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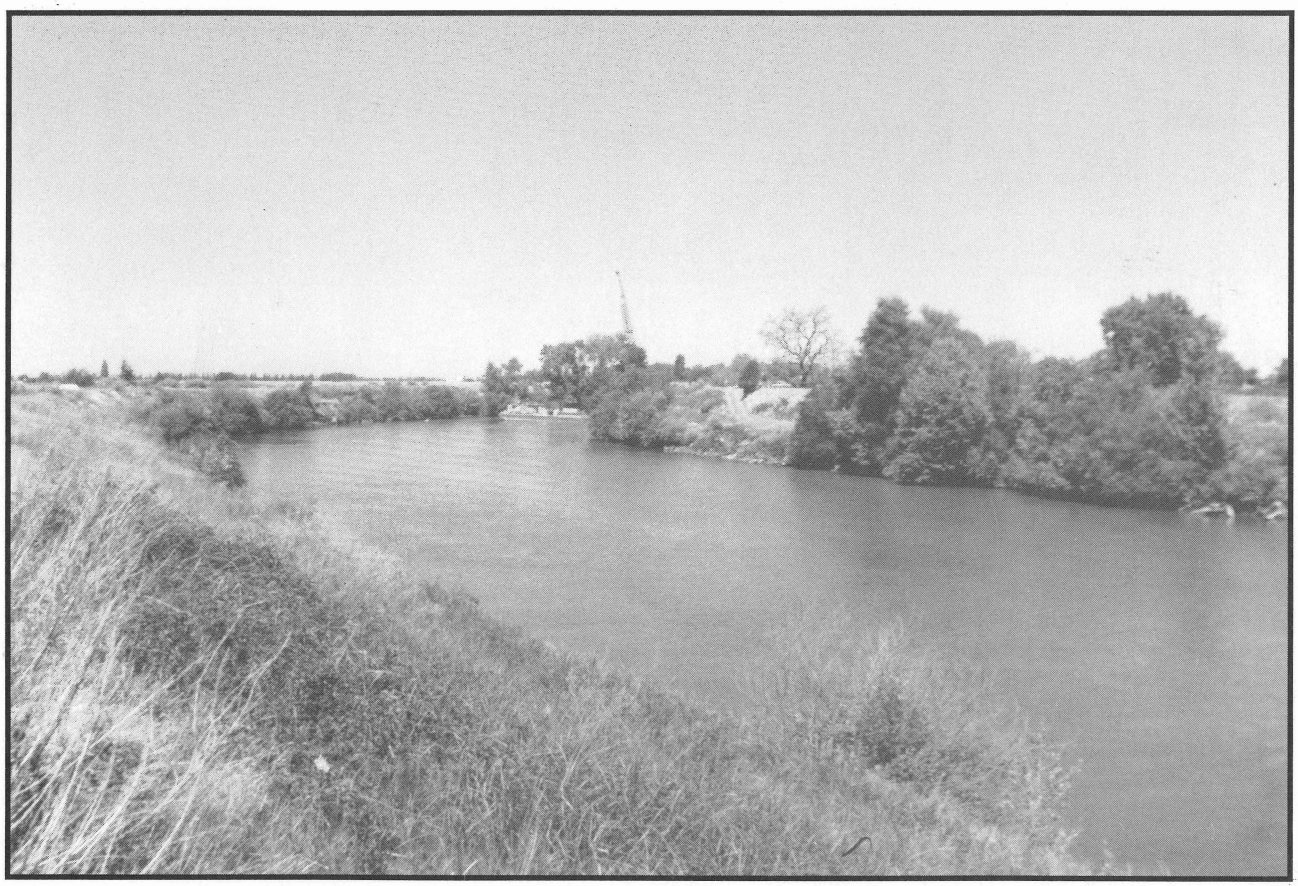
FIVE-YEAR REPORT OF THE MUNICIPAL WATER QUALITY INVESTIGATIONS PROGRAM

Summary and Findings
During Five Dry Years
January 1987-December 1991

NOVEMBER 1994



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Secretary for Resources
The Resources Agency

Pete Wilson
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State of California

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OF THE

MUNICIPAL WATER QUALITY

INVESTIGATIONS PROGRAM

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FOREWORD

In 1990 the Department of Water Resources consolidated its drinking water quality studies in the Sacramento-San Joaquin Delta. The Intergency Delta Health Aspects Monitoring Progam (1983-89), the Delta Islands Drainage Investigation (1986-89), and ancillary studies were combined into the Municipal Water Quality Investigations (MWQI) Program.

The program's major goal is to assist water agencies in protecting and improving Delta drinking water supplies and to guide research into methods of water treatment. To achieve this, program staff examine the major sources and causes of water quality changes in the Delta that affect drinking water quality. Key Delta channel and river stations and agricultural drains are monitored for contaminants such as pesticides, arsenic, selenium, sodium, and trihalomethane formation potential.

Californians experienced a six-year drought starting in 1987 that resulted in severe water shortages to some communities. As a result, water agencies implemented water conservation programs and emergency contingency plans. With less river flow into the Delta, sea water intrusion was more extensive. Delta farming changed in 1991 with less crop acreage than previous years. Delta farmers sold about half of their water allocation to the State Water Bank to help maintain domestic supplies, and about one-third of the Delta acreage was not farmed. Therefore, water quality conditions observed in the Delta represented rare and extreme dry weather hydrology.

This report presents the findings from monitoring water quality changes in the Delta during January 1987 to December 1991, a period of five consecutive dry years.

For further information on the Municipal Water Quality Investigations Program, contact Rick Woodard of the Division of Local Assistance, Department of Water Resources, at (916) 327-1636. Limited copies of this report can be obtained at no charge from Bulletins and Reports, Department of Water Resources, Post Office Box 942836, Sacramento, California 94236-0001, phone:(916) 653-1097.

Carlos Madrid, Chief
Division of Local Assistance

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Chapter 1. EXECUTIVE SUMMARY

Municipalities taking water from the Sacramento-San Joaquin Delta are currently faced with an array of challenges. Besides having to compete for increasingly scarce water supplies, new State and federal drinking water regulations are requiring increasing levels of treatment. The cost of treating Delta waters to meet some anticipated new standards could be staggering. For this reason there is great interest in gathering water quality information from the Delta to assist in water treatment and water supply planning and research.

Under the Department of Water Resources' Municipal Water Quality Investigations (MWQI) Program, the quality of the Delta's drinking water supplies has been monitored since 1982. Over 70 sites are sampled, many of which are sampled each month, and special studies are conducted to gather information for the use of municipalities taking water from the Delta, and for planning activities within the Department. The monitoring stations include agricultural drainage discharge sites, major river channels and sloughs, estuarine locations, and water intakes or diversions (Figures 1.1 and 1.2).

Monitoring is vital for water resources planning and water quality research, especially in view of changing environmental and drinking water regulations.

Special emphasis has focused on identifying the sources and processes that enhance the formation of disinfection by-products in treated Delta water supplies. Disinfection, which is critical to protect against microbial disease, also produces chemical by-products that may pose other health risks such as cancer. Trihalomethanes (THMs) are some of the types of disinfection by-products (DBPs) that can be formed.

Until recently, trihalomethanes were the only regulated DBPs (0.100 mg/L), and chlorine and chloramines were the preferred disinfectants of choice because of lower costs and high effectiveness in controlling bacterial growth in the water distribution system. However, new U.S. Environmental Protection Agency regulations, which take effect in 1998 and referred to as the Disinfectants-Disinfection By-Products or D-DBP rule, have caused water utilities to initiate research on water treatment technologies such as ozonation and granular activated carbon filtration, and to expand their chemical testing for additional DBPs.

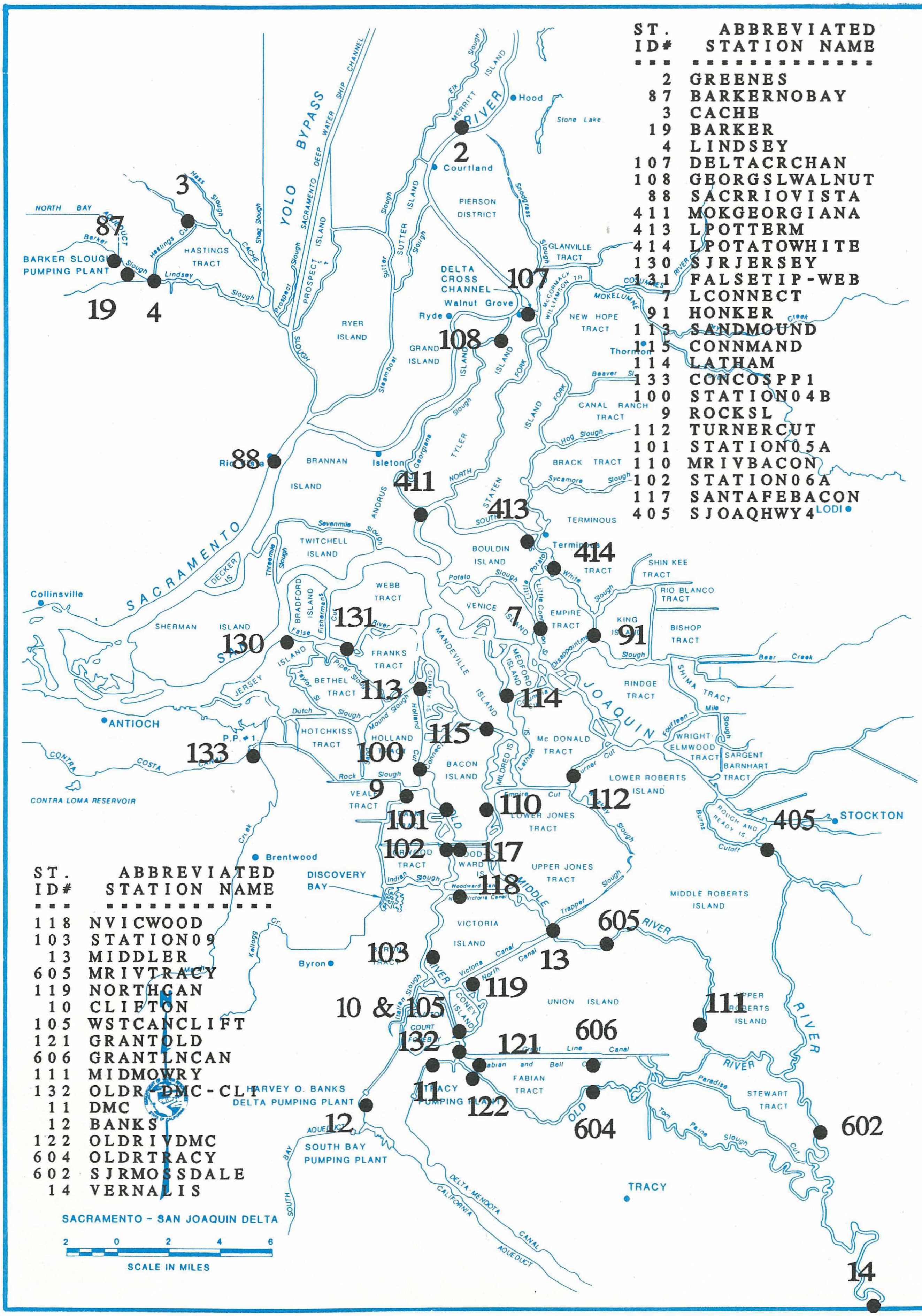
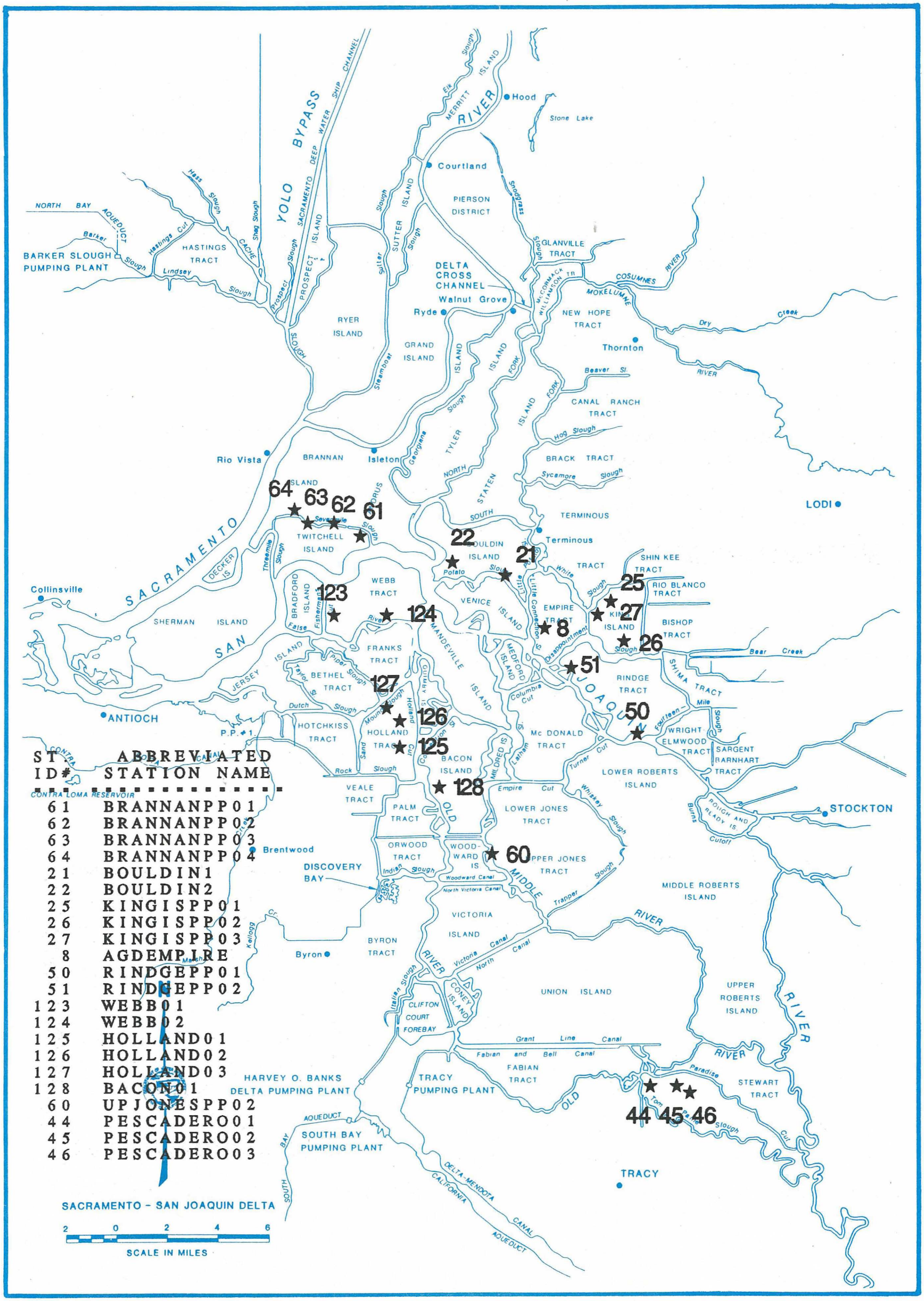


Figure 1.1. Monitored Channel Stations



ST ID#	ABBREVIATED STATION NAME
61	BRANNANPP01
62	BRANNANPP02
63	BRANNANPP03
64	BRANNANPP04
21	BOULDIN1
22	BOULDIN2
25	KINGISPP01
26	KINGISPP02
27	KINGISPP03
8	AGDEMPIRE
50	RINDGEPP01
51	RINDGEPP02
123	WEBB01
124	WEBB02
125	HOLLAND01
126	HOLLAND02
127	HOLLAND03
128	BACON01
60	UPJONESPP02
44	PESCADERO01
45	PESCADERO02
46	PESCADERO03

Figure 1.2. Monitored Agricultural Drainage Pump Stations

While control of DBPs is important, water purveyors must also consider that the primary thrust of disinfection is to control waterborne disease. Recent outbreaks in Milwaukee, Wisconsin, and Washington, DC, have demonstrated that, in relatively unprotected watersheds, like the Delta, disease is a considerable threat. Purveyors are, therefore, faced with maintaining a delicate balance of maintaining adequate disinfection while limiting formation of unwanted byproducts. Because Delta waters have elevated concentrations of organic matter and bromides, which contribute to formation of DBPs, finding an appropriate balance between these competing factors is especially difficult.

The new D-DBP rule has two stages. Stage 1, effective June 1998, will lower the total THM standard from 0.100 mg/L to 0.080 mg/L. Limits will be set for other DBPs including bromate (0.010 mg/L), chlorite (1.0 mg/L), and the sum total concentration of five specified haloacetic acids, referred to as the "HAA5" (0.060 mg/L). Limits for the disinfectant residuals of chlorine, chloramines, and chlorine dioxide must also be met.

Prior to the new rule, THMs were the only regulated DBPs.

The best available technology (BAT) for meeting the stage 1 maximum contaminant levels (MCL) for total THMs and the HAA5 are enhanced coagulation, enhanced softening, or granular activated carbon (GAC). The BAT for meeting the bromate MCL will consist of controlling ozonation. Control of the chlorine dioxide process will be the BAT for meeting the chlorite MCL. Since extensive research, retrofitting, and upgrading of treatment facilities will be needed to meet the new rule, stage 1 of the rule will not be in effect until June 1998.

Stage 2 of the D-DBP rule may, subject to renegotiation, further lower the total THM MCL to 0.040 mg/L and the HAA5 MCL to 0.030 mg/L. Stage 2 of the rule takes effect in January 2002.

Meeting DBP MCLs will, in part, depend on how well a water treatment plant can control bromide and organic matter in the water prior to adding disinfectant chemicals.

The degree of success water utilities will experience in complying with the new DBP rule will depend, in part, on how well DBP precursors (chemicals that lead to the formation of DBPs) can be reduced in the raw water supply prior to disinfection. By removing these precursors, the formation of known and unknown DBPs can be lowered. Changing or reducing the amount of disinfectants may reduce formation of some DBPs but may also raise the risk for waterborne disease outbreaks such as cholera.

The major precursors that have been identified as needing to be controlled are organic matter and bromide. Some parts of the Delta, the south in particular, have high concentrations of bromide and organic matter. Waters diverted by the State Water Project, Central Valley Project, and Contra Costa Water District are generally higher in organic matter, bromide, and other mineral salts than the waters of the northern Delta. Sea water has been traced as the major source of bromides in the southern Delta.

There are, however, many sources of organic matter. Some of them include streamside vegetation, decaying crop residues, algae, and sewage. The largest source appears to be from the region's soils. Because the Delta was once a vast tule marsh and is now mostly farm land, the soils of the region are rich in organic material from decaying marsh and crop residues.

About 260 pump stations are dispersed among 60 Delta islands and tracts that are below sea level. The pumps discharge a combination of seepage, runoff, and irrigation return water into the adjacent channels. Drain water is high in mineral salts and organic matter. The salts come from the evaporation of irrigation water. However, in some areas, such as Empire Tract, connate water from an underground marine aquifer contributes mineral salts to the drainage.

The volume and water quality of drain water that is discharged into the channels correlate with the seasonal farming activities and regional soils (Figure 1.3). There are two periods when drainage volumes are highest. In the late fall and early winter, the fields are flooded to leach out salt accumulations from the soil. This results in short periods of high drainage volume and high dissolved organic carbon (DOC) concentrations in the drainage, especially from organic soil areas.

Seasonal farming activities affect the amount of organic matter that is carried off by drain water.

High DOC and trihalomethane formation potential (THMFP) levels are associated with the organic content of the drained soils. The highest concentrations are typically found in drains located on peat organic soil areas and the lowest from mineral-type soil areas. U.S. Geological Survey studies attribute the variability in DOC at a given site to soil-water contact time, water table height, soil moisture, and temperature (Deverel and others, 1993).

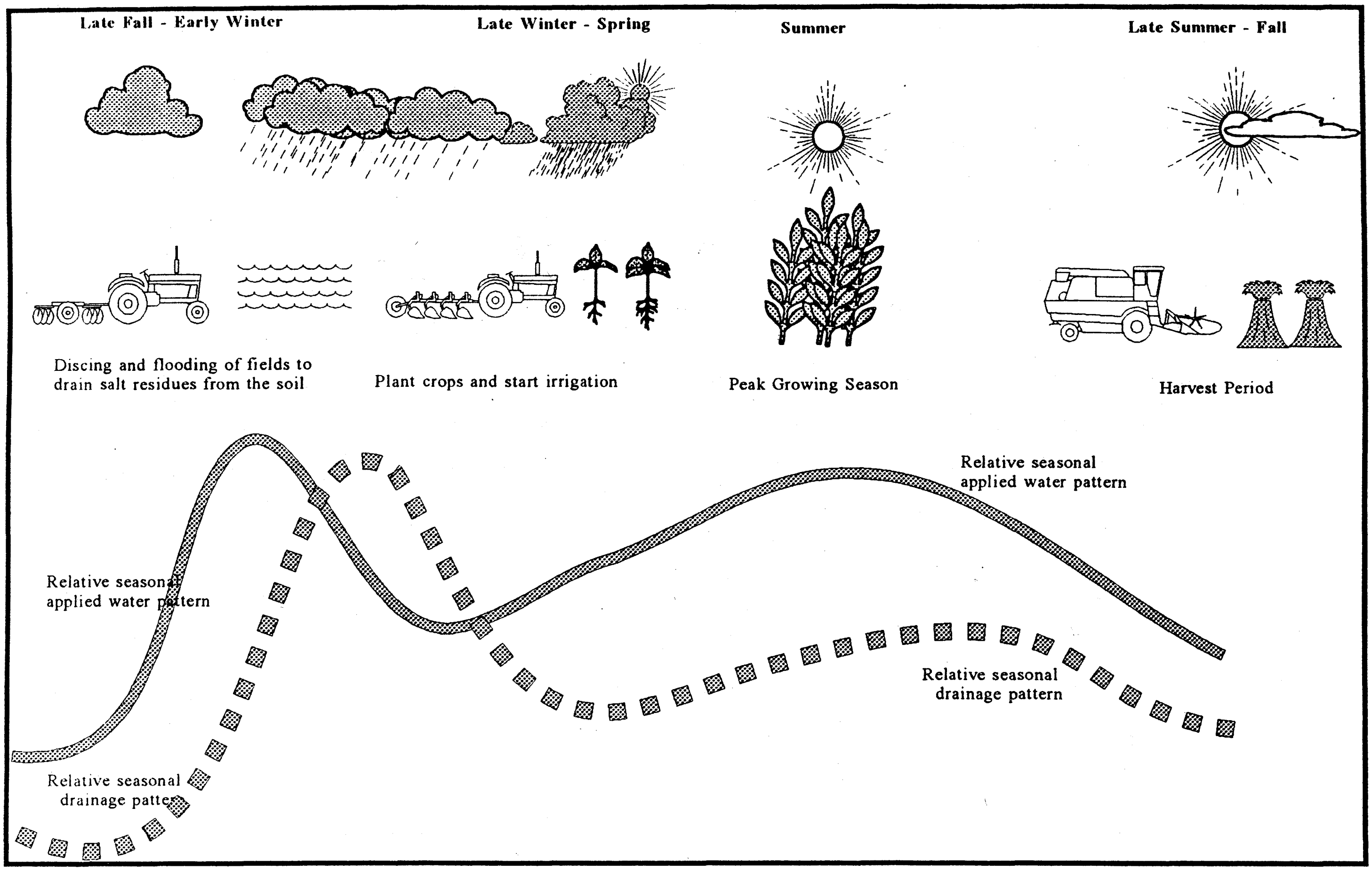


Figure 1.3. Seasonal Farming Activities in the Delta

The second peak drainage season occurs during the summer when irrigation is increased. DOC levels are relatively lower than when the fields are leached in the late fall and early winter. This may be caused by less soil to water contact time and a fluctuating lower water table that reduces the soil moisture.

Drain water has a greater tendency to form trihalomethanes and other disinfection by-products when chlorinated than nondrain water samples. This is due to the high humic content of the region's peat soil.

Humic substances form from the progressive decay of natural organic matter (Figures 1.4 and 1.5) and are considered to be the complex mixture of organic compounds that are DBP precursors. The discovery of trihalomethanes in treated drinking water resulted from a study on the effects of chlorinating humic substances (Rook, 1974).

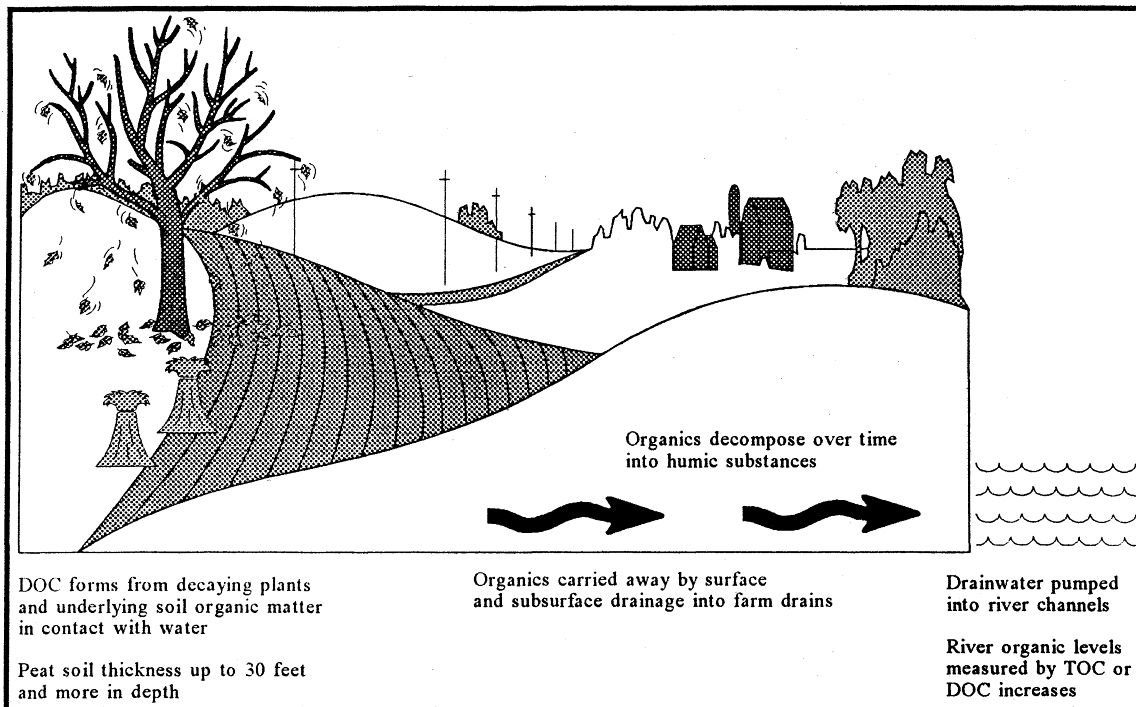


Figure 1.4. Organics From Delta Soils

> **The increases in DOC and THM precursor concentrations in the Delta channel waters are mostly from drainage discharges.**

The high DOC and THM formation potential of Delta drain water is not surprising. Natural waters from organically enriched environments such as bogs, marshes, and wetlands are typically higher in DOC and humic content than sea water and most streams and lakes.

Based on past drainage volume estimates (1954-55) and more recent monitoring data assessments (1983-93), the increases in DOC and THM precursor concentrations in the Delta channel waters are mostly from drainage discharges. Some increases are due to activities within the channel, such as dredging, sediment leaching, and biological productivity, but they are relatively smaller than from drainage discharges. An estimate of the contribution of THMFP for Delta island drainage was published in the DWR *Delta Island Drainage Investigation Report, June 1990.*

Water quality at the intakes of the State and federal water projects generally does not resemble that of Sacramento River inflows to the Delta except when river flows are extremely high, such as during strong winter storms. During low river flows, water quality at the Tracy Pumping Plant and Clifton Court Forebay gates is affected by daily tidal excursions, Sacramento River flows that control the extent of salt water intrusion, and San Joaquin River flows entering the southern Delta.

During calendar years 1987-91, most of the low San Joaquin River flows were drawn into the Delta-Mendota Canal intake. Sacramento River flows at Greenes Landing were generally ten times greater than San Joaquin inflows near Vernalis. Some of the Sacramento River flow was drawn through the central and western Delta into the State Water Project and Delta-Mendota Canal. The Sacramento River was virtually the sole fresh water source for the entire Delta.

A summary of observed EC, bromide, DOC, THMFP, and TFPC concentrations across the Delta during the five-year period are graphically summarized in notched box-and-whisker plots (Figures 1.7- 1.11). An explanation of notched box-and-whisker plots is presented in Figure 1.6.

These plots are a method for graphically showing how the data are distributed. The positions of the end points and notches give information on the extreme high and low values, the median, and the range of values by quartiles. It provides an overview as to whether the observations are widely scattered or not. The figures are useful for studying the variability of observations. The information is also useful for selecting representative data for a site.

The median electrical conductivity (EC), which is also called specific conductance, at the American River WTP intake station (AMER on Figure 1.7) was about 75 μS/cm and about 175 μS/cm at Greenes Landing (GRN). The median EC at Little Connection Slough (LCON) near Empire Tract was about 240 μS/cm. Increases in EC values were evident downstream at the other Delta stations influenced by drainage and seawater. The high EC (median 850 μS/cm) at Vernalis (VRN) reflected the upstream agricultural drainage discharges into the San Joaquin River.

Figure 1.5. The Transformation of Natural Organic Matter

Particulate organic carbon (POC) such as plant litter in contact with water decomposes and dissolves.

Approx. concentrations (mg/L) of DOC and POC in natural waters

DOC	POC	
0.5	.1	sea water
0.7	.1	ground water
1	.1	precipitation
2	.2	oligotrophic lake
5	2	river
10	2	eutrophic lake
15	2	marsh
30	3	bog

Delta DOC ranges (mg/L)

2 - 3	Sacramento River
3 - 4	San Joaquin River
5 - 6	Banks Pumping Plant
10 - 20	Peak stormwater runoff
10 - 20	Mineral soil drainage
10 - 80	Peat soil drainage

Dissolved organic matter (DOC) formed and microbially degraded

water, ammonia, carbon dioxide, + methane gases

Humic substances (UV absorbing compounds and known THM precursors such as humic and fulvic acids)

Non-humic compounds

Percent of DOC as humic substances for different water types

25%	sea water
25%	ground water
34%	lakes
47%	streams and rivers
75%	wetlands

DOC operationally defined as organic matter that passes through a 0.45 micron pore sized filter. POC is larger than 0.45 microns.

The 700 μS/cm EC median at Rock Slough near Old River (ROCK) is attributed to multiple sources, including sea water, Delta island drainage, and water from the San Joaquin River . The median EC values of water at the Banks Headworks (BANK), Clifton Court Forebay intake gates (CLIF), and DMC intake (DMC) stations were about 550 to 600 μS/cm and are attributed to mixing with lower EC water from Middle River (MIDR; median 450), which joins Old River at three canals between Bacon Island and Union Island.

Southern Delta water samples were higher in bromide than those from the northern Delta region (Figure 1.8). Bromide sources include sea water, connate water from Delta islands, and San Joaquin River basin drainage.

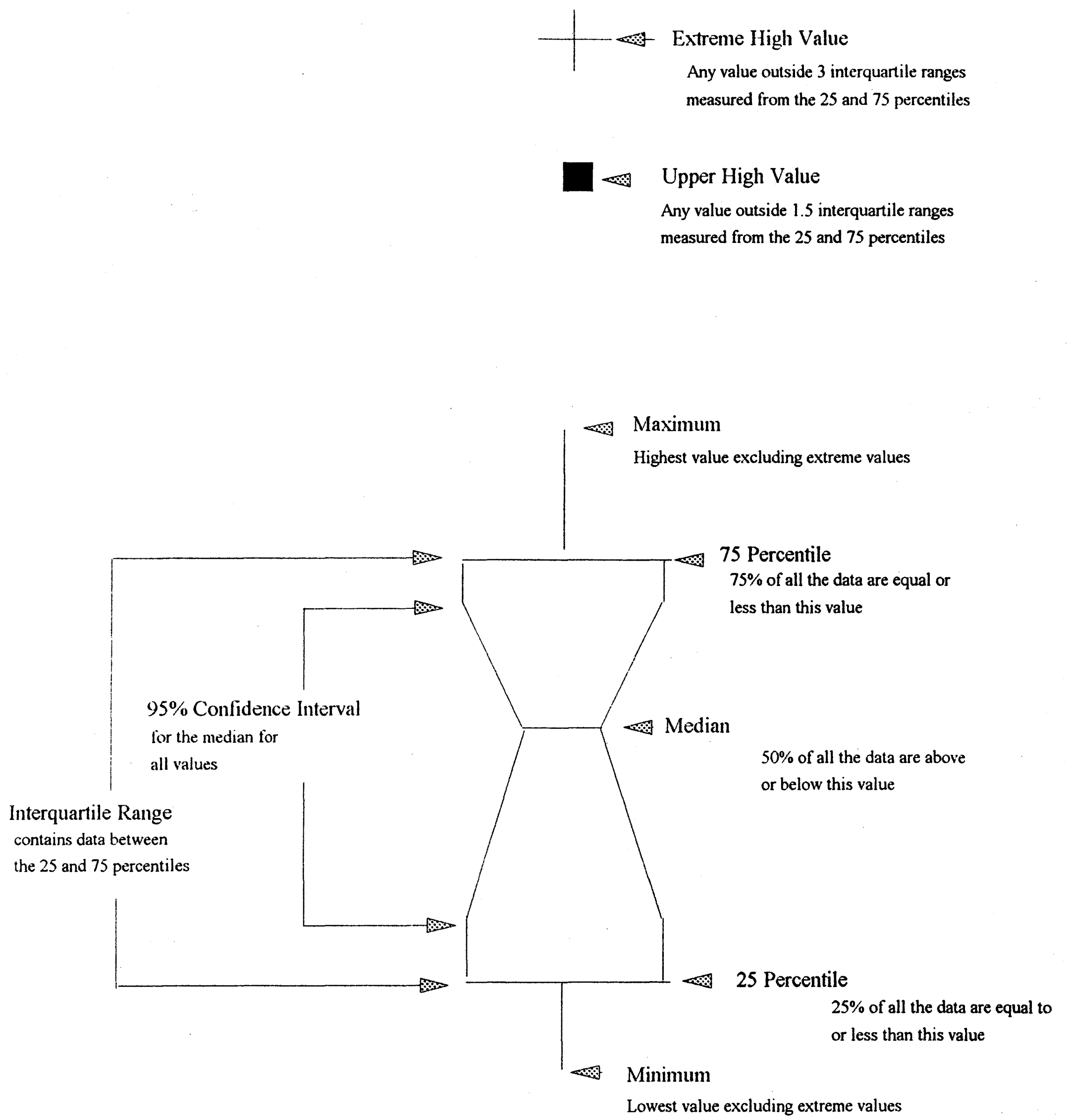
New total organic carbon (TOC) limits (2 mg/L) under the D-DBP rule will require enhanced coagulation or enhanced softening prior to disinfection for conventional water treatment plants (coagulation, flocculation, sedimentation, and filtration) and softening plants. The percent of TOC removal required by enhanced coagulation will depend on the source water TOC and alkalinity. Unfortunately, bromide, which leads to the formation of bromate and brominated THMs, will not be reduced by technologies to remove TOC. For this reason, utilities are also looking at other disinfectants such as ozone. However, there are concerns that these other disinfectants may form other DBPs that may be regulated in the near future.

TOC levels at some Delta water intakes already approach the new D-DBP rule limit and may require TOC reduction at some treatment plants

Delta TOC data are limited, but dissolved organic carbon (DOC) data are available for comparison. Past work has shown Delta DOC levels to be about the same as TOC levels. The median DOC concentrations at Greenes Landing and the American River stations were about 2 mg/L (Figure 1.9). Downstream median DOC was generally over 3 mg/L and had a wider range of concentrations. DOC usually doubles during the wet, rainy season from heavy surface runoff and drainage. Major storms can increase DOC even more during peak runoff periods.

Figure 1.6.

Guide to Notched Box-and-Whisker Plots



NOTE: Horizontal width of box is proportional to the square root of the sample size

Figure 1.7.
Delta E C Ranges
(1987-91)

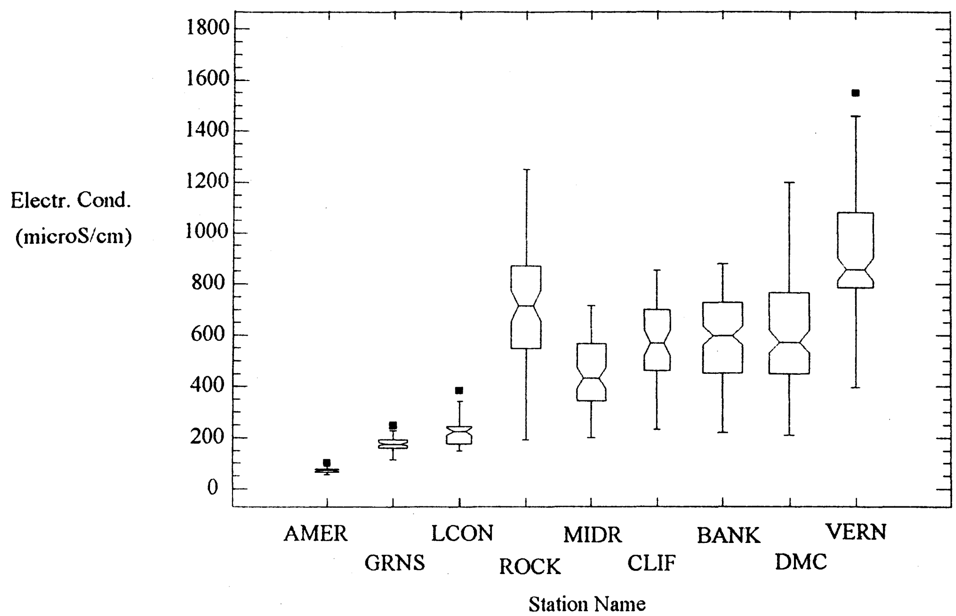
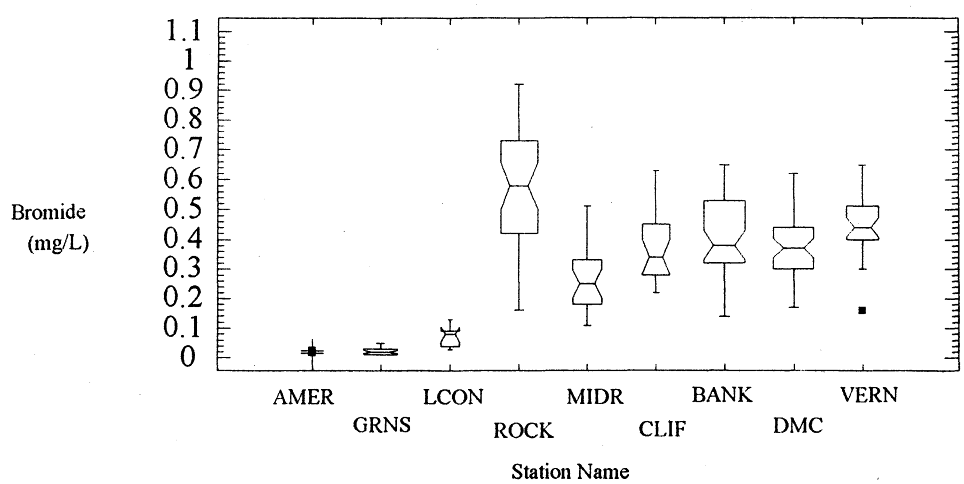


Figure 1.8.
Delta Bromide Ranges
(1990-91)



Trihalomethane formation potential, based on the DWR THMFP assay for raw water, was two to three times higher in the southern Delta than at Greenes Landing and the American River (Figure 1.10). However, these results are not comparable to the actual amount of trihalomethanes formed at a treatment plant after disinfection. Since different treatment schemes are used to limit THM formation, DWR results cannot be equated to actual THM concentrations found in tap water. The DWR raw water assay was established for comparing the THM formation potential of the variety of water types in the Delta, some of which are never used as a drinking water source (e.g., drain water, sea water).

To distinguish THMFP concentrations caused by bromide from that caused by reactive organic material, the amount of organic carbon from the THMFP concentrations was computed to yield the trihalomethane formation potential carbon (TFPC) concentration. This is a measure of how much carbon was incorporated in the trihalomethanes that were formed in the THMFP assay. The distribution pattern of Delta TFPC data was similar to the THMFP data for most stations (Figure 1.11).

The DWR THMFP assay results do not represent the amount of trihalomethanes found at the consumer's tap. It is a measure of the relative potential of different water types to form THMs. It is a tool for identifying sources of THM precursors.

Figure 1.9.
Delta DOC Ranges (1987-91)

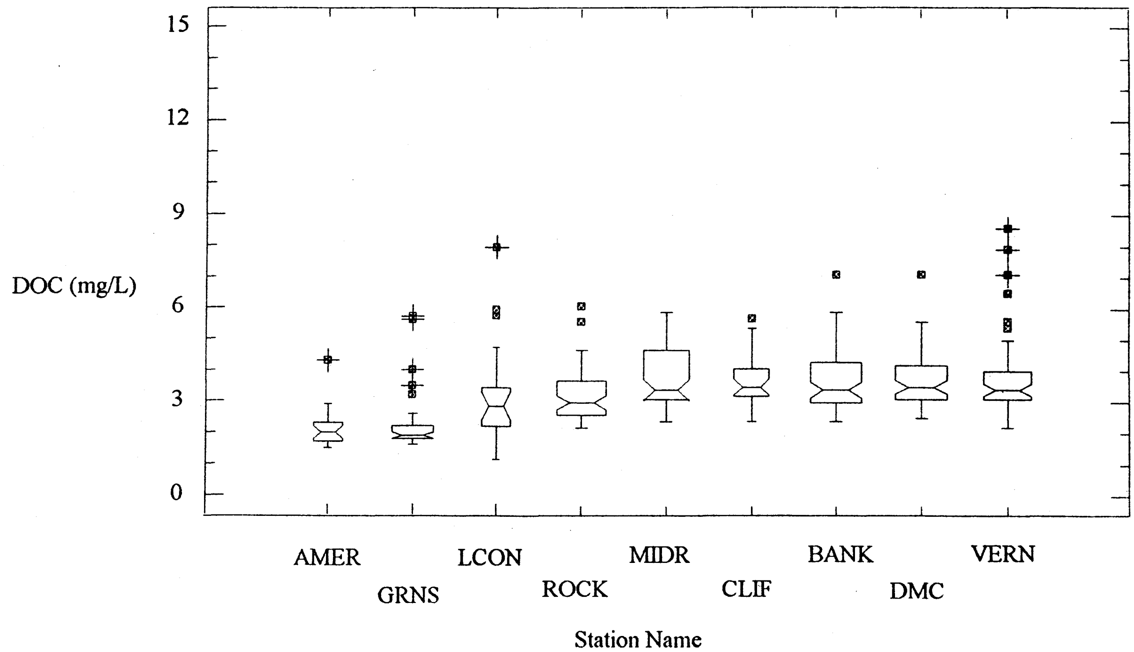
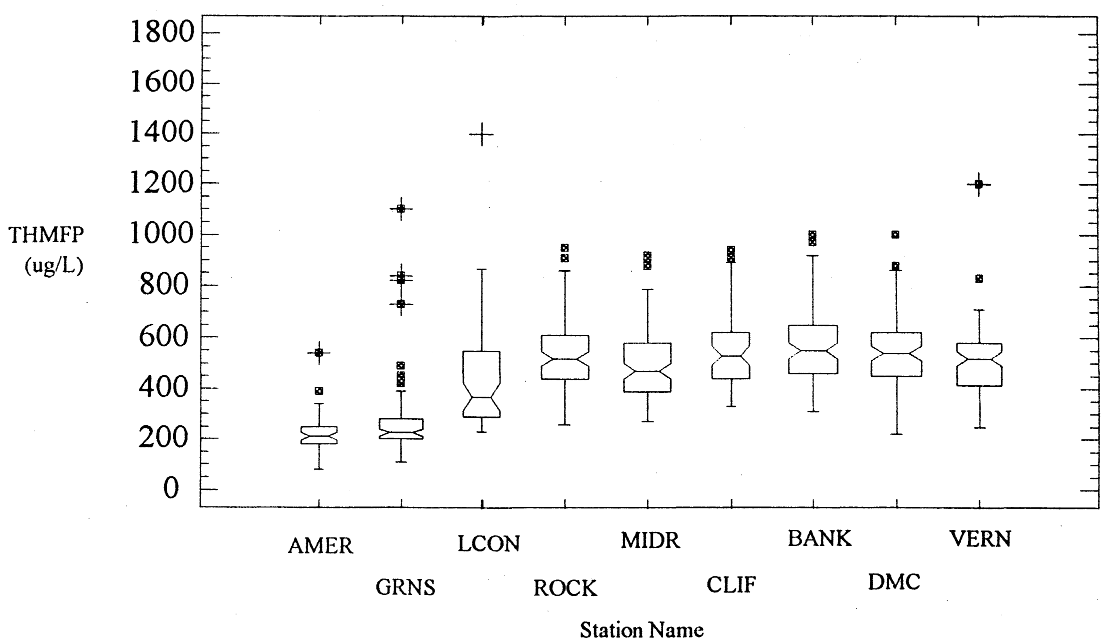


Figure 1.10.
Delta THMFP Ranges
(1987-91)



A simple accounting model was used to estimate the impact of organic carbon from drainage and nondrainage sources. Observed average DOC and TFPC concentrations were compared to predicted average values that were computed from 1954-55 drainage volume data (DWR, 1956), available water quality data, and river flow measurements. The model treated the Delta as a basin and assumed that the mathematical difference between the observed Delta concentrations and the predicted increase from drainage came from in-channel sources (e.g., algae).

Example simple model predicted estimate:

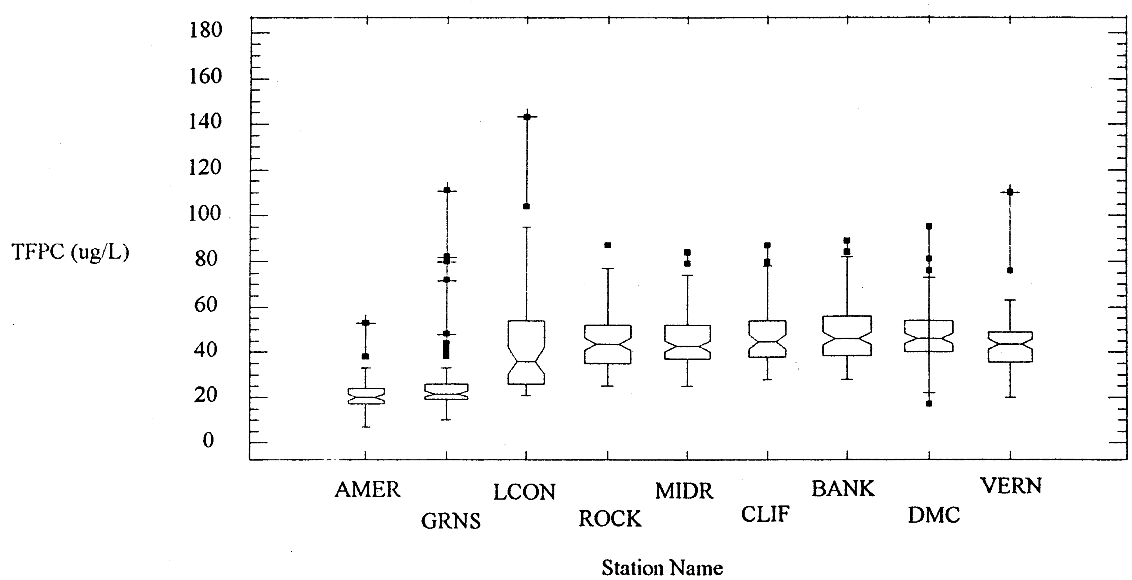
Observed Delta DOC value = 3.5 mg/L
Predicted Delta DOC value from island drainage = 3.4 mg/L
Observed river DOC inflow value = 2.5 mg/L
Therefore,
From in-channel sources = 3.5 - 3.4 = 0.1 mg/L DOC
From drainage sources = 3.4 - 2.5 = 0.9 mg/L DOC

Overall, the results showed that the impacts from drainage and in-channel sources could not be fully distinquished. The outcome of the results was affected by the drainage volume estimates and the available water quality data that served as representative monthly averages for island drain water and the Delta channels.

The model showed an average increase of 1.1 mg/L DOC in the Delta from the average river concentration of 2.5 mg/L. The model results for DOC, however, were best when the drainage volume was assumed to be 10 percent higher than the 1954-55 estimates. This could mean that current island drainage is 10 percent higher than 40 years ago or that it has remained the same but the 10 percent increase is caused by in-channel sources.

Similarly, the model accounted for a 56 percent increase in TFPC from drainage when the observed Delta TFPC was 79 percent higher. This could indicate a 23 percent increase from in-channel sources or an underestimation due to the DWR THMFP assay for drain water samples with more than 20 mg/L DOC. In all cases, the importance of gathering new drainage volume information was shown. Improvements in the simplified model are expected as new monitoring

Figure 1.11.
Delta TFPC Ranges (1987-91)



Revised estimates on the amount of drain water entering the channels will help assess the contribution of organics from drainage as well as from other Delta sources.

data are collected.

The Department's Division of Planning is using data from the MWQI Program to develop a Delta THM computer model. The model combines the Department's existing Delta Simulation Model (DSM), which mimics the complex hydrology of the estuary to predict water quality in the Delta, with a THM model component. This component uses output from the DSM and data on water treatment conditions to simulate the formation of THMs. When completed, the Delta THM computer model will assist the agency in studying proposed water management strategies such as new Delta facilities, drainage management, and regulatory actions.

Two improvements in THM precursor measurement have been initiated in recent years. A modified chemical testing procedure was developed and adopted in 1992 to improve measurement of the organic THM precursor carbon concentrations in high DOC water samples. This was needed because the original DWR THMFP assay method was shown to underestimate the precursor level in some high DOC water (above 20 mg/L) samples such as drain water. Starting in 1990, water samples were also measured for ultraviolet absorbance (UVA_{254nm}). This measurement is used as another indicator of THM precursors and correlates well with DOC for most water samples. This provides a quick and inexpensive measurement useful in assessing the THM precursor levels in the Delta.

The prediction of THM formation is now an important part of DWR's Delta modeling efforts.

Improved methods to measure the amount of THM precursor organic carbon in the Delta are being studied.

Staff of the Department's Quality Assurance and Quality Control Program participated in an analysis of the MWQI field and laboratory data. The review identified the need to establish uniform laboratory reporting procedures, routine laboratory data review protocols, and incorporation of the information in a computer database.

There continues to be significant progress in understanding the sources and nature of organic THM precursors in the Delta. Statistical analyses of the data showed some good correlations among location, soil types, and some water quality measurements such as UVA , DOC, bromide, and chloride. This information is used to develop estimates of the quality of drain water and channel water at unmonitored sites.

Planned activities include new studies to help reduce organics and bromide in Delta water supplies and to improve the monitoring and assessment methods. The following studies are planned or are in progress:

1. DWR will compare data from 1992-93 to predicted results of the mathematical relationships of UVA, DOC, and THMFP that were seen in the 1987-91 data. The information will improve modeling efforts to predict regional DOC and THMFP.

2. DWR and the U.S. Geological Survey will conduct a joint study to measure the

irrigation and drainage water quantities, quality, and power use for pumping drain water off the islands. Several islands, representative of different soil types and crop patterns in the Delta, will be studied.

3. DWR will draft proposed studies to examine the impacts of alternative land uses and changes in field irrigation and leaching practices on crop production, drainage volume, water quality, and electrical power savings.

Simple changes in land use and leaching practices need to be studied as potential methods for reducing TOC without impairment to agriculture.

4. DWR will study with the use of automated sampling devices, daily and hourly variations in water quality at channel stations affected by tides and at drainage pump stations.

5. DWR will review the need for current and future monitoring and special studies. New monitoring stations may be established at tributaries flowing into the Delta for studying upstream sources of DBP precursors.

6. DWR will continue to refine the Delta THMFP computer model.

7. DWR will collect and compare data from more water year types. The majority of water years that have been monitored since 1982 were below normal and critically dry water type years. Therefore, the 1987-91 observations and interpretations reflect an unusual period of five consecutive drought years.

8. DWR will adopt recommendations for improving the management and review of laboratory quality assurance and quality control data.

In addition to the new D-DBP rule, an Enhanced Surface Water Treatment Rule (ESWTR) and Information Collection Rule (ICR) will be issued. The EWSTR focuses on removing or inactivating disease-causing microoganisms such as *Giardia lamblia*, *Legionella*, *Cryptosporidium*, and viruses. The ICR requires gathering extensive monitoring and treatment data to establish the EWSTR and stage 2 of the D-DBP rule. The MWQI Program will work

The MWQI Program will respond to new and future data collection needs.

with the program advisors in broadening its monitoring efforts to gather needed information for these and forthcoming data collection requirements.

In summary:

- *Monitoring data from the MWQI program has been important for water resources planning and water quality research, especially in view of changing environmental and drinking water regulations.*

- *Prior to the new EPA Disinfectant-Disinfection Byproducts (D-DBP) rule, trihalomethanes were the only DBPs regulated in drinking water.*

- *Meeting the new DBP regulations will depend, in part, on how well precursors such as bromide and organic matter can be reduced in the water prior to adding disinfectant.*

- *The major Delta water supplies receive high concentrations of bromide from bay water and organics from its tributaries and from within the Delta. Most Delta soils are rich in organic matter from decomposing peat soil and crop residues.*

- *Seasonal farming activities affect the amount of organic matter leached and drained from the island soils and eventually discharged into the Delta channels.*

- *The high THM formation potential and DOC found in some parts of the Delta are typical for the area, because the Delta was a vast tule marsh prior to being reclaimed a hundred years ago.*

- *TOC reduction at some treatment plants will be required to meet the new D-DBP rule because of high TOC in some Delta water supplies.*

- *Revised estimates on the volume of drain water entering the channels will help assess the contribution of organic material from drainage as well as from other sources.*

- *DWR's Delta modeling section has developed a Delta THM computer model to assist in water resources and facilities planning.*

- *New activities focus on ways of updating drainage volume and quality estimates, refining monitoring and assessment methods, and streamlining quality assurance and quality control evaluations.*

- *The MWQI program will respond to new and future data collection requirements and needs.*

Chapter 2. PROGRAM DESCRIPTION

Objectives

Waters of the Sacramento-San Joaquin Delta serve nearly 20 million people living in the Bay-Delta region and Southern California; the supply is, therefore, extremely important to the health and economy of the State.

In 1982, a DWR scientific advisory panel recommended that a Delta water quality monitoring program focusing on human health concerns be established. This recommendation was made because knowledge about the quality of Delta drinking water supplies was limited. The panel expressed concerns about pesticides, asbestos, sodium, and trihalomethane precursors. In 1983, DWR began the recommended monitoring program and special studies. The program was called the Interagency Delta Health Aspects Monitoring Program (IDHAMP). In 1987, the Delta Island Drainage Investigation (DIDI) was established to gather information to evaluate the effects of agricultural drainage on channel water quality.

DWR established the Municipal Water Quality Investigations (MWQI) Program in 1990. The MWQI Program unified the agency's drinking water quality studies in the Sacramento-San Joaquin Delta. The studies included the earlier IDHAMP (1983-89), the former DIDI (1986-89), and special studies to monitor bromide and sea water intrusion (1989).

Program staff monitor and assess water quality changes in the Delta. These changes are caused by natural processes and man-made activities within the tidal estuary, including shifts in river inflows, agricultural drainage, 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 inflow, 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 and treatment techniques.

Over the years, several water-borne contaminants and pollutants have been monitored, including asbestos, salts, arsenic, selenium, pesticides, and trihalomethane precursors. Special sampling runs are made when additional water quality concerns arise.

By examining monitoring data, MWQI staff gains an understanding of the shifts in water quality during a variety of environmental conditions and water management operations.

Data from this study are being used to examine the most cost-effective solution for meeting new EPA drinking water standards. This information is also needed by the State Water Resources Control Board (SWRCB) for setting water quality objectives in the Delta to meet and protect the competing beneficial uses of the Delta. These include agricultural, fisheries, recreational, municipal, and industrial uses. The economic importance and value of each of these beneficial uses have been presented by various parties before the SWRCB during the 1987-90 Bay-Delta hearings.

In summary, MWQI data are used for the planning and protecting Delta water resources. This report covers monitoring results from January 1987 through December 1991, five consecutive dry years.

Participants

The MWQI study is a component of DWR's Water Quality Assessment program, which is managed by the Division of Local Assistance. A project team of environmental specialists, engineers, and water quality technicians manage and coordinate the MWQI studies.

Advice on the program's direction and technical expertise is provided by three committees (Table 2.1). A Municipal Water Quality Advisory Group and Technical Subcommitee provide close coordination and communication between the MWQI staff and major water agencies and regulatory agencies. The Advisory Group provides information about regional water quality and treatment concerns that may necessitate further monitoring or special studies. The Technical Subcommittee provides invaluable expertise on the latest analytical methods, water treatment practices, proposed drinking water standards, and the interpretation of monitoring data. A Delta Lands Advisory Group assists DWR in gaining access to sample agricultural drainages in the Delta, provides information about farming operations and practices that may affect Delta water use, and reviews project reports.

Table 2.1. Program Advisors

Participating agencies during 1987-91 included:

<u>Municipal Water Quality Advisory Group
and Technical Subcommittee</u>

Alameda County Flood Control and
Water Conservation District, Zone 7
Alameda County Water District
California Department of Water Resources
California Department of Health Services
California Urban Water Agencies
Contra Costa Water District
East Bay Municipal Utility District
Los Angeles Department of Water and Power
The Metropolitan Water District of Southern California
Santa Clara Valley Water District
State Water Contractors
U.S. Environmental Protection Agency

Delta Lands Advisory Group
(formerly Delta Islands Drainage Investigation Technical Advisors)

California Central Valley Flood Control Association
Murray, Burns, and Kienlen Engineers
Reclamation District 38
Reclamation District 1004
Reclamation District 2068
Reclamation District 2075 and
South Delta Water Agency

Monitoring Stations

Monitoring stations are established to meet the data needs of the participating agencies. Key stations include channels leading to public water supply intakes and drainages from Delta islands and tracts having major soil types of the region. Other stations are located in the Delta channels and rivers. Data collected at these stations help provide a more complete picture about flow patterns and water quality changes during certain seasons and hydrologic conditions.

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

(1) American River Water Treatment Plant intake that serves the City of Sacramento (station 1 AMERICAN);
(2) North Bay Pumping Plant (station 87 BARKERNOBAY) near Dixon that serves Solano and Napa Counties;
(3) Rock Slough at Old River (station 9 ROCKSL), which is 4 miles east of the Contra Costa Water District (CCWD) intake;
(4) Contra Costa Water District Pump Station 1 (station CONCOSPP1) at Oakley;
(5) Harvey O. Banks Delta Pumping Plant Headworks (station 12 BANKS), which is the headworks of the State Water Project (SWP); and
(6) DMC intake at Lindemann Road (station 11 DMC), which is upstream of the Tracy Pumping Plant for the Delta-Mendota Canal (DMC).

Water quality monitoring stations that were sampled during 1991 are listed in Table 2.2. The assigned program station number, official DWR station code, location, abbreviated station name, and station type, drainage (AD) or nondrainage (HF), are shown.

Most channel or export facility monitoring stations are sampled each month. Drainage stations are sampled during periods of major farming activity that could increase drainage volume and affect drain water quality (e.g., summer irrigation and winter field leaching months). The age and condition of the drainage pump stations vary (Photos 2.1 and 2.2). Some channel stations were sampled twice each month in the southwestern Delta to study bromide distribution resulting from from sea water intrusion and entrainment. At least four times per year, synoptic surveys are conducted to collect data on the geographic distribution of channel water quality changes measured within a few hours. The channel stations within the Delta are shown in Figure 2.1. Drain water collection sites are shown in Figure 2.2.

Photo 2.1. Upper Jones Tract pump station An example of some of the older pump station structures that are still in operation in the Delta.

