	25.9	7.4	6.6	437	7		2.8	0.097	650	58
900548	BANKS	08/13/90	9:20	25.2	7.8	6.5	490	8		2.9	0.095	530	46
900514	BANKS	08/22/90	12:40	24.5		7.2	397	7	30	2.8	0.092	520	46
900567	BANKS	08/27/90	10:24	22.7		7.8	397	8		2.7	0.089	420	39
900590	BANKS	09/04/90	13:00	22.7	8.3		389	7		3.0	0.090	540	48
900610	BANKS	09/10/90	10:55	24.0	8.0	7.1	438	6		2.8	0.092	580	51
900630	BANKS	09/18/90	12:10	21.9	8.1	7.8	424	5		3.8	0.101	600	53
900671	BANKS	09/24/90	11:00	20.6	7.9	8.1	512	6	30	3.5	0.097	510	43
900693	BANKS	10/01/90	12:05	20.9	7.7	8.2	484	6		3.5	0.101	520	45
900718	BANKS	10/10/90	9:30	19.3	7.7	6.8	604	5		3.2	0.101	560	46
900738	BANKS	10/16/90	8:45	18.9	8.6	8.0	639	6		3.3	0.096	430	38
900796	BANKS	10/24/90	8:58	17.7	7.0	7.8	691	5	25	3.2	0.107	630	52
900816	BANKS	10/30/90	12:00	18.3	7.8	8.8	725	4		3.3	0.105	550	43
900863	BANKS	11/13/90	12:25	15.0	7.9	9.3	739	4	15	3.0	0.091	440	36
900875	BANKS	11/27/90	11:30	11.2	7.6	10.1	768	4		3.2	0.091	490	38
900914	BANKS	12/11/90	12:10	10.8	7.2	8.5	806	3	15	3.5	0.117	600	48
900027	BARKERNOBAY	01/23/90	8:44	6.3	7.7	9.9	457	10	40	5.7		840	83
900103	BARKERNOBAY	02/21/90	14:22	11.3	6.9	11.3	405	52	70	7.4		590	49
900164	BARKERNOBAY	03/21/90	7:45	14.9	7.7	8.7	494	14	30		0.124	550	53
900207	BARKERNOBAY	04/24/90	8:50	16.6	8.0	8.3	484	13	35	5.8	0.140	570	55
900272	BARKERNOBAY	05/22/90	12:07	21.6	8.5	7.4	454	25	50	5.3	0.135	520	49
900277	BARKERNOBAY	06/26/90	7:35	21.4	8.4	8.0	381	29	50		0.185	590	57
900390	BARKERNOBAY	07/25/90	14:25	24.8	7.4	9.6	315	30	25	4.4	0.138	460	44
900502	BARKERNOBAY	08/21/90	7:20	19.7		6.8	258	27	70	3.6	0.235	530	52
900638	BARKERNOBAY	09/25/90	8:00	19.3	7.0	6.7	286	16	50	3.5	0.109	450	44
900769	BARKERNOBAY	10/23/90	6:20	15.6	9.7	8.3	317	14	40	3.7	0.107	230	23

Note: "<" values signify reporting limits. Concentration of analyte below reporting limit.

TFPC DATA REPORT

LAB#	STA. NAME	SAMP.DATE	TIME	TEMP oC	pH	DO mg/L	EC uS/cm	TURB T.U.	COLOR C.U.	DOC mg/L	UVA mg/L	THMFP ug/L	TFPC ug/L
900853	BARKERNOBAY	11/13/90	11:45	13.9	8.0	9.6	283	13	20	2.9	0.083	370	36
900922	BARKERNOBAY	12/11/90	9:00	8.8	9.0	9.2	292	10	15		0.074	330	32
900009	BOULDIN1	01/22/90	12:15	8.6	7.1	10.1	372	16	80	13.0		1400	140
900129	BOULDIN1	02/23/90	8:15	11.7	7.2	6.2	1300	13	240	67.0		2700	230
900198	BOULDIN1	04/23/90	12:10	20.4	6.9	5.9	289	7	160	20.0	1.030	2300	230
900316	BOULDIN1	06/28/90	9:30	20.5	6.9	5.2	247	10	60	11.0	0.343	850	84
900382	BOULDIN1	07/24/90	12:33	24.8		2.1	282	5	120	18.0	0.933	1900	190
900494	BOULDIN1	08/20/90	13:23	24.4	7.8	5.4	242	10	100	11.0	0.540	1600	160
900760	BOULDIN1	10/22/90	11:05	18.0	7.1	4.1	384	4	200	29.0	1.254	2900	300
900010	BOULDIN2	01/22/90	11:30	7.2	6.2	6.0	486	10	240	45.0		3400	340
900128	BOULDIN2	02/23/90	7:50	9.3	7.0	9.5	478	13	200	34.0		2600	260
900191	BOULDIN2	04/23/90	12:40	18.3	6.2	4.3	257	11	240	29.0	1.560	2300	230
900317	BOULDIN2	06/28/90	9:15	20.9	6.8	5.8	266	16	160	22.0	0.925	1900	190
900377	BOULDIN2	07/24/90	13:03	24.5		1.8	309	10	160	46.0	1.795	3000	300
900487	BOULDIN2	08/20/90	13:54	26.0	8.7	5.8	178	9	60	8.1	0.397	1100	120
900761	BOULDIN2	10/22/90	11:45	18.0	7.1	4.1	391	7	250	52.0	2.448	4100	410
900001	BRANNANPP01	01/22/90	9:30	12.1	6.6	3.5	622	9	140	25.0		2500	250
900118	BRANNANPP01	02/19/90	14:20	11.5	7.9	7.6	876	11	160	32.0			
900190	BRANNANPP01	04/23/90	15:30	19.8	7.3	7.3	429	20	120	18.0	0.844	1700	170
900286	BRANNANPP01	06/26/90	11:30	24.0	7.1	5.2	317	22	100	12.0	0.522		
900374	BRANNANPP01	07/24/90	13:50	24.5	7.0	4.5	246	16	60	13.0	0.597	1400	140
900486	BRANNANPP01	08/20/90	13:00	23.8		4.0	300	13	75	10.0	0.471	1400	140
900752	BRANNANPP01	10/22/90	12:55	16.7	8.3	4.2	369	9	120	12.0	0.623	1300	140
900002	BRANNANPP02	01/22/90	9:30	10.1	6.4	2.1	628	72	240	15.0		1100	110
900119	BRANNANPP02	02/19/90	14:45	10.1	6.3	2.1	673	60	140	14.0		1000	98
900285	BRANNANPP02	06/26/90	11:18	20.4	6.6	2.5	613	31	200	20.0	0.923		
900373	BRANNANPP02	07/24/90	13:30	21.5	6.9	1.6	479	25	200	18.0	0.797	1800	180
900485	BRANNANPP02	08/20/90	12:40	22.2		1.8	524	14	175	18.0	1.191	1500	150
900751	BRANNANPP02	10/22/90	12:40	16.7	8.3	4.2	517	220	350	14.0	1.248	820	76
900003	BRANNANPP03	01/22/90	10:15	9.9	6.5	2.6	1130	81	320	17.0		1300	130
900120	BRANNANPP03	02/19/90	15:05	9.7	6.5	6.6	1100	21	200	30.0		2000	200
900188	BRANNANPP03	04/23/90	15:00	19.0	6.9	12.8	1370	46	30	9.5	0.299	470	41
900284	BRANNANPP03	06/26/90	11:05	24.3	6.8	4.7	817	72	160	10.0	0.403	840	80
900365	BRANNANPP03	07/24/90	12:50	23.5	6.9	4.9	299	18	140	14.0	0.717	1400	140
900484	BRANNANPP03	08/20/90	12:20	22.6		13.1	1160	16	200	20.0	0.379	1100	98
900750	BRANNANPP03	10/22/90	12:25	19.2	9.0	2.4	1040	76	300	42.0	2.084	1800	180

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900004	BRANNANPP04	01/22/90	10:45	9.9	6.4	6.2	973	10	160	34.0		3000	300
900121	BRANNANPP04	02/19/90	15:30	10.9		7.4	1230	12	160	38.0		2700	270
900187	BRANNANPP04	04/23/90	14:40	18.5	7.3	4.8	736	15	120	19.0	0.930	2100	210
900283	BRANNANPP04	06/26/90	10:50	22.4	7.5	6.2	528	21	120	23.0	0.696	1500	160
900371	BRANNANPP04	07/24/90	12:30	23.5	7.2	5.3	456	15	200	29.0	1.514	3100	320
900483	BRANNANPP04	08/20/90	11:50	23.2		4.9	366	15	100	15.0	0.780	2000	210
900749	BRANNANPP04	10/22/90	12:05	18.1	9.2	1.3	636	7	60	12.0	0.652	1500	150
900476	CHECK 13	08/06/90	9:50	23.0	8.7	8.2	589	3		3.1	0.073	440	38
900588	CHECK 13	08/13/90	9:00	24.0	8.4	7.4	557	3		3.0	0.082	480	40
900862	CHECK 13	11/13/90	10:30	15.0	8.1	9.1	750	4	10	3.0	0.091	420	34
900913	CHECK 13	12/11/90	10:25	10.5	7.0	8.7	815	4	15	3.1	0.096	500	39
900097	CLIFTON	02/21/90	10:35	9.4	7.0	12.6	472	8	30	3.8		540	48
900154	CLIFTON	03/20/90	12:00	15.8	7.8	9.7	404	7	20	3.4	0.114	450	42
900203	CLIFTON	04/24/90	11:15	18.8	7.9	8.6	532	6	20	2.4	0.080	420	35
900262	CLIFTON	05/23/90	10:10	19.4	7.8	8.1	654	12	30	2.9	0.087	460	38
900304	CLIFTON	06/27/90	10:10	23.0	7.7	5.6	786	9	30	3.4	0.098		
900387	CLIFTON	07/25/90	11:40	24.5	7.9	7.4	457	9	10	3.6	0.093	390	34
900499	CLIFTON	08/21/90	9:30	23.6	8.0	7.9	397	5	25	2.6	0.085	450	39
900673	CLIFTON	09/24/90	9:45	21.4	8.3	8.2	504	10	25	3.2	0.098	510	44
900765	CLIFTON	10/23/90	9:15	18.7	7.8	8.1	710	5	15	3.7	0.099	680	56
900864	CLIFTON	11/13/90	13:20	16.0	7.8	9.0	689	4	10	3.2	0.093	430	35
900915	CLIFTON	12/11/90	12:45	11.5	7.5	8.4	853	4	15	4.0	0.122	630	49
900692	CONCOSPP1	10/01/90	10:10	18.6	7.3	7.8	636	10		2.7	0.098	480	39
900055	CONNMAND	01/24/90	10:15	8.6	7.9	9.8	474	10	40	4.5		640	58
900237	CONNMAND	04/25/90	6:50	17.5	8.2	8.8	367	8	20	2.6	0.060	300	26
900423	CONNMAND	07/26/90	8:10	24.1	7.9	7.2	396	7	10	3.5	0.080	430	37
900535	CONNMAND	08/22/90	8:30	23.4	7.8	8.1	279	5	20	2.5	0.082	510	46
900782	CONNMAND	10/24/90	9:25	18.0	7.8	8.4	700	2	5	2.6	0.089	570	45
900052	DELTACRCHAN	01/24/90	10:55	8.9	7.5		207	14	30	3.4		410	41
900233	DELTACRCHAN	04/25/90	10:28	18.3	6.1	8.8	136	6	5	3.6	0.054	230	23
900417	DELTACRCHAN	07/26/90	11:20	24.0	7.6	6.5	133	9	5	1.7	0.036	240	24
900529	DELTACRCHAN	08/22/90	12:30	24.4	7.6	9.3	178	8	15	1.8	0.042	290	28
900811	DELTACRCHAN	10/24/90	12:05	19.6	7.6	8.3	162	3	10	1.7	0.039	200	19
900038	DMC	01/24/90	9:53	8.5	7.6	9.7	787	10	25	4.4		540	46
900102	DMC	02/21/90	9:57	9.4	7.3	11.9	873	10	25	3.7		540	46
900153	DMC	03/20/90	11:35	15.6	7.8	10.6	358	8	25	4.2	0.108	440	41

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900219	DMC	04/25/90	8:38	17.6	6.8	9.1	467	9	30	2.5	0.077	390	33
900302	DMC	06/27/90	10:30	22.9	8.0	5.4	399	12	30	3.4	0.102	360	36
900327	DMC	07/09/90	16:15	24.9	8.0	6.7	878			4.2		730	62
900347	DMC	07/16/90	11:06	24.1	7.8	7.2	770	19		3.2	0.086	620	51
900403	DMC	07/26/90	10:45	24.5	7.2	9.3	395	14	15	2.9	0.101	360	32
900437	DMC	07/30/90	11:15	25.1	7.5	6.9	818	19		3.5	0.110	550	47
900455	DMC	08/06/90	10:00	26.1	7.8	6.1	306	11		2.9	0.109	580	54
900549	DMC	08/13/90	9:35	25.9	7.7	5.3	770	14		3.3	0.093	570	49
900515	DMC	08/22/90	13:20	25.3		6.8	670	13	30	3.2	0.092	560	48
900569	DMC	08/27/90	9:52	22.0	8.8	7.2	876	17		3.3	0.089	770	64
900591	DMC	09/04/90	13:30	23.8	8.3		837	13		3.4	0.091	640	54
900611	DMC	09/10/90	10:45	24.0	7.9	7.0	375	9		3.1	0.101	600	54
900631	DMC	09/18/90	11:45	23.8	7.7	7.0	668	6		3.3	0.104	650	57
900672	DMC	09/24/90	11:30	21.4	8.1	8.0	414	9	30	3.5	0.107	490	44
900694	DMC	10/01/90	12:35	22.1	7.4	8.0	522	8		3.8	0.076	630	56
900719	DMC	10/10/90	10:15	19.8	7.5	6.8	660	12		3.3	0.100	580	48
900739	DMC	10/16/90	9:15	18.9	7.9		633	8		3.3	0.103	560	46
900797	DMC	10/24/90	9:27	17.9	7.1	8.1	870	10	30	3.3	0.100	600	50
900818	DMC	10/30/90	12:30	18.0	8.0	9.0	894	8		3.4	0.091	540	43
900865	DMC	11/13/90	13:55	14.6	7.8	9.0	698	7	10	3.1	0.094	420	35
900876	DMC	11/27/90	12:00	10.9	7.8	10.7	850	3		2.9	0.069	440	35
900910	DMC	12/11/90	13:15	11.0	7.5	8.5	782	6	15	3.8		580	46
900334	FALSETIP-WEBB	07/10/90	7:35	22.3	8.1	7.6	610	9		2.5	0.071		
900351	FALSETIP-WEBB	07/16/90	8:25	22.9	8.3	7.4	449	9		2.3	0.062	460	39
900421	FALSETIP-WEBB	07/26/90	7:40	22.6	8.2	7.8	849	11	10	3.1	0.069	460	35
900444	FALSETIP-WEBB	07/31/90	8:05	22.2	7.5	7.8	415	8		2.2	0.064	390	32
900464	FALSETIP-WEBB	08/07/90	8:10	22.5	7.9	8.1	651	9		2.0	0.060	420	32
900555	FALSETIP-WEBB	08/13/90	8:00	19.4	8.6	7.5	580	8		2.4	0.066	400	33
900533	FALSETIP-WEBB	08/22/90	9:20	22.7	8.0	8.5	537	9	25	2.1	0.065	570	47
900575	FALSETIP-WEBB	08/28/90	8:20	22.0	7.9		530	7		2.3	0.071	510	42
900597	FALSETIP-WEBB	09/05/90	8:45	21.8	7.5	7.6	408	7		2.3	0.087	490	43
900617	FALSETIP-WEBB	09/11/90	8:40	21.7	7.4	8.8	577	6		2.3	0.068	560	47
900644	FALSETIP-WEBB	09/17/90	9:10	21.1	8.0	7.7	619	6		2.3	0.067	590	48
900658	FALSETIP-WEBB	09/25/90	10:10	21.1	8.1	7.7	975	8		2.3	0.069	480	35
900680	FALSETIP-WEBB	10/02/90	9:00	20.7	7.7	7.7	508	7		2.3	0.066	330	27
900705	FALSETIP-WEBB	10/09/90	9:00	18.3	8.0	8.1	977	6		2.6	0.068	510	37

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900725	FALSETIP-WEBB	10/15/90	9:15	18.3	8.1	11.2	1100	4		2.4	0.067	540	38
900780	FALSETIP-WEBB	10/24/90	8:50	17.6	7.7	8.6	1450	5	10	2.6	0.075	590	40
900824	FALSETIP-WEBB	10/31/90	9:58	17.1	7.8	9.4	1100	4		2.4	0.063	520	36
900838	FALSETIP-WEBB	11/14/90	10:00	13.6	7.9		1430	3		2.4	0.069	550	39
900882	FALSETIP-WEBB	11/28/90	9:50	11.2	7.8	9.5	1110	3		2.8	0.077	520	37
900930	FALSETIP-WEBB	12/12/90	10:00	9.9	7.6	7.9	2070	4		2.7	0.082	620	39
900051	GEORGSLWALNUT	01/24/90	10:41	9.4	7.3		200	13	30	3.5		400	40
900232	GEORGSLWALNUT	04/25/90	10:07	18.6	6.3	8.7	136	5	5	3.6	0.052	240	24
900416	GEORGSLWALNUT	07/26/90	10:55	23.8	7.9	6.5	132	7	5	1.8	0.038	220	22
900528	GEORGSLWALNUT	08/22/90	12:00	24.1	7.6	9.1	180	8	15	1.8	0.044	330	32
900804	GEORGSLWALNUT	10/24/90	10:45	17.9	7.6	8.6	156	3	10	1.7	0.066	280	27
900040	GRANTLNCAN	01/24/90	10:43	9.3	7.7	8.9	1200	13	20	4.6		520	43
900221	GRANTLNCAN	04/25/90	9:30	18.2	7.1	8.5	839	11	35	3.8	0.113	480	42
900405	GRANTLNCAN	07/26/90	8:40	22.8	7.5	9.7	843	18	10	3.5	0.082	400	34
900517	GRANTLNCAN	08/22/90	11:45	25.5		6.7	735	18	35	4.2	0.085	490	43
900799	GRANTLNCAN	10/24/90	10:24	18.8	7.2	8.1	1030	9	30	2.9	0.075	500	41
900064	GRANTOLD	01/24/90	12:25	8.7	7.9	10.2	1100	11	25	5.0		590	52
900246	GRANTOLD	04/25/90	9:00	18.4	7.9	8.1	671	10	35	3.3	0.096	400	34
900343	GRANTOLD	07/10/90	9:20	24.9	7.9	7.0	367	9		3.1	0.094	720	66
900363	GRANTOLD	07/17/90	10:45	26.3	7.7	5.9	777	16		3.6	0.082	550	47
900433	GRANTOLD	07/26/90	10:45	24.0	8.0	7.1	396	9	10	2.8	0.094	470	42
900453	GRANTOLD	07/31/90	10:00	25.3	7.0	6.4	828	15		3.5	0.102	570	49
900473	GRANTOLD	08/07/90	9:55	25.4	7.6	6.0	482	13		4.5	0.082	450	39
900565	GRANTOLD	08/13/90	9:52	25.0	7.8	5.9	672	16		3.3	0.095	810	70
900545	GRANTOLD	08/22/90	12:00	25.2	8.3	7.7	652	11	30	3.4	0.094	720	62
900585	GRANTOLD	08/28/90	11:00	23.6	7.6		644	11		3.5	0.096	690	60
900607	GRANTOLD	09/05/90	12:00	23.2	7.5	6.3	816	13		3.4	0.091	640	54
900627	GRANTOLD	09/11/90	11:10	22.8	7.5	8.7	397	4		3.0	0.102	600	54
900654	GRANTOLD	09/17/90	11:35	22.6	7.8	7.4	422	16		3.3	0.104	570	51
900668	GRANTOLD	09/25/90	12:15	22.1	7.6	7.2	447	7		3.3	0.100	440	39
900690	GRANTOLD	10/02/90	11:35	22.9	7.5	6.6	595	13		3.4	0.098	490	42
900715	GRANTOLD	10/09/90	11:20	19.5	7.9	7.7	631	8		3.2	0.106	630	53
900735	GRANTOLD	10/15/90	11:20	18.8	8.1	11.8	761	9		3.6	0.098	660	54
900792	GRANTOLD	10/24/90	11:30	18.4	7.6	8.0	703	4	5	3.7	0.106	580	47
900834	GRANTOLD	10/31/90	12:35	18.1	7.7	9.0	817	6		3.3	0.087	600	47
900848	GRANTOLD	11/14/90	11:50	13.5	7.9		715	6		3.1	0.086	590	48

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900892	GRANTOLD	11/28/90	12:00	10.2	7.9	9.9	829	7		2.8	0.055	360	29
900940	GRANTOLD	12/12/90	12:05	9.4	7.4	8.2	781	3		3.9	0.119	680	54
900053	GREENES	01/24/90	11:25	10.5	7.1		175	13	25	3.2		440	43
900127	GREENES	02/23/90	7:00	8.5	7.9	13.1	193	14	30	3.5		430	42
900160	GREENES	03/21/90	7:25	16.7	8.5	9.4	200	5	10	2.0	0.055	220	22
900234	GREENES	04/25/90	11:00	19.5	6.1	8.7	141	6	5	4.0	0.051	210	21
900268	GREENES	05/22/90	7:50	18.8	7.7	10.0	166	6	5	1.8		190	19
900318	GREENES	06/28/90	11:30	24.4	6.3	6.1	188	6	5	1.9	0.033	210	20
900418	GREENES	07/26/90	11:50	24.3	7.6	6.5	136	6	5	1.7	0.034	230	23
900475	GREENES	08/06/90	13:10	25.0	7.5	7.0	150	6		1.9	0.040	240	24
900530	GREENES	08/22/90	13:05	24.5	7.5	9.5	186	7	10	1.9	0.043	310	30
900641	GREENES	09/25/90	12:30	22.5	7.2	7.3	191	6	20	1.9	0.037	210	20
900812	GREENES	10/24/90	12:40	19.0	7.6	8.9	165	3	10	1.7	0.038	190	18
900850	GREENES	11/13/90	10:05	14.0	8.1	7.2	175	4	5	1.9	0.046	240	24
900925	GREENES	12/11/90	13:40	10.8	8.5	9.3	161	4	5	2.2	0.056	250	25
900028	HOLLAND01	01/23/90	11:43	9.0	7.4	7.3	1600	3	100	19.0		2400	220
900134	HOLLAND01	02/23/90	12:10	11.6	6.6	5.7	1370	14	200	25.0		2100	210
900186	HOLLAND01	04/23/90	11:25	18.8	7.5	4.6	1280	7	140	17.0	0.813	2100	200
900292	HOLLAND01	06/26/90	10:45	21.0	6.9	2.9	629	14	160	16.0	0.881		
900370	HOLLAND01	07/24/90	10:50	22.0	7.0	3.6	928	5	100	18.0	0.796	1900	190
900477	HOLLAND01	08/20/90	9:30	23.3		4.9	805	7	75	15.0	0.656	1900	190
900748	HOLLAND01	10/22/90	10:55	17.0	7.9	2.5	1150	3	120	7.8	0.765	2400	230
900029	HOLLAND02	01/23/90	11:04	9.4	7.1	9.7	1640	6	140	21.0		2600	240
900135	HOLLAND02	02/23/90	11:45	12.8	6.8	11.2	1560	10	100	20.0		2200	210
900185	HOLLAND02	04/23/90	10:40	17.6	7.2	6.6	894	14	160	19.0	0.948	2200	210
900291	HOLLAND02	06/26/90	10:15	20.7	7.0	4.5	592	11	120	12.0	0.613		
900369	HOLLAND02	07/24/90	10:25	22.0	7.3	9.4	796	19	120	15.0	0.656	1800	180
900481	HOLLAND02	08/20/90	9:15	21.2		1.6	1020	2	175	26.0	1.329	3200	310
900747	HOLLAND02	10/22/90	10:30	15.2	7.8	3.6	802	13	160	13.0	0.556	1500	140
900030	HOLLAND03	01/23/90	10:31	11.0	7.0	3.0	991	25	140	14.0		1600	160
900136	HOLLAND03	02/23/90	11:30	12.0	6.7	10.0	2000	8	100	22.0		2400	230
900181	HOLLAND03	04/23/90	9:35	17.5	7.4	6.0	1090	7	200	29.0	1.430	3000	300
900290	HOLLAND03	06/26/90	9:40	18.9	7.3	4.1	845	16	120	14.0	0.670		
900368	HOLLAND03	07/24/90	9:55	19.0	7.2	1.4	848	80	120	5.8	0.680	810	71
900480	HOLLAND03	08/20/90	8:45	19.5		2.6	946	13	100	8.4	0.411	1300	120
900746	HOLLAND03	10/22/90	10:15	16.0	7.2	6.6	888	40	80	17.0	0.590	1000	91