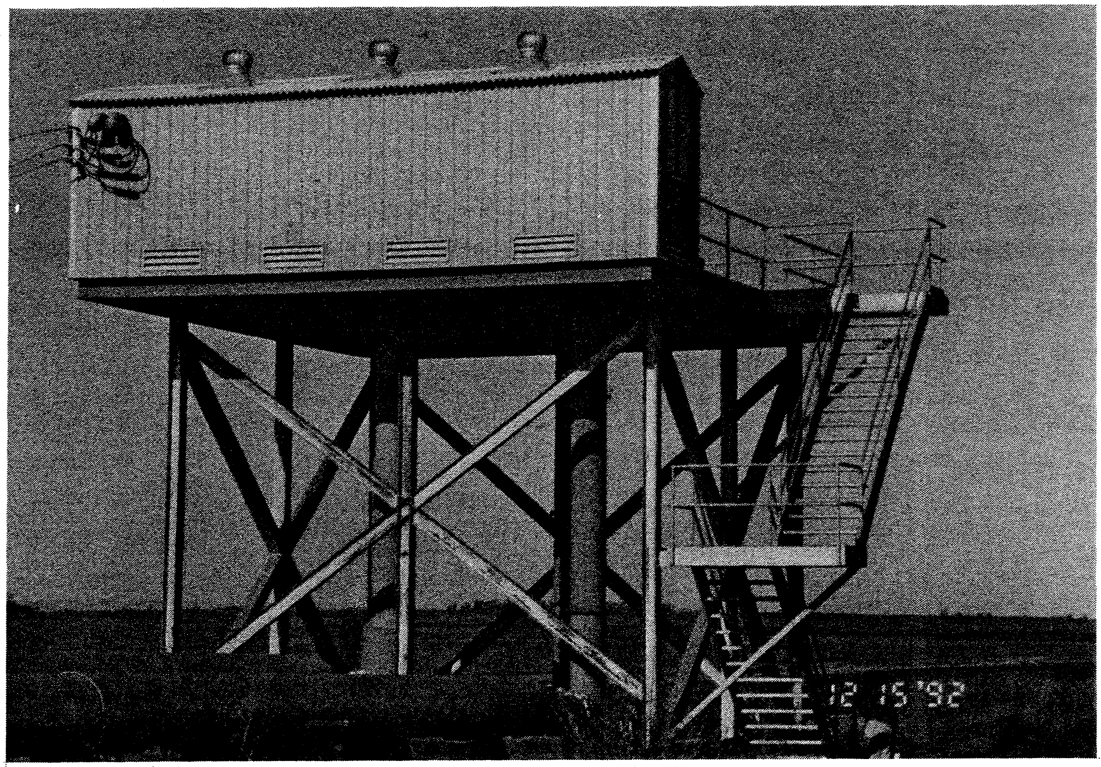


Photo 2.2. Staten Island pump station. One of the newer drainage pump stations in the Delta.

Table 2.2. Monitoring Stations

PROGRAM STATION	DWR STATION CODE	STATION LOCATION	STATION NAME	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

Table 2.2. (cont.). Monitoring Stations

PROGRAM STATION	DWR STATION CODE	STATION LOCATION	STATION NAME	TYPE
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
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 Grovelxridge	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
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 nondrainage station. H code referred to Interagency Health Aspects Monitoring Program station and F for freshwater sample type.

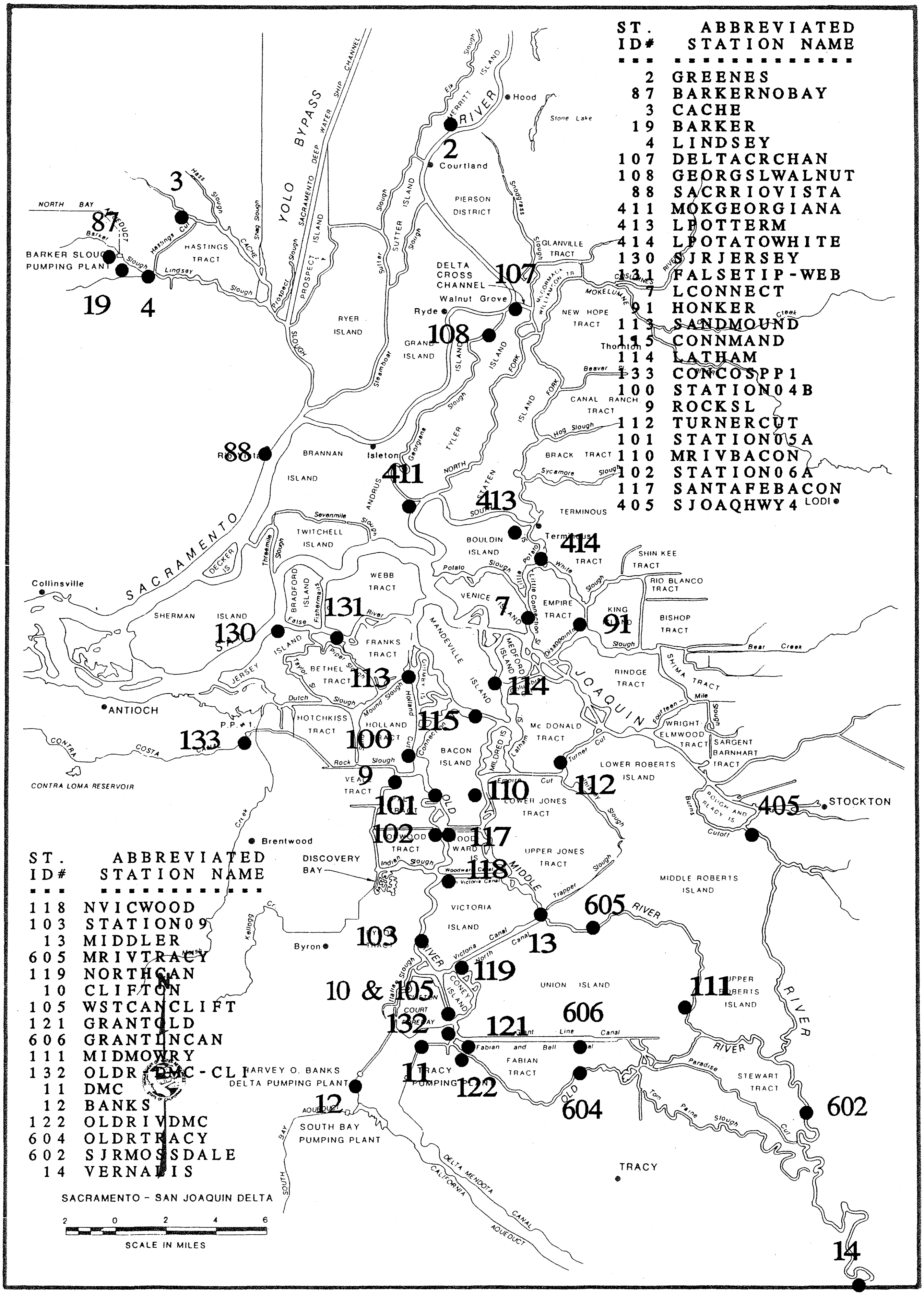


Figure 2.1. Channel Stations

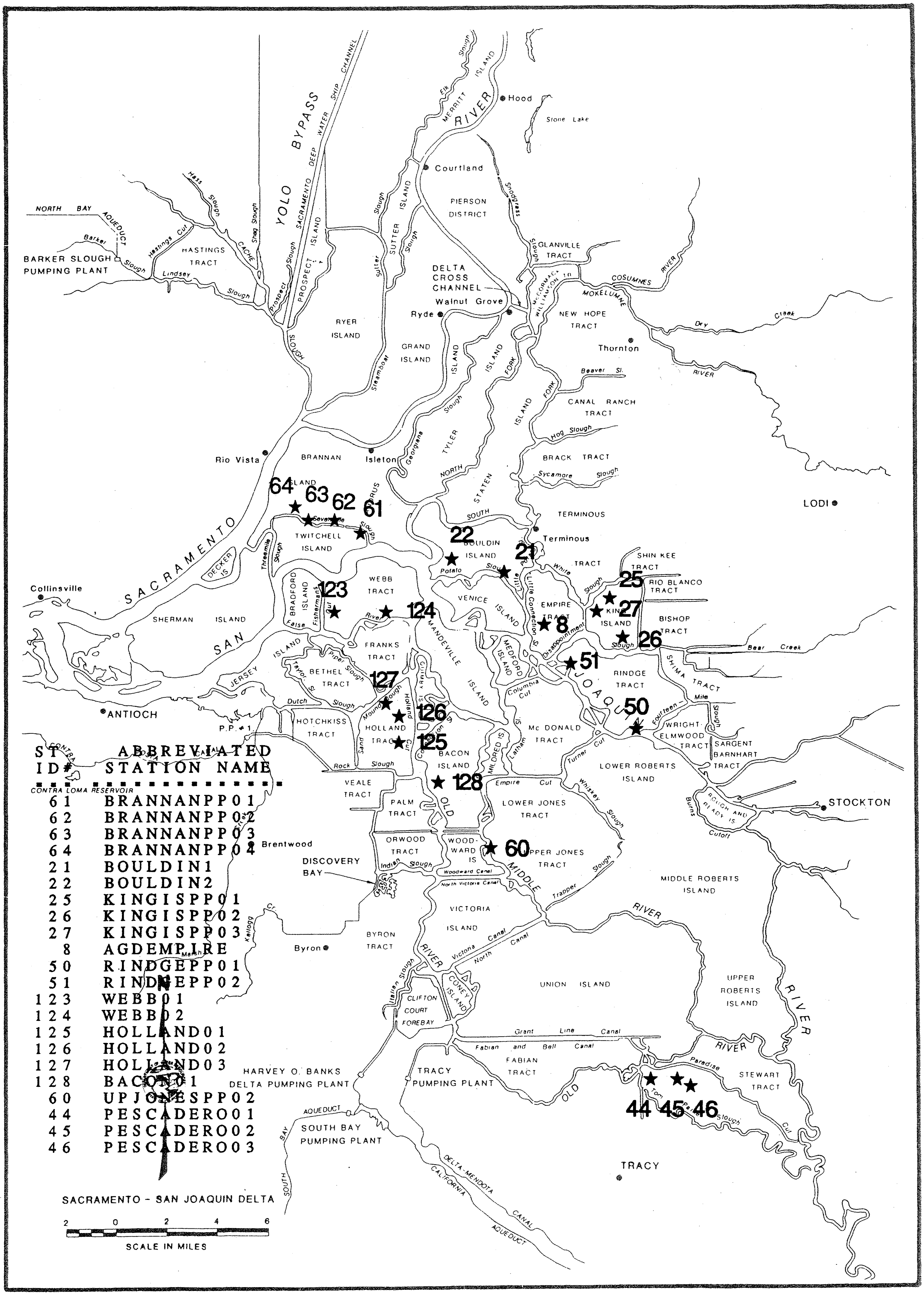


Figure 2.2. Agricultural Drain Sampling Sites

Methodology

Field

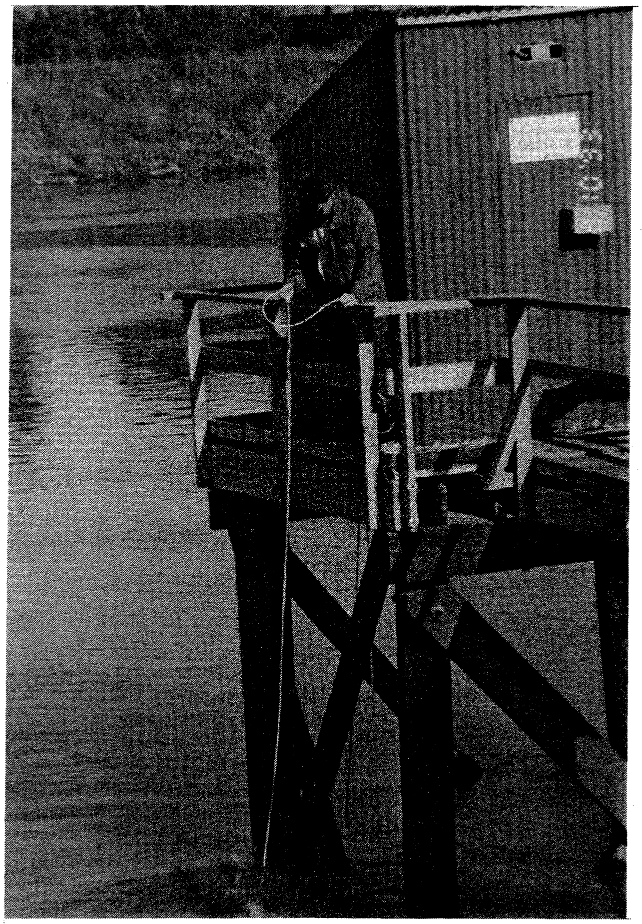
Two-person teams are assigned on rotation to specific sampling runs. Each run requires sampling at about ten sites in the Delta (about 250 miles roundtrip). Two converted full-size vans serve as mobile field laboratories for on-site field measurements and the filtering of water samples. A 21-foot inboard/outboard cabin cruiser is used for sampling in open-water areas.

All equipment, vans, and the boat are stored at the DWR Bryte Yard facility, where DWR's water testing laboratory is also located. A 55-foot trailer and storage shed serve as the program's Monitoring Support and Logistics Center (Photo 2.3).

Photo 2.3. MWQI Monitoring Support and Logistics Center. MWQI's center for field sampling equipment, storage, and preparation.

Field instruments are checked and calibrated prior to each run. Field data entry forms and laboratory sample submittal forms are computer generated and placed into separate binders with maps and additional instructions for each field team. The forms indicate sampling stations, sample bottle series, keys for entry, and other special handling requests. All teams are in radio communications with each other for emergencies and last-minute changes to the sampling runs.

Drainage samples are collected from platform structures (e.g., trash rack, pump station walkway) or culverts. Channel water samples are collected by boat or from structures (e.g., gauge station, bridges, docks, and piers; Photo 2.4).



Depending on analytes, the water samples are collected using either a plastic pail, stainless steel bucket, or a stainless steel box-shaped bucket designed by DWR. The latter is fitted with two Teflon® coated spigots to fill bottles for on-site field measurements such as dissolved oxygen, pH, or electrical conductivity. Before the samplers are used, they are washed with Alcojet® detergent and heat dried in an automatic dishwasher. The bucket is rinsed out with new sample water at each site to prevent carryover from the previous sample.

Photo 2.4. Sampling the Delta. Field operations leader Mike Sutliff collecting water sample from Greenes Landing station on the Sacramento River.

A Yellow Springs Instrument® (YSI) electrical conductivity/temperature meter is used to record the sample EC and temperature. A Beckman ® model 10 portable pH meter is used to determine pH with a Hellige® colorimetric pH kit serving as a backup unit. The pH meter is calibrated to two buffered pH standards (pH 4 and 10). Dissolved oxygen is measured with a Yellow Springs Instrument® model 50A or 50B dissolved oxygen (DO) meter. Saturated air calibration is used to set the DO meter after a 10-minute warm-up. The other electrical meters are calibrated before use on each data collection run and left on for at least 30 minutes to stabilize prior to taking measurements. DO samples are collected in an Erlenmeyer flask with a Teflon® coated magnetic stir bar placed inside. The DO probe is inserted into the flask and a magnetic stirrer mixes the sample.

A stainless steel filtering apparatus with a 0.45 micron porosity paper filter is used to filter samples. A peristaltic pump with surgical grade silicone tubing is used to transfer the sample through the filter. Demineralized water and fresh sample water are used, respectively, for wetting the paper filter onto the filter support screen and for flushing out the tube lines to eliminate carryover from the previous sample.

Filtered samples for THM and DOC (dissolved organic carbon) measurements are collected in 40 ml. glass vials (Photo 2.5). THM vials are filled to eliminate air space and bubbles. The caps of the 40 ml. vials are fitted with Teflon® coated septa, as specified by the U.S. Environmental Protection Agency (EPA). Samples are kept on ice, or refrigerated and delivered to the laboratory within 24 hours of collection. (Note: As of July 1992, samples for THM analyses are collected into 250 ml. bottles.)

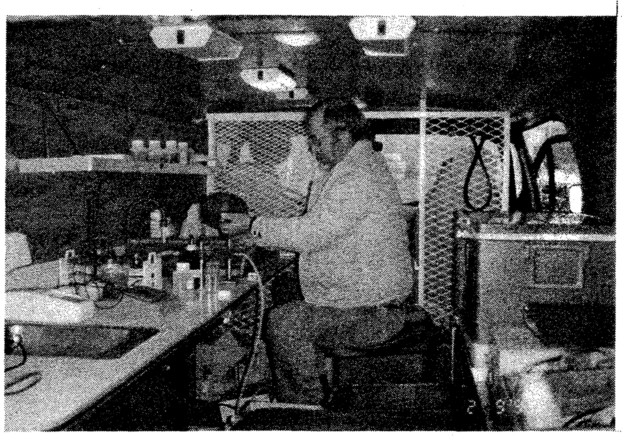


Photo 2.5. Mobile laboratory. Field crew member Walt Lambert filtering water samples for DOC and THMFP analyses in one of the program's mobile laboratories.

A filtered water sample is collected for bromide and UVA-254 (ultraviolet absorbance at wavelength 254 nm) measurements by the laboratory. Additional filtered samples are collected for selenium and some cation (e.g., Ca, Mg, Na, K) analyses and are fixed with nitric acid. Ultra pure nitric acid vials are used. Unfiltered samples are collected for color and turbidity readings by the lab.

In March 1991 staff began to measure turbidity in the field with a Hach® 2100P portable turbidimeter that is calibrated against reference turbidity standards. However, laboratory turbidity values appear in the database as the official measured turbidity, because the Hach 2100P has not yet been tested for use as an EPA approved instrument that meets the EPA methodology. The Hach® 2100P readings are consistently higher than the laboratory values because of a different optical path.

All sample bottles are stored in large ice chests with ice packs until delivered to the laboratories.

On occasion, staff collect additional volumes of water for the Metropolitan Water District of Southern California (MWDSC) for testing and experimentation. These samples are shipped to MWDSC in ice chests via overnight express delivery on the day of collection. Results of these studies are not reported by the MWQI Program but are available from MWDSC.

Field duplicates are collected on each sampling run (usually one sample in seven to ten samples). The duplicates are submitted as "blind samples" to the laboratories with the regular samples as a quality assurance check. Field blank samples are run when metals or nutrient analyses are requested.

Field measurements are recorded on field data sheets and lab sample submittal forms. All equipment is returned to the field preparation center for cleanup, maintenance, and preparation for the next sampling run. Batteries are replaced or recharged, and demineralized water tanks are refilled. Vans are restocked with acid vials, filter paper, disposable gloves, and other expendable items. The vans and boat are serviced regularly according to a maintenance schedule or whenever problems arise.

All members of the study team, including consultants, participate in the sampling runs. This ensures that sampling schedules are maintained and that the team members know and understand all facets of the study. Currently, field quality assurance procedures that are followed are those specified in DWR's *Sampling Manual for Environmental Projects, April 1994*.

Laboratory

The total THM formation potential (TTHMFP) assay was developed by DWR to compare different water types found in the Delta. At the receiving laboratory, water samples for TTHMFP analysis are chlorinated (inoculated) with about 120 mg/L chlorine with sodium hypochlorite. This high dosage is used to assure a chlorine residual after the seven-day incubation period at 25 degrees Celsius. At the end of seven days, the chlorine residual is determined. The residual chlorine is then quenched using sodium thiosulfate, and the sample is analyzed for THM by gas chromatograph purge and trap methodology in EPA Methods 501, 502.2, or 601. During the five-year period, THM analyses were performed by three commercial laboratories. Clayton Environmental Consultants (Pleasanton) performed analyses from January 1987 to June 1987; Enseco Laboratories (West Sacramento) performed analyses from July 1986 to June 1989; and PACE Laboratories (Santa Rosa) performed analyses from July 1989 to June 1992. The three laboratories were instructed to follow the aforementioned procedure for THMFP analyses.

Bromide analyses of samples taken after November 14, 1990 were performed by DWR's Bryte Laboratory. Prior to that date, bromide analyses were performed by Enseco Laboratories (Colorado facility). Enseco results were slightly higher than the Department's laboratory results because of different analytical methodologies.

From 1987-91, DWR's Bryte Laboratory performed mineral, bromide, and DOC analyses by 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 DWR's *The Delta As A Source of Drinking Water, Monitoring Results 1983-1987*. Some of the DWR laboratory methods are shown in Table 2.3.

The Department's laboratory staff currently follow the latest EPA-approved methods and in-house developed laboratory quality assurance and quality control procedures.

Table 2.3. DWR Laboratory Methods

Constituent	Method	Reporting limit *
Calcium	EPA 215.1 AA Flame	1 mg/L
Magnesium	EPA 242.1 AA Flame	1 mg/L
Sodium	EPA 273.1 AA Flame	1 mg/L
Potassium	EPA 258.1 AA Flame	0.1 mg/L
Sulfate	EPA 375.2 Colorimetric, MTB, Automated	1 mg/L
Chloride	EPA 325.2 Colorimetric, Ferricyanide, Automated	1 mg/L
Nitrate	EPA 353.2 Colorimetric, Cd-Reduction, Automated	0.1 mg/L
Dissolved Solids	EPA 160.1 Gravimetric, 180° C	1 mg/L
Alkalinity	EPA 310.1 Titrimetric	1 mg/L
pH	EPA 150.1 Electrometric	0.1 pH Unit
Specific Conductance	EPA 120.1 Wheatstone Bridge	1 µmhos/cm
Turbidity	EPA 180.1 Nephelometric (Hach)	1 NTU
Trihalomethane (THM) Potential	EPA 502.2 Purge and Trap, Gas Chromatography (GC)	1 µg/L
Color	EPA 110.2 Colorimetric, Pt-Co	5 Color Units
Organic Carbon	EPA 415.1 Wet Oxidation, IR, Automated	0.1 mg/L

Methods used at DWR Chemical Laboratory (Bryte Lab) in West Sacramento.

* Reporting limit for reagent water

Note: The above analytical methods were approved EPA methods during 1987-91. Since that time, the Department's laboratory staff use the current EPA-approved methods.

Data Management

Field measurement and laboratory results are entered into the program's Local Data System Interface (LDSI) database as data sheets are received. The LDSI database software program was written to offer a variety of management and support services for the MWQI Program. Some of the major features include: (1) sample bottle numbering, labelling, and tracking, (2) field data sheet form generation, (3) simplified data entry handling, (4) report generation, (5) selection of duplicate sample locations, and (6) data transfer capabilities with other computer software formats (e.g., databases, spreadsheets).

The LDSI software program was written in-house using the MicroRim R:base for DOS 2.11 command language. Data entry errors are checked visually and by running computer searches for anomalous data (e.g., negative or zero values, statistical outliers). The accuracy of typing the database entries generally exceeds 99 percent.

Data are transferred from the LDSI Reporter database format for analysis and interpretation. Depending on specific data needs and objectives, the data are transformed and transferred into other formats acceptable by a variety of statistical and graphical computer software. Flow data from DWR's DAYFLOW model or State Water Project Operations and Maintenance records might also be merged with the water quality data. Technical support and data analysis are provided under contract by the water quality/computer consulting firm of Marvin Jung & Associates, Inc. in Sacramento. This consulting firm also provides additional services for DWR's Delta Modeling Section, which is refining a Delta THMFP computer model.

Laboratory Quality Control

Laboratory quality assurance procedures are in accordance with the *DWR Bryte Chemical Laboratory Quality Assurance Program* document dated April 4, 1990. DWR staff developed an *Interim Project Quality Assurance Plan* to ensure data integrity in the MWQI Program. The interim plan was based on guidelines developed by EPA for EPA projects. Questions concerning data quality are routed to the program staff for review and action. The Quality Assurance Program unit is alerted about potential field and laboratory instrumentation and analytical problems. Based on the chain of custody records, field logbook data sheets, and laboratory quality control reports, staff identifies problems and the proper course of action to resolve them.

Chapter 3. STATE OF KNOWLEDGE

This chapter summarizes important issues regarding THM formation, new regulations on disinfection by-products, precursors in Delta water supplies, and current knowledge about precursor sources.

Meeting Standards

Water utilities are required to meet federal and State drinking water standards that have been established for the protection of human health. These standards include a variety of chemical, physical, and microbiological requirements.

Chemical disinfection is necessary to prevent bacterial growth and taste and odor problems in a water supply distribution system. Chlorination is a highly reliable and economical method of disinfection and is widely used by water utilities including those that use the Delta as a water source. During the chlorination process, chlorine reacts with certain complex organic compounds and bromide ions in the water to form disinfection by-product compounds including trihalomethanes (THMs). One THM, chloroform, is classified as a carcinogen. The total THM levels in drinking water are regulated by the State and federal governments.

The THMs include four compounds: chloroform ($CHCl_3$), dichlorobromomethane ($CHCl_2Br$), dibromochloromethane ($CHClBr_2$), and bromoform ($CHBr_3$). Currently, the Maximum Contaminant Level (MCL) for total THMs is 0.100 mg/L (equivalent to 100 µg/L or parts per billion) in treated water samples as a running annual average of quarterly samples taken from representative points in a drinking water distribution system. The MCL was not established strictly on the basis of health effects data but was set as a feasible level for compliance by water utilities. However, under stage 1 of the new Disinfectants-Disinfection By-products (D-DBP) rule, the EPA will lower the MCLs for THMs to 0.080 mg/L in June 1998.

The production of THMs and several other disinfection by-products can be generally shown as:

Natural organics	**+**	**Free chlorine or other oxidants**	**+**	**Bromide**	**====>**	**THMs**	**+**	**Other DBPs**

When free chlorine or other oxidants are added to water, the above reactions occur. Natural organic matter such as decaying algae, soils, sewage wastes, and organisms provide the carbon source to react with chlorine. If bromide is not present, only chloroform will be formed as the chlorine reacts with the natural organic precursors. Bromide, another precursor, can exacerbate the problem of meeting the 0.100 mg/L THM MCL and new 0.080 mg/L THM MCL because the heavier THM compounds containing bromine atoms, will be formed. Chlorine oxidizes bromide to hypobromous acid (HOBr), which then reacts with the organic precursors to form the brominated methanes.

THMs are not the only compounds of health concern these days. EPA is expanding its list of chemicals for regulation. New MCLs will cover oxidants and by-products of the oxidants (Trussell, 1992) and disinfectants. EPA is resolving the debate over the regulation of these chemicals through a negotiated regulatory process (Means and Krasner, 1993). Particular emphasis is focused on the technical uncertainties that complicate the setting of health-protective Maximum Contaminant Levels for several disinfectants and their by-products.

Several other problems in water treatment are associated with the presence of high concentrations of organic matter. Some of them include color, taste and odor, reduced longevity of activated carbon beds, and possible transport of organic and inorganic pollutants through the treatment plant and into the finished water supply (Dempsey, et. al., 1984).

As of March 1994, stage 1 of the D-DBP rule includes a 0.80 mg/L TTHM MCL, a 0.60 mg/L MCL for the total sum of five specified haloacetic acids (HAA5), a 1.0 mg/L MCL for chlorite, a 0.010 mg/L MCL for bromate, and disinfectant limits. Stage 1 limits will come into effect in June 1998. Stage 2 limits may further reduce the TTHM MCL to 0.040 mg/L and the HAA5 to 0.030 mg/L in January 2002.

Water utilities are researching new treatment technologies to meet the anticipated new EPA drinking water standards. However, if precursors to these toxic compounds could be reduced in the source water, then treatment requirements may be lessened. For example, high levels of organic matter in source water require higher amounts of oxidant. This, in turn, results in higher concentrations of DBPs that must be removed. Removal of these by-products are more difficult and more expensive. Improving source water quality combined with improved treatment technologies could help utilities meet the new EPA MCLs.

Bromide and organic matter have been identified as the major precursors that must be controlled. Stage 1 of the D-DBP rule will also require reducing the total organic carbon (TOC) concentration in water supplies prior to adding disinfectant. TOC measurements are used as a surrogate measurement for organic DBP precursors. The stage 1 precursor removal requirement will apply only to conventional water treatment plants (coagulation, flocculation, sedimentation, and filtration) and to softening plants. It will not apply to systems using direct filtration, slow sand filters, diatomaceous earth filters, or ground water supplies not under the direct influence of surface water.

TOC removal will be based on the source water alkalinity. A specified percentage of the TOC in the source water will need to be removed prior to adding disinfectant. For example, the following table shows that if the source water quality had a TOC of 5 mg/L and an alkalinity of 40 mg/L, at least a 45 percent reduction in TOC is required. With some exceptions and depending on season and location, Delta TOC is typically 2 to 6 mg/L and alkalinity 40 to 120 mg/L. Enhanced coagulation or softening will be the likely practice used.

		Source Water Alkalinity, mg/L	
Source water TOC, mg/L	0 - 60	> 60 - 120	> 120 *
> or = 2 - 4	40 %	30 %	20 %
> 4 - 8	45 %	35 %	25 %
> 8	50%	40 %	30 %

*** Systems practicing softening must meet TOC removal requirements in this column.**

DWR began routine monitoring of the THMFP of Delta water supplies in 1983 under the Interagency Delta Health Aspects Monitoring Program. The purpose was to understand the sources and distribution of THM precursors in the Delta. DWR developed a raw water supply THMFP test to compare the relative THMFP of different water types in the Delta. These water types included sea water, brackish water, fresh water, and agricultural drainage. The results, however, cannot be used to simulate finished drinking water TTHMFP in a distribution system because of different oxidant dosages, treatment practices, and technologies used in treating drinking water.

THMFP can serve as a surrogate for the formation potential of some other DBPs, although sometimes a reduction of THMs by some water treatment processes may increase the concentrations of other DBPs. Therefore, water agencies are deeply concerned about the formation of THMs and other DBP compounds that challenge their ability to provide a safe drinking water supply, especially now that new and stricter standards are forthcoming.

THM Precursors and Sources

The study of trihalomethane precursors and their sources is important for determining how trihalomethane formation might be controlled. Trihalomethane precursors can be divided into two classes: organic and inorganic. Humic materials are an example of the organic type and bromide is the inorganic type found in drinking water supplies. In the Delta, the sources of these precursors differ.

Bromides

Bromides are of concern because formation of DBPs increases in the presence of bromides. Also THMs that contain bromine weigh more than chloroform, thereby increasing the likelihood of violating the current and proposed MCLs for total trihalomethanes in finished drinking water. Brominated methanes are also generally more difficult to control and remove than chloroform using current treatment processes. In addition, bromides react with some disinfectants to form other undesirable DBPs. A reduction in bromide concentrations in a water supply would help water treatment plants in meeting the new D-DBP rule and reduce some additional treatment requirements.

The Delta has three sources of bromide. One major source is sea water that enters the western Delta from tidal excursions and mixes with Sacramento River water flowing through the Delta to the export facilities in the southern Delta. Bromides in water at Clifton Court Forebay and at the Contra Costa Water District intake are attributed to sea water intrusion. Another source of bromide is the San Joaquin River (SJR). Bromide may have naturally occurring sources in the San Joaquin Valley, but the primary source probably is from agricultural return water which contains bromide and is exported from the Delta. Monitoring of Br:Cl ratios, flow measurements, and selenium concentrations (DWR, 1990) in the lower Delta demonstrated this connection. Another source is connate water beneath some islands (e.g., Empire Tract).

Organic Precursors

Natural organic matter (NOM) has many origins in the Delta. Sources may include organic soils and sediments, algal growth, riparian and crop vegetation, animal wastes, waste water discharges, and river inflows to the Delta.

Soils with greater carbon content, such as peat, introduce higher concentrations of DOC and THM precursors into drainage water than do mineral soils. Composited peat soil samples had 67,000 ug/kg THMFP, while composited mineral soils had 27,000 ug/kg THMFP (DWR, 1982). The ranges of THMFP in drain water corresponded to soil types or organic content as seen in August and January drain water samples (DWR, 1990).

Living crop biomass is not thought to be a significant contributor of THMFP relative to island soils. However, crop residues such as stalks and leaves are a source of humus as this material dies and decays. The decomposing crop residue is relatively small in volume and depth (inches) compared to the underlying peat soil depth (several feet). Therefore, carbon in the underlying soil is the expected major contributor of DOC and TFPC.

Evidence shows that submergence of organic soils causes higher DOC concentrations in the drain water, because microbial decomposition and dissolution of decomposing organic matter are enhanced (Deverel, pers. comm., 1991).

A variety of complex substances is present in naturally occurring dissolved organic carbon. These substances can be classified into four major groups: (1) identifiable compounds, (2) hydrophilic acids, (3) humic acid, and (4) fulvic acid. The latter two are collectively referred to as humic substances and are known THM precursors (Oliver and Thurman, 1983; Rook, 1974).

There are differences in the types and reactivities of DOM substances in Delta drainage and channel water samples. Drainage samples are more reactive than channel water samples because of high amounts of humic substances . They had four times more THMFP and ten or more times more DBPs than Delta river samples (Amy and others, 1990). This is in agreement with MWQI THMFP data. Structurally, humic materials in drain water have larger molecules and weight than river water, so the type of humics in DOC is as important as the amount. These observations also indicate that the drain water humics are from the soils and decaying crop residues. They are not from river water or from applied water, nor from concentrating effects of evapotranspiration or evaporation of irrigation water.

The yield of trihalomethanes in Iowa River water samples as a function of precursor molecular weight was studied by Schnoor (Schnoor and others, 1979). Most THMs formed from precursors of molecular weight less than 6000. Seventy-five percent of the THMs formed were derived from organics of less than molecular weight 3000 and about 20 percent from compounds of less than molecular weight 1000. This latter fraction has been cited to include fulvic acid compounds. Differences in THM yield per TOC (weight to weight basis) were attributed to the precursor molecular weight distribution among samples.

Reckhow and Singer (1984) compared the organic halide yields from extracted humic materials. For all organic halides, humic acid had higher yields than fulvic acid from the same water source. The percent distribution of TOX (total organic halides) was surprisingly uniform. Seventy percent of the TOX was chloroform, 18 percent was TCAA (trichloroacetic acid), and 6 percent was DCAA (dichloroacetic acid) in a three-day reaction time chlorination test.

Other studies (Thurman, 1985) show that the composition of DOC varies in different aquatic environments. The total amount of humic and fulvic acids in DOC is about 50 percent in rivers, 75 percent in wetlands, 30 percent in lakes, 25 percent in ground water, and 20 percent in sea water (Figure 3.1).

Currrently, the contribution of organic matter and THM precursors from phytoplankton and riparian plants in the channels has not been assessed. The effluents of waste water treatment plants may not be a major source of THM precursors (DWR, 1982).

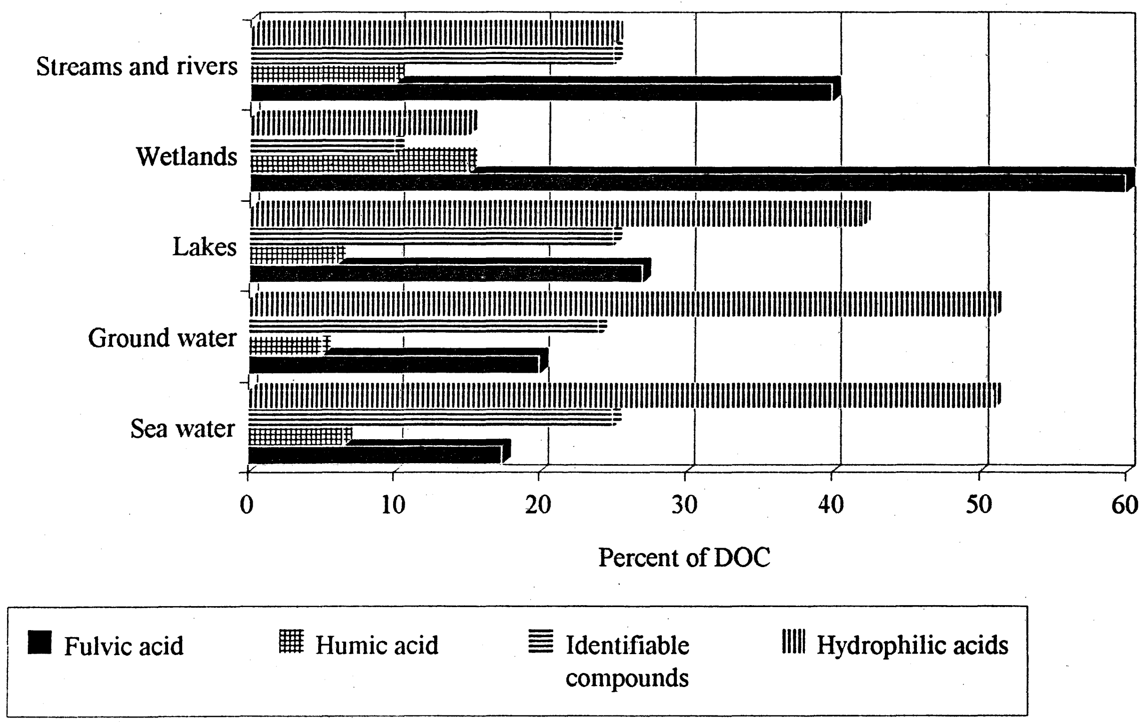


Figure 3.1. Composition of DOC. Figure modified from Thurman and others, 1985

Soil and Aquatic Humus Formation

An understanding of the origin and the processes of humus formation is important for assessing potential impacts from a variety of proposed activities in the Delta. These include creating wetlands, storing water in reservoirs, and dredging and widening channels.

When fields are leached, a variety of factors can change the composition and character of the drain water constituents. There are changes in dissolved oxygen, pH, microbial populations, and the types of inorganic and organic matter. Interstitial water from reduced environments (anaerobic) are flushed into open ditches (aerobic environment) with thriving microbial populations. Further decay and transformation of the organic material will occur with rates that vary with seasonal environmental conditions. The chemical behavior (e.g., solubility, contribution to water electrical conductivity) of mineral salts in an organically rich, acidic medium is also changed.

Aquatic humic substances originate from soil humic material and terrestrial and aquatic plants (Thurman and others, 1985). Delta soils and, therefore, drainage water are naturally enriched in humic and fulvic acids from decomposing matter. Because of the underlying decaying organic soils, Delta islands are major storage pools of soil humic substances. Drain and river waters will mostly have aquatic humics.

Soil and aquatic humus differ. Stevenson (1982) proposed four pathways for the formation of humus in soil. The theories revolved around lignin and/or cellulose degradation from plant material. Cellulose content can be up to six times more than the lignin content on a percentage weight basis.

A proposed composite hypothesis is that aquatic humic substances are the result of several processes in the aquatic environment (Thurman, 1985). The type of water and time of year are major factors in the origin of humic substances in water. The processes or origins include:

(1) Leaching of plant organic matter into the surrounding water;
(2) Chemical and biochemical alteration of plant material as it is leached through the soil;
(3) Leaching of both soil fulvic and humic acids into the water;
(4) Lysis of algal remains and bacterial degradation of phytoplankton;
(5) Photo-oxidation of organic matter at the surface; and
(6) Polymerization of biological products in water.

Thurman and Malcolm (1983) found that input from land (processes 1 to 3) are more important for streams and rivers. Processes 4 and 5 may be more important in lakes and oceans (Harvey and others, 1983). In the autumn when leaves fall and are leached by autumn rains, processes 1 and 2 are important (Caine, 1982). In case of low stream flow, ground water is a major input and soil and sediment interstitial waters may be most important (Thurman, 1985). For the Delta, processes 1 through 4 and interstitial waters from soils are probably important sources of humic substances in the drainages at certain times of the year.

Except for ground waters and wetlands, the oxidative process rather than polymerization is dominant on fulvic and humic acids in water. However, in reductive environments, such as water-logged soils, ground waters, and interstitial waters, the large concentration of organic matter and preservation of phenolic groups enhances the opportunity for polymerization of humic substances (Thurman, 1985). In fresh plant extracts, bacteria enzymatically cleave the natural plant products, which are high in carbohydrate, and increase the carboxyl content. Phenols are oxidized to quinones and undergo polymerization reactions. Therefore, the subsurface Delta island soils, which by nature are water saturated, organically enriched, and in a reducing environment, will probably continue to be a vast generator of humic substances.

The impact of ponding Delta islands for water storage or using them as a waterfowl habitat with respect to DOC and THMFP concentrations in the stored water is uncertain. Supporters of wetland and water storage projects on Delta islands argue that the deep inundation of the islands will inhibit oxidation of organic soils and, thereby, reduce the availability of DOC and loading of THM precursors. USGS studies indicate that DOC will still be available regardless of the oxidative state because of the abundant supply of soluble organic matter on the islands (Deverel, pers. comm.). A pilot study may be the only method to determine the effects of using an island to store water.

Drainage Volume

About 1,000 siphons and 260 drainage pump stations are on nearly 60 islands and tracts. Most of the pump stations have more than one discharge pipe. Drainage discharge data are essential for estimating the loadings and impacts of DOC and THMFP precursors from drainage. The most complete study of Delta drainage volumes was conducted nearly 40 years ago in 1954-55 and published in DWR Report No. 4 (DWR, 1956). Historical Delta land use records show significant changes in the crops grown during the last 40 years. Asparagus was the dominant crop in the 1950s and 60s. Corn is now the major crop. It is not known if these crop changes have affected drainage volume because of different water demands and farming practices.

DWR and the USGS are conducting a joint study to measure and estimate the applied and drainage water volumes in the Delta. Power consumption data and measured flows will be used. Program staff members are obtaining permission from landowners and the reclamation districts to install these temporary devices at pump stations and siphons. The joint study began in December 1993. The monitoring equipment will be rotated to different islands to compare new computed estimates to those in DWR Report No. 4. Until these estimates are updated, DWR Report No. 4 provides the best data of Delta-wide drainage volume by region and month. The 1954-55 drainage volume estimates are discussed in the section titled "Drainage Discharges" in this report.

Behavior of DOC

Understanding the behavior of DOC compounds is important for following their fate and transport in the Delta. Saunders (1976) proposed the following generalization about the decomposition rates of dissolved organic matter (DOM). Simple low molecular weight organic compounds decompose most quickly with turnover times of less than one hour to several hours. Higher molecular weight organics released by phytoplankton and bacteria decompose in 2 to 10 days. Other higher molecular weight dissolved organics decompose on the order of 100 days, and another class of organics that takes longer than 100 days to decay probably exists. This suggests that the highly reactive humic substances, or THM precursors in island drainages originating from the organic soils, will be more persistent than humics in water applied to the islands. In fact, humic substances, the most reactive fraction of the DOM in forming THMs, are very resistant to degradation. Carbon dating has established that humics in the Suwanee River in Florida are 30 years old. The nonhumic fraction of the DOM, consisting largely of biochemicals such as proteins and amino acids, is more biodegradable (G. Amy, pers. comm., 1990).

The relationship between salinity and DOC in an estuary has been studied by many. Salinity, reported in parts per thousand, is defined as the total solids in water after all carbonates have been converted to oxides, all bromide and iodide have been replaced by chloride, and all organic substances have been oxidized. Salinity is numerically smaller than total dissolved solids (APHA, 1981). Some studies have found a conservative behavior of DOC in estuaries such as the North Dawes, Beaulieu, Ems, Rhine, and Severn (Loder and Hood, 1972; Moore and others, 1979; Laane, 1982; Eisma and others, 1982; Mantoura and Woodward, 1983).

Mantoura and Woodward (1983) found that degradation did not significantly change the DOC concentration during its 200 day residence time in the Severn Estuary. Other studies showed that precipitation and flocculation of DOC, particularly humic substances, occurred at salinities of 5 parts per thousand and more (Sholkovitz, 1976). Sholkovitz (1976) found only l percent to 6 percent, removal of DOC in the Amazon estuary by precipitation. However, the humic acid, which accounted for 5 percent to l0 percent of the DOC was nearly all removed in the estuary (60 percent to 80 percent). It appeared that fulvic acid was not removed in the Amazon estuary.

Aquatic fulvic acids generally have molecular weights of less than 2,000 and are more soluble than humic acids which have molecular weights from 2,000 to 5,000 or more. Humic acids are more colloidal in size and will, therefore, "salt out" in saline estuarine waters.

While these studies show different conservative behavior in an estuary, they agree that in waters of less than 5 parts per thousand salinity (<5,000 mg/L), DOC behaves conservatively.

The conclusion based on the above studies is that estuarine waters of 5 parts per thousand or more salinity will tend to remove by precipitation the more reactive THM precursor humic acid fractions in DOC carried downstream by river inflow.

The studies show that humic substances (fulvic and humic acids) in Delta waters may be treated as conservative constituents because of short water residence time relative to decay rates and low salinities. With the exception of a few Delta sloughs, water flowing into the Delta is generally transported to the export pumps or out into the Bay in a few days or weeks. This assumption has also been used in the Department's Delta modeling studies.

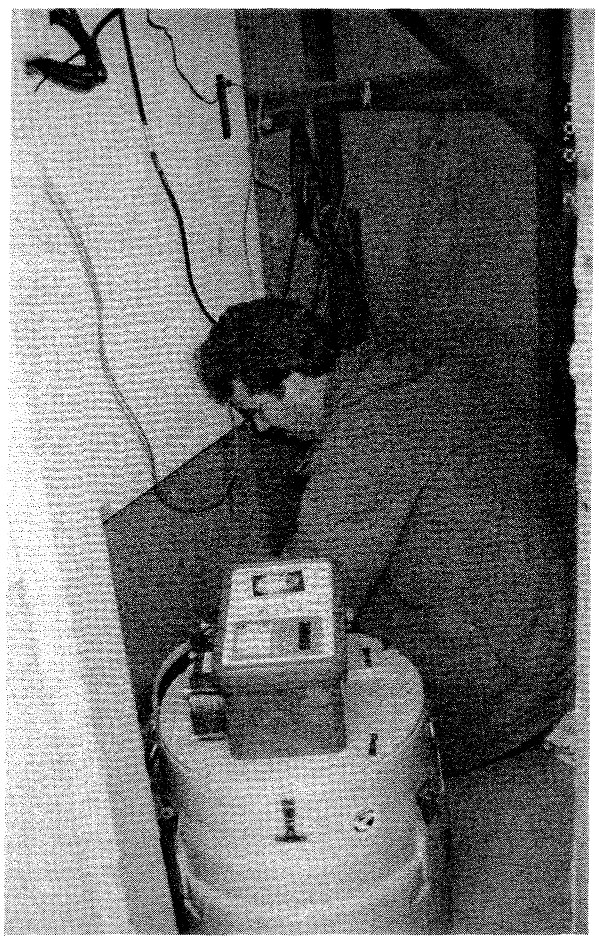


Photo 2.6. Automated water sampler. New automated sampling devices are being installed at six sites for studying daily and sometimes hourly changes in DOC and other water quality parameters in the channels and drains.

Chapter 4. RESULTS

The objective of the five-year data analysis was to summarize current knowledge about the sources and distribution of organic carbon in the Delta. Although not all drains have been monitored nor drainage volume estimates updated, in some cases, sufficient data exists to make educated guesses about unsampled drainages and the overall impact of organic matter from them on Delta channel quality.

The following results and topics are presented in this chapter:

- **Regional and Seasonal Patterns.**
  This section summarizes information on the differences in soil types, DOC, humics, and drainage volume across the Delta and with season. This information is useful in identifying major sources and activities that affect DOC distribution in the Delta. The data serves as a framework for developing a computer model on regional and seasonal changes in Delta THMFP.

- **Drainage Organic Carbon Releases.**
  Estimates on the amount of organic carbon from island drainage and in-channel sources are presented. A simple model, based on current data and reasonable assumptions, was used to conceptualize DOC input to the Delta and to identify additional monitoring needs.

- **Modifed THMFPC Assay.**
  Improvements to the DWR THMFP assay for Delta waters are described. The new method eliminated previous underestimates of THM formation potential of high DOC water samples (more than 20 mg/L). The old method yielded lower THMFP results for some drain water samples but not for nondrain water samples.

- **Surrogate Measurements.**
  This section describes correlations among UVA, DOC, and TFPC. The relationships were useful in identifying and explaining some of the underestimated THMFP concentrations caused by the old DWR THMFP assay. The relationships of UVA to DOC, called specific absorbance, may also serve as a tracer for the source and age of organic matter in Delta soils. Future telemetered monitoring systems might include in-situ UVA measurements if the relationships and accuracy are acceptable. If the UVA to TFPC and UVA to DOC

relations are useful, earlier data where DOC was measured could be used to estimate past UVA. From the estimated UVA, past underestimated THMFP data or TFPC data could be corrected. In any case, the study of surrogate measurements may improve modeling input data.

- **Other Water Quality Concerns.**
  Selenium and sodium monitoring results are summarized.

- **Data Quality Review.**
  Results of an evaluation of the integrity and operations of the program's quality assurance and quality control protocol are summarized with recommended actions.

Regional and Seasonal Patterns

Significant progress has been made in understanding the distribution and nature of THM precursors in the Sacramento-San Joaquin Delta. Much of the observations about drainage water quality are predictable and are associated with the prevalent soil characteristics of the surrounding area. The regional and seasonal patterns of DOC, TFPC, and other indicators of precursor availability are discussed in the following sections.

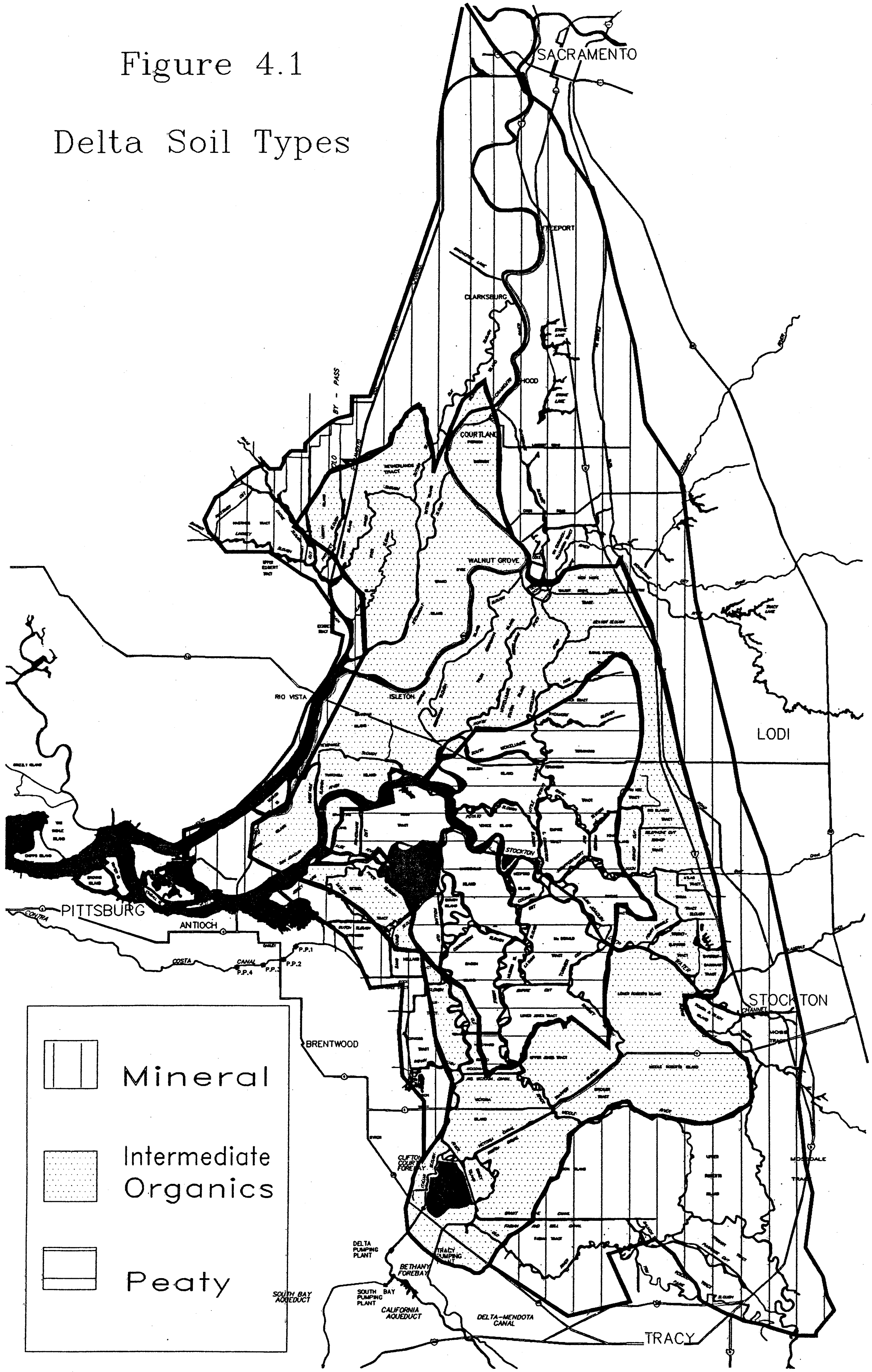
Soils

The natural history of the Delta explains the tremendous supply of organic matter in the region. Much of the area was once a vast tule marsh. Reclamation activities over the last 100 years have removed this vegetation for farming. The deep layers of peat, over 30 feet thick in some areas, came from the decay of marsh plants (the great bulrush or tule, *Scirpus lacustris*).

Delta soils are grouped into three simple classes: mineral, intermediate organic, and peaty organic. Mineral soils have the least amount (less than 10 percent) of organic matter and peaty organic the most (about 50 percent to 80 percent). Organic soils are confined to the Delta basin and occupy about 250,000 acres. Mineral soils are located along the margins of the basin. The organic soils in the basin are more typical of the low-lying area and the mineral soils represent a transition zone where basin organic soils begin to mix with upland mineral soils that originate from areas beyond the Delta boundaries. The regional soil types in the Delta are shown in Figure 4.1.

Figure 4.1

Delta Soil Types



As time passed there was a constant layering of soil and a mixture of partially and fully decomposed organic matter. Soil horizons of older and younger material were created and can be seen in deep soil profiles (Thurman, 1985).

Most of the central Delta has soils classified as Staten and Venice peaty muck that have 60 percent to 70 percent organic matter. Most areas with intermediate organic type soils (Ryde silty clay loam) has 30 percent to 50 percent organic matter.

Previously, it was found that TTHMFP concentrations in island drainage are associated with the soil type (DWR, 1990). Drainage from peaty organic regions had the highest THMFP concentrations, and mineral soil areas had the least amount during the peak summer and winter months of drainage discharge. Other water quality parameters were found to be associated with soil type and are discussed in the following sections.

Dissolved Organic Carbon (DOC)

Drains. The organically enriched Delta peat soils on Bouldin Island have high porosity with compaction less than 10 percent vol/vol (Deverel et al., 1986). This is probably typical of most peat areas. Deep crevices extend from the surface to a few feet (Deverel, pers. comm., 1991). The soil's low compactness results in innumerable macro and microchannels throughout the soil column. These channels serve as conduits for water movement across and vertically through the loose spongy peat soil. They also allow soil contact with air, which leads to oxidation. Studies conducted for DWR by the U.S. Geological Survey have measured over 90 percent carbon loss as carbon dioxide on Twitchell Island. This carbon loss is attributed to microbial decay and surface oxidation (Deverel, pers. comm., 1991). Most subsidence or loss of soil in the Delta is attributed to natural oxidation processes occurring in the soils.

Organic matter is carried away as water passes through these soils from irrigation, rainfall, flooding, seepage, and leaching. Due to head, hydraulic gradients, and capillary action, interstitial water in the porous peat soil is displaced as new water enters the soil. New water enters from spud ditches that provide subsurface irrigation to crops during the growing season. In winter, water is applied (i.e., ponded or flooded) to fields for salt leaching. The water eventually empties into the drainage canals and is generally high in salts and organic matter.

There are regional and seasonal differences in the ranges of DOC concentration in Delta drainages. The regional pattern was most evident when drainage DOC concentrations of subunits of the Delta were compared by wet (October to April) and dry (May to September) seasons. These subunits are groups of islands and tracts (DWR, 1956). The subunits could be grouped into three distinct subgroups to describe the regional DOC concentrations. Figure 4.2 shows the predicted regional pattern of DOC which correlates with soil type. Some island drainages are not sampled so the predicted regional patterns are based on observations of adjacent areas.

The monthly DOC concentrations for all sampled drains are shown in the box-and-whisker plot in Figure 4.3. The maximum, upper quartile (75 percent), average (indicated by "+" within the box figures), and median values are indicated in the figure. Overall the average values were higher than the median values and represented a 60 to 80 percentile value depending on month. The average, median, and upper quartile values were closest to each other during May through October, a period when DOC is least variable. The highest DOC concentrations as seen by average and 75 percentile values occur in December to March. The monthly data show a lognormal distribution as seen by the positions of the median and 75 percentile values in relation to the total range of values.

During late fall and early winter, the farmers siphon water onto the fields to remove salt. Berms are created by the farmers to create a small wall (1-2 feet high) around the fields to facilitate ponding. As water enters the island from the siphons around the islands, the drainage pumps are temporarily shut off to allow the fields to quickly fill. The drainage pumps resume operating after the fields are flooded. The hydraulic head and operation of the drainage pumps, respectively, push and pull water through the soil beneath the ponded fields. The highest DOC concentrations in drainage typically occur during this period and are attributed to the dissolution of organic matter in the fields and underlying soil. During these months, DOC levels in the drainage may increase by two to three times higher than in the drier months.

Lower DOC concentrations, sometimes seen in November through February, might have reflected conditions prior to when the fields were flooded or after drainage from the flooded fields was pumped off the islands.

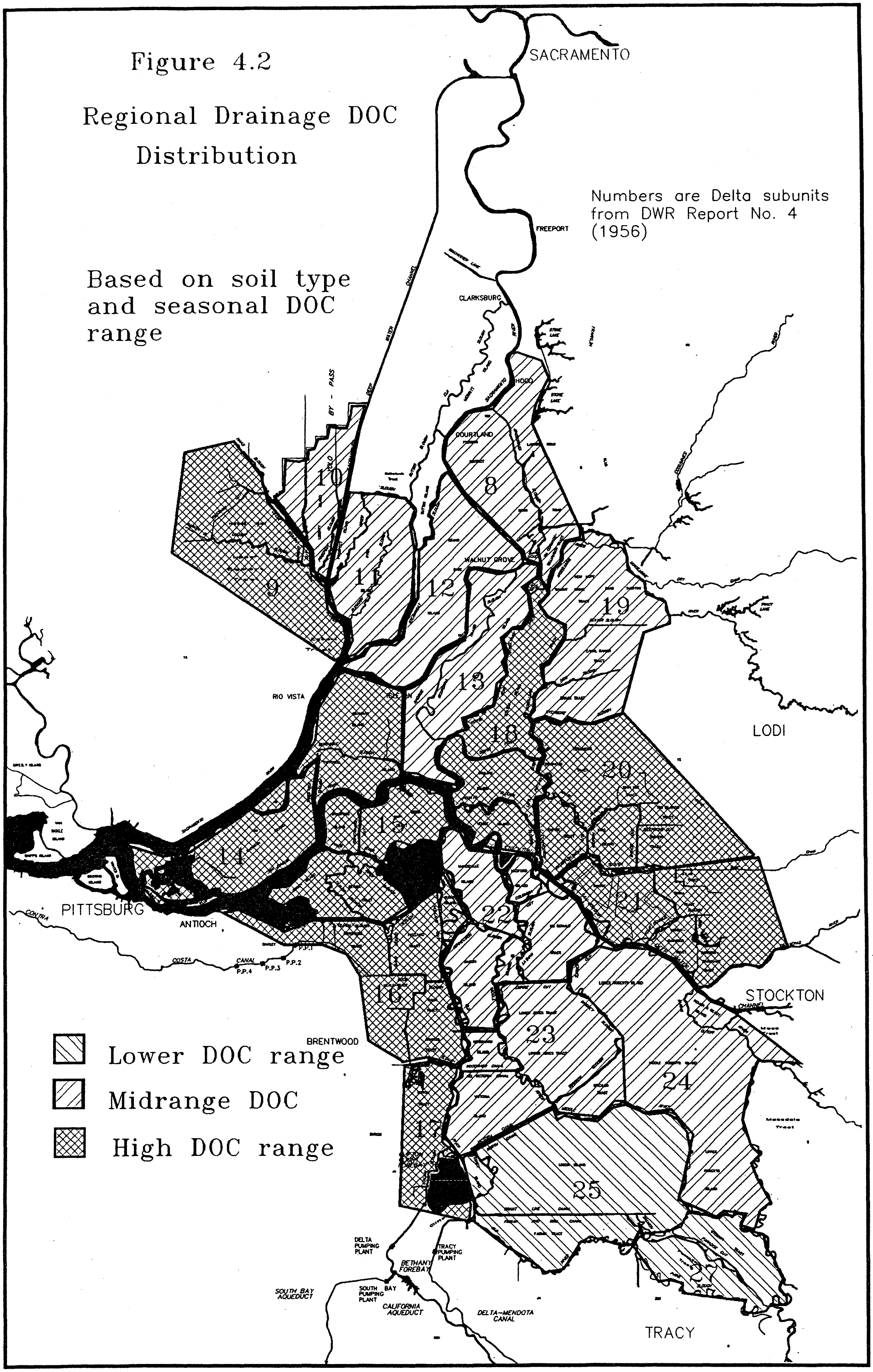


Figure 4.2

Regional Drainage DOC Distribution

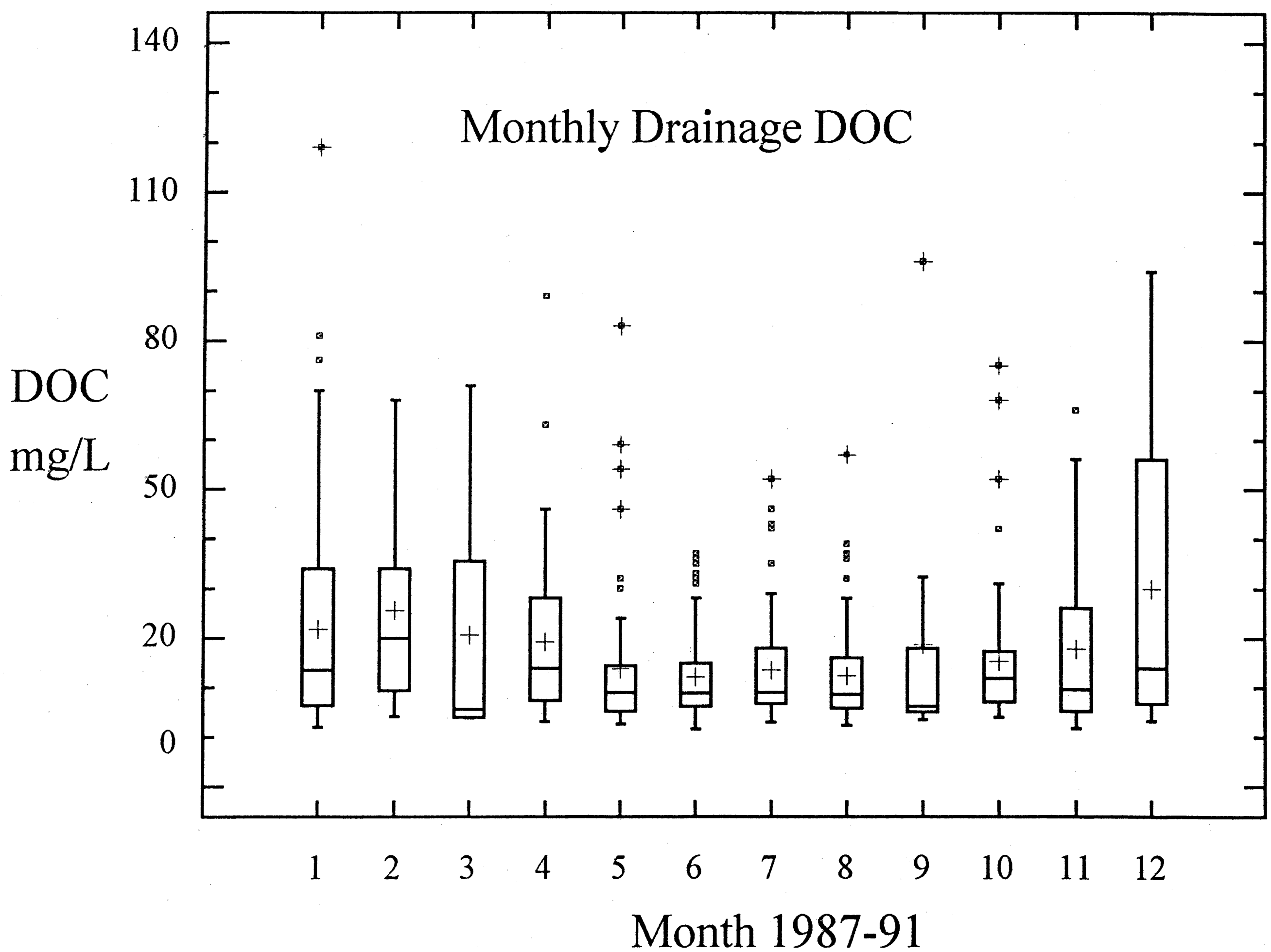


Figure 4.3. Monthly DOC at Sampled Delta Drain Pump Stations

The wide range of DOC concentrations within a group of islands or at a drainage station for the same month could be explained by the following:

1. Not all fields were farmed that year. For example, in the summer of 1991, the State instituted a Drought Water Bank, whereby farmers were compensated for water not used for crop production during the drought. About 40 percent of the Delta lands were fallowed under this program.

2. There are changes in the irrigation schedule and amount due to changing crop needs. Some crops and stages of a crop have different watering needs. Some areas may be harvested earlier than others.

3. Seepage water from adjacent channels is the predominant water source collecting in the drainage. This might be the case if fields were not farmed.

4. Most of the "available" soluble organic matter had already been removed from the winter ponding of fields. Organic matter would again be available with time as environmental conditions (e.g., warmer temperatures, oxidation, and microbial activity), which favor organic decay, are reestabished. With time, DOC levels in interstitial waters would increase.

5. There are regional differences in soluble organic matter in a drained field. Some islands have more than one soil type so the drainage water quality at each pump station may differ significantly.

6. Microbial degradation has caused a loss of DOC in the drains. DOC is converted to carbon dioxide gas and released into the atmosphere. The rate of degradation is expected to be higher during the warm months than in the cool months, because temperature has a positive effect on microbial activities (e.g., population growth, metabolism).

7. The contact time of water with soil organics is short, so leaching is incomplete. The water table fluctuates with season, and a lower elevation results in less soil moisture and contact time.

The monthly range of DOC values for each of the three Delta subgroups is shown in

Figure 4.4. The seasonal high and low DOC months are similar for the high and intermediate level DOC drainages. Seasonality is less distinguishable for the low DOC region where mineral soils are found because of limited sampling during February to May.

The difference between wet and dry month DOC levels may represent the impact of flooding the fields to remove salt during the winter. A study to achieve salt reduction with less applied water could mutually benefit the reclamation districts, power utility provider, and downstream water users. Less applied water would result in less drainage being pumped off the islands. This, in turn, would result in lower electrical costs and reduced wear of pumps for the reclamation districts. The power utility company would also benefit from postponing the need for building new power facilities to meet future growth. Downstream users would benefit if DOC pumped into the channels could be reduced.

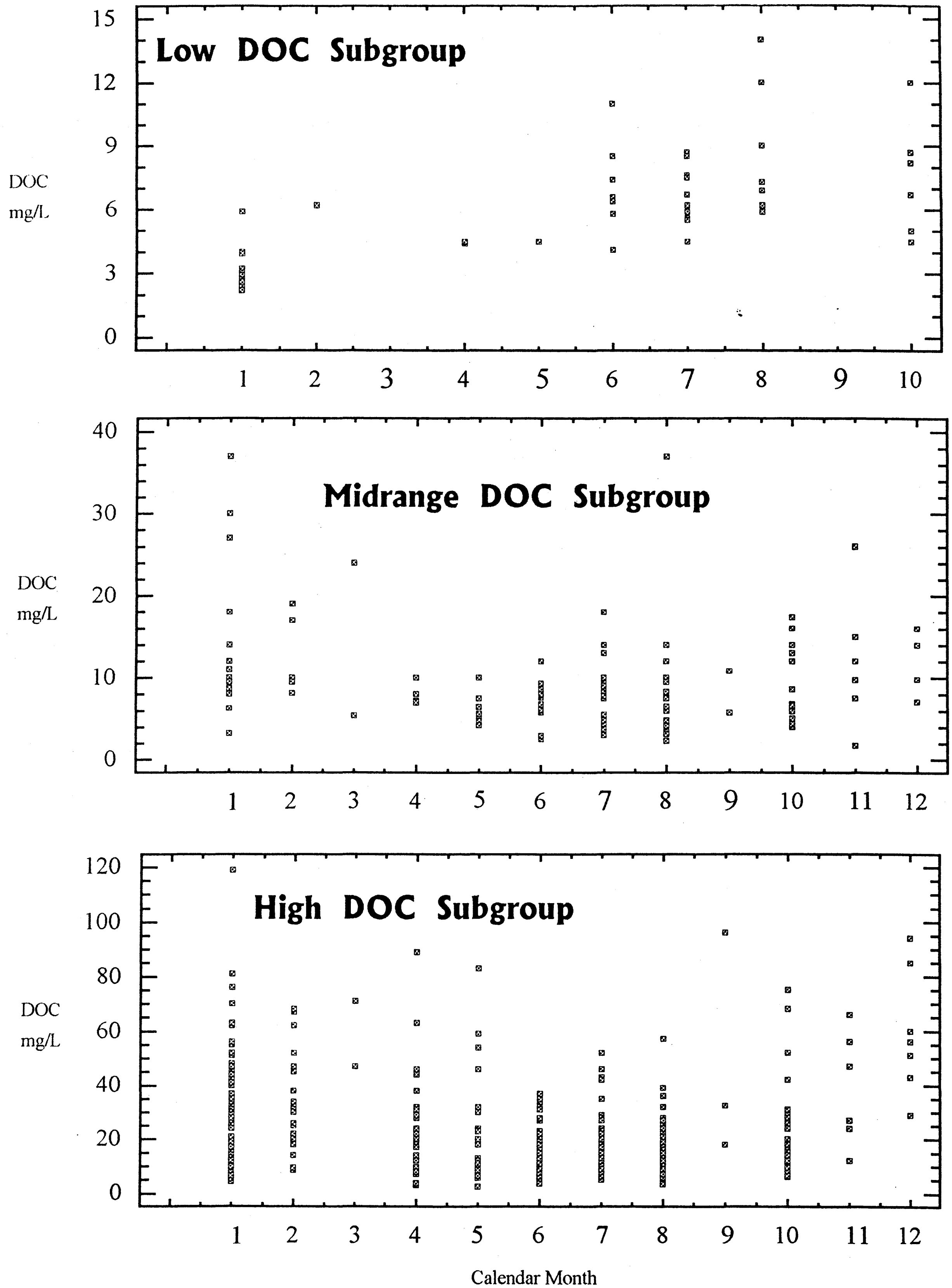


Figure 4.4. Regional Monthly Drainage DOC

Channels. Monthly DOC in the Delta channels did not show a definitive increase due to successive dry years. The highest DOC concentrations coincided with periods when fields were flooded and drained in the winter (December to February), storms occurred (March 1991), and fall rice field drainage was released upstream of the Delta on the Sacramento River (September). Winter DOC concentrations are 2 to 3 mg/L higher than during the summer months. The monthly DOC at eight Delta stations is shown in Figures 4.5 to 4.7 for calendar years 1987-91. DOC data for some stations prior to 1988 were not available, as TOC was measured instead of DOC. TOC is equal to or higher than DOC concentrations and varies with time and sampling location. There is no constant relationship between these two measurements.

The DOC data are important in view of recent proposed EPA regulations on allowable TOC concentrations in raw water supplies prior to disinfection. By 1997, enhanced coagulation will be necessary for most, if not all, users of Delta waters to meet the Surface Water Treatment Rule. For waters with TOC ranging from 2 to 4 mg/L, 30 percent of the TOC must be removed before applying chlorination. For waters with 4 to 8 mg/L TOC, 35 percent of the TOC must be removed. All systems with more than 2 mg/L TOC must do pilot studies to evaluate GAC and membrane filtration during the next few years for the second round of negotiated regulations with EPA in 1998 (Krasner, pers. comm. 1993).

The plots show that even waters from the American River and Sacramento River at Greenes Landing will, on occassion, have TOC above 2 mg/L based on DOC data. DOC concentrations at major water diversion sites (e.g., Banks headworks, DMC intake) often exceed 4 mg/L and during storm events reach 8 mg/L. Delta drainage and storms can cause the DOC to double in concentration. DOC is expected to increase in the channels during normal and wet year conditions. New federal drinking water standards may result in DOC control which may, to some extent, override concerns for THMFP of State water supplies.

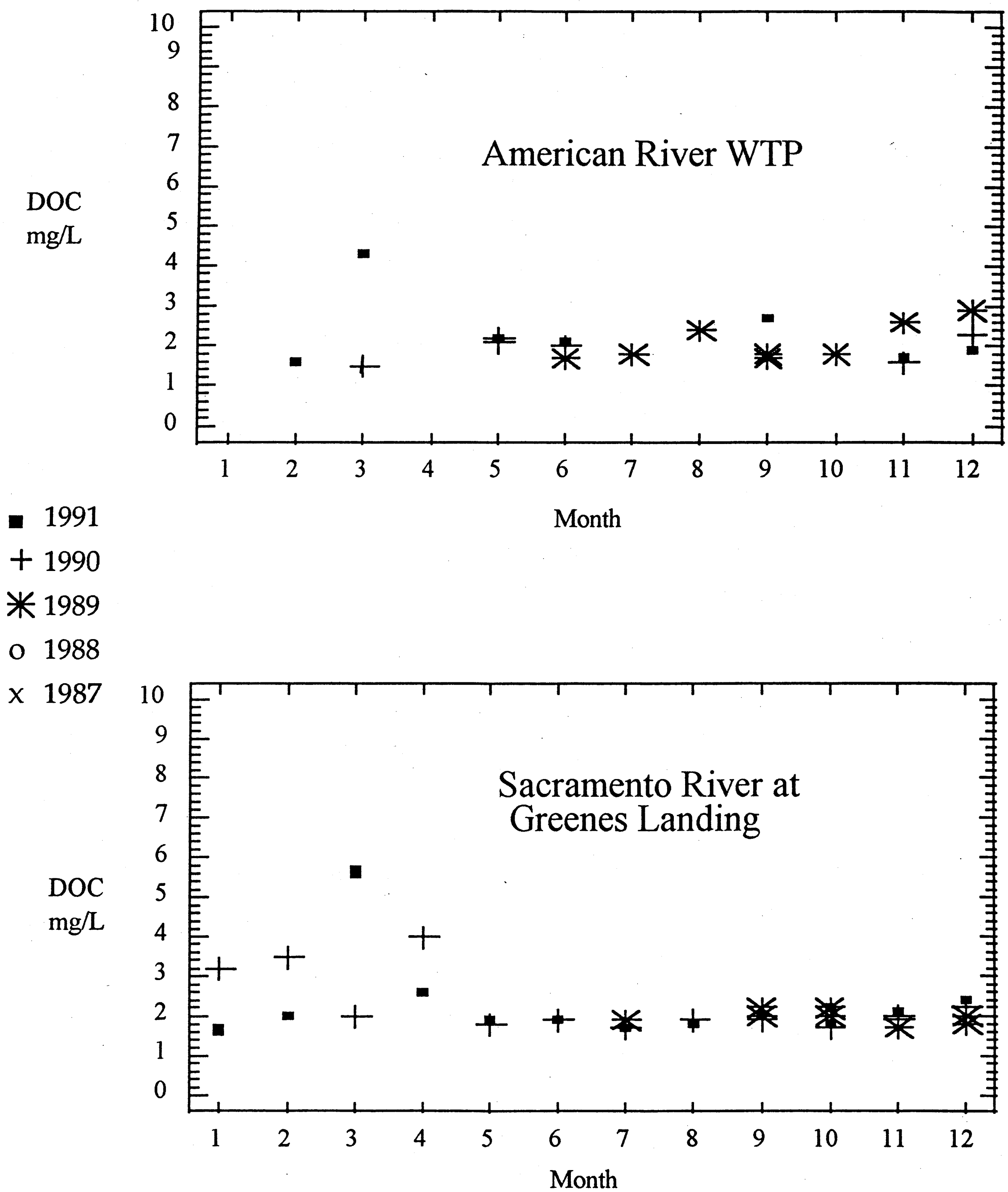


Figure 4.5. Monthly DOC at Upper Delta Stations

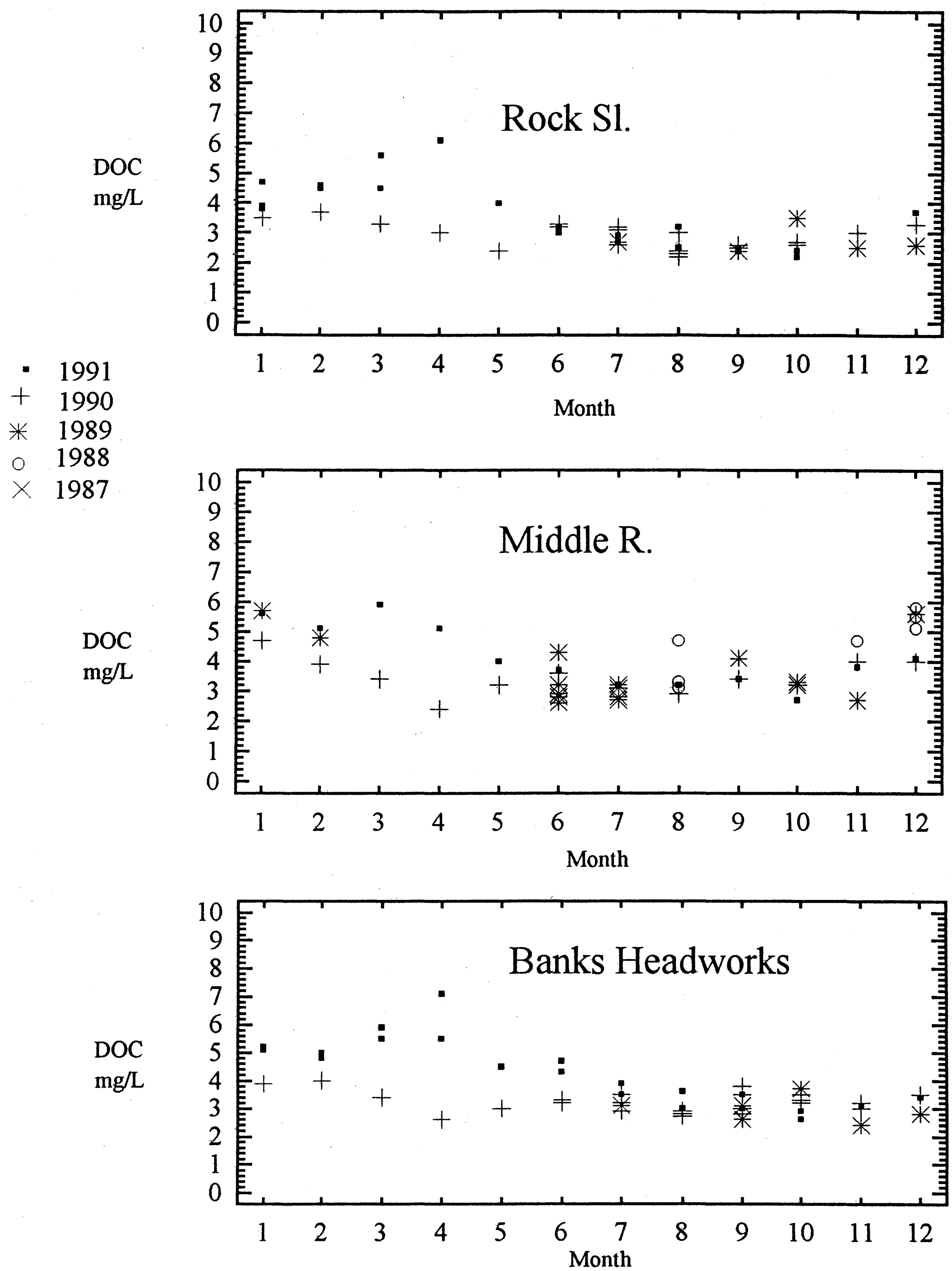


Figure 4.6. Monthly DOC at Lower Delta Stations

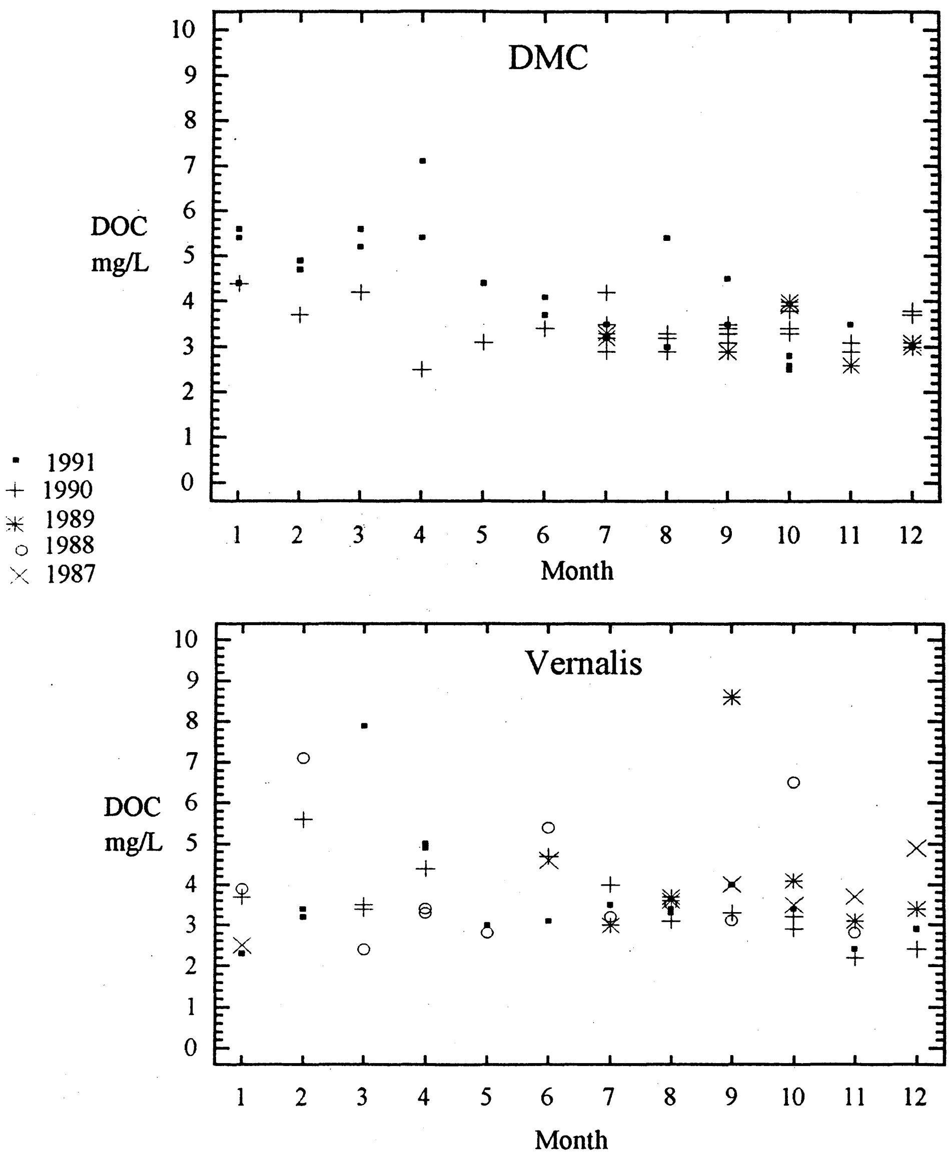


Figure 4.7. Monthly DOC at DMC intake and Vernalis Stations

Island DOC Loads

A computation was made for the estimated mass loads of DOC applied onto an island and removed by pumping drainage. For comparison, the calculations were made for a southern Delta mineral tract, Pescadero, and for an intermediate organic soil island, Grand Island. July data were used because according to DWR *Report No. 4: Quantity and Quality of Water Applied To and Drained from the Delta Lowlands* (DWR, 1956), July received about one-third of the total water during the irrigation season (March - October). There were no applied water data for November to February to calculate mass load for these months. To simplify the estimates, the following data were used:

1. The July 1954-55 data on applied water and drainage water volumes for those two areas were used as no recent data were available.

2. The approximate average July DOC concentrations for each island based on the MWQI monitoring program were used.

3. It was assumed that water applied to Grand Island could be represented by Sacramento River at Greenes Landing water quality data and that water applied to Pescadero Tract could be represented by data from the San Joaquin River near Vernalis.

The example calculations showed:

1. Grand Island drainage had one-third to nearly one-half more DOC in total pounds than in the applied water. This is attributed to the high organic content of the island's soil and drainage volume.

2. In contrast, the mass amount of DOC discharged from Pescadero Tract was significantly less (reduced by 74 to 80 percent) than that amount applied onto the island. This is attributed to the low organic content of the soil and lower drainage volume at Pescadero.

3. The ratios of the volumes of applied water to drainage water were significantly different between the two islands. The ratios at Grand Island

ranged from 2.7:1 to 3:1 and at Pescadero Tract from 6.6:1 to 8:6:1. These differences are likely linked to soil type differences and crop demands.

Summary of Example Calculation

	Grand Island	Pescadero Tract
General soil class	organic	mineral
Applied water volume /1	10,655 AF	8,150 AF
Applied water DOC concentration /2	2 mg/L (Greenes Landing)	3.5 mg/L (Vernalis)
Applied water mass load DOC	57,921 lbs.	77,531 lbs.
Drainage water volume /1	3560 AF (1954) ; 3927 AF (1955)	1231 AF (1954) ; 948 AF (1955)
Drainage DOCconcentration /2	8 mg/L	6 mg/L
Mass load DOC pumped out	77,409 lbs. ; 85,389 lbs.	20,075 lbs. ; 15,460 lbs.
Mass In minus Out	19,488 lbs; 27,468 lbs.	(57,456 lbs.); (62,071 lbs.)
Percent gain or (loss)	33.6 % and 47.4 %	(74 %) and (80 %)
Ratio of applied to drainage volume	3:1 and 2.7:1	6.6:1 and 8.6:1

1. Applied (July 1954) and drainage water (July 1954 and July 1955) volumes from DWR Report No. 4: Quantity and Quality of Water Applied To and Drained from the Delta Lowlands, July 1956.
2. DWR MWQI DOC data for Sacramento River at Greenes Landing, agricultural drain at Grand Island, San Joaquin River near Vernalis, and agricultural drains at Pescadero Tract.

Similar patterns are expected for other islands and tracts of similar soil classification. These results, although illustrative and based on old applied and drainage volume data, concur with and further support the conclusions previously stated regarding how important regional soil type, organic content, and drainage volume affect the availability and release of DOC from the islands.

To update information on current conditions, the Department and the U.S. Geological Survey have launched a joint study of Delta water use. This study will measure the volumes of applied and drain water on several islands beginning with Twitchell Island. Water quality will also be monitored to compute mass loads of constituents. The results of this study will be used to update consumptive use estimates for the Delta.

Humics

Drains. Natural dissolved organic matter has the physical characteristic of absorbing ultraviolet light at different wave lengths. Measurements of that characteristic at the ultraviolet (UV) wave length of 254 nm is a standard laboratory procedure.

The predominant UV absorbing organic material in natural waters is humic material. Humic and fulvic acids in wetlands constitute about 75 percent of the DOC. Humic acid absorbs ultraviolet light more than fulvic acid but is generally four to five times lower in concentration (Thurman, 1985). Pure humic acid and fulvic acid produce 11.7 and 7.6 millimoles of chloroform per mole of chlorine consumed, respectively (Babcock and Singer, 1979). Moist conditions of swampy areas may promote the formation of the smaller molecular weight humic substances (fulvic acids) by interfering with molecular condensation reactions (Gjessing, 1976). These reactions are a key step in forming the macromolecules that comprise the humic acid fraction. This might explain why there is more fulvic acid than humic acid in wetland areas such as the Delta.

Specific absorbance is the ratio of the ultraviolet absorbance (UVA) per cm at 254 nm to the DOC concentration (mg/L). Drainage samples generally had specific absorbance within three ranges:

Range 1: Low-range 0.0 to less than 0.03
Range 2: Mid-range 0.03 to less than 0.06
Range 3: High-range 0.06 and above but generally less than 0.20

The specific absorbance of drain water probably indicates different stages and amount of humification (humics vs. nonhumics and types of humics remaining) in the soils. Lower specific absorbance is expected from areas with fresh organic matter or less mature or less available humic material. As microbial decay progresses, the ratio increases and becomes more stable over time as DOC is reduced and released as carbon dioxide into the atmosphere. The remaining UV absorbing organics are the biorefractory humics. The proportion of UVA compounds might also shift.

The significance of these specific absorbance ranges is that they, in combination with other water quality measurements, could be used to track the impact of drainage on regional water quality in the channels as well as explain the regional differences in observed THMFP or TFPC.

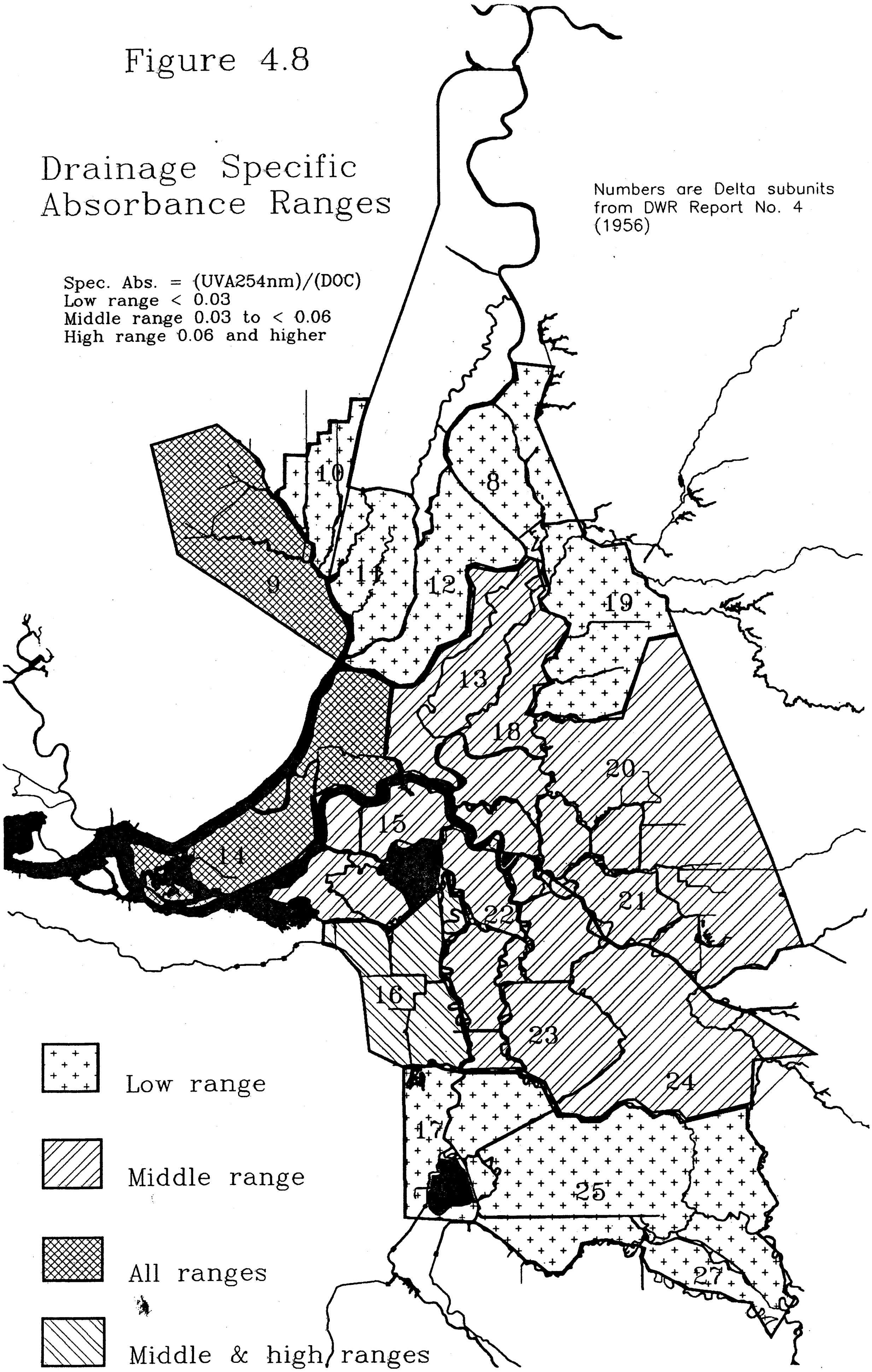
The ratios correlated with the regional soil type of the sampled drain (Figure 4.8). In general, the mineral soil areas had the low-range ratios. Peat areas had mid-range ratios, and areas with mixed soil types had more than one range. Drain samples with mid-range specific absorbance have higher TFPC than the low and high specific absorbance samples. This suggests that the mid-range group of organics is rich in THM precursor compounds. For simple comparison, the drainage data were grouped by location into areas. These areas corresponded to Delta units studied in the Department's 1954-55 drainage water quantity and quality study (DWR, 1956). Some areas had multiple ranges of specific absorbance. Delta Unit 15 (Brannan and Twitchell islands) had values in the three ranges. The soils of these two islands are intermediate organic in character. Unit 16 (Holland, Palm, and Orwood tracts) had specific absorbance in the middle and high ranges. Holland Tract soils are classified as peat and those of Palm and Orwood are intermediate organic. The drain at Clifton Court Forebay in Unit 17 (Clifton Court and Byron Tract) had ratios mostly in the mid-range, but some samples were in the low-range. These multiple ranges might reflect the mixed soil types (mineral and intermediate organic) along the southwestern border of the Delta lowlands.

Some Delta units had stable specific absorbance in the middle range. These were Unit 18 (Staten and Bouldin islands), Unit 20 (Empire and Terminous tracts and King Island), Unit 22 (Bacon, McDonald, and Mandeville islands), and Unit 23 (Lower and Upper Jones tracts). The soils of these areas are organic peat. Drain water from Pescadero Tract, which represented Delta Unit 27, had low specific absorbance but was high in bromides. The low specific absorbance probably reflects the low humic content of the mineral soil in this region.

In summary, drainage from Delta mineral soil areas had low specific absorbances of less than 0.03. Drainage from peat areas had ratios in the 0.03 to less than 0.06 range. Areas of intermediate organic soils had drainage with multiple ranges of specific absorbances. These ratios are indicators of the distribution of humic organic matter.

Figure 4.8

Drainage Specific Absorbance Ranges



Channels. MWQI channel stations were grouped into subregional water quality characteristics (e.g., EC) and put into channel zones for this analysis (Table 4.1). The channels had distinct ranges of specific absorbances that corresponded to the primary water sources and drainage quality of that region (Figure 4.9).

The specific absorbances were low at the American River station and at the downstream North Lowland stations (channel zones 1 and 2). This area lies north of the San Joaquin River that extends out to the western Delta and north of Potato and White sloughs. Both low and mid-range specific absorbances were observed in channel zones (i.e., zones 3, 4, 5, and 6) southward of this region. However, stations along Middle River in channel zone 6 had more mid-range values than low values. Specific absorbance of drainage from the central Delta peat areas are predominantly mid-range and are the likely cause of the mid-range values in the channels. South Delta stations (channel zone 7) had low values as did the San Joaquin River stations at Maze Road and Vernalis.

The specific absorbance of Sacramento River at Mallard Island samples varied, with about two-thirds of the observed values in the mid-range and the remainder in the low-range. Western Delta stations in channel zone 5 and at the Banks headworks also had about the same proportion of mid-range to low-range ratios as the Mallard Island station had. However, the specific absorbances at the DMC intake were about evenly distributed between low- and mid-range values. The difference in the distribution of specific absorbance at the Banks headworks and DMC intake may be due to differences in the operation of these two facilities. The DMC operates continuously while the Banks facilities has gates at Clifton Court Forebay to regulate the intake of water during tidal periods and varying seasonal water needs.

In general, the specific absorbances are low in the northern Lowlands region and San Joaquin River stations. The western and central Delta regions had both low- and mid-range values. The regional channel specific absorbances do appear, in part, to correspond to local drainage specific absorbances. These comparisons could be used to assess the impact of local drainage discharges on channel water quality.

The use of UVA to estimate DOC concentrations and the importance of specific absorbance for predicting TFPC are both discussed in "Surrogate Measurements."

Table 4.1. Channel Zones

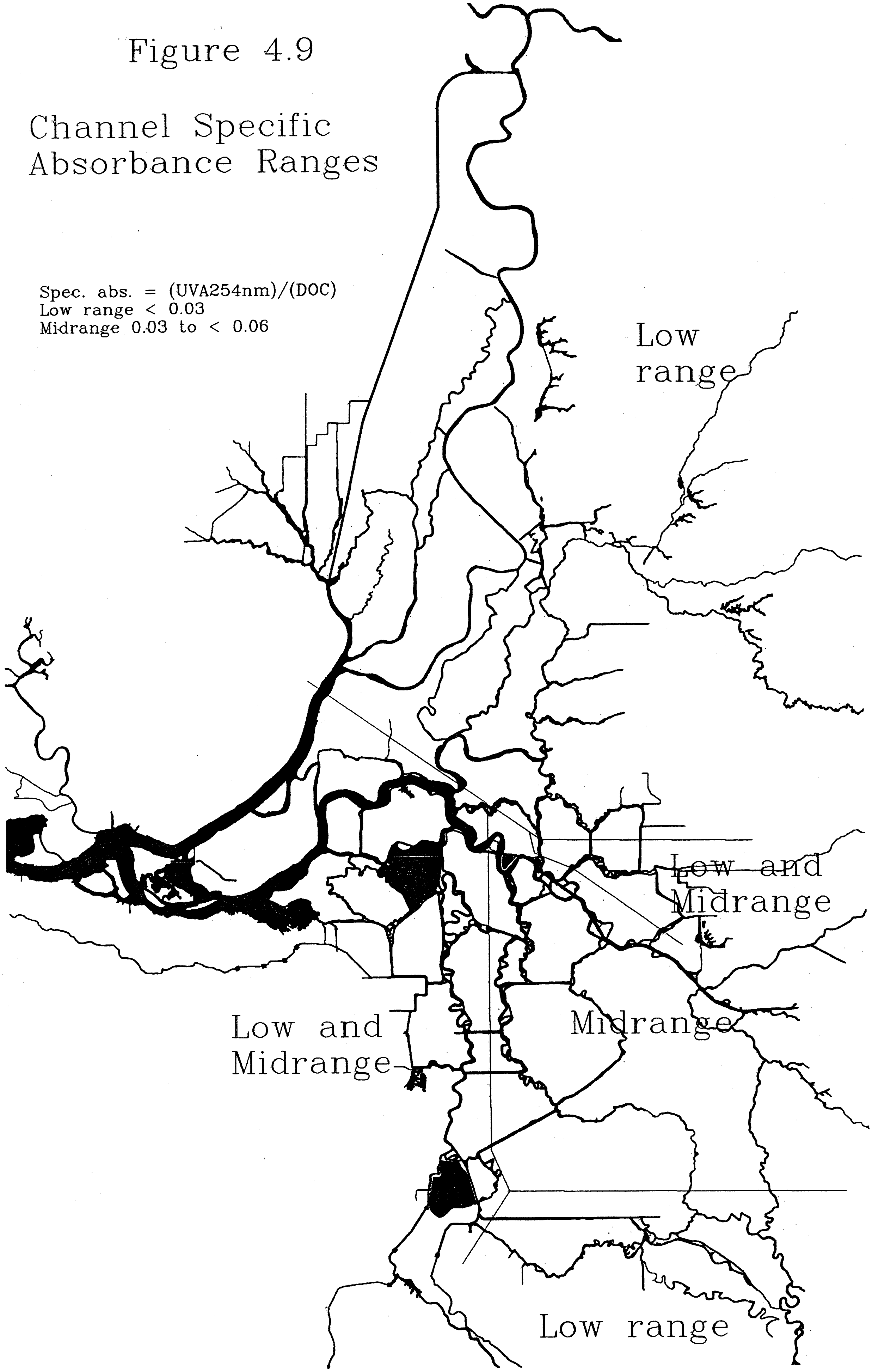
Channel Zone	Station No.	Station Name
1	2	Sacramento River at Greene's Landing (GREENES)
North	107	Delta Cross Channel (DELTACRCHAN)
Lowlands "A"	108	Georgiana Sl. at Walnut Grove
2	411	Mokelumne River at Georgiana Sl. (MOKGEORGIANA)
North	413	Little Potato Sl. at Terminous (LPOTTERM)
Lowlands "B"	414	Little Potato Sl. at White Sl. (LPOTATOWHITE)
3	88	Sacramento River at Rio Vista (SACRIOVISTA)
4	91	Honker Cut (HONKER)
North	7	Little Connection Sl. (LCONNECT)
Central Lowlands		
5	131	False River at Webb Tract (FALSETIP-WEB)
Western Lowlands	113	Old River at Sandmound Sl. (SANDMOUND)
	130	San Joaquin River at Jersey Pt. (SJRJERSEY)
	100	Station 4B at Old River (STN04B)
	9	Rock Sl. at Old River (ROCKSL)
	101	Station 5A at Old River (STN05A)
	102	Station 6A at Old River (STN06A)
	103	Station 9 at Old River (STN09)
	121	Grant Line/Fabian/Bell Canal at Old River (GRANTOLD)
	122	Old River upstream of DMC intake (OLDRIVDMC)
6	112	Turner Cut (TURNERCUT)
South Central	114	Latham Sl. (LATHAM)
Lowlands	115	Connection Sl. at Mandeville Isl. (CONNMAND)
	110	Middle River at Bacon Isl. (MRIVBACON)
	117	Santa Fe-Bacon Isl. Cut near Old River (SANTAFEBACON)
	118	Woodward/N. Victoria Canal near Old River (NVICWOOD)
	13	Middle River at Bacon Isl. (MIDDLER)
	119	North Canal near Old River (NORTHCAN)
	405	San Joaquin River at Highway 4 (SJOAQHWY4)

Table 4.1. (cont.). Channel Zone List

Channel Zone	Station No.	Station Name
7	606	Grant Line Canal at Tracy Road bridge (GRANTLNCAN)
South Delta	604	Old River at Tracy Road (OLDRTRACY)
Lowlands	111	Middle River at Mowry bridge (MIDMOWRY)
	602	San Joaquin River at Mossdale bridge (SJRMOSSDALE)
8	87	North Bay Pumping Plant (BARKERNOBAY)
Northwest Delta		
Delta Boundary and Intake Stations		
	1	American River at Water Treatment Plant (AMERICAN)
	2	Sacramento River at Greene's Landing (GREENES)
	17	Sacramento River at Mallard Isl. (MALLARDIS)
	14	San Joaquin River near Vernalis (VERNALIS)
	75	San Joaquin River at Maze Rd. (MAZE)
	133	Contra Costa Water District Pumping Plant # 1 (CONCOSPP1)
	12	H. O. Banks Headworks (BANKS)
	11	DMC intake at Lindemann Rd. (DMC)

Figure 4.9

Channel Specific Absorbance Ranges



Drainage Discharges

Through past reclamation work, the Delta was subdivided into more than 60 islands and tracts for crop production, each complete with its own reclamation district with levees, drainage, and irrigation facilities. In general, past irrigation and drainage practices continue today.

Most water for irrigation is from adjacent stream channels through a pipe siphon, which arches upward to a point just below the crest of the levee. Irrigation water is generally carried in ditches about 10 feet wide that run parallel to the levee about 100 feet inside the inner toe and discharge into lateral ditches 4 feet wide. These lateral ditches dissect the island into checks ranging from 20 to 50 acres. Water flowing from these laterals enter smaller, temporary spud ditches, about 10 inches wide and about 20 inches deep. These spud ditches parallel the crop rows at every 50 to 100 feet.

Water is controlled to the desired height by dams in the lateral ditches and baffles in the spud ditches, causing the water level to rise in each check. The ground water is maintained at different levels for different crops and stages of growth.

Excess water from the spud ditches discharges into ditches that carry the water to the next check. This excess eventually empties into drainage canals about 10 feet deep and 25 feet wide. These canals carry the drainage to the pumping plant. The pumping plant lifts the drainage over or through the levee and discharges it back into the stream channel outside the levee. Automatic float switches operate the large electric pumps at each pump station. Multiple discharge pipes and pumps are common at a pump station. Most of the islands require more than one pump station to remove drainage from the entire island.

The most comprehensive study of drainage volume discharges in the Delta was conducted nearly 40 years ago in 1954-55 (DWR, 1956). Monthly estimates of discharge volume were based on electrical power consumption records and pump efficiency tests. Studies are underway to determine how close current drainage volumes are to past estimates. There have been significant changes in the crops grown during the past 40 years, though farming practices and facilities are similar in many respects to past conditions. Farmed acreage has been replaced by some residential development and flooding of some islands (e.g., Franks Tract, Clifton Court). The 1954-55 data is useful as a starting point for studying past seasonal and regional differences in drainage discharge and for modeling current estimates. The patterns help identify major areas with potentially high sources of drainage and DOC loading.

Figures 4.10 through 4.14 show the 1954-55 monthly drainage estimates for each Delta subunit within each of the three DOC subgroups. Overall, the trends were similar with peak drainage discharge in the summer and late fall-early winter. This pattern corresponds with the peak water demand for irrigation during the hot summers and the ponding of fields to remove salt buildup and rainfall in November to March.

The drainage volume is relatively lower in the southern mineral region which includes areas classified as the low DOC subgroup. The highest drainage areas are in units 18, 20, and 22 which are in the high DOC subgroup. Work is underway to measure drainage discharge volumes to determine if the 1954-55 estimates can be used as reasonable estimates of current conditions in a normal water year.

Fig. 4.10. DOC Subgroup 1 Drainage

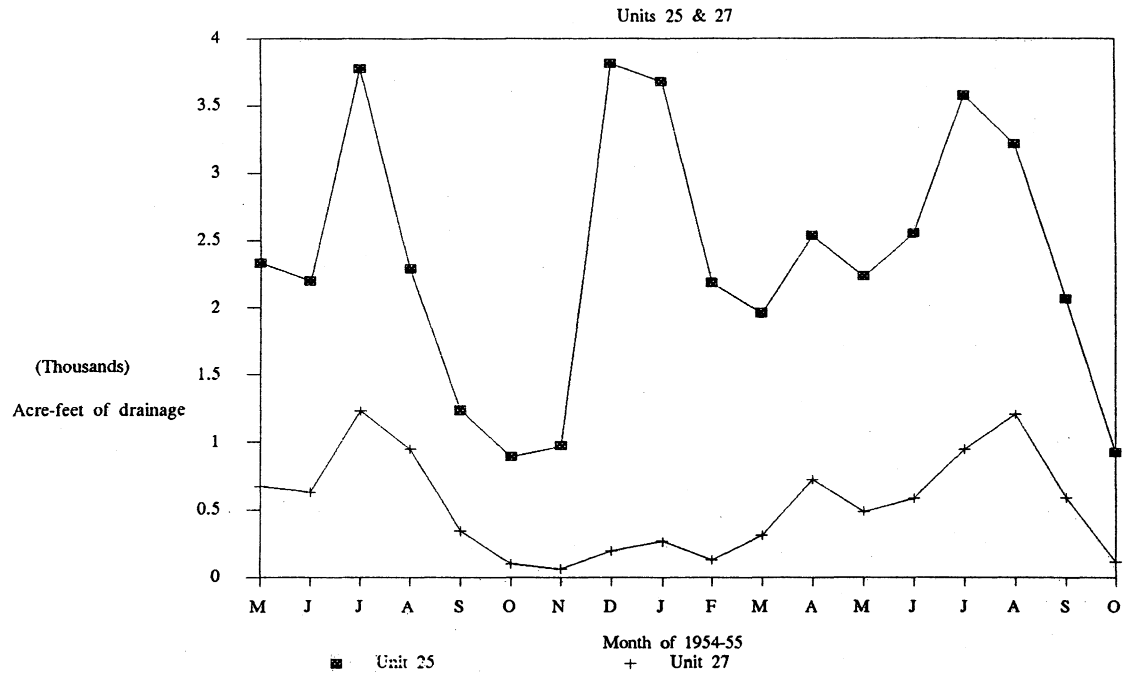


Fig. 4.11. DOC Subgroup 2 (South) Drainage

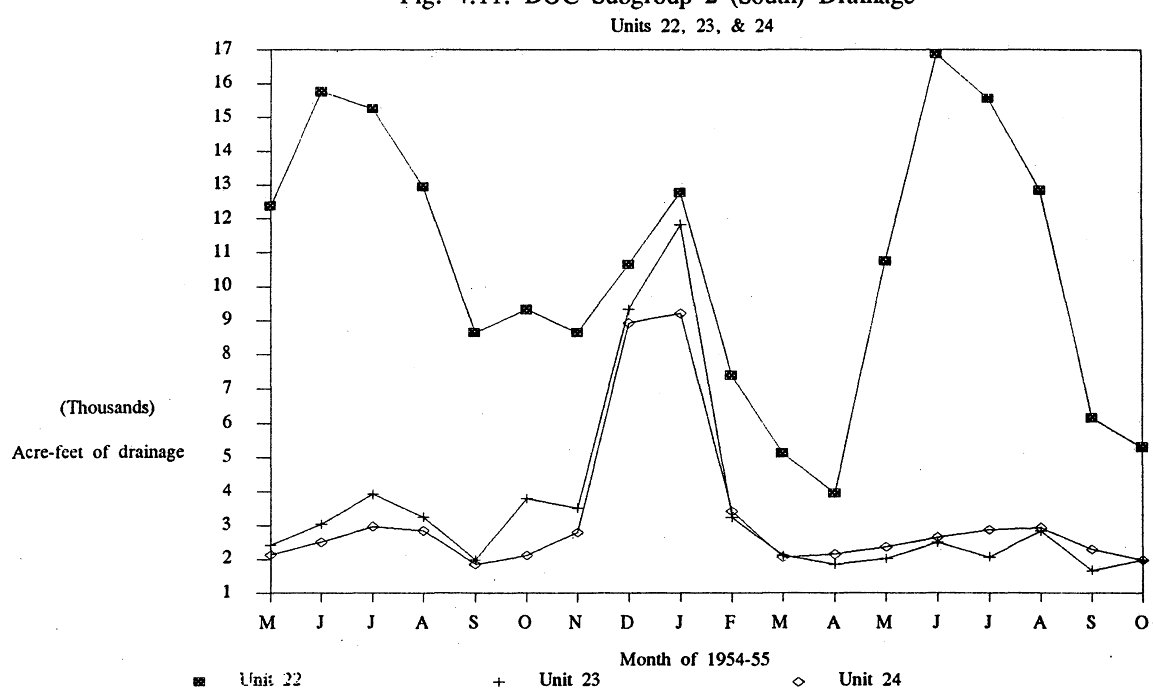


Fig. 4.12. DOC Subgroup 2 (North) Drainage

Units 8, 10, 11, 12, 13, & 19

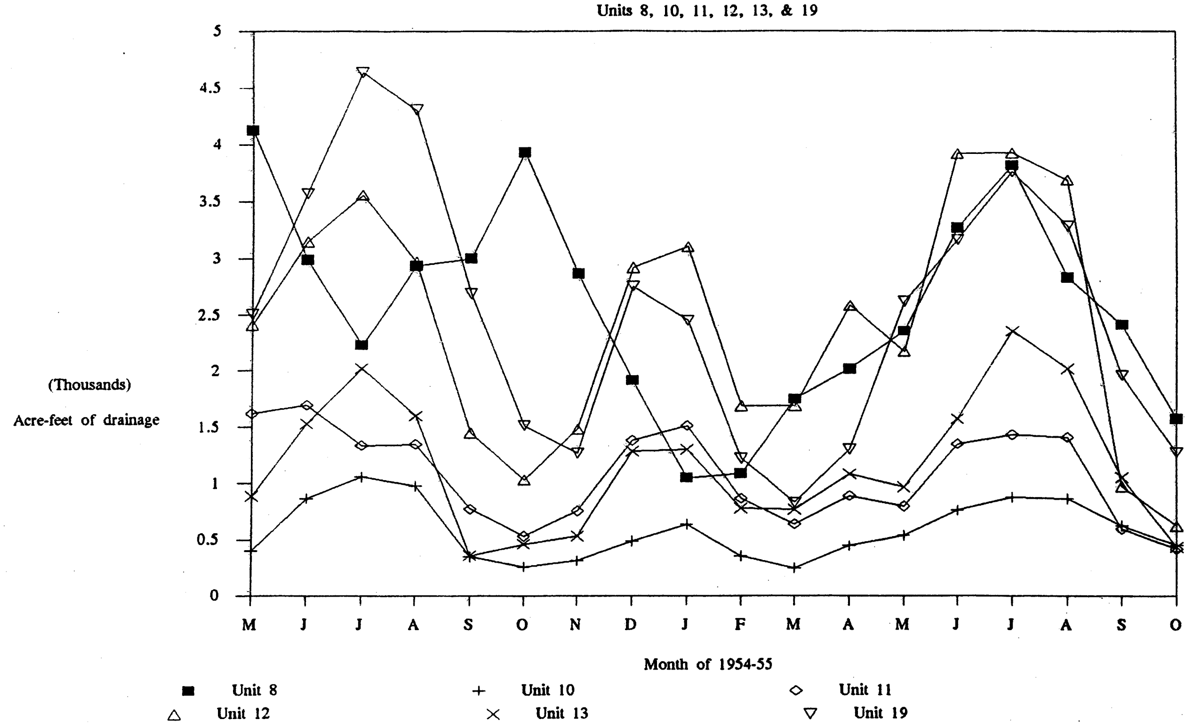


Fig. 4.13. DOC Subgroup 3 (West) Drainage

Units 9, 14, 15, 16, & 17

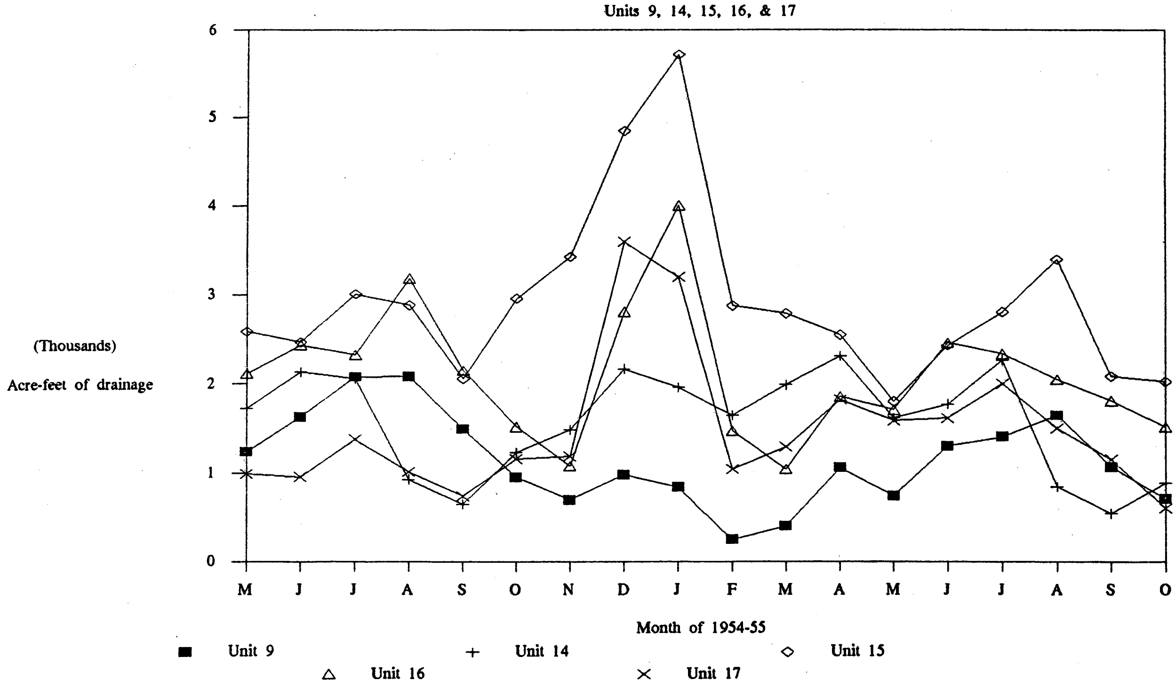
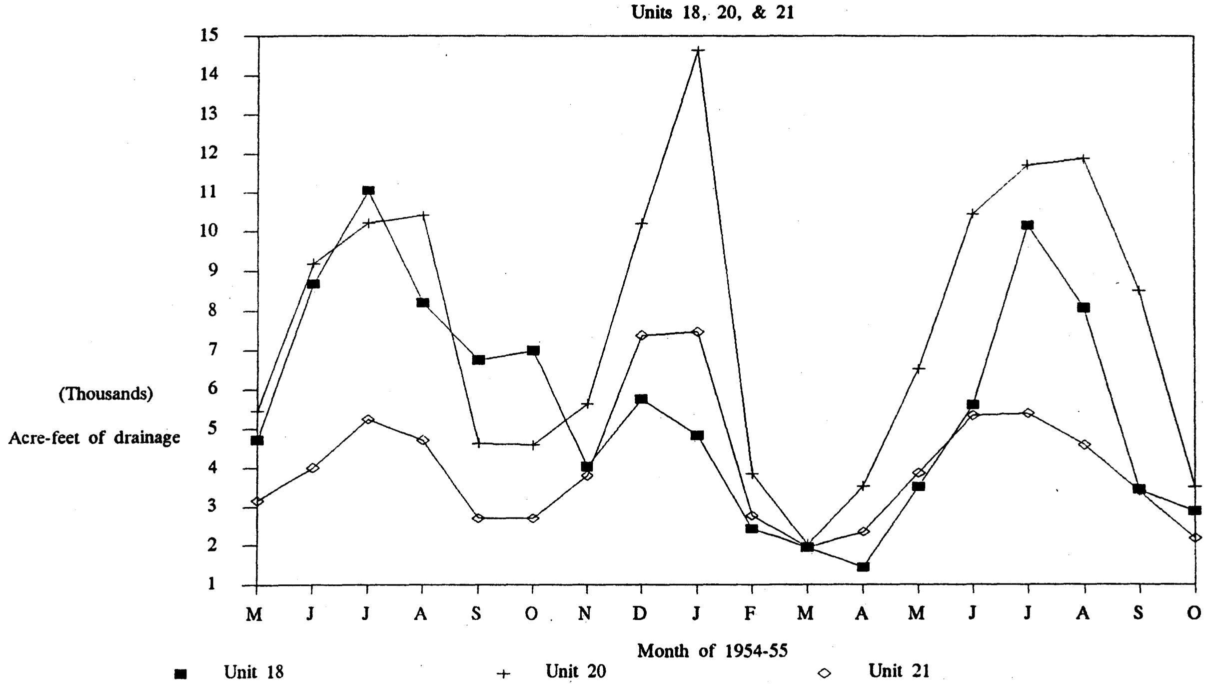


Fig. 4.14. DOC Subgroup 3 (East) Drainage

Units 18, 20, & 21



Seasonal Factors

Drainage volume, DOC concentrations, and the characteristics of DOC in the drains could be explained by seasonal agricultural practices and climate. Irrigation follows the needs of the growing crops and weather. Summer drainage volume will be high during the hot summers because of increased irrigation. Drainage volumes are high in the late fall and early winter when farmers flood the fields to remove salt buildup in the soil or to create temporary waterfowl habitat for wetlands experiments.

Fresh organic matter will be less UV absorbing than older humics. As organic matter decomposes, more UV absorbing humics will form and DOC will decrease as some is lost as carbon dioxide. This changes the UVA to DOC ratio, which is specific absorbance. Therefore, older material will have higher specific absorbance than younger decaying organics. If drain water specific absorbance increases are the result of the biotransformation of organic matter into the UV absorbing humic compounds, then seasonal ratios also indicate increased microbial activity in the decomposition of organic matter.

Specific absorbance (UVA:DOC ratio) changes as carbon is lost from DOC as CO2 and UVA compounds are left behind.

Fresh decaying organics	**======>**	**Older humics**
UVA value low per mg/L DOC	**=====>**	**UVA value higher per mg/L DOC**

As a general rule, a 10 degree Celsius rise in temperature within an organism's tolerance limits will double its metabolic rate. Air temperatures in the Delta often exceed 100 degrees Fahrenheit in the mid-summer afternoons and are below freezing in the winter nights. Therefore, microbial decay is slower in the cooler period and much more rapid in the warmer months. Over time, some DOC is lost to the atmosphere as carbon dioxide gas, and the remaining material is transformed into humic-type materials. This would explain the change in the UVA:DOC ratio of a sample over time as DOC is reduced and more UV absorbing humics increase.

A recent USGS study (Deverel and others, 1994) showed that spatial and temporal variabilities in CO_2 fluxes from Delta fields are due to varying soil temperature, percentage of soil organic matter, plant-root respiration, and soil-moisture content (Deverel et al., 1994). High soil moisture content causes lower soil temperatures, anaerobic conditions, and reduced diffusion of CO_2 and oxygen that helps reduce CO_2 production. The amount of CO_2 produced from the oxidation of organic matter ranged from 40 percent to 91 percent. These patterns indicate the amount of microbial activity in the fields. The study also pointed out that high organic loads from the fields coincide with the seasonal water table elevations. High DOC in drain water occurs as the water table rises close to the land surface in the winter and early spring and is in prolonged contact with well-decomposed organic matter.

The concentration of DOC in water due to evaporation or evapotranspiration does not appear to be a significant factor for causing higher DOC or THMFP concentrations in drain water. This conclusion is based on data that show January DOC and THMFP increases when evaporation is lowest. Water saturation of soil is believed to be the primary factor for causing high DOC and THMFP in drain water. DOC in drainage water is the result of oxidation and dissolution of organic matter.

DOC concentrations in the drainages are highest in the winter (January - March). This is attributed to the practice of flooding and ponding of fields to leach out salts from the soil. Soil to water contact time is long, so the leaching of organic matter from the fields is maximized. A USGS study showed as much as 125 mg/L DOC was initially released by leaching a Twitchell Island peat soil surface core (Wang, pers. comm. 1993).

There is also a fall (October) increase in drainage DOC. This could reflect decaying crop residues that lie in the fields after the fall harvest and are blown into the open drains by strong winds. It also could be drainage from the last irrigation, which was not pumped out, or drainage from seepage.

Typically, the specific absorbances are more variable in the winter and more stable during the warm summer. The winter ratios indicate a slow decaying mixture of fresh organic matter, the summer ratios indicate rapid decay.

The seasonal climate, farming practices, and other factors that help explain observed DOC levels, drainage volume, and specific absorbances are summarized in Figure 4.15 and Table 4.2. This is a conceptual model of the primary factors that control DOC availability from Delta soils.