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TFPC DATA REPORT

LAB#	STA. NAME	SAMP.DATE	TIME	TEMP oC	pH	DO mg/L	EC uS/cm	TURB T.U.	COLOR C.U.	DOC mg/L	UVA mg/L	THMFP ug/L	TFPC ug/L
900047	HONKER	01/24/90	6:50	7.2	7.1		197	12	50	4.9		630	62
900226	HONKER	04/25/90	7:45	17.2	6.2	9.2	161	4	5	2.0	0.054	280	28
900412	HONKER	07/26/90	7:35	23.5	7.7	6.8	190	7	20	2.9	0.094	370	36
900524	HONKER	08/22/90	8:05	23.3	7.6	9.0	213	5	25	3.5	0.126	550	53
900806	HONKER	10/24/90	8:15	17.6	7.8	8.6	239	2	20	2.4	0.074	320	30
900013	KINGISPP01	01/22/90	10:00	9.9	7.3	2.9	409	9	50	7.0		920	89
900017	KINGISPP01	01/22/90	10:00	9.9	7.3	2.9	430	8	60	6.8		880	85
900113	KINGISPP01	02/19/90	10:05	9.5	7.2	4.3	460	7	60	9.4		1100	110
900195	KINGISPP01	04/23/90	10:00	19.1	7.2	7.8	271	6	25	3.1	0.108	350	33
900313	KINGISPP01	06/28/90	7:45	19.3	7.1	8.2	425	12	60	7.7	0.326	800	78
900379	KINGISPP01	07/24/90	9:47	20.8		1.7	346	8	60	6.3	0.275	740	73
900757	KINGISPP01	10/22/90	7:06	15.7	7.5	2.9	363	8	50	6.9	0.300	980	96
900014	KINGISPP02	01/22/90	9:30	8.6	7.3	5.9	460	17	60	7.4		1000	98
900112	KINGISPP02	02/19/90	9:35	6.7	7.4	9.5	557	10	60	9.4		1200	120
900194	KINGISPP02	04/23/90	9:10	17.2	7.1	4.4	473	5	60	9.7	0.439	1100	110
900312	KINGISPP02	06/28/90	8:45	20.6	6.9	7.3	450	21	80	8.8	0.332	880	86
900378	KINGISPP02	07/24/90	9:10	22.6		0.6	447	22	80	7.8	0.456	880	86
900490	KINGISPP02	08/20/90	10:05	22.1	6.8	1.6	469	19	125	13.0	0.759	1500	150
900756	KINGISPP02	10/22/90	9:00	16.0	7.1	4.7	772	7	140	26.0	0.944	2200	220
900015	KINGISPP03	01/22/90	10:30	6.4	7.6	8.0	1200	7	40	7.0		1200	98
900114	KINGISPP03	02/19/90	10:30	6.0	7.6	9.1	1150	7	50	9.0		1300	120
900196	KINGISPP03	04/23/90	9:40	18.0	7.2	7.3	459	6	25	3.8	0.146	470	42
900314	KINGISPP03	06/28/90	8:15	20.5	7.0	3.1	616	190	160	11.0	0.424	1100	110
900380	KINGISPP03	07/24/90	10:14	22.2		1.4	733	13	60	8.4	0.338	930	84
900492	KINGISPP03	08/20/90	11:52	25.0	7.8	5.3	805	18	100	15.0	0.604	1800	170
900758	KINGISPP03	10/22/90	9:40	17.0	7.9	7.0	810	8	80	12.0	0.446	1500	140
900056	LATHAM	01/24/90	10:00	8.7	7.7	10.7	455	10	35	4.4		640	59
900238	LATHAM	04/25/90	7:00	17.4	8.1	8.7	336	6	25	4.1	0.072	280	25
900424	LATHAM	07/26/90	8:20	24.0	7.9	7.0	270	7	10	8.0	0.070	330	31
900536	LATHAM	08/22/90	8:00	23.1	7.4	8.2	259	6	20	2.5	0.077	510	47
900783	LATHAM	10/24/90	9:35	18.0	7.7	7.9	492	2	5	2.9	0.095	520	45
900046	LCONNECT	01/24/90	5:55	7.5	7.4		204	13	60	5.8		680	67
900227	LCONNECT	04/25/90	7:00	17.9	6.4	9.3	164	3	5	1.9	0.112	250	25
900411	LCONNECT	07/26/90	6:45	23.3	7.9	6.3	160	7	10	3.0	0.067	270	27
900523	LCONNECT	08/22/90	7:10	22.4	7.9	9.4	178	5	20	2.2	0.065	380	37
900805	LCONNECT	10/24/90	7:45	17.1	7.6	8.5	191	3	15	2.1	0.065	300	30

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TFPC DATA REPORT

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900048	LPOTTERM	01/24/90	8:35	8.6	7.1		206	12	50	5.2		650	64
900229	LPOTTERM	04/25/90	8:30	18.6	6.3	9.1	159	4	5	2.3	0.053	270	27
900410	LPOTTERM	07/26/90	8:15	24.2	7.7	7.5	138	8	5	1.8	0.043	220	22
900525	LPOTTERM	08/22/90	9:15	25.1	7.6	7.8	182	6	20	2.4	0.066	370	37
900807	LPOTTERM	10/24/90	8:55	18.2	7.7	8.0	168	3	10	2.0	0.057	220	22
900005	MALLARDIS	01/22/90	9:50	9.5	7.9	10.3	4900	15	30	3.2		1100	63
900105	MALLARDIS	02/21/90	12:11	12.2	7.3	12.3	9780	12	25	3.2		690	38
900162	MALLARDIS	03/21/90	10:05	17.0	7.5	8.8	10400	12	20	3.0	0.089	1200	64
900208	MALLARDIS	04/24/90	12:05	17.8	7.8	9.0	7340	31	50	2.3	0.078	900	49
900270	MALLARDIS	05/22/90	10:40	18.8	8.0	8.5	8340	20	20	3.4	0.074	700	38
900282	MALLARDIS	06/26/90	9:50	22.4	7.9	8.3	7700	21	20	2.6	0.073	890	48
900329	MALLARDIS	07/09/90	12:15	22.0	8.0	8.0	5740	13		4.2		1100	64
900345	MALLARDIS	07/16/90	9:06	23.0	6.7	8.4		26		2.9	0.076	880	47
900392	MALLARDIS	07/25/90	12:00	24.5	7.6	9.4	6660	21	10	4.3	0.083	740	41
900439	MALLARDIS	07/30/90	9:30	22.2	7.5	8.5	9060	26		4.5	0.154	1200	64
900459	MALLARDIS	08/06/90	8:00	21.0	8.0	8.2	7570	16		3.1	0.087	540	30
900547	MALLARDIS	08/13/90	8:00	22.5	8.1	7.0	7410	14		2.4	0.075	820	43
900504	MALLARDIS	08/21/90	9:14	22.1		7.6	7000	19	35	2.4	0.076	830	46
900571	MALLARDIS	08/27/90	8:42	21.6		8.2	7560	15		2.4	0.072	970	54
900593	MALLARDIS	09/04/90	9:50	22.0	8.3		5760	10		2.4	0.068	880	51
900613	MALLARDIS	09/10/90	8:30	21.5	7.9	8.2	11600	20		1.9		810	43
900633	MALLARDIS	09/18/90	9:35	21.1	7.3	7.9	6260	13		2.4	0.075	860	49
900676	MALLARDIS	09/24/90	8:30	21.0	8.1	8.4	13600	12	20	2.5	0.066	900	47
900696	MALLARDIS	10/01/90	9:00	20.1	7.6	8.3	9710	10		2.3	0.073	950	50
900721	MALLARDIS	10/10/90	8:10	19.5	7.9	6.9	15300	13		1.9	0.069	1200	60
900737	MALLARDIS	10/16/90	7:30	19.8	7.9	7.8	11200	8		2.2	0.075	860	45
900770	MALLARDIS	10/23/90	7:45	17.4	9.5	8.9	15400	9	20	1.9	0.074	1000	53
900820	MALLARDIS	10/30/90	10:00	18.1	7.9	9.2	14200	6		1.8	0.068	860	44
900855	MALLARDIS	11/13/90	13:45	16.8	7.6	9.7	15500	7	5	2.0	0.070	720	37
900878	MALLARDIS	11/27/90	9:45	12.4	7.5	9.7	16400	5		2.3	0.076	860	44
900924	MALLARDIS	12/11/90	10:40	11.1	8.3	9.1	17800	14	5	2.2	0.072	960	51
900020	MAZE	01/23/90	11:00	9.1	8.1	9.6	1520	15	20	4.1		700	57
900095	MAZE	02/21/90	7:57	8.6	7.6	11.4	1270	38	30	5.0		670	58
900151	MAZE	03/20/90	9:00	17.3	6.7	7.4	1470	7	20	4.0	0.098	570	46
900205	MAZE	04/24/90	13:25	19.4	8.0	8.4	1290	23	40	6.2	0.172	910	79
900258	MAZE	05/23/90	11:45	19.4	8.3	8.3	1330	35	40	3.6	0.091	570	44

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900300	MAZE	06/27/90	8:10	21.3	8.1	5.8	1390	60	40	4.5	0.097	530	42
900389	MAZE	07/25/90	14:05	26.0		9.3	1190	85	25	6.5	0.130	570	47
900501	MAZE	08/21/90	11:00	23.0	8.5	6.9	1060	44	60	4.1	0.110	720	59
900640	MAZE	09/25/90	10:45	21.7	6.9	7.0	1030	12	30	3.6	0.099	570	47
900762	MAZE	10/23/90	7:10	15.9	7.8	7.6	1000	6	20	3.0		560	46
900859	MAZE	11/13/90	8:50	13.0	7.8	8.8	1070	7	10	2.6		410	34
900912	MAZE	12/11/90	9:00	10.5	7.6	7.7	1160	8	10	2.7	0.063	370	29
900042	MIDDLER	01/24/90	11:40	9.1	7.4	10.2	460	9	30	4.7		580	52
900133	MIDDLER	02/23/90	10:30	9.8	7.1	12.1	386	8	20	3.9		510	48
900156	MIDDLER	03/20/90	13:50	18.0	8.0	8.5	307	6	25	3.4	0.112	450	42
900223	MIDDLER	04/25/90	10:45	18.6	7.3	8.5	371	6	30	2.4	0.078	320	28
900264	MIDDLER	05/23/90	8:30	19.4	8.0	8.3	448	10	30	3.2	0.110	430	38
900294	MIDDLER	06/26/90	12:50	25.0	7.7	7.0	341	7	25	3.6	0.105		
900407	MIDDLER	07/26/90	11:40	26.5	7.2	8.8	313	7	15	3.1	0.099	350	32
900519	MIDDLER	08/22/90	10:40	26.2		6.1	286	5	20	2.9	0.096	550	51
900674	MIDDLER	09/24/90	12:40	22.6	8.0	7.9	362	4	25	3.4	0.103	560	53
900801	MIDDLER	10/24/90	11:24	19.6	7.1	8.0	596	5	25	3.2	0.107	650	56
900857	MIDDLER	11/13/90	15:20	17.6	7.7	9.4	659	4	15	4.0	0.102	600	47
900926	MIDDLER	12/11/90	11:55	10.6	8.7	8.8	626	3	10	4.0	0.133	600	51
900041	MIDMOWRY	01/24/90	11:10	7.5	7.6	11.5	660	6	20	4.4		540	48
900222	MIDMOWRY	04/25/90	10:00	18.5	7.0	9.4	909	9	30	3.5	0.105	460	39
900406	MIDMOWRY	07/26/90	9:05	22.5	7.4	8.3	795	30	15	4.8	0.114	480	42
900518	MIDMOWRY	08/22/90	11:15	26.1		6.3	718	19	25	3.2	0.082	530	45
900800	MIDMOWRY	10/24/90	10:48	19.2	7.6	9.6	921	33	20	2.8	0.075	610	52
900701	MOKELUMNE	10/01/90	8:10	22.8	7.8	8.6	54	2		2.0	0.044	270	27
900698	MOKELUMNE	10/01/90	8:10	22.8	7.8	8.6	53	2		2.0		230	23
900049	MOKGEORGIANA	01/24/90	9:08	8.6	7.1		190	12	35	3.8		480	48
900230	MOKGEORGIANA	04/25/90	9:00	19.5	6.2	9.1	138	5	5	2.0	0.045	240	24
900414	MOKGEORGIANA	07/26/90	9:00	25.3	7.9	6.6	137	7	5	1.7	0.041	210	21
900526	MOKGEORGIANA	08/22/90	9:50	21.4	7.7	9.4	174	9	15	2.2	0.046	250	25
900808	MOKGEORGIANA	10/24/90	9:20	18.2	7.6	7.7	165	4	15	1.8	0.048	220	21
900043	MRIVBACON	01/24/90	12:16	9.2	7.3	10.0	420	8	30	4.7		620	57
900224	MRIVBACON	04/25/90	11:15	18.5	7.3	9.2	349	6	25	2.3	0.075	330	29
900328	MRIVBACON	07/09/90	14:15	23.0	8.0	7.5	330	6		4.6		640	60
900348	MRIVBACON	07/16/90	12:15	25.7	8.2	7.9	303	6		2.9	0.089	590	55
900408	MRIVBACON	07/26/90	12:25	28.0	7.3	8.9	286	6	20	3.0	0.100	350	33

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900435	MRIVBACON	07/30/90	12:00	25.6	7.4	7.9	278	6		2.8	0.093	460	43
900458	MRIVBACON	08/06/90	10:50	26.1	6.9	7.0	458	12		2.7	0.109	650	58
900550	MRIVBACON	08/13/90	10:30	25.8	7.5	6.8	296	5		2.7	0.092	430	39
900520	MRIVBACON	08/22/90	10:00	25.6		6.5	269	5	25	3.0	0.107	540	51
900570	MRIVBACON	08/27/90	11:34	23.9		6.9	267	6		3.0	0.093	630	59
900592	MRIVBACON	09/04/90	12:00	23.7	7.7		293	5		3.1	0.112	580	54
900609	MRIVBACON	09/10/90	11:05	24.9	7.9	7.5	301	7		3.4	0.119	550	52
900632	MRIVBACON	09/18/90	13:05	23.7	7.9	7.2	327	5		3.5	0.122	580	55
900670	MRIVBACON	09/24/90	13:00	23.6	7.9	8.7	368	4	35	3.7	0.126	460	43
900700	MRIVBACON	10/01/90	10:10	23.4	8.3	8.5	437	5		3.6	0.124	550	50
900720	MRIVBACON	10/10/90	12:05	22.4	7.4	6.9	481	5		3.4	0.110	580	51
900740	MRIVBACON	10/16/90	10:00	20.6	7.9		542	5		4.6	0.118	540	48
900802	MRIVBACON	10/24/90	12:06	19.3	7.1	7.9	585	3	20	3.3	0.108	620	54
900819	MRIVBACON	10/30/90	13:30	18.5	7.7	8.3	656	4		3.6	0.103	610	51
900858	MRIVBACON	11/13/90	15:45	15.7	8.1	8.6	625	7	25	4.2	0.149	550	49
900874	MRIVBACON	11/27/90	12:50	11.8	7.4	10.0	620	2		3.3	0.111	490	41
900927	MRIVBACON	12/11/90	12:30	10.5	8.5	8.8	542	3	10	4.2	0.129	630	55
900018	NATOMAS	01/23/90	7:00	7.2	7.5	8.6	638	37	80	6.6		880	86
900139	NATOMAS	02/27/90	7:15	12.9	8.1	8.6	764	46	30			600	57
900157	NATOMAS	03/21/90	13:20	22.0	8.3	8.2	877	44	25	3.8	0.080	400	37
900201	NATOMAS	04/24/90	7:10	16.5	7.8		281	24	100	6.8	0.160	610	60
900267	NATOMAS	05/22/90	7:07	19.2	7.9	9.7	439	19	40	5.2	0.133	630	62
900279	NATOMAS	06/26/90	12:55	27.4	8.0	7.2	545	22	40	6.6	0.155	650	64
900384	NATOMAS	07/25/90	8:50	22.5	7.9	5.6	562	26	20	8.2	0.151	690	67
900497	NATOMAS	08/21/90	5:30	21.2	8.0	4.6	402	16	50	4.6	0.125	580	57
900636	NATOMAS	09/25/90	6:35	20.5	6.9	6.0	502	52	60	4.2	0.109	500	48
900763	NATOMAS	10/23/90	11:46	18.5	7.7	7.1	452	31	75	4.9	0.112	630	62
900852	NATOMAS	11/13/90	8:35	12.5	7.5	8.0	455	21	35	3.0	0.083	430	42
900919	NATOMAS	12/11/90	7:55	7.9	8.8	9.4	526	24	20	4.0		750	72
900062	NORTHCAN	01/24/90	11:50	8.7	7.4	10.9	473	9	30	4.0		630	52
900244	NORTHCAN	04/25/90	8:35	18.1	7.9	8.4	392	8	25	2.4	0.072	330	28
900340	NORTHCAN	07/10/90	8:55	24.6	7.9	6.6	320	7		3.3	0.099	730	68
900360	NORTHCAN	07/17/90	10:20	26.3	8.0	6.7	303	6		3.3	0.094	500	47
900430	NORTHCAN	07/26/90	10:20	24.2	7.7	6.9	315	11	10	2.9	0.095	430	39
900450	NORTHCAN	07/31/90	9:35	24.7	7.1	6.0	307	6		3.0	0.107	700	66
900470	NORTHCAN	08/07/90	9:30	25.2	7.7	6.9	330	6		3.8	0.086	470	43

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LAB#	STA. NAME	SAMP.DATE	TIME	TEMP oC	pH	DO mg/L	EC uS/cm	TURB T.U.	COLOR C.U.	DOC mg/L	UVA mg/L	THMFP ug/L	TFPC ug/L
900553	NORTHCAN	08/13/90	9:30	25.1	7.8	6.4	319	6		3.2	0.096	490	48
900542	NORTHCAN	08/22/90	11:15	25.9	8.2	7.7	292	6	25	2.8	0.094	670	61
900582	NORTHCAN	08/28/90	10:30	23.3	7.5		281	6			0.104	420	40
900604	NORTHCAN	09/05/90	10:45	23.9	7.4	6.5	294	4		3.0	0.098	630	59
900615	NORTHCAN	09/11/90	10:30	23.0	7.3	8.0	316	5		3.2	0.110	560	53
900651	NORTHCAN	09/17/90	11:00	22.5	7.8	7.1	331	5		3.2	0.110	510	48
900665	NORTHCAN	09/25/90	11:45	22.0	7.7	7.1	366	6		3.6	0.109	440	41
900687	NORTHCAN	10/02/90	11:07	22.5	7.5	7.0	406	6		3.6	0.113	540	50
900703	NORTHCAN	10/09/90	10:45	19.5	7.7	7.5	482	5		3.4	0.118	500	45
900732	NORTHCAN	10/15/90	10:50	18.8	8.0	11.2	539	4		3.6	0.110	580	51
900789	NORTHCAN	10/24/90	10:55	18.6	7.6	8.0	590	3	10	3.4	0.106	600	51
900831	NORTHCAN	10/31/90	12:05	18.0	7.5	8.5	613	4		3.3	0.103	490	40
900836	NORTHCAN	11/14/90	11:25	13.6	7.9		604	3		3.2	0.098	500	42
900889	NORTHCAN	11/28/90	11:30	10.5	7.6	9.6	638	3		6.6	0.107	490	41
900937	NORTHCAN	12/12/90	11:40	9.5	7.4	8.0	622	3		4.4	0.136	650	56
900060	NVICWOOD	01/24/90	11:25	8.7	7.5	11.2	451	9	30	4.4		590	53
900242	NVICWOOD	04/25/90	8:10	18.0	7.9	8.5	388	5	25	2.4	0.110	300	26
900338	NVICWOOD	07/10/90	8:30	24.4	7.9	6.6	317	6		3.0	0.102	640	59
900358	NVICWOOD	07/17/90	9:50	25.7	8.2	6.8	329	7		3.0	0.088	520	48
900428	NVICWOOD	07/26/90	9:15	24.0	7.8	6.6	311	10	10	3.0	0.094	450	41
900441	NVICWOOD	07/31/90	9:10	24.0	7.4	6.5	342	10		2.8	0.100	480	44
900468	NVICWOOD	08/07/90	9:10	24.5	7.7	6.7	318	7		2.9	0.081	510	47
900560	NVICWOOD	08/13/90	9:08	25.4	7.7	6.7	440	6		2.5	0.082	600	53
900540	NVICWOOD	08/22/90	10:50	25.5	8.2	8.0	287	5	30	3.0	0.106	710	65
900573	NVICWOOD	08/28/90	10:05	22.9	7.7		381	5		2.6	0.084	540	47
900602	NVICWOOD	09/05/90	10:45	23.2	7.7	6.7	294	5		2.9	0.099	590	55
900622	NVICWOOD	09/11/90	10:00	23.3	7.4	8.5	316	5		3.2	0.113	590	55
900649	NVICWOOD	09/17/90	10:25	22.9	7.8	7.5	404	5		3.1	0.099	580	52
900663	NVICWOOD	09/25/90	11:20	22.1	7.8	6.8	359	4		3.4	0.108	590	56
900685	NVICWOOD	10/02/90	10:35	22.1	7.6	7.3	534	0		2.9	0.090	480	40
900710	NVICWOOD	10/09/90	10:10	18.6	7.9	8.0	716	4		2.9	0.092	540	43
900730	NVICWOOD	10/15/90	10:25	19.0	7.9	11.6	706	4		3.1	0.094	610	49
900787	NVICWOOD	10/24/90	10:30	18.4	7.5	7.9	715	3	15	4.4	0.138	650	54
900829	NVICWOOD	10/31/90	11:35	18.3	7.5	8.6	746	2		3.1	0.100	580	45
900843	NVICWOOD	11/14/90	11:00	13.6	7.9		755	3		3.0	0.093	580	46
900887	NVICWOOD	11/28/90	11:10	10.6	7.9	9.8	743	3		4.3	0.098	570	46

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TFPC DATA REPORT

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900935	NVICWOOD	12/12/90	11:15	9.6	7.4	8.0	624	3		4.6	0.150	700	61
900342	OLDR-DMC-CLIFT	07/10/90	9:15	24.7	7.9	6.8	366	8			0.094	730	67
900362	OLDR-DMC-CLIFT	07/17/90	10:40	26.1	7.8	6.4	571	15		3.1	0.084	530	47
900432	OLDR-DMC-CLIFT	07/26/90	10:40	24.1	7.9	7.2	411	11	10	2.9	0.091	470	41
900452	OLDR-DMC-CLIFT	07/31/90	9:50	25.2	7.0	6.6	822	13		3.5	0.103	570	49
900472	OLDR-DMC-CLIFT	08/07/90	9:50	25.3	7.6	6.7	465	14		3.5		510	45
900584	OLDR-DMC-CLIFT	08/28/90	10:50	23.8	7.6		360	8		2.8		610	54
900595	OLDR-DMC-CLIFT	09/05/90	11:45	23.2	7.5	6.6	558	7		3.0	0.088	580	51
900626	OLDR-DMC-CLIFT	09/11/90	11:00	22.5	7.5	8.7	426	7		3.3	0.094	600	53
900653	OLDR-DMC-CLIFT	09/17/90	11:25	22.4	7.9	7.3	413	14		3.4	0.132	640	58
900667	OLDR-DMC-CLIFT	09/25/90	12:08	22.1	7.7	7.0	467	7		3.6	0.098	530	46
900689	OLDR-DMC-CLIFT	10/02/90	11:25	23.2	7.5	6.8	594	13		3.4	0.095	500	43
900714	OLDR-DMC-CLIFT	10/09/90	11:15	19.3	7.8	7.6	626	8		3.4	0.103	600	50
900734	OLDR-DMC-CLIFT	10/15/90	11:10	18.9	8.2	11.3	683	10		3.4	0.099	650	54
900778	OLDR-DMC-CLIFT	10/24/90	11:15	18.1	7.6	8.0	718	5	20	3.4	0.108	730	62
900833	OLDR-DMC-CLIFT	10/31/90	12:20	18.1	7.6	8.8	745	6		3.2	0.092	520	41
900847	OLDR-DMC-CLIFT	11/14/90	11:45	13.5	7.8		706	5		3.0	0.087	470	39
900891	OLDR-DMC-CLIFT	11/28/90	11:50	10.4	7.9	10.1	809	4		4.2	0.072	480	39
900939	OLDR-DMC-CLIFT	12/12/90	12:00	9.4	7.3	8.2	828	3		3.8	0.112	660	51
900065	OLDRIVDMC	01/24/90	12:40	8.8	7.7	10.4	849	9	25	4.6		550	49
900247	OLDRIVDMC	04/25/90	9:15	18.3	8.0	8.3	503	10	30	2.5	0.080	360	30
900344	OLDRIVDMC	07/10/90	9:35	25.3	8.0	7.1	380	8		3.0	0.092	580	53
900364	OLDRIVDMC	07/17/90	11:00	26.3	7.4	5.4	872	20		3.8	0.082	560	48
900434	OLDRIVDMC	07/26/90	10:55	24.2	7.9	7.1	392	9	10	3.0	0.092	480	43
900454	OLDRIVDMC	07/31/90	10:10	24.7	7.1	6.4	935	14		4.0	0.124	670	58
900474	OLDRIVDMC	08/07/90	10:05	25.5	7.7	6.5	495	7		3.6	0.085	440	37
900564	OLDRIVDMC	08/13/90	9:47	24.4	7.7	6.2	546	7		3.2		770	68
900566	OLDRIVDMC	08/13/90	10:00	25.4	7.8	5.8	734	15		3.3	0.095	800	69
900544	OLDRIVDMC	08/22/90	11:45	25.5	8.3	8.0	404	9	25	2.8		610	55
900546	OLDRIVDMC	08/22/90	12:15	25.3	8.4	8.0	568	11	30	3.1	0.090	660	58
900586	OLDRIVDMC	08/28/90	11:20	23.5	7.7		692	7		3.2	0.093	690	59
900608	OLDRIVDMC	09/05/90	12:30	23.1	7.5	7.0	644	11		3.1	0.090	680	59
900628	OLDRIVDMC	09/11/90	11:20	22.7	7.3	8.5	407	7		3.0	0.098	560	49
900655	OLDRIVDMC	09/17/90	11:50	22.7	7.8	7.2	445	12		3.1	0.107	580	52
900669	OLDRIVDMC	09/25/90	12:25	21.7	7.8	7.1	452	6		3.2	0.103	450	39
900691	OLDRIVDMC	10/02/90	11:40	23.0	7.5	7.0	763	11		3.7	0.098	530	45