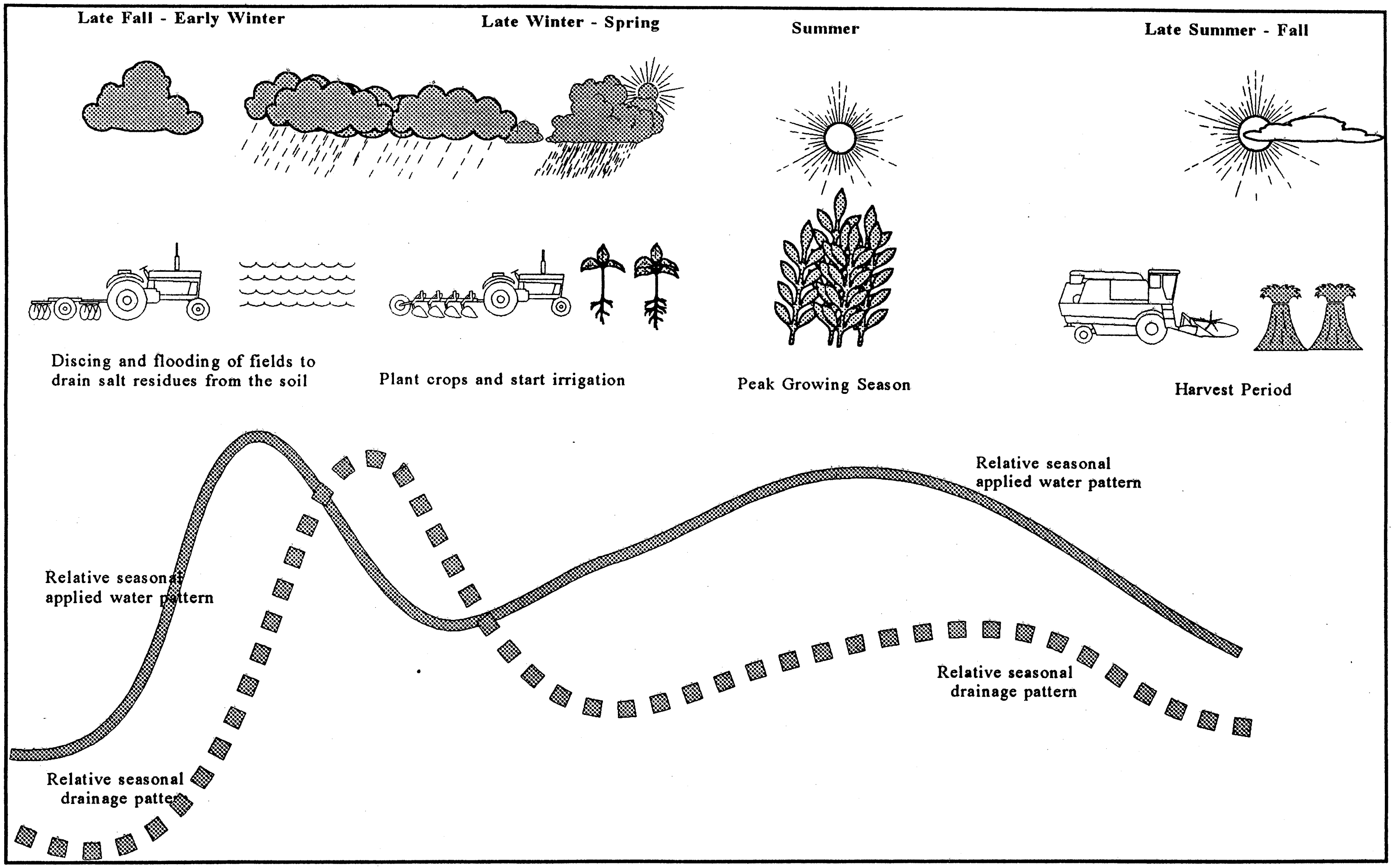


Figure 4.15. Seasonal Farming Activities in the Delta

Table 4.2. Seasonal Factors Affecting Delta Drainage DOC

MONTH	CLIMATE /1	FARMING ACTIVITY /2,3	DRAINAGE VOLUME DISCHARGED	DRAINAGE DOC LEVELS	DRAINAGE UVA:DOC RATIOS	AVAILABLE CROP BIOMASS	SOIL AND WATER MICROBIAL ACTIVITY /4
October	warm	harvest	low	increasing	less variable	fresh crop residues in fields	high
November	cooling		low	high	variable		slowing
December	cooling	leach and flood fields to remove salt	increasing	peak	highly variable	decaying in ponded fields	slow
January	cold-wet	continue leaching	peak	peak	highly variable	decaying in ponded fields	slowest
February	cold-wet	continue leaching	peak	peak	highly variable	decaying in ponded fields	slowest
March	cold-wet		decreasing	high but falling	highly variable		increasing
April	wet and warming	prepare fields and plant	increasing	decreasing	variable		increasing
May	warming	seed and irrigate	increasing	decreasing	variable	growing crops	increasing
June	warm	irrigate	high	low	less variable	growing crops	peak
July	hot	irrigate	peak	lowest	stable	growing crops	peak
August	hot	irrigate	peak	lowest	stable	growing crops	peak
September	hot	harvest	decrease	low	stable	fresh crop residues	peak

Corresponding factors or measurements:

1. Seasonal soil temperature ranges will coincide with the climate.
2. The degree of water saturation in the soil will depend on climate, rainfall, and irrigation.
3. The length of contact time of soil to water on the Delta islands are primarily dependent on irrigation and drainage practices on the islands.
4. Measured CO_2 flux (i.e., release or production) is related to the microbial oxidation of organic matter in the soil.

Drainage Organic Carbon Releases

The combined effects of the drought and the releases of organic matter into the channels from drainage were assessed. Available monthly river flow, DOC, TFPC, and drainage volume data were used to estimate carbon concentrations in the Delta channels. TFPC was computed from TTHMFP results. Several assumptions were made to adjust for the lack of data from unsampled areas and for current drainage volumes. Drainage volume data from 1954-55 were used (DWR, 1956).

An earlier estimate of the drainage portion of TFPC in the channels for water year 1988 was presented in the *1990 Delta Island Drainage Investigation Report of the Interagency Delta Health Aspects Monitoring Program* (DWR, 1990). With some exceptions, the new, revised method for deriving annual TFPC and DOC levels during 1987 through 1991 is similar to the earlier method. The new approach had the benefit of using more data in the analysis.

A simple model was used to generalize the input of organic matter in the Delta. The "Delta" was treated as a well-mixed basin with water quality represented by data averaged from four stations: Rock Slough at Old River, Clifton Court Forebay intake, Middle River at Borden Highway, and the DMC intake. River inflow was represented by data from the Sacramento River at Greenes Landing, San Joaquin River near Vernalis, Cosumnes River near Dillard Road, and Mokelumne River near Woodbridge. Drainage input was computed by dividing the drainage monitoring data into two groups of islands based on soil type and 1954-55 drainage volume (Figure 4.16).

More sophisticated computer simulation models using flow and water quality data at a network of stations in the Delta are being developed by DWR (Hutton and Chung, 1992). These are not discussed here.

The main assumptions that were adopted to make the revised estimates were:

1. Present monthly drainage volumes are nearly the same as those reported in the 1954-55 study. Therefore, these monthly volumes can be repeated for each year (1987-91). Additional calculations included a ± 10 percent change in drainage volume (i.e., 90 percent and 110 percent of 1954-55 volumes) to provide a range of predicted drainage impacts.

2. Drainage DOC and TFPC data at sampled sites can be extrapolated to unsampled drain sites based on soil type and region within the Delta.

3. Monthly flow weighted DOC and TFPC data from various island drains can be used to represent total Delta island drainage concentrations. Drainage DOC and TFPC data were averaged by month to produce a 12-month data set. This data set was used in the calculations for each of the five years (1987-91).

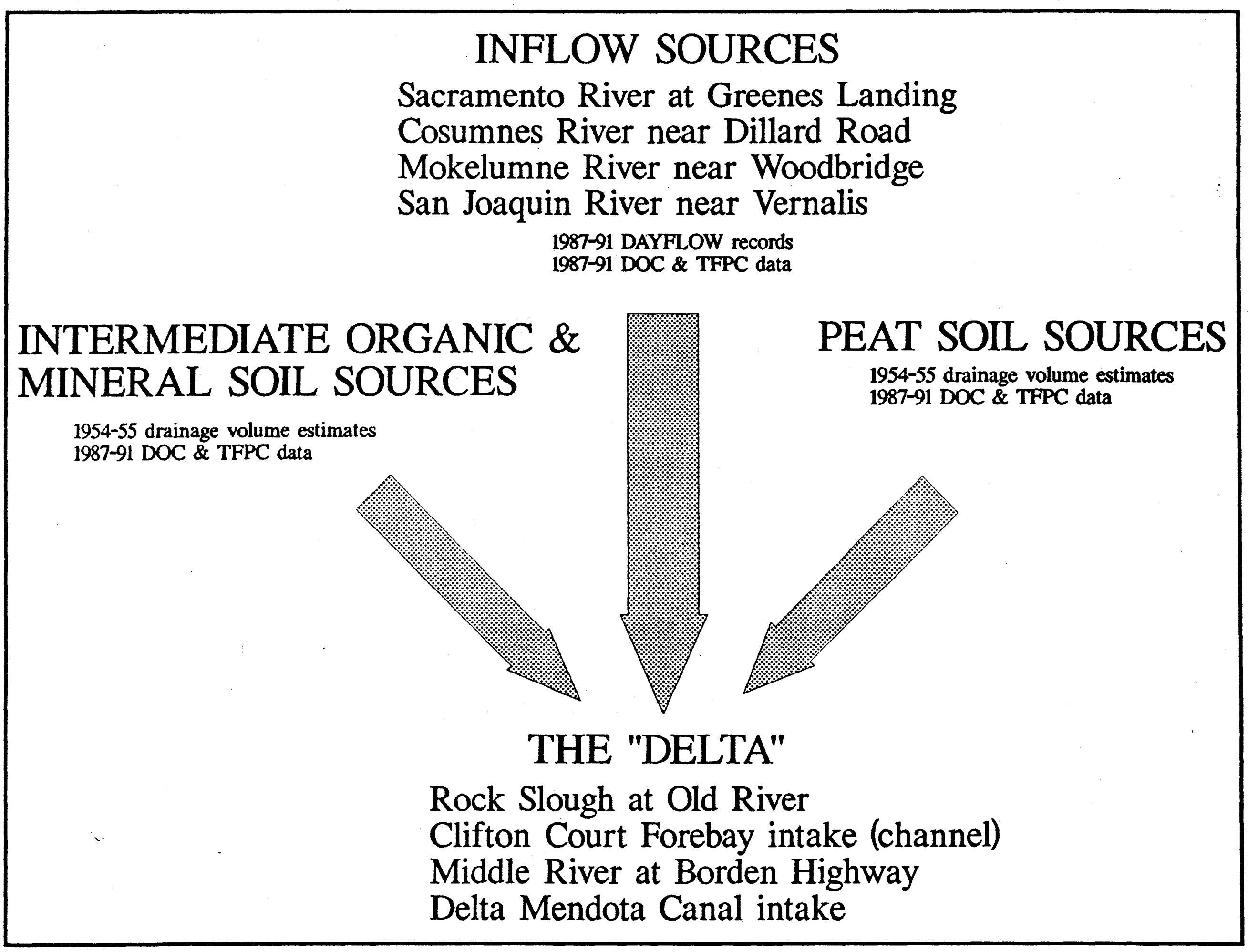


Figure 4.16. Simple Delta Model

4. Delta channel water quality can be represented by averaging the monthly data from four stations in the southwestern Delta.

5. TFPC concentrations in the Cosumnes and Mokelumne Rivers have not significantly changed since 1984. Monthly data from these two sites were repeated in calculations for each year of the five years under study, because there were no recent data.

6. Flow weighted monthly DOC and TFPC data collected from the Sacramento, San Joaquin, Mokelumne and Cosumnes Rivers represent that which would exist in the Delta channels in the absence of island drainage or other factors that impact water quality.

7. The difference between the concentrations of TFPC and DOC in the Delta channels and river inflow water is mostly from agricultural drainage. Simply stated, drainage contribution is equal to the river inflow levels subtracted from the higher Delta channel concentrations. Though agricultural drainage is not the only contributor, this assumption will enable DWR staff to compare the importance of drainage to other sources such as channel algae, riparian vegetation, and sediments.

DOC and TFPC concentrations in the channels were predicted from drainage data. These predicted values were then compared against observed data in the channels. Inflow loadings of DOC and TFPC were also compared against observed values. Details on how the assumptions and computations were made are described in detail in Appendix A, "Methodology Used to Estimate Drainage DOC and TFPC Releases."

Findings and Observations

1. A progressive increase of carbon concentrations in the Delta channels was not evident during the five consecutive dry years. The highest carbon concentrations occurred either in drainage or in the rivers and channels during heavy precipitation. During the summer, carbon concentrations were lower in all waters.

2. Predicted and observed DOC and TFPC concentrations did not compare well on a

month-to-month basis. There was closer agreement between predicted and observed data when the monthly carbon concentrations were averaged either for a calendar year (i.e., average of all 12 months) or for the same months averaged for the total five-year study (i.e., all January months, all February months, etc.).

During the five-year study period, the predicted and observed DOC monthly concentrations for the "Delta" (i.e., four stations in the simple model) averaged 3.55 and 3.52 mg/L, respectively. The averaged monthly concentrations for inflow DOC was 2.45 mg/L. The predicted effect of agricultural drainage was that the concentration of DOC in channel water would increase by 1.1 mg/L. This predicted channel water DOC concentration was close to the observed channel water DOC. Figure 4.17 shows the five-year monthly averaged DOC concentrations for the "Delta" and freshwater inflow. The predicted concentrations were based on using 100 percent of the estimated island drainage flow of 1954-55.

Figure 4.18 is based on relative concentrations and shows the predicted monthly and observed DOC in the "Delta" in terms of percent increase above freshwater inflow concentrations. There are three predicted values based on 90 percent, 100 percent, and 110 percent of the island drainage flow. Averages for the study period show the predicted drainage impact nearest to the observed DOC was calculated using 110 percent of the island drainage flow. This prediction shows a 55 percent increase above inflow concentrations, whereas the observed increase was 54 percent. If these calculations accurately represent the Delta, then drainage volumes may be 10 percent higher than the 1954-55 estimates or the volumes remain the same and the channels are contributing 10 percent of the DOC.

3. During the study period, the predicted and observed "Delta" TFPC monthly concentrations averaged 3.50 and 3.86 μmoles/L, respectively. The averaged inflow TFPC was 2.42 μmoles/L. The predicted TFPC is 1.08 μmoles/L higher than the inflow TFPC. Observed TFPC is 1.44 μmoles/L greater than the inflow TFPC. The predicted TFPC underestimated the observed TFPC by 0.36 μmoles/L. This may indicate the significance of other sources of carbon such as channel sediments, algae, and riparian plants. Figure 4.19 shows the five-year averaged TFPC concentrations for the "Delta" and freshwater inflow. These

Fig. 4.17. Delta and Inflow DOC

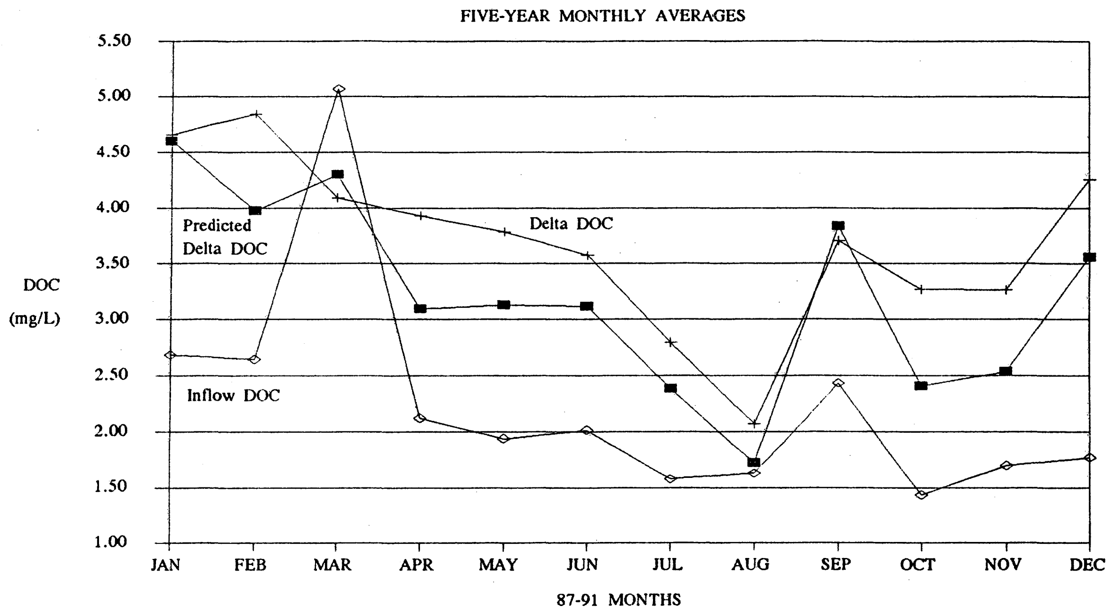
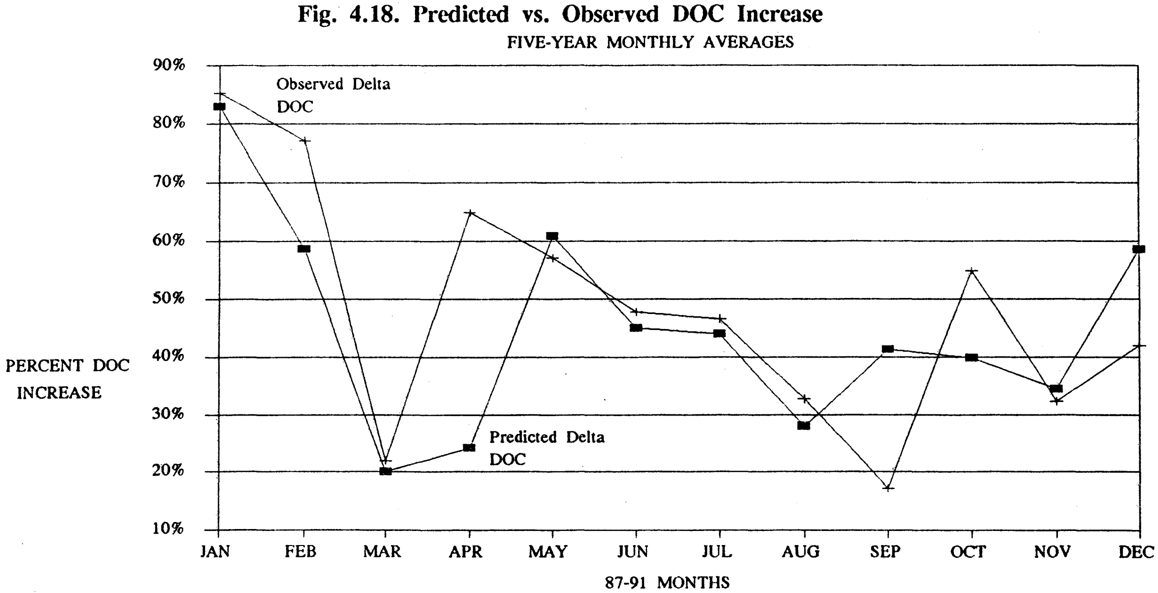


Fig. 4.18. Predicted vs. Observed DOC Increase



predicted concentrations were based on 100 percent of the estimated island drainage flow of 1954-55.

Figure 4.20 is based on relative concentrations and shows the predicted and observed "Delta" monthly TFPC in terms of percent increase above the freshwater inflow concentrations. There are three predicted values based on 90 percent, 100 percent, and 110 percent of the island drainage flow. Averages for the study period show the predicted drainage impact nearest to the observed TFPC was calculated using 110 percent of the island drainage flow. Results of the calculations show that if agricultural drainage from the Delta islands was the sole TFPC source, it increased the concentration of TFPC in Delta channels by 56 percent during the five-year period. The observed average percent increase above the inflow concentration equaled 79 percent. For the five-year period of study, the averaged monthly TFPC predicted was 23 percent less than the average observed TFPC concentration.

THM formation potential of waters containing over 20 mg/L DOC was regularly underestimated as a result of problems with the assay method. Of the Delta waters sampled, results of some drainage water samples were affected. Although a correction factor was developed and applied to the trihalomethane data before the TPFC was calculated, the remaining data scatter indicates TFPC in drainage water is still being underestimated. The resulting low TFPC would certainly cause the predicted impacts of drainage water to be lower than the observed concentrations.

4. On several occasions, concentrations of DOC and TFPC in the Sacramento River were higher than the measured concentrations in the Delta channels. These data probably are not representative of the quality of the Sacramento River for the total month, as the data came from grab samples. A review of precipitation data for Redding and Oroville weather stations revealed that the higher concentrations occurred during months of precipitation north of Sacramento, except September 1987 and 1988. The source of the high carbon concentrations in the Sacramento River during September 1987 and 1988 could have been from upstream rice field drainage, which occurs at that time of the year.

Fig. 4.19. Delta and Inflow TFPC

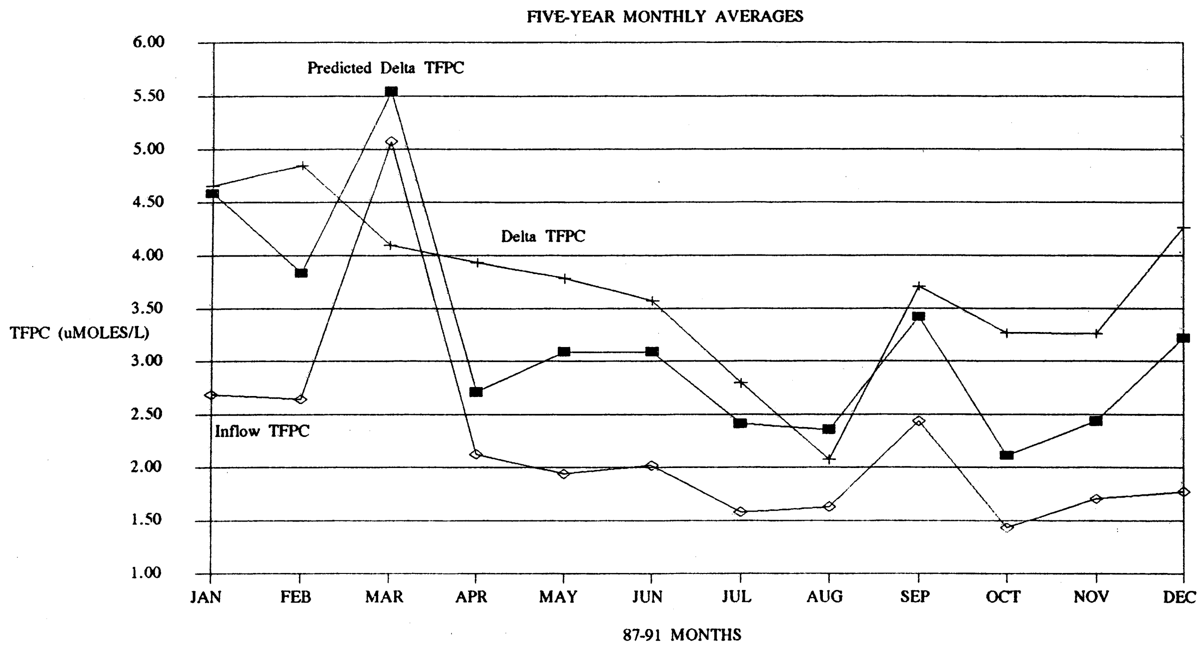
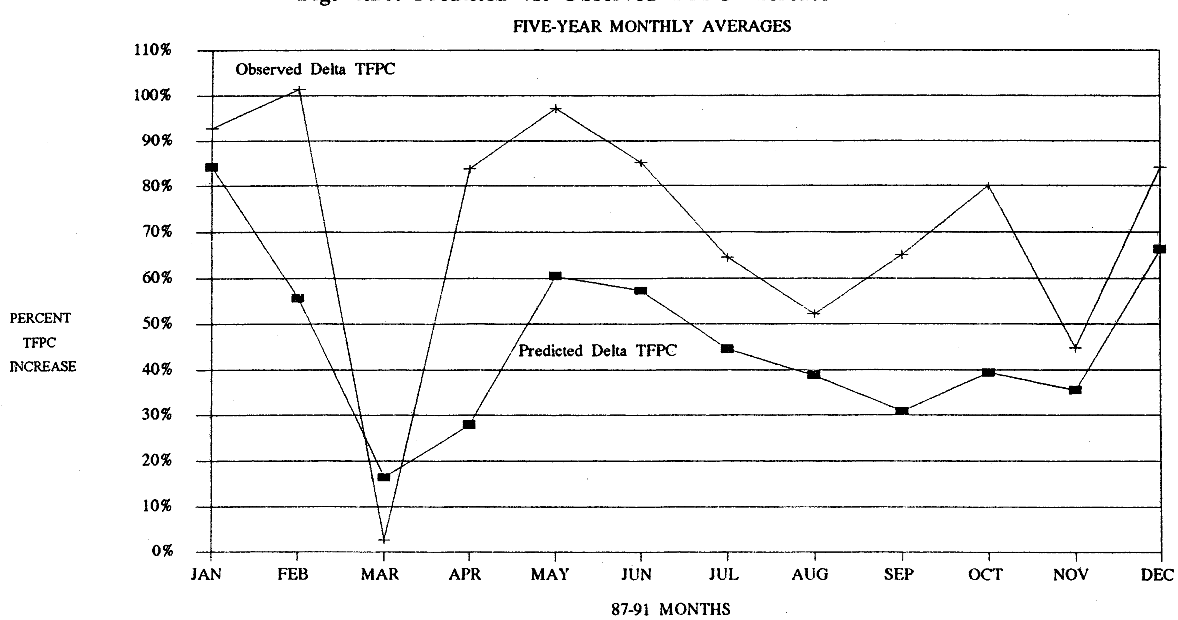


Fig. 4.20. Predicted vs. Observed TFPC Increase



Discussion of Results

The predicted and observed "Delta" DOC and TFPC concentrations were calculated as a percentage of the respective inflow concentrations for each month of the study period. The percentages are derived by subtracting the average river inflow concentration from the predicted channel concentration and dividing the result by the inflow concentration.

The predicted and observed percentages, when compared, exhibit differences in the range of 1 percent to greater than 100 percent. This comparison indicates that the prediction method and/or data, when used for monthly predictions, is inadequate. Obviously, the prediction method is unrefined and does not deal with the dynamic factors of the Delta system. Grab samples are perhaps the greatest source of discrepancy, because they measure the quality of a stream or channel only at the moment the sample is collected. Improvement of the monthly predictions may be achieved by the use of automatic samplers or development of a surrogate parameter that can be continuously monitored. These monitoring methods would provide data more representative of monthly water quality.

TFPC predictions, when averaged for each year and compared with observed Delta channel TFPC concentrations, consistently underestimated drainage effects from 8 percent to 40 percent. Averaging the monthly predicted and observed concentrations for DOC for each calendar year shows no more than a plus or minus 5 percent difference when comparing them on an annual basis. This observation does not include 1991, for which data were missing for October, November, and December. These comparisons demonstrate that the monthly DOC estimates are, almost equally, over and under the monthly observed channel quality.

DOC and TFPC data were subjected to the same flow weighting and estimating equations, yet the DOC predictions are much closer to the observed value than are the TFPC predictions. In addition to the trihalomethane analysis method underestimating the trihalomethane formation potential of waters having DOC greater than 20 mg/L, other factors may affect the TFPC calculation. One factor could be that the TFPC data are not as accurate or reproducible as DOC data. TFPC is calculated from trihalomethane formation potential which does not measure all the carbon present in the water sample and which has detection levels in the part per billion range. Unlike TFPC, DOC is a direct measurement and is present in water in the parts per million range. In general, water constituents in high concentrations are more easily and accurately measured than those in low concentrations. DOC data appear to be a better parameter than TFPC for studying the release of organic material from agriculture drainage.

Recommendations

1. Pursue further studies to identify a surrogate measurement such as specific absorbance for continuously monitoring the organic carbon in Delta waters.

2. If the grab samples continue to be the primary method of sample collection, samples should be collected more frequently than once per month during months of precipitation. Using automated sampling devices may be a viable option.

3. The quality and quantity of flows in the Mokelumne and Cosumnes rivers are insignificant in calculating the predicted impact of island drainage. The use of these data in future calculations is not necessary or critical to the estimates.

4. Revised estimates on the amount of drainage entering the channels will help assess the contribution of organics from drainage as well as from other Delta sources. Updated information should be used in future refinements to these estimates.

Modified THMFP Assay

The THMFP assay was developed during 1981-83 by DWR with the guidance of the Interagency Delta Health Aspects Monitoring Program Technical Advisory Group to compare levels of THM precursors in a wide range of Delta waters. The adopted method was a modification of EPA Method 510.1, "The Determination of the Maximum Total Trihalomethane Potential" (1982).[1]

The Original TTHMFP Assay--The original TTHMFP assay is performed as follows: sample water is collected and spiked to a concentration of approximately 120 mg/L chlorine with sodium hypochlorite and incubated at 25°C for seven days (168 hrs). Samples are then quenched with sodium thiosulfate and analyzed for trihalomethanes using EPA Method 601 or equivalent. The assay was designed to meet the following criteria:

1. It must be simple enough for large-scale monitoring.

2. It must work on a variety of water types with complex matrices ranging from relatively clean American River water to agricultural drain water with high DOC concentrations.

3. The chlorine spike concentration used in the assay must be high enough to ensure a residual after seven days of incubation (Samples with no chlorine residual were considered invalid).

4. The results must be useful for comparing water sources for planning purposes.

Limitations of the Original Assay--Although the original TTHMFP assay appeared to produce consistent results of good quality, a number of possible limitations have been noted since it was developed:

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[1] *For the purposes of this discussion the following definitions apply: a) THMs refer to trihalomethanes. b) THMFP refers to trihalomethane formation potential concentrations which are reported by various researchers, including DWR. The word "total" is considered redundant in this case, and most literature does not include an extra "T". c) TTHMFP or TTHMFP assay refers to the original name used in the modified EPA "Maximum Total Trihalomethane Potential. It is a reference to the analytical method developed by DWR, rather than the products.*

1. There was concern that the THMs formed by the assay might be a function of the chlorine used or that low DOC samples might have a relatively higher fraction of DOC converted to THMFP than high DOC samples.

2. The original assay specified EPA Method 601 for analysis of THMs. This waste water method was specified, because agricultural drainage more closely resembles waste water than raw drinking water. Method 601 includes a cleanup step which addresses this problem. However, Method 601 has limited quality control requirements as compared to the EPA 500 series methods.

3. The yield of THMs is pH-dependent. The original DWR TTHMFP Assay does not include buffering the sample pH, nor is pH measured.

4. Other constituents, particularly ammonia, can interfere with the assay by actively competing for Cl_2, reducing the effective initial dose.

5. Bromides complicate the interpretation of the TTHMFP assay by increasing the weight of total THMs formed. This happens by two mechanisms: (a) brominated THMs simply weigh more than chlorinated THMs, and (b) bromide may increase the molar yield of THMs produced in the assay.

Some of the concerns associated with the original TTHMFP assay could be addressed administratively by changing the EPA method to improve sensitivity.

To address the complications due to bromide, the Department adopted a measure of THMFP which is intended to focus more on the organic portion of THMs and remove variations due to the differing weights of chlorine and bromine. TFPC, or "THM Formation Potential as Carbon," is the carbon content of THMFP expressed as ug/L carbon. It is proportional to molar THMFP.

TFPC has the added advantage of eliminating the temptation to inappropriately compare assay results directly with drinking water standards or THMs measured in treated water. TFPC also appears to be a stable parameter which can successfully be used by DWR modelers in predicting THM precursors (as TFPC) at export stations. For purposes of comparison, TFPC concentrations are approximately 10 percent of the THMFP concentration.

Modified SDS THM Assay--In 1991, DWR and some members of the MWQI advisory committee began determining ways the TTHMFP assay could be improved.

One suggestion was to modify the TTHMFP assay to make it more like a Simulated Distribution System (SDS) THM measure, with a Cl_2 dose calculated as a fixed ratio based on DOC and NH_4 concentrations. The proposed assay produced excellent analytical results, but had some drawbacks:

1. Results measured something less than the "Maximum Potential THMs" so were not directly comparable to the original THMFP assay.

2. Analysis required measuring both DOC and ammonia, then calculating a specific chlorine dose for each and every sample analyzed. This is impractical for large numbers of samples analyzed in the MWQI Program.

3. Some high DOC samples might require impractically high doses of Cl_2.

Characteristics of the Original THFMP Assay--DWR embarked on studies to evaluate the characteristics of the original TTHMFP assay and, if necessary, update the procedure to address as many of the limitations of the original assay as possible. Staff also thought any modified assay should yield results comparable to those in the old assay, where the above limitations were not significant.

A series of studies were devised and performed at the Metropolitan Water District of Southern California and DWR to explore the limits of the original TTHMFP assay and to develop a modified assay. The studies looked at a number of factors, including:

1. Sensitivity of TFPC to bromides;

2. Effect of buffering TFPC formation;

3. Linearity of TFPC measurements with dilution;

4. Sensitivity to Cl_2 dose; and

5. Improved relationship between TFPC versus DOC and UVA_{254nm} measurements.

The tests were designed to look at ranges of DOC and bromide which are encountered in the Delta. Major findings from the studies included:

1. Sensitivity to Bromides: TFPC formation increased by about 10 percent when 0.50 mg/L Br was added to a sample from the Sacramento River at Greenes Landing. Bromide levels in Sacramento River at Greenes Landing are about 0.01 mg/L. Therefore, the bromide concentration had to be increased by 50 times (5000 percent) to obtain a 10 percent increase. TFPC results are affected by bromide concentrations but probably not to a large degree.

2. Effect of Buffering and pH: The study showed that:

    a. pH had a measurable effect on TFPC yield;

    b. pH increases with increased Cl_2 dose and decreases with increased DOC level;

    c. pH of spiked and incubated channel water samples was about 8.2, similar to buffered samples in the modified assay described below; and

    d. Buffering of the Cl_2 spike solution brought a majority of samples to pH 8.2. The remainder were brought near pH 8.2.

3. Linearity of TFPC measures with dilution: A number of experiments showed that:

    a. Analyses of samples with DOC levels below approximately 20 mg/L showed consistent results for all dilutions (using the normal 120 mg/L Cl_2 dose);

    b. Samples with DOC much above approximately 20 mg/L appear to have incomplete conversion of DOC to TFPC using the 120 mg/L Cl_2 dose. However, dilution of these samples anywhere below approximately 20 mg/L DOC produces consistent, and higher, TFPC yields.

4. Sensitivity of high TFPC to Cl_2 Dose: The study showed that:

a. For a given level of DOC, TFPC production increases with increased Cl_2 dose until it reaches a "Maximum TFPC" related to the original DOC level. After that point, increased Cl_2 dose does not produce higher TFPC;

b. Samples above approximately 20 mg/L DOC required more than 120 mg/L Cl_2 dose for complete production of TFPC or else the sample had to be diluted. Therefore, high DOC samples using the original TTHMFP Assay probably underestimated TFPC; and

c. Measurable Cl_2 residual is not sufficient to determine that all precursors have been converted to THMs.

5. Improved Relationship between TFPC vs DOC and UVA_{254nm}.

The original TTHMFP assay indicated that DOC and TFPC were poorly correlated in high DOC waters. Dilution studies showed that DOC and UVA_{254nm} are both correlated with TFPC for all DOC ranges, although the exact correlation varies somewhat by water source.

The TFPC Assay--Based on the findings described above, DWR has adopted a modified TFPC assay which addresses most of the concerns about the original TTHMFP assay. Figure 4.21 illustrates the differences between the original and the modified assays.

The new assay, named the TFPC assay, is conducted as follows: Samples are collected and first analyzed for UVA_{254nm}. Samples exceeding 0.6 cm^{-1} UVA_{254nm} (≈12 mg/L DOC) are diluted to about a UVA_{254nm} equal to 0.5cm^{-1} (≈10 mg/L DOC). Samples are then spiked with a buffered Cl_2 solution to 120 mg/L and incubated for 168 hours. The samples are then quenched and analyzed using EPA Method 502.2, or equivalent. Certain other procedures have been modified to improve the quality control of the analysis. Analyses are reported corrected for dilutions.

Advantages of the TFPC Assay--The new assay addresses most of the concerns raised about the original assay, and has several advantages, listed here.

1. Results from the TFPC assay are directly comparable to results from the original

TTHMFP assay for samples with DOC below approximately 20 mg/L. Samples analyzed by the original method were not buffered to pH 8.2; however, DWR studies indicate that "low" DOC samples tend to naturally fall into this range when spiked, anyway.

2. The method remains relatively simple to do, and depends only on measurement of UVA_{254nm} to determine dilutions. The UVA measurement is simple, fast, and inexpensive.

3. TFPC results from the TFPC assay are valid over the entire range of DOC encountered by the MWQI Program.

4. The assay is not sensitive to reasonable variations in Cl_2 dose because it ensures that the Cl_2:DOC ratio is high.

5. Method QC for the new assay is improved because samples are analyzed by method 502.2 or equivalent.

6. Samples are buffered at pH 8.2, eliminating variations in analytical yield due to differences in pH.

7. Potential effects of ammonia, which are not measured beforehand, are addressed by the comfortable excess in Cl_2 dose for a given DOC range. Tests showed that the 120 mg/L Cl_2 dose was sufficient for DOC concentrations up to approximately 20 mg/L. DOC (as predicted by UVA_{254nm}) in the new test is not allowed to exceed approximately 12 mg/L. The excess available Cl_2 is sufficient to neutralize the NH_4 levels encountered in the Delta. High DOC samples are diluted before inoculation, which also dilutes NH_4 and its demand for Cl_2.

Figure 4.21.

Old THMFP and New TFPC Methods

ORIGINAL TTHMFP ASSAY METHOD
from 1982 to June 1992

Spike with unbuffered sodium hypochlorite solution to achieve chlorine dose of 120 mg/L

Incubate at 25 deg. C. for 168 hrs. (7 days)

Quench (dechlorinate) with sodium thiosulfate

If chlorine residual is present continue. If not the test is invalid.

Measure THM using EPA Method 601 or equivalent

Compute sum concentration of THM as Total THM Formation Potential

NEW TFPC ASSAY METHOD
adopted July 1992
with additional lab QC protocol

Is sample UVA-254nm > 0.6 per cm?

YES

NO

Dilute sample to UVA-254nm equal 0.5 per cm.

Spike with buffered sodium hypochlorite solution to achieve chlorine dose of 120 mg/L and pH = 8.2

Incubate at 25 deg. C. for 168 hrs. (7 days)

Measure pH

Quench (dechlorinate) with sodium thiosulfate

If chlorine residual is present continue. If not the test is invalid.

Measure THM using EPA Method 502.2 or equivalent

Compute sum of carbon concentrations of the four THMs and correct for any dilution. Report results as the THMFP Carbon or TFPC.

Limitations of the TFPC Assay--The limitations of the assay are:

1. TFPC yield is affected by bromide concentration, although the effect is relatively small. Other THM assays are also affected by bromide concentrations;

2. Although the assay is valid over a wide range of DOC concentrations, very high DOC concentrations may require special precautions because high dilutions are needed; and

3. Waters with high levels of NH_4 or other substances which compete for Cl_2 may not yield the maximum potential TFPC.

Comparability of TTHMFP vs. TFPC Assays--A number of analyses were collected in June 1992 and analyzed by the old and modified methods, and their results compared. Old and modified method analyses were comparable within method limits for DOC less than about 20 mg/L. All samples in this region fell along a line.

Above 20 mg/L the TFPC reported by the original method fell below the line and leveled off. Apparent yield of TFPC from the 75 mg/L DOC sample is not much higher than from the 25 mg/L sample. This is the same behavior predicted by the dilution and spiking experiments. Conversely, the modified method TFPC yield continued to follow the general DOC:TFPC relationship over the entire range of DOC.

Chlorine residuals for all samples were positive, but the original method analyses of samples greater than 20 mg/L yielded low residuals of 20 mg/L or less Cl_2. All samples which demonstrate a full conversion of TFPC had Cl_2 residuals of 40 mg/L or higher.

Previous Underestimations of THMFP

Laboratory studies on the effects of chlorine dose on THM formation led to a re-evaluation of the DWR raw water THMFP assay (Reckhow and Edzwald, 1991; Symons, 1991; Krasner, 1992). The assay was developed to compare the relative maximum THMFP of various water types (e.g., drainage, fresh water, and sea water) under a specific test condition. The assay has been modified in pH and chlorine dosage procedures to improve comparable results, since earlier tests were not buffered and chlorine dosage was fixed at 120 mg/L regardless of DOC concentration (Agee, 1992).

Groups of samples with DOC above 20, 30, and 40 mg/L were compared against their respective THMFP results. The data indicated a strong likelihood that the TFPC of samples with more than 20 mg/L DOC could have been underestimated because of insufficient chlorine to drive the reactions to completion. DOC and TFPC plots showed that the TFPC of samples with DOC concentrations above 20 mg/L began to fall below the regression line extrapolated from samples with under 20 mg/L DOC.

DWR was also concerned that THMFP or TFPC would be overestimated because of overchlorination. Channel waters generally have DOC between 2 and 10 mg/L. High chlorine dosages (120 mg/L) might convert recalcitrant organics or precursors of other DBPs to trihalomethanes. Laboratory studies were conducted to study the effects of chlorine dose and residual chlorine on TFPC. Samples were dosed with different chlorine amounts. The results showed that at the end of the seven-day test the residual chlorine of samples that had met their chlorine demand were nearly the same. The TFPC did increase slightly at the higher chlorine doses. However, since DWR tests are used to compare the relative differences in TFPC between drain and nondrain samples, the overestimation is not significant enough to alter conclusions about these differences. The TFPC of the samples that received high chlorine doses were within the same range of those that met the new recommended chlorine dose based on DOC and ammonia concentrations in the samples.

Recent advances in the study of disinfection by-product (DBP) formation and control by the water industry have been invaluable for the interpretation of this report's THMFP data . The earlier attempt to understand the tendency of a water sample to form brominated THMs was made by computing a Total Bromomethane Formation Potential (TBFP). New information shows that the distribution and formation of the four THMs are affected by chlorine dose and other test conditions. However, the amount of THM precursor carbon that is incorporated in THM formation is unchanged. Based on these findings, the TBFP term is no longer used.

Surrogate Measurements

The use of a surrogate measurement could be a valuable and inexpensive screening tool in assessing raw water quality (Dobbs et al., 1972; Edzwald et al., 1985; AWWARF, 1988). Strong relationships were seen between UVA_{254nm} measurements and DOC concentrations in most Delta island drainage and channel water samples. However, the degree of accuracy varies widely, so UVA measurements cannot always be used as a reliable substitute for DOC analyses.

The variability is probably caused by the mixed nature and sources of DOC that occur over time. Drainage DOC comes from drained soils and fields while channel DOC sources include algal exudates, sewage, riparian vegetation and debris, biota, and drainage from various regions. The nature of DOC in the channels is more likely to change more frequently (e.g., from tides, hydrology) than the DOC of a drainage canal. Differences between drain and non-drain Delta water samples have been seen in the distribution of the apparent molecular weight and THM formation potentials (Amy, et. al., 1990). This is not to say that drainage DOC composition is fixed. Drainage DOC varies with season depending on farming activities and the seasonal variables discussed earlier. Changes in specific absorbance serve to illustrate these points.

At some Delta channel stations, UVA_{254nm} measurements show strong promise as a substitute for laboratory DOC analyses. A potential application might be devising in-situ or continuous UVA_{254nm} monitoring instruments at some channel stations or intake facilities. Some sort of self-cleaning filtration device is needed, as current UVA measurements are taken of filtered samples. Different UVA to DOC regression equations probably exist for different channels in the complex Delta. These will need to be determined.

UVA measurements of drainage samples can be used to estimate the range of expected DOC concentrations. The predictive value of these measurements is, however, significantly less than that of channel water samples.

The relationships of TFPC to DOC or UVA are directionally linear, but accuracy is limited in some cases because of data scatter. Predicting TFPC for channel or low DOC waters from DOC or UVA data was more accurate than for high DOC drainwaters.

Shifts in the amounts and types of organic matter (e.g., humic materials) may be the major reason for the difficulties in obtaining consistent correlations among UVA, DOC, and TFPC. The underestimation of THMFP or TFPC from using the earlier DWR THMFP assay method may be another reason. However, studies elsewhere support the former hypothesis. Seasonal differences in the TOC character of an Iowa River water supply was identified as the predominant factor in THM variability, not temperature and pH (Veenstra and Schnoor, 1980). Hoehn and others

(1977) found that the concentration of organics may fluctuate by only a few milligrams per liter from winter or summer but the structure of the organics themselves may be sufficiently varied such that they will yield different THM concentrations when chlorinated.

UVA and DOC Correlations

Drains. Simple linear regression testing showed a strong relationship for each Delta drainage unit (Table 4.3). Drainage DOC concentrations from organic soil areas typically range from 8 to over 100 mg/L with most in the 10 to 40 mg/L range. The ability to predict drainage DOC from UVA is limited but may be acceptable to some applications. The 95 percent prediction limits (outer pair of dashed lines around the regression line in the following figures) indicate the range within which 95 percent of observations will occur for each prediction. The ranges averaged ± 5 mg/L of the predicted value. The 95 percent confidence limits for the mean regression line are shown as the pair of dashed lines closest to the regression line.

Table 4.3. Drain UVA-DOC Correlations

Delta unit	Degrees of freedom	R2 %	Equation	DOC range (mg/L)	95% prediction limit (est. mg/L)	Figure
15	53	79	DOC = 2.7 + 18.6(UVA)	8 - 56	± 7	4.22
16	41	77	DOC = 1 + 20(UVA)	5 - 37	± 5	4.22
17	11	26	poor correlation or insufficient data			
18	32	87	DOC = 3.3 + 17.2(UVA)	8 - 55	± 8	4.22
20	39	91	DOC = -1 + 26.8(UVA)	3 - 90	± 10	4.22
21	14	72	DOC = 11.4 + 10.5(UVA)	9 - 37	± 7	4.22
22	23	97	DOC = 0.4 + 22(UVA)	3 - 35	± 4	4.22
23	15	99	DOC = 0.5 + 22.9(UVA)	6 - 37	± 1	4.23
27	31	64	DOC = -0.1 + 43(UVA)	3 - 14	± 3	4.23

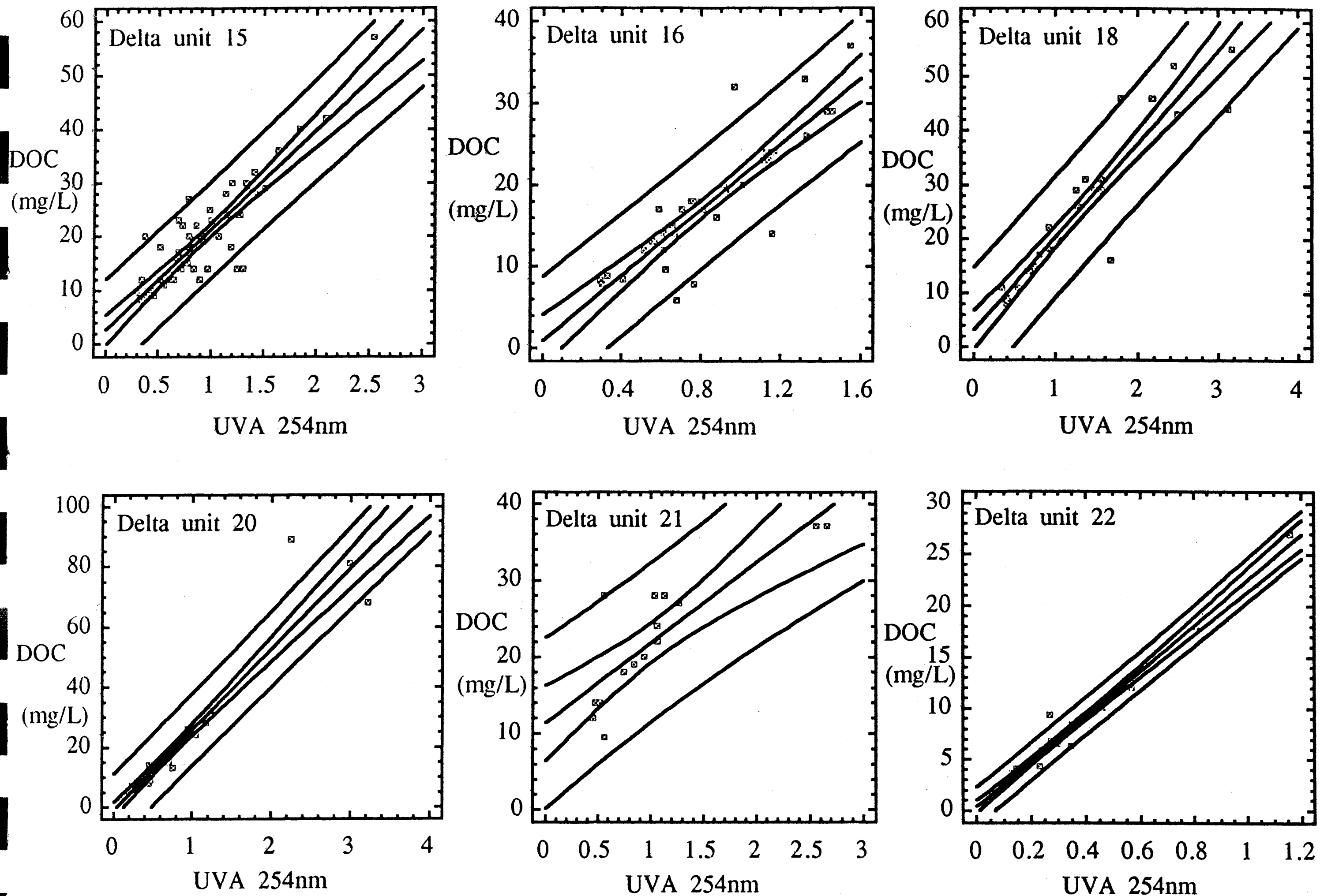

Figure 4.22. Delta Island Units 15 - 22 UVA-DOC Correlations

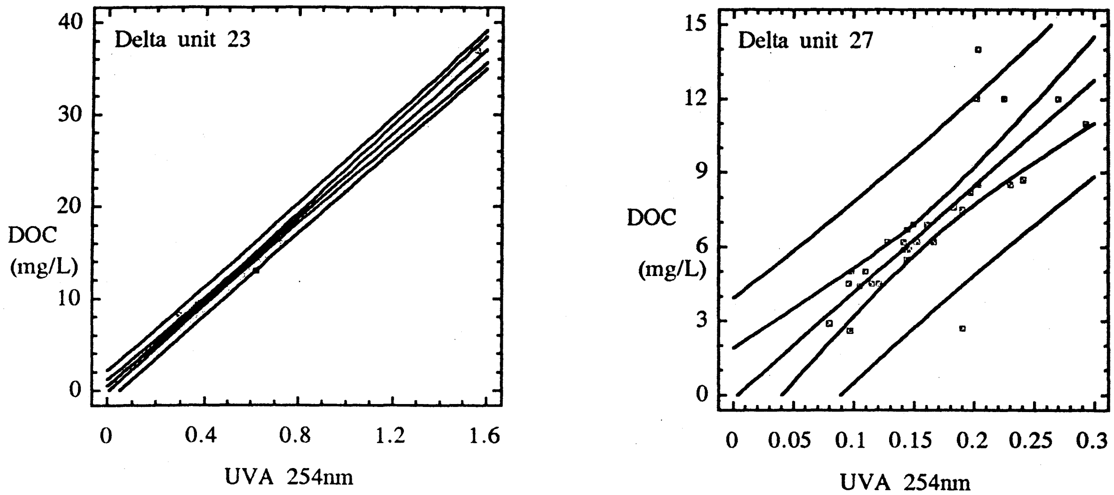

Figure 4.23. Delta Island Units 23 and 27 UVA-DOC Correlations

The good correlations of drainage DOC to $UVA_{254\,nm}$ measurements show generally high concentrations of ultraviolet absorbing compounds (e.g., humics) in drainage and fairly consistent proportion of these compounds relative to nonabsorbing organics. Outlying data points may indicate shifts in the amount of UV absorbing organics in the DOC pool. These could be related to the aging of organic material as well as organic content. Unit 27 (Pescadero Tract), which has mineral soil, has less UV absorbing organic matter than the other organic soil tracts. The differences between the regression equation coefficients of Unit 27 (coefficient = 46) and the others (coefficients at about 20) are apparent.

The correlation between UVA and DOC was best for drainages that fell within the intermediate DOC subgroup (Table 4.4). UVA also correlated better with DOC at the predominant UVA:DOC range of a Delta unit than with data that included the other ranges.

Table 4.4. UVA-DOC Correlations with Specific Absorbance

Delta Unit	UVA:DOC Range	Degrees of freedom	R^2 (%)	Equation	DOC range (mg/L)	95% prediction limit (est. mg/L)	Figure
15	mid	47	89	DOC = 2.8 + 19.7(UVA)	8 - 58	± 4	4.24
15	low	3		Insufficient data			
15	high	7		Insufficient data			
16	mid	37	88	DOC = 1.7 + 20(UVA)	8 - 37	± 4	4.24
16	low	3		Insuffficient data			
27	low	29	73	DOC = 43.5(UVA)	3 - 14	± 2.5	4.24

Specific absorbance (UVA_{254nm}:DOC) ranges: low < 0.03; mid between 0.03 and < 0.06; high > 0.06

In conclusion, UVA can be used to obtain good estimates of the range of DOC concentrations in drain water for most Delta areas. These estimates are best for samples with ratios that are within the predominant UVA:DOC range of a Delta unit. The data did not show that UVA_{254nm} measurements can be used as a substitute for laboratory DOC analyses of Delta island drain water. Accurate determination of DOC requires laboratory analysis.

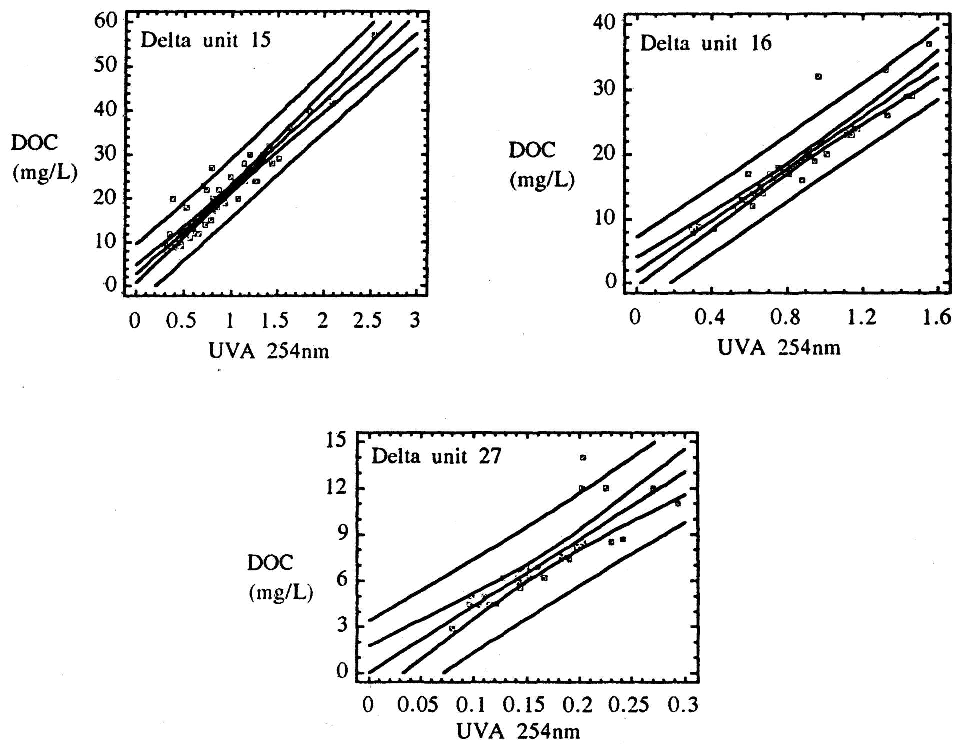

Figure 4.24. Delta Drainage UVA-DOC Correlations

Channels. In general, the use of UVA to predict channel water DOC concentrations appears to be more accurate than for drainage samples (Table 4.5). DOC concentrations typically range from 2 to 4 mg/L in the Sacramento River but increase in the interior Delta channels to 4 to 8 mg/L. The higher DOC concentrations usually occur after winter storms. The 95 percent prediction limits indicate that 95 percent of the observations could be as close as ± 0.3 mg/L from the prediction value. Simple linear regression results of UVA to DOC for key Delta channel stations are presented below.

Table 4.5. Channel UVA-DOC Correlations

Station name	UVA:DOC range	Degrees of freedom	R^2 %	Equation	95% prediction limit (mg/L)	Figure
Greenes	low - med	29	84	DOC = 0.98 + 24.2(UVA)	± 0.6	4.25
Rio Vista	all	55	79.44	DOC = 0.9 + 23.6(UVA)	± 0.4	
Rio Vista	low	46	47.26	DOC = 0.9 + 25.2(UVA)	± 0.45	
Rio Vista	mid	8	95.83	DOC = 29.7(UVA)	± 0.5	
DMC intake	all	49	73	DOC = 0.8 + 26.8(UVA)	± 0.5	4.25
Banks Headworks	all	53	92	DOC = 0.8+25.4(UVA)	± 0.3	4.25
Banks Headworks	low	21	92.33	DOC = 33(UVA)	± 0.35	
Banks Headworks	mid	37	98.26	DOC = 0.4 + 26.8(UVA)	± 0.1	
Vernalis	all	27	79	DOC = 1.3 + 27.2(UVA)	± 0.4	4.25
Mallard Is.	all	55	21.56	DOC = 17.7(UVA)	± 2.5	
N. Bay Pumping Plant	all	20	23.35	poor correlation or insufficient data		
N. Bay Pumping Plant	low	7	87.56	DOC = 41.2(UVA)		
N. Bay Pumping Plant	mid	8	97.09	DOC = 1 + 23.5(UVA)		
Sandmound	all	49	76.91	DOC = 0.7 + 25.2(UVA)		
Sandmound	low	31	88.08	DOC = -1.3 + 53.3(UVA)		
Sandmound	mid	17	95.90	DOC = 24.5(UVA)		
Middle River	all	21	93.86	DOC = 0.7 + 25(UVA)		
Middle River	mid	19	97.86	DOC = 0.52 + 26(UVA)		
CCWD PP1	all	13	42.43	poor correlation or insufficient data		
CCWD PP1	low	9	47.73	poor correlation or insufficient data		

Specific absorbance (UVA254nm:DOC) ranges: low < 0.03; mid between 0.03 and < 0.06; high > 0.06

Similar to drainage, the channel data generally indicate that specific absorbance and the strength of the correlations of UVA to DOC may be related. The correlations improved for samples with mid-range specific absorbance. The intercepts of the linear regression equations where UVA equals zero and intersects the DOC axis can be used to estimate the amount of non-UV absorbing dissolved organics in the samples. High slopes (i.e., large numeric constant multiplied against UVA) correspond to low humic samples (low specific absorbance range). Samples with low-range ratios had about half the slope or UV absorbance per DOC concentration of the mid-range samples. This could mean that mid-range samples had either about twice the concentration of UV absorbing organics (e.g., humics) or had higher UV absorbing compounds than the low ratio samples.

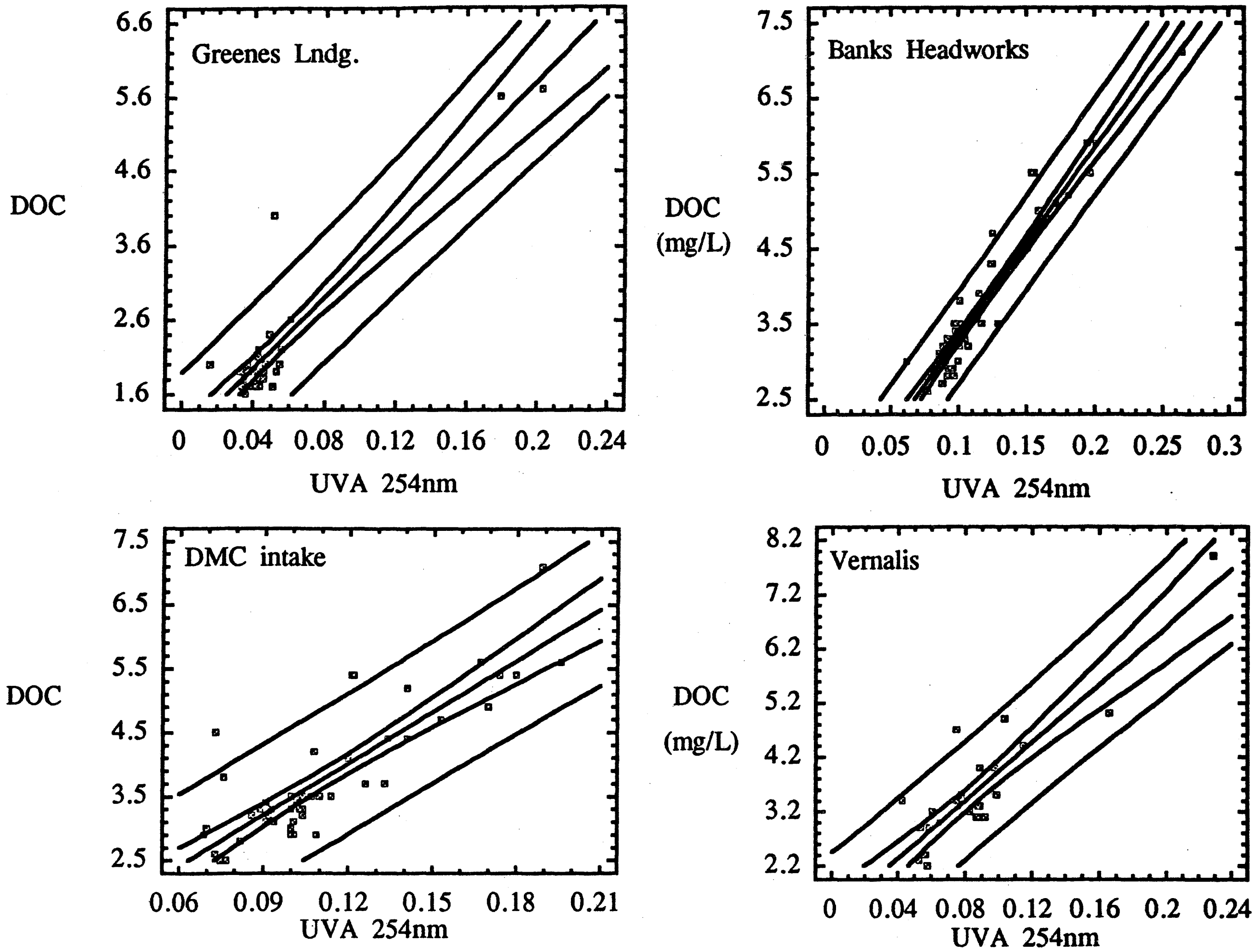

Figure 4.25. Channel Water UVA-DOC Correlations

Mallard Island results showed that the composition of DOC at this intertidal station can be widely variable and significantly different from upstream waters. Humics typically comprise 30 to 50 percent of the DOC in rivers and 50 to 90 percent in colored waters, such as from soil drainage and wetlands (Thurman, 1985).