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900716	OLDRIVDMC	10/09/90	11:40	19.5	7.9	8.1	716	5		3.6	0.102	630	53
900736	OLDRIVDMC	10/15/90	11:30	18.5	8.2	11.9	806	10		3.7	0.102	570	47
900793	OLDRIVDMC	10/24/90	11:40	18.4	7.6	7.9	702	4	5	3.3	0.104	700	57
900835	OLDRIVDMC	10/31/90	12:50	18.1	7.7	8.9	752	6		3.1	0.093	550	43
900849	OLDRIVDMC	11/14/90	12:00	13.4	7.9		776	6		3.1	0.088	510	42
900893	OLDRIVDMC	11/28/90	12:10	10.3	7.9	9.8	823	4		2.4	0.053	380	31
900941	OLDRIVDMC	12/12/90	12:15	9.4	7.4	8.2	816	4		3.8	0.116	740	58
900039	OLDRTRACY	01/24/90	10:26	8.8	7.6	8.8	1190	13	25	5.2		530	45
900220	OLDRTRACY	04/25/90	9:15	18.1	6.7	8.4	1120	14	40	3.8		470	40
900404	OLDRTRACY	07/26/90	8:20	22.8	7.5	8.6	916	20	15	3.9	0.101	460	38
900516	OLDRTRACY	08/22/90	12:05	25.6		6.3	857	19	40	3.5	0.088	620	52
900798	OLDRTRACY	10/24/90	10:05	18.8	7.2	7.2	1140	12	35	3.4	0.089	600	48
900022	PESCADERO01	01/23/90	13:00	9.6	7.2	8.3	1900	23	25	3.0		320	26
900213	PESCADERO01	04/24/90	17:55	20.1	8.2	16.8	2290	17	60	4.5	0.115	750	54
900305	PESCADERO01	06/27/90	11:10	23.1	7.9	5.6	1430	24	70	8.5	0.203		
900396	PESCADERO01	07/25/90	7:30	20.2	8.2	10.0	1580	75	30	5.9	0.146	730	58
900508	PESCADERO01	08/21/90	13:55	25.9		6.3	1150	14	60	14.0	0.203	420	35
900774	PESCADERO01	10/23/90	11:25	18.2	9.5	8.0	2090	48	140	5.0	0.098	720	54
900023	PESCADERO02	01/23/90	13:25	11.2	7.1	7.0	1460	34	30	2.2		250	20
900212	PESCADERO02	04/24/90	17:40	19.7	7.8	12.7	2280	22	80	4.4	0.105	740	54
900306	PESCADERO02	06/27/90	11:20	23.2	7.5	5.0	1370	12	80	11.0	0.293		
900397	PESCADERO02	07/25/90	8:00	20.2	7.6	9.4	2000	36	35	6.2	0.152	760	58
900509	PESCADERO02	08/21/90	14:10	25.4		5.2	1230	17	60	12.0	0.225	960	82
900775	PESCADERO02	10/23/90	11:40	19.4	10.0	12.9	1960	23	60	5.0	0.110	810	60
900024	PESCADERO03	01/23/90	13:40	8.8	7.4	9.0	2160	28	20	2.9		300	23
900214	PESCADERO03	04/24/90	17:15	19.7	8.1	13.1	1950	23	60	4.5	0.115	810	61
900307	PESCADERO03	06/27/90	11:40	23.3	8.2	8.5	1600			7.4	0.190		
900398	PESCADERO03	07/25/90	8:25	20.9	7.9	8.8	1560	36	50	7.6	0.183	720	58
900510	PESCADERO03	08/21/90	14:29	25.7		8.2	1720	23	70	6.9	0.149	910	72
900776	PESCADERO03	10/23/90	11:55	20.2	10.2	9.4	2280	21	100	4.5	0.096	640	47
900025	PESCADERO04	01/23/90	14:20	12.4	8.4	10.0	3060	18	25	4.0		650	42
900026	PESCADERO04	01/23/90	14:20	12.4	8.4	10.0	3070	17	25	3.9		670	44
900117	PESCADERO04	02/19/90	12:55	10.0	8.1	9.7	2210	14	20	6.2		580	43
900399	PESCADERO04	07/25/90	8:50	19.2	7.9	9.5	1540	22	35	6.2	0.166	710	57
900777	PESCADERO04	10/23/90	12:20	18.7	10.2	3.6	2480	124	50	8.7	0.241	1400	110
900011	RINDGEPP01	01/22/90	6:30	9.1	6.7	3.9	1380	7	120	29.0		2600	250

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900110	RINDGEPP01	02/19/90	8:00	7.3	7.2	8.2	1660	7	80	18.0		1900	180
900192	RINDGEPP01	04/23/90	7:40	18.1	7.1	3.8	1240	11	70	12.0	0.459	1500	140
900375	RINDGEPP01	07/24/90	6:56	19.2		1.2	663	20	80	20.0	0.939	2000	200
900488	RINDGEPP01	08/20/90	8:20	21.5	6.4	3.1	728	8	100	19.0	0.845	1900	180
900754	RINDGEPP01	10/22/90	7:00	14.4	6.9	2.5	688	18	120	9.5	0.568	1300	130
900012	RINDGEPP02	01/22/90	8:45	7.8	6.7	2.7	797	6	160	37.0		2700	270
900111	RINDGEPP02	02/19/90	8:45	7.8	6.5	6.4	1340	5	100	26.0		2400	230
900193	RINDGEPP02	04/23/90	8:15	16.6	6.4	6.1	711	10	120	24.0	1.060	2100	210
900376	RINDGEPP02	07/24/90	8:20	22.1		2.1	514	9	100	22.0	1.067	2200	220
900489	RINDGEPP02	08/20/90	9:15	22.1	6.2	3.1	485	3	150	27.0	1.270	2100	210
900753	RINDGEPP02	10/22/90	8:00	14.9	7.1	3.3	890	8	160	28.0	0.562	2200	200
900054	ROCKSL	01/24/90	8:50	8.3	7.8	10.5	962	8	25	3.5		710	56
900138	ROCKSL	02/23/90	12:25	10.8	7.0	12.5	600	7	20	3.7		580	49
900155	ROCKSL	03/20/90	13:00	16.7	7.9	10.7	548	5	20	3.3	0.113	460	39
900236	ROCKSL	04/25/90	11:20				864	4	20	3.0	0.077	440	33
900263	ROCKSL	05/23/90	9:15	19.3	8.2	8.3	660	13	30	2.4	0.071	420	33
900287	ROCKSL	06/26/90	11:15	23.0	7.8	6.8	376	9	25	3.2	0.080	490	44
900332	ROCKSL	07/10/90	6:25	23.1	8.1	8.0	449	7			0.085	440	38
900352	ROCKSL	07/17/90	9:25	24.3	7.5	6.9	441	8		2.6	0.077	680	59
900426	ROCKSL	07/26/90	8:45	23.8	8.0	7.7	572	8	10	3.1	0.073	420	34
900442	ROCKSL	07/31/90	8:40	23.2	7.7	7.6	547	6		3.2	0.079	520	42
900462	ROCKSL	08/07/90	8:45	23.7	7.8	7.5	635	7		2.2	0.078	480	37
900558	ROCKSL	08/13/90	8:35	24.0	8.1	6.4	508	6		3.0	0.080	410	32
900538	ROCKSL	08/22/90	10:25	25.0	8.4	8.3	477	6	20	2.3	0.071	580	48
900578	ROCKSL	08/28/90	9:20	22.6	7.8		461	6		2.4	0.075	570	48
900600	ROCKSL	09/05/90	9:30	22.9	7.5	6.8	483	6		2.6	0.072	550	46
900620	ROCKSL	09/11/90	9:10	22.6	7.6	9.0	510	4			0.077	580	48
900642	ROCKSL	09/17/90	9:55	21.9	7.9	7.4	547	5		2.6	0.078	260	47
900661	ROCKSL	09/25/90	10:45	21.5	7.9	7.4	583	4		2.6	0.071	440	35
900683	ROCKSL	10/02/90	10:00	21.8	7.6	7.3	618	6		2.6	0.079	420	34
900708	ROCKSL	10/09/90	9:40	19.4	7.8	7.9	816	5		2.6	0.076	650	50
900728	ROCKSL	10/15/90	9:50	18.9	8.1	11.2	847	4		2.7	0.078	570	43
900785	ROCKSL	10/24/90	10:05	17.9	7.8	8.4	960	2	10	2.7	0.077	610	45
900827	ROCKSL	10/31/90	10:40	17.5	7.6	9.1	828	3		2.7	0.077	480	34
900841	ROCKSL	11/14/90	10:35	13.5	7.9		848	2		3.0	0.081	470	37
900885	ROCKSL	11/28/90	10:45	10.6	7.8	9.9	949	3		3.0	0.095	470	35

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900928	ROCKSL	12/12/90	10:35	9.5	7.5	8.4	1100	3		3.3		740	54
900050	SACRRIOVISTA	01/24/90	9:35	12.6	7.2		214	18	50	4.3		560	56
900104	SACRRIOVISTA	02/21/90	13:12	11.7	7.4	12.3	314	26	35	3.8		900	89
900163	SACRRIOVISTA	03/21/90	11:05	17.2	7.7	7.7	391	10	20	2.6	0.078	360	33
900231	SACRRIOVISTA	04/25/90	9:26	18.1	6.1	8.7	180	8	10	3.3	0.058	260	25
900271	SACRRIOVISTA	05/22/90	9:50	18.0	7.5	7.6	212	12	20	1.9	0.047	210	20
900281	SACRRIOVISTA	06/26/90	8:35	21.2	8.1	8.2	257	15	20	2.7	0.056	290	28
900325	SACRRIOVISTA	07/09/90	9:30	22.0	7.9	7.9	208	9		3.5		280	27
900350	SACRRIOVISTA	07/16/90	7:40	23.0	7.5	7.5	166	9		1.9	0.054	320	31
900415	SACRRIOVISTA	07/26/90	9:35	23.6	8.0	6.3	155	9	5	1.7	0.047	250	25
900440	SACRRIOVISTA	07/30/90	7:10	23.0	7.5	8.7	154	8		2.0	0.046	330	32
900460	SACRRIOVISTA	08/06/90	6:50	23.0	7.5	8.5	159	9		1.8	0.065	400	39
900552	SACRRIOVISTA	08/13/90	6:50	24.2	7.2	7.5	168	7		1.9	0.048	230	23
900522	SACRRIOVISTA	08/22/90	10:35	23.6	7.8	9.6	176	9	20	1.8	0.045	220	21
900572	SACRRIOVISTA	08/27/90	7:24	22.0	7.5	7.8	200	6		2.0	0.050	380	38
900589	SACRRIOVISTA	09/04/90	8:20	22.0	8.2		217	7		2.5	0.058	390	39
900614	SACRRIOVISTA	09/10/90	7:45	20.9	7.9	7.5	243	7			0.058	390	38
900629	SACRRIOVISTA	09/18/90	8:05	20.2	7.7	8.0	223	8		2.1	0.054	250	24
900677	SACRRIOVISTA	09/24/90	7:40	22.0	7.7	7.6	234	8	20	2.3	0.044	320	31
900697	SACRRIOVISTA	10/01/90	7:50	20.0	7.2	7.8	206	8		2.1	0.046	300	29
900717	SACRRIOVISTA	10/10/90	6:40	17.8	7.6	8.1	254	9		2.1	0.051	290	27
900742	SACRRIOVISTA	10/16/90	6:30	19.5	7.6	7.9	297	9		2.1	0.057	290	26
900809	SACRRIOVISTA	10/24/90	9:55	18.3	7.9	8.8	432	6	10	1.7	0.052	280	22
900821	SACRRIOVISTA	10/30/90	8:35	17.0	7.8	9.3	200	6		1.9	0.084	210	21
900854	SACRRIOVISTA	11/13/90	11:00	14.0	7.5	9.4	289	7	10	1.9	0.048	290	27
900879	SACRRIOVISTA	11/27/90	9:30	12.3	7.5	9.7	238	4		2.1	0.054	260	25
900923	SACRRIOVISTA	12/11/90	9:40	9.5	8.8	9.7	197	7	5	1.9	0.054	200	20
900057	SANDMOUND	01/24/90	10:35	8.2	7.9	10.4	842	9	30	4.0		640	52
900235	SANDMOUND	04/25/90	7:25	17.0	8.2	8.9	989	6	20	2.5	0.080	410	30
900335	SANDMOUND	07/10/90	7:55	22.9	8.1	7.6	475	7		2.6	0.077	490	41
900355	SANDMOUND	07/17/90	9:00	23.5	8.1	7.1	498	9		2.6	0.072	580	51
900419	SANDMOUND	07/26/90	7:55	22.9	8.3	7.8	475	9	10	2.6	0.069	440	37
900445	SANDMOUND	07/31/90	8:20	22.6	7.6	7.5	558	7		2.4	0.087	540	44
900465	SANDMOUND	08/07/90	8:20	22.9	7.8	7.9	539	5		2.1	0.068	440	35
900556	SANDMOUND	08/13/90	8:15	24.0	8.1	7.0	471	6		2.3	0.068	610	51
900534	SANDMOUND	08/22/90	10:00	24.7	7.9	8.2	424	7	20	2.4	0.068	540	46

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TFPC DATA REPORT

LAB#	STA. NAME	SAMP.DATE	TIME	TEMP oC	pH	DO mg/L	EC uS/cm	TURB T.U.	COLOR C.U.	DOC mg/L	UVA mg/L	THMFP ug/L	TFPC ug/L
900576	SANDMOUND	08/28/90	8:40	22.0	7.8		425	6		2.3	0.070	530	46
900598	SANDMOUND	09/05/90	9:05	22.4	7.7	7.0	463	6		2.4	0.071	530	45
900618	SANDMOUND	09/11/90	8:50	21.9	7.5	8.8	519	5		2.5	0.070	570	48
900645	SANDMOUND	09/17/90	9:25	21.7	7.9	7.5	481	4		2.3	0.067	3100	310
900659	SANDMOUND	09/25/90	10:24	21.1	8.0	7.5	580	5		2.5	0.071	480	39
900681	SANDMOUND	10/02/90	9:20	21.6	7.7	7.8	585	4		2.6	0.076	400	32
900706	SANDMOUND	10/09/90	9:15	18.0	8.1	8.1	832	3		2.5	0.070	530	41
900726	SANDMOUND	10/15/90	9:25	18.7	8.2	11.6	857	3		2.7	0.072	550	41
900781	SANDMOUND	10/24/90	9:05	17.9	7.8	8.4	912	3	5	2.4	0.078	570	43
900839	SANDMOUND	11/14/90	10:15	13.6	7.9		823	2		2.6	0.078	520	40
900883	SANDMOUND	11/28/90	10:10	10.1	7.9	9.9	967	2		2.7	0.081	600	44
900931	SANDMOUND	12/12/90	10:15	9.5	7.6	8.3	998	3		3.1	0.089	590	43
900059	SANTAFEBACON	01/24/90	11:10	8.3	7.7	11.7	594	8	30	4.1		630	54
900241	SANTAFEBACON	04/25/90	7:55	17.9	8.0	8.7	403	7	20	2.9	0.066	320	27
900337	SANTAFEBACON	07/10/90	8:20	24.1	7.9	6.9	307	5		3.0	0.093	630	59
900357	SANTAFEBACON	07/17/90	9:40	25.3	7.9	6.7	405	7		2.6	0.077	520	46
900427	SANTAFEBACON	07/26/90	9:00	24.2	7.9	7.3	312	7	10	3.4	0.091	410	37
900447	SANTAFEBACON	07/31/90	9:00	23.9	7.7	7.7	494	7		2.6	0.104	530	44
900467	SANTAFEBACON	08/07/90	9:00	24.5	7.7	7.0	340	6		2.5	0.075	520	47
900559	SANTAFEBACON	08/13/90	9:00	22.0	7.5	6.7	477	6		2.7	0.082	550	47
900539	SANTAFEBACON	08/22/90	10:35	25.2	8.3	8.2	307	4	20	2.6	0.090	640	59
900579	SANTAFEBACON	08/28/90	9:50	22.9	7.7		420	6		2.5	0.079	550	48
900601	SANTAFEBACON	09/05/90	10:05	23.2	7.5	6.2	358	4		2.7	0.088	530	47
900621	SANTAFEBACON	09/11/90	9:50	22.6	7.4	8.7	395	6		2.7	0.090	570	51
900648	SANTAFEBACON	09/17/90	10:15	22.5	7.8	7.3	460	4		2.7	0.088	520	45
900662	SANTAFEBACON	09/25/90	11:09	22.0	7.6	6.8	368	3		3.2	0.105	400	37
900678	SANTAFEBACON	10/02/90	10:20	22.2	7.5	7.3	563	7		2.8		440	37
900709	SANTAFEBACON	10/09/90	10:00	18.8	7.9	8.0	710	4		2.9	0.086	550	44
900723	SANTAFEBACON	10/15/90	10:10	19.1	7.9	11.4	763	3		3.0	0.087	490	37
900786	SANTAFEBACON	10/24/90	10:20	18.4	7.6	7.8	639	2	10	3.3	0.099	730	61
900828	SANTAFEBACON	10/31/90	11:20	18.2	7.6	8.6	785	2		2.8	0.085	460	34
900842	SANTAFEBACON	11/14/90	10:50	13.5	7.9		786	3		2.8	0.083	440	35
900886	SANTAFEBACON	11/28/90	11:00	10.7	7.8	9.8	850	2		3.0	0.088	550	42
900934	SANTAFEBACON	12/12/90	11:05	9.5	7.4	8.0	711	2		3.6	0.111	730	61
900331	SJRJERSEY	07/10/90	7:10	22.2	8.3	7.5	1640	10		2.7	0.082	540	37
900353	SJRJERSEY	07/17/90	8:10	23.1	8.1	7.8	705	9		2.6	0.069	620	50

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TFPC DATA REPORT

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900420	SJRJERSEY	07/26/90	7:25	22.7	8.3	8.0	1590	12	10	3.4	0.074	560	38
900443	SJRJERSEY	07/31/90	7:50	22.2	7.0	7.8	670	9		2.2	0.073	530	41
900463	SJRJERSEY	08/07/90	7:55	22.4	7.8	8.3	917	10		2.1	0.060	520	38
900554	SJRJERSEY	08/13/90	7:50	19.4	8.6	7.6	637	8		2.7	0.059	360	28
900531	SJRJERSEY	08/22/90	9:00	22.6	7.9	8.3	730	8	20	2.1	0.059	620	46
900574	SJRJERSEY	08/28/90	7:55	21.8	8.1	8.0	610	6			0.072	640	52
900596	SJRJERSEY	09/05/90	8:10	21.5	7.8	7.9	958	10		2.8	0.071	670	51
900616	SJRJERSEY	09/11/90	8:15	21.1	7.0	8.8	884	7		2.5	0.072	640	50
900643	SJRJERSEY	09/17/90	8:50	20.7	8.3	7.7	957	10		2.4	0.074	600	45
900656	SJRJERSEY	09/25/90	9:50	21.1	8.3	7.7	1460	11		2.5	0.071	570	39
900679	SJRJERSEY	10/02/90	8:40	20.9	7.8	8.0	1170	3		2.5	0.069	470	33
900704	SJRJERSEY	10/09/90	8:40	18.5	8.1	8.0	1630	7		2.4	0.068	600	40
900724	SJRJERSEY	10/15/90	9:00	18.6	8.0	11.2		7		2.5	0.068	570	37
900779	SJRJERSEY	10/24/90	8:25	17.7	7.9	8.5	2140	6	10	2.4	0.074	920	61
900823	SJRJERSEY	10/31/90	9:30	17.1	7.8	9.3	1380	4		2.4	0.062	500	34
900837	SJRJERSEY	11/14/90	9:45	13.8	7.8		2150	3		2.5	0.067	570	38
900881	SJRJERSEY	11/28/90	9:40	11.0	8.0		1750	3		3.8	0.073	560	37
900929	SJRJERSEY	12/12/90	9:40	10.1	7.6	8.0	2790	6		2.8	0.080	730	45
900036	SJRMOSSDALE	01/24/90	8:30	8.2	7.8	10.3	1310	15	20	3.8		490	40
900216	SJRMOSSDALE	04/25/90	7:05	17.0	7.6	9.0	820	12	35	4.2	0.107	670	60
900400	SJRMOSSDALE	07/26/90	7:40	23.0	7.6	9.2	858	19	10	3.1	0.080	400	33
900513	SJRMOSSDALE	08/22/90	14:05	26.3		7.2	738	23	35	2.7	0.075	650	54
900794	SJRMOSSDALE	10/24/90	7:58	17.9	7.0	8.0	732	14	30	2.4	0.062	490	41
900058	STATION04B	01/24/90	10:55	8.3	7.9	8.6	804	9	30	4.2		630	51
900240	STATION04B	04/25/90	7:40	17.6	8.1	8.9	905	5	25	3.4	0.072	440	33
900336	STATION04B	07/10/90	8:06	23.9	8.1	7.4	408	7		2.6	0.080	610	54
900356	STATION04B	07/17/90	9:15	24.4	8.0	7.2	450	8		2.5	0.075	540	46
900425	STATION04B	07/26/90	8:35	24.0	8.0	7.2	524	8	10	2.6	0.072	410	34
900446	STATION04B	07/31/90	8:30	23.2	7.8	7.5	533	7		2.4	0.082	460	37
900466	STATION04B	08/07/90	8:35	23.3	7.8	7.7	595	7		2.3	0.068	480	38
900557	STATION04B	08/13/90	8:25	24.0	8.1	6.9	504	6		2.3	0.069	380	30
900537	STATION04B	08/22/90	10:15	24.9	8.2	8.3	463	5	20	2.3	0.077	600	50
900577	STATION04B	08/28/90	9:10	22.3	7.7		464	6		2.3	0.072	530	44
900599	STATION04B	09/05/90	9:15	22.8	7.4	7.0	474	6		2.4	0.071	570	48
900619	STATION04B	09/11/90	9:00	22.3	7.8	8.7	527	5		2.4	0.075	540	46
900646	STATION04B	09/17/90	9:45	21.8	8.0	7.5	544	6		2.6	0.078	540	45

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900660	STATION04B	09/25/90	10:35	21.4	8.0	7.4	573	4		2.6	0.075	450	36
900682	STATION04B	10/02/90	9:35	21.8	7.6	7.6	613	4		2.7	0.077	410	33
900707	STATION04B	10/09/90	9:30	18.2	7.9	8.1	836	5		2.5	0.075	500	37
900727	STATION04B	10/15/90	9:40	18.9	8.1	11.5	863	3		2.6	0.073	570	43
900784	STATION04B	10/24/90	9:55	18.1	7.8	8.3	921	2	5	2.6	0.081	650	49
900826	STATION04B	10/31/90	10:30	17.5	7.7	9.4	832	2		2.6	0.077	480	35
900840	STATION04B	11/14/90	10:25	13.6	7.9		859	3		2.8	0.077	520	40
900884	STATION04B	11/28/90	10:20	10.6	7.8	9.7	959	3		2.9	0.086	470	35
900932	STATION04B	12/12/90	10:25	9.5	7.6	8.2	1060	3		3.2	0.104	600	44
900061	STATION09	01/24/90	11:35	8.3	7.6	8.7	726	9	25	3.7		610	50
900243	STATION09	04/25/90	8:20	18.0	7.9	8.5	712	6	20	3.0	0.076	380	29
900339	STATION09	07/10/90	8:40	24.4	7.9	7.0	371	8		3.2	0.090	690	63
900359	STATION09	07/17/90	10:05	25.3	8.2	7.0	399	7		2.9	0.088	510	46
900429	STATION09	07/26/90	9:25	24.1	8.1	7.3	489	12	10	2.5	0.083	420	36
900449	STATION09	07/31/90	9:20	24.3	6.9	7.1	479	6		2.5	0.084	510	43
900461	STATION09	08/07/90	9:20	24.9	7.7	7.4	537	7		4.0		580	48
900561	STATION09	08/13/90	9:15	23.8	7.8	6.6	455	7		2.5	0.083	540	47
900541	STATION09	08/22/90	11:00	24.9	8.3	8.2	413	5	20	2.5	0.079	660	56
900581	STATION09	08/28/90	10:20	23.2	7.7		421	6		2.6	0.086	560	49
900603	STATION09	09/05/90	10:30	23.8	7.5	6.9	423	5		2.6	0.081	610	53
900623	STATION09	09/11/90	10:15	22.8	7.7	8.7	468	6		2.6	0.085	610	53
900650	STATION09	09/17/90	10:45	22.9	7.8	7.4	474	5		2.9	0.090	600	52
900664	STATION09	09/25/90	11:30	22.4	7.8	7.0	510	7		2.8	0.088	480	41
900686	STATION09	10/02/90	10:50	22.6	7.6	7.3	533	5		2.9	0.092	430	36
900711	STATION09	10/09/90	10:25	19.1	7.7	7.8	677	5		3.0	0.095	560	45
900731	STATION09	10/15/90	10:35	19.0	8.0	11.4	726	4		3.0	0.089	610	49
900788	STATION09	10/24/90	10:40	18.0	7.6	8.0	800	4	10	3.4	0.103	580	46
900830	STATION09	10/31/90	11:50	18.3	7.6	8.7	773	4		3.1	0.094	600	46
900844	STATION09	11/14/90	11:10	13.5	7.9		771	4		3.0	0.088	520	41
900880	STATION09	11/28/90	11:20	10.6	7.8	9.6	846	3		3.0	0.092	560	43
900936	STATION09	12/12/90	11:25	9.4	7.4	8.2	910	4		3.7	0.114	630	48
900044	TURNERCUT	01/24/90	12:52	9.4	7.4	9.8	363	8	30	5.2		600	56
900045	TURNERCUT	01/24/90	12:52	9.4	7.4	9.8	367	7	30	5.1		650	61
900225	TURNERCUT	04/25/90	12:00	18.7	7.2	8.8	288	6	25	2.4	0.078	310	28
900409	TURNERCUT	07/26/90	12:40	27.2	7.3	8.1	264	6	15	2.9	0.097	340	32
900512	TURNERCUT	08/22/90	9:00	23.1		7.1	256	5	25	3.2	0.110	610	58

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900803	TURNERCUT	10/24/90	12:48	20.2	7.1	7.5	786	3	20	3.5	0.103	660	57
900031	UPJONESPP01	01/23/90	11:00							37.0		3900	390
900032	UPJONESPP02	01/23/90	14:44	12.2	7.1	8.9	980	22	80	8.7		1300	120
900130	UPJONESPP02	02/23/90	9:10	11.0	7.2	8.2	968	50	50	9.5		1100	110
900206	UPJONESPP02	04/24/90	14:10	18.3	7.3	4.6	765	20	100	8.0	0.336	1000	94
900295	UPJONESPP02	06/26/90	13:20	25.2	7.1	5.1	864	22	100	8.0	0.317		
900393	UPJONESPP02	07/25/90	8:45	19.9	6.8	9.4	750	27	50	8.2	0.315	910	85
900505	UPJONESPP02	08/21/90	12:33	22.9		3.0	697	19	80	7.5	0.310	1000	94
900768	UPJONESPP02	10/23/90	9:15	16.5	8.8	4.1	836	56	120	8.6		1100	110
900021	VERNALIS	01/23/90	11:45	9.2	8.1	9.9	1320	11	15	3.7		600	49
900094	VERNALIS	02/21/90	7:25	8.7	8.4	14.7	1180	34	35	5.6		650	58
900149	VERNALIS	03/20/90	7:50	16.3	6.2	8.0	968	12	15	3.4	0.075	610	52
900204	VERNALIS	04/24/90	13:00	19.0	8.0	8.8	802	18	30	4.4	0.115	640	57
900257	VERNALIS	05/23/90	12:00	19.4	8.4	8.7	919	19	30		0.072	430	35
900299	VERNALIS	06/27/90	7:20	20.1	8.1	6.1	865	30	40	4.7	0.075		
900388	VERNALIS	07/25/90	13:30	25.5		9.3	826	26	20	4.0	0.089	430	36
900496	VERNALIS	08/21/90	10:20	23.0	7.9	7.3	793	31	50	3.1	0.088	560	47
900635	VERNALIS	09/25/90	10:05	21.2	7.4	7.5	849	13	30	3.3	0.088	520	43
900699	VERNALIS	10/01/90	11:30	22.0	7.5	8.0	988	18		3.2	0.083	570	45
900766	VERNALIS	10/23/90	6:20	16.3	7.9	7.7	714	6	20	2.9	0.059	620	53
900860	VERNALIS	11/13/90	8:15	12.5	7.9	9.1	774	4	5	2.2	0.058	280	23
900911	VERNALIS	12/11/90	8:25	10.5	7.7	8.1	983	6	10	2.4	0.057	370	30
900141	WEBB01	02/27/90	9:30	13.0	5.8	4.7	2530	6	80	33.0		1900	190
900182	WEBB01	04/23/90	8:35	19.7	7.6	2.5	1350	80	30	18.0	0.524	1400	140
900288	WEBB01	06/26/90	7:10	19.5	6.9	4.9	945	26	160	22.0	0.733		
900366	WEBB01	07/24/90	7:30	19.5	7.1	4.3	819	17	80	17.0	0.695	1700	170
900478	WEBB01	08/20/90	7:15	19.7	7.4	5.2	781	31	200	16.0	0.683	1800	170
900743	WEBB01	10/22/90	7:40	15.4	8.0	4.9	742	92	350	14.0	0.841	1900	180
900142	WEBB02	02/27/90	10:00	12.0	6.2	7.6	2240	7	160	47.0		2900	290
900183	WEBB02	04/23/90	9:00	20.0	9.2	4.6	1080	19	30	30.0	1.330	2500	240
900289	WEBB02	06/26/90	7:55	19.7	6.8	7.1	896	25	320	36.0	1.633		
900367	WEBB02	07/24/90	8:15	20.5	6.9	4.3	614	16	200	28.0	1.445	2900	290
900479	WEBB02	08/20/90	7:50	20.5	7.2	4.5	669	10	350	57.0	2.540	3600	360
900745	WEBB02	10/22/90	8:10	15.5	7.7	7.0	568	17	80	10.0	0.466	1600	160
900063	WSTCANCLIFT	01/24/90	12:15	8.5	7.7	11.2	703	9	30	3.9		630	52
900245	WSTCANCLIFT	04/25/90	8:50	18.2	7.9	8.6	610	8	30	2.3	0.084	360	29

Note: "<" values signify reporting limits. Concentration of analyte below reporting limit.

TFPC DATA REPORT

LAB#	STA. NAME	SAMP.DATE	TIME	TEMP oC	pH	DO mg/L	EC uS/cm	TURB T.U.	COLOR C.U.	DOC mg/L	UVA mg/L	THMFP ug/L	TFPC ug/L
900341	WSTCANCLIFT	07/10/90	9:10	24.7	7.8	7.0	379	9		3.1	0.092	640	58
900361	WSTCANCLIFT	07/17/90	10:30	26.0	7.8	6.2	529	13		3.1	0.085	500	45
900431	WSTCANCLIFT	07/26/90	10:35	24.1	7.9	7.1	475	13	10	3.2	0.093	480	41
900451	WSTCANCLIFT	07/31/90	9:45	25.0	7.0	6.6	496	9		3.1	0.098	1000	96
900471	WSTCANCLIFT	08/07/90	9:45	25.4	7.6	6.8	418	10		4.2	0.087	470	41
900563	WSTCANCLIFT	08/13/90	9:45	25.4	7.6	6.3	492	12		3.2	0.093	800	72
900543	WSTCANCLIFT	08/22/90	11:30	25.5	8.3	7.9	387	7	20	2.6	0.081	570	49
900583	WSTCANCLIFT	08/28/90	10:45	23.3	7.7		360	6		2.7	0.090	540	48
900605	WSTCANCLIFT	09/05/90	11:00	23.5	7.5	6.7	392	8		2.7	0.091	650	58
900625	WSTCANCLIFT	09/11/90	10:55	22.7	7.6	8.8	430	7		2.8	0.095	580	51
900652	WSTCANCLIFT	09/17/90	11:15	22.6	7.8	7.3	412	7		3.2	0.104	610	55
900666	WSTCANCLIFT	09/25/90	12:00	22.0	7.7	6.9	474	7		3.2	0.100	490	44
900688	WSTCANCLIFT	10/02/90	11:20	22.9	7.5	7.0	481	8		3.6	0.098	450	40
900713	WSTCANCLIFT	10/09/90	11:00	18.9	7.8	7.6	592	9		3.2		570	47
900733	WSTCANCLIFT	10/15/90	11:05	18.9	8.1	11.4	621	3		3.3	0.101	630	52
900790	WSTCANCLIFT	10/24/90	11:10	18.4	7.6	7.9	718	4	10	3.3	0.103	630	50
900822	WSTCANCLIFT	10/31/90	12:15	18.0	7.6	8.7	665	6		3.3	0.096	520	42
900832	WSTCANCLIFT	10/31/90	12:15	18.0	7.6	8.7	662	6		3.3	0.098	510	42
900846	WSTCANCLIFT	11/14/90	11:40	13.6	7.8		707	4		3.0	0.090	490	40
900890	WSTCANCLIFT	11/28/90	11:45	10.6	7.8	9.6	771	4		3.4	0.094	470	37
900938	WSTCANCLIFT	12/12/90	11:55	9.4	7.4	8.3	831	3		3.7	0.144	710	55

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MINERAL DATA REPORT

LAB#	STA. NAME	SAMP.DATE	TIME	TEMP oC	pH	DO mg/L	EC uS/cm	Na mg/L	Cl mg/L	Br mg/L	Se mg/L	Asbest MF/L	Hard. mg/L	Ca mg/L	Mg mg/L	K mg/L	ALK mg/L	SO4 mg/L	B mg/L	TDS mg/L
900019	AGDCLIFTON	01/23/90	9:50	15.4	7.4	5.2	6090	1110	1420		0.003		832	112	134	1.6	389	707	16.	3790
900143	AGDCLIFTON	02/27/90	12:00	15.0	6.8	8.2	6150	1110	1520		0.002		825	116	130	1.8	353	641	15.	3840
900200	AGDCLIFTON	04/24/90	10:40	17.5	7.4	9.0	6270	998	1510		0.002		903	134	138	2.1	295	691	13.	3920
900261	AGDCLIFTON	05/23/90	10:00	17.5	7.5	7.7	2530	352	526	1.20	0.001		456	87	58	3.7	87	265	3.	1480
900303	AGDCLIFTON	06/27/90	10:00	21.0	6.7	4.6	3690	602	810	2.20	<0.001		637	100	94	2.	163	440	6.2	2220
900386	AGDCLIFTON	07/25/90	11:10	22.0	7.5	7.5	2640	406	603	1.80	0.001		379	66	52	2.9	139	251	5.4	1560
900764	AGDCLIFTON	10/23/90	8:50	19.0	7.4	5.8	5790	1000	1320	4.20	0.003		706	98	112	3.4	395	655	15.	3640
900016	AGDEMPIRE	01/22/90	10:00	7.8	6.8	7.7	2310	186	523	1.80	<0.001		747	164	82	2.3	153	231	0.4	1350
900116	AGDEMPIRE	02/19/90	10:50	6.8	7.1	11.1	2320	202	556				691	150	77	2.5	136	175	0.3	1420
900161	AGDEMPIRE	03/21/90	8:30	18.1	8.0	6.7	2510	236	655	2.70			671	150	72	2.3	169	88	0.3	1550
900197	AGDEMPIRE	04/23/90	10:25	18.0	6.8	5.9	680	49	105	0.41			176	39	19	1.7	76	60	0.2	425
900269	AGDEMPIRE	05/23/90	7:29	17.9	7.5		763	57	95	0.42			242	54	26	2.4	102	84	0.2	479
900256	AGDEMPIRE	05/23/90	7:29	17.9	7.5		761	56	95	0.41			246	54	27	2.4	98	85	0.2	489
900309	AGDEMPIRE	06/28/90	7:00	21.2	7.1	3.7	1060	71	219	0.87			323	70	36	3.	97	70	0.2	684
900381	AGDEMPIRE	07/24/90	11:29	25.3		1.7	593	53	116	0.49			167	37	18	0.5	83	27	0.2	365
900493	AGDEMPIRE	08/20/90	11:28	24.4	7.1	3.3	590	46	71	0.40			201	44	22	2.	97	63	0.2	399
900759	AGDEMPIRE	10/22/90	10:05	16.8	6.9	3.9	1710	168	399	2.50			468	105	50	3.2	156	84	0.5	1110
900158	AMERICAN	03/21/90	13:50	17.2	8.0	10.2	77	1	3				30	7	3	0.6	28	4	<0.1	49
900265	AMERICAN	05/22/90	6:25	15.9	7.4	9.4	78	4	4	0.02			30	7	3	1.1	26	5	<0.1	52
900278	AMERICAN	06/26/90	13:15	19.2	8.1	10.3	70	3	3				26	7	2	0.7	26	4	<0.1	47
900851	AMERICAN	11/13/90	7:30	13.0	8.6	9.5	58	3	3	<0.01			20	5	2	0.7	20	2	<0.1	40
900920	AMERICAN	12/11/90	6:30	10.2	9.2	9.5	62	3	3	<0.01			26	7	2	0.9	22	2	<0.1	40
900033	BACON01	01/23/90	16:01	11.6	6.7	3.4	894	85	153		<0.001		262	59	28	2.6	71	118	0.2	558
900131	BACON01	02/23/90	9:30	11.5	7.3	4.4	834	73	131	0.41			230	51	25	2.3	93	103	0.2	517
900210	BACON01	04/24/90	15:07	20.9	7.5	11.4	652	72	124	0.50			163	37	17	3.3	96	25	0.2	386
900296	BACON01	06/26/90	13:55	24.2	7.0	5.7	416	38	54	0.19			109	22	13	2.8	69	38	0.1	246
900394	BACON01	07/25/90	9:15	26.8	6.6	9.5	735	84	134	0.45			154	32	18	3.8	58	72	0.2	460
900506	BACON01	08/21/90	12:01	23.9		6.4	485	57	89	0.40			96	17	13	3.1	66	19	<0.1	265
900772	BACON01	10/23/90	10:25	18.4	9.8	5.5	794	105	174	0.67			142	24	20	4.7	79	29	0.1	435
900034	BACON02	01/23/90	15:20	12.2	6.7	7.3	949	82	138		<0.001		285	63	31	6.8	71	179	0.2	613
900035	BACON02	01/23/90	15:20	12.2	6.7	7.3	950	81	135		<0.001		282	62	31	6.6	71	180	0.2	615
900132	BACON02	02/23/90	9:50	11.5	6.8	8.4	1100	84	126				380	83	42	3.2	104	257	0.3	752
900211	BACON02	04/24/90	16:50	20.9	7.4	7.8	573	61	105				120	25	14	3.1	55	46	0.1	332
900297	BACON02	06/26/90	14:25	25.0	7.0	5.9	394	36	51				102	21	12	3.2	71	33	0.1	234
900395	BACON02	07/25/90	9:45	23.6	6.9	8.7	491	51	77	0.28			113	22	14	3.5	63	44	0.1	292
900507	BACON02	08/21/90	11:07	22.7		5.4	454	53	80	0.40			82	15	11	2.9	57	24	<0.1	254
900773	BACON02	10/23/90	9:55	18.8	8.8	5.4	642	80	119	0.50			136	25	18	4.4	82	37	0.2	361
900037	BANKS	01/24/90	9:20	9.0	7.4	10.6	710	91	153	0.52	<0.001		115	18	17	4.5	59	36	0.1	395
900079	BANKS	02/07/90	10:34	9.4	8.0	11.0	602	72	121											
900086	BANKS	02/14/90	8:55	7.8	7.0	12.2	522	62	95		<0.001		103	18	14	3.6	67	31	0.1	291
900096	BANKS	02/21/90	9:21	9.0	8.1	12.6	482	54	81	0.27	<0.001		98	18	13	3.2	70	30	0.1	270
900145	BANKS	03/07/90	10:50	12.3	8.3	9.6	496	54	85		<0.001									
900152	BANKS	03/20/90	11:00	16.7	8.4	10.1	453	49	72	0.25	<0.001		98	18	13	2.9	73	31	0.1	256
900179	BANKS	04/04/90	12:00	18.1	7.9		618	74	120		<0.001									

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MINERAL DATA REPORT

LAB#	STA. NAME	SAMP.DATE	TIME	TEMP oC	pH	DO mg/L	EC uS/cm	Na mg/L	Cl mg/L	Br mg/L	Se mg/L	Asbest MF/L	Hard.	Ca	Mg	K	ALK	SO4	B	TDS
													<--------				mg/L			-------->
900218	BANKS	04/25/90	8:00	18.3	7.7	8.9	683	88	141	0.49	<0.001		115	18	17	4.2	67	37	0.1	377
900259	BANKS	05/23/90	10:35	18.2	8.3	9.1	671	87	135	0.42	<0.001		114	19	16	4.2	65	40	0.2	363
900298	BANKS	06/27/90	9:15	20.4	8.1	8.2	570	64	102	0.36	<0.001		107	18	15	3.6	73	36	0.2	316
900326	BANKS	07/09/90	15:40	22.5	8.3	7.8	518	59	85	0.34			108	20	14					
900346	BANKS	07/16/90	10:30	24.5	8.4	7.4	391	43	60	0.21			90	16	12					
900402	BANKS	07/26/90	10:10	23.0	7.4	10.1	440	50	75	0.26	<0.001		87	15	12	2.9	65	24	0.1	243
900436	BANKS	07/30/90	11:00	24.2	7.3	7.6	523	54	103	0.32			87	15	12					
900456	BANKS	08/06/90	9:30	25.9	7.4	6.6	437	51	78	0.29			84	14	12					
900548	BANKS	08/13/90	9:20	25.2	7.8	6.5	490	59	94	0.40			82	13	12					
900514	BANKS	08/22/90	12:40	24.5		7.2	397	45	67	0.28	<0.001		80	14	11	2.6	61	20	<0.1	220
900567	BANKS	08/27/90	10:24	22.7		7.8	397	45	67	0.28			82	15	11					
900590	BANKS	09/04/90	13:00	22.7	8.3		389	43	64	0.24			80	14	11					
900610	BANKS	09/10/90	10:55	24.0	8.0	7.1	438	51	75	0.37			84	14	12					
900630	BANKS	09/18/90	12:10	21.9	8.1	7.8	424	48	70	0.29			90	16	12					
900671	BANKS	09/24/90	11:00	20.6	7.9	8.1	512	52	92	0.33	<0.001		96	17	13	3.1	76	25	0.1	278
900693	BANKS	10/01/90	12:05	20.9	7.7	8.2	484	56	82	0.33			102	18	14					
900718	BANKS	10/10/90	9:30	19.3	7.7	6.8	604	73	114	0.37			114	19	16					
900738	BANKS	10/16/90	8:45	18.9	8.6	8.0	639	76	120	0.57			114	19	16					
900796	BANKS	10/24/90	8:58	17.7	7.0	7.8	691	85	136	0.48	<0.001		122	21	17	4.4	83	38	0.2	370
900816	BANKS	10/30/90	12:00	18.3	7.8	8.8	725	91	143	0.54			129	22	18					
900863	BANKS	11/13/90	12:25	15.0	7.9	9.3	739	93	150	0.53	<0.001		127	21	18	4.6	77	42	0.2	394
900875	BANKS	11/27/90	11:30	11.2	7.6	10.1	768	97	156	0.54			126	21	18					
900914	BANKS	12/11/90	12:10	10.8	7.2	8.5	806	91	167	0.58	<0.001		142	24	20	5.	75	49	0.2	431
900027	BARKERNOBAY	01/23/90	8:44	6.3	7.7	9.9	457	44	47				126	19	19	2.9	115	39	0.2	254
900103	BARKERNOBAY	02/21/90	14:22	11.3	6.9	11.3	405	42	39	0.07			106	16	16	2.7	100	38	0.3	235
900164	BARKERNOBAY	03/21/90	7:45	14.9	7.7	8.7	494	48	44	0.10			137	22	20	2.6	128	52	0.3	286
900207	BARKERNOBAY	04/24/90	8:50	16.6	8.0	8.3	484	46	41	0.11			137	22	20	2.5	129	52	0.3	279
900272	BARKERNOBAY	05/22/90	12:07	21.6	8.5	7.4	454	42	44	0.23			128	20	19	2.7	106	46	0.2	262
900277	BARKERNOBAY	06/26/90	7:35	21.4	8.4	8.0	381	35	36				111	18	16	2.9	101	30	0.2	222
900390	BARKERNOBAY	07/25/90	14:25	24.8	7.4	9.6	315	27	26	0.09			94	16	13	2.4	92	20	0.2	186
900502	BARKERNOBAY	08/21/90	7:20	19.7		6.8	258	21	18	0.08			80	14	11	2.1	84	16	<0.1	161
900638	BARKERNOBAY	09/25/90	8:00	19.3	7.0	6.7	286	23	19				94	16	13	2.3	99	16	0.2	163
900769	BARKERNOBAY	10/23/90	6:20	15.6	9.7	8.3	317	26	23	0.07			100	17	14	2.3	104	20	0.2	183
900853	BARKERNOBAY	11/13/90	11:45	13.9	8.0	9.6	283	22	22	0.04			87	15	12	2.	84	19	0.1	165
900922	BARKERNOBAY	12/11/90	9:00	8.8	9.0	9.2	292	23	22	0.04			94	16	13	2.2	89	20	0.1	161
900009	BOULDIN1	01/22/90	12:15	8.6	7.1	10.1	372	31	42				102	21	12	2.7	78	29	0.1	222
900129	BOULDIN1	02/23/90	8:15	11.7	7.2	6.2	1300	114	62				473	107	50	4.2	354	239	0.4	984
900198	BOULDIN1	04/23/90	12:10	20.4	6.9	5.9	289	20	21				95	20	11	1.4	66	37	0.2	208
900316	BOULDIN1	06/28/90	9:30	20.5	6.9	5.2	247	18	18				80	17	9	1.7	75	15	0.1	157
900382	BOULDIN1	07/24/90	12:33	24.8		2.1	282	24	24	0.17			95	20	11	1.9	80	22	0.2	195
900494	BOULDIN1	08/20/90	13:23	24.4	7.8	5.4	242	18	15	0.11			82	18	9	1.7	75	16	0.1	164
900760	BOULDIN1	10/22/90	11:05	18.0	7.1	4.1	384	27	26	0.24			132	28	15	2.7	86	54	0.2	277
900010	BOULDIN2	01/22/90	11:30	7.2	6.2	6.0	486	38	35	0.23			157	33	18	2.6	66	77	0.4	372
900128	BOULDIN2	02/23/90	7:50	9.3	7.0	9.5	478	36	39	0.18			157	33	18	2.4	82	77	0.3	351