Channel waters with similar specific absorbance can be chemically different as shown by different strengths of correlation (R^2) for the same specific absorbance range. For example, for the low-range, the correlations of UVA to DOC were poor at the Mallard Island and CCWD Pumping Plant #1 stations but better at the some other stations (e.g., Greenes, Vernalis, Banks).

TFPC Correlations

Drains. Regression results show drain water TFPC may be estimated from DOC data (Table 4.6). The strength of some correlations may depend on the UVA:DOC ratio of the sample. However, the results may be in error from underestimations of THMFP or TFPC under the old THMFP methodology. Additional work in progress that uses the new modified THMFP test method will enable refinement of the prediction equations and possible improvements in narrowing the range of the prediction limits. Some of the TFPC to DOC regression results are presented below:

Table 4.6. Drainage DOC-TFPC Correlations

Delta unit	UVA:DOC range	Degrees of freedom	R2 %	Equation where DOC ≤ 40 mg/L	95% prediction limit (est. µg/L)
16	mid	38	48.49		± 90
17	mid	9	92.91	TFPC = 7.5(DOC)	± 20
18	mid	23	83.87	TFPC = 53.2 + 6.9(DOC)	± 45
20	mid	37	89.55	TFPC = 31.1 + 7.4(DOC)	± 30
21	mid	9	11.16	poor correlation	
22	mid	31	96.21	TFPC = 26.7 + 7.6(DOC)	± 20
23	mid	12	78.23	TFPC = 51.6 + 4.8(DOC)	± 35
27	low	27	13.20		± 40

Specific absorbance (UVA254nm:DOC) ranges: low < 0.03; mid between 0.03 and < 0.06; high > 0.06

Channels. While statistical results of the regression tests were mixed, the plots and ranges of the 95 percent prediction limits showed that channel water TFPC could be better estimated by DOC concentrations than for drain water (Table 4.7). This difference could be explained by the underestimation of THMFP or TFPC of higher DOC drain water samples (above 20 mg/L) under the old DWR THMFP test method.

Table 4.7. Channel DOC-TFPC Correlations

Station name	UVA:DOC range	Degrees of freedom	R2 %	Equation	95% prediction limit (est. µg/L)
Greenes	low	29	8.7		
Rio Vista	all	55	67.7	TFPC = 12.2(DOC)	± 12
Rio Vista	mid	8	80.6	TFPC = 10.5(DOC)	± 18
Rio Vista	low	46	58	TFPC = 16.6(DOC)	± 12
DMC intake	low	23	60.9		
Banks Headworks	low	21	64.5		
Banks Headworks	mid	37	71.4	TFPC = 9.5(DOC)	± 17
Vernalis	low	30	74	TFPC=29(DOC)	± 15

Bromide, Chloride, and EC

Water treatment operators have health concerns about bromide, which can be oxidized to form brominated disinfection by-products such as bromate and bromoform. EPA is considering regulating bromate because of its relatively high carcinogenic potential. Bromide presence may also influence the rate and extent of formation of nonhalogen-containing organic products. Bromide analyses were added to the MWQI Program in January 1990. Because bromide and chloride are major anions of sea water and are in constant ratio to each other, the effect of Bay water intrusion could be tracked in the Delta.

The data showed that bromide concentrations could be predicted from chloride measurements in the brackish waters of the Delta. Electrical conductivity (EC) readings could also be used to predict chloride concentrations.

Other Water Quality Concerns

Selenium

Selenium is a naturally occurring element that, in high concentrations, can cause various deformities in animals and birds. In humans, low concentrations are essential, but high concentrations can produce assorted physical problems such as hair and nail loss, and gastrointestinal problems.

Selenium in the San Joaquin River can be traced back to discharges of Central Valley agricultural drainage. In 1984 the U.S. Fish and Wildlife Service observed young deformed birds at the Kesterson Wildlife Refuge near Los Banos, California. These abnormalities were attributed to high levels of selenium discovered at Kesterson and in the San Luis Drain.

In response to these concerns, monitoring for selenium was started in the San Joaquin River and the Delta. During 1987-91, selenium levels did not exceed the drinking water standard of 10 µg/L. The highest level detected was 9 µg/L in March 1989 at Maze Road Bridge on the San Joaquin River. Just downstream from the site, a sample taken at San Joaquin River near Vernalis showed a value of 5 µg/L. This drop can be attributed to mixing of the San Joaquin and the Stanislaus rivers, which occurs just upstream of Vernalis. At various other times, readings at the Maze Road station varied between below detection limits to 8 µg/L.

Selenium was detected at the Banks headworks on six occasions, with values ranging between 1 and 3 µg/L. At the other times, values were below detection limits. At the DMC intake station, selenium was detected on 20 occasions. Values here varied between 1 and 5 µg/L. These variances between sites indicate the major influence of the Sacramento River at the pumping stations. Banks water is taken from Old River through the Clifton Court Forebay intake. This facility has control gates that allow for the regulation of waters during high and low tide. Another factor is the location of the gates, which are north of the DMC intake facility. The DMC pumps pull more San Joaquin River water into its system than Banks. This is because San Joaquin River water flows into Grant Line Canal and Old River upstream of the DMC intake.

Selenium has been tested at various agricultural drains throughout the Delta. Results at these sites were below detection limits a majority of the time with a few exceptions. Drains on Mossdale Tract showed values ranging from 1 to 4 µg/L. Within the last three years these drains have been removed from service due to the development of lands on this Tract. Occasionally selenium was detected on Pescadero , Shima , and Egbert tracts, but these sites were dropped from the study to concentrate more on the central part of the Delta. In summary, selenium levels in Delta water supplies easily meet drinking water standards.

Sodium

High sodium levels can harm crops, corrode pipes, and make water undrinkable. People with heart conditions and high blood pressure may need to limit sodium intake. The National Academy of Sciences has two health advisories for daily sodium intake. There is a 20 mg/L limit for persons on severely restricted sodium diets and a 100 mg/L limit for those on moderately restricted diets. There are no State or federal drinking water standards for sodium. Evidence is inconclusive as to whether elevated blood pressure is linked to sodium intake from drinking water, as most sodium intake is from food.

EPA regulations require all public water suppliers to monitor sodium in their drinking water and to report the levels to local authorities (40 CFR 141.14). 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 sodium sources in the Delta include sea water intrusion, local island drainage discharges, and San Joaquin River water. Sea water is naturally high in sodium and enters the western Delta from tidal action and reverse flows. Local drainage is high in salts because of evaporation of applied irrigation water from the channels. Sodium in the San Joaquin River is attributed to Central Valley drainage discharges.

Because San Joaquin River flows were low during the drought (average daily flow less than 1300 cfs), most of the water returned 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.

The seasonal pattern shows higher sodium concentrations in the mid-summer through winter months (July - February) when river flows were low and drainage discharges were typically high due to irrigation and field leaching. Sodium levels decreased in March due to heavy rains and river flow.

Sodium levels at the southern Delta channel stations resemble those levels at Banks. In contrast, sodium concentrations average about 10 mg/L at the Sacramento River at Greenes Landing station.

Data Quality Review

As stated in the section titled "Program Description," one major objective of the MWQI Program is to collect long-term monitoring data to assess the temporal and spatial changes in water quality in the Delta, and to identify the causes of the observed changes. To meet that purpose, the quality assurance and quality control (QA/QC) review and evaluation process was conducted to validate the MWQI data prior to data analysis and interpretation to prevent misinterpretations of the data.

MWQI staff, with the assistance of DWR's Quality Assurance/Control Program staff, formed a QC assessment team to review MWQI data collected from 1987-1991. The initial effort required assembling QC data (laboratory and field) pertinent to the study. Printed copies of these data were electronically scanned or key-entered into a computer database. After the entered data had been verified with the printed laboratory QC reports, they were then evaluated by the assessment team by comparing the results against QC criteria.

Overall, the MWQI data set (August 1987 to December 1991) were validated to be acceptable. Over 95 percent of all laboratory quality control checks or analyses performed by the contracted laboratories, Enseco and Pace, met the selected quality control criteria established for the MWQI Program. Some data, which may not have not met the QC criteria, were considered acceptable because of their slight exceedances and the conservativeness of the acceptance criteria. Only a very small portion of the MWQI 1987-1991 data set were considered unusable. The environmental sample data associated with these latter QC batches have been excluded from the MWQI database.

Some samples taken between August 1987 and June 1989 were analyzed by Enseco Laboratory (West Sacramento, California). Enseco analyzed samples for total organic carbon (TOC) and THM formation potential. Enseco analyzed 249 sample batches.

Some samples taken between July 1989 and December 1991 were analyzed by Pace Laboratory (Novato, California). Pace analyzed samples for total residual chlorine and THM formation potential. Pace analyzed 179 sample batches.

DWR's Bryte Chemical Laboratory analyzed water samples for minerals, metals and some organics between August 1987 to December 1991. Occasionally, Bryte also spiked and quenched THM formation potential samples for Enseco.

During the study period, Bryte had not yet developed a computer database for filing QC data; instead, handwritten logbooks were archived. For this review, a random set of data over the five-year study period was chosen on a quarterly basis (1 QC batch per quarter). Bryte Lab staff searched their original work sheets and reported the requested QC information for the randomly chosen data. QC data were documented in a report for a total of 15 batches. The evaluation of Bryte QC data for this report was based on these 15 batches. DWR's Bryte Chemical Laboratory is in the process of becoming more automated, and is now reporting QC data to MWQI routinely.

Most of the holding times of sample batches were in compliance with EPA recommendations. Since THM data are primarily used in this study for determining seasonal and long-term trends in water quality, not accepting THM results from batches which exceeded the holding time may be imprudent. DWR also uses a modified THMFP test which is not identical to EPA's THMFP test. Thus, a strict application of EPA's holding time may not be appropriate in this case.

In addition, although a total of 18 batches exceeded EPA's holding time for purgeable halocarbons of 14 days, a study of THM holding time which was documented in MWQI's June 1990, *Delta Island Drainage Investigation Report of the Interagency Delta Health Aspects Monitoring Program*, established that a holding period of up to 80 days does not cause a significant loss in THM concentrations. Another important note is that EPA does allow for variances of holding time in cases where a chemical can be shown to be stable for a longer period of time. For the purpose of this report, the THM environmental data from all 18 batches is considered to be acceptable with the understanding that measures will be taken to reduce or eliminate the source of possible error in future work.

Bryte Chemical Laboratory exceeded EPA's recommended holding time for total dissolved solids (TDS) of seven days in two sample batches. However, an extended holding time study performed by Bryte shows that filtered TDS samples may be stable up to three months. Since holding times for these batches were only slightly exceeded, DWR considered the TDS results to be usable.

No contaminants were detected in any of the 407 method blanks analyzed by Enseco for total organic carbon and THMs. Method blank results from Bryte are all acceptable. Method blank analyses of THMFP by Pace, however, were done incorrectly. Blank water used by Pace was suspected to not be free of organics (see discussion of method blanks in Appendix B). All 551 method blank analyses from Pace were, thus, considered invalid.

The accuracy of sample batch analyses was determined by evaluating recoveries of laboratory control samples (LCS) and matrix spikes. Overall, approximately 91 percent of the LCS recovery results were acceptable in terms of the LCS acceptance ranges provided by each laboratory.

Overall, 87 percent of matrix spike recoveries were acceptable in reference to LCS accuracy acceptance ranges. LCS acceptance ranges were used to evaluate matrix spike recoveries because matrix spike recovery acceptance ranges were not available from each laboratory. This conservative practice by MWQI may explain the relatively lower number of acceptable recoveries from matrix spikes as compared to LCSs.

The precision of sample batch analyses was determined by evaluating the relative percent difference (RPD) of duplicate samples. Overall, 96 percent of Enseco's and Pace's matrix spike duplicate results is within the appropriate RPD limits. Similarly, results show that approximately 97 percent of the LCS duplicate samples is within acceptable precision limits.

Ninety-six trip blanks were analyzed by Enseco. These samples were analyzed for TOC, bromoform, bromodichloromethane, chloroform, and dibromochloromethane. Only eight samples were found to have TOC concentrations which could represent possible contamination. The remaining 88 trip blanks contained nondetectable concentrations of analytes. These results show that contamination, particularly by THMs, is infrequent during sample processing and transport.

Field duplicates were collected occasionally by MWQI prior to 1989. Since 1989, these samples were taken regularly. Enseco, Pace and Bryte laboratories performed 4,256 analyses on field duplicate samples submitted by MWQI during the study period. A total of 45 different analyses were performed for these duplicates. Overall, 96 percent of MWQI field duplicates is within field duplicate precision limits.

The results of the data quality review are presented in Appendix B.

Chapter 5. CURRENT AND PLANNED ACTIVITIES

Numerous studies and activities are underway, and they include:

1. Conducting a joint DWR-USGS drainage volume study to revise estimates on the volume of agricultural drainage discharged into the Delta (The study includes estimates based on power consumption records and measured pump flows.);

2. Automated sampling (The use of automated sampling devices to collect daily or hourly samples to study the magnitude of water quality changes at a site. This type of information will improve modeling efforts to characterize monthly statistical values such as a monthly mean or median. It will also enable an assessment of whether "synoptic" monitoring done in this program is sufficient to observe water quality changes across the Delta.);

3. Sampling for new EPA regulated contaminants;

4. Implementing the new modified DWR TFPC assay;

5. Testing correlations of surrogate measurements for TFPC;

6. Developing and implementing studies for controlling DOC in drainage by reducing water applications for irrigation, leaching, and waterfowl habitat or by changing land use;

7. Applying information from this study for assessing the impacts on Delta drinking water supplies from proposed channel modifications, drought, wetland projects, upstream release schedules, sea water intrusion, levee breaks, precursor sources, and water quality standards for the Delta; and

8. Making MWQI data available on DWR's California Data Exchange Center (CDEC).

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GLOSSARY

agricultural drainage Surface and subsurface waters that are collected from irrigated fields and discharged into adjacent waterways.

analytes Those constituents that are measured by laboratory analysis.

BAT Best Available Technology

connate water Highly saline water trapped underground and of marine origin.

DBP Disinfection byproducts are byproduct chemicals formed during the disinfection process.

DOC Dissolved organic carbon is the amount of measured organic carbon in the liquid portion of a liquid sample that passes through a 0.45 micron pore sized filter.

EC Electrical conductivity or specific conductance

HAA5 The total concentration of five haloacetic acid compounds specified in the D-DBP Rule.

humic substances Natural organic matter that imparts a yellowish brown color in water.

NOM Natural Organic Matter refers to organic matter that occurs naturally of biologic origin.

POC Particulate organic carbon is the amount of measured organic carbon that is trapped by a 0.45 micron pore sized filter.

precursors Chemicals that lead to the formation of other chemical compounds.

saltwater intrusion Sea water entering the estuary and fresh water region of a bay due to tidal movement or reduced river outflow.

specific absorbance The ratio of the ultraviolet absorbance of a water sample measured at the 254 nm wavelength to the dissolved organic carbon concentration.

TFPC Trihalomethane formation potential carbon is the amount of carbon computed from the total trihalomethane concentrations.

THMFP Trihalomethane formation potential is a measure of the amount of trihalomethanes (THM) that are formed after chlorinating a water sample.

TOC Total organic carbon is the total amount of measured carbon in a sample.

Appendix A

Methodology Used to Estimate Drainage DOC and TFPC Releases

Appendix A

Methodology Used to Estimate Drainage DOC and TFPC Releases

The following explains how the estimates of drainage DOC and TFPC contribution in the simple Delta model were derived. Equations used in the computations are presented in Table 1.

Estimated Island Drainage Volumes

The most complete survey of monthly island drainage flows was made for May 1954 through October 1955 and reported in DWR *Report No. 4: Quantity and Quality of Water Applied To and Drained from the Delta Lowlands* (DWR, 1956). The assumption was made that present-day drainage volume and discharge patterns have not significantly changed in the last 40 years. From May through October, there were two sets of monthly estimates, one set for 1954 and the other for 1955. The average was used when two estimates occurred for the same month to obtain a single set of 12 monthly drainage volume estimates. These values were assumed to be constant during 1987-91.

The 1954-55 survey showed the highest drainage discharges occurred during January and December with the lowest flows in February, March, and April. These estimates would reflect the pattern of rainfall that existed during the 1954-55 survey. During the period of this study, the pattern of rainfall shifted, and calendar year 1988 was the only year in which the higher precipitation rates occurred in January and December. During other years, highest rates of rainfall occurred during February, March, or April. These differences in rainfall patterns point to the need to collect current drainage data.

The first heavy rainfall after a prolonged dry period results in a higher organic load in the streams and Delta channels. However, continued rainfall could have a diluting effect and the water quality could improve. Under these conditions, the timing and frequency of water quality sample collection is critical to understanding the impacts of island drainage.

The Delta islands were divided into two groups for calculating the water quality estimates. These two groups exhibit different water quality characteristics and rates of drainage. One group consisted of the central Delta peat soil islands, and the other group included the northern and southern areas having mineral and intermediate organic soil. Data from the 1954-55 study showed that the drainage volume from the central Delta group (study units 18, 20 and 22) contributed about 46.5 percent of the total Delta drainage during June through August and about 32.5 percent from September through May. These percentages were used to proportion the quality data of each island group and provide a single value for each month. These monthly values were then averaged for each calendar month during the five-year period (i.e., all Januarys, all Decembers). These 12 monthly averages were used in the calculations repeatedly for

Table A-1. Equations for Computing Estimates

Compound	Formula	Equation	Percent Carbon
Chloroform	$CHCl_3$	{C/[C+H+(3xCl)]}x100	10.05%
Bromodichloromethane	$CHBrCl_2$	{C/[C+H+Br+(2xCl)]}x100	7.33%
Dibromochloromethane	$CHBr_2Cl$	{C/[C+H+Cl+(2xBr)]}x100	5.76%
Bromoform	$CHBr_3$	{C/[C+H+(3xBr)]}x100	4.75%

Where: C=12, H=1, Cl=35.45 and Br=79.91

Equation used to estimated theoretical water quality in Delta

Dc= [(Sv)(Sc)+(SJRv)(SJRc)+(Mv)(Mc)+(Cv)(Cc)]/(Sv+SJRv+Mv+Cv)

Where: Dc = Theoretical THM carbon concentration in Delta water in µmoles/L or mg/L
Sv = Sacramento River volume in ac-ft
Sc = Sacramento River carbon concentration in µmoles/L or mg/L
SJRv = San Joaquin River volume in ac-ft
SJRc = San Joaquin River carbon concentration in µmoles/L or mg/L
Mv = Mokelumne River volume in ac-ft
Mc = Mokelumne River carbon concentration in µmoles/L or mg/L
Cv = Cosumnes River volume in ac-ft
Cc = Cosumnes River carbon concentration in µmoles/L or mg/L

Equations Used to Combine River and Drainage Qualities

River plus drainage:
Crd=[(Fd)(Cw)+(Fr)(Cr)]/(Fd+Fr)] using 1954-55 drainage volume
Crd=[(0.9)(Fd)(Cw)+(Fr)(Cr)]/((0.9)(Fd)+(Fr)) using 90% drainage volume
Crd=[(1.1)(Fd)(Cw)+(Fr)(Cr)]/((1.1)(Fd)+(Fr)) using 110% drainage volume

Where:
Crd = Carbon concentration of river and drainage mixed in µg/L or mg/L
Fd = Total Drainage volume in ac-ft
Fr = Total river volume in ac-ft
Cw = Flow weighted carbon concentration of all drains in µmoles/L or mg/L
Cr = Flow weighted carbon concentration of rivers in µmoles/L or mg/L

The following equations were used to proportion the water quality from each Island group.

For June through August estimates:
Cw=[(.465)(Cm)+(.535)(Cns)]

For September through May estimates:
Cw=[(.325)(Cm)+(.675)(Cns)]

Where:
Cw = Flow weighted carbon concentration in µmoles/L or mg/L
Cm = Carbon concentration from middle Delta island group in µmoles/L or mg/L
Cns = Carbon concentration from north-south Delta island group in µmoles/L or mg/L

each year. Because of the dearth of quality data for the island drains, this procedure provides data for certain months in some years where no data existed.

Delta Inflow and Outflow Volumes

Riverflow data was obtained from the DWR DAYFLOW database. This database contains information on daily measured river flows to the Delta and measured exports from the Delta. In the DAYFLOW program, precipitation is counted as inflow to the Delta and an estimated volume of water is counted as channel depletion. Channel depletion is an estimate of water use and evaporation in the Delta . To develop a daily Delta outflow volume, all of the exports and channel depletion are summed and subtracted from the sum of the inflows and precipitation.

At the time of data retrieval, the database did not contain flow data after September 1991, so the estimates of drainage effects were not made for the last three months of 1991.

The San Joaquin, Cosumnes, and Mokelumne Rivers have much lower flows than the Sacramento River. In addition, most of the San Joaquin River flow is pumped from the Delta by the Tracy Pumping Plant of the Central Valley Project. To place these flows in perspective the San Joaquin, Cosumnes and Mokelumne river flows averaged 11.3 percent, 0.9 percent, and 0.4 percent, respectively, of the Sacramento River flow during 1987-91.

The San Joaquin River flows were adjusted in the last report to account for the volume of river water that flows directly to the Tracy Pumping Plant. Pumping rates at this plant sometimes exceed the flow of the San Joaquin River, which in effect could limit the volume of river water available for mixing in Delta channels north of Old River. This adjustment decreased the impact that the poorer quality San Joaquin River water may have had on the Delta channels. Because of tidal effects (incoming tides move a large volume of water from the north to the Tracy Pumping Plant), making this adjustment may underestimate the amount of river water available for mixing. In this report Tracy Pumping Plant quality data at the DMC intake is used to estimate the overall quality of the Delta channels; therefore, no adjustment was made on those flows.

Flows in the Cosumnes River and Mokelumne River were used as reported in the DAYFLOW program to flow weight the DOC and TFPC collected from those rivers in 1984.

In the previous 1990 report, the Delta outflow volume was subtracted from the Sacramento River flow measured at Sacramento to estimate the volume of water for mixing in the Delta. The resulting number was then used to flow weight the Sacramento River quality data. For this report period, certain months of heavy precipitation resulted in a Delta outflow that was larger than the Sacramento River flow and the above-mentioned computation resulted in a negative number. Several alternatives using precipitation data and land areas as well as Sacramento River flow at Rio Vista and flow through the Delta Cross Channel gates were examined to derive a reasonable estimate for flow weighting the quality data. None of the alternatives yielded consistently reasonable numbers for all months of the study period. Because the Sacramento River provides almost 90 percent of the total fresh water flow to the Delta, an adjusted Sacramento River flow was used. This alternative has the advantages of excluding the estimated accretions and decretions for Delta channels and the estimated runoff from precipitation which may only introduce additional error. Also, part of the precipitation that falls on the Delta Islands should enter the mix equations as island drainage. Use of the unadjusted flow of the Sacramento River in the prediction equations results in a lowering of the predicted concentrations.

The highest inflows to the Delta occurred during calendar year 1989. On average, over one million acre-feet of water per month entered the Delta from the Sacramento River. Average monthly flows for calendar year 1991 are the lowest, but 1991 does not include October through December data and, therefore, cannot be equally compared to flows for other years. The lowest inflows to the Delta, for which a complete year of data is available, occurred during calendar year 1990 with average monthly flows of 730,343 acre-feet. Heavy precipitation in the northern watersheds may be the reason for the high Sacramento River flows during 1989. However, precipitation records for Stockton shows calendar year 1987 to be the highest year of precipitation, in that area, with a total of 946,819 acre-feet of water to the Delta. Calendar year 1989 had the second highest rainfall with a total of 670,643 acre-feet. Calendar year 1990 had the least rainfall at 622,882 acre-feet.

Delta Inflow Water Quality

Water quality data for rivers flowing into the Delta were flow weighted to provide an estimate of what the theoretical water quality would be in the Delta channels in the absence of other factors that influence water quality. The rivers used were the Sacramento, San Joaquin, Cosumnes and Mokelumne Rivers. Because the Sacramento River flow constitutes about 90 percent of the total stream inflow to the Delta, its quality is a major controlling factor on Delta channel quality.

Water quality data for the Cosumnes and Mokelumne Rivers were collected between July 1983 and December 1984. Since these two rivers combined represent less than two percent of the total Delta inflow and the quality data has low variability, monthly data collected during the 1984 calendar year was used for each of the five years studied. DOC data was not available for the Cosumnes and Mokelumne Rivers during 1983-84. Water quality data for the Sacramento and San Joaquin Rivers were available for 1987-91.

With the exception of September 1987, all of the annual maximum levels of DOC entering the Delta occurred during months of high precipitation as measured at Stockton. DOC in the Sacramento River was unusually high for that time at 4.90 mg/L. September 1988 and 1989 also had DOC values higher than the annual average for those particular years. No rainfall was recorded at Stockton during September 1987 or 1988, but the record for September 1989 shows 116,541 acre-feet fell in the Delta area. Since no precipitation was recorded north of the Delta during September 1987 and 1988, the reason for the high DOC values is unknown, but may be due to rice field drainage.

The TFPC values were calculated from the TTHMFP measurements. TTHMFP is the total concentration of chloroform (CHCl3), bromodichloromethane (CHBrCl2), dibromochloromethane (CHBr2Cl), and bromoform (CHBr3) concentrations. Three of the THM species contain bromine. Because the atomic weight of bromine is more than twice the atomic weight of chlorine, waters containing equal amounts of organic carbon (THM precursor material) but varying amounts of bromine (as bromide ion) will exhibit different TTHMFP concentrations. Therefore, to assess on an equal basis the various sources such as drainages and rivers for organic THM precursors, only the concentrations of organic carbon in the water were compared. To make these comparisons, the carbon percentage for each of the THM species was first calculated. Then the concentrations of each of the four THM compounds were multiplied by their respective percentage of carbon content to obtain the concentrations of carbon. These carbon concentrations were then summed and divided by the atomic weight of carbon to yield the total amount of THM precursor organic carbon in micromoles per liter.

Island Drainage Water Quality

Water quality data was collected from various islands during the study period. The islands were divided into two groups and all of the data in a group that were collected in the same month and year were averaged to give a single value for each group, month and year. One group consists of islands located in Units 18, 20 and 22, as defined in the earlier report. These islands consist of peaty organic soil and are in a high drainage area. The remaining islands consist of intermediate organic and mineral soils and their drainage water is not as high in precursor material as the peat soil drainage. Islands in Units 18, 20 and 22 are Staten, Bouldin, Venice, Empire, King, Terminous, Bacon, Mandeville, McDonald, Mildred and Medford.

DOC and TFPC data for island drainage were derived by first averaging the data, from all of the individual drains in the same island group, collected during a particular month. This produced a set of monthly data for each of the two groups. The two sets of monthly data were then combined into one value for each month by flow weighting the group values by their respective percent flow contribution to the Delta. Equations used to proportion flows are shown in Table 1.

Delta Channel Water Quality

For purposes of comparing the calculated or predicted quality data with actual observed quality data, four Delta stations were selected to characterize monthly channel water quality. Monthly quality data from each of four stations were averaged to provide one value for each month of the study period. The stations selected were Clifton Court Intake, Middle River at Borden Highway, Old River at Rock Slough, and Tracy Pumping Plant.

The monthly station averages for DOC and TFPC showed the greatest amount of organic loading during the months of highest precipitation, normally between December and April.

Methods Used to Estimate Water Quality

To estimate the effect of island drainage, the quality data for each island group and river are proportioned by flow. This yields a flow weighted concentration for each month that estimates the increase in concentration resulting from island drainage. Three different concentrations are calculated, based on 90 percent, 100 percent, and 110 percent of the 1954-55 drainage flows.

Computations were made for the predicted monthly percent increase in DOC and TFPC resulting from island drainage using 90, 100 and 110 percent of the 1954-55 island drainage estimate. These were compared to the observed monthly "Delta" channel carbon. The percent increases shown for 90, 100 and 110 percent of the 1954-55 drainage estimate are calculated by subtracting the monthly inflow carbon values from the estimated increases, dividing the difference by the inflow concentrations, and multiplying the quotient by 100. The observed monthly carbon change is derived by subtracting the monthly inflow carbon concentration from the measured channel carbon concentration, dividing the difference by the inflow value and multiplying the quotient by 100.

Appendix B

Data Quality Assessment

Data Quality Assessment

The following data quality assessment includes the discussion of both laboratory and field quality control practices. The QC information is presented in the following sections: sample holding times, incubation periods, method and trip blanks, duplicate sample differences, spike recoveries, and field duplicates. Data used for this report were produced by Enseco Laboratory, Pace Laboratory, and DWR's Bryte Chemical Laboratory. Since several laboratories were used during the period covered by this report, each section is further broken down into additional sections which discuss the QC data produced by each of these laboratories. Suggestions and recommendations to help facilitate future data quality evaluations are presented at the end.

Selected samples taken between August 1987 and June 1989 were analyzed by Enseco Laboratory, located in West Sacramento, California. Enseco analyzed samples for total organic carbon, and formation potentials for bromodichloromethane, bromoform, chloroform, and dibromochloromethane. TOC samples sent to Enseco were analyzed according EPA Method 415.1. Most of the THMFP samples were analyzed according to EPA method 501. EPA Method 601 was briefly used by Enseco. A total of 249 sample batches was analyzed by Enseco.

Selected samples taken between July 1989 and December 1991 were analyzed by Pace Laboratory, located in Novato, California. Pace analyzed samples for total residual chlorine and formation potentials for bromodichloromethane, bromoform, chloroform, and dibromochloromethane. Total residual chlorine samples were quantified by EPA method 330.5. Quantification of total residual chlorine was done in order to ascertain that samples were spiked with sufficient amounts of chlorine to assure complete chemical reaction with organic constituents. Pace used EPA Method 601 to analyze THMFP. A total of 179 sample batches was analyzed by Pace.

DWR's Bryte Chemical Laboratory analyzed samples submitted by MWQI during the entire study period from August 1987 to December 1991. Bryte analyzed water samples for minerals, metals and some organics. Mineral constituents included alkalinity (EPA 310.1), arsenic (EPA 206.3), boron (USGS I-2115-85), calcium (EPA 215.1), chloride (EPA 325.2), color (EPA 110.2), dissolved solids (EPA 160.1), magnesium (EPA 242.1), pH (EPA 150.1), potassium (EPA 258.1), sodium (EPA 273.1), specific conductance (EPA 120.1), sulfate (EPA 375.2), suspended solids (EPA 160.2), and turbidity (EPA 180.1). Bryte also analyzed samples for nitrate using EPA method 353.2. Metals analyzed include barium (EPA 208.1), cadmium (EPA 213.2), chromium (EPA 218.2), copper (EPA 220.1), iron (EPA 236.1), lead (EPA 239.2), manganese (EPA 243.2), molybdenum (EPA 246.2), nickel (EPA 249.2), selenium (EPA 270.3), silver (EPA 272.2), and zinc (EPA 289.2). As for organics, Bryte analyzed trihalomethane formation potentials (EPA 502.2), organic carbon (EPA 415.1), and THM precursors[1] (ultraviolet absorbance$_{254\ nm}$.)

DWR's Bryte Chemical Laboratory is in the process of becoming more automated. During the study period, Bryte had not yet developed a documentation system for reporting QC data to DWR programs. For the study, a random set of data over the five-year study period was chosen on a quarterly basis (1 QC batch per quarter). Bryte searched their original work sheets and reported the requested QC information for the randomly chosen data. QC data were documented in a report for a total of 15 batches. The evaluation of Bryte QC data for this report was based on these 15 batches.

1 Ultraviolet absorbance $_{254\ nm}$ developed by Dobbs, R.A., et al., Water Research, 1972, Vol.6, 1173-1180.

SAMPLE HOLDING TIMES

I. ENSECO LABORATORY

Since total organic carbon analysis does not require an incubation period, the holding times correspond to the period between when the sample is collected (date sampled) to when the sample is analyzed. This period cannot exceed 30 days or else a violation has occurred. Samples analyzed by Enseco for TOC never violated the maximum 30-day requirement. Enseco's TOC batch holding times are tabulated in Table B-1.

THMFP samples must first be spiked, held for seven days, and then quenched before analysis. This process is known as incubation. Almost all samples between 1987 and 1989 were incubated by DWR's Bryte Chemical Laboratory, prior to being sent to Enseco for THMFP analysis. However, in a few cases where Bryte was not able to perform the incubation due to equipment failure, Enseco performed this task in addition to THMFP analysis. The minimum seven-day requirement for incubation was never violated by Bryte or Enseco.

The THM holding time for Enseco is the period between when the sample is quenched to when it is analyzed. This period must be within 14 days, or else a violation has occurred (Table B-2 display Enseco THMFP batch holding times.) Eighteen sample batches analyzed for THMFP exceeded EPA's 14-day recommendation for purgeable halocarbons. The sample batch that was held the longest was analyzed after 53 days. Samples which exceeded the holding time are shaded in Table B-2.

A decision on the usability of data qualified for holding time violations will depend upon the use of data. Since THM data are used in this study for determining seasonal and long-term trends in water quality, the conclusion that sample batches which exceeded the holding time are unacceptable may be imprudent. First, DWR uses a modified THMFP test which is not identical to EPA's THMFP test. Thus, a strict application of EPA's holding time may not be appropriate in this case. Although a total of 18 batches exceeded the EPA holding time, a study of THM holding time which was documented in MWQI's June 1990, *Delta Island Drainage Investigation Report*, established that a holding period of up to 80 days may not cause a noticeable loss in THM concentrations. It is also important to note that EPA does allow for variances of holding time in cases where a chemical can be shown to be stable for longer periods of time. Lastly, method holding times developed by EPA are based on the most sensitive species which does not take into consideration the more stable analytes. Therefore, for the purpose of this report, DWR considered the THM environmental data from all 18 batches usable, with the understanding that measures will be taken to reduce or eliminate this source of possible error in future work.

II. PACE LABORATORY

Pace performed incubation in the same manner as Enseco; however, Pace always spiked, quenched and analyzed the THMFP samples. The established spike to quench period is seven days. This has been experimentally determined by MWQI and DWR's Bryte Chemical Laboratory as a sufficient time allowance for the chlorination of organics to occur.

Between July 1989 and December 1991, Pace incubated THMFP samples for eight days on four occasions. On two occasions, the batches were only incubated for six days. On one occasion, spiking and quenching occurred on the same day. The majority of the samples (over 97 percent) were incubated properly for seven days. Incubation times are presented in Table B-3.

Overall, seven batches were not properly incubated for the specified seven-day period. Although a particular batch was reported as having been spiked and quenched on the same day, the results suggests that this was a reporting error. The rest of the violations only deviated from the prescribed seven-day period by one day. Based on the asymptotic nature of the THM formation, where the majority of the chlorination occurs within the first few days of incubation, deviation of one day would not significantly misrepresent the maximum formation potential. With this in mind, Pace's violations of incubation times by one day are acceptable.

Pace consistently reported its spiked and quenched dates; however, it has neglected to report the analysis dates. Therefore, DWR was unable to determine THMFP holding time violations for Pace.

III. DWR'S BRYTE CHEMICAL LABORATORY

A review of holding times indicates that two QC sample batches had samples that exceeded the EPA seven-day holding time for total dissolved solids analysis. However, a study performed by Bryte found that filtered samples can be held up to three months without significant loss of total dissolved solids. No samples exceeded the three-month holding time. No other holding times were exceeded. For the purpose of this study, TDS samples that exceeded the seven-day holding limit can be considered acceptable. However, measures will be taken to reduce or eliminate this possible source of error in future work.

TABLE B-1: ENSECO TOC BATCH HOLDING TIMES*

BATCH LOT #	DATE SAMPLED	DATE ANALYZED	HOLDING TIME	BATCH LOT #	DATE SAMPLED	DATE ANALYZED	HOLDING TIME
31219	9-2-87	9-17-87	15	41268	4-28-88	5-2-88	4
31278	9-9-87	9-17-87	8	41325	5-3-88	5-4-88	1
31539	9-24-87	9-25-87	1	41534	5-9-88	5-17-88	8
31791	10-8-87	10-15-87	7	41619	5-19-88	5-25-88	6
31981	10-22-87	10-26-87	4	41732	5-26-88	6-6-88	11
32054	10-28-87	10-30-87	2	41909	5-26-88	6-15-88	20
32136	11-3-87	11-5-87	2	42008	6-14-88	6-20-88	6
32177	11-5-87	11-10-87	5	42122	6-22-88	6-23-88	1
32448	11-24-87	12-15-87	21	42328	7-6-88	7-7-88	1
32506	12-1-87	12-15-87	14	42411	7-12-88	7-13-88	1
32611	12-8-87	12-28-87	20	42419	7-12-88	7-14-88	2
32759	12-16-87	1-4-88	19	42444	7-14-88	7-15-88	1
32983	1-6-88	1-15-88	9	42573	7-20-88	7-27-88	7
32999	1-7-88	1-11-88	4	41263	4-27-88	5-2-88	5
33210	1-21-88	2-16-88	26	42726	8-1-88	8-9-88	8
33219	1-21-88	2-16-88	26	42846	8-9-88	8-19-88	10
40667	2-10-88	2-11-88	1	42916	8-10-88	8-25-88	15
40196	2-18-88	2-24-88	6	42985	8-16-88	8-25-88	9
40267	2-23-88	2-25-88	2	43027	8-17-88	8-26-88	9
40550	3-7-88	3-14-88	7	43149	8-24-88	9-7-88	14
40587	3-15-88	3-16-88	1	43254	8-31-88	9-15-88	15
40655	3-18-88	3-22-88	4	43303	9-6-88	9-19-88	13
40722	3-23-88	3-25-88	2	44664	11-30-88	12-14-88	14
40924	4-5-88	4-8-88	3	44741	12-6-88	12-19-88	13

* The EPA holding time for Method 415.1 is 28 days.

BATCH LOT #	DATE SAMPLED	DATE ANALYZED	HOLDING TIME	BATCH LOT #	DATE SAMPLED	DATE ANALYZED	HOLDING TIME
41079	4-15-88	4-22-88	7	44785	12-7-88	12-14-88	7
41185	4-18-88	4-25-88	7	44865	12-13-88	12-19-88	6
44965	12-20-88	12-21-88	1	45184	1-9-89	1-10-89	1
45004	12-21-88	12-28-88	7	45201	1-10-89	1-12-89	2
45070	12-28-88	1-4-89	7	47977	6-26-89	7-17-89	21
45124	1-3-89	1-5-89	2	47986	6-28-89	7-17-89	19
45145	1-5-89	1-6-89	1	48025	6-29-89	7-8-89	9
45166	1-6-89	1-9-89	3	48042	6-30-89	7-8-89	8

* The EPA holding time for Method 415.1 is 28 days.

TABLE B-2: ENSECO THMFP BATCH HOLDING TIMES*

BATCH LOT	DECHLORINATION DATE	DATE ANALYZED	HOLDING TIME	BATCH LOT	DECHLORINATION DATE	DATE ANALYZED	HOLDING TIME
30959	9-8-87	9-8-87	0	041787	5-27-88	6-15-88	19
31219	9-3-87	9-15-87	12	041910	6-7-88	6-16-88	9
31324	9-11-87	9-24-87	13	042096	6-21-88	6-24-88	3
31685	10-2-87	10-19-87	17	042154	6-23-88	6-30-88	7
32022	10-27-87	11-4-87	8	042273	6-30-88	7-1-88	1
32136	11-3-87	11-9-87	6	042410	7-12-88	7-13-88	1
32227	11-9-87	12-6-87	27	042445	7-14-88	7-18-88	4
32321	11-16-87	11-27-87	11	042912	8-11-88	8-16-88	5
32520	12-2-87	12-4-87	2	043019	8-18-88	8-19-88	1
32725	12-14-87	1-7-88	24	043076	8-22-88	8-25-88	3
32859	12-22-87	1-20-88	29	043108	8-24-88	8-25-88	1
32860	12-22-87	1-11-88	20	043199	8-29-88	9-9-88	11
32908	12-28-87	1-28-88	31	043316	9-7-88	9-12-88	5
33118	1-15-88	3-3-88	47	043448	9-15-88	9-20-88	5
33444	2-3-88	3-28-88	53	043471	9-16-88	9-21-88	5
040197	2-18-88	3-26-88	36	043572	9-23-88	9-26-88	3
040342	2-29-88	4-1-88	32	043689	10-3-88	10-6-88	3
040411	3-2-88	4-7-88	36	043915	10-13-88	10-17-88	4
040724	3-23-88	4-18-88	26	044095	10-24-88	10-27-88	3
040758	3-25-88	4-14-88	20	044165	10-28-88	11-10-88	13
040877	4-1-88	5-3-88	32	044336	11-10-88	11-18-88	8
041043	4-13-88	4-26-88	13	044501	11-18-88	11-28-88	10

*According to EPA Method 501 and 601, the holding time (from quench to analysis) is 14 days.

BATCH LOT	DECHLORINATION DATE	DATE ANALYZED	HOLDING TIME	BATCH LOT	DECHLORINATION DATE	DATE ANALYZED	HOLDING TIME
041204	4-25-88	5-8-88	13	044613	11-29-88	12-5-88	6
041441	5-9-88	5-30-88	21	044853	12-2-88	12-16-88	14
041495	5-12-88	6-8-88	27	044890	12-15-88	12-29-88	14
041669	5-23-88	6-10-88	18	044923	12-16-88	12-27-88	11
045073	12-29-88	1-4-89	6	046029	3-6-89	3-8-89	2
045308	1-17-89	1-18-89	1	046043	3-15-89	3-20-89	5
045465	2-6-89	2-9-89	3	046065	3-16-89	3-21-89	5
045501	2-8-89	2-10-89	2	046117	3-15-89	3-22-89	7
045504	1-31-89	2-1-89	1	046170	3-21-89	3-23-89	2
045562	2-13-89	2-13-89	0	046384	4-6-89	4-7-89	1
045582	2-15-89	2-17-89	2	046546	4-14-89	4-14-89	0
045611	2-15-89	2-18-89	3	047977	6-27-89	7-7-89	10
045741	2-23-89	2-23-89	0	047985	6-28-89	7-7-89	9
045932	3-8-89	3-9-89	1	048005	6-29-89	7-8-89	9

*According to EPA Method 501 and 601, the holding time (from quench to analysis) is 14 days.

TABLE B-3: PACE INCUBATION TIMES

PROJECT #	BATCH CHLORINATION	BATCH DECHLORINATION	HOLDING TIME (DAYS)	PROJECT #	BATCH CHLORINATION	BATCH DECHLORINATION	HOLDING TIME (DAYS)
400711508	7-20-90	7-27-90	7	401213501	1-9-91	1-19-91	7
400717502	7-23-90	7-30-90	7	410107503	1-25-91	2-1-91	7
400801506	8-6-90	8-13-90	7	410118507	2-1-91	2-8-91	7
400809503	8-21-90	8-28-90	7	410130506	2-20-91	2-27-91	7
400814506	8-31-90	9-7-90	7	410215503	3-8-91	3-18-91	7
400821501	9-13-90	9-20-90	7	410228505	3-13-91	3-20-91	7
*400823506	10-1-90	10-8-90	7	410314500	3-26-91	4-2-91	7
*400823506	10-2-90	10-9-90	7	410402505	4-5-91	4-12-91	7
*400826506	10-2-90	10-2-90	0	410411507	4-12-91	4-19-91	7
400830502	10-10-90	10-17-90	7	410419504	4-26-91	5-3-91	7
400906504	10-15-90	10-22-90	7	410424500	4-26-91	5-3-91	7
400912502	10-17-90	10-24-90	7	410426505	5-3-91	5-10-91	7
400919507	10-22-90	10-29-90	7	410515505	4-18-91	4-25-91	7
400926506	10-24-90	10-31-90	7	410523501	5-24-91	5-31-91	7
401004504	10-30-90	11-6-90	7	410614505	6-21-91	6-28-91	7
401012509	11-1-90	11-8-90	7	410701507	7-11-91	7-18-91	7
401018502	11-15-90	11-23-90	8	410814502	8-16-91	8-23-91	7
401023505	11-20-90	11-27-90	7	410822504	8-22-91	8-29-91	7
*401025507	11-20-90	11-27-90	7	410916505	9-17-91	9-24-91	7
*401025507	11-26-90	12-3-90	7	411016513	10-17-91	10-24-91	7
401044504	10-30-90	11-6-90	6	411025505	10-31-91	11-7-91	7
401101505	11-29-90	12-6-90	7	411122500	12-6-91	12-13-91	7
401115504	12-3-90	12-10-90	7	411212513	12-26-91	1-2-92	7
411212514	1-6-91	1-13-91	7	490728511	8-7-89	8-15-89	8
490726507	8-2-89	8-9-89	7	490728512	8-7-89	8-15-89	8
490726508	8-2-89	8-9-89	7	490728513	8-9-89	8-16-89	7
490726509	8-2-89	8-9-89	7	490728514	8-9-89	8-16-89	7

PROJECT #	BATCH CHLORINATION	BATCH DECHLORINATION	HOLDING TIME (DAYS)	PROJECT #	BATCH CHLORINATION	BATCH DECHLORINATION	HOLDING TIME (DAYS)
490728507	8-3-89	8-10-89	7	490728515	8-9-89	8-16-89	7
490728508	8-4-89	8-10-89	6	490728516	8-15-89	8-22-89	7
490728509	8-3-89	8-10-89	7	490731506	8-15-89	8-22-89	7
490728510	8-7-89	8-15-89	8	490804506	8-29-89	9-5-89	7

METHOD BLANKS

Method blanks are laboratory samples that have unmeasurable, negligible, or acceptable low amounts of the analytes of interest. Their purpose is to detect and measure sample contamination introduced through sample preparation or analysis procedures. If a method blank sample shows nondetect, the samples associated with the batch are assumed to be free of contamination. In some cases method blanks may show acceptable detectable concentrations which are commonly referred to as "noise" or "instrument background" levels.

I. ENSECO

Enseco analyzed 407 method blanks for bromodichloromethane, bromoform, chloroform, dibromochloromethane, and total organic carbon. No detectable concentrations of analytes were measured in any of the method blanks.

II. PACE

There were 672 method blank analyses performed by Pace. Total Residual Chlorine (TRC) appeared regularly in blanks (118 out of 121 TRC samples analyzed). In this case, the TRC analyses were designed to show if method blanks were treated with enough excess chlorine to convert as much of the THM precursors into THM as possible. When TRC is not detected, the question arises if a sufficient amount of chlorine was added to adequately react to preduce THMs. Only 141 blanks were analyzed positive for THMs. These THM results are presented in the table B-4 to show their relative distribution and the frequency of detection.

Table B-4: Distribution and Detection Frequency of Pace Method Blanks

Analytes	Method Detection Limit*	Blank Analyses Performed	Positive Blanks	Frequency
Bromodichloromethane	0.5 µg/L	136	0	0%
Bromoform	0.5 µg/L	137	0	0%
Chloroform	0.5 µg/L	141	141	100%
Dibromochloromethane	0.5 µg/L	137	0	0%
Total Residual Chlorine	1 mg/L	121	118	98%

*EPA method 501

There are three possible reasons for elevated chloroform in the blank analyses. First, trace organics may have existed in the method blank water and could have acted as a precursor for THMs in the blank. In fact, Pace often reported that "low purity or unpurged" water was used in their method blanks as an explanation for high blank results. The excess chlorine and negligible concentration of bromide in the blank solution would result in chemical conditions which favor the formation of chloroform. However, unless organic-free blank water is used, chloroform which resulted from contaminated blank water cannot be differentiated from chloroform which was introduced as actual contamination elsewhere in the process.

Second, chloroform itself could have been introduced from the chlorine solution being used to spike the samples. However, based on the concentrations of chloroform found in the blanks, and the fact that the spike volume accounts for only two percent of the total blank volume, the chlorine spike solution would have to contain chloroform at concentrations as high as 90 mg/L in some cases. Thus, it is unlikely that chloroform from the spike solution would be a major contributor.

Third, chloroform could have contaminated the sample between quenching and prior to analysis. This should result in a positive bias in THMFP in all samples. However, there are many samples where the blank exceeds the total THMFP in the batch environmental samples. This suggests that little or no detectable contamination is occurring after the quenching of environmental samples.

In conclusion, method blank analyses of THMFP by Pace were done incorrectly. Notes made by the analysts suggested that low purity water was often used. Even the incubation of "cleaner" blank water used by Pace for THMFP (where analyst's note of low purity water was not made) consistently displayed chloroform concentrations with an average of about 30 μg/L. Spiking of organic-free water with chlorine by Bryte Laboratory shows that chloroform is typically found at levels below 5 μg/L. Moreover, Enseco never found THMs in their method blanks (MDL = 1 μg/L). All 551 method blank analyses from Pace were, thus, considered invalid and unusable.

Pace's THMFP environmental samples were probably not contaminated by the tainted blank water, since analytical procedures did not require the use of method blank water in the preparation of environmental samples. Furthermore, the majority of THMFP samples have concentrations of THMs which are considerably high (hundreds to thousands of μg/L). Therefore, we consider the environmental THMFP data to be acceptable.

MATRIX SPIKE RECOVERY

Matrix spikes are known concentrations of analytes added to a sample prior to sample preparation. Thus, matrix spike recoveries are used to assess potential recovery bias caused by matrix interferences or analytical limitations. The recovery of the matrix spike indicates the accuracy of the analytical measurement system. Recovery limits are used to evaluate the acceptable range of matrix spike concentrations.

I. ENSECO

Enseco performed 132 matrix spike analyses. Enseco did not report matrix spike recovery limits for TOC or THMs. Instead, Enseco's laboratory control sample recovery limits for EPA Method 501 was used to help evaluate the relative quality of the recoveries. Typically, the acceptable matrix spike recovery range is wider than the LCS range due to the greater variability in measurement caused by matrix interferences. Thus, the use of an LCS recovery range tends to be conservative. The frequency of recovery limit exceedances is shown in Table B-5:

Table B-5: Distribution and Frequency of LCS Recovery Limit Exceedances for Enseco Matrix Spikes

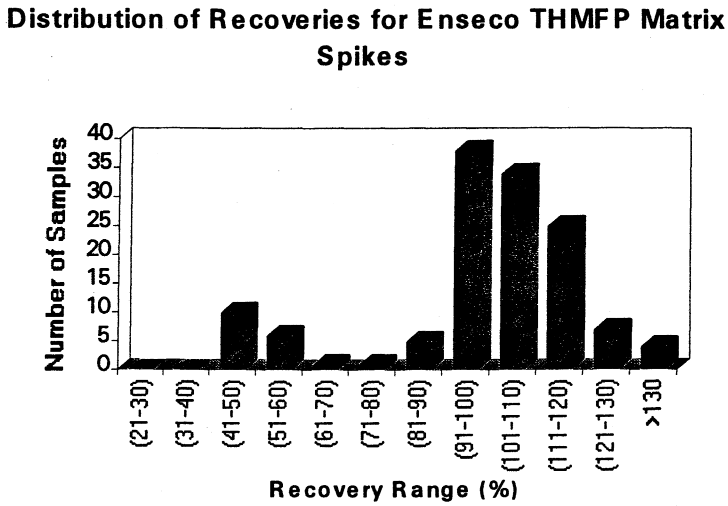
Analytes	LCS Recovery Limit*	Matrix Spikes Performed	Samples Outside of Recovery Limits	Frequency
Total Organic Carbon	85-111%	1	0	0%
Bromodichloromethane	80-125%	38	6	16%
Bromoform	80-125%	30	13	43%
Chloroform	80-125%	36	7	19%
Dibromochloromethane	80-125%	27	10	37%

* EPA Method 501. No matrix spike recovery ranges were given.

Exceedance of the LCS recovery limits occurred in all parameters except for TOC (only one matrix spike for TOC was performed). It should be noted that one of the chloroform samples had been spiked incorrectly, that is, the environmental concentration was greater than the spike concentration. EPA recommends that the spike concentration be 1-5 times the concentration of the environmental sample. In addition, 14 samples had been spiked at greater than 5 times the environmental sample concentrations. Quantification of recoveries may be inaccurate since the measurement uncertainty of the larger spiked concentration may be greater than the value of the much smaller environmental concentration.

Overall, 73 percent of THMFP matrix spikes is within the LCS recovery limits used. Since matrix spike recovery limits are not available, we cannot develop any conclusion on recovery bias. Recovery results from Enseco shows that bromoform and dibromochloromethane are significantly more difficult to recover than chloroform and bromodichloromethane. This distinction parallels that of EPA's recommended LCS recovery limits (CFR40, Pt.136, App.A) which shows that bromoform and dibromochloromethane have considerably larger acceptance ranges than the other two THM species. The distribution of recoveries for Enseco THMFP matrix spikes is plotted in Figure B-1:

Figure B-1



II. PACE

Pace performed 558 matrix spike analyses. Like Enseco, Pace did not report any matrix spike recovery limits. Thus, Pace's LCS recovery limits which are more conservative than matrix spike recovery limits will be used instead as the criteria. The frequency of LCS recovery limit exceedances is shown in the Table B-5:

Table B-5: Distribution and Frequency of LCS Recovery Limit Exceedances for Pace Matrix Spikes

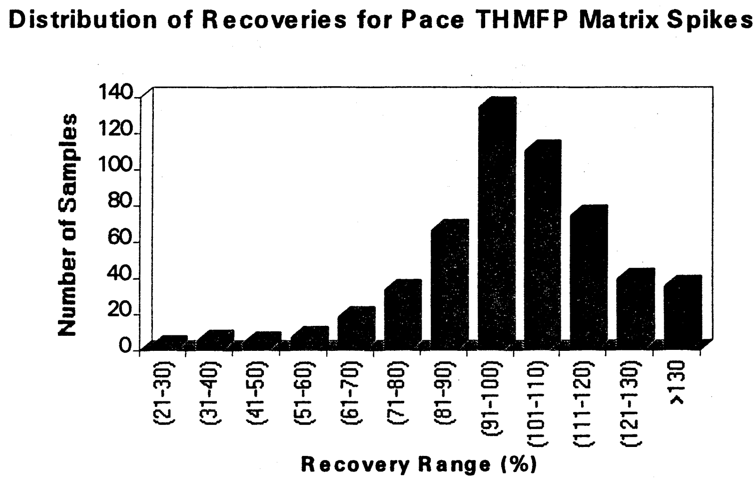
Analytes	LCS Recovery Limit*	Matrix Spikes Performed	Samples Outside of Recovery Limits	Frequency
Bromodichloromethane	65-135%	140	12	9%
Bromoform	65-135%	137	6	4%
Chloroform	65-135%	140	38	27%
Dibromochloromethane	65-135%	141	5	4%

*EPA Method 601. No matrix spike recovery ranges were given.

Pace's LCS recovery limit exceedances are less frequent than those of Enseco for matrix spikes. This is likely due to the broader acceptable range for EPA Method 601 that we have used for Pace (65-135 percent). Overall, 89 percent of Pace's matrix spike analyses are within the acceptable LCS ranges used. The determination of proper spiking concentrations by Pace could not be determined due to the lack of information provided by the laboratory. The percent recovery for each spike was reported, but the spike concentration and the initial environmental concentration were not given.

Pace's THM recoveries are plotted in Figure B-2. Note that Pace's THM recoveries are more normally distributed than Enseco THM recoveries. Recovery bias cannot be determined due to the lack of matrix spike recovery limits. In contrast to Enseco, Pace's recovery illustrates that chloroform and bromodichloromethane are much harder to recover than bromoform and dibromochloromethane. Pace's samples may have been contaminated.

Figure B-2



III. BRYTE

Bryte performed matrix spikes for all analytes (see first page of Appendix B) except EC, pH, TDS, TOC and UVA. Review of the results indicated only one batch had recovery results below the matrix spike recovery limit. The batch was found to have chloride recovery below the limits of 89-114 percent. Two spikes were included in the batch, with recoveries of 87 and 88 percent. These recoveries are only slightly below the control limits; therefore, they are usable for the MWQI study. However, the data are considered to be estimated due to potentially low bias. No other spike recoveries for any other parameter were found to be outside their control limits.

LABORATORY CONTROL SAMPLE RECOVERY

Laboratory control samples (LCS) are prepared by spiking known concentrations of analytes into a clean medium such as ultra-pure distilled water. In the case of THMs, the samples are then taken through preparation and analysis. LCS results are used to assess the accuracy of the measurement system. LCSs are not designed to provide information about the potential matrix bias.

I. ENSECO

Enseco performed 343 LCS recovery spikes. The TOC spike recovery limit used by Enseco is 85-111 percent. The Enseco THM spike recovery limit is 65-135 percent. A summary of LCS spike recovery results is shown in the Table B-7:

Table B-7: Distribution and Frequency of LCS Recovery Limit Exceedances for Enseco LCS Spikes

Analytes	LCS Recovery Limit*	LCS Spikes Performed	Samples Outside of Recovery Limits	Frequency
Total Organic Carbon	85-111%	89	0	0%
Bromodichloromethane	80-125%	70	6	9%
Bromoform	80-125%	58	13	22%
Chloroform	80-125%	69	7	10%
Dibromochloromethane	80-125%	57	10	18%

*EPA Method 501.

TOC recoveries never exceeded the LCS recovery limit. Moreover, the TOC spikes showed good recovery with most of the results between 91 and 100 percent (as shown in Figure B-3.)