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MINERAL DATA REPORT

LAB#	STA. NAME	SAMP.DATE	TIME	TEMP oC	pH	DO mg/L	EC uS/cm	Na mg/L	Cl mg/L	Br mg/L	Se mg/L	Asbest MF/L	Hard. mg/L	Ca mg/L	Mg mg/L	K mg/L	ALK mg/L	SO4 mg/L	B mg/L	TDS mg/L
900191	BOULDIN2	04/23/90	12:40	18.3	6.2	4.3	257	18	17				88	19	10	1.4	56	36	0.3	206
900317	BOULDIN2	06/28/90	9:15	20.9	6.8	5.8	266	25	21	0.12			95	20	11	2.	86	19	0.2	200
900377	BOULDIN2	07/24/90	13:03	24.5		1.8	309	26	25	0.16			105	22	12	1.9	78	33	0.3	237
900487	BOULDIN2	08/20/90	13:54	26.0	8.7	5.8	178	13	9	0.05			62	13	7	1.5	58	11	<0.1	126
900761	BOULDIN2	10/22/90	11:45	18.0	7.1	4.1	391	26	29	0.42			129	27	15	3.1	93	51	0.4	312
900001	BRANNANPP01	01/22/90	9:30	12.1	6.6	3.5	622	58	84				180	34	23	4.9	106	62	0.2	
900118	BRANNANPP01	02/19/90	14:20	11.5	7.9	7.6	876	70	96				284	53	37	2.3	107	133	0.3	608
900190	BRANNANPP01	04/23/90	15:30	19.8	7.3	7.3	429	33	46				122	24	15	2.1	76	55	0.2	280
900286	BRANNANPP01	06/26/90	11:30	24.0	7.1	5.2	317	27	28				97	19	12	2.	68	34	0.1	204
900374	BRANNANPP01	07/24/90	13:50	24.5	7.0	4.5	246	20	21	0.09			74	15	9	1.4	59	22	0.1	171
900486	BRANNANPP01	08/20/90	13:00	23.8		4.0	300	25	29	0.13			90	18	11	1.7	65	29	<0.1	200
900752	BRANNANPP01	10/22/90	12:55	16.7	8.3	4.2	369	42	50	0.31			84	17	10	2.2	89	10	0.2	244
900002	BRANNANPP02	01/22/90	9:30	10.1	6.4	2.1	628	43	84		<0.001		198	38	25	3.2	118	60	0.2	374
900119	BRANNANPP02	02/19/90	14:45	10.1	6.3	2.1	673	45	84				225	44	28	3.7	120	72	0.2	417
900285	BRANNANPP02	06/26/90	11:18	20.4	6.6	2.5	613	42	67				198	38	25	4.1	43	109	0.2	424
900373	BRANNANPP02	07/24/90	13:30	21.5	6.9	1.6	479	38	70	0.39			142	27	18	3.4	92	13	0.2	358
900485	BRANNANPP02	08/20/90	12:40	22.2		1.8	524	41	81	0.43			160	31	20	3.7	107	10	0.2	372
900751	BRANNANPP02	10/22/90	12:40	16.7	8.3	4.2	517	40	83	0.57			151	29	19	3.8	90	<1	0.2	344
900003	BRANNANPP03	01/22/90	10:15	9.9	6.5	2.6	1130	79	150				408	76	53	4.	251	107	0.3	675
900120	BRANNANPP03	02/19/90	15:05	9.7	6.5	6.6	1100	86	146				378	69	50	3.4	161	160	0.3	738
900188	BRANNANPP03	04/23/90	15:00	19.0	6.9	12.8	1370	86	213				494	89	66	5.6	228	156	0.3	808
900284	BRANNANPP03	06/26/90	11:05	24.3	6.8	4.7	817	51	121				273	50	36	4.	100	98	0.2	500
900365	BRANNANPP03	07/24/90	12:50	23.5	6.9	4.9	299	25	32	0.15			94	18	12	1.9	71	19	0.2	202
900484	BRANNANPP03	08/20/90	12:20	22.6		13.1	1160	72	181	0.54			442	83	57	5.	183	111	0.3	752
900750	BRANNANPP03	10/22/90	12:25	19.2	9.0	2.4	1040	76	146	0.61			364	70	46	3.6	99	171	0.4	730
900004	BRANNANPP04	01/22/90	10:45	9.9	6.4	6.2	973	78	128				328	62	42	2.8	110	168	0.3	629
900121	BRANNANPP04	02/19/90	15:30	10.9		7.4	1230	109	161				400	73	53	2.4	170	197	0.4	831
900187	BRANNANPP04	04/23/90	14:40	18.5	7.3	4.8	736	74	111				200	37	26	3.	149	45	0.3	446
900283	BRANNANPP04	06/26/90	10:50	22.4	7.5	6.2	528	55	78				134	24	18	2.6	84	40	0.2	320
900371	BRANNANPP04	07/24/90	12:30	23.5	7.2	5.3	456	51	64	0.30			119	23	15	1.8	77	40	0.3	316
900483	BRANNANPP04	08/20/90	11:50	23.2		4.9	366	35	44	0.23			104	20	13	1.8	85	23	0.2	238
900749	BRANNANPP04	10/22/90	12:05	18.1	9.2	1.3	636	63	90	0.45			168	31	22	2.6	91	68	0.2	383
900476	CHECK 13	08/06/90	9:50	23.0	8.7	8.2	589	70	108	0.38			119	21	16					
900588	CHECK 13	08/13/90	9:00	24.0	8.4	7.4	557	67	102	0.38			112	20	15					
900862	CHECK 13	11/13/90	10:30	15.0	8.1	9.1	750	93	148	0.48	<0.001		136	23	19	4.6	84	46	0.2	399
900913	CHECK 13	12/11/90	10:25	10.5	7.0	8.7	815	98	157	0.54	<0.001		152	28	20	4.5	84	59	0.2	440
900080	CLIFTON	02/07/90	11:00	10.7	7.5	10.9	586	70	116		<0.001									
900087	CLIFTON	02/14/90	9:40	8.5	7.5	12.3	515	61	94		<0.001		103	18	14	3.5	68	30	<0.1	286
900097	CLIFTON	02/21/90	10:35	9.4	7.0	12.6	472	53	79	0.26	<0.001		98	18	13	3.1	69	28	0.1	265
900154	CLIFTON	03/20/90	12:00	15.8	7.8	9.7	404	41	63	0.22			92	17	12	2.7	71	24	0.1	227
900203	CLIFTON	04/24/90	11:15	18.8	7.9	8.6	532	63	101				98	16	14	2.9	65	30	0.3	287
900262	CLIFTON	05/23/90	10:10	19.4	7.8	8.1	654	80	132	0.34			114	19	16	3.8	63	38	0.2	356
900304	CLIFTON	06/27/90	10:10	23.0	7.7	5.6	786	95	132	0.24			150	27	20	2.9	84	74	0.8	442
900387	CLIFTON	07/25/90	11:40	24.5	7.9	7.4	457	53		0.31			87	15	12	2.9		82	<0.1	250

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MINERAL DATA REPORT

LAB#	STA. NAME	SAMP.DATE	TIME	TEMP oC	pH	DO mg/L	EC uS/cm	Na mg/L	Cl mg/L	Br mg/L	Se mg/L	Asbest MF/L	Hard. mg/L	Ca mg/L	Mg mg/L	K mg/L	ALK mg/L	SO4 mg/L	B mg/L	TDS mg/L
900499	CLIFTON	08/21/90	9:30	23.6	8.0	7.9	397	46	69	0.28			80	14	11	2.8	60	19	<0.1	221
900673	CLIFTON	09/24/90	9:45	21.4	8.3	8.2	504	58	88	0.41			98	16	14	3.3	78	26	0.1	275
900765	CLIFTON	10/23/90	9:15	18.7	7.8	8.1	710	87	138	0.52			127	21	18	4.4	82	38	0.2	386
900864	CLIFTON	11/13/90	13:20	16.0	7.8	9.0	689	84	134				123	21	17	4.3	78	42	0.2	370
900915	CLIFTON	12/11/90	12:45	11.5	7.5	8.4	853	100	185	0.63	<0.001		142	23	20	5.5	73	46	0.2	451
900692	CONCOSPP1	10/01/90	10:10	18.6	7.3	7.8	636	79	128	0.52			108	17	16					
900055	CONNMAND	01/24/90	10:15	8.6	7.9	9.8	474	55	89		<0.001		87	15	12	3.4	57	24	<0.1	266
900237	CONNMAND	04/25/90	6:50	17.5	8.2	8.8	367	42	62				76	14	10	2.5	59	16	<0.1	201
900423	CONNMAND	07/26/90	8:10	24.1	7.9	7.2	396	46	68	0.24			80	14	11	2.6	59	19	0.1	212
900535	CONNMAND	08/22/90	8:30	23.4	7.8	8.1	279	29	39	0.16			70	13	9	2.	60	14	<0.1	156
900782	CONNMAND	10/24/90	9:25	18.0	7.8	8.4	700	88	147	0.53			119	19	17	4.5	75	33	0.1	372
900052	DELTACRCHAN	01/24/90	10:55	8.9	7.5		207	14	10				68	14	8	2.	70	14	<0.1	131
900233	DELTACRCHAN	04/25/90	10:28	18.3	6.1	8.8	136	8	5				52	11	6	1.4	53	5	<0.1	85
900417	DELTACRCHAN	07/26/90	11:20	24.0	7.6	6.5	133	8	6	0.02			46	10	5	1.	49	6	<0.1	79
900529	DELTACRCHAN	08/22/90	12:30	24.4	7.6	9.3	178	13	7	0.03			60	11	8	1.2	69	9	<0.1	109
900811	DELTACRCHAN	10/24/90	12:05	19.6	7.6	8.3	162	11	8	0.01			56	11	7	1.5	57	8	<0.1	98
900038	DMC	01/24/90	9:53	8.5	7.6	9.7	787	95	127	0.43	0.001		158	32	19	4.5	87	88	0.4	456
900081	DMC	02/07/90	11:18	10.7	7.5	11.5	953	116	140		0.003									
900082	DMC	02/07/90	11:18	10.7	7.5	11.5	954	118	140		0.003									
900088	DMC	02/14/90	10:10	8.7	7.8	12.4	421	45	66		<0.001		98	18	13	2.9	68	26	<0.1	239
900102	DMC	02/21/90	9:57	9.4	7.3	11.9	873	102	118	0.36	0.003		196	42	22	3.8	99	131	0.6	523
900148	DMC	03/07/90	11:30	12.9	7.7	9.4	487	51	66		<0.001									
900153	DMC	03/20/90	11:35	15.6	7.8	10.6	358	33	51	0.19	<0.001		88	17	11	2.5	70	22	0.1	207
900180	DMC	04/04/90	12:50	19.7	7.9		519	60	97		<0.001									
900219	DMC	04/25/90	8:38	17.6	6.8	9.1	467	55	84	0.29	<0.001		90	16	12	3.1	62	24	<0.1	252
900302	DMC	06/27/90	10:30	22.9	8.0	5.4	399	40	56	0.19	<0.001		92	17	12	2.8	71	27	0.1	225
900327	DMC	07/09/90	16:15	24.9	8.0	6.7	878	97	123	0.45			216	47	24					
900347	DMC	07/16/90	11:06	24.1	7.8	7.2	770	93	112	0.45			193	41	22					
900403	DMC	07/26/90	10:45	24.5	7.2	9.3	395	44	64	0.22	<0.001		82	15	11	2.7	62	21	<0.1	222
900437	DMC	07/30/90	11:15	25.1	7.5	6.9	818	90	124	0.44			193	41	22					
900455	DMC	08/06/90	10:00	26.1	7.8	6.1	306	30	45	0.17			70	13	9					
900549	DMC	08/13/90	9:35	25.9	7.7	5.3	770	85	114	0.47			175	37	20					
900515	DMC	08/22/90	13:20	25.3		6.8	670	73	99	0.44	<0.001		154	32	18	3.5	94	72	0.3	386
900569	DMC	08/27/90	9:52	22.0	8.8	7.2	876	97	138	0.46			202	43	23					
900591	DMC	09/04/90	13:30	23.8	8.3		837	90	127	0.46			191	40	22					
900611	DMC	09/10/90	10:45	24.0	7.9	7.0	375	40	58	0.26			82	15	11					
900631	DMC	09/18/90	11:45	23.8	7.7	7.0	668	84	136	0.31										
900672	DMC	09/24/90	11:30	21.4	8.1	8.0	414	44	62	0.26	<0.001		90	16	12	2.9	78	23	0.1	230
900694	DMC	10/01/90	12:35	22.1	7.4	8.0	522	59	87	0.34			108	20	14					
900719	DMC	10/10/90	10:15	19.8	7.5	6.8	660	77	112	0.37			144	28	18					
900739	DMC	10/16/90	9:15	18.9	7.9		633	77	115	0.43			122	21	17					
900797	DMC	10/24/90	9:27	17.9	7.1	8.1	870	102	151	0.48	<0.001		183	37	22	4.2	112	82	0.4	487
900818	DMC	10/30/90	12:30	18.0	8.0	9.0	894	104	155	0.54			190	38	23					
900865	DMC	11/13/90	13:55	14.6	7.8	9.0	698	86	136	0.46	<0.001		123	21	17	4.4	77	42	0.2	371

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MINERAL DATA REPORT

LAB#	STA. NAME	SAMP.DATE	TIME	TEMP oC	pH	DO mg/L	EC uS/cm	Na mg/L	Cl mg/L	Br mg/L	Se mg/L	Asbest MF/L	Hard.	Ca	Mg	K	ALK	SO4	B	TDS
													<——				mg/L			——>
900876	DMC	11/27/90	12:00	10.9	7.8	10.7	850	99	139	0.44			182	38	21					
900910	DMC	12/11/90	13:15	11.0	7.5	8.5	782	94	160	0.55	<0.001		136	23	19	5.	72	46	0.2	417
900334	FALSETIP-WEBB	07/10/90	7:35	22.3	8.1	7.6	610	76	122	0.45			109	17	16					
900351	FALSETIP-WEBB	07/16/90	8:25	22.9	8.3	7.4	449	54	83	0.32			84	14	12					
900421	FALSETIP-WEBB	07/26/90	7:40	22.6	8.2	7.8	849	117	200	0.66			122	16	20	5.5	61	37	0.1	443
900444	FALSETIP-WEBB	07/31/90	8:05	22.2	7.5	7.8	415	49	76	0.29			78	13	11					
900464	FALSETIP-WEBB	08/07/90	8:10	22.5	7.9	8.1	651	84	143	0.52			96	14	15					
900555	FALSETIP-WEBB	08/13/90	8:00	19.4	8.6	7.5	580	76	123	0.46			90	13	14					
900533	FALSETIP-WEBB	08/22/90	9:20	22.7	8.0	8.5	537	68	111	0.39			92	14	14	3.5	60	23	<0.1	291
900575	FALSETIP-WEBB	08/28/90	8:20	22.0	7.9		530	66	107	0.45			92	14	14					
900597	FALSETIP-WEBB	09/05/90	8:45	21.8	7.5	7.6	408	47	68	0.28			84	14	12					
900617	FALSETIP-WEBB	09/11/90	8:40	21.7	7.4	8.8	577	73	114	0.50			104	17	15					
900644	FALSETIP-WEBB	09/17/90	9:10	21.1	8.0	7.7	619	78	123	0.52			106	18	15					
900658	FALSETIP-WEBB	09/25/90	10:10	21.1	8.1	7.7	975	131	228	0.90			133	17	22					
900680	FALSETIP-WEBB	10/02/90	9:00	20.7	7.7	7.7	508	61	94	0.40			98	16	14					
900705	FALSETIP-WEBB	10/09/90	9:00	18.3	8.0	8.1	977	133	225	0.93			142	19	23					
900725	FALSETIP-WEBB	10/15/90	9:15	18.3	8.1	11.2	1100	151	262	0.90			153	20	25					
900780	FALSETIP-WEBB	10/24/90	8:50	17.6	7.7	8.6	1450	208	362	1.40			182	22	31	9.	70	57	0.2	747
900824	FALSETIP-WEBB	10/31/90	9:58	17.1	7.8	9.4	1100	157	263	0.98			153	20	25					
900838	FALSETIP-WEBB	11/14/90	10:00	13.6	7.9		1430	203	364	1.21			174	20	30					
900882	FALSETIP-WEBB	11/28/90	9:50	11.2	7.8	9.5	1110	157	270	0.99			146	19	24					
900930	FALSETIP-WEBB	12/12/90	10:00	9.9	7.6	7.9	2070	302	540	1.80			242	26	43					
900051	GEORGSLWALNUT	01/24/90	10:41	9.4	7.3		200	14	10				70	15	8	2.	68	13	<0.1	127
900232	GEORGSLWALNUT	04/25/90	10:07	18.6	6.3	8.7	136	8	5				52	11	6	1.3	53	5	<0.1	86
900416	GEORGSLWALNUT	07/26/90	10:55	23.8	7.9	6.5	132	8	5	0.02			46	10	5	1.	48	6	<0.1	79
900528	GEORGSLWALNUT	08/22/90	12:00	24.1	7.6	9.1	180	12	7	0.03			60	11	8	1.2	70	9	<0.1	110
900804	GEORGSLWALNUT	10/24/90	10:45	17.9	7.6	8.6	156	10	7	0.01			52	11	6	1.4	55	7	<0.1	95
900040	GRANTLNCAN	01/24/90	10:43	9.3	7.7	8.9	1200	150	177		<0.001		266	57	30	6.	132	187	0.8	733
900090	GRANTLNCAN	02/14/90	10:55	9.4	7.8	10.9	1240	138	173		0.005		283	64	30	5.8	128	199	0.9	752
900221	GRANTLNCAN	04/25/90	9:30	18.2	7.1	8.5	839	95	121				196	42	22	4.5	101	114	0.5	491
900405	GRANTLNCAN	07/26/90	8:40	22.8	7.5	9.7	843	94	122	0.38			203	45	22	4.2	113	103	0.5	479
900517	GRANTLNCAN	08/22/90	11:45	25.5		6.7	735	80	103	0.48			171	37	19	4.	103	86	0.4	445
900799	GRANTLNCAN	10/24/90	10:24	18.8	7.2	8.1	1030	115	162	0.51			234	51	26	3.9	142	112	0.5	592
900064	GRANTOLD	01/24/90	12:25	8.7	7.9	10.2	1100	142	165		0.003		247	53	28	7.2	118	155	0.6	663
900246	GRANTOLD	04/25/90	9:00	18.4	7.9	8.1	671	76	109				140	28	17	3.6	81	70	0.3	377
900343	GRANTOLD	07/10/90	9:20	24.9	7.9	7.0	367	38	52	0.19			88	17	11					
900363	GRANTOLD	07/17/90	10:45	26.3	7.7	5.9	777	84	114	0.43			182	38	21					
900433	GRANTOLD	07/26/90	10:45	24.0	8.0	7.1	396	44	65	0.30			85	16	11	2.5	63	21	<0.1	216
900453	GRANTOLD	07/31/90	10:00	25.3	7.0	6.4	828	92	126	0.43			196	42	22					
900473	GRANTOLD	08/07/90	9:55	25.4	7.6	6.0	482	56	85	0.31			98	18	13					
900565	GRANTOLD	08/13/90	9:52	25.0	7.8	5.9	672	74	102	0.37			153	33	17					
900545	GRANTOLD	08/22/90	12:00	25.2	8.3	7.7	652	70	95	0.38			154	32	18	3.2	91	66	0.3	372
900585	GRANTOLD	08/28/90	11:00	23.6	7.6		644	69	95	0.41			150	32	17					
900607	GRANTOLD	09/05/90	12:00	23.2	7.5	6.3	816	91	122	0.50			187	40	21					

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MINERAL DATA REPORT

LAB#	STA. NAME	SAMP.DATE	TIME	TEMP oC	pH	DO mg/L	EC uS/cm	Na mg/L	Cl mg/L	Br mg/L	Se mg/L	Asbest MF/L	Hard. mg/L	Ca mg/L	Mg mg/L	K mg/L	ALK mg/L	SO4 mg/L	B mg/L	TDS mg/L
900627	GRANTOLD	09/11/90	11:10	22.8	7.5	8.7	397	43	61	0.26			90	16	12					
900654	GRANTOLD	09/17/90	11:35	22.6	7.8	7.4	422	45	64	0.28			94	18	12					
900668	GRANTOLD	09/25/90	12:15	22.1	7.6	7.2	447	50	73	0.33			96	17	13					
900690	GRANTOLD	10/02/90	11:35	22.9	7.5	6.6	595	65	91	0.38			134	27	16					
900715	GRANTOLD	10/09/90	11:20	19.5	7.9	7.7	631	73	107	0.39			130	24	17					
900735	GRANTOLD	10/15/90	11:20	18.8	8.1	11.8	761	89	129	0.45			160	31	20					
900792	GRANTOLD	10/24/90	11:30	18.4	7.6	8.0	703	88	138	0.49			126	21	18	4.7	82	38	0.2	373
900834	GRANTOLD	10/31/90	12:35	18.1	7.7	9.0	817	94	142	0.53			167	32	21					
900848	GRANTOLD	11/14/90	11:50	13.5	7.9		715	86	132	0.44			134	24	18					
900892	GRANTOLD	11/28/90	12:00	10.2	7.9	9.9	829	91	129	0.43			182	38	21					
900940	GRANTOLD	12/12/90	12:05	9.4	7.4	8.2	781	91	160	0.55			133	22	19					
900053	GREENES	01/24/90	11:25	10.5	7.1		175	10	7	0.03	<0.001		68	14	8	1.9	66	9	<0.1	113
900127	GREENES	02/23/90	7:00	8.5	7.9	13.1	193	13	9	0.03			66	13	8	1.8	65	11	<0.1	119
900160	GREENES	03/21/90	7:25	16.7	8.5	9.4	200	13	10	0.04			68	14	8	1.4	72	10	<0.1	122
900234	GREENES	04/25/90	11:00	19.5	6.1	8.7	141	8	5	0.03			52	11	6	1.4	53	5	<0.1	89
900268	GREENES	05/22/90	7:50	18.8	7.7	10.0	166	7	8	0.03			62	13	7	1.5	55	7	<0.1	104
900318	GREENES	06/28/90	11:30	24.4	6.3	6.1	188	13	10	0.04			62	13	7	1.3	63	10	<0.1	115
900418	GREENES	07/26/90	11:50	24.3	7.6	6.5	136	8	6	0.02			46	10	5	1.	49	6	<0.1	81
900475	GREENES	08/06/90	13:10	25.0	7.5	7.0	150	9	6	0.03			52	11	6					
900530	GREENES	08/22/90	13:05	24.5	7.5	9.5	186	13	8	0.04			60	11	8	1.2	71	10	<0.1	113
900641	GREENES	09/25/90	12:30	22.5	7.2	7.3	191	13	9	0.04			66	13	8	1.5	66	11	<0.1	115
900812	GREENES	10/24/90	12:40	19.0	7.6	8.9	165	11	8	0.02			56	11	7	1.5	58	8	<0.1	100
900850	GREENES	11/13/90	10:05	14.0	8.1	7.2	175	11	8	0.01			59	12	7	1.7	60	10	<0.1	110
900925	GREENES	12/11/90	13:40	10.8	8.5	9.3	161	9	5	0.01			54	12	6	1.6	57	5	<0.1	84
900028	HOLLAND01	01/23/90	11:43	9.0	7.4	7.3	1600	204	300		<0.001		334	58	46	8.2	188	158	0.5	924
900134	HOLLAND01	02/23/90	12:10	11.6	6.6	5.7	1370	127	236	0.59			394	82	46	4.4	144	190	0.3	873
900186	HOLLAND01	04/23/90	11:25	18.8	7.5	4.6	1280	161	248				246	44	33	7.	168	94	0.5	743
900292	HOLLAND01	06/26/90	10:45	21.0	6.9	2.9	629	73	114				141	30	16	4.2	90	34	0.3	392
900370	HOLLAND01	07/24/90	10:50	22.0	7.0	3.6	928	106	161	0.60			196	37	25	5.8	162	49	0.4	543
900477	HOLLAND01	08/20/90	9:30	23.3		4.9	805	88	139	0.48			182	35	23	4.7	86	80	0.3	492
900748	HOLLAND01	10/22/90	10:55	17.0	7.9	2.5	1150	144	210	0.91			240	45	31	6.6	171	77	0.4	673
900029	HOLLAND02	01/23/90	11:04	9.4	7.1	9.7	1640	190	311				382	69	51	5.8	146	203	0.5	969
900135	HOLLAND02	02/23/90	11:45	12.8	6.8	11.2	1560	179	267				387	71	51	4.4	146	226	0.4	974
900185	HOLLAND02	04/23/90	10:40	17.6	7.2	6.6	894	97	162				225	44	28	3.4	144	51	0.3	533
900291	HOLLAND02	06/26/90	10:15	20.7	7.0	4.5	592	71	82				134	24	18	3.3	117	35	0.3	349
900369	HOLLAND02	07/24/90	10:25	22.0	7.3	9.4	796	83	134	0.63			211	40	27	2.6	152	30	0.2	492
900481	HOLLAND02	08/20/90	9:15	21.2		1.6	1020	120	195	0.85			215	40	28	6.4	169	46	0.4	630
900747	HOLLAND02	10/22/90	10:30	15.2	7.8	3.6	802	89	149	0.77			191	40	22	5.	133	26	0.2	474
900030	HOLLAND03	01/23/90	10:31	11.0	7.0	3.0	991	100	183				246	59	24	6.	156	56	0.2	562
900136	HOLLAND03	02/23/90	11:30	12.0	6.7	10.0	2000	246	312				497	87	68	5.6	261	315	0.8	1270
900181	HOLLAND03	04/23/90	9:35	17.5	7.4	6.0	1090	114	200				270	52	34	3.6	191	51	0.4	642
900290	HOLLAND03	06/26/90	9:40	18.9	7.3	4.1	845	96	135				201	39	25	4.1	176	40	0.3	493
900368	HOLLAND03	07/24/90	9:55	19.0	7.2	1.4	848	92	170	0.73			202	46	21	3.	136	7	0.2	490
900480	HOLLAND03	08/20/90	8:45	19.5		2.6	946	97	194	0.86			220	52	22	3.2	160	12	0.1	557