Figure B-3

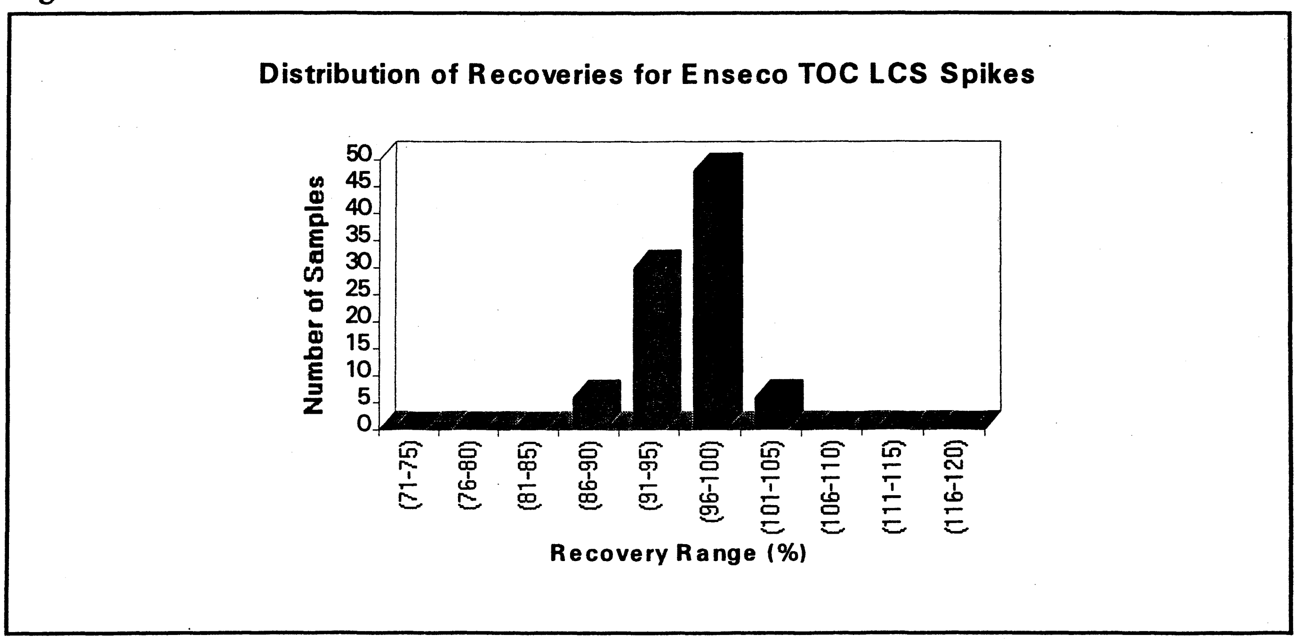
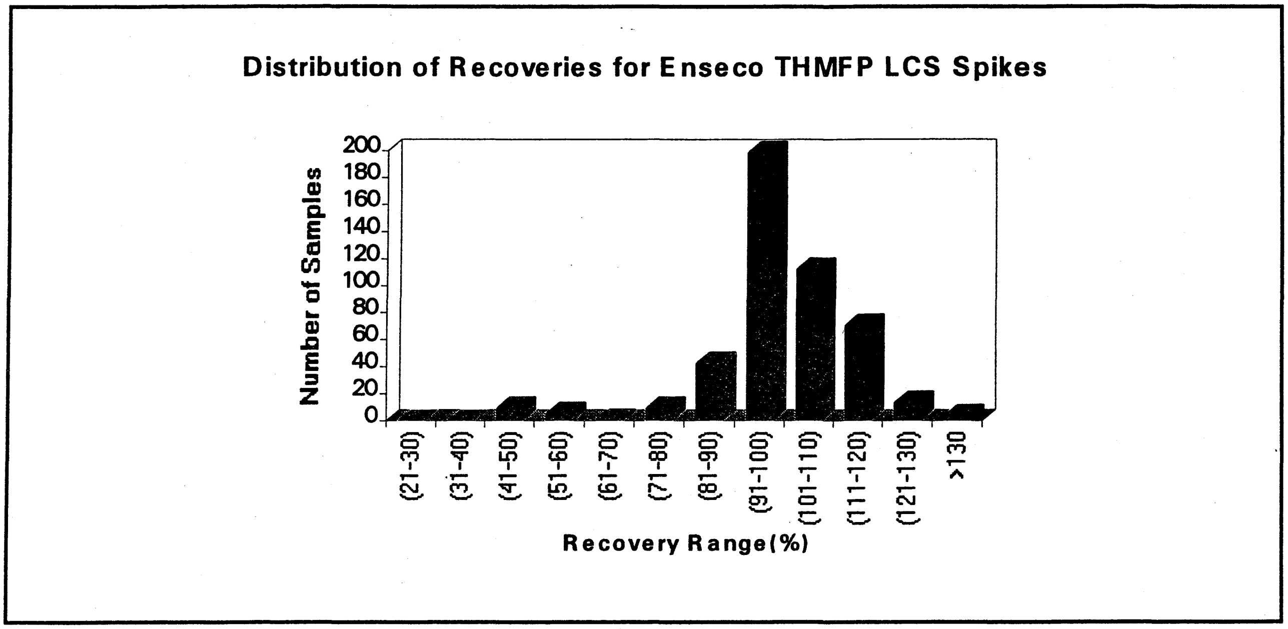


Figure B-4



THM LCS spike recovery distribution is shown in Figure B-4. Overall, 86 percent of Enseco's THM LCS spikes were within the acceptable LCS recovery limits. Recovery limits for THMs were violated more frequently by Enseco's matrix spikes than by Enseco's LCSs likely due to matrix interferences. For matrix spikes, the frequency of recovery limit exceedances for bromodichloromethane, bromoform, chloroform, and dibromochloromethane was 16, 43, 19 and 37 percent respectively. In comparison, the frequency of recovery limit exceedances of Enseco's LCSs was 9, 22, 10 and 18 percent respectively.

II. PACE

No LCS data were provided by Pace.

III. BRYTE

Bryte used LCSs to evaluate the accuracy of the pH measurements. The pH of a LCS was measured at the beginning and the end of each batch. The difference between the initial and final reading must be within the laboratory control limit (0.24 pH units). One batch was found to slightly exceed this limit with a difference of 0.3 pH units. The sample results from this batch are considered estimates, but are useable for the MWQI study. No other LCS were performed by Bryte.

MATRIX SPIKE DUPLICATES

Matrix spike duplicates are split matrix spike samples used to assess the precision or reproducibility in the analytical procedure.

I. ENSECO

Enseco performed 132 matrix spike duplicate analyses. Relative Percent Difference limits for matrix spike duplicates were not provided by Enseco. Relative percent difference is a measure of variability, adjusted for the magnitude of concentration values. LCS RPD limits were used instead to ascertain the relative quality of these matrix spike duplicates. Note that the use of LCS precision limits is a conservative approach to assess the precision of matrix spike duplicates. Precision limits for matrix spikes tend to be more lenient than LCS samples for the same analyte. The distribution of exceedances of LCS limits is shown for TOC and THMs in Table B-8.

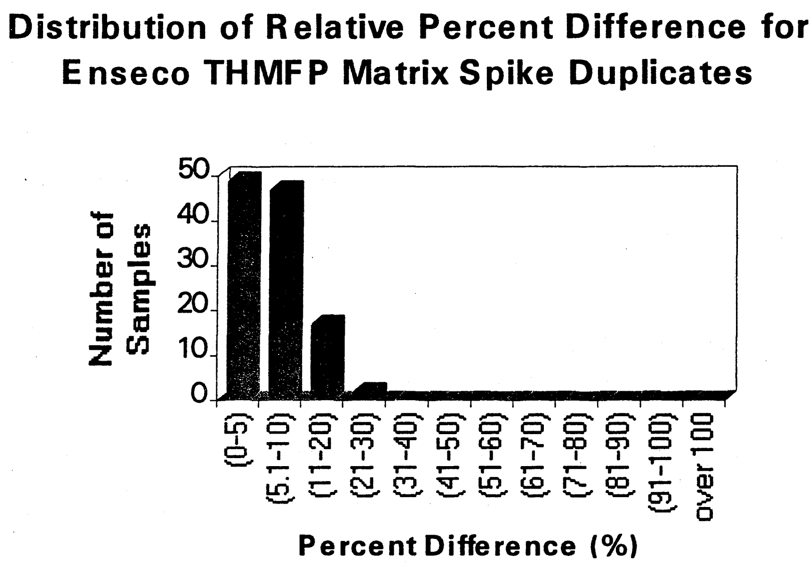
Table B-8: Distribution and Frequency of LCS Precision Limit Exceedances for Enseco Matrix Spikes Duplicates

Analyte	LCS RPD Limit*	Matrix Spike Performed	Samples Outside of RPD Limits	Frequency
Bromodichloromethane	22%	38	0	0%
Bromoform	22%	30	1	3%
Chloroform	22%	36	0	0%
Dibromochloromethane	22%	27	0	0%

* EPA Method 501. Precision limits for matrix spike duplicates were not given.

Matrix spike results strongly suggest that there is high precision for Enseco matrix spike duplicates. The only RPD which exceeded the limit is actually very close to the THM limit at 22.8 percent. Note that 16 out of the 148 matrix spikes were only analyzed once so that only one recovery value was calculated. Therefore, RPDs could not have been calculated for these samples. The precision of Enseco matrix spike duplicates is very good. The RPD distribution of THMFP samples is shown in Figure B-5.

Figure B-5



II. PACE

Pace performed 558 matrix spike duplicate analyses for THMs. Pace reported an LCS RPD limit of 35 percent in lieu of a THM matrix spike RPD limit which was unavailable. The frequency in which matrix spike duplicates are outside of the LCS RPD limit is shown in Table B-9.

Table B-9: Distribution and Frequency of LCS Precision Limit Exceedances for Pace Matrix Spike Duplicates

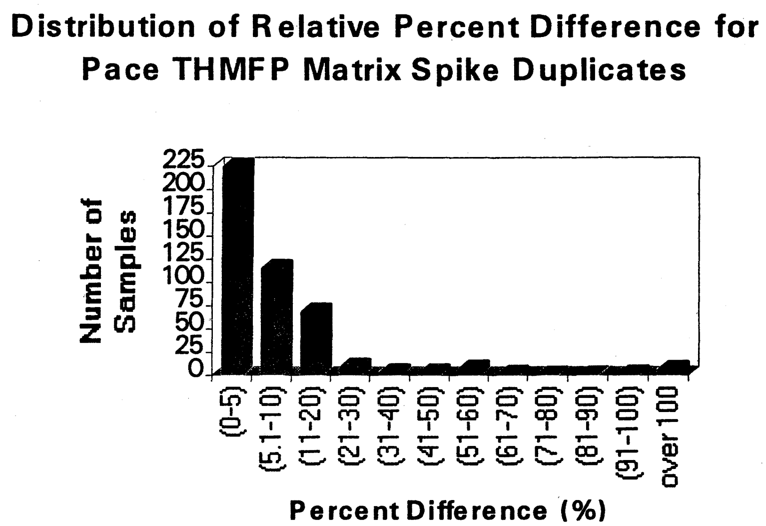
Analyte	LCS RPD Limit*	Matrix Spike Performed	Samples Outside of RPD Limits	Frequency
Bromodichloromethane	35	140	6	4%
Bromoform	35	137	10	14%
Chloroform	35	140	8	6%
Dibromochloromethane	35	141	5	4%
Total Residual Chlorine	25	129	6	5%

*EPA Method 601. Precision limits of matrix spike duplicates were not given.

Twenty-nine matrix spike duplicates exceeded the 35 percent RPD limit for THMs set by Pace Laboratory. These exceedances ranges from RPD values of 36 to 159 percent. Exceedances, particularly those which are fairly close to the RPD limit, are not necessary invalid but should be considered questionable. Three duplicates had slight exceedances. The remaining 26 exceedances which had RPD values of 50 percent or higher are more questionable in terms of precision. THM data in these 26 batches will be tagged and not used. The distribution of THM species in those analyses which exceeded the RPD limit is fairly well scattered among the four major species with bromoform showing the highest frequency. This also agrees with EPA's analysis of overall precision among the four THM species. (CFR40, pt.136. App.A)

Overall, 95 percent of Pace's matrix spike duplicates have precision which fall within the LCS RPD limit used. These results are very good especially considering that LCS precision limits were used instead of matrix spike precision limits. The distribution of Pace's matrix spike duplicate precision is shown in Figure B-6.

Figure B-6



Matrix spike duplicates of total residual chlorine shows good precision with 95 percent of TRC samples being within the LCS precision limit.

III. Bryte

No matrix spike duplicates were performed by Bryte.

LABORATORY CONTROL SAMPLE DUPLICATES

Laboratory control sample duplicates are split samples of a well-characterized blank water which has been spiked with a known amount of a target analyte. They are used to assess the precision or reproducibility in the analytical system.

I. ENSECO

Enseco performed 343 LCS duplicate analyses. The distribution of LCS limit exceedances is shown in Table B-10.

Table B-10: Distribution and Frequency of LCS Precision Limit Exceedances for Enseco LCS Duplicates

Analytes	LCS RPD Limit*	LCS Duplicates Analyzed	Samples Outside of RPD Limits	Frequency
Total Organic Carbon	18%	89	0	0%
Bromodichloromethane	22%	70	1	1%
Bromoform	22%	58	5	9%
Chloroform	22%	69	0	0%
Dibromochloromethane	22%	57	0	0%

*EPA Method 501.

Overall, the measurement precision of Enseco's TOC and THM LCS duplicates is very good. None of the TOC duplicates exceeded the LCS RPD limit, and over 97 percent of the THM duplicates were within the LCS precision limit. The precision distributions of Enseco's TOC and THM LCS duplicates are shown in Figures B-7 and B-8.

Figure B-7

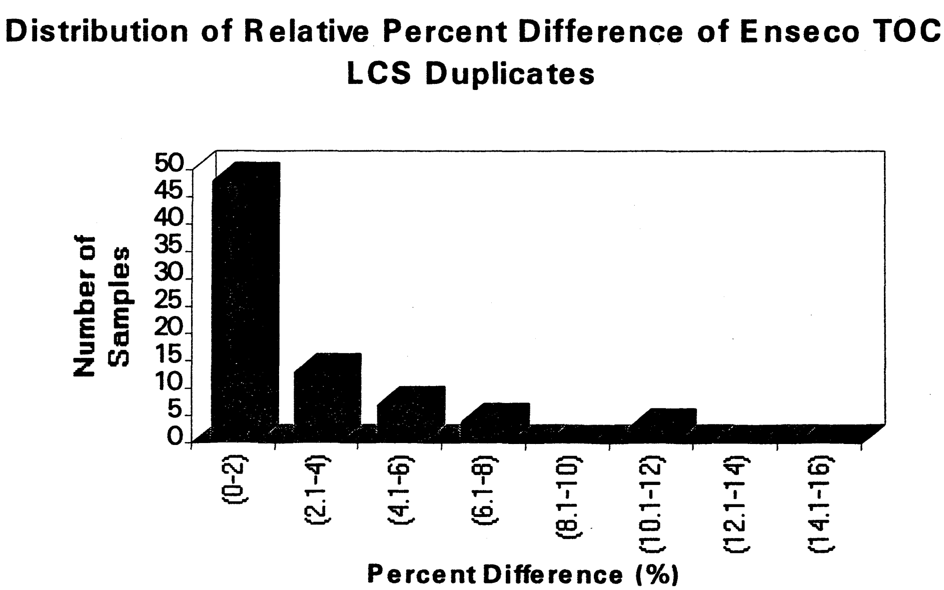
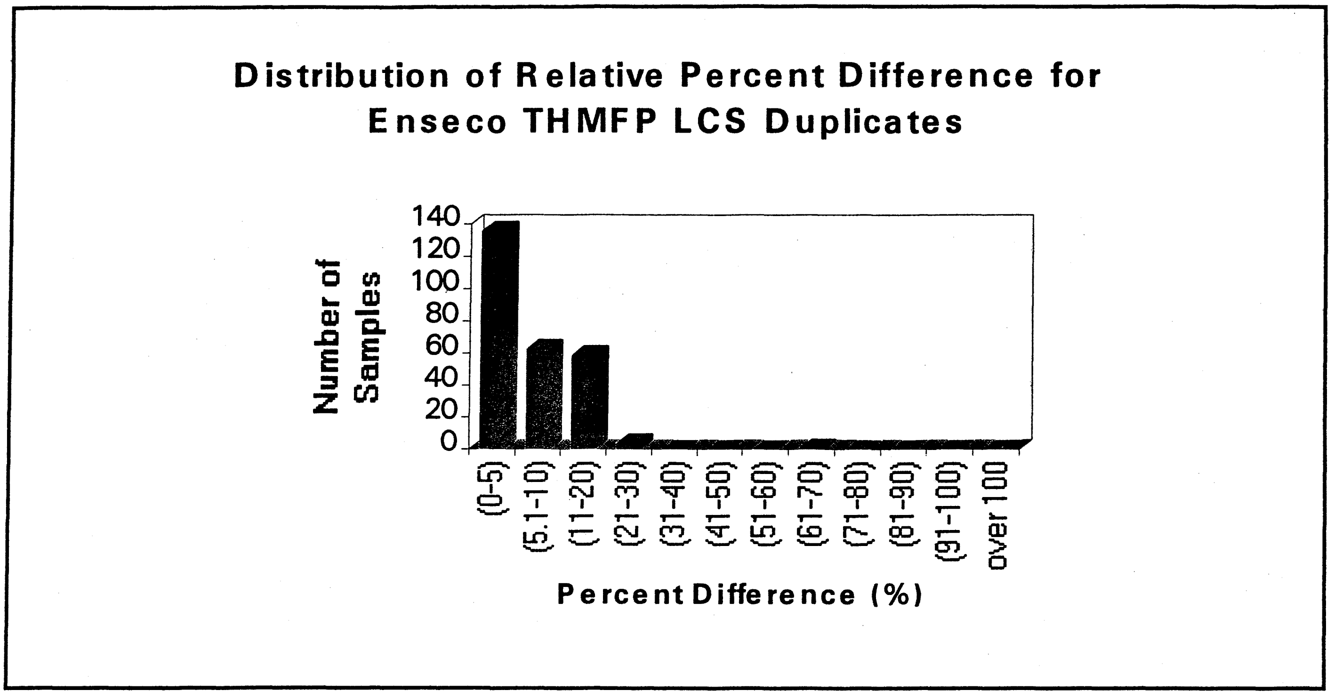


Figure B-8



Five bromoform LCS duplicate analyses exceeded the LCS RPD limit; however, all five RPD values are very close to 22 percent. These five duplicates should be tagged as questionable but still usable, because the RPD values were exceeded only slightly. As for why bromoform samples exceeded the RPD limit more frequently than do other THMs, this is likely due to the fact that the gas chromatograph detectors for EPA Method 501 and 601 are least sensitive to bromoform as compared to the other THM species. Based on duplicate results of THM matrix spikes and laboratory control samples from both Pace and Enseco, bromoform results appear to be the most difficult to reproduce.

A bromodichloromethane duplicate pair exhibited an exceedance of the 22 percent RPD limit. The RPD for this pair is 69 percent and can be considered as significant. Associated environmental data in this analytical batch will not be used.

II. PACE

No LCS data were provided by Pace.

III. BRYTE

No LCS duplicates were used by Bryte; however, Bryte evaluated the precision of the laboratory procedure by performing duplicate analyses of environmental samples. An environmental sample is split, and the results from the two samples are compared. The precision is evaluated by taking the difference of the sample results, not the RPD. The difference between duplicate samples was compared to Bryte's precision control limits. Review of the Bryte data (15 randomly selected sample batches) shows that one batch was found to have a total organic carbon duplicate sample difference of 0.38 mg/L which exceeded the precision control limit 0.3 mg/L. Since the duplicates just slightly exceeded the control limit, the samples can be considered of questionable integrity but are usable for the MWQI study. Another batch was found to have a calcium duplicate sample difference of 0.9 mg/L which significantly exceeded the precision control limit of 0.53 mg/L. Environmental calcium data associated with this batch will be excluded from the MWQI database.

TRIP BLANKS

Trip or field blanks are samples of analyte-free media taken from the laboratory to the sampling site and returned unopened. Their purpose is to measure cross-contamination from the container and preservative during field transport, field handling and storage.

I. ENSECO

Ninety-six trip blanks were analyzed by Enseco. These samples were analyzed for TOC, bromoform, bromodichloromethane, chloroform, and dibromochloromethane. Eight samples were found to have TOC concentrations which were greater than 10 percent of the smallest environmental sample concentration in their respective batch.

II. PACE

No trip blanks were sent to Pace.

III. BRYTE

No trip blanks were sent to Bryte. The practice of requiring trip blanks for trace metals by Bryte was incorporated after the five-year study period.

FIELD DUPLICATES

Field duplicates are two separate samples collected at the same time and placed under identical circumstances. Analysis of these duplicates gives a measure of the precision associated with sample collection, preservation and storage, as well as with laboratory procedures. Field duplicates were collected occasionally by MWQI prior to 1989. Since 1989, these samples were taken regularly. Enseco, Pace and Bryte laboratories performed 4,256 analyses on field duplicate samples submitted by MWQI during the study period. This is a substantial amount of quality control data. A total of 45 different analyses were performed for these duplicates. Overall, 96 percent of MWQI field duplicates are within precision limits.

MWQI used adjusted-Relative Percent Difference limits to evaluate field duplicates instead of using a fixed-RPD limit. Adjusted-RPD limits are dependent on the average concentration and the average reporting limit of the two measurements. These limits can be described by the mathematical function:

$$y = \max(100\%/x\ ,\ \text{LCS RPD limit})$$

where y is the relative percent difference, x is equal to the average duplicate concentration divided by the average reporting limit, and the **LCS RPD limit** is taken from LCS duplicate analysis results. Thus, the function takes into consideration the increasing uncertainty of measurements as the concentration approaches the reporting limit.

Field duplicate results for alkalinity, dissolved arsenic, barium, boron, dissolved and total cadmium, dissolved and total chromium, dissolved and total copper, electrical conductivity, dissolved and total lead, lithium, magnesium, total nickel, total selenium, dissolved and total silver, $UVA_{254\ nm}$, and total zinc show the highest precision of all the parameters analyzed. Each of these parameters had less than two percent of their RPDs in exceedance of their respective limits.

Parameters that are of intermediate precision (2 to 10 percent of duplicates exceeding RPD limits) are bromide, bromodichloromethane, bromoform, calcium, chloride, chloroform, dibromochloromethane, hardness, dissolved nickel, dissolved organic carbon, potassium, dissolved selenium, sodium, dissolved solids, sulfate, and suspended solids.

The group of field duplicates that has a relatively high frequency of RPD limit exceedances (greater than 10 percent) are total arsenic, color, iron, manganese, total organic carbon, turbidity, and dissolved zinc. However, the results for total arsenic, iron, manganese, and dissolved zinc field duplicates may not be statistically significant due to their relatively small sample sizes. Results of color analysis also shows low precision; however, visual colorimetric techniques are the basis of this quantification and may not be very precise. Note that hardness is calculated by the addition of calcium and magnesium concentrations via quantification of these elements by EPA 215.1 & 242.1 respectively.

Figures B-9 to B-56 illustrate the distribution of RPDs for each analyte. Note that DWR's Bryte Chemical Laboratory analyzed all MWQI field duplicate samples except for THMs and TOC samples which are analyzed by Enseco and Pace.

Field Duplicate Measurements as Related to the MWQI Acceptance Criteria

Figure B-9: Distribution of Field Duplicate RPD's for Alkalinity (EPA 310.1)

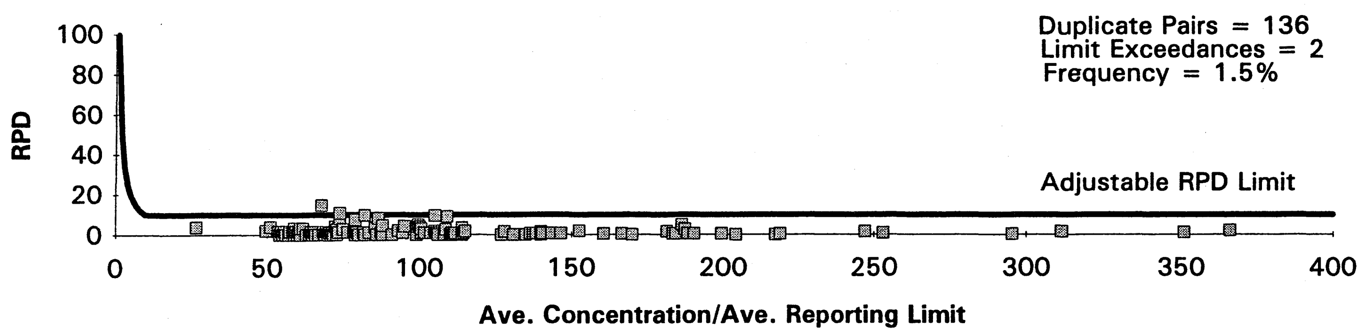


Figure B-10: Distribution of Field Duplicate RPD's for Dissolved Arsenic (EPA 206.3)

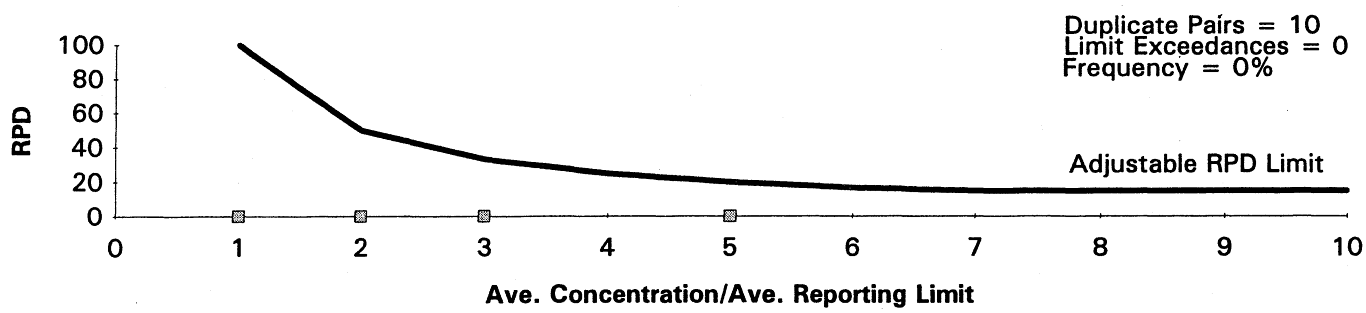


Figure B-11: Distribution of Field Duplicate RPD's for Total Arsenic (EPA 206.3)

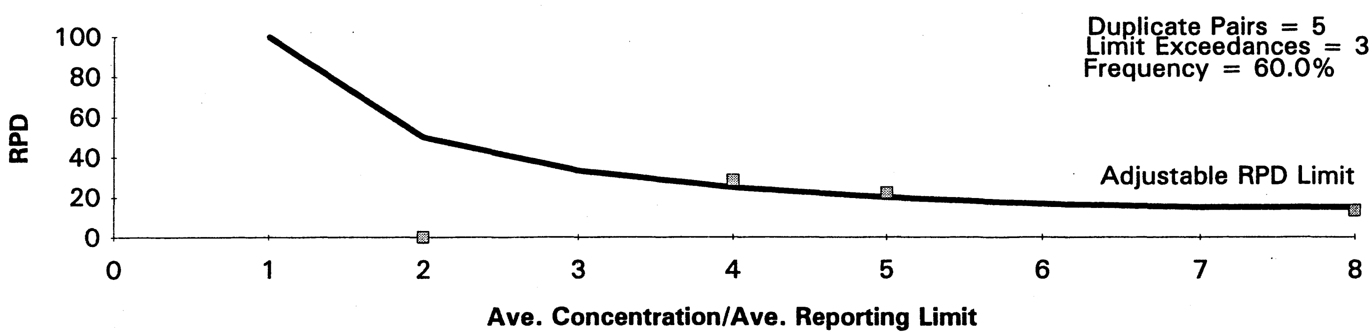
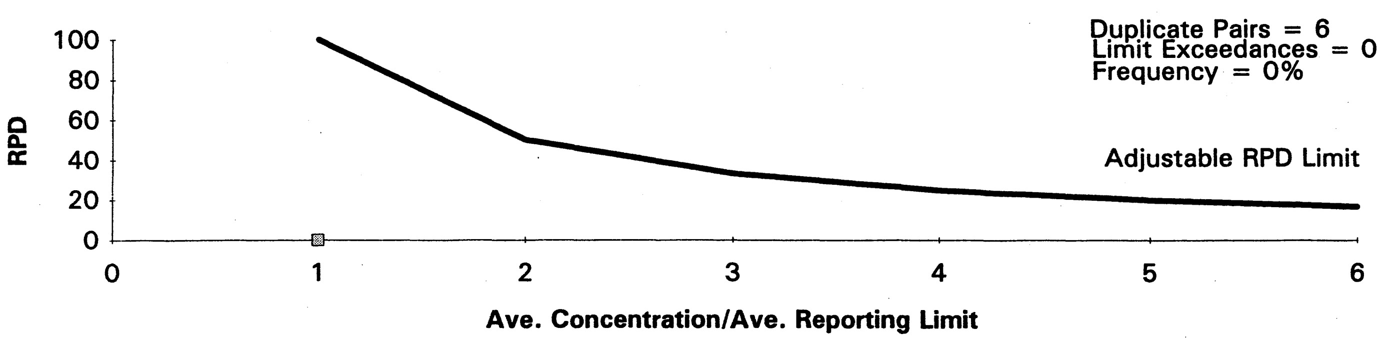


Figure B-12: Distribution of Field Duplicate RPD's for Barium (EPA 208.1)



DWR's Bryte Chemical Laboratory performed all field duplicate analyses except for THMs

Figure B-13: Distribution of Field Duplicate RPD's for Boron (USGS I-2115-85)

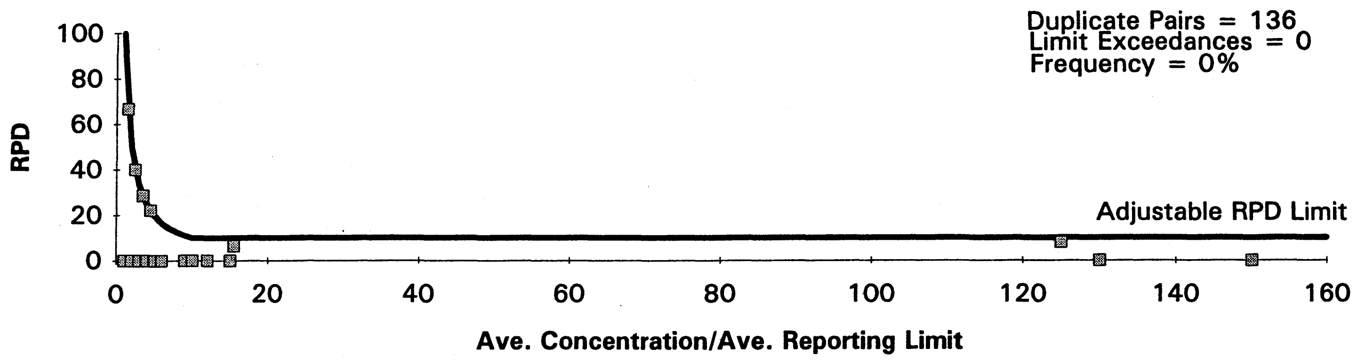


Figure B-14: Distribution of Field Duplicate RPD's for Bromide (EPA 320.1)

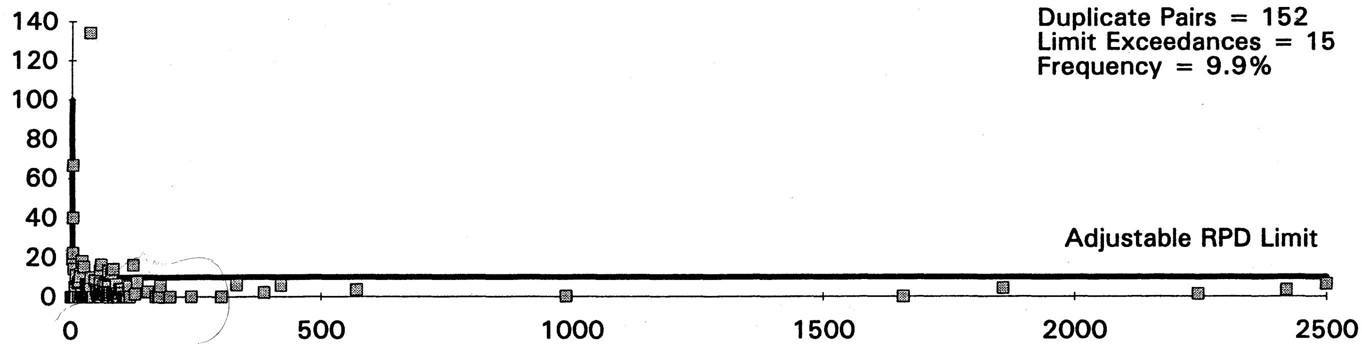


Figure B-15: Distribution of Enseco Field Duplicate RPD's for Bromodichloromethane (EPA 501)

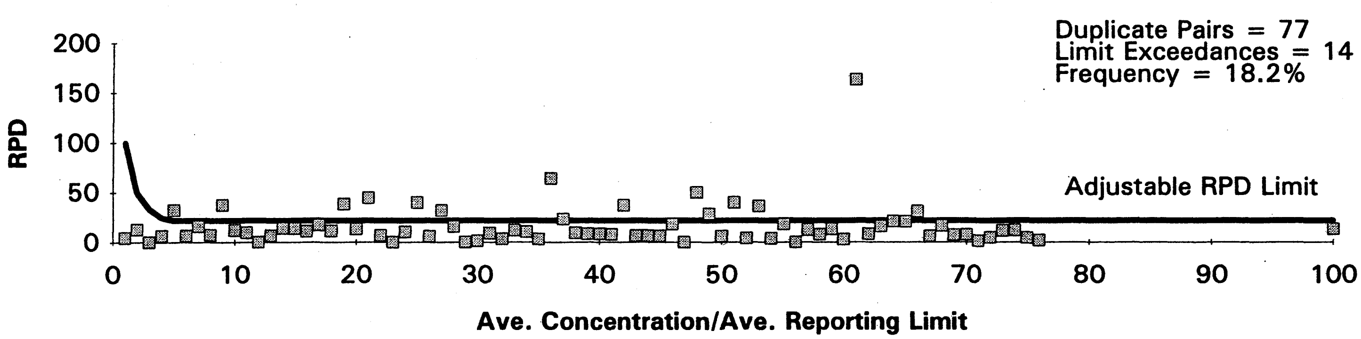
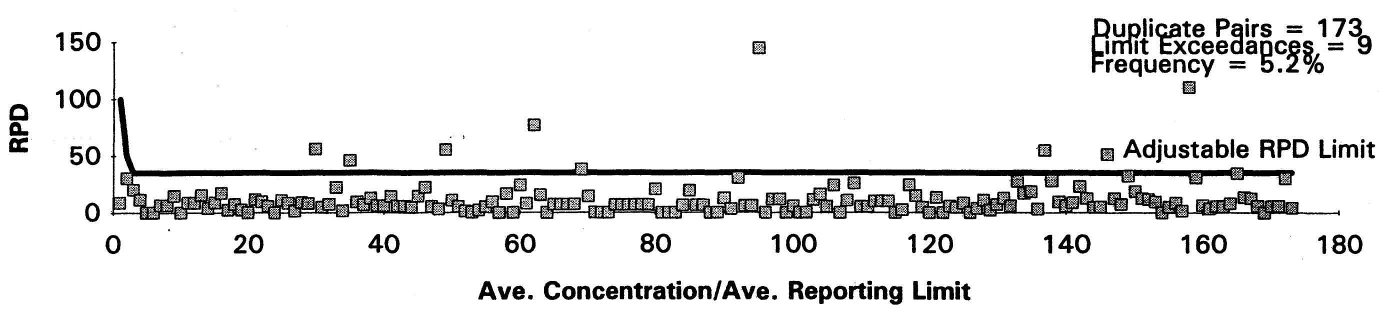


Figure B-16: Distribution of Pace Field Duplicate RPD's for Bromodichloromethane (EPA 601)



DWR's Bryte Chemical Laboratory performed all field duplicate analyses except for THMs

Figure B-17: Distribution of Enseco Field Duplicate RPD's for Bromoform (EPA 501)

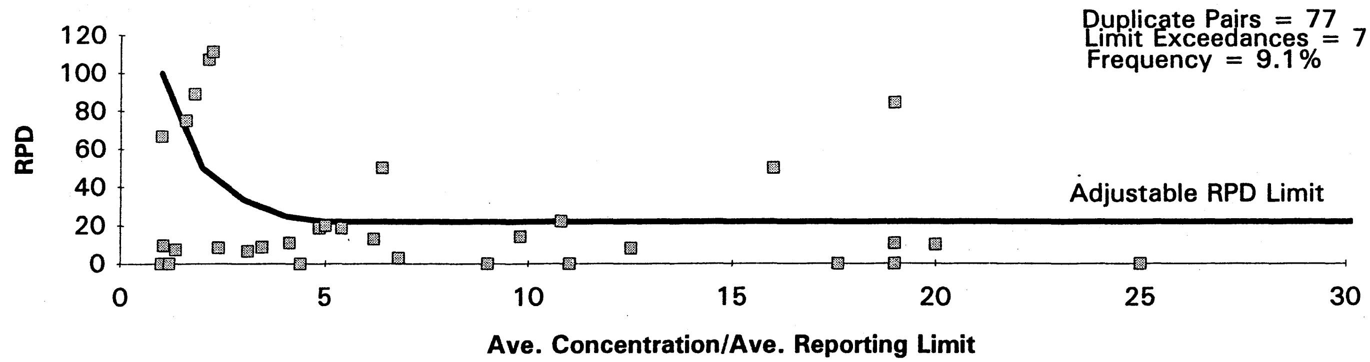


Figure B-18: Distribution of Pace Field Duplicate RPD's for Bromoform (EPA 601)

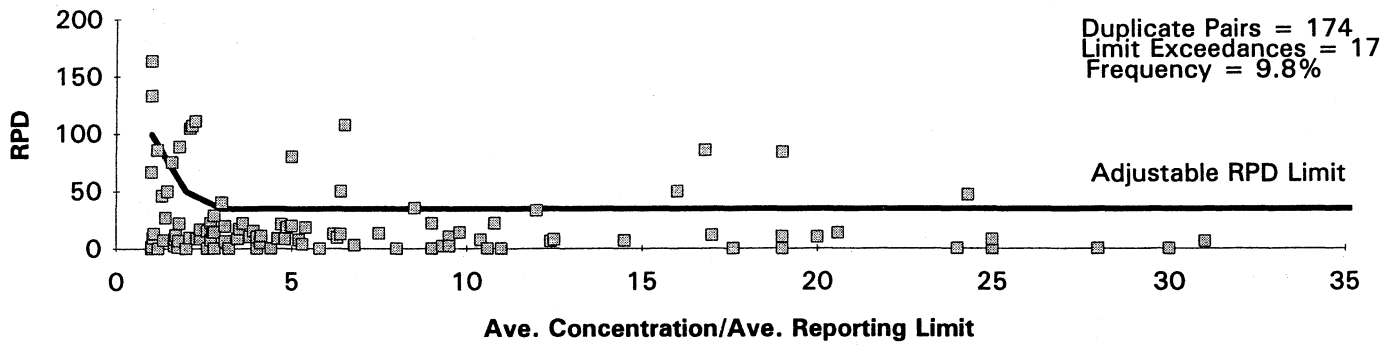


Figure B-19: Distribution of Field Duplicate RPD's for Dissolved Cadmium (EPA 213.2)

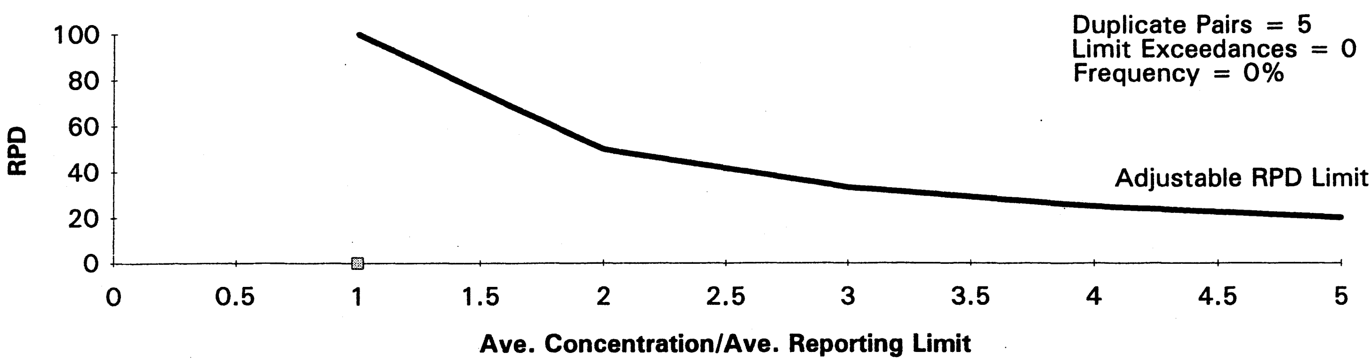


Figure B-20: Distribution of Field Duplicate RPD's for Total Cadmium (EPA 213.2)

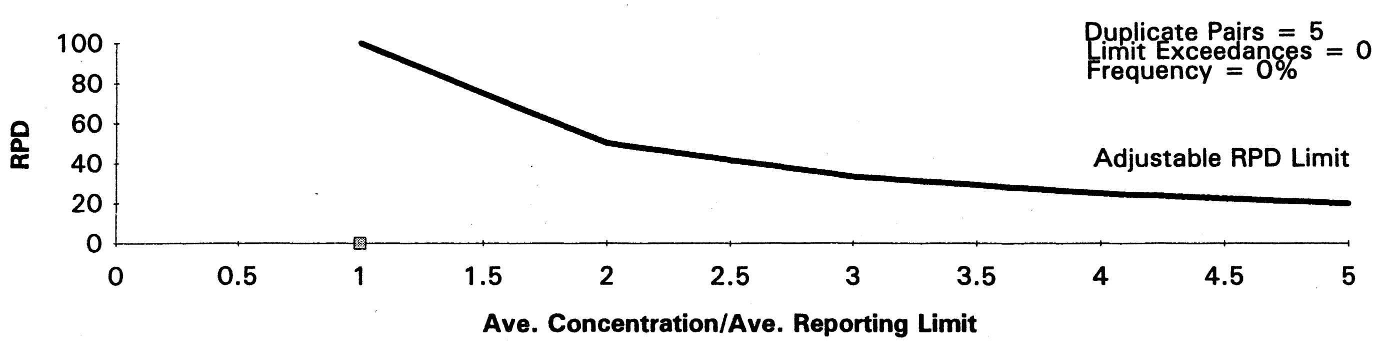


Figure B-21: Distribution of Field Duplicate RPD's for Calcium (EPA 215.1)

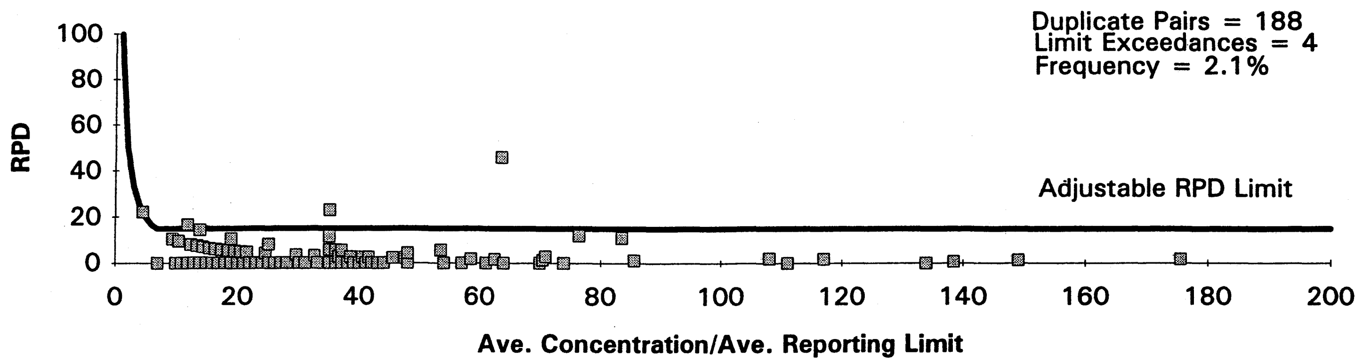


Figure B-22: Distribution of Field Duplicate RPD's for Chloride (EPA 325.2)

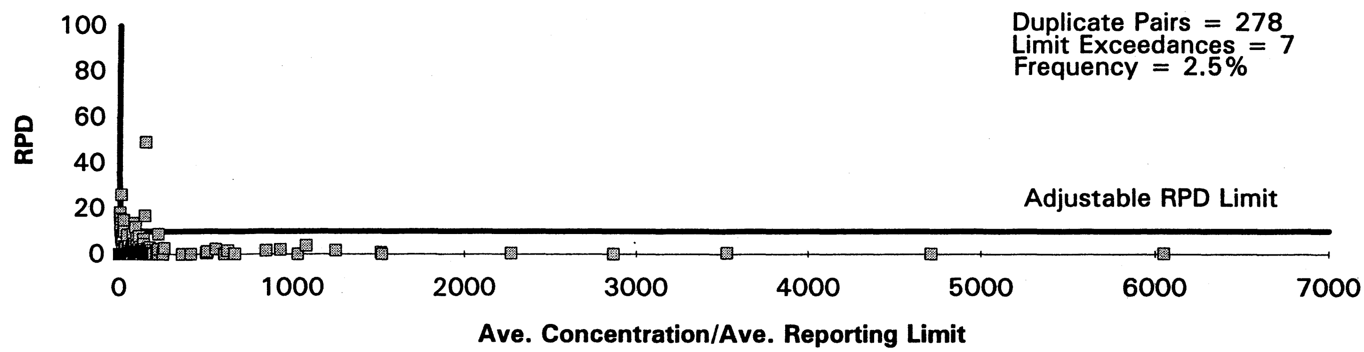


Figure B-23: Distribution of Enseco Field Duplicate RPD's for Chlorodibromomethane (EPA 501)

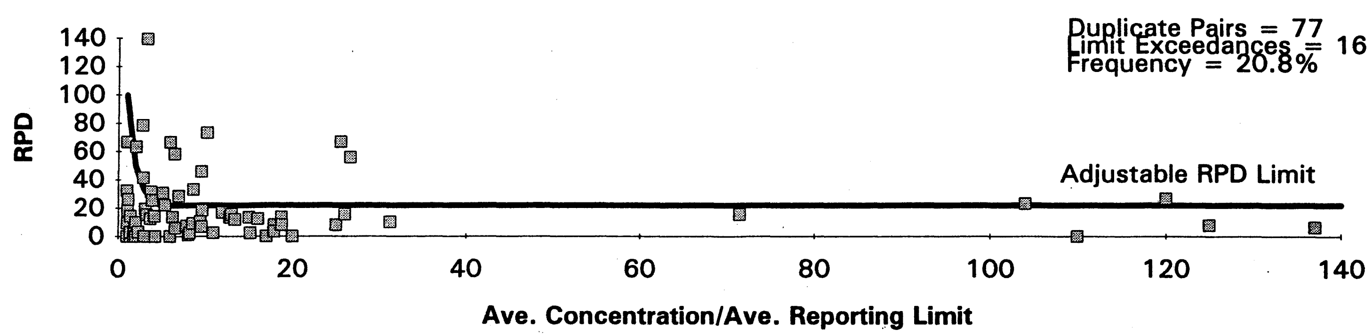
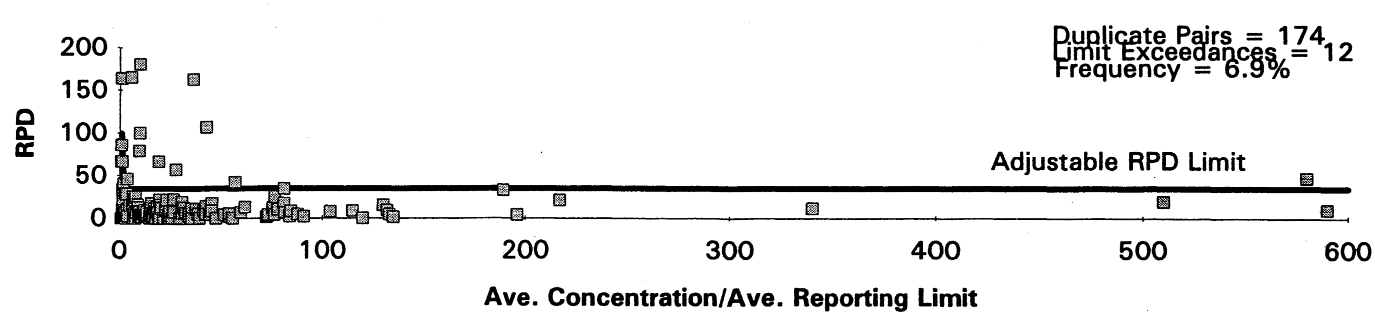


Figure B-24: Distribution of Pace Field Duplicate RPD's for Chlorodibromomethane (EPA 601)



DWR's Bryte Chemical Laboratory performed all field duplicate analyses except for THMs

Figure B-25: Distribution of Enseco Field Duplicate RPD's for Chloroform (EPA 501)

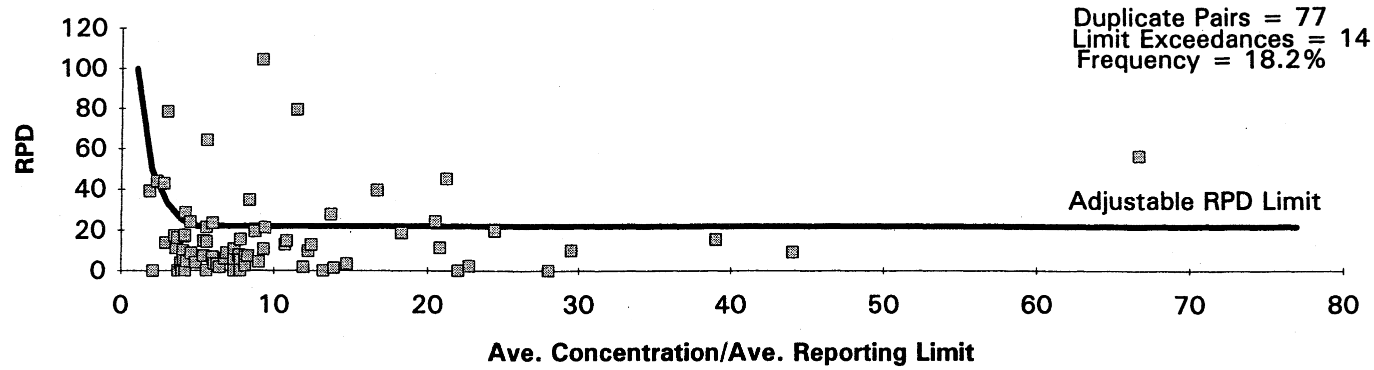


Figure B-26: Distribution of Pace Field Duplicate RPD's for Chloroform (EPA 601)

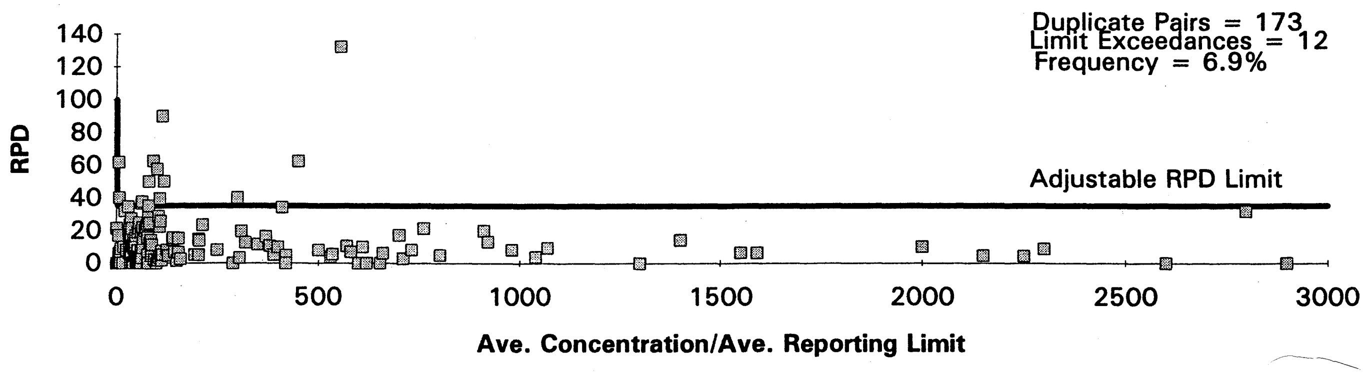


Figure B-27: Distribution of Field Duplicate RPD's for Dissolved Chromium (EPA 218.2)

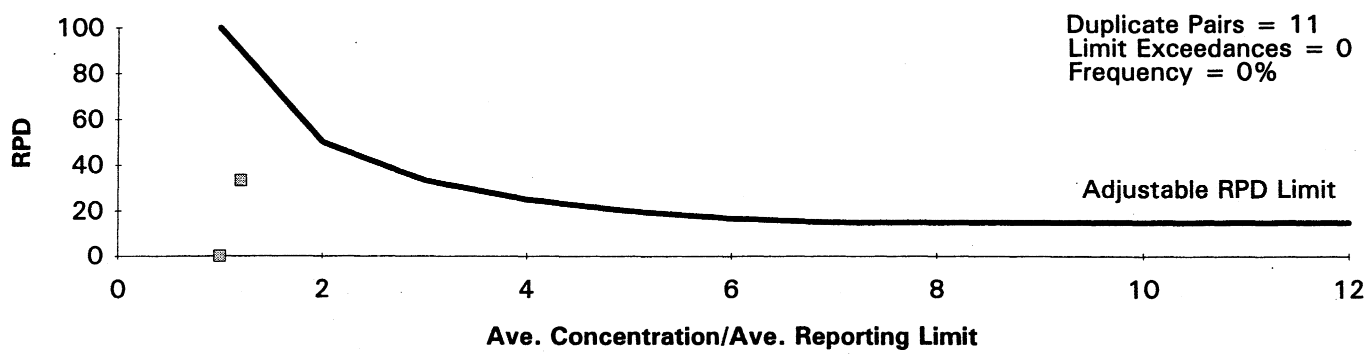
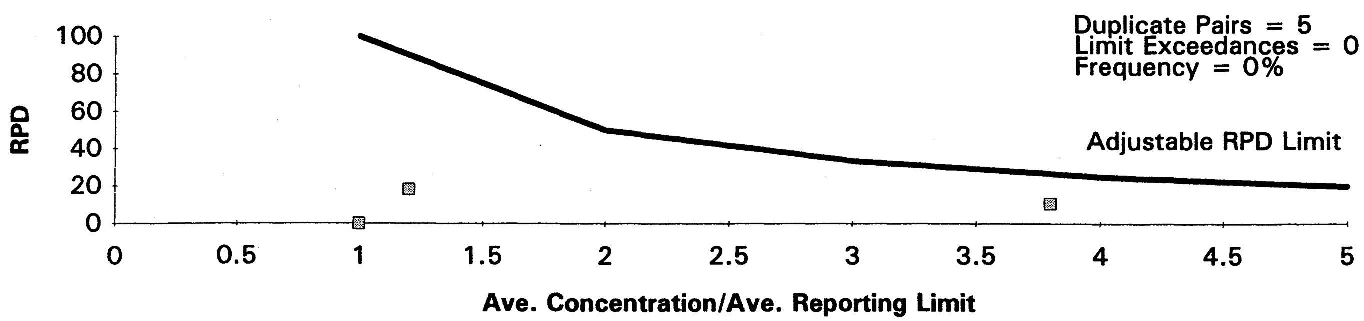


Figure B-28: Distribution of Field Duplicate RPD's for Total Chromium (EPA 218.2)



DWR's Bryte Chemical Laboratory performed all field duplicate analyses except for THMs

Figure B-29: Distribution of Field Duplicate RPD's for Color (EPA 110.2)

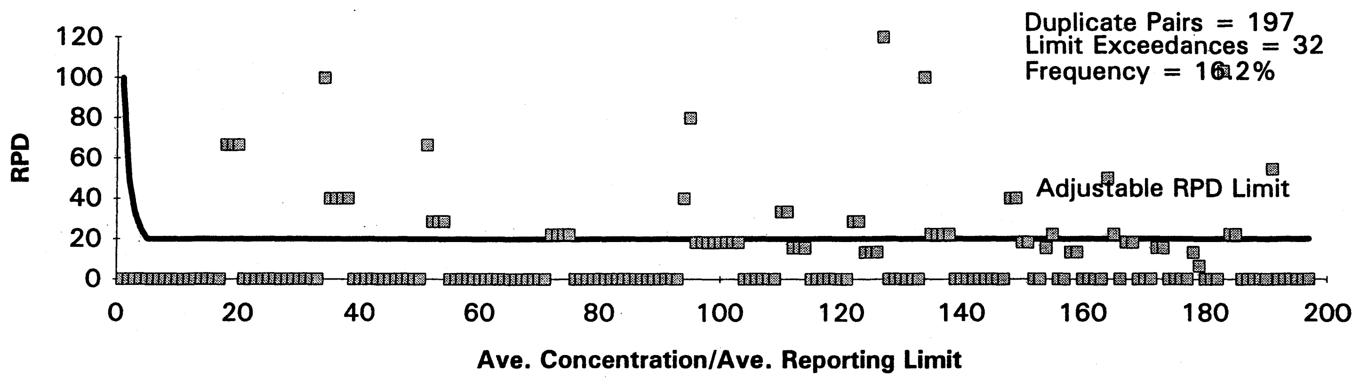


Figure B-30: Distribution of Field Duplicate RPD's for Dissolved Copper (EPA 220.2)

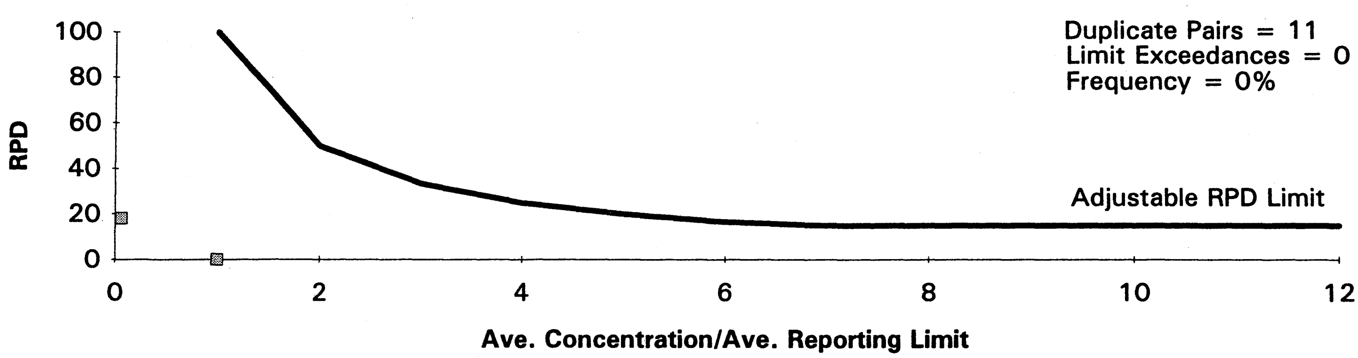


Figure B-31: Distribution of Field Duplicate RPD's for Total Copper (EPA 220.2)

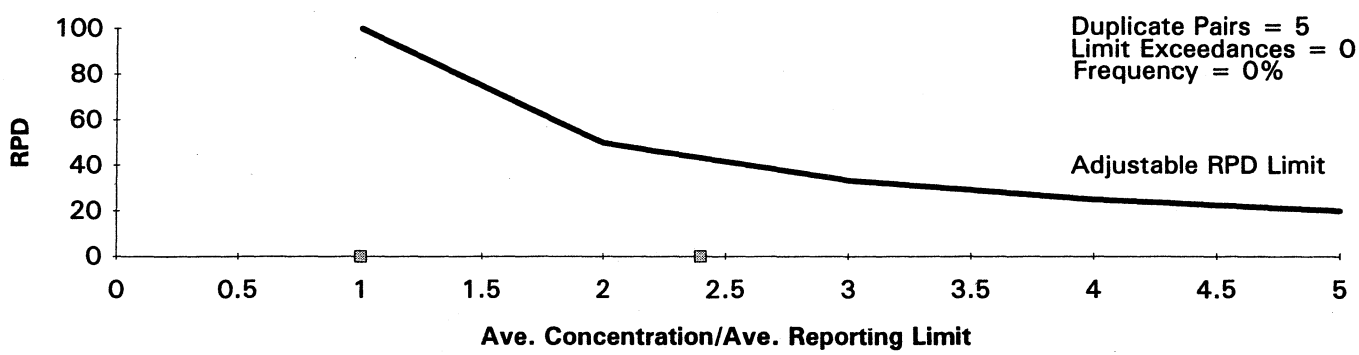


Figure B-32: Distribution of Field Duplicate RPD's for Electrical Conductivity (EPA 120.1)

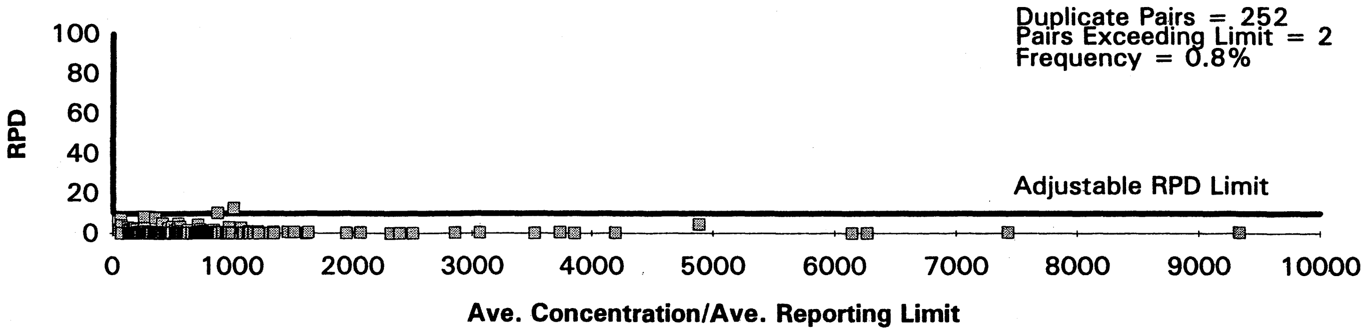


Figure B-33: Distribution of Field Duplicate RPD's for Hardness (EPA 130.2)

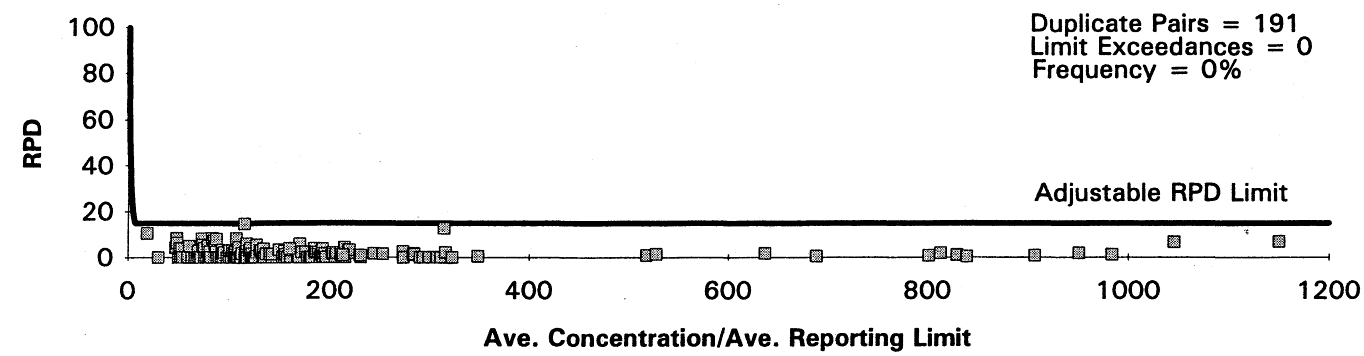


Figure B-34: Distribution of Field Duplicate RPD's for Iron (EPA 236.2)

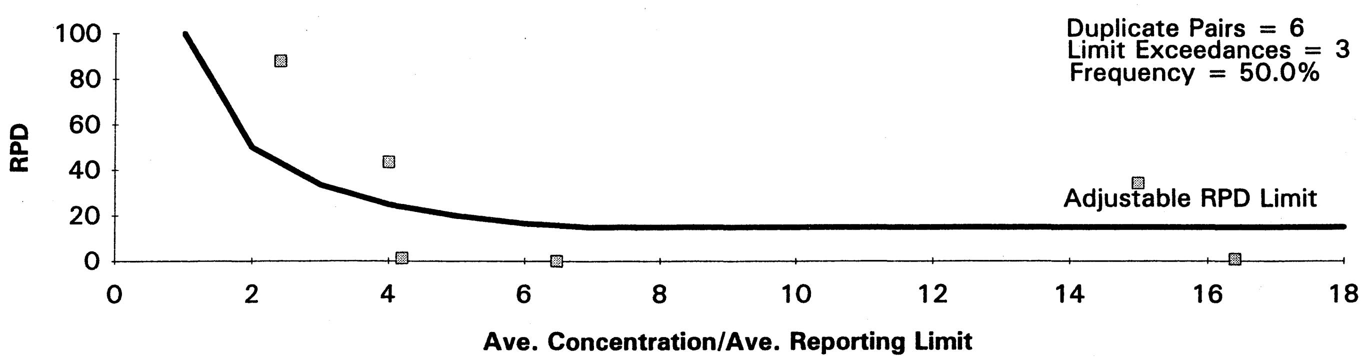


Figure B-35: Distribution of Field Duplicate RPD's for Dissolved Lead (EPA 239.2)

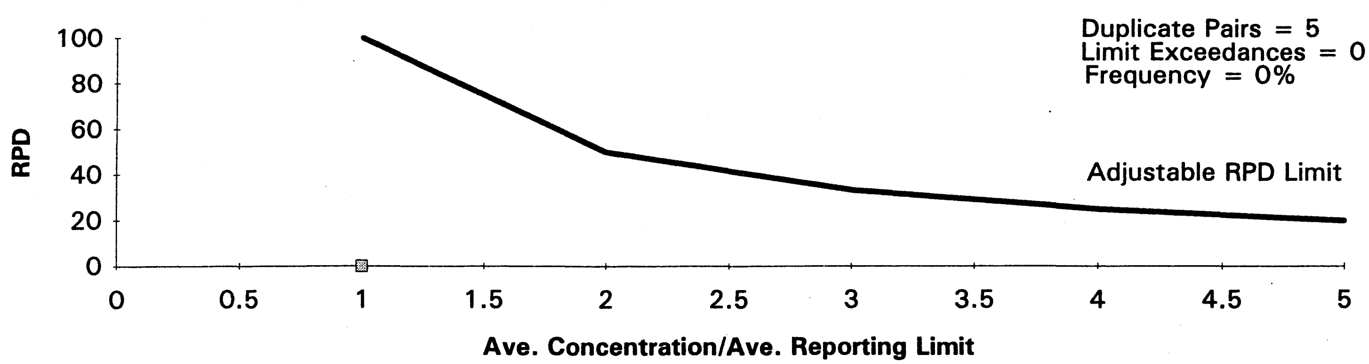


Figure B-36: Distribution of Field Duplicate RPD's for Total Lead (EPA 239.2)

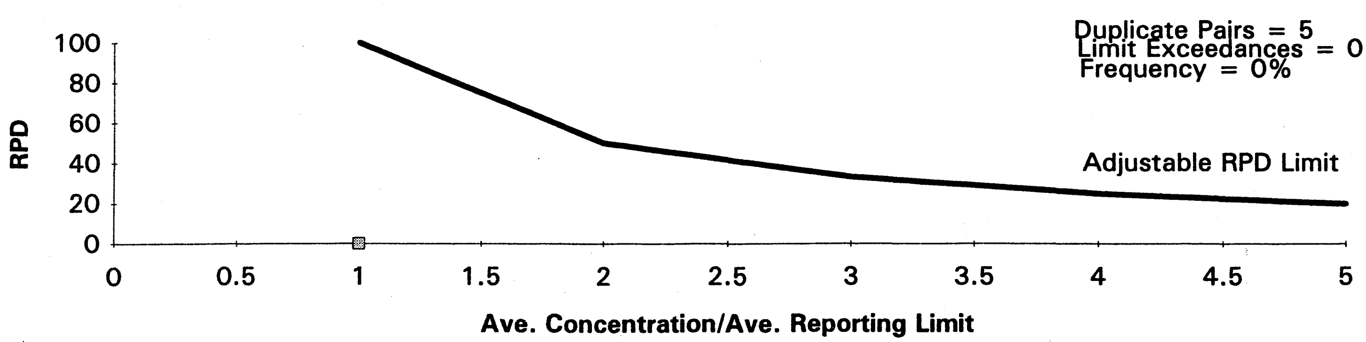


Figure B-37: Distribution of Field Duplicate RPD's for Lithium (USGS I-1425-85)

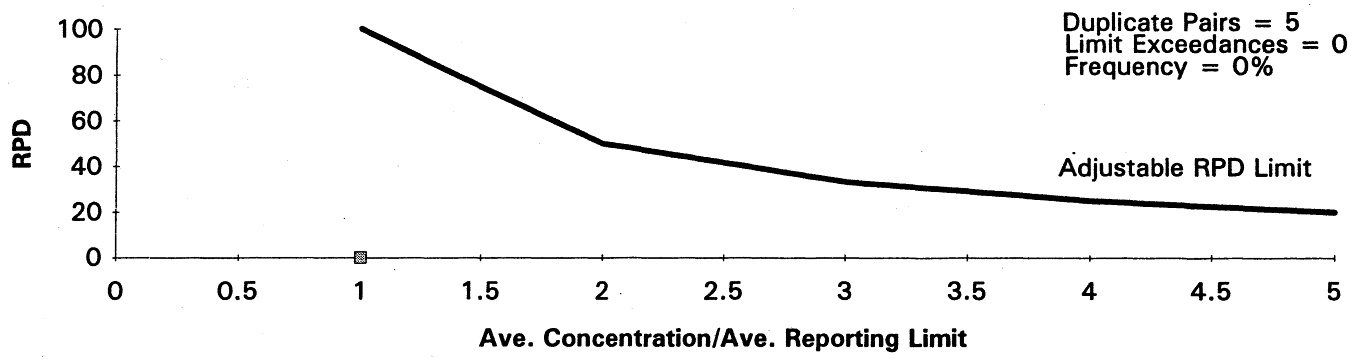


Figure B-38: Distribution of Field Duplicate RPD's for Magnesium (EPA 242.1)

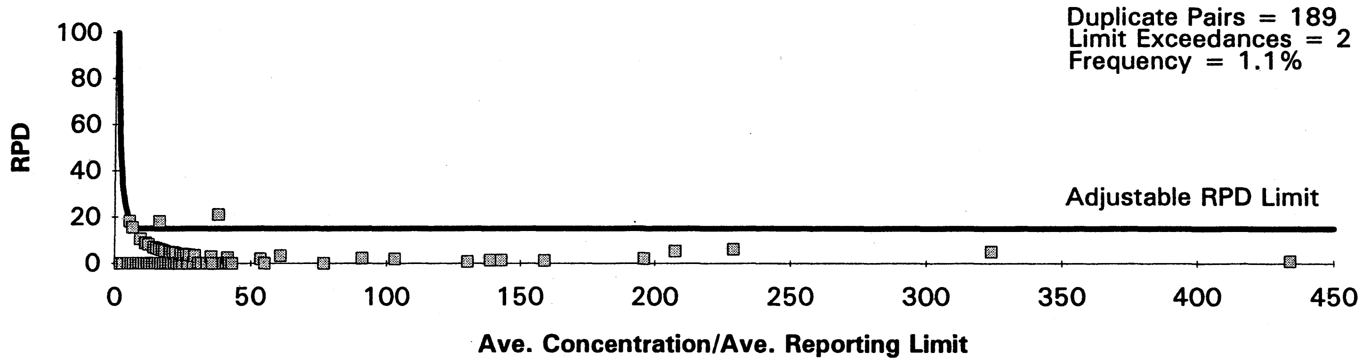


Figure B-39: Distribution of Field Duplicate RPD's for Manganese (EPA 243.2)

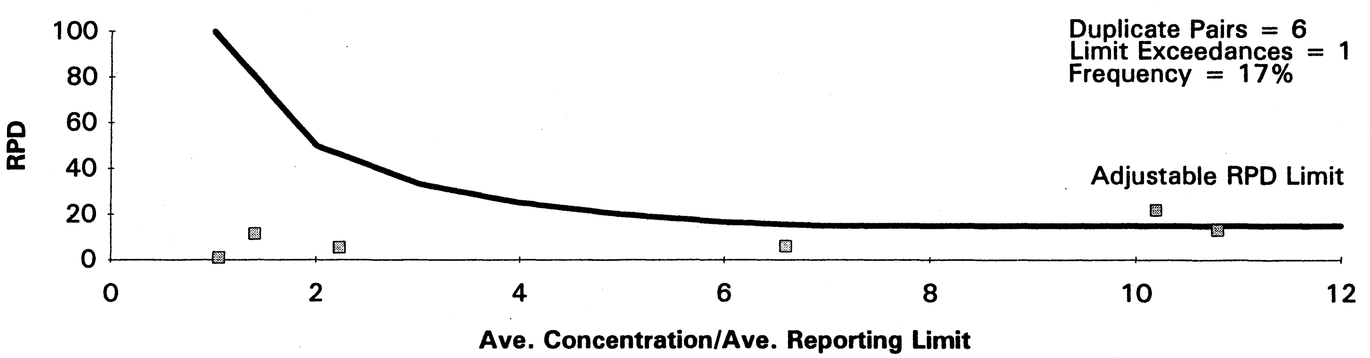


Figure B-40: Distribution of Field Duplicate RPD's for Dissolved Nickel (EPA 246.2)

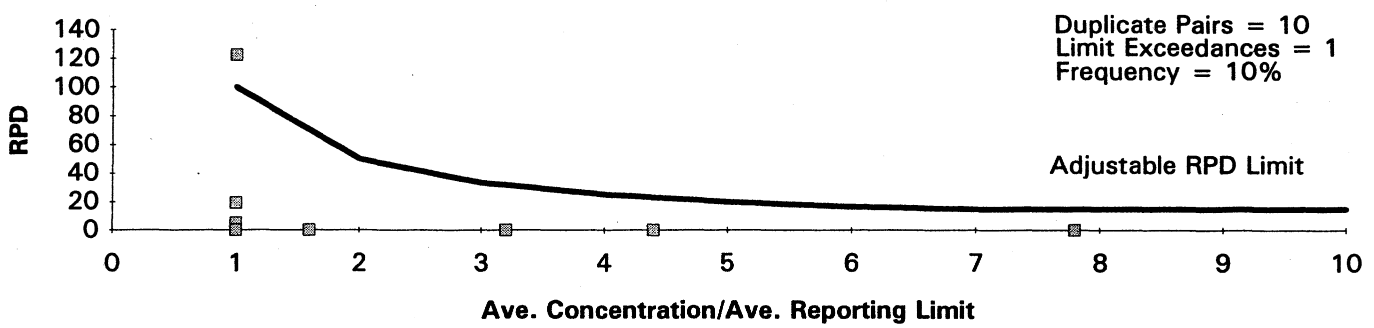


Figure B-41: Distribution of Field Duplicate RPD's for Total Nickel (EPA 249.2)

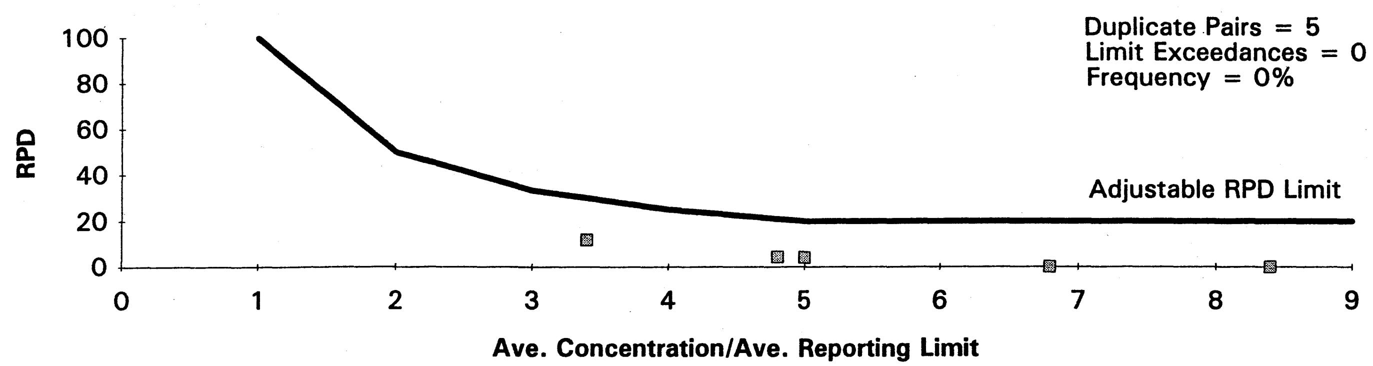


Figure B-42: Distribution of Field Duplicate RPD's for Dissolved Organic Carbon (EPA 415.1)

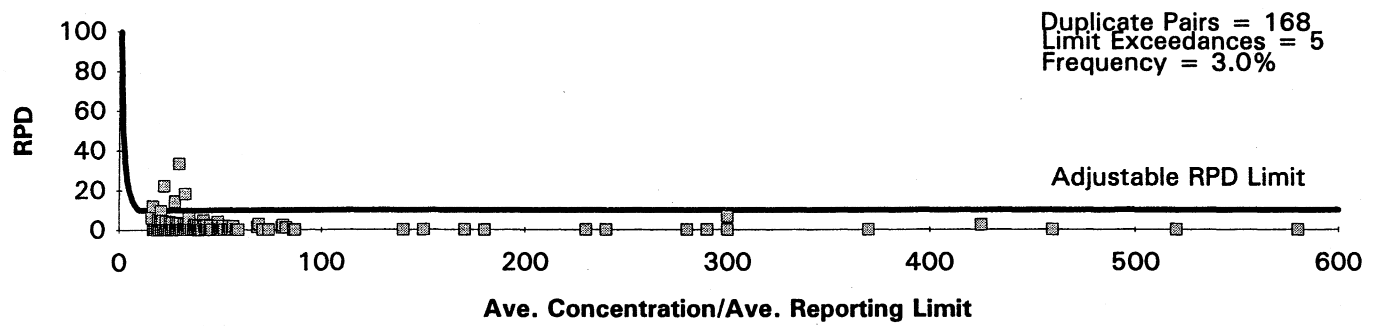


Figure B-43: Distribution of Field Duplicate RPD's for Total Organic Carbon (EPA 415.1)

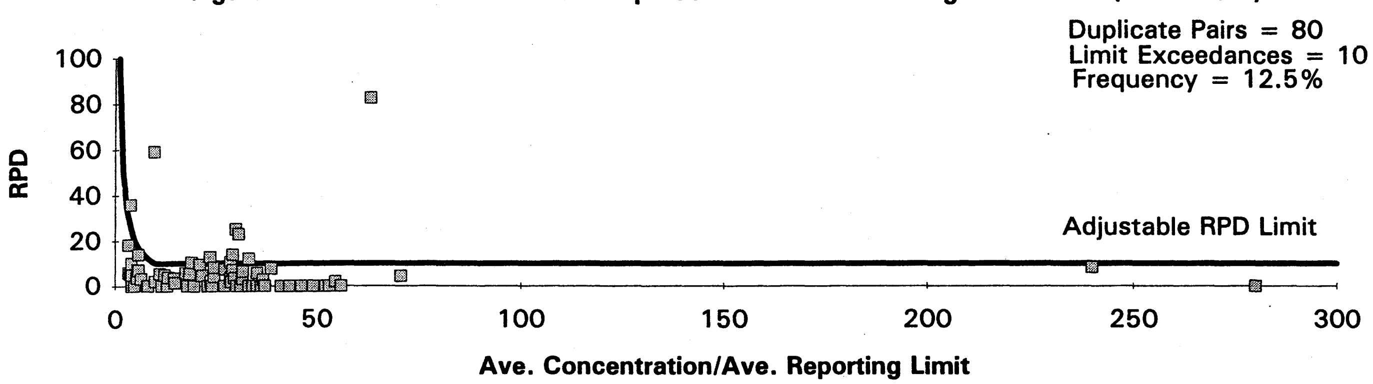


Figure B-44: Distribution of Field Duplicate RPD's for Potassium (EPA 258.1)

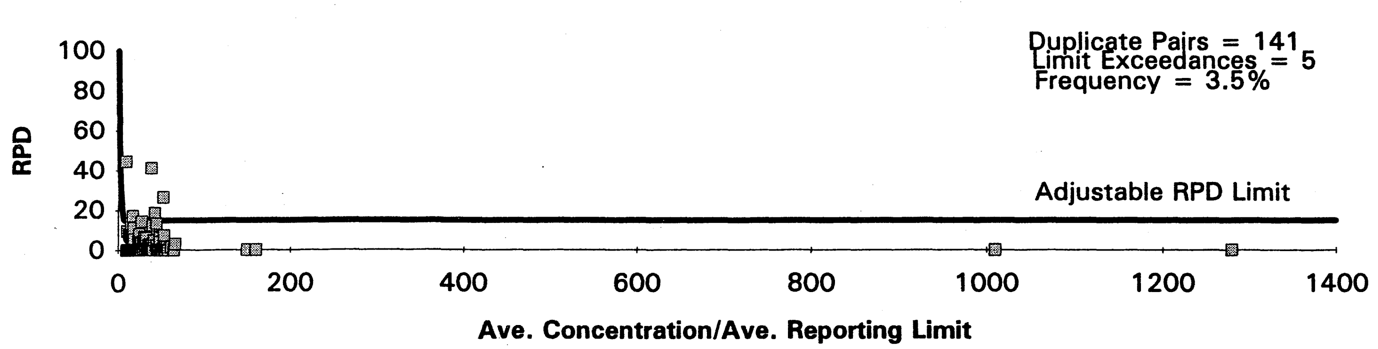


Figure B-45: Distribution of Field Duplicate RPD's for Dissolved Selenium (EPA 270.3)

Figure B-45: Distribution of Field Duplicate RPD's for Dissolved Selenium (EPA 270.3)

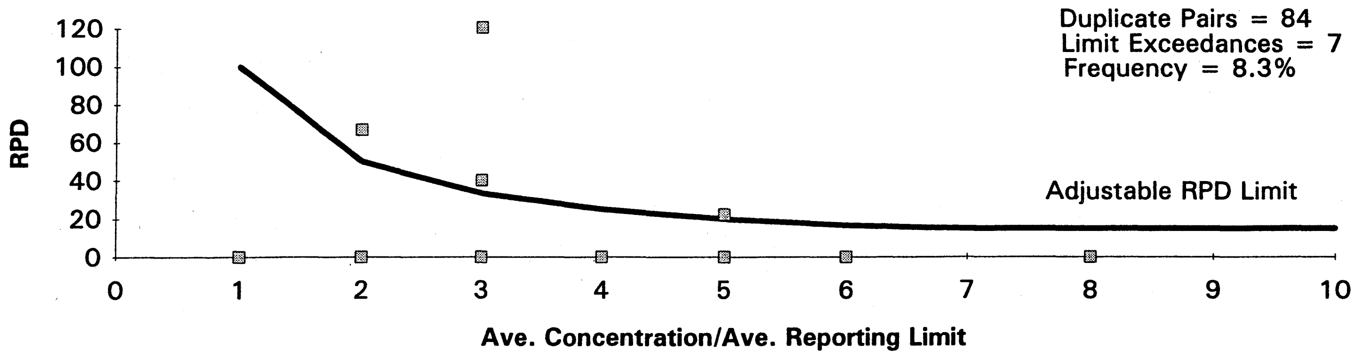


Figure B-46: Distribution of Field Duplicate RPD's for Total Selenium (EPA 270.3)

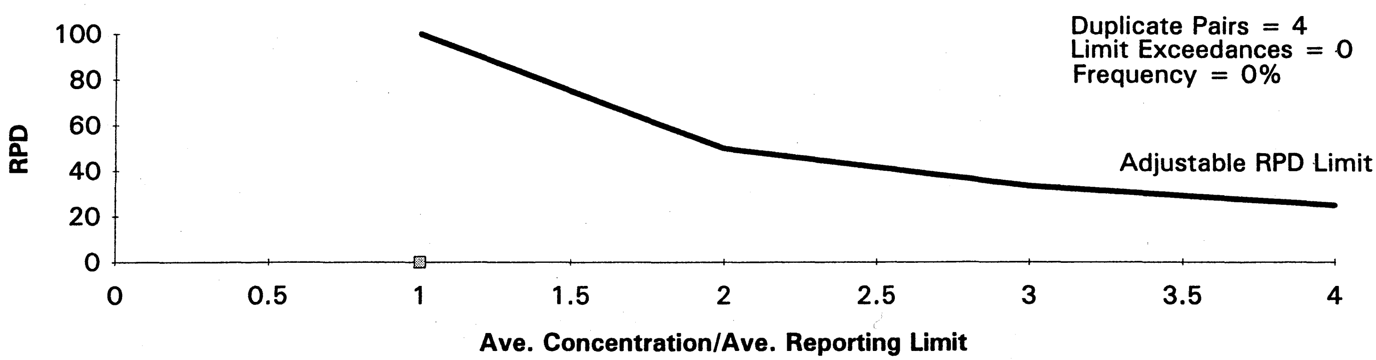


Figure B-47: Distribution of Field Duplicate RPD's for Dissolved Silver (EPA 272.2)

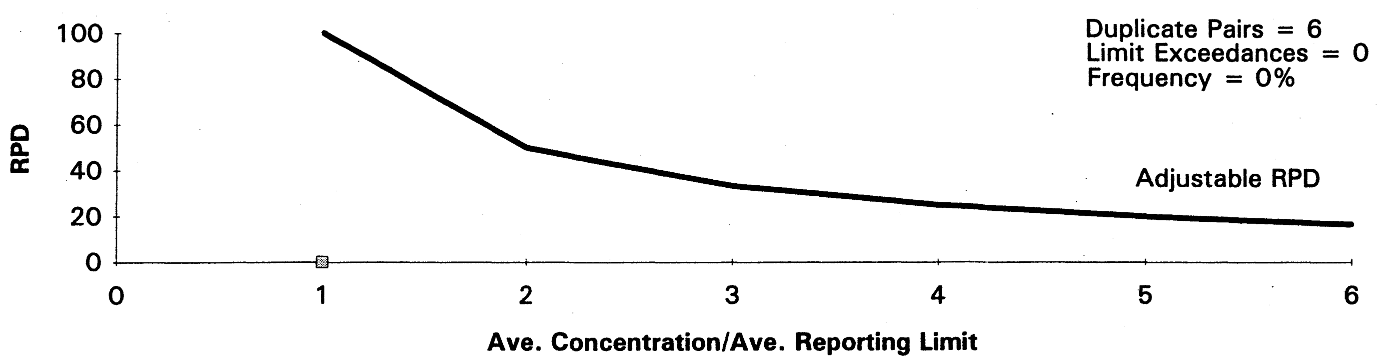


Figure B-48: Distribution of Field Duplicate RPD's for Total Silver (EPA 272.2)

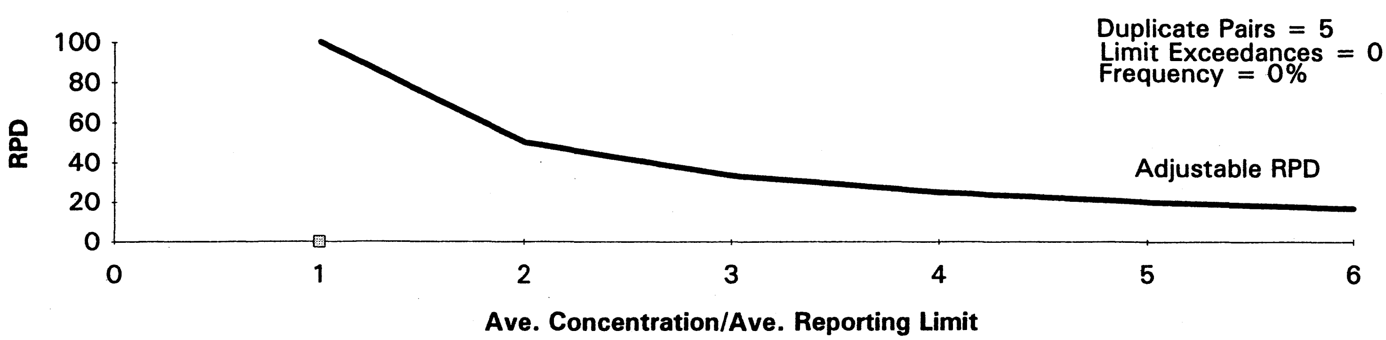


Figure B-49: Distribution of Field Duplicate RPD's for Sodium (EPA 273.1)

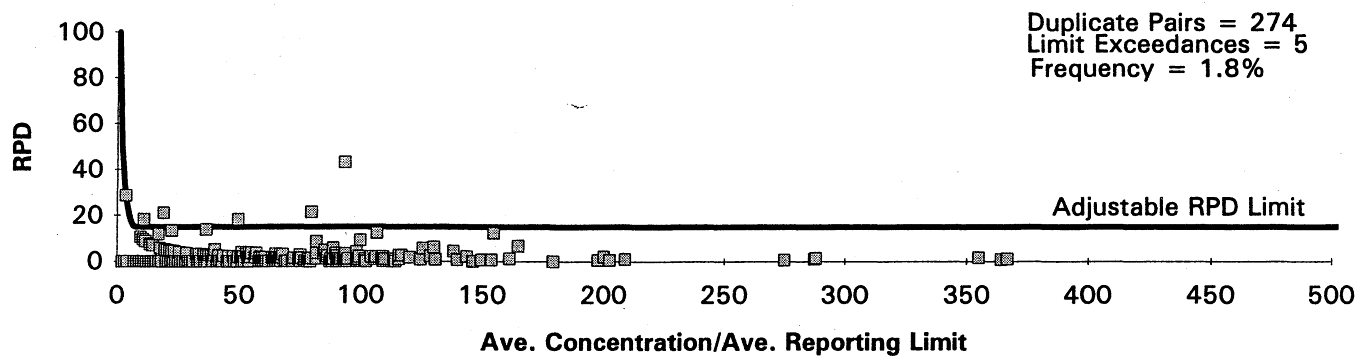


Figure B-50: Distribution of Field Duplicate RPD's for Dissolved Solids (EPA 160.1)

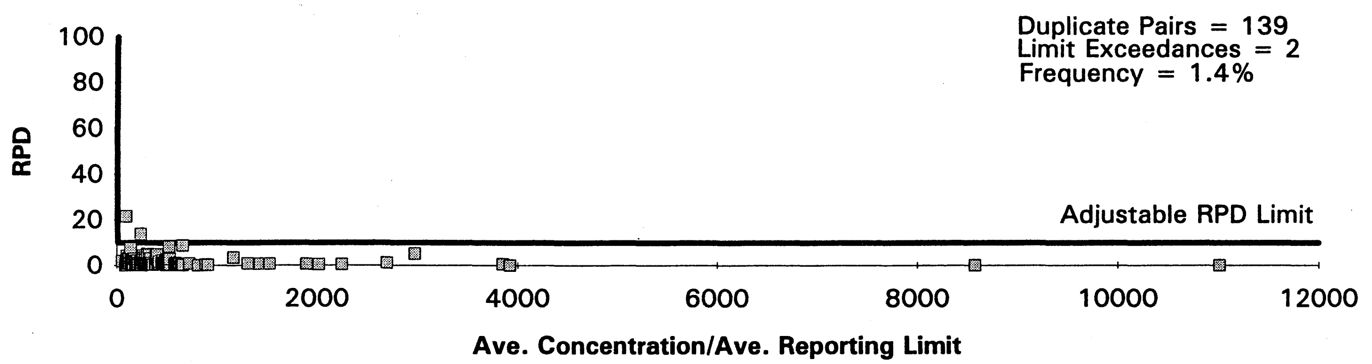


Figure B-51: Distribution of Field Duplicate RPD's for Sulfate (EPA 375.2)

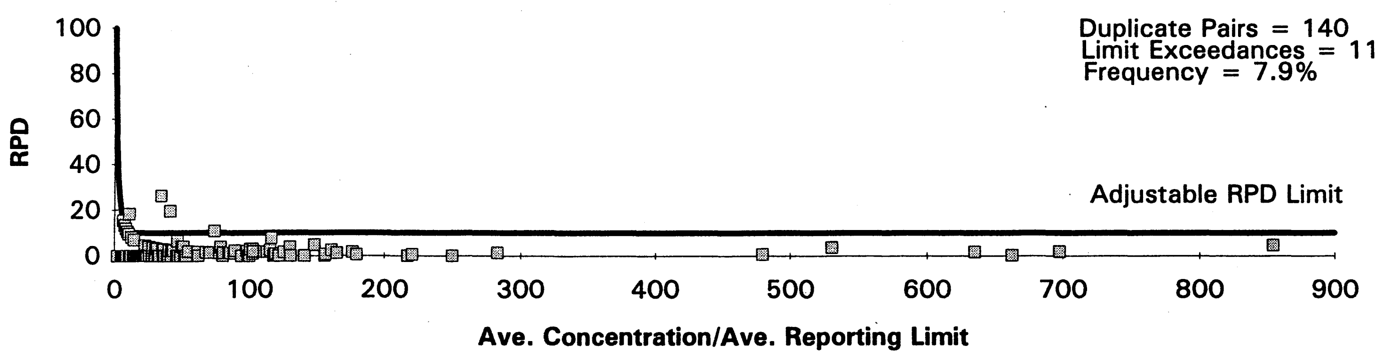


Figure B-52: Distribution of Field Duplicate RPDs for Suspended Solids (EPA 160.2)

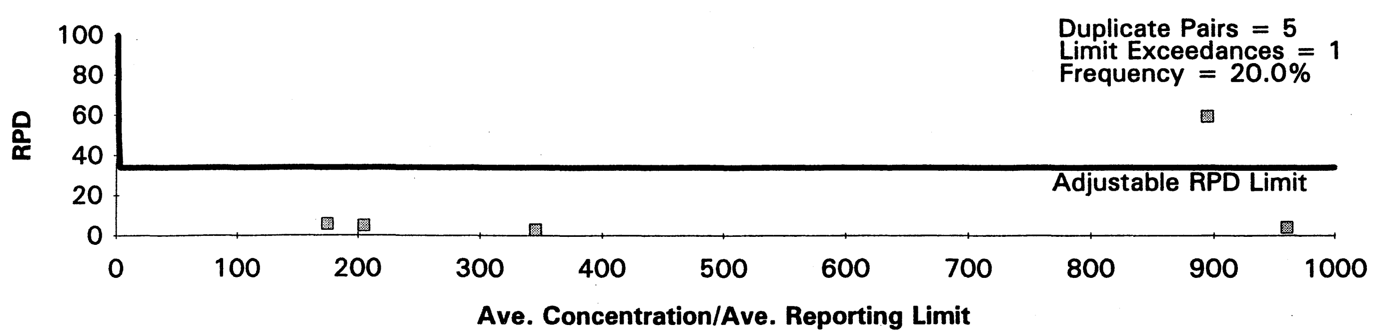


Figure B-53: Distribution of Field Duplicate RPD's for Turbidity (EPA 180.1)

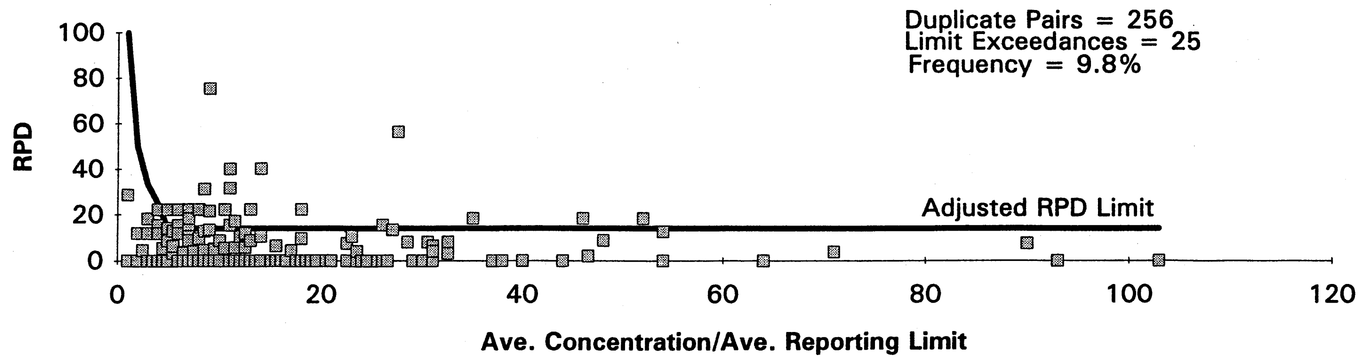


Figure B-54: Distribution of Field Duplicate RPD's for Ultraviolet Absorbtion (254 nm)

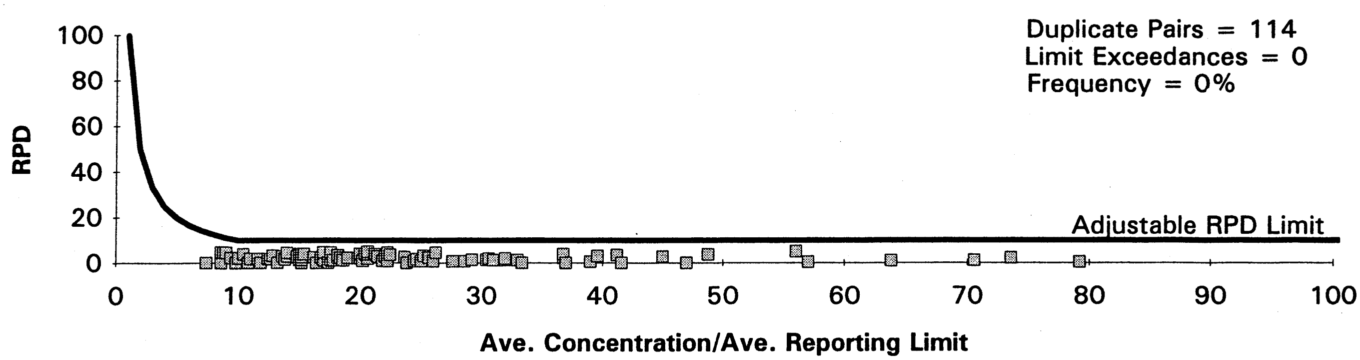


Figure B-55: Distribution of Field Duplicate RPD's for Dissolved Zinc (EPA 289.2)

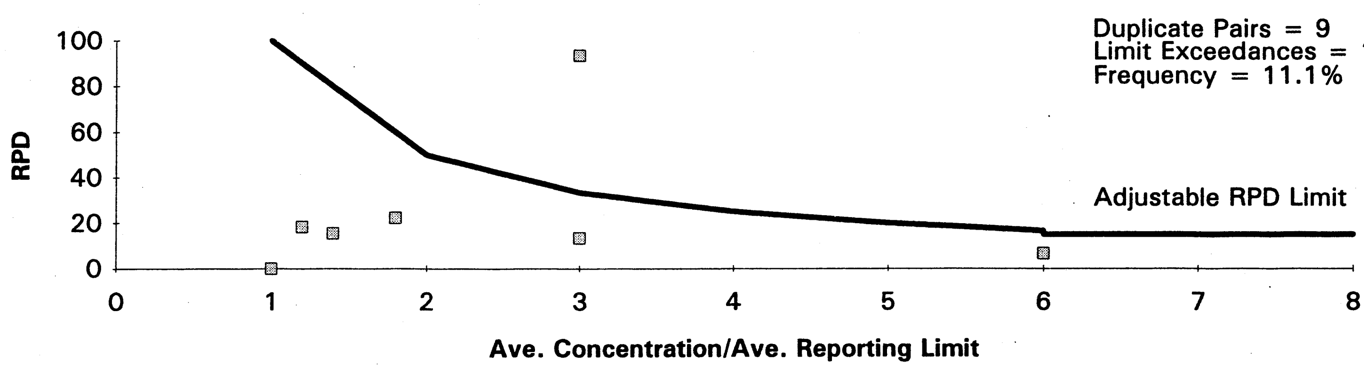
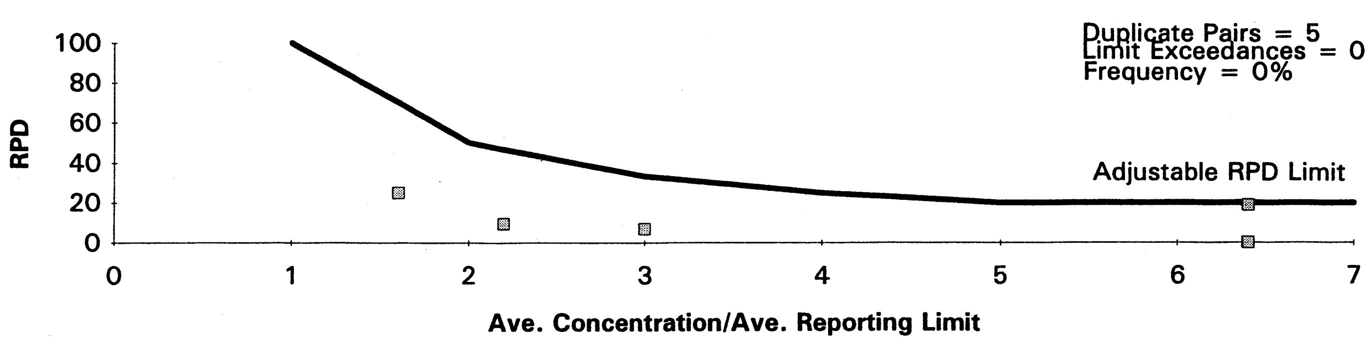


Figure B-56: Distribution of Field Duplicate RPD's for Total Zinc (EPA 289.2)



Appendix C

MWQI Data

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
8157	AGDCLIFTON	03/07/88	14:15	18.7	6.0	9.2	3510	33	80			1400	100
8258	AGDCLIFTON	04/18/88	13:45	17.6	7.1	4.7	5100	30	50				
8342	AGDCLIFTON	05/09/88	11:04	18.9	7.4	6.9	6460	26	80	7.6		2000	130
8478	AGDCLIFTON	07/18/88	11:34	23.5	7.1	3.4	5100	25	60			880	62
9007	AGDCLIFTON	01/03/89	10:42	13.2	7.3	6.7	5620	25	50	6.0		1000	67
9269	AGDCLIFTON	04/17/89	10:23	17.6	6.8	5.6	4710	13	50	9.5		1200	87
9439	AGDCLIFTON	06/26/89	9:50	19.5	7.1	5.8	4980	22	40	6.6		1000	64
900019	AGDCLIFTON	01/23/90	9:50	15.4	7.4	5.2	6090	38	30	6.2		910	61
900140	AGDCLIFTON	02/27/90	12:00	15.0	6.8	8.2	6140	64	50	8.7		1500	99
900202	AGDCLIFTON	04/24/90	10:40	17.5	7.4	9.0	6270	26	140	7.4	0.320	1500	93
900261	AGDCLIFTON	05/23/90	10:00	17.5	7.5	7.7	2530	63	80	13.0	0.392	1500	120
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
910084	AGDCLIFTON	01/31/91	10:35	13.2	7.3	6.6	6220	30	100	6.4	0.308	1400	88
910348	AGDCLIFTON	04/24/91	11:05	16.1	7.5	4.6	6400	39	70	7.7	0.440	1300	85
910514	AGDCLIFTON	07/23/91	15:15	30.2	8.5	9.8	1950	50	200	19.0	0.760		
910618	AGDCLIFTON	08/20/91	12:05	23.7	9.4	4.9	4170	13	150	24.0	0.843	2600	210
910785	AGDCLIFTON	10/22/91	10:40	18.6	7.2	4.9	4780	32	80	7.1	0.355	1000	71
8026	AGDEMPIRE	01/14/88	9:00	9.2	6.3	4.7	1010	8	350			3600	350
8075	AGDEMPIRE	01/21/88	9:05	8.6	6.4	6.5	1720	4	250			3900	380
8074	AGDEMPIRE	01/21/88	9:05	8.6	6.4	6.5				56.0		4300	420
8132	AGDEMPIRE	02/23/88	8:50	11.3	6.8	5.4				62.0		2300	220
8133	AGDEMPIRE	02/23/88	8:50	11.3	6.8	5.4	1980	14	350			4000	380
8161	AGDEMPIRE	03/09/88	9:35	13.7	7.1		1970	13	200			3500	330
8223	AGDEMPIRE	03/23/88	8:30	16.8	7.0	9.1	811	9	320			2800	280
8224	AGDEMPIRE	03/23/88	8:30	16.8	7.0	9.1				47.0		4500	450
8323	AGDEMPIRE	04/28/88	8:25	16.1	6.6	5.3				63.0		2200	220
8322	AGDEMPIRE	04/28/88	8:25	16.1	6.6	5.3	631	7	300			2100	210
8346	AGDEMPIRE	05/09/88	7:12	20.1	7.2	6.5	926	4	400	59.0		4200	410
8400	AGDEMPIRE	05/26/88	7:30	18.8	7.5	1.1				46.0		4100	400
8399	AGDEMPIRE	05/26/88	7:30	18.8	7.5	1.1	1000	9	400			3300	320
8431	AGDEMPIRE	06/22/88	6:27	22.3	7.3	2.6	674	7	240			3700	370
8432	AGDEMPIRE	06/22/88	6:27	22.3	7.3	2.6				31.0		4300	420
8467	AGDEMPIRE	07/14/88	8:55	23.0	6.8	0.6				35.0		4200	420
8466	AGDEMPIRE	07/14/88	8:55	23.0	6.8	0.6	1420	6	400			3800	380
8482	AGDEMPIRE	07/20/88	6:40	22.5	7.0	0.4	792	3	240	35.0		2800	270
8589	AGDEMPIRE	08/16/88	7:59	21.3	6.9	2.3				36.0		3400	330
8588	AGDEMPIRE	08/16/88	7:59	21.3	6.9	2.3	537	7	280			3700	360
8701	AGDEMPIRE	09/22/88	6:35	16.6	7.2	2.0				32.4		3800	350
8700	AGDEMPIRE	09/22/88	6:35	16.6	7.2	2.0	2140	7	140			3700	330
8730	AGDEMPIRE	10/20/88	7:45	19.2	5.9	2.4				75.0		2500	250
8729	AGDEMPIRE	10/20/88	7:45	19.2	5.9	2.4	1180	5	280			1900	180

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

TFPC DATA REPORT (cont.)

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
8751	AGDEMPIRE	11/10/88	8:25	16.0	6.8	4.2	1350	4	320			2200	210
8752	AGDEMPIRE	11/10/88	8:25	16.0	6.8	4.2				66.0		2900	280
8834	AGDEMPIRE	12/20/88	9:00	14.7	6.8	3.9	585	4	320			2700	270
8835	AGDEMPIRE	12/20/88	9:00	14.7	6.8	3.9				60.0		2700	270
9011	AGDEMPIRE	01/05/89	8:45	7.5	6.9	5.1	769	5	320	76.0			
9098	AGDEMPIRE	01/31/89	8:30	10.5	6.6	3.6	1500	5	600			650	59
9099	AGDEMPIRE	01/31/89	8:30	10.5	6.6	3.6				119.0		640	58
9188	AGDEMPIRE	02/28/89	8:30	13.5	6.8	4.1	1720	11	320			1700	160
9189	AGDEMPIRE	02/28/89	8:30	13.5	6.8	4.1				68.0		1300	130
9241	AGDEMPIRE	03/28/89	8:56	16.4	6.9	4.4	2030	8	280			3700	340
9242	AGDEMPIRE	03/28/89	8:56	16.4	6.9	4.4				71.0		3700	340
9273	AGDEMPIRE	04/17/89	7:17	18.8	7.5	6.7	2160	13	200	45.0		4300	390
9339	AGDEMPIRE	04/25/89	8:13	15.2	7.3	5.6				38.0		4000	350
9338	AGDEMPIRE	04/25/89	8:13	15.2	7.3	5.6	2320	13	200			4100	360
9369	AGDEMPIRE	05/23/89	8:18	17.6	6.7	8.7				83.0		2600	250
9368	AGDEMPIRE	05/23/89	8:18	17.6	6.7	8.7	800	4	400			2800	270
9489	AGDEMPIRE	06/21/89	7:30	20.4	6.9	4.5				28.0		2800	280
9488	AGDEMPIRE	06/21/89	7:30	20.4	6.9	4.5	524	6	160	28.0		2800	280
9443	AGDEMPIRE	06/28/89	7:18	18.7	7.0	4.5	629	6	200	35.0		3600	360
9469	AGDEMPIRE	06/28/89	7:18	18.7	7.0	4.5	630	6	200			3400	340
9562	AGDEMPIRE	07/18/89	7:40	24.0	6.8	3.8	422	3	280	42.0		3800	370
9605	AGDEMPIRE	08/03/89	9:55	22.4	7.4	5.9	346	8	100	16.0		2800	270
9631	AGDEMPIRE	09/20/89	7:40	19.0	7.2	4.0	2310	5	400	96.0		4500	440
9651	AGDEMPIRE	10/17/89	12:45	19.6		3.3	2440	28	160	28.0		2700	220
9670	AGDEMPIRE	11/07/89	11:40	16.0	7.5	5.4	1600	13	160	24.0		2900	260
9692	AGDEMPIRE	12/05/89	13:11	13.4	7.1		1340	7	160	29.0		2600	240
900016	AGDEMPIRE	01/22/90	10:00	7.8	6.8	7.7	2310	9	160	42.0		3600	330
900115	AGDEMPIRE	02/19/90	10:50	6.8	7.1	11.1	2320	10	140	30.0		3200	280
900197	AGDEMPIRE	04/23/90	10:25	18.0	6.8	5.9	680	13	120	24.0	1.000	2000	190
900269	AGDEMPIRE	05/23/90	7:29	17.9	7.5	2.6				24.0			
900315	AGDEMPIRE	06/28/90	7:00	21.2	7.1	3.7	1090	93	160	18.0	0.698	1800	160
900381	AGDEMPIRE	07/24/90	11:29	25.3		1.7	593	15	100	15.0	0.711	1600	150
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
910077	AGDEMPIRE	01/31/91	11:05	9.9	7.0	4.3	1710	6	200	81.0	2.990	1700	160
910296	AGDEMPIRE	04/18/91	11:15	17.4	6.5	6.5	2040	12	350	89.0	2.250	3200	300
910502	AGDEMPIRE	07/22/91	6:53	21.1	6.9	5.2	572	11	100	17.0	0.664	1800	180
910604	AGDEMPIRE	08/19/91	7:44	20.3	7.2	4.0	1060	8	100	19.0	0.753	2000	180
910771	AGDEMPIRE	10/21/91	7:31	17.5	7.0	6.0	2070	15	60	17.0	0.691	2300	190
8006	AGDGRAND	01/06/88	8:25	9.2	7.1	8.1				30.0		2400	240
8007	AGDGRAND	01/06/88	8:25	9.2	7.1	8.1	832	56	160			2600	260
8113	AGDGRAND	02/18/88	7:30	9.3	7.2	8.8				17.0		2200	220
8114	AGDGRAND	02/18/88	7:30	9.3	7.2	8.8	642	26	100			2200	220

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TFPC DATA REPORT (cont.)

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
8211	AGDGRAND	03/18/88	7:19	13.0	7.1	8.0	324	31	60			990	99
8212	AGDGRAND	03/18/88	7:19	13.0	7.1	8.0				5.4		750	74
8248	AGDGRAND	04/14/88	7:40	15.1	6.9	7.3				7.2		980	97
8247	AGDGRAND	04/15/88	7:40	15.1	6.9	7.3	361					1100	110
8392	AGDGRAND	05/19/88	6:55	18.2	7.4	6.7	278	27	80			1100	110
8393	AGDGRAND	05/19/88	6:50	18.2	7.4	6.7				5.6		790	79
8414	AGDGRAND	06/07/88	6:17	15.8	7.1	6.5	308	38	60			1400	140
8415	AGDGRAND	06/07/88	6:17	15.8	7.1	6.5				5.9		860	85
8450	AGDGRAND	07/06/88	6:54	20.0	7.0	5.7				8.0		910	91
8449	AGDGRAND	07/06/88	6:54	20.0	7.0	5.7	276	27	60			1200	120
8572	AGDGRAND	08/02/88	8:10	18.8	7.4	6.4				6.1		740	74
8571	AGDGRAND	08/02/88	8:10	18.8	7.4	6.4	222	23	60			760	76
8692	AGDGRAND	09/15/88	6:55	18.8	6.9	5.2				10.8		1200	120
8691	AGDGRAND	09/15/88	6:55	18.8	6.9	5.2	363	24	70			1200	120
8721	AGDGRAND	10/13/88	7:00	15.6	7.2	6.7				17.4		1400	140
8720	AGDGRAND	10/13/88	7:00	15.6	7.2	6.7	409	32	150			2100	220
8758	AGDGRAND	11/17/88	8:09	9.9	7.2	8.6	398	28	120			1600	160
8759	AGDGRAND	11/17/88	8:09	9.9	7.2	8.6				12.0		1300	130
8805	AGDGRAND	12/06/88	7:40	10.8	7.2	9.2				14.0		1300	130
8804	AGDGRAND	12/06/88	7:40	10.8	7.2	9.2	370	23	100			1500	150
9072	AGDGRAND	01/17/89	7:50	9.8	7.1	9.1	482	18	100			1600	160
9073	AGDGRAND	01/17/89	7:50	9.8	7.1	9.1				14.0		1600	160
9153	AGDGRAND	02/15/89	7:30	9.5	7.0	9.4				19.0		1600	160
9152	AGDGRAND	02/15/89	7:30	9.5	7.0	9.4	564	19	160			1400	140
9227	AGDGRAND	03/14/89	7:54	12.0	6.7	7.8	756	28	160			2100	210
9228	AGDGRAND	03/14/89	7:54	12.0	6.7	7.8				24.0		2000	200
9257	AGDGRAND	04/11/89	6:20	16.3	7.2	6.9				10.0		1100	110
9256	AGDGRAND	04/11/89	6:20	16.3	7.2	6.9	357	31	80			1400	140
9352	AGDGRAND	05/09/89	6:30	19.0	7.5	6.3	314	27	80			940	93
9353	AGDGRAND	05/09/89	6:30	19.0	7.5	6.3				7.5		800	80
9480	AGDGRAND	06/13/89	6:35	18.2	7.1	7.0				6.2		840	84
9479	AGDGRAND	06/13/89	6:35	18.2	7.1	7.0	292	25	70			1100	110
9554	AGDGRAND	07/11/89	7:00	19.9	6.8	6.5	325	36	70	7.5		990	98
9607	AGDGRAND	08/16/89	7:57	21.2	7.6	7.2	360	26	60	6.0		910	90
9623	AGDGRAND	09/13/89	6:45	18.9	8.3	6.8	264	52	80	5.7		710	70
9643	AGDGRAND	10/12/89	6:42	18.3	7.2		531	22	100	14.0		1400	140
9672	AGDGRAND	11/14/89	8:45	13.1	7.4	6.2	458	18	80	9.7		1200	120
9694	AGDGRAND	12/12/89	9:45	7.4	7.4	11.1	515	18	140	16.0			
8076	AMERICAN	01/21/88	11:00	9.8	7.2	12.5	87	10	25			330	33
8134	AMERICAN	02/23/88	10:30	12.9	7.2	10.8	85	1	5			120	11
8225	AMERICAN	03/24/88	11:00	19.1	7.2	10.8	78	1	5			170	17
8324	AMERICAN	04/28/88	5:25	14.7	8.0	9.3	77	2	10			110	11
8401	AMERICAN	05/26/88	5:50	16.5	8.2	8.8	75	2	5			190	19

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TFPC DATA REPORT (cont.)

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
8433	AMERICAN	06/22/88	9:19	19.9	7.2	8.9	76	1	5			110	11
8471	AMERICAN	07/14/88	5:50	17.8	6.7	8.5			5			240	24
8590	AMERICAN	08/16/88	5:45	20.5	7.0	7.6	72	1	5			190	19
8702	AMERICAN	09/22/88	9:00	20.4	7.0	7.9	70	1	5			180	18
8731	AMERICAN	10/20/88	5:30	19.5	6.6	8.4	74	1	5			170	16
8753	AMERICAN	11/10/88	6:15	16.2	6.5	9.1	68	2	5			220	22
8836	AMERICAN	12/20/88	7:00	11.4	6.8	10.8	82	3	10			340	34
9100	AMERICAN	01/31/89	6:30	10.3	7.7	12.2	102	1	10			100	10
9190	AMERICAN	02/28/89	6:30	12.0	6.2	11.3	85	<1	5			130	13
9243	AMERICAN	03/28/89	10:14	11.8	7.7	10.3	75	4	5			240	24
9340	AMERICAN	04/25/89	9:26	12.0	7.7	10.4	70	2	5			220	22
9370	AMERICAN	05/23/89	9:31	14.4	7.7	10.1	65	2	5			230	23
9490	AMERICAN	06/21/89	5:30	14.9	7.3	9.6	61	2	<5	1.7		250	25
9563	AMERICAN	07/18/89	5:35	22.7	7.1	8.7	60	2	<5	1.8		300	30
9611	AMERICAN	08/16/89	6:00	18.2	6.7		55	1	<5	2.4		300	30
9632	AMERICAN	09/20/89	9:00	18.7	7.9	8.3	56	1	5	1.7		200	20
9652	AMERICAN	10/17/89	8:30	17.3	7.1	8.5	54	2	<5	1.8		280	27
9678	AMERICAN	11/14/89	6:25	13.2	7.2	9.5	58	2	<5	2.6		240	24
9700	AMERICAN	12/12/89	7:05	9.3	8.0	11.0	64	2	5	2.9		240	24
900158	AMERICAN	03/21/90	13:50	17.2	8.0	10.2	77	1	5	1.5	0.023	190	19
900266	AMERICAN	05/22/90	6:25	15.9	7.4	9.4	78	2	5	2.2	0.047	200	20
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	<5	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
910157	AMERICAN	02/26/91	7:30	12.6	8.4	10.4	67	1	5	1.6	0.010	180	18
910253	AMERICAN	03/25/91	8:00	11.0	6.5	10.1	77	15	60	4.3	0.147	540	54
910377	AMERICAN	05/21/91	6:10	18.5	7.6	8.9	79	6	5	2.2	0.052	270	27
910426	AMERICAN	06/24/91	6:32	15.4	7.7	8.6	69	3	5	2.1	0.041	250	25
910671	AMERICAN	09/11/91	6:25	18.8	8.0		65	2	5	2.7	0.012	260	26
910845	AMERICAN	11/19/91	12:39	13.8	7.0	11.2	65	<1	5	1.7	0.042	190	18
910883	AMERICAN	12/09/91	12:30	14.8	8.1	10.8	62	1	5	1.9	0.030	180	17
900033	BACON01	01/23/90	16:01	11.6	6.7	3.4	894	58	160	11.0		1200	110
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
910065	BACON01	01/28/91	14:20	12.1	7.2	8.1	812	20	60	6.3	0.346	890	77
910526	BACON01	07/24/91	12:24	24.4	6.7	7.1	476	15	80	4.4	0.180	670	60
910624	BACON01	08/20/91	7:52	19.8	6.4	3.4	702	18	125	12.0	0.568	1300	120
910790	BACON01	10/22/91	8:00	17.6	6.7		631	25	80	4.3	0.232	610	53
900034	BACON02	01/23/90	15:20	12.2	6.7	7.3	949	24	140	18.0		1700	160

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TFPC DATA REPORT (cont.)

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
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
910066	BACON02	01/28/91	13:55	10.2	7.0	7.2	1050	16	150	27.0	1.160	2300	230
910527	BACON02	07/24/91	13:27	25.4	6.8	6.8	481	16	70	4.8	0.204	700	64
910625	BACON02	08/20/91	8:14	20.5	7.0		443	18	100	7.5	0.317	830	78
910791	BACON02	10/22/91	8:35	17.2	6.8		526	16	70	6.6	0.285	770	72
8011	BANKS	01/07/88	9:24	8.2	7.3	11.8	574	11	30			630	56
8091	BANKS	02/10/88	8:55	11.4	7.3	9.5	392	13	40			820	79
8146	BANKS	03/03/88	9:00	13.7	7.6	10.5	593	5	25			470	41
8235	BANKS	04/05/88	7:50	15.4	7.5	9.3	661	5	20			360	30
8330	BANKS	05/03/88	8:35	16.6	7.9	8.9	372	9	30			570	53
8422	BANKS	06/14/88	8:27	23.0	7.5	6.7	457	30	60			430	40
8457	BANKS	07/12/88	8:30	21.5	7.8	8.0	575	33	60			650	58
8579	BANKS	08/09/88	10:15	22.0	7.4	7.9	675	16	20			670	57
8682	BANKS	09/06/88	8:20	24.2	7.8	6.7	721	11	25			460	37
8714	BANKS	10/04/88	8:35	20.1	7.4	8.0	689	8	20			460	39
8744	BANKS	11/01/88	9:45	17.6	6.7	8.8	692	6	15			450	35
8813	BANKS	12/13/88	10:02	11.3	7.1	10.7	739	7	25			690	56
9054	BANKS	01/10/89	9:20	12.5	7.0	11.4	610	8	30			610	54
9132	BANKS	02/07/89	9:00	5.9	6.8	12.1	748	6	30			360	29
9213	BANKS	03/07/89	8:50	13.6	7.3	10.0	646	6	25			400	33
9248	BANKS	04/04/89	8:24	16.2	8.2	7.9	286	11	40			590	57
9346	BANKS	05/02/89	8:30	18.4	7.8	8.0	237	8	25			380	37
9428	BANKS	06/06/89	8:20	20.5	8.1	7.9	300	27	50			520	50
9548	BANKS	07/05/89	10:18	23.0	7.7	8.2	291	18	40	3.1		400	38
9587	BANKS	07/25/89	9:00	23.8	7.7	9.2	300	14				510	47
9617	BANKS	09/06/89	8:38	21.5	7.2	8.6	377	10	25	2.6		450	40
9637	BANKS	10/02/89	8:38	18.8	7.5	10.0	430	11	25	3.7		490	43
9663	BANKS	11/07/89	9:15	15.1	7.7	8.8	523	7	20	2.4		490	41
9685	BANKS	12/05/89	9:22	11.8	7.6		651	6	15	2.8		500	42
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
900301	BANKS	06/27/90	9:15	20.4	8.1	8.2	577	10	25	3.2	0.089		
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

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TFPC DATA REPORT (cont.)

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
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
900568	BANKS	08/27/90	10:24	22.7		7.8	396	8		2.7	0.088	620	55
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
900817	BANKS	10/30/90	12:00	18.3	7.8	8.8	726	4		3.3	0.101	580	46
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
910002	BANKS	01/02/91	12:25	4.7	7.1	11.4	877	5		5.2	0.181	840	70
910030	BANKS	01/15/91	13:05	9.4	6.6	10.0	752	4		5.1	0.172	1000	90
910089	BANKS	01/29/91	12:05	9.8		9.6	772	5	25	5.1	0.172	970	83
910141	BANKS	02/13/91	9:35	13.0	7.6	8.7	819	6		5.0	0.159	650	55
910169	BANKS	02/27/91	11:25	14.2	7.8	9.1	866	4	25	4.9	0.166	840	69
910197	BANKS	03/11/91	9:40	13.7	7.4	9.1	843	6		5.5	0.156	670	54
910265	BANKS	03/26/91	14:00	12.0	7.9	10.2	553	14	60	5.9	0.201	890	81
910283	BANKS	04/09/91	10:18	15.7	7.2	8.6	378	13		7.1	0.265	740	71
910311	BANKS	04/23/91	8:20	15.6	8.0	10.1	335	15	50	5.5	0.197	700	68
910389	BANKS	05/21/91	10:50	18.2	7.6	9.5	425	9	30	4.5	0.151	700	66
910406	BANKS	06/11/91	9:50	24.3	7.5	6.9	577	9		4.3	0.125	520	45
910436	BANKS	06/25/91	12:50	19.5	8.0	8.5	644	27	60	4.7	0.125	750	64
910467	BANKS	07/08/91	8:22	24.8	7.6	7.7	600	8		3.9	0.115	590	51
910518	BANKS	07/24/91	7:38	21.2	7.4	8.0	601	11	30	3.5	0.129	570	48
910558	BANKS	08/05/91	8:30	20.8	8.5	8.6	685	10	35	3.6	0.114	590	51
910633	BANKS	08/21/91	7:19	21.4	8.1	8.5	497	13	40	3.0	0.100	550	46
910682	BANKS	09/10/91	8:30	19.6	8.2	7.2	499	18	40	3.5	0.098	510	44
910702	BANKS	09/24/91	8:30	22.8	7.7	6.6	565	6		3.0	0.062	460	38
910732	BANKS	10/08/91	8:05	21.5	7.7	7.0	526	9		2.9	0.083	450	39
910799	BANKS	10/23/91	7:35	18.0	7.7	7.9	469	6	25	2.6	0.078	330	28
910855	BANKS	11/21/91	11:15	13.8	8.2	9.8	659	4	25	3.1	0.086	440	36
910893	BANKS	12/11/91	9:20	9.5	7.1	11.2	735	4	20	3.4	0.098	420	34
8002	BARKER	01/06/88	12:10	9.3	7.3	10.4	387	84	80			1200	120
8109	BARKER	02/18/88	12:15	10.3	7.5	10.1	540	52	50			1400	140
8216	BARKER	03/17/88	9:00	13.7	7.6	10.2	639	22	60			1100	110
8251	BARKER	04/14/88	8:57	16.3	7.4	8.4	539					1300	130

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TFPC DATA REPORT (cont.)