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MINERAL DATA REPORT

LAB#	STA. NAME	SAMP.DATE	TIME	TEMP oC	pH	DO mg/L	EC uS/cm	Na mg/L	Cl mg/L	Br mg/L	Se mg/L	Asbest MF/L	Hard.	Ca	Mg	K	ALK	SO4	B	TDS
													<--------				mg/L			-------->
900746	HOLLAND03	10/22/90	10:15	16.0	7.2	6.6	888	96	178	0.85			204	47	21	3.8	140	14	0.2	507
900047	HONKER	01/24/90	6:50	7.2	7.1		197	13	15		<0.001		68	14	8	1.9	59	11	<0.1	126
900226	HONKER	04/25/90	7:45	17.2	6.2	9.2	161	10	9				54	12	6	1.4	56	7	<0.1	98
900412	HONKER	07/26/90	7:35	23.5	7.7	6.8	190	13	15	0.06			62	13	7	1.3	58	9	<0.1	112
900524	HONKER	08/22/90	8:05	23.3	7.6	9.0	213	14	15	0.08			74	15	9	1.4	69	12	<0.1	130
900806	HONKER	10/24/90	8:15	17.6	7.8	8.6	239	18	20	0.06			74	15	9	1.8	70	14	<0.1	133
900013	KINGISPP01	01/22/90	10:00	9.9	7.3	2.9	409	26	17		<0.001		169	43	15	1.	182	10	0.1	255
900017	KINGISPP01	01/22/90	10:00	9.9	7.3	2.9	430	26	18		<0.001		169	43	15	1.	191	11	0.1	266
900113	KINGISPP01	02/19/90	10:05	9.5	7.2	4.3	460	27	19				187	47	17	1.3	183	22	0.1	302
900195	KINGISPP01	04/23/90	10:00	19.1	7.2	7.8	271	18	28	0.20			92	19	11	1.4	80	8	<0.1	155
900313	KINGISPP01	06/28/90	7:45	19.3	7.1	8.2	425	25	28	0.15			169	43	15	0.9	171	8	<0.1	277
900379	KINGISPP01	07/24/90	9:47	20.8		1.7	346	20	14	0.11			142	37	12	0.9	162	2	<0.1	233
900757	KINGISPP01	10/22/90	7:06	15.7	7.5	2.9	363	20	13	0.09			151	39	13	1.1	172	2	<0.1	244
900014	KINGISPP02	01/22/90	9:30	8.6	7.3	5.9	460	38	34				169	43	15	1.3	170	18	0.1	289
900112	KINGISPP02	02/19/90	9:35	6.7	7.4	9.5	557	40	38				195	50	17	2.5	167	41	0.1	368
900194	KINGISPP02	04/23/90	9:10	17.2	7.1	4.4	473	35	31				165	43	14	1.9	184	14	0.1	306
900312	KINGISPP02	06/28/90	8:45	20.6	6.9	7.3	450	35	28				168	44	14	1.	190	4	<0.1	304
900378	KINGISPP02	07/24/90	9:10	22.6		0.6	447	35	29	0.18			161	43	13	1.	190	3	0.1	295
900490	KINGISPP02	08/20/90	10:05	22.1	6.8	1.6	469	38	34	0.22			168	44	14	1.1	174	16	0.1	338
900756	KINGISPP02	10/22/90	9:00	16.0	7.1	4.7	772	50	43	0.38			280	66	28	2.5	127	132	0.2	533
900015	KINGISPP03	01/22/90	10:30	6.4	7.6	8.0	1200	96	216				407	84	48	1.1	261	35	0.1	650
900114	KINGISPP03	02/19/90	10:30	6.0	7.6	9.1	1150	93	202				386	82	44	1.1	242	45	0.1	661
900196	KINGISPP03	04/23/90	9:40	18.0	7.2	7.3	459	35	80	0.47			141	30	16	1.7	83	13	<0.1	248
900314	KINGISPP03	06/28/90	8:15	20.5	7.0	3.1	616	44	89				203	45	22	3.1	122	26	0.1	369
900380	KINGISPP03	07/24/90	10:14	22.2		1.4	733	60	123	0.58			234	51	26	2.2	159	21	0.1	415
900492	KINGISPP03	08/20/90	11:52	25.0	7.8	5.3	805	58	128	0.65			274	57	32	2.5	158	43	0.1	470
900758	KINGISPP03	10/22/90	9:40	17.0	7.9	7.0	810	64	110	0.69			277	60	31	1.8	194	43	0.1	497
900056	LATHAM	01/24/90	10:00	8.7	7.7	10.7	455	53	83		<0.001		87	15	12	3.3	57	23	<0.1	253
900238	LATHAM	04/25/90	7:00	17.4	8.1	8.7	336	37	54				74	13	10	2.4	58	15	<0.1	184
900424	LATHAM	07/26/90	8:20	24.0	7.9	7.0	270	26	37	0.14			63	12	8	1.8	57	13	0.1	147
900536	LATHAM	08/22/90	8:00	23.1	7.4	8.2	259	25	33	0.13			66	13	8	1.9	60	13	<0.1	148
900783	LATHAM	10/24/90	9:35	18.0	7.7	7.9	492	56	79	0.29			105	19	14	3.3	76	29	0.1	266
900046	LCONNECT	01/24/90	5:55	7.5	7.4		204	14	16		<0.001		68	14	8	2.2	58	12	<0.1	131
900227	LCONNECT	04/25/90	7:00	17.9	6.4	9.3	164	10	10				54	12	6	1.4	56	7	<0.1	96
900411	LCONNECT	07/26/90	6:45	23.3	7.9	6.3	160	10	10	0.04			52	11	6	1.2	53	6	<0.1	94
900523	LCONNECT	08/22/90	7:10	22.4	7.9	9.4	178	12	9	0.05			62	13	7	1.3	64	8	<0.1	111
900805	LCONNECT	10/24/90	7:45	17.1	7.6	8.5	191	14	13	0.04			63	12	8	1.5	60	10	<0.1	112
900048	LPOTTERM	01/24/90	8:35	8.6	7.1		206	14	16		<0.001		68	14	8	2.2	60	12	<0.1	131
900229	LPOTTERM	04/25/90	8:30	18.6	6.3	9.1	159	9	8				52	11	6	1.2	56	6	<0.1	99
900410	LPOTTERM	07/26/90	8:15	24.2	7.7	7.5	138	8	6	0.03			50	10	6	1.1	49	6	<0.1	82
900525	LPOTTERM	08/22/90	9:15	25.1	7.6	7.8	182	12	10	0.05			66	13	8	1.3	66	9	<0.1	114
900807	LPOTTERM	10/24/90	8:55	18.2	7.7	8.0	168	11	9	0.02			56	11	7	1.5	57	8	<0.1	98
900005	MALLARDIS	01/22/90	9:50	9.5	7.9	10.3	4900	817	1440	5.20	<0.001		532	40	105	31.	65	207	0.4	2660
900105	MALLARDIS	02/21/90	12:11	12.2	7.3	12.3	9780	1660	2990	10.40			1060	78	209	63.	78	432	0.8	5640

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MINERAL DATA REPORT

LAB#	STA. NAME	SAMP.DATE	TIME	TEMP oC	pH	DO mg/L	EC uS/cm	Na mg/L	Cl mg/L	Br mg/L	Se mg/L	Asbest MF/L	Hard.	Ca	Mg	K	ALK	SO4	B	TDS
													<-mg/L->							
900162	MALLARDIS	03/21/90	10:05	17.0	7.5	8.8	10400	1850	3200	12.00			1130	81	226	68.	83	444	0.9	6000
900208	MALLARDIS	04/24/90	12:05	17.8	7.8	9.0	7340	1200	2250	8.10			804	60	159	48.	78	309	0.6	4160
900270	MALLARDIS	05/22/90	10:40	18.8	8.0	8.5	8340	1420	2540				902	66	179	54.	76	368	0.7	4770
900282	MALLARDIS	06/26/90	9:50	22.4	7.9	8.3	7700	1360	2370	7.90			830	62	164	52.	77	334	0.6	4450
900329	MALLARDIS	07/09/90	12:15	22.0	8.0	8.0	5740	950	1700	6.70			636	52	123					
900345	MALLARDIS	07/16/90	9:06	23.0	6.7	8.4				12.20			1010	72	202					
900392	MALLARDIS	07/25/90	12:00	24.5	7.6	9.4	6660	1110	1980	7.40			719	54	142	44.	75	289	0.6	3740
900439	MALLARDIS	07/30/90	9:30	22.2	7.5	8.5	9060	1630	2840	10.60			983	72	195					
900459	MALLARDIS	08/06/90	8:00	21.0	8.0	8.2	7570	1360	2340	8.50			840	61	167					
900547	MALLARDIS	08/13/90	8:00	22.5	8.1	7.0	7410	1320	2270	9.50			798	59	158					
900504	MALLARDIS	08/21/90	9:14	22.1		7.6	7000	1130	2130	7.70			749	56	148	40.	71	305	0.6	3980
900571	MALLARDIS	08/27/90	8:42	21.6		8.2	7560	1270	2310	9.40			759	60	148					
900593	MALLARDIS	09/04/90	9:50	22.0	8.3		5760	961	1700	6.70			586	45	115					
900613	MALLARDIS	09/10/90	8:30	21.5	7.9	8.2	11600	2080	3660	17.30			1260	88	253					
900633	MALLARDIS	09/18/90	9:35	21.1	7.3	7.9	6260	1030	1870	8.00			660	50	130					
900676	MALLARDIS	09/24/90	8:30	21.0	8.1	8.4	13600	2400	4340	18.80			1420	99	286	20.	83	584	1.1	8030
900696	MALLARDIS	10/01/90	9:00	20.1	7.6	8.3	9710	1636	3010	12.00			1026	75	204					
900721	MALLARDIS	10/10/90	8:10	19.5	7.9	6.9	15300	2740	5060	14.70			1626	110	328					
900737	MALLARDIS	10/16/90	7:30	19.8	7.9	7.8	11200	1970	3540	11.90			1190	88	236					
900770	MALLARDIS	10/23/90	7:45	17.4	9.5	8.9	15400	2740	5070	17.80			1654	122	328	104.	87	658	1.3	9350
900820	MALLARDIS	10/30/90	10:00	18.1	7.9	9.2	14200	2520	4580	16.30			1660	104	340					
900855	MALLARDIS	11/13/90	13:45	16.8	7.6	9.7	15500	2790	5080	18.80			1720	115	348	120.	84	692	1.3	9230
900878	MALLARDIS	11/27/90	9:45	12.4	7.5	9.7	16400	2850	5150	19.80			1765	117	358					
900924	MALLARDIS	12/11/90	10:40	11.1	8.3	9.1	17800	3310	5880	20.90			2020	138	408	134.	88	800	1.5	10600
900020	MAZE	01/23/90	11:00	9.1	8.1	9.6	1520	195	209	0.66	0.006		329	69	38	5.4	161	280	1.2	928
900078	MAZE	02/07/90	9:23	10.3	7.9	9.6	1480	198	205		0.008									
900084	MAZE	02/14/90	8:10	7.5	7.3	11.6	1470	191	206		0.007		328	72	36	4.4	136	272	1.2	913
900095	MAZE	02/21/90	7:57	8.6	7.6	11.4	1270	161	168	0.55	0.006		269	60	29	6.4	126	228	1.1	787
900147	MAZE	03/07/90	9:30	13.8	7.9	8.1	1380	171	187		0.007									
900151	MAZE	03/20/90	9:00	17.3	6.7	7.4	1470	187	215	0.65	0.006		330	73	36	4.8	154	251	1.	909
900176	MAZE	04/04/90	11:00	19.0	7.4		1220	146	174		0.004									
900205	MAZE	04/24/90	13:25	19.4	8.0	8.4	1290	166	187	0.61	0.003		271	54	33	4.6	157	201	1.	781
900258	MAZE	05/23/90	11:45	19.4	8.3	8.3	1330	159	199	0.58	0.004		306	65	35	4.6	157	191	0.8	805
900300	MAZE	06/27/90	8:10	21.3	8.1	5.8	1390	133	199	0.70	0.003		337	69	40	4.8	163	209	1.	857
900389	MAZE	07/25/90	14:05	26.0		9.3	1190	141	171	0.63	0.003		283	59	33	4.6	155	162	0.8	724
900501	MAZE	08/21/90	11:00	23.0	8.5	6.9	1060	126	150	0.60	0.002		258	54	30	4.4	145	141	0.6	634
900640	MAZE	09/25/90	10:45	21.7	6.9	7.0	1030	119	151	0.61	0.002		242	51	28	3.8	149	132	0.6	608
900762	MAZE	10/23/90	7:10	15.9	7.8	7.6	1000	118	150	0.56	0.001		215	45	25	3.8	143	112	0.4	585
900859	MAZE	11/13/90	8:50	13.0	7.8	8.8	1070	122	160	0.52	0.002		231	48	27	3.9	140	141	0.6	621
900912	MAZE	12/11/90	9:00	10.5	7.6	7.7	1160	133	174	0.56	0.002		253	52	30	4.5	134	169	0.6	681
900042	MIDDLER	01/24/90	11:40	9.1	7.4	10.2	460	53	82	0.30	<0.001		92	17	12	3.1	58	26	0.1	258
900092	MIDDLER	02/14/90	11:40	8.5	8.1	12.1	371	36	52		<0.001		88	17	11	2.6	70	22	0.1	214
900133	MIDDLER	02/23/90	10:30	9.8	7.1	12.1	386	35	53	0.17			90	18	11	2.5	68	31	<0.1	223
900156	MIDDLER	03/20/90	13:50	18.0	8.0	8.5	307	27	38	0.14			81	16	10	2.2	70	19	<0.1	178

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MINERAL DATA REPORT

LAB#	STA. NAME	SAMP.DATE	TIME	TEMP oC	pH	DO mg/L	EC uS/cm	Na mg/L	Cl mg/L	Br mg/L	Se mg/L	Asbest MF/L	Hard. mg/L	Ca mg/L	Mg mg/L	K mg/L	ALK mg/L	SO4 mg/L	B mg/L	TDS mg/L
900223	MIDDLER	04/25/90	10:45	18.6	7.3	8.5	371	42	63	0.22			76	14	10	2.5	60	19	<0.1	203
900264	MIDDLER	05/23/90	8:30	19.4	8.0	8.3	448	52	78	0.24			92	17	12	2.9	63	26	<0.1	248
900294	MIDDLER	06/26/90	12:50	25.0	7.7	7.0	341	33	46				81	16	10	2.5	69	22	0.1	194
900407	MIDDLER	07/26/90	11:40	26.5	7.2	8.8	313	31	45	0.15			76	14	10	2.1	61	16	0.1	174
900519	MIDDLER	08/22/90	10:40	26.2		6.1	286	28	39	0.19			70	13	9	2.	60	14	<0.1	162
900674	MIDDLER	09/24/90	12:40	22.6	8.0	7.9	362	36	48	0.21			88	17	11	2.7	78	20	0.1	204
900801	MIDDLER	10/24/90	11:24	19.6	7.1	8.0	596	69	106	0.39			118	22	16	3.9	83	38	0.2	321
900857	MIDDLER	11/13/90	15:20	17.6	7.7	9.4	659	78	119	0.37						4.	81	45	0.2	361
900926	MIDDLER	12/11/90	11:55	10.6	8.7	8.8	626	73	118	0.38			121	22	16	4.	75	40	0.2	337
900041	MIDMOWRY	01/24/90	11:10	7.5	7.6	11.5	660	69	116		<0.001		159	34	18	2.8	70	65	0.2	378
900091	MIDMOWRY	02/14/90	11:20	7.9	8.0	12.9	953	92	199		<0.001		234	51	26	3.2	76	65	0.1	525
900222	MIDMOWRY	04/25/90	10:00	18.5	7.0	9.4	909	107	138				210	46	23	3.6	104	123	0.6	532
900406	MIDMOWRY	07/26/90	9:05	22.5	7.4	8.3	795	92	127	0.37			172	36	20	7.1	105	85	0.4	448
900518	MIDMOWRY	08/22/90	11:15	26.1		6.3	718	77	99	0.42			171	37	19	3.4	103	85	0.3	440
900800	MIDMOWRY	10/24/90	10:48	19.2	7.6	9.6	921	104	147	0.51			216	47	24	3.4	134	98	0.4	521
900698	MOKELUMNE	10/01/90	8:10	22.8	7.8	8.6	53	3	3	0.02			18	4	2					
900701	MOKELUMNE	10/01/90	8:10	22.8	7.8	8.6	54	4	3	0.01			20	5	2					
900049	MOKGEORGIANA	01/24/90	9:08	8.6	7.1		190	13	9		<0.001		68	14	8	2.	65	12	<0.1	122
900230	MOKGEORGIANA	04/25/90	9:00	19.5	6.2	9.1	138	8	5				46	10	5	1.2	53	5	<0.1	89
900414	MOKGEORGIANA	07/26/90	9:00	25.3	7.9	6.6	137	8	6	0.02			46	10	5	1.1	49	5	<0.1	82
900526	MOKGEORGIANA	08/22/90	9:50	21.4	7.7	9.4	174	11	7	0.03			59	12	7	1.2	67	8	<0.1	109
900808	MOKGEORGIANA	10/24/90	9:20	18.2	7.6	7.7	165	11	8	0.01			59	12	7	1.5	59	8	<0.1	100
900043	MRIVBACON	01/24/90	12:16	9.2	7.3	10.0	420	46	73		<0.001		90	16	12	3.	56	24	0.1	237
900224	MRIVBACON	04/25/90	11:15	18.5	7.3	9.2	349	39	58				76	14	10	2.4	59	17	<0.1	191
900328	MRIVBACON	07/09/90	14:15	23.0	8.0	7.5	330	31	44	0.16			84	17	10					
900348	MRIVBACON	07/16/90	12:15	25.7	8.2	7.9	303	29	38	0.16			81	16	10					
900408	MRIVBACON	07/26/90	12:25	28.0	7.3	8.9	286	27	38	0.14			72	14	9	2.	62	15	0.1	159
900435	MRIVBACON	07/30/90	12:00	25.6	7.4	7.9	278	28	38	0.16			72	14	9					
900458	MRIVBACON	08/06/90	10:50	26.1	6.9	7.0	458	54	80	0.30			98	18	13					
900550	MRIVBACON	08/13/90	10:30	25.8	7.5	6.8	296	29	43	0.18			67	12	9					
900520	MRIVBACON	08/22/90	10:00	25.6		6.5	269	26	34	0.16			72	14	9	1.8	60	14	<0.1	156
900570	MRIVBACON	08/27/90	11:34	23.9		6.9	267	25	34	0.15			70	13	9					
900592	MRIVBACON	09/04/90	12:00	23.7	7.7		293	28	37	0.16			76	14	10					
900609	MRIVBACON	09/10/90	11:05	24.9	7.9	7.5	301	28	36	0.17			78	15	10					
900632	MRIVBACON	09/18/90	13:05	23.7	7.9	7.2	327	32	41	0.20			81	16	10					
900670	MRIVBACON	09/24/90	13:00	23.6	7.9	8.7	368	38	49	0.21			90	18	11	3.2	79	23	0.1	210
900700	MRIVBACON	10/01/90	10:10	23.4	8.3	8.5	437	44	62	0.25			97	19	12					
900720	MRIVBACON	10/10/90	12:05	22.4	7.4	6.9	481	52	75	0.26			110	21	14					
900740	MRIVBACON	10/16/90	10:00	20.6	7.9		542	60	85	0.35			116	22	15					
900802	MRIVBACON	10/24/90	12:06	19.3	7.1	7.9	585	67	98	0.39			124	23	16	3.8	86	41	0.2	322
900819	MRIVBACON	10/30/90	13:30	18.5	7.7	8.3	656	74	103	0.38			140	28	17					
900858	MRIVBACON	11/13/90	15:45	15.7	8.1	8.6	625	68	101	0.32			134	27	16	3.6	87	53	0.2	350
900874	MRIVBACON	11/27/90	12:50	11.8	7.4	10.0	620	72	104	0.35			126	24	16					
900927	MRIVBACON	12/11/90	12:30	10.5	8.5	8.8	542	61	93	0.30			117	22	15	3.5	76	37	0.2	296

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MINERAL DATA REPORT

LAB#	STA. NAME	SAMP.DATE	TIME	TEMP oC	pH	DO mg/L	EC uS/cm	Na mg/L	Cl mg/L	Br mg/L	Se mg/L	Asbest MF/L	Hard. mg/L	Ca mg/L	Mg mg/L	K mg/L	ALK mg/L	SO4 mg/L	B mg/L	TDS mg/L
900018	NATOMAS	01/23/90	7:00	7.2	7.5	8.6	638		49								215	47	0.2	373
900139	NATOMAS	02/27/90	7:15	12.9	8.1	8.6	764	66	59				258	44	36	3.1	260	52	0.2	455
900157	NATOMAS	03/21/90	13:20	22.0	8.3	8.2	877	75	74	0.18			308	54	42	2.2	314	55	0.2	514
900201	NATOMAS	04/24/90	7:10	16.5	7.8		281	20	14				92	17	12	2.8	107	12	0.2	162
900267	NATOMAS	05/22/90	7:07	19.2	7.9	9.7	439	27	33				162	30	21	2.1	138	35	<0.1	261
900279	NATOMAS	06/26/90	12:55	27.4	8.0	7.2	545	43	42				187	32	26	2.1	177	40	0.2	316
900384	NATOMAS	07/25/90	8:50	22.5	7.9	5.6	562	37	42	0.12			210	36	29	2.9	190	40	0.2	330
900497	NATOMAS	08/21/90	5:30	21.2	8.0	4.6	402	28	24	0.09			154	27	21	2.7	150	22	0.1	240
900636	NATOMAS	09/25/90	6:35	20.5	6.9	6.0	502	41	34	0.15			175	32	23	1.6	196	20	0.2	291
900763	NATOMAS	10/23/90	11:46	18.5	7.7	7.1	452	31	32	0.09			157	28	21	2.1	150	33	0.1	264
900852	NATOMAS	11/13/90	8:35	12.5	7.5	8.0	455	28	35	0.06			172	31	23	2.	143	34	<0.1	267
900919	NATOMAS	12/11/90	7:55	7.9	8.8	9.4	526	42	37	0.08			181	33	24	2.	184	31	0.1	292
900062	NORTHCAN	01/24/90	11:50	8.7	7.4	10.9	473	51	84		<0.001		92	17	12	3.	61	28	<0.1	269
900244	NORTHCAN	04/25/90	8:35	18.1	7.9	8.4	392	44	67				80	14	11	2.7	61	20	<0.1	214
900340	NORTHCAN	07/10/90	8:55	24.6	7.9	6.6	320	31	41	0.14			81	16	10					
900360	NORTHCAN	07/17/90	10:20	26.3	8.0	6.7	303	29	38	0.16			81	16	10					
900430	NORTHCAN	07/26/90	10:20	24.2	7.7	6.9	315	31	46	0.19			76	14	10	2.1	62	17	0.1	174
900450	NORTHCAN	07/31/90	9:35	24.7	7.1	6.0	307	30	43	0.16			72	14	9					
900470	NORTHCAN	08/07/90	9:30	25.2	7.7	6.9	330	34	52	0.19			76	14	10					
900553	NORTHCAN	08/13/90	9:30	25.1	7.8	6.4	319	33	49	0.20			70	13	9					
900542	NORTHCAN	08/22/90	11:15	25.9	8.2	7.7	292	29	41	0.17			70	13	9	2.	60	16	<0.1	164
900582	NORTHCAN	08/28/90	10:30	23.3	7.5		281	27	37	0.16			72	14	9					
900604	NORTHCAN	09/05/90	10:45	23.9	7.4	6.5	294	29	38	0.15			72	14	9					
900615	NORTHCAN	09/11/90	10:30	23.0	7.3	8.0	316	31	40	0.20			78	15	10					
900651	NORTHCAN	09/17/90	11:00	22.5	7.8	7.1	331	32	43	0.19			85	16	11					
900665	NORTHCAN	09/25/90	11:45	22.0	7.7	7.1	366	37	49	0.20			85	16	11					
900687	NORTHCAN	10/02/90	11:07	22.5	7.5	7.0	406	42	57	0.23			94	18	12					
900703	NORTHCAN	10/09/90	10:45	19.5	7.7	7.5	482	54	76	0.31			105	19	14					
900732	NORTHCAN	10/15/90	10:50	18.8	8.0	11.2	539	61	89	0.34			114	21	15					
900789	NORTHCAN	10/24/90	10:55	18.6	7.6	8.0	590	69	104	0.36			121	22	16	3.9	84	37	0.2	320
900831	NORTHCAN	10/31/90	12:05	18.0	7.5	8.5	613	72	103	0.38			126	24	16					
900836	NORTHCAN	11/14/90	11:25	13.6	7.9		604	69	102	0.33			119	23	15					
900889	NORTHCAN	11/28/90	11:30	10.5	7.6	9.6	638	75	112	0.37			124	23	16					
900937	NORTHCAN	12/12/90	11:40	9.5	7.4	8.0	622	71	109	0.36			126	24	16					
900060	NVICWOOD	01/24/90	11:25	8.7	7.5	11.2	451	50	79		<0.001		90	16	12	3.1	59	27	<0.1	257
900242	NVICWOOD	04/25/90	8:10	18.0	7.9	8.5	388	43	66				80	14	11	2.7	61	19	<0.1	211
900338	NVICWOOD	07/10/90	8:30	24.4	7.9	6.6	317	31	40	0.14			81	16	10					
900358	NVICWOOD	07/17/90	9:50	25.7	8.2	6.8	329	35	46	0.18			82	15	11					
900428	NVICWOOD	07/26/90	9:15	24.0	7.8	6.6	311	30	44	0.21			76	14	10	2.1	62	16	0.1	170
900441	NVICWOOD	07/31/90	9:10	24.0	7.4	6.5	342	37	55	0.21			76	14	10					
900468	NVICWOOD	08/07/90	9:10	24.5	7.7	6.7	318	35	50	0.19			74	13	10					
900560	NVICWOOD	08/13/90	9:08	25.4	7.7	6.7	440	55	86	0.31			87	15	12					
900540	NVICWOOD	08/22/90	10:50	25.5	8.2	8.0	287	28	41	0.17			70	13	9	2.	60	15	<0.1	161
900573	NVICWOOD	08/28/90	10:05	22.9	7.7		381	44	65	0.28			80	14	11					

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MINERAL DATA REPORT

LAB#	STA. NAME	SAMP.DATE	TIME	TEMP oC	pH	DO mg/L	EC uS/cm	Na mg/L	Cl mg/L	Br mg/L	Se mg/L	Asbest MF/L	Hard.	Ca	Mg	K	ALK	SO4	B	TDS
													<--------		mg/L	--------				------->
900602	NVICWOOD	09/05/90	10:45	23.2	7.7	6.7	294	28	39	0.16			72	14	9					
900622	NVICWOOD	09/11/90	10:00	23.3	7.4	8.5	316	32	40	0.18			78	15	10					
900649	NVICWOOD	09/17/90	10:25	22.9	7.8	7.5	404	44	63	0.30			90	16	12					
900663	NVICWOOD	09/25/90	11:20	22.1	7.8	6.8	359	36	48	0.20			85	16	11					
900685	NVICWOOD	10/02/90	10:35	22.1	7.6	7.3	534	64	97	0.38			100	17	14					
900710	NVICWOOD	10/09/90	10:10	18.6	7.9	8.0	716	90	145	0.53			122	19	18					
900730	NVICWOOD	10/15/90	10:25	19.0	7.9	11.6	706	89	142	0.53			124	20	18					
900787	NVICWOOD	10/24/90	10:30	18.4	7.5	7.9	715	89	147	0.51			129	22	18	4.5	79	40	0.2	384
900829	NVICWOOD	10/31/90	11:35	18.3	7.5	8.6	746	95	151	0.55			129	22	18					
900843	NVICWOOD	11/14/90	11:00	13.6	7.9		755	96	159	0.52			124	20	18					
900887	NVICWOOD	11/28/90	11:10	10.6	7.9	9.8	743	93	148	0.51			129	22	18					
900935	NVICWOOD	12/12/90	11:15	9.6	7.4	8.0	624	71	109	0.35			126	24	16					
900342	OLDR-DMC-CLIFT	07/10/90	9:15	24.7	7.9	6.8	366	39	53	0.20			88	17	11					
900362	OLDR-DMC-CLIFT	07/17/90	10:40	26.1	7.8	6.4	571	62	83	0.32			136	28	16					
900432	OLDR-DMC-CLIFT	07/26/90	10:40	24.1	7.9	7.2	411	48	70	0.30			87	15	12	2.6	63	20	<0.1	226
900452	OLDR-DMC-CLIFT	07/31/90	9:50	25.2	7.0	6.6	822	92	126	0.45			196	42	22					
900472	OLDR-DMC-CLIFT	08/07/90	9:50	25.3	7.6	6.7	465	55	84	0.30			90	16	12					
900564	OLDR-DMC-CLIFT	08/13/90	9:47	24.4	7.7	6.2	546	61	88	0.33			118	24	14					
900544	OLDR-DMC-CLIFT	08/22/90	11:45	25.5	8.3	8.0	404	44	64	0.26			85	16	11	2.2	65	25	0.1	222
900584	OLDR-DMC-CLIFT	08/28/90	10:50	23.8	7.6		360	40	58	0.25			80	14	11					
900595	OLDR-DMC-CLIFT	09/05/90	11:45	23.2	7.5	6.6	558	60	85	0.35			122	24	15					
900626	OLDR-DMC-CLIFT	09/11/90	11:00	22.5	7.5	8.7	426	50	72	0.33			87	15	12					
900653	OLDR-DMC-CLIFT	09/17/90	11:25	22.4	7.9	7.3	413	44	63	0.27			94	18	12					
900667	OLDR-DMC-CLIFT	09/25/90	12:08	22.1	7.7	7.0	467	54	78	0.33			96	17	13					
900689	OLDR-DMC-CLIFT	10/02/90	11:25	23.2	7.5	6.8	594	65	90	0.37			134	27	16					
900714	OLDR-DMC-CLIFT	10/09/90	11:15	19.3	7.8	7.6	626	72	107	0.39			126	24	16					
900734	OLDR-DMC-CLIFT	10/15/90	11:10	18.9	8.2	11.3	683	81	122	0.45			137	25	18					
900778	OLDR-DMC-CLIFT	10/24/90	11:15	18.1	7.6	8.0	718	90	141	0.52			129	22	18	4.7	82	39	0.2	385
900833	OLDR-DMC-CLIFT	10/31/90	12:20	18.1	7.6	8.8	745	89	135	0.51			143	26	19					
900847	OLDR-DMC-CLIFT	11/14/90	11:45	13.5	7.8		706	85	135	0.45			122	21	17					
900891	OLDR-DMC-CLIFT	11/28/90	11:50	10.4	7.9	10.1	809	91	135	0.45			164	33	20					
900939	OLDR-DMC-CLIFT	12/12/90	12:00	9.4	7.3	8.2	828	100	174	0.60			137	22	20					
900065	OLDRIVDMC	01/24/90	12:40	8.8	7.7	10.4	849	102	132		0.002		177	36	21	5.2	96	104	0.4	505
900247	OLDRIVDMC	04/25/90	9:15	18.3	8.0	8.3	503	60	93				94	16	13	3.3	63	26	0.1	272
900344	OLDRIVDMC	07/10/90	9:35	25.3	8.0	7.1	380	40	56	0.20			92	17	12					
900364	OLDRIVDMC	07/17/90	11:00	26.3	7.4	5.4	872	99	129	0.50			211	45	24					
900434	OLDRIVDMC	07/26/90	10:55	24.2	7.9	7.1	392	45	64	0.27			85	16	11	2.4	63	20	<0.1	214
900454	OLDRIVDMC	07/31/90	10:10	24.7	7.1	6.4	935	106	144	0.47			219	45	26					
900474	OLDRIVDMC	08/07/90	10:05	25.5	7.7	6.5	495	58	90	0.34			96	17	13					
900566	OLDRIVDMC	08/13/90	10:00	25.4	7.8	5.8	734	81	109	0.40			168	36	19					
900546	OLDRIVDMC	08/22/90	12:15	25.3	8.4	8.0	568	62	84	0.33			127	26	15	2.8	83	51	0.2	319
900586	OLDRIVDMC	08/28/90	11:20	23.5	7.7		692	74	101	0.44			159	34	18					
900608	OLDRIVDMC	09/05/90	12:30	23.1	7.5	7.0	644	71	95	0.39			148	31	17					
900628	OLDRIVDMC	09/11/90	11:20	22.7	7.3	8.5	407	45	66	0.29			87	15	12					

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MINERAL DATA REPORT

LAB#	STA. NAME	SAMP.DATE	TIME	TEMP oC	pH	DO mg/L	EC uS/cm	Na mg/L	Cl mg/L	Br mg/L	Se mg/L	Asbest MF/L	Hard.	Ca	Mg	K	ALK	SO4	B	TDS
													<--------				mg/L			-------->
900655	OLDRIVDMC	09/17/90	11:50	22.7	7.8	7.2	445	48	67	0.29			103	20	13					
900669	OLDRIVDMC	09/25/90	12:25	21.7	7.8	7.1	452	51	74	0.34			94	16	13					
900691	OLDRIVDMC	10/02/90	11:40	23.0	7.5	7.0	763	86	117	0.49			164	33	20					
900716	OLDRIVDMC	10/09/90	11:40	19.5	7.9	8.1	716	83	116	0.43			153	30	19					
900736	OLDRIVDMC	10/15/90	11:30	18.5	8.2	11.9	806	95	139	0.48			164	31	21					
900793	OLDRIVDMC	10/24/90	11:40	18.4	7.6	7.9	702	88	138	0.49			129	22	18	4.6	82	40	0.2	372
900835	OLDRIVDMC	10/31/90	12:50	18.1	7.7	8.9	752	90	136	0.50			146	27	19					
900849	OLDRIVDMC	11/14/90	12:00	13.4	7.9		776	93	143	0.46			143	26	19					
900893	OLDRIVDMC	11/28/90	12:10	10.3	7.9	9.8	823	95	128	0.43			174	37	20					
900941	OLDRIVDMC	12/12/90	12:15	9.4	7.4	8.2	816	104	172	0.58			137	22	20					
900039	OLDRTRACY	01/24/90	10:26	8.8	7.6	8.8	1190	150	172		0.003		259	56	29	6.2	134	184	0.8	725
900089	OLDRTRACY	02/14/90	10:35	8.9	7.8	11.1	1320	160	186		0.005		291	64	32	4.6	137	217	1.	811
900093	OLDRTRACY	02/14/90	10:35	8.9	7.8	11.1	1320	162	187		0.005		291	64	32	4.6	138	217	1.	811
900220	OLDRTRACY	04/25/90	9:15	18.1	6.7	8.4	1120	129	173				280	61	31	3.8	130	160	0.6	671
900404	OLDRTRACY	07/26/90	8:20	22.8	7.5	8.6	916	102	139	0.43			212	47	23	4.8	124	106	0.6	523
900516	OLDRTRACY	08/22/90	12:05	25.6		6.3	857	92	126	0.55			205	44	23	3.7	117	103	0.5	526
900798	OLDRTRACY	10/24/90	10:05	18.8	7.2	7.2	1140	131	187	0.59			270	59	30	4.2	158	131	0.6	667
900022	PESCADER001	01/23/90	13:00	9.6	7.2	8.3	1900	156	384				609	130	69	2.2	192	220	0.4	1060
900213	PESCADER001	04/24/90	17:55	20.1	8.2	16.8	2290	224	462				669	146	74	3.6	200	294	0.9	1390
900305	PESCADER001	06/27/90	11:10	23.1	7.9	5.6	1430	147	235				412	86	48	4.4	170	179	0.7	883
900396	PESCADER001	07/25/90	7:30	20.2	8.2	10.0	1580	166	266	0.89			430	93	48	3.8	184	188	0.9	981
900508	PESCADER001	08/21/90	13:55	25.9		6.3	1150	120	162	0.60			266	57	30	5.2	93	131	0.7	650
900774	PESCADER001	10/23/90	11:25	18.2	9.5	8.0	2090	188	414	1.30			635	139	70	3.1	233	216	0.6	1210
900023	PESCADER002	01/23/90	13:25	11.2	7.1	7.0	1460	111	303		<0.001		466	101	52	2.3	128	152	0.2	794
900212	PESCADER002	04/24/90	17:40	19.7	7.8	12.7	2280	223	465				709	152	80	3.6	192	294	0.9	1370
900306	PESCADER002	06/27/90	11:20	23.2	7.5	5.0	1370	149	217				345	74	39	6.4	166	181	0.9	840
900397	PESCADER002	07/25/90	8:00	20.2	7.6	9.4	2000	217	365	1.20			552	117	63	4.4	194	254	1.1	1250
900509	PESCADER002	08/21/90	14:10	25.4		5.2	1230	132	187	0.75			300	64	34	5.	116	148	0.8	735
900775	PESCADER002	10/23/90	11:40	19.4	10.0	12.9	1960	308	383	1.20			592	115	74	9.4	227	201	0.6	1120
900024	PESCADER003	01/23/90	13:40	8.8	7.4	9.0	2160	158	466				715	156	79	2.4	188	226	0.3	1190
900214	PESCADER003	04/24/90	17:15	19.7	8.1	13.1	1950	213	357				530	113	60	3.9	192	274	1.	1220
900307	PESCADER003	06/27/90	11:40	23.3	8.2	8.5	1600	147	256				416	89	47	5.2	174	228	1.	996
900398	PESCADER003	07/25/90	8:25	20.9	7.9	8.8	1560	183	247	0.85			391	84	44	4.8	184	206	1.1	954
900510	PESCADER003	08/21/90	14:29	25.7		8.2	1720	188	279	0.98			431	92	49	5.	178	232	1.1	1050
900776	PESCADER003	10/23/90	11:55	20.2	10.2	9.4	2280	210	484	1.60			689	149	77	4.	202	241	0.7	1280
900026	PESCADER004	01/23/90	14:20	12.4	8.4	10.0	3070	358	613				821	177	92	3.9	219	478	1.5	1890
900025	PESCADER004	01/23/90	14:20	12.4	8.4	10.0	3060	352	614				805	174	90	3.9	218	481	1.5	1900
900117	PESCADER004	02/19/90	12:55	10.0	8.1	9.7	2210	232	412				596	135	63	3.6	138	382	1.	1410
900399	PESCADER004	07/25/90	8:50	19.2	7.9	9.5	1540	145	247	0.81			411	97	41	5.	78	158	0.7	973
900777	PESCADER004	10/23/90	12:20	18.7	10.2	3.6	2480	182	435	1.70			548	114	64	3.3	326	338	1.7	1540
900011	RINDGEPP01	01/22/90	6:30	9.1	6.7	3.9	1380	152	246		<0.001		389	90	40	4.2	142	148	0.4	809
900110	RINDGEPP01	02/19/90	8:00	7.3	7.2	8.2	1660	158	313				470	109	48	2.7	159	195	0.3	987
900192	RINDGEPP01	04/23/90	7:40	18.1	7.1	3.8	1240	131	232				332	72	37	3.2	213	65	0.3	718
900375	RINDGEPP01	07/24/90	6:56	19.2		1.2	663	70	100	0.39			165	38	17	2.2	104	68	0.3	422

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MINERAL DATA REPORT

LAB#	STA. NAME	SAMP.DATE	TIME	TEMP oC	pH	DO mg/L	EC uS/cm	Na mg/L	Cl mg/L	Br mg/L	Se mg/L	Asbest MF/L	Hard. mg/L	Ca mg/L	Mg mg/L	K mg/L	ALK mg/L	SO4 mg/L	B mg/L	TDS mg/L
900488	RINDGEPPO1	08/20/90	8:20	21.5	6.4	3.1	728	78	122	0.53			183	42	19	2.7	118	47	0.2	491
900754	RINDGEPPO1	10/22/90	7:00	14.4	6.9	2.5	688	72	108	0.56			174	40	18	2.8	170	10	0.2	415
900012	RINDGEPPO2	01/22/90	8:45	7.8	6.7	2.7	797		108								133	98	0.3	515
900111	RINDGEPPO2	02/19/90	8:45	7.8	6.5	6.4	1340	107	220				434	98	46	2.2	124	214	0.3	845
900193	RINDGEPPO2	04/23/90	8:15	16.6	6.4	6.1	711	56	80				221	54	21	1.5	48	162	0.3	482
900376	RINDGEPPO2	07/24/90	8:20	22.1		2.1	514	44	67	0.33			151	34	16	1.7	88	58	0.2	352
900489	RINDGEPPO2	08/20/90	9:15	22.1	6.2	3.1	485	44	57	0.28			154	35	16	1.9	81	65	0.2	341
900753	RINDGEPPO2	10/22/90	8:00	14.9	7.1	3.3	890	60	104	1.70			312	74	31	4.8	151	122	0.2	601
900054	ROCKSL	01/24/90	8:50	8.3	7.8	10.5	962		222	0.69	<0.001						66	53	0.1	533
900138	ROCKSL	02/23/90	12:25	10.8	7.0	12.5	600	74	118	0.38			111	18	16	4.	67	33	0.1	327
900155	ROCKSL	03/20/90	13:00	16.7	7.9	10.7	548	66	103	0.34			104	17	15	3.6	72	29	0.1	300
900236	ROCKSL	04/25/90	11:20				864	120	195	0.66			127	18	20	5.4	65	39	0.1	466
900263	ROCKSL	05/23/90	9:15	19.3	8.2	8.3	660	88	141	0.42			106	16	16	4.5	58	31	<0.1	353
900287	ROCKSL	06/26/90	11:15	23.0	7.8	6.8	376	41	58	0.19			82	15	11	2.8	68	20	<0.1	210
900332	ROCKSL	07/10/90	6:25	23.1	8.1	8.0	449	58	77	0.28			98	16	14					
900352	ROCKSL	07/17/90	9:25	24.3	7.5	6.9	441	51	77	0.32			87	15	12					
900426	ROCKSL	07/26/90	8:45	23.8	8.0	7.7	572	73	117	0.48			92	14	14	3.7	62	26	0.1	304
900442	ROCKSL	07/31/90	8:40	23.2	7.7	7.6	547	68	113	0.40			92	14	14					
900462	ROCKSL	08/07/90	8:45	23.7	7.8	7.5	635	81	138	0.49			99	15	15					
900558	ROCKSL	08/13/90	8:35	24.0	8.1	6.4	508	64	105	0.39			82	13	12					
900538	ROCKSL	08/22/90	10:25	25.0	8.4	8.3	477	59	94	0.36			82	13	12	3.1	59	22	<0.1	256
900578	ROCKSL	08/28/90	9:20	22.6	7.8		461	55	89	0.39			84	14	12					
900600	ROCKSL	09/05/90	9:30	22.9	7.5	6.8	483	59	90	0.35			88	14	13					
900620	ROCKSL	09/11/90	9:10	22.6	7.6	9.0	510	63	99	0.44			91	15	13					
900642	ROCKSL	09/17/90	9:55	21.9	7.9	7.4	547	69	105	0.44			98	16	14					
900661	ROCKSL	09/25/90	10:45	21.5	7.9	7.4	583	74	114	0.49			102	16	15					
900683	ROCKSL	10/02/90	10:00	21.8	7.6	7.3	618	78	121	0.53			111	18	16					
900708	ROCKSL	10/09/90	9:40	19.4	7.8	7.9	816	114	178	0.70			130	19	20					
900728	ROCKSL	10/15/90	9:50	18.9	8.1	11.2	847	110	191	0.69			130	19	20					
900785	ROCKSL	10/24/90	10:05	17.9	7.8	8.4	960	130	226	0.77			140	20	22	6.	75	40	0.2	497
900827	ROCKSL	10/31/90	10:40	17.5	7.6	9.1	828	110	180	0.68			130	19	20					
900841	ROCKSL	11/14/90	10:35	13.5	7.9		848	111	191	0.64			127	18	20					
900885	ROCKSL	11/28/90	10:45	10.6	7.8	9.9	949	127	214	0.77			163	29	22					
900928	ROCKSL	12/12/90	10:35	9.5	7.5	8.4	1100	149	257	0.92			158	22	25					
900050	SACRRIOVISTA	01/24/90	9:35	12.6	7.2		214	16	12				72	14	9	2.1	68	17	<0.1	134
900104	SACRRIOVISTA	02/21/90	13:12	11.7	7.4	12.3	314	30	34	0.11			87	15	12	2.6	75	21	0.1	181
900163	SACRRIOVISTA	03/21/90	11:05	17.2	7.7	7.7	391		58	0.13							73	21	0.1	216
900231	SACRRIOVISTA	04/25/90	9:26	18.1	6.1	8.7	180	13	11				59	12	7	1.5	59	9	<0.1	109
900271	SACRRIOVISTA	05/22/90	9:50	18.0	7.5	7.6	212	16	16				63	12	8	1.6	63	11	<0.1	126
900281	SACRRIOVISTA	06/26/90	8:35	21.2	8.1	8.2	257	23	28	0.10			70	13	9	1.9	62	15	<0.1	147
900325	SACRRIOVISTA	07/09/90	9:30	22.0	7.9	7.9	208	20	17	0.07			66	13	8					
900350	SACRRIOVISTA	07/16/90	7:40	23.0	7.5	7.5	166	13	10	0.04			59	12	7					
900415	SACRRIOVISTA	07/26/90	9:35	23.6	8.0	6.3	155	10	9	0.03			50	10	6	1.2	52	7	<0.1	90
900440	SACRRIOVISTA	07/30/90	7:10	23.0	7.5	8.7	154	11	8	0.04			52	11	6					

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MINERAL DATA REPORT

LAB#	STA. NAME	SAMP.DATE	TIME	TEMP oC	pH	DO mg/L	EC uS/cm	Na mg/L	Cl mg/L	Br mg/L	Se mg/L	Asbest MF/L	Hard.	Ca	Mg	K	ALK	SO4	B	TDS
													<--------				mg/L			-------->
900460	SACRRIOVISTA	08/06/90	6:50	23.0	7.5	8.5	159	13	9	0.28			56	11	7					
900552	SACRRIOVISTA	08/13/90	6:50	24.2	7.2	7.5	168	12	8	0.19			56	11	7					
900522	SACRRIOVISTA	08/22/90	10:35	23.6	7.8	9.6	176	12	8	0.04			59	12	7	1.3	64	8	<0.1	108
900572	SACRRIOVISTA	08/27/90	7:24	22.0	7.5	7.8	200	14	9	0.05			66	13	8					
900589	SACRRIOVISTA	09/04/90	8:20	22.0	8.2		217	16	11	0.05			72	14	9					
900614	SACRRIOVISTA	09/10/90	7:45	20.9	7.9	7.5	243	17	13	0.06			72	14	9					
900629	SACRRIOVISTA	09/18/90	8:05	20.2	7.7	8.0	223	17	13	0.06			72	14	9					
900677	SACRRIOVISTA	09/24/90	7:40	22.0	7.7	7.6	234	29	16	0.08			50	5	9	2.3	76	12	<0.1	136
900697	SACRRIOVISTA	10/01/90	7:50	20.0	7.2	7.8	206	17	14	0.07			72	14	9					
900717	SACRRIOVISTA	10/10/90	6:40	17.8	7.6	8.1	254	22	24	0.09			76	14	10					
900742	SACRRIOVISTA	10/16/90	6:30	19.5	7.6	7.9	297	26	36	0.13			74	13	10					
900809	SACRRIOVISTA	10/24/90	9:55	18.3	7.9	8.8	432	50	77	0.25			84	14	12					
900821	SACRRIOVISTA	10/30/90	8:35	17.0	7.8	9.3	200	16	15	0.06			63	12	8					
900854	SACRRIOVISTA	11/13/90	11:00	14.0	7.5	9.4	289	28	40	0.12			67	12	9	2.1	60	14	<0.1	162
900879	SACRRIOVISTA	11/27/90	9:30	12.3	7.5	9.7	238	19	19	0.05			70	13	9					
900923	SACRRIOVISTA	12/11/90	9:40	9.5	8.8	9.7	197	15	12	0.02			66	13	8	1.8	66	9	<0.1	115
900057	SANDMOUND	01/24/90	10:35	8.2	7.9	10.4	842	114	194		<0.001		121	17	19	5.6	59	38	<0.1	467
900235	SANDMOUND	04/25/90	7:25	17.0	8.2	8.9	989	141	231	0.78			142	19	23	3.1	65	44	0.1	528
900335	SANDMOUND	07/10/90	7:55	22.9	8.1	7.6	475	57	86	0.30			91	15	13					
900355	SANDMOUND	07/17/90	9:00	23.5	8.1	7.1	498	60	84	0.37			91	15	13					
900419	SANDMOUND	07/26/90	7:55	22.9	8.3	7.8	475	58	92	0.33			88	14	13	3.2	59	21	0.1	253
900445	SANDMOUND	07/31/90	8:20	22.6	7.6	7.5	558	71	117	0.45			95	15	14					
900465	SANDMOUND	08/07/90	8:20	22.9	7.8	7.9	539	68	111	0.41			88	14	13					
900556	SANDMOUND	08/13/90	8:15	24.0	8.1	7.0	471	58	94	0.36			82	13	12					
900534	SANDMOUND	08/22/90	10:00	24.7	7.9	8.2	424	56	78	0.30			82	13	12	3.1	56	19	<0.1	231
900576	SANDMOUND	08/28/90	8:40	22.0	7.8		425	50	77	0.33			84	14	12					
900598	SANDMOUND	09/05/90	9:05	22.4	7.7	7.0	463	56	84	0.32			84	14	12					
900618	SANDMOUND	09/11/90	8:50	21.9	7.5	8.8	519	64	98	0.45			95	15	14					
900645	SANDMOUND	09/17/90	9:25	21.7	7.9	7.5	481	58	85	0.37			95	15	14					
900659	SANDMOUND	09/25/90	10:24	21.1	8.0	7.5	580	72	115	0.45			102	16	15					
900681	SANDMOUND	10/02/90	9:20	21.6	7.7	7.8	585	73	112	0.48			108	17	16					
900706	SANDMOUND	10/09/90	9:15	18.0	8.1	8.1	832	111	183	0.70			130	19	20					
900726	SANDMOUND	10/15/90	9:25	18.7	8.2	11.6	857	108	191	0.71			123	18	19					
900781	SANDMOUND	10/24/90	9:05	17.9	7.8	8.4	912	121	210	0.78			134	19	21	5.8	73	39	0.2	474
900839	SANDMOUND	11/14/90	10:15	13.6	7.9		823	108	185	0.62			123	18	19					
900883	SANDMOUND	11/28/90	10:10	10.1	7.9	9.9	967	131	224	0.83			138	19	22					
900931	SANDMOUND	12/12/90	10:15	9.5	7.6	8.3	998	134	230	0.81			141	20	22					
900059	SANTAFEBACON	01/24/90	11:10	8.3	7.7	11.7	594	73	30		<0.001		98	16	14	4.1	59	28	<0.1	330
900241	SANTAFEBACON	04/25/90	7:55	17.9	8.0	8.7	403	46	71				80	14	11	2.8	61	19	<0.1	219
900337	SANTAFEBACON	07/10/90	8:20	24.1	7.9	6.9	307	30	39	0.14			81	16	10					
900357	SANTAFEBACON	07/17/90	9:40	25.3	7.9	6.7	405	53	67	0.28			87	15	12					
900427	SANTAFEBACON	07/26/90	9:00	24.2	7.9	7.3	312	31	45	0.20			76	14	10	2.1	61	16	0.1	171
900447	SANTAFEBACON	07/31/90	9:00	23.9	7.7	7.7	494	60	97	0.37			88	14	13					
900467	SANTAFEBACON	08/07/90	9:00	24.5	7.7	7.0	340	52	55	0.21			84	14	12					

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MINERAL DATA REPORT

LAB#	STA. NAME	SAMP.DATE	TIME	TEMP oC	pH	DO mg/L	EC uS/cm	Na mg/L	Cl mg/L	Br mg/L	Se mg/L	Asbest MF/L	Hard.	Ca	Mg	K	ALK	SO4	B	TDS
													<--------		mg/L					-------->
900559	SANTAFEBACON	08/13/90	9:00	22.0	7.5	6.7	477	58	94	0.33			82	13	12					
900539	SANTAFEBACON	08/22/90	10:35	25.2	8.3	8.2	307	30	47	0.19			70	13	9	2.	59	15	<0.1	168
900579	SANTAFEBACON	08/28/90	9:50	22.9	7.7		420	49	74	0.34			84	14	12					
900601	SANTAFEBACON	09/05/90	10:05	23.2	7.5	6.2	358	40	55	0.24			76	14	10					
900621	SANTAFEBACON	09/11/90	9:50	22.6	7.4	8.7	395	44	63	0.27			87	15	12					
900648	SANTAFEBACON	09/17/90	10:15	22.5	7.8	7.3	460	52	80	0.36			94	16	13					
900662	SANTAFEBACON	09/25/90	11:09	22.0	7.6	6.8	368	36	51	0.21			82	15	11					
900678	SANTAFEBACON	10/02/90	10:20	22.2	7.5	7.3	563	70	108	0.45			106	18	15					
900709	SANTAFEBACON	10/09/90	10:00	18.8	7.9	8.0	710	90	144	0.55			122	19	18					
900723	SANTAFEBACON	10/15/90	10:10	19.1	7.9	11.4	763	99	160	0.57			124	20	18					
900786	SANTAFEBACON	10/24/90	10:20	18.4	7.6	7.8	639	77	122	0.44			118	21	16	4.1	81	36	0.2	342
900828	SANTAFEBACON	10/31/90	11:20	18.2	7.6	8.6	785	101	164	0.61			128	20	19					
900842	SANTAFEBACON	11/14/90	10:50	13.5	7.9		786	102	172	0.57			122	19	18					
900886	SANTAFEBACON	11/28/90	11:00	10.7	7.8	9.8	850	110	184	0.66			132	20	20					
900934	SANTAFEBACON	12/12/90	11:05	9.5	7.4	8.0	711	87	143	0.48			127	21	18					
900813	SHERMST01	10/25/90	10:15	14.2	6.9	4.5	5220													
900895	SHERMST01	11/27/90	11:30	5.6		3.2	3870													
900898	SHERMST01	11/29/90	9:00	6.5	6.4	5.2	3750													
900902	SHERMST01	12/04/90	9:00	6.3	6.4	5.1	3600													
900907	SHERMST01	12/06/90	11:50	6.8	7.2	6.2	3490													
910217	SHERMST02	03/06/90	10:30	10.2	6.7	10.8	3950	486	1070				877	140	128	8.	87	267	0.3	2210
900896	SHERMST02	11/27/90	13:55	11.5		7.4	5800													
900894	SHERMST02	11/27/90	13:55	11.5		7.4	5760													
900900	SHERMST02	11/29/90	9:45	4.9	6.2	7.4	5720													
900904	SHERMST02	12/04/90	10:05	6.1	6.3	6.1	5820													
900906	SHERMST02	12/06/90	12:40	9.5	6.2	6.8	5870													
900905	SHERMST03	12/04/90	11:15	6.8	6.9	7.4	3630													
900909	SHERMST03	12/06/90	10:20	8.8	7.5	5.6	3720													
900331	SJRJERSEY	07/10/90	7:10	22.2	8.3	7.5	1640	274	418	1.50			208	24	36					
900353	SJRJERSEY	07/17/90	8:10	23.1	8.1	7.8	705	92	150	0.62			110	16	17					
900420	SJRJERSEY	07/26/90	7:25	22.7	8.3	8.0	1590	231	417	1.40			191	22	33	9.8	66	68	0.2	828
900443	SJRJERSEY	07/31/90	7:50	22.2	7.0	7.8	670	92	147	0.58			108	15	17					
900463	SJRJERSEY	08/07/90	7:55	22.4	7.8	8.3	917	127	221	0.79			129	17	21					
900554	SJRJERSEY	08/13/90	7:50	19.4	8.6	7.6	637	83	140	0.55			94	13	15					
900531	SJRJERSEY	08/22/90	9:00	22.6	7.9	8.3	730	95	165	0.69			103	13	17	4.2	61	31	0.1	385
900574	SJRJERSEY	08/28/90	7:55	21.8	8.1	8.0	610	80	129	0.54			99	15	15					
900596	SJRJERSEY	09/05/90	8:10	21.5	7.8	7.9	958	128	225	0.86			133	17	22					
900616	SJRJERSEY	09/11/90	8:15	21.1	7.0	8.8	884	124	203	1.00			125	17	20					
900643	SJRJERSEY	09/17/90	8:50	20.7	8.3	7.7	957	133	220	0.98			136	18	22					
900656	SJRJERSEY	09/25/90	9:50	21.1	8.3	7.7	1460	208	369	1.60			180	21	31					
900679	SJRJERSEY	10/02/90	8:40	20.9	7.8	8.0	1170	165	285	1.30			157	20	26					
900704	SJRJERSEY	10/09/90	8:40	18.5	8.1	8.0	1630	236	417	1.70			202	23	35					
900724	SJRJERSEY	10/15/90	9:00	18.6	8.0	11.2				1.80										
900779	SJRJERSEY	10/24/90	8:25	17.7	7.9	8.5	2140	324	571	2.30			248	25	45	13.	74	84	0.2	1120

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MINERAL DATA REPORT

LAB#	STA. NAME	SAMP.DATE	TIME	TEMP oC	pH	DO mg/L	EC uS/cm	Na mg/L	Cl mg/L	Br mg/L	Se mg/L	Asbest MF/L	Hard. mg/L	Ca mg/L	Mg mg/L	K mg/L	ALK mg/L	SO4 mg/L	B mg/L	TDS mg/L
900823	SJRJERSEY	10/31/90	9:30	17.1	7.8	9.3	1380	198	336	1.30			174	20	30					
900837	SJRJERSEY	11/14/90	9:45	13.8	7.8		2150	318	576	1.94			244	25	44					
900881	SJRJERSEY	11/28/90	9:40	11.0	8.0		1750	251	451	1.55			203	22	36					
900929	SJRJERSEY	12/12/90	9:40	10.1	7.6	8.0	2790	420	746	2.58			306	30	56					
900036	SJRMOSSDALE	01/24/90	8:30	8.2	7.8	10.3	1310	165	186		0.005		293	63	33	4.8	140	222	0.9	805
900085	SJRMOSSDALE	02/14/90	7:15	8.3	7.0	11.5	1300	160	180		0.006		286	65	30	4.	131	225	1.	809
900216	SJRMOSSDALE	04/25/90	7:05	17.0	7.6	9.0	820	96	111				165	33	20	3.2	105	118	0.6	477
900400	SJRMOSSDALE	07/26/90	7:40	23.0	7.6	9.2	858	95	123	0.43			205	44	23	3.	114	104	0.5	527
900513	SJRMOSSDALE	08/22/90	14:05	26.3		7.2	738	79	101	0.44			173	38	19	3.	105	89	0.4	442
900794	SJRMOSSDALE	10/24/90	7:58	17.9	7.0	8.0	732	82	107	0.39			168	36	19	3.	108	77	0.3	412
900058	STATION04B	01/24/90	10:55	8.3	7.9	8.6	804	108	180		<0.001		114	16	18	5.2	59	36	<0.1	453
900240	STATION04B	04/25/90	7:40	17.6	8.1	8.9	905	125	211				132	18	21	5.8	65	40	0.1	476
900336	STATION04B	07/10/90	8:06	23.9	8.1	7.4	408	46	68	0.25			87	15	12					
900356	STATION04B	07/17/90	9:15	24.4	8.0	7.2	450	53	83	0.34			91	15	13					
900425	STATION04B	07/26/90	8:35	24.0	8.0	7.2	524	66	104	0.44			88	14	13	3.4	61	24	0.1	279
900446	STATION04B	07/31/90	8:30	23.2	7.8	7.5	533	67	109	0.40			92	14	14					
900466	STATION04B	08/07/90	8:35	23.3	7.8	7.7	595	75	126	0.53			95	15	14					
900557	STATION04B	08/13/90	8:25	24.0	8.1	6.9	504	63	102	0.39			82	13	12					
900537	STATION04B	08/22/90	10:15	24.9	8.2	8.3	463	58	90	0.34			84	14	12	3.	60	21	<0.1	247
900577	STATION04B	08/28/90	9:10	22.3	7.7		464	56	90	0.36			84	14	12					
900599	STATION04B	09/05/90	9:15	22.8	7.4	7.0	474	57	87	0.36			84	14	12					
900619	STATION04B	09/11/90	9:00	22.3	7.8	8.7	527	66	101	0.47			95	15	14					
900646	STATION04B	09/17/90	9:45	21.8	8.0	7.5	544	67	107	0.45			98	16	14					
900660	STATION04B	09/25/90	10:35	21.4	8.0	7.4	573	71	112	0.46			102	16	15					
900682	STATION04B	10/02/90	9:35	21.8	7.6	7.6	613	77	120	0.51			108	17	16					
900707	STATION04B	10/09/90	9:30	18.2	7.9	8.1	836	115	187	0.74			130	19	20					
900727	STATION04B	10/15/90	9:40	18.9	8.1	11.5	863	113	193	0.67			130	19	20					
900784	STATION04B	10/24/90	9:55	18.1	7.8	8.3	921	125	216	0.76			140	20	22	5.8	75	39	0.2	486
900826	STATION04B	10/31/90	10:30	17.5	7.7	9.4	832	111	183	0.66			130	19	20					
900840	STATION04B	11/14/90	10:25	13.6	7.9		859	113	194	0.67			123	18	19					
900884	STATION04B	11/28/90	10:20	10.6	7.8	9.7	959	131	220	0.79			140	20	22					
900932	STATION04B	12/12/90	10:25	9.5	7.6	8.2	1060	136	248	0.88			151	21	24					
900061	STATION09	01/24/90	11:35	8.3	7.6	8.7	726	96	159		<0.001		113	17	17	4.7	59	34	<0.1	399
900243	STATION09	04/25/90	8:20	18.0	7.9	8.5	712	93	155				110	16	17	4.5	64	32	0.1	382
900339	STATION09	07/10/90	8:40	24.4	7.9	7.0	371	40	55	0.20			85	16	11					
900359	STATION09	07/17/90	10:05	25.3	8.2	7.0	399	45	65	0.26			87	15	12					
900429	STATION09	07/26/90	9:25	24.1	8.1	7.3	489	59	94	0.38			88	14	13	3.1	62	23	0.1	261
900449	STATION09	07/31/90	9:20	24.3	6.9	7.1	479	58	92	0.33			88	14	13					
900461	STATION09	08/07/90	9:20	24.9	7.7	7.4	537	67	110	0.43			92	14	14					
900561	STATION09	08/13/90	9:15	23.8	7.8	6.6	455	55	89	0.33			84	14	12					
900541	STATION09	08/22/90	11:00	24.9	8.3	8.2	413	49	76	0.29			78	13	11	2.7	60	20	<0.1	224
900581	STATION09	08/28/90	10:20	23.2	7.7		421	48	73	0.32			87	15	12					
900603	STATION09	09/05/90	10:30	23.8	7.5	6.9	423	49	74	0.32			84	14	12					
900623	STATION09	09/11/90	10:15	22.8	7.7	8.7	468	57	85	0.38			91	15	13					

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MINERAL DATA REPORT

LAB#	STA. NAME	SAMP.DATE	TIME	TEMP oC	pH	DO mg/L	EC uS/cm	Na mg/L	Cl mg/L	Br mg/L	Se mg/L	Asbest MF/L	Hard.	Ca	Mg	K	ALK	SO4	B	TDS
													<----------				mg/L			---------->
900650	STATION09	09/17/90	10:45	22.9	7.8	7.4	474	55	84	0.39			94	16	13					
900664	STATION09	09/25/90	11:30	22.4	7.8	7.0	510	60	93	0.35			98	16	14					
900686	STATION09	10/02/90	10:50	22.6	7.6	7.3	533	64	97	0.39			100	17	14					
900711	STATION09	10/09/90	10:25	19.1	7.7	7.8	677	85	132	0.52			118	19	17					
900731	STATION09	10/15/90	10:35	19.0	8.0	11.4	726	94	150	0.54			124	20	18					
900788	STATION09	10/24/90	10:40	18.0	7.6	8.0	800	105	173	0.61			130	21	19	5.1	80	39	0.2	425
900830	STATION09	10/31/90	11:50	18.3	7.6	8.7	773	99	160	0.58			130	21	19					
900844	STATION09	11/14/90	11:10	13.5	7.9		771	101	162	0.53			124	20	18					
900880	STATION09	11/28/90	11:20	10.6	7.8	9.6	846	109	181	0.65			134	21	20					
900936	STATION09	12/12/90	11:25	9.4	7.4	8.2	910	118	202	0.72			142	22	21					
900045	TURNERCUT	01/24/90	12:52	9.4	7.4	9.8	367	36	56		<0.001		88	17	11	2.6	63	24	<0.1	212
900044	TURNERCUT	01/24/90	12:52	9.4	7.4	9.8	363	36	55		<0.001		88	17	11	2.6	61	24	<0.1	211
900225	TURNERCUT	04/25/90	12:00	18.7	7.2	8.8	288	28	40				72	14	9	2.	61	14	<0.1	160
900409	TURNERCUT	07/26/90	12:40	27.2	7.3	8.1	264	23	31	0.11			70	15	8	1.8	62	15	0.1	147
900512	TURNERCUT	08/22/90	9:00	23.1		7.1	256	23	29	0.12			72	14	9	1.8	63	14	<0.1	152
900803	TURNERCUT	10/24/90	12:48	20.2	7.1	7.5	786	88	120	0.48			174	37	20	4.7	114	82	0.3	444
900032	UPJONESPP02	01/23/90	14:44	12.2	7.1	8.9	980	113	157		<0.001		209	49	21	4.2	115	121	0.3	588
900130	UPJONESPP02	02/23/90	9:10	11.0	7.2	8.2	968	107	156				225	49	25	2.8	111	115	0.4	602
900206	UPJONESPP02	04/24/90	14:10	18.3	7.3	4.6	765	83	133				164	36	18	6.3	99	62	0.3	446
900295	UPJONESPP02	06/26/90	13:20	25.2	7.1	5.1	864	103	148				188	39	22	3.3	108	75	0.4	520
900393	UPJONESPP02	07/25/90	8:45	19.9	6.8	9.4	750	84	124	0.40			168	36	19	2.7	92	70	0.3	462
900505	UPJONESPP02	08/21/90	12:33	22.9		3.0	697	77	53	0.42			152	31	18	3.2	98	53	0.3	412
900768	UPJONESPP02	10/23/90	9:15	16.5	8.8	4.1	836	105	137				190	40	22	4.6	101	88	0.4	500
900066	VERNALIS	01/09/90	8:30	12.8	7.5	14.5	1320	149	192				284	61	32	4.4	140	214	0.9	803
900021	VERNALIS	01/23/90	11:45	9.2	8.1	9.9	1320	164	183	0.56	0.005		286	60	33	4.8	145	228	1.	799
900077	VERNALIS	02/07/90	8:41	9.8	8.3	10.7	1260	154	174		0.007									
900083	VERNALIS	02/14/90	7:50	7.8	7.3	11.6	1270	154	176		0.006		276	61	30	4.	122	230	0.9	791
900094	VERNALIS	02/21/90	7:25	8.7	8.4	14.7	1180	147	153	0.46	0.006		251	56	27	6.	117	211	1.	729
900146	VERNALIS	03/07/90	8:45	12.9	7.1	9.0	984	121	130		0.004									
900149	VERNALIS	03/20/90	7:50	16.3	6.2	8.0	968	115	131	0.42	0.004		215	48	23	3.2	106	159	0.6	578
900177	VERNALIS	04/04/90	10:20	19.1	7.7	5.7	743	81	99		0.002									
900204	VERNALIS	04/24/90	13:00	19.0	8.0	8.8	802	95	107	0.34	0.002		167	34	20	3.2	104	115	0.6	467
900257	VERNALIS	05/23/90	12:00	19.4	8.4	8.7	919	104	132	0.40	0.003		216	47	24	3.2	112	128	0.5	547
900299	VERNALIS	06/27/90	7:20	20.1	8.1	6.1	865	97	118	0.40	0.002		200	42	23	3.6	107	119	0.6	521
900388	VERNALIS	07/25/90	13:30	25.5		9.3	826	91	114	0.42	0.002		193	41	22	3.4	114	103	0.6	495
900496	VERNALIS	08/21/90	10:20	23.0	7.9	7.3	793	87	109	0.39	0.002		193	41	22	3.2	111	99	0.4	471
900635	VERNALIS	09/25/90	10:05	21.2	7.4	7.5	849	94	121	0.51	0.001		196	42	22	3.4	131	99	0.4	483
900699	VERNALIS	10/01/90	11:30	22.0	7.5	8.0	988	112	149	0.65			227	48	26					
900766	VERNALIS	10/23/90	6:20	16.3	7.9	7.7	714	80	100	0.35	<0.001		163	34	19	3.1	108	76	0.3	415
900860	VERNALIS	11/13/90	8:15	12.5	7.9	9.1	774	87	109	0.36	0.001		170	35	20	3.	108	94	0.4	443
900911	VERNALIS	12/11/90	8:25	10.5	7.7	8.1	983	106	144	0.46	0.002		219	45	26	3.9	119	136	0.5	569
900141	WEBB01	02/27/90	9:30	13.0	5.8	4.7	2530	151	281	0.48			1160	256	126	7.2	23	900	0.3	1970
900182	WEBB01	04/23/90	8:35	19.7	7.6	2.5	1350	94	172	0.55			459	98	52	3.8	70	353	0.2	949
900288	WEBB01	06/26/90	7:10	19.5	6.9	4.9	945	77	134	0.55			303	62	36	4.2	119	146	0.2	615

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MINERAL DATA REPORT

LAB#	STA. NAME	SAMP.DATE	TIME	TEMP oC	pH	DO mg/L	EC uS/cm	Na mg/L	Cl mg/L	Br mg/L	Se mg/L	Asbest MF/L	Hard.	Ca	Mg	K	ALK	SO4	B	TDS
													<----------				mg/L			---------->
900366	WEBB01	07/24/90	7:30	19.5	7.1	4.3	819	74	128	0.58			247	51	29	4.8	174	38	0.2	528
900478	WEBB01	08/20/90	7:15	19.7	7.4	5.2	781	70	121	0.74			231	48	27	4.7	184	18	0.1	492
900743	WEBB01	10/22/90	7:40	15.4	8.0	4.9	742	66	116	0.75			213	44	25	4.3	184	6	0.2	450
900142	WEBB02	02/27/90	10:00	12.0	6.2	7.6	2240	180	301				821	177	92	5.6	53	696	0.4	1690
900183	WEBB02	04/23/90	9:00	20.0	9.2	4.6	1080	113	191				256	58	27	3.6	43	158	0.3	705
900289	WEBB02	06/26/90	7:55	19.7	6.8	7.1	896	94	168				220	47	25	3.7	82	83	0.2	602
900367	WEBB02	07/24/90	8:15	20.5	6.9	4.3	614	66	106	0.54			143	29	17	3.1	72	48	0.2	402
900479	WEBB02	08/20/90	7:50	20.5	7.2	4.5	669	68	104	0.68			182	38	21	3.5	93	68	0.3	488
900745	WEBB02	10/22/90	8:10	15.5	7.7	7.0	568	62	97	0.51			127	26	15	3.5	92	27	0.2	323
900063	WSTCANCLIFT	01/24/90	12:15	8.5	7.7	11.2	703	89	153		<0.001		111	18	16	4.5	60	34	<0.1	385
900245	WSTCANCLIFT	04/25/90	8:50	18.2	7.9	8.6	610	77	126				102	16	15	4.	62	28	0.1	328
900341	WSTCANCLIFT	07/10/90	9:10	24.7	7.8	7.0	379	40	55	0.20			85	16	11					
900361	WSTCANCLIFT	07/17/90	10:30	26.0	7.8	6.2	529	57	76	0.29			124	25	15					
900431	WSTCANCLIFT	07/26/90	10:35	24.1	7.9	7.1	475	54	86	0.37			98	18	13	3.2	65	23	0.1	257
900451	WSTCANCLIFT	07/31/90	9:45	25.0	7.0	6.6	496	54	78	0.29			113	22	14					
900471	WSTCANCLIFT	08/07/90	9:45	25.4	7.6	6.8	418	48	74	0.26			82	15	11					
900563	WSTCANCLIFT	08/13/90	9:45	25.4	7.6	6.3	492	56	83	0.31			104	20	13					
900543	WSTCANCLIFT	08/22/90	11:30	25.5	8.3	7.9	387	45	68	0.26			78	13	11	2.6	60	19	<0.1	208
900583	WSTCANCLIFT	08/28/90	10:45	23.3	7.7		360	39	58	0.24			76	14	10					
900605	WSTCANCLIFT	09/05/90	11:00	23.5	7.5	6.7	392	43	62	0.26			85	16	11					
900625	WSTCANCLIFT	09/11/90	10:55	22.7	7.6	8.8	430	51	73	0.33			90	16	12					
900652	WSTCANCLIFT	09/17/90	11:15	22.6	7.8	7.3	412	44	65	0.28			88	15	12					
900666	WSTCANCLIFT	09/25/90	12:00	22.0	7.7	6.9	474	54	81	0.31			94	16	13					
900688	WSTCANCLIFT	10/02/90	11:20	22.9	7.5	7.0	481	53	74	0.31			108	20	14					
900713	WSTCANCLIFT	10/09/90	11:00	18.9	7.8	7.6	592	70	106	0.39			116	20	16					
900733	WSTCANCLIFT	10/15/90	11:05	18.9	8.1	11.4	621	75	116	0.42			116	20	16					
900790	WSTCANCLIFT	10/24/90	11:10	18.4	7.6	7.9	718	92	148	0.51			126	21	18	4.7	81	39	0.2	383
900822	WSTCANCLIFT	10/31/90	12:15	18.0	7.6	8.7	665	82	118	0.44			134	24	18					
900832	WSTCANCLIFT	10/31/90	12:15	18.0	7.6	8.7	662	83	118	0.43			128	23	17					
900846	WSTCANCLIFT	11/14/90	11:40	13.6	7.8		707	86	137	0.45			122	21	17					
900890	WSTCANCLIFT	11/28/90	11:45	10.6	7.8	9.6	771	98	156	0.53			129	22	18					
900938	WSTCANCLIFT	12/12/90	11:55	9.4	7.4	8.3	831	104	177	0.60			137	22	20					

Note: "<" values signify reporting limits. Concentration of analyte below reporting limit.

State of California--The Resources Agency
Department of Water Resources
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