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
8396	BARKER	05/19/88	10:05	24.3	7.9	5.6	673	21	60			1000	100
8419	BARKER	06/07/88	7:52	18.1	7.7	6.8	590	31	60			910	89
8452	BARKER	07/06/88	8:30	21.6	7.5	7.5	366	50	80			800	80
8574	BARKER	08/02/88	12:30	21.8	7.9	8.0	241	60	60			560	56
8694	BARKERNOBAY	09/15/88	8:18	17.9	7.3	8.5	274	30	50			540	53
8723	BARKERNOBAY	10/13/88	9:05	16.9	7.5	7.6	323	23	50			500	49
8761	BARKERNOBAY	11/17/88	9:36	12.4	7.4	9.0	298	19	35			450	44
8807	BARKERNOBAY	12/06/88	10:15	9.9	7.1	10.8	283	18	30			400	39
9075	BARKERNOBAY	01/17/89	9:50	8.2	7.3	11.5	381	16	35			620	61
9155	BARKERNOBAY	02/15/89	9:15	8.4	6.9	12.2	419	11	30			420	41
9230	BARKERNOBAY	03/14/89	9:27	15.0	7.7	9.1	609	12	35			700	68
9259	BARKERNOBAY	04/11/89	7:45	19.1	7.3	7.3	495	15	35			640	63
9355	BARKERNOBAY	05/09/89	8:50	19.5	7.5	8.2	477	21	40			580	57
9482	BARKERNOBAY	06/13/89	8:35	18.8	7.4	8.2	358	30	60			800	79
9556	BARKERNOBAY	07/11/89	8:55	20.9	7.3	7.8	289	35	70	4.0		560	55
9609	BARKERNOBAY	08/16/89	9:31	22.0	7.7	8.8	247	21	50	3.5			
9625	BARKERNOBAY	09/13/89	8:50	19.8	7.2	8.3	249	20	40	3.4		390	38
9645	BARKERNOBAY	10/12/89	9:54	19.0	7.0		322	54	70	5.3		660	65
9674	BARKERNOBAY	11/14/89	13:40	13.7	7.8	9.4	314	13	40			570	56
9696	BARKERNOBAY	12/12/89	11:35	10.9	7.8	10.5	315	12	25	3.8		500	49
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
900280	BARKERNOBAY	06/26/90	7:35	21.4	8.4	8.0	384	29	50		0.185	630	61
900391	BARKERNOBAY	07/25/90	14:25	24.8	7.4	9.6	313	30	25	4.3	0.137	520	49
900503	BARKERNOBAY	08/21/90	7:20	19.7		6.8	260	27	60	3.6	0.235	550	53
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
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
910062	BARKERNOBAY	01/28/91	7:50	7.8	8.6	9.4	341	12	30	3.2	0.092	380	37
910159	BARKERNOBAY	02/26/91	9:10	13.5	7.5	9.8	356	18	30	3.2	0.071	360	35
910255	BARKERNOBAY	03/25/91	9:40	11.8	7.4	8.8	463	15	250	7.9	0.298	1100	100
910379	BARKERNOBAY	05/21/91	8:15	18.2	7.9	7.1	506	18	40	5.7	0.173	740	72
910428	BARKERNOBAY	06/24/91	8:43	17.5	7.5	7.8	352	33	70	3.8	0.127	620	61
910646	BARKERNOBAY	08/21/91	13:35	21.0	7.1	7.1	290	26	80	4.0	0.127	450	44
910673	BARKERNOBAY	09/11/91	7:30	18.4	7.7		285	25	70	4.4	0.100	510	50
910812	BARKERNOBAY	10/23/91	12:57	16.7	6.9	7.7			50	3.3	0.094	330	33
910847	BARKERNOBAY	11/19/91	11:42	12.7	6.8	10.8	258	15	40	3.1	0.093	360	35
910885	BARKERNOBAY	12/09/91	11:30	9.5	7.2	11.4	265	14	35	3.2	0.085	370	37
8017	BOULDIN1	01/19/88	7:50	10.1	6.4	4.5	937	9	350			2900	280

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TFPC DATA REPORT (cont.)

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
8151	BOULDIN1	03/10/88	8:51	9.1	7.3		936	16	350			3000	300
8336	BOULDIN1	05/09/88	8:37	18.6	7.1	8.5	201	14	100	8.8		1100	110
8472	BOULDIN1	07/21/88	8:57	23.3	7.0	5.3	178	11	60	6.8		850	86
8598	BOULDIN1	08/10/88	11:18	23.1	7.2	7.3	186	14	60	5.9		740	74
8621	BOULDIN1	08/17/88	9:16	21.5	7.2	3.5	338	5	160	19.0		2100	210
8657	BOULDIN1	08/24/88	9:31	21.6	7.4	3.4	323	8	140	19.0		2100	210
8673	BOULDIN1	08/31/88	9:13	21.5	7.0	3.0			200	25.0		2100	210
8786	BOULDIN1	11/30/88	11:15	9.3	7.0	5.3	471	4	240	47.0		2800	280
8800	BOULDIN1	12/07/88	11:04	10.9	7.8	7.1	418	11	280	43.0		2700	270
8829	BOULDIN1	12/20/88	9:00	8.1	7.2	6.5	574	10	240	51.0		3300	320
8856	BOULDIN1	12/28/88	9:25	5.0	7.3	7.8	584	12	240	56.0		2700	270
9001	BOULDIN1	01/06/89	10:15	7.0	6.9	7.7	582	10	250	63.0		2600	260
9068	BOULDIN1	01/11/89	10:40	5.6		9.2	522	16	320	52.0		2900	280
9089	BOULDIN1	01/18/89	9:31	6.2	7.2	7.1	509	11	400	45.0		2300	230
9114	BOULDIN1	01/26/89	8:28	6.6	7.4	9.5	527	13	140	24.0		1600	150
9127	BOULDIN1	02/03/89	10:09	9.8	6.1	5.4	829	8	320	52.0		1600	150
9263	BOULDIN1	04/20/89	8:43	19.4	7.2	5.7	531	7	240	39.0		4400	440
9384	BOULDIN1	06/01/89	8:51	21.4	7.4	4.5	573			27.0		2600	260
9397	BOULDIN1	06/08/89	8:57	19.3	7.2	3.8	373	6	140	20.0		2100	210
9410	BOULDIN1	06/15/89	9:35	22.0	7.2	5.4	241	11	80	9.2		1000	100
9423	BOULDIN1	06/19/89	7:40	18.9	7.1	5.2	300	10	160	22.0		2600	260
9433	BOULDIN1	06/29/89	8:09	18.2	7.6	4.9	349	5	120	19.0		1400	140
9504	BOULDIN1	07/06/89	9:45	23.3	7.1	3.6	384	6	140	28.0		2400	240
9517	BOULDIN1	07/14/89	7:29	20.0	7.1	2.5	485	5	200	52.0		3100	300
9530	BOULDIN1	07/21/89	7:25	22.1	6.6	3.9	305	6	140	24.0		2300	230
9543	BOULDIN1	07/28/89	7:11	20.5	7.3	4.1	236	7	140	23.0		2400	240
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	290
910078	BOULDIN1	01/31/91	12:00	10.8	7.4	5.7	583	6	120	43.0	2.490	3300	330
910297	BOULDIN1	04/18/91	12:40	21.1	7.0	7.0	765	39	400	44.0	3.130	2800	270
910503	BOULDIN1	07/22/91	9:25	21.4	7.0	4.8	241	4	100	14.0	0.655	1700	170
910606	BOULDIN1	08/19/91	9:57	20.7	6.6		263	5	100	14.0	0.661	1500	150
910773	BOULDIN1	10/21/91	10:10	17.5	2.9	7.0	383	6	140	26.0	1.277	2900	290
8018	BOULDIN2	01/19/88	8:25	5.8	6.0	5.5	698	13	200			2800	280
8152	BOULDIN2	03/10/88	8:39	11.1	6.5		553	16	400			2800	280
8253	BOULDIN2	04/21/88	8:00	17.0	6.7	4.2	494	11	400				
8337	BOULDIN2	05/09/88	7:52	18.9	7.4	7.7	279	12	160	18.0		2300	230
8473	BOULDIN2	07/21/88	8:26	23.9	6.5	3.3	202	18	120	10.0		1100	110

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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
8599	BOULDIN2	08/10/88	10:44	21.2	7.1	5.5	218	8	140	14.0		1700	170
8622	BOULDIN2	08/17/88	9:44	22.7	6.8	5.0	440	7	320	39.0		2000	190
8658	BOULDIN2	08/25/88	9:55	22.6	7.3	4.2	350	5	280	32.0		3400	330
8674	BOULDIN2	08/31/88	9:36	22.7	7.3	2.5	312	10	240	25.0		2100	210
8787	BOULDIN2	11/30/88	11:52	9.9	7.2	3.2	467	8	280	27.0		2900	280
8801	BOULDIN2	12/07/88	11:41	11.9	7.4	5.0	412	7	320	56.0		2800	280
8830	BOULDIN2	12/20/88	8:30	8.6	6.7	3.8	597	7	240	56.0		2800	280
8857	BOULDIN2	12/28/88	10:30	7.7	7.3	4.6	745	10	400	85.0		2900	290
9002	BOULDIN2	01/06/89	11:00	7.3	6.9	5.7	769	10	280	70.0		2600	260
9069	BOULDIN2	01/11/89	11:06	6.0		8.2	624	14	400	62.0		3300	320
9090	BOULDIN2	01/18/89	10:17	8.3	6.9	4.3	707	12	400	63.0		2400	230
9115	BOULDIN2	01/26/89	9:36	8.1	6.6	7.2	425	20	200	31.0		1600	160
9128	BOULDIN2	02/03/89	10:42	10.0		5.9	632	8	240	45.0		1600	160
9264	BOULDIN2	04/20/89	8:21	18.9	7.5	9.6	333	5	160	22.0		1900	190
9385	BOULDIN2	06/01/89	9:18	22.4	7.1	4.7	466	13	240	33.0		4300	430
9398	BOULDIN2	06/08/89	9:23	21.0	6.7	5.1	270	22	240	28.0		2300	230
9411	BOULDIN2	06/15/89	10:15	23.2	6.5	4.9	256	14	240	32.0		2600	260
9424	BOULDIN2	06/19/89	6:51	19.3	6.6	5.3	258	11	280	37.0		3800	380
9434	BOULDIN2	06/29/89	7:47	18.2	7.2	5.7	296	12	160	19.0		3000	300
9505	BOULDIN2	07/06/89	9:00	22.6	7.4	3.9	197	22	160	21.0		2700	280
9518	BOULDIN2	07/14/89	6:52	20.4	7.1	6.9	182	16	160	17.0		2100	220
9531	BOULDIN2	07/21/89	8:02	22.8	6.4	6.4	218	10	160	21.0		2300	230
9544	BOULDIN2	07/28/89	7:50	20.8	7.4	5.3	195	13	200	27.0		2700	280
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
900199	BOULDIN2	04/23/90	12:40	18.3	6.2	4.3	257	11	240	31.0	1.560	2400	240
900317	BOULDIN2	06/28/90	9:15	20.9	6.8	5.8	266	16	160	22.0	0.925	1900	190
900383	BOULDIN2	07/24/90	13:03	24.5		1.8	308	10	150	46.0	1.801	3000	300
900377	BOULDIN2	07/24/90	13:03	24.5		1.8	309	10	160	46.0	1.795	3000	300
900495	BOULDIN2	08/20/90	13:54	26.0	8.7	5.8	177	9	75	8.0	0.395	1200	120
900761	BOULDIN2	10/22/90	11:45	18.0	7.1	4.1	391	7	250	52.0	2.448	4100	410
910079	BOULDIN2	01/31/91	12:20	10.3	7.3	4.3	544	8	160	55.0	3.180	1500	150
910298	BOULDIN2	04/18/91	12:00	19.0	7.3	9.7	545	12	350	46.0	2.180	2600	260
910504	BOULDIN2	07/22/91	9:53	22.4	6.5	6.1	242	10	160	18.0	0.957	2000	200
910607	BOULDIN2	08/19/91	10:15	20.9	6.4		225	9	160	18.0	0.930	1800	180
910774	BOULDIN2	10/21/91	10:30	18.5	6.8	3.2	263	7	120	8.5	0.409	700	69
8614	BOULDSIPH01	08/10/88	11:53	23.0	7.1	8.9	175	8	30	3.1		440	43
8630	BOULDSIPH01	08/17/88	8:54	22.3	7.4	5.5	179	15	60	2.8		330	33
8659	BOULDSIPH01	08/24/88	9:08	22.8	7.9	7.8	194	6	15	2.2		280	28
8675	BOULDSIPH01	09/01/88	8:50	22.7	7.0	7.0	199	11	40	2.9		310	31
8785	BOULDSIPH01	11/30/88	10:27	9.8	7.0	3.6	293	13	160	25.0		2200	220
8799	BOULDSIPH01	12/07/88	10:28	12.5	7.3	6.7	267	54	200	6.9		630	62
8828	BOULDSIPH01	12/20/88	8:00	10.5	6.4	6.3	263	104	160	3.5		350	35

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TFPC DATA REPORT (cont.)

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
8855	BOULDSIPH01	12/28/88	7:50	6.4	7.2	12.0	196	9	20	3.0		380	37
9067	BOULDSIPH01	01/11/89	10:16	7.7		8.0	292	102	210	3.6		430	42
9088	BOULDSIPH01	01/18/89	8:27	7.7	9.1	9.2	225	12	25	4.3		430	42
9113	BOULDSIPH01	01/26/89	7:40	7.2	7.0	6.4	330	140	160	4.0		220	20
9383	BOULDSIPH01	06/01/89	8:25	21.1	7.2	7.6	427	29	200	15.0		2100	210
9396	BOULDSIPH01	06/08/89	8:36	20.6	7.6	7.4	167	6	20	3.1		460	46
9409	BOULDSIPH01	06/15/89	9:00	22.1	7.5	7.5	187	11	40	3.4		430	43
9422	BOULDSIPH01	06/19/89	8:23	21.7	7.9	8.4	176	7	20	2.5		400	40
9503	BOULDSIPH01	07/06/89	10:15	23.5	7.4	8.7	147	11	20	2.0		300	29
9516	BOULDSIPH01	07/14/89	8:10	22.9	7.7	8.5	172	7	10	2.1		290	28
9532	BOULDSIPH01	07/21/89	6:24	22.5	7.1	8.7	132	7	15	2.3		340	34
9529	BOULDSIPH01	07/21/89	6:24	22.5	7.1	8.7	132	7	15	2.3		400	40
8019	BRANNANPP01	01/19/88	10:00	7.5	6.5	8.1	854	17	200			2700	270
8153	BRANNANPP01	03/10/88	8:11	10.2	6.8		538	28	160			1900	190
8254	BRANNANPP01	04/21/88	7:50	15.0	6.7	4.2	356	20	300				
8338	BRANNANPP01	05/09/88	7:19	20.2	7.1	4.2	378	14	240	20.0		2300	230
8474	BRANNANPP01	07/21/88	7:37	21.1	6.9	4.6	292	13	100			990	97
9003	BRANNANPP01	01/06/89	9:30	6.4	6.9	7.2	833	16	140	44.0		2200	210
9265	BRANNANPP01	04/20/89	7:49	19.4	7.2	5.0	582	12	200	29.0		3200	320
9435	BRANNANPP01	06/29/89	7:24	18.7	7.7	3.9	288	15	120	10.0		430	41
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	130
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	130
910060	BRANNANPP01	01/28/91	14:50	10.6	7.3	6.9	574	13	120	25.0	0.991	2800	280
910360	BRANNANPP01	04/25/91	7:00	12.5	6.8	7.9	596	22	200	28.0	1.140	2300	230
910764	BRANNANPP01	10/21/91	12:30	17.3	7.5	3.4	373	13	100	9.0	0.469	780	75
8020	BRANNANPP02	01/19/88	8:50	8.3	6.8	7.4	974	16	200			2100	210
8154	BRANNANPP02	03/10/88	7:24	12.8	6.7		643	90	60			1000	97
8255	BRANNANPP02	04/21/88	6:37	15.5	6.7	0.1	602	22	300				
8339	BRANNANPP02	05/09/88	6:17	17.1	6.8		585	17	280	30.0		1800	180
8475	BRANNANPP02	07/21/88	6:23	20.5	6.6	2.4	663	13	250			2200	220
9004	BRANNANPP02	01/06/89	9:10	7.5	6.7	2.3	773	74	200	18.0		1200	110
9266	BRANNANPP02	04/20/89	6:50	16.5	6.9	2.9	538	64	320	14.0		880	84
9436	BRANNANPP02	06/29/89	6:41	17.2	6.9	2.0	565	46	200	11.0		990	92
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

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TFPC DATA REPORT (cont.)

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
900751	BRANNANPP02	10/22/90	12:40	16.7	8.3	4.2	517	220	350	14.0	1.248	820	76
910059	BRANNANPP02	01/28/91	7:45	9.6	7.1	5.7	585	160	250	14.0	1.310	900	84
910359	BRANNANPP02	04/25/91	6:35	14.7	7.0	2.8	579	84	200	12.0	0.900	800	75
910763	BRANNANPP02	10/21/91	12:15	18.9	7.4	2.6			160	8.0	0.682	540	50
8021	BRANNANPP03	01/19/88	9:05	8.3	6.6	2.5	1000	32	200			1600	160
8155	BRANNANPP03	03/10/88	7:39	13.8	6.8		1380	150	40			440	39
8256	BRANNANPP03	04/21/88	7:00	16.0	6.5	0.0	1370	156	40				
8340	BRANNANPP03	05/09/88	6:38	17.8	6.8		1250	230	100	13.0		980	91
8476	BRANNANPP03	07/21/88	6:49	20.0	6.6	0.0	1010	31	600	16.0		1800	180
9005	BRANNANPP03	01/06/89	8:50	6.0	7.1	6.9	1080	16	200	51.0		2400	240
9267	BRANNANPP03	04/20/89	7:28	17.2	6.8	2.9	1540	350	160	15.0		200	16
9437	BRANNANPP03	06/29/89	7:05	17.3	6.9	3.9	941	87	200	10.0		1200	110
900003	BRANNANPP03	01/22/90	10:15	9.9	6.5	2.6	1130	81	320	17.0		1300	120
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
900372	BRANNANPP03	07/24/90	12:50	23.5	6.9	4.9	299	19	120	14.0	0.725	1600	160
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
910058	BRANNANPP03	01/28/91	14:30	10.7	7.3	6.6	941	12	125	30.0	1.200	1500	140
910358	BRANNANPP03	04/25/91	7:30	14.5	6.4	3.0	1310	40	80	12.0	0.349	580	52
910493	BRANNANPP03	07/22/91	12:30	23.4	7.1	10.1	403	3	50	8.1	0.326	1000	96
8022	BRANNANPP04	01/19/88	9:40	11.2	6.8	7.1	889	12	200			3100	310
8156	BRANNANPP04	03/10/88	7:54	11.9	7.3		1000	17	140			3000	300
8257	BRANNANPP04	04/21/88	7:24	15.5	6.7	6.0	662	24	120				
8341	BRANNANPP04	05/09/88	6:57	17.4	7.5	8.0	403	18	100	9.1		1300	130
8477	BRANNANPP04	07/21/88	7:15	20.7	6.6	3.9	579	15	140	17.0		1600	160
9006	BRANNANPP04	01/06/89	8:15	7.4	6.4	7.0	1260	7	160	47.0		2200	220
9268	BRANNANPP04	04/20/89	7:28	18.4	7.3	6.3	892	22	200	26.0		2900	280
9438	BRANNANPP04	06/29/89	7:05	16.7	7.4	6.5	414	22	120	9.1		1600	150
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	260
900187	BRANNANPP04	04/23/90	14:40	18.5	7.3	4.8	736	15	120	19.0	0.930	2100	200
900283	BRANNANPP04	06/26/90	10:50	22.4	7.5	6.2	528	21	120	23.0	0.696	1500	150
900371	BRANNANPP04	07/24/90	12:30	23.5	7.2	5.3	456	15	200	29.0	1.514	3100	310
900483	BRANNANPP04	08/20/90	11:50	23.2		4.9	366	15	100	15.0	0.780	2000	200
900749	BRANNANPP04	10/22/90	12:05	18.1	9.2	1.3	636	7	60	12.0	0.652	1500	150
910057	BRANNANPP04	01/28/91	14:05	11.0	7.3	6.2	1310	11	175	32.0	1.410	1700	160
910357	BRANNANPP04	04/25/91	7:50	13.3	7.0	8.3	1190	28	300	29.0	1.340	3300	320
910492	BRANNANPP04	07/22/91	12:10	24.1	6.9	9.4	378	16	80	8.7	0.398	1100	100
910761	BRANNANPP04	10/21/91	11:50	19.3	7.5	4.9	962	48	250	24.0	1.154	2700	260
8527	CHECK 12	07/12/88	15:35	24.3	7.7	11.6	553					500	43
8528	CHECK 13	07/12/88	14:45	20.5	8.1	9.8	604					580	50

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TFPC DATA REPORT (cont.)

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
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
910050	CHECK 13	01/15/91	10:40	9.4	6.7	10.7	799	4		5.0	0.164	740	64
910168	CHECK 13	02/27/91	10:05	14.1	8.2	10.0	824	4	20	4.6	0.149	800	68
910264	CHECK 13	03/26/91	12:05	12.8	7.8	10.1	682	8	40	5.2	0.162	890	79
910347	CHECK 13	04/24/91	9:30	15.4	8.7	9.2	391	14	40	5.9	0.219	740	71
910388	CHECK 13	05/21/91	9:05	17.0	7.8	9.8	639	7	20	4.4	0.139	700	62
910435	CHECK 13	06/25/91	10:40	18.3	8.1	8.7	695	4	20	4.7	0.129	700	60
910507	CHECK 13	07/23/91	8:57	21.5	8.4	8.2	699	3	20	4.5	0.122	810	69
910611	CHECK 13	08/20/91	7:40	21.3	8.3	8.0	637	4	20	3.8	0.096	550	46
8013	CLIFTON	01/07/88	10:36	7.3	7.3	12.0	588	13	25			690	62
8093	CLIFTON	02/10/88	9:25	11.2	7.1	9.8	364	12	40			800	78
8148	CLIFTON	03/15/88	10:20	13.6	7.5	10.7	574	6	20			520	45
8237	CLIFTON	04/05/88	8:30	16.4	7.5	9.4	672	6	20			430	38
8332	CLIFTON	05/03/88	9:25	17.7	7.7	8.8	337	15	35			600	57
8424	CLIFTON	06/14/88	9:39	22.9	7.5	6.9	416	25	60			520	48
8459	CLIFTON	07/12/88	9:23	23.0	7.5		560	19	30			590	53
8581	CLIFTON	08/09/88	11:30	23.8	7.6	7.4	616	12	20			450	38
8684	CLIFTON	09/06/88	9:15	24.6	7.6	7.2	713	10	20			470	39
8716	CLIFTON	10/04/88	9:36	20.8	7.8	7.9	617	7	20			400	34
8746	CLIFTON	11/01/88	10:34	17.5	7.6	8.3	844	11	20			400	31
8815	CLIFTON	12/13/88	10:45	11.5	7.1	10.6	726	12	30			940	81
9056	CLIFTON	01/10/89	10:45	8.7	7.0	11.5	655	9	30			540	47
9134	CLIFTON	02/07/89	9:50	6.6	6.9	10.8	827	8	30			530	42
9215	CLIFTON	03/07/89	9:30	13.5	7.2	9.8	503	7	25			390	34
9250	CLIFTON	04/04/89	9:10	16.3	7.7	8.0	231	12	40			550	54
9348	CLIFTON	05/02/89	9:20	19.2	8.0	8.6	238	8	25			430	42
9430	CLIFTON	06/06/89	9:30	22.0	7.8	8.1	266	19	40			540	52
9550	CLIFTON	07/05/89	12:30	24.8	7.7	7.6	333	20	40	2.6		390	37
9639	CLIFTON	10/02/89	7:57	19.4	7.7	10.5	405	12	25	3.7		430	39
9665	CLIFTON	11/07/89	10:20	15.9	7.7	8.4	469	5	15	2.7		440	39
9687	CLIFTON	12/05/89	10:06	12.2	7.7		565	4	10	3.2		570	49
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

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TFPC DATA REPORT (cont.)

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
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
910085	CLIFTON	01/31/91	11:00	9.5	7.5	9.1	731	5	35	5.4	0.202	750	66
910170	CLIFTON	02/27/91	12:25	14.4	7.7	9.3	840	5	30	4.9	0.167	800	67
910266	CLIFTON	03/26/91	15:00	11.9	7.8	10.1	548	13	50	5.7	0.190	880	81
910349	CLIFTON	04/24/91	11:20	16.3	8.0	8.7	792	17	35	5.4	0.169	710	64
910390	CLIFTON	05/21/91	11:45	20.9	7.7	8.8	527	12	35	4.1	0.131	650	60
910437	CLIFTON	06/25/91	13:15	21.0	7.9	7.9	607	10	35	3.8	0.128	590	51
910515	CLIFTON	07/23/91	15:50	27.0	6.8		528	16	35	3.4	0.105	550	48
910683	CLIFTON	09/10/91	9:05	21.7	8.1	6.6	469	9	35	3.3	0.093	490	42
910856	CLIFTON	11/21/91	11:45	13.8	7.8	9.8	688	4	25	3.4	0.100	500	40
910894	CLIFTON	12/11/91	9:50	9.1	7.1	11.7	810	3	15	4.2	0.100	480	38
8023	COLUSA	01/20/88	11:50	7.6	7.5	10.5	568	144	35			940	93
8158	COLUSA	03/11/88	11:12	12.9	7.5		799	56	15			400	38
8259	COLUSA	04/22/88	11:35	16.0	7.9	8.8	330	78	60				
8343	COLUSA	05/09/88	11:23	21.7	8.0	7.1	402	68	40	4.6		510	49
8479	COLUSA	07/22/88	12:36	29.5	7.9	7.8	554	42	60	4.6		530	52
9008	COLUSA	01/09/89	11:36	7.6		12.2	948	24	40	5.5		650	62
9270	COLUSA	04/21/89	10:19	21.1	8.2	8.1	531	63	40			580	57
9440	COLUSA	06/30/89	12:45	23.8	6.7	7.3	717	36	25	5.9		910	88
900695	CONCOSPP1	10/01/90	10:10	18.6	7.3	7.8	625	8		2.7	0.078	490	39
910382	CONCOSPP1	05/21/91	11:40	19.9	8.2	7.9	537	16	35	4.1	0.120	660	60
910430	CONCOSPP1	06/24/91	10:20	21.2	7.8	7.6	705	14	30	3.2	0.094	500	39
910648	CONCOSPP1	08/21/91	11:35	24.0	7.9	7.4	699	10	30	4.2	0.073	450	36
910675	CONCOSPP1	09/11/91	9:50	21.4	8.2		782	15	35	2.9	0.072	490	39
910814	CONCOSPP1	10/23/91	10:43	17.7	7.1	7.6	585	8	20	2.3	0.062	380	31
910849	CONCOSPP1	11/19/91	10:01	12.2	7.0	12.3	836	3	15	2.9	0.085	490	37
910887	CONCOSPP1	12/09/91	10:10	9.6	8.5	12.3	988	3	20	3.5	0.090	490	36
9571	CONNMAND	07/25/89	7:22	23.8			200	9				430	41
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
910110	CONNMAND	01/29/91	11:50	8.4	7.7	10.2	541	4	30	5.2	0.198	580	51
910545	CONNMAND	07/24/91	7:43	22.7	7.6	8.4	429	6	25	2.9	0.086	330	28
910657	CONNMAND	08/21/91	6:10	22.0	7.2		369	6	25	2.7	0.087	360	32
910823	CONNMAND	10/23/91	7:30	19.2	7.7	7.4	343	7	20	2.3	0.068	340	30
9593	DELTACRCHAN	07/25/89	6:46	20.3	7.7	9.3	120	9				310	31
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

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TFPC DATA REPORT (cont.)

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
900811	DELTACRCHAN	10/24/90	12:05	19.6	7.6	8.3	162	3	10	1.7	0.039	200	19
910104	DELTACRCHAN	01/29/91	11:45	10.2	7.3	11.5	185	5	5	1.6	0.035	170	17
910326	DELTACRCHAN	04/23/91	9:25	16.6	8.6	8.5	225	12	5	2.3	0.056	320	32
910531	DELTACRCHAN	07/24/91	6:30	21.5	7.4	7.0	154	6	15	2.2	0.043	150	15
910643	DELTACRCHAN	08/21/91	6:27	20.3	7.2	7.8	164	6	20	1.8	0.055	160	16
910809	DELTACRCHAN	10/23/91	6:39	17.3	7.2	7.1	150	6	15	2.2	0.042	210	21
8558	DISAPPHONKER	07/20/88	12:45	26.5	7.4	6.8	200	10	20	2.1		400	39
8012	DMC	01/07/88	10:05	7.6	7.1	12.0	488	13	35			620	58
8092	DMC	02/10/88	8:55	11.1	7.2	9.5	376	14	40			780	77
8147	DMC	03/03/88	9:45	13.3	7.4	10.5	575	8	20			510	47
8236	DMC	04/05/88	8:10	15.0	7.5	9.6	635	8	15			420	36
8331	DMC	05/03/88	8:57	17.4	7.7	9.0	344	16	30			530	49
8423	DMC	06/14/88	8:56	22.3	7.5	6.8	441	28	40			450	41
8458	DMC	07/12/88	8:55	23.0	7.6	7.8	571	15	30			470	37
8580	DMC	08/09/88	10:50	23.2	7.7	7.9	710	25	25			410	34
8683	DMC	09/06/88	8:45	24.7	7.7	6.9	814	28	25			560	47
8715	DMC	10/04/88	8:59	19.7	7.4	7.6	783	13	25			520	45
8745	DMC	11/01/88	10:11	17.0	7.4	8.2	883	18	20			250	22
8814	DMC	12/13/88	10:22	11.4	7.1	10.6	675	11	30			730	62
9055	DMC	01/10/89	9:55	13.0	7.0	11.2	563	8	35			600	55
9133	DMC	02/07/89	9:30	6.4	6.9	11.9	662	7	25			400	34
9214	DMC	03/07/89	9:10	13.2	7.3	9.9	567	8	25			480	42
9249	DMC	04/04/89	8:46	16.2	8.0	7.8	313	12				660	64
9347	DMC	05/02/89	8:55	18.9	7.5	8.5	265	12	30			450	44
9429	DMC	06/06/89	9:10	21.8	8.0	7.9	270	20	40			530	52
9549	DMC	07/05/89	10:42	23.4	7.8	7.7	276	20	40	3.3		400	38
9586	DMC	07/25/89	8:30	24.8	7.3	8.1	540	23				580	51
9618	DMC	09/06/89	9:02	21.7	7.3	8.4	338	13	25	2.9		500	46
9638	DMC	10/02/89	8:14	19.2	7.9	10.2	364	13	25	3.9		440	41
9664	DMC	11/07/89	9:50	15.3	7.6	8.8	488	12	20	2.6		470	42
9686	DMC	12/05/89	9:39	11.6	7.7		689	7	15	3.0		570	48
900038	DMC	01/24/90	9:53	8.5	7.6	9.7	787	10	25	4.4		540	46
900098	DMC	02/21/90	9:57	9.4	7.3	11.9	872	10	25	3.7		470	42
900153	DMC	03/20/90	11:35	15.6	7.8	10.6	358	8	25	4.2	0.108	440	41
900219	DMC	04/25/90	8:38	17.6	6.8	9.1	467	9	30	2.5	0.077	390	33
900260	DMC	05/23/90	11:00	18.5	8.1	8.2	577	13	30	3.1	0.091		
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
900457	DMC	08/06/90	10:00	26.1	7.8	6.1	473	13		2.9	0.100	760	67
900549	DMC	08/13/90	9:35	25.9	7.7	5.3	770	14		3.3	0.093	570	49

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TFPC DATA REPORT (cont.)

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
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
900916	DMC	12/11/90	13:15	11.0	7.5	8.5	781	6	15	3.7	0.126	630	53
910003	DMC	01/02/91	13:05	7.0	7.5	11.2	785	6		5.6	0.167	750	64
910031	DMC	01/15/91	12:35	9.8	6.8	10.0	696	6		5.4	0.180	860	76
910090	DMC	01/29/91	13:50	11.4		11.1	911	8	25	4.4	0.141	630	53
910142	DMC	02/13/91	10:20	12.6	7.6	9.7	792	8		4.9	0.170	700	59
910171	DMC	02/27/91	13:10	14.4	7.7	9.2	894	8	35	4.7	0.153	750	62
910198	DMC	03/11/91	10:10	13.7	7.5	8.2	1150	11		5.2	0.141	690	59
910267	DMC	03/26/91	15:35	11.9	7.8	10.0	509	14	60	5.6	0.196	880	81
910284	DMC	04/09/91	10:55	16.6	7.3	8.4	762	18		7.1	0.189	1000	96
910312	DMC	04/23/91	9:00	16.1	7.1	9.2	476	17	40	5.4	0.174	740	71
910391	DMC	05/21/91	12:30	20.5	7.4	8.6	461	15	30	4.4	0.134	540	50
910407	DMC	06/11/91	10:20	25.6	7.4	6.8	576	11		4.1	0.120	510	45
910438	DMC	06/25/91	13:45	20.8	7.7	8.0	633	14	35	3.7	0.133	590	50
910468	DMC	07/08/91	8:45	24.3	7.3	7.8	555	10		3.5	0.100	520	45
910519	DMC	07/24/91	8:23	23.4	7.1	7.8	521	10	25	3.2	0.104	520	45
910559	DMC	08/05/91	9:05	22.0		7.8	572	18	50	5.4	0.121	660	59
910634	DMC	08/21/91	7:45	21.6		7.5	460	11	35	3.0	0.100	440	38
910684	DMC	09/10/91	9:30	21.4	7.8	6.4	451	11	35	3.5	0.100	480	42
910703	DMC	09/24/91	8:10	22.5	7.5	7.3	570	11		4.5	0.073	430	35
910733	DMC	10/08/91	7:50	21.1	8.1	7.3	509	13		2.8	0.082	440	37
910800	DMC	10/23/91	8:15	18.2	7.5	7.9	465	7	25	2.5	0.075	310	27
910857	DMC	11/21/91	10:50	13.7	7.8	9.6	654	6	30	3.5	0.104	480	40
910895	DMC	12/11/91	10:20	9.3	7.0	12.0	862	7	25	3.0	0.070	370	30
8024	EGBERTPP01	01/20/88	9:10	6.3	7.1	9.3	968	56	100			2100	210
8159	EGBERTPP01	03/11/88	8:38	6.1	7.3		1080	46	120			2400	240
8260	EGBERTPP01	04/22/88	8:30	14.0	7.1	6.5	337	66	50				
8344	EGBERTPP01	05/09/88	8:30	15.5	7.4	3.2	903	52	160	32.0		3400	340
8480	EGBERTPP01	07/22/88	8:34	21.5	7.0	6.6	297	60	100	8.2		930	93
9009	EGBERTPP01	01/09/89	9:00	8.0		11.8	547	35	100	9.8		890	88
9271	EGBERTPP01	04/21/89	7:53	17.2	7.4	5.7	524	69	80			1400	140

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TFPC DATA REPORT (cont.)

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
9441	EGBERTPP01	06/30/89	7:45	19.9	6.6	5.5	253	90	30	5.0		390	39
8025	EGBERTPP02	01/20/88	9:50	7.0	7.2	9.0	1350	64	60			1300	130
8160	EGBERTPP02	03/11/88	9:04	8.5	8.1		1820	26	160			3800	380
8261	EGBERTPP02	04/22/88	9:07	16.0	8.1	9.5	875	93	140				
8345	EGBERTPP02	05/09/88	8:55	17.1	8.2	4.5	1140	25	280	54.0		5000	510
8481	EGBERTPP02	07/22/88	9:01	22.9	7.0	3.7	484	62	120			1400	140
9010	EGBERTPP02	01/09/89	9:20	7.2		9.5	951	87	140	48.0		2400	240
9272	EGBERTPP02	04/21/89	8:15	16.2	7.7	11.1	1550	21	140	45.0		5100	500
9470	EGBERTPP02	06/30/89	8:15	19.6	6.4	7.4	378	38	20	4.3		930	92
9442	EGBERTPP02	06/30/89	8:15	19.6	6.4	7.4	379	38	15	4.1		400	39
900334	FALSETIP-WEBB	07/10/90	7:35	22.3	8.1	7.6	610	9		2.5	0.071		
900354	FALSETIP-WEBB	07/17/90	8:25	22.9	8.3	7.4	450	9		2.4	0.063	540	45
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
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
910009	FALSETIP-WEBB	01/02/91	10:35	5.4	7.8	11.4	1160	4		3.3	0.095	730	52
910037	FALSETIP-WEBB	01/16/91	9:50	7.3	7.5	11.9	1090	3		3.4	0.103	740	55
910108	FALSETIP-WEBB	01/29/91	11:05	8.5	7.8	10.9	1130	5	25	3.7	0.123	630	46
910128	FALSETIP-WEBB	02/14/91	9:50	11.5	7.7	9.6	1280	4		3.6	0.118	600	43
910174	FALSETIP-WEBB	02/25/91	9:25	12.8	7.9	9.9	1320	4		3.8	0.123	730	52
910204	FALSETIP-WEBB	03/12/91	9:30	11.9	8.1	9.3	1060	10		4.6	0.132	830	63
910240	FALSETIP-WEBB	03/26/91	11:25	12.4	7.8	10.2	471	14		5.8	0.203	770	71
910270	FALSETIP-WEBB	04/09/91	11:25	15.5	7.8	8.4	320	17		5.2	0.197	710	68
910330	FALSETIP-WEBB	05/22/91	8:48	17.8	7.9	9.6	752	12	25	3.0	0.091	470	37
910413	FALSETIP-WEBB	06/13/91	7:30	20.9	8.2		1150	11		3.1	0.075	560	40
910444	FALSETIP-WEBB	06/26/91	7:25	19.7	8.2	7.6	783	12		2.7	0.071	430	32
910474	FALSETIP-WEBB	07/10/91	7:15	21.0	7.8	7.9	715	10		2.6	0.080	450	35
910543	FALSETIP-WEBB	07/24/91	7:14	21.0	7.6	8.6	710	11	30	3.4	0.079	310	24

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TFPC DATA REPORT (cont.)

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
910565	FALSETIP-WEBB	08/07/91	7:10	21.3		7.9	594	10	25	2.4	0.095	440	34
910655	FALSETIP-WEBB	08/21/91	7:00	19.5	7.4		516	11	30	2.3	0.073	330	26
910689	FALSETIP-WEBB	09/12/91	7:45	20.0	7.5	7.9	1260	14		2.4	0.061	550	38
910709	FALSETIP-WEBB	09/26/91	6:55	19.8	7.7	8.5	950	10		2.6	0.063	390	28
910740	FALSETIP-WEBB	10/10/91	7:00	20.3	7.8	7.9	802	9		2.2	0.053	350	26
910821	FALSETIP-WEBB	10/23/91	7:00	18.4	7.7	8.1	1210	5	20	2.1	0.058	370	25
910900	FALSETIP-WEBB	12/19/91	8:10	7.5	7.3	10.0	1280	3	20	3.2	0.094	490	34
9594	GEORGSLWALNUT	07/25/89	7:03	20.4	7.5	9.3	120	10				340	34
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
900810	GEORGSLWALNUT	10/24/90	10:45	17.9	7.6	8.6	156	3	10	1.6	0.040	200	19
910103	GEORGSLWALNUT	01/29/91	11:30	10.4	7.4	11.5	184	4	5	1.6	0.035	180	18
910325	GEORGSLWALNUT	04/23/91	9:15	16.9	7.6	8.3	227	11	5	2.5	0.058	320	32
910532	GEORGSLWALNUT	07/24/91	6:49	21.6	8.2	7.0	156	6	15	2.0	0.042	160	16
910644	GEORGSLWALNUT	08/21/91	7:00	19.7	7.2	7.3	175	7	15	1.8	0.038	150	15
910810	GEORGSLWALNUT	10/23/91	7:02	17.4	7.0	7.4	147	6	15	1.9	0.041	200	20
9584	GRANTLNCAN	07/25/89	7:20	24.5	6.6	7.9	800	31				580	48
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
910092	GRANTLNCAN	01/29/91	11:05	12.7	7.0	10.7	1240	12	15	2.7	0.054	390	31
910314	GRANTLNCAN	04/23/91	10:15	17.4	9.2	10.0	1360	22	30	4.2	0.121	710	56
910521	GRANTLNCAN	07/24/91	9:27	24.0	7.7	7.4	974	23	50	3.9	0.103	490	40
910636	GRANTLNCAN	08/21/91	9:03	23.7		7.1	1000	19	50	4.1	0.105	600	49
910802	GRANTLNCAN	10/23/91	9:28	18.8	7.7	5.7	997	14	35	3.0	0.142	440	36
9579	GRANTOLD	07/25/89	10:07	25.4			800	20				620	53
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

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TFPC DATA REPORT (cont.)

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
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
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
910019	GRANTOLD	01/02/91	13:15	5.4	7.9	13.0	1100	6		2.6	0.070	370	29
910047	GRANTOLD	01/16/91	12:20	10.6	8.3	9.9	1150	9		2.6	0.057	360	29
910120	GRANTOLD	01/29/91	14:35	8.5	7.6	10.6	700	6	30	5.6	0.196	640	55
910138	GRANTOLD	02/14/91	12:10	13.9	7.4	8.0	1080	12		3.6	0.087	430	35
910184	GRANTOLD	02/25/91	12:15	13.8	7.7	9.1	840	8		4.9	0.169	670	55
910214	GRANTOLD	03/12/91	12:10	13.5	8.2	8.0	1210	10		5.3	0.128	630	53
910250	GRANTOLD	03/26/91	14:08	13.3	7.6	8.1	698	31		10.0	0.329	1300	120
910280	GRANTOLD	04/09/91	14:17	16.1	7.7	7.5	666	16		6.6	0.209	1200	110
910342	GRANTOLD	05/22/91	12:08	19.4	7.4	8.8	479	15	30	4.1	0.135	540	49
910423	GRANTOLD	06/13/91	9:48	22.6	7.0		575	14		4.0	0.124	620	53
910454	GRANTOLD	06/26/91	9:40	21.0	7.8	7.8	636	14		3.8	0.126	650	55
910484	GRANTOLD	07/10/91	9:25	24.1	7.6	6.3	564	19		3.6	0.119	600	52
910555	GRANTOLD	07/24/91	9:41	24.4	7.5	7.3	511	17	35	3.3	0.106	390	34
910575	GRANTOLD	08/07/91	9:20	22.8		7.1	536	17	40	3.4	0.115	550	47
910667	GRANTOLD	08/21/91	9:50	23.5	7.5		840	20	40	4.0	0.104	600	50
910699	GRANTOLD	09/12/91	9:55	22.4	7.2	6.5	423	11		3.1	0.108	420	37
910719	GRANTOLD	09/26/91	9:15	22.0	7.6	7.8	457	7		2.9	0.097	440	38
910750	GRANTOLD	10/10/91	9:05	21.7	7.6	6.7	430	9		2.9	0.079	390	35
910833	GRANTOLD	10/23/91	9:55	19.4	7.8	7.0	463	8	25	2.6	0.091	400	36
910910	GRANTOLD	12/19/91	10:40	7.7	7.6	9.9	909	4		3.5	0.091	360	29
8001	GREENES	01/06/88	7:45	8.6	7.3	10.5	172	44	35			390	39
8108	GREENES	02/18/88	6:30	10.5	7.4	10.5	224	7	10			270	26
8213	GREENES	03/17/88	6:50	13.4	7.2	10.3	219	7	10			270	26
8249	GREENES	04/14/88	6:23	14.6	7.2	9.4	146					110	10
8394	GREENES	05/19/88	5:50	18.1	7.7	7.9	196	6	10			230	22
8416	GREENES	06/07/88	5:30	18.0	7.1	8.5	211	8	15			280	27
8448	GREENES	07/06/88	6:08	20.8	7.3	7.5	142	10	10			210	21
8570	GREENES	08/02/88	7:00	21.5	7.2	7.3	159	7	10			180	18
8690	GREENES	09/15/88	6:25	20.0	7.3	7.6	226	9	15			330	32
8719	GREENES	10/13/88	6:00	18.2	7.3	7.1	154	5	10			140	14
8757	GREENES	11/17/88	7:29	12.2	8.3	9.1	203	6	10			230	22
8803	GREENES	12/06/88	7:00	10.6	7.0	10.5	198	8	10			270	26
9071	GREENES	01/17/89	7:15	8.6	7.1	11.9	207	12	25			340	33
9151	GREENES	02/15/89	6:45	8.7	6.5	11.7	186	5	5			190	19

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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
9226	GREENES	03/14/89	7:26	12.7	6.4	9.0	114	70	80			730	73
9255	GREENES	04/11/89	5:30	17.0	6.8	8.5	170	10	15			250	25
9351	GREENES	05/09/89	5:50	19.6	7.6	7.8	148	5	10			180	18
9478	GREENES	06/13/89	6:00	19.9	7.1	8.4	167	7	10			310	30
9553	GREENES	07/11/89	6:05	22.0	7.0	8.5	144	8	10	1.9		200	20
9592	GREENES	07/25/89	6:18	20.5	8.3	9.3	110	9					20
9622	GREENES	09/13/89	5:55	20.1	7.2	9.1	167	11	15	2.0		190	18
9642	GREENES	10/12/89	6:13	18.7	7.2	12.8	169	7	5	2.2		220	22
9671	GREENES	11/14/89	8:05	12.8	7.4	9.6	153	7	5	1.7		210	20
9693	GREENES	12/12/89	9:00	9.9	7.1	11.4	142	6	5	1.8		200	20
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
900856	GREENES	11/13/90	10:05	14.0	8.1	7.2	179	3	5	2.0	0.047	210	21
900925	GREENES	12/11/90	13:40	10.8	8.5	9.3	161	4	5	2.2	0.056	250	25
910049	GREENES	01/15/91	12:10	10.8	8.3	11.4	190	4		1.7	0.051	220	22
910105	GREENES	01/29/91	12:10	9.3	7.1	11.4	186	3	5	1.6	0.036	170	17
910164	GREENES	02/26/91	15:50	17.1	7.3	9.3	211	5		2.0	0.037	210	20
910260	GREENES	03/25/91	16:00	12.8	7.2	9.5	224	36	120	5.6	0.179	820	81
910327	GREENES	04/23/91	9:50	16.7	8.1	8.3	247	8	5	2.6	0.061	300	30
910399	GREENES	05/21/91	15:30	19.9	7.6	7.8	188	11	10	1.9	0.053	230	23
910431	GREENES	06/24/91	11:55	21.4	7.1	7.4	168	9	10	1.9	0.037	180	18
910530	GREENES	07/24/91	5:40	22.0	7.5	7.2	143	8	15	1.7	0.044	160	16
910642	GREENES	08/21/91	5:45	21.5	7.4	7.5	182	6	15	1.8	0.035	160	16
910676	GREENES	09/11/91	10:50	21.7	7.7		188	7	15	2.0	0.016	200	19
910737	GREENES	10/08/91	11:05	22.1	8.0	7.9	132	6		1.8	0.044	200	20
910808	GREENES	10/23/91	6:06	16.0	6.7	7.7	169	4	15	2.2	0.043	220	21
910850	GREENES	11/19/91	7:48	11.5	6.9	10.9	177	4	10	2.1	0.043	180	18
910888	GREENES	12/09/91	7:40	9.1	7.8	10.1	170	4	10	2.4	0.049	210	21
900028	HOLLAND01	01/23/90	11:43	9.0	7.4	7.3	1600	3	100	19.0		2400	210
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	190
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	180
900482	HOLLAND01	08/20/90	9:30	23.3		4.9	810	7	75	15.0	0.657	2500	240

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TFPC DATA REPORT (cont.)

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
900748	HOLLAND01	10/22/90	10:55	17.0	7.9	2.5	1150	3	120	7.8	0.765	2400	230
910056	HOLLAND01	01/28/91	13:00	10.0	7.2	5.4	2030	16	200	33.0	1.320	1400	130
910356	HOLLAND01	04/25/91	12:35	17.0	6.8	11.2	979	12	250	32.0	0.968	2700	270
910491	HOLLAND01	07/22/91	10:35	24.5	6.9	3.9	878		280	23.0	1.112	2400	240
910593	HOLLAND01	08/19/91	8:55	20.1	7.4	3.7	1000	5	120	15.0	0.654	1600	150
910760	HOLLAND01	10/21/91	10:30	17.6	7.3	1.7	757	19	160	20.0	1.010	1900	180
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	200
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	170
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
910055	HOLLAND02	01/28/91	12:30	9.4	7.1	6.1	1940	6	200	37.0	1.550	3800	370
910355	HOLLAND02	04/25/91	12:45	16.0	6.5	7.4	915	11	200	24.0	1.130	2800	270
910490	HOLLAND02	07/22/91	10:15	23.5	7.1	6.9	982	11	140	18.0	0.750	2000	200
910592	HOLLAND02	08/19/91	9:20	22.5	7.6	5.0	1100	3	120	18.0	0.761	2100	200
910759	HOLLAND02	10/21/91	10:20	17.6	7.3	2.9	882	13	80	13.0	0.569	1700	160
900030	HOLLAND03	01/23/90	10:31	11.0	7.0	3.0	991	25	140	14.0		1600	150
900136	HOLLAND03	02/23/90	11:30	12.0	6.7	10.0	2000	8	100	22.0		2400	220
900184	HOLLAND03	04/23/90	9:35	17.5	7.4	6.0	1090	7	200	29.0	1.460	3000	290
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
910054	HOLLAND03	01/28/91	12:00	11.0	7.2	3.4	1180	15	200	24.0	1.160	1500	140
910354	HOLLAND03	04/25/91	13:20	16.3	7.2	7.3	1110	8	150	17.0	0.707	2000	190
910489	HOLLAND03	07/22/91	9:43	21.5	7.3	4.2	1310	21	160	20.0	0.917	2400	230
910591	HOLLAND03	08/19/91	9:40	23.1	7.0	1.5	881			23.0	1.140	2300	230
910758	HOLLAND03	10/21/91	9:50	17.7	7.4	4.1	922	23	140	9.6	0.623	900	81
9598	HONKER	07/25/89	8:59	23.8	7.4	8.6	160	7				400	39
900047	HONKER	01/24/90	6:50	7.2	7.1		197	12	50	4.9		630	62
900228	HONKER	04/25/90	7:45	17.2	6.2	9.2	161	4	5	2.0	0.054	260	26
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
910099	HONKER	01/29/91	9:10	8.6	7.0	11.1	254	5	25	6.2	0.153	430	42
910321	HONKER	04/23/91	7:45	16.0	8.9	9.0	234	7	10	3.4	0.088	420	42
910539	HONKER	07/24/91	7:40	22.4	7.3	6.7	173	7	20	2.8	0.082	260	26
910651	HONKER	08/21/91	9:00	21.8	7.8	8.4	184	7	25	2.6	0.074	300	29
910817	HONKER	10/23/91	8:50	17.6	7.1	6.9	144	4	15	2.2	0.051	280	27
8027	KINGISPP01	01/14/88	9:20	10.7	7.3	5.1	673	13	35			1000	99
8162	KINGISPP01	03/09/88	10:18	13.3	7.1		420	17	40			900	88

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TFPC DATA REPORT (cont.)

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
8263	KINGISPP01	04/20/88	7:33	60.0	14.6	7.1	390	7	60				
8348	KINGISPP01	05/09/88	7:52	18.8	7.5	4.7	403	9	80	9.6		1200	120
8484	KINGISPP01	07/20/88	7:09	20.5	7.4	3.1	439	7	100	8.9		990	98
9138	KINGISPP01	02/06/89	9:15	5.9	8.6	8.2	456	12	60	9.9		480	47
9275	KINGISPP01	04/19/89	7:58	17.5	7.1	3.4	692	21	120	13.0		1300	120
9445	KINGISPP01	06/28/89	7:40	17.1	7.3	2.6	392	14	50	6.4		940	92
900013	KINGISPP01	01/22/90	10:00	9.9	7.3	2.9	409	9	50	7.0		920	89
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
910075	KINGISPP01	01/31/91	10:15	11.5	7.6	4.5	352	10	50	5.4	0.211	480	47
910294	KINGISPP01	04/18/91	10:15	16.9	7.4	4.5	378	6	50	7.1	0.271	980	97
910602	KINGISPP01	08/19/91	8:20	17.7	6.7		359	8	50	5.8	0.248	710	70
910769	KINGISPP01	10/21/91	7:55	16.0	7.5	3.3	373	12	60	6.4	0.279	590	58
8028	KINGISPP02	01/14/88	10:00	8.7	7.0	6.2	508		50			1500	150
8163	KINGISPP02	03/09/88	10:59	13.9	7.2		572	45	100			1400	140
8264	KINGISPP02	04/20/88	8:18	14.0	7.1	3.5	506	10	80				
8349	KINGISPP02	05/09/88	8:29	20.6	7.9	5.8	496	16	100	11.0		1500	140
8485	KINGISPP02	07/20/88	7:57	23.0	7.1	2.3	652	6	140	21.0		2000	200
9014	KINGISPP02	01/05/89	9:30	8.3	7.5	7.2	606	78	140	13.0			
9139	KINGISPP02	02/06/89	9:50	2.0	8.0	7.5	544	210	100	6.2		650	64
9276	KINGISPP02	04/19/89	8:18	17.6	7.5	3.1	538	18	70	12.0		1500	140
9446	KINGISPP02	06/28/89	8:08	16.7	7.1	2.7	477	96	80	11.0		1500	150
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	110
900194	KINGISPP02	04/23/90	9:10	17.2	7.1	4.4	473	5	60	9.7	0.439	1100	100
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	210
910074	KINGISPP02	01/31/91	9:45	9.4	7.6	8.5	509	17	60	7.5	0.292	1200	120
910293	KINGISPP02	04/18/91	9:40	17.0	7.4	4.6	592	16	75	14.0	0.460	1500	140
910601	KINGISPP02	08/19/91	9:02	20.7	6.6		931	4	200	32.0	1.240	2300	230
910768	KINGISPP02	10/21/91	8:30	16.8	7.4	4.5	485	96	80	8.4	0.402	900	87
8029	KINGISPP03	01/14/88	9:40	9.2	7.3	6.8	1140	13	60			1400	130
8164	KINGISPP03	03/09/88	10:39	15.1	7.3		848	32	60			990	88
8265	KINGISPP03	04/20/88	7:51		7.3	5.2	900	15	60				
8350	KINGISPP03	05/09/88	8:13	21.0	7.9	6.8	960	7	80	12.0		1800	160
8486	KINGISPP03	07/20/88	7:30	23.0	7.4	4.8	895	14	140			1600	150
9015	KINGISPP03	01/05/89	9:10	8.2	7.2	7.3	1210	28	120	13.0			
9140	KINGISPP03	02/06/89	9:30	2.0	8.6	12.9	1670	9	60	9.4		900	68

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TFPC DATA REPORT (cont.)

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
9277	KINGISPP03	04/19/89	7:39	17.1	7.4	2.5	397	8	40	7.2		890	88
9301	KINGISPP03	04/19/89	7:39	17.1	7.4	2.5	397	8	50			930	91
9447	KINGISPP03	06/28/89	7:53	18.7	7.0	4.4	470	34	140	12.0		1600	150
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	100
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
910076	KINGISPP03	01/31/91	10:45	9.5	7.7	10.4	1530	15	60	7.2	0.238	1100	80
910295	KINGISPP03	04/18/91	10:40	16.9	7.5	7.3	707	27	125	8.1	0.386	900	81
910501	KINGISPP03	07/22/91	8:14	22.1	7.4	5.1	447		120	8.9	0.474	1200	120
910603	KINGISPP03	08/19/91	8:37	19.6	6.8		994	17	160	28.0	1.176	2500	240
910770	KINGISPP03	10/21/91	8:13	16.7	7.3	6.4	996	14	50	8.3	0.301	1100	97
9572	LATHAM	07/25/89	7:05	23.8			180	8				510	47
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
910111	LATHAM	01/29/91	12:05	8.5	7.6	10.0	489	4	30	5.2	0.194	560	51
910546	LATHAM	07/24/91	7:50	23.0	7.5	8.0	363	7	25	3.4	0.092	370	33
910658	LATHAM	08/21/91	7:52	21.2	7.2		310	7	25	2.7	0.080	350	32
910824	LATHAM	10/23/91	7:40	18.9	7.6	7.2	289	6	20	2.2	0.065	270	25
8073	LCONNECT	01/21/88	8:42	8.8	7.2	10.4	262	14	40			740	72
8131	LCONNECT	02/23/88	8:20	11.5	7.3	10.1	240	6	10			950	95
8222	LCONNECT	03/24/88	8:45	15.3	7.4	9.6	225	3	10			250	24
8321	LCONNECT	04/28/88	9:05	16.6	7.7	8.8	174	6	25			390	39
8398	LCONNECT	05/26/88	7:50	20.5	8.0	9.6	226	9	25			300	29
8430	LCONNECT	06/22/88	6:08	21.9	7.4	7.4	261	7	35			680	67
8465	LCONNECT	07/14/88	9:15	22.4	7.3	7.2	174	8	20			470	47
8587	LCONNECT	08/16/88	8:30	22.0	7.5	7.4	184	6	15			290	27
8699	LCONNECT	09/22/88	6:09	18.7	7.6	8.0	275	4	15			360	34
8728	LCONNECT	10/20/88	8:10	19.4	7.1	7.7	386	3	20			490	46
8750	LCONNECT	11/10/88	8:15	16.1	6.8	8.4	206	4	15			340	33
8839	LCONNECT	12/20/88	9:30	11.2	7.3	10.1	245	5	40			870	87
9097	LCONNECT	01/31/89	8:45	9.9	7.0	10.6	255	4	20			240	23
9187	LCONNECT	02/28/89	8:20	13.0	6.8	9.8	228	4	15			230	22
9240	LCONNECT	03/28/89	8:40	14.8	7.4	8.1	148	10	30			550	55
9337	LCONNECT	04/25/89	8:02	16.8	8.1	8.5	163	5	15			240	24
9367	LCONNECT	05/23/89	8:07	18.7	8.1	8.7	165	6	20			330	33
9487	LCONNECT	06/21/89	7:50	21.5	7.5	8.1	204	7	20	3.5		440	43

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TFPC DATA REPORT (cont.)

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
9561	LCONNECT	07/18/89	8:15	23.9	7.1	7.4	176	7	35	6.0		610	61
9599	LCONNECT	07/25/89	9:16	25.1	7.4	7.9	130	6				390	38
9630	LCONNECT	09/20/89	7:30	19.5	8.3	8.6	200	6	15	2.8		430	42
9650	LCONNECT	10/17/89	12:21	20.6		8.3	162	4	5	2.3		300	30
9669	LCONNECT	11/07/89	14:20	14.3	7.5	8.9	162	6	15	1.2		460	45
9691	LCONNECT	12/05/89	13:25	13.3	7.6		195	5	15	3.4		460	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
910098	LCONNECT	01/29/91	8:40	9.0	6.9	10.7	344	6	50	8.0	0.292	610	57
910320	LCONNECT	04/23/91	7:30	16.0	9.1	9.4	251	7	10	3.4	0.108	460	45
910540	LCONNECT	07/24/91	8:06	22.6		7.1	275	6		2.6	0.087	290	26
910652	LCONNECT	08/21/91	8:50	21.8	7.8	8.4	245	5	25	2.5	0.071	300	28
910818	LCONNECT	10/23/91	8:32	17.4	7.3	7.1	160	4	15	2.2	0.051	240	23
8003	LINDSEY	01/06/88	12:34	11.2	7.3	10.0	723	20	60			1000	100
8110	LINDSEY	02/18/88	12:30	11.7	7.3	9.7	551	50	50			1600	160
8208	LINDSEY	03/17/88	8:39	14.1	7.5	10.1	547	20	60			740	73
8245	LINDSEY	04/14/88	9:36	18.4	7.8	8.9	593					920	90
8389	LINDSEY	05/19/88	10:27	20.2	7.8	4.6	605	29	60			880	87
8412	LINDSEY	06/07/88	7:30	17.7	7.6	4.3	525	37	80			720	71
8451	LINDSEY	07/06/88	8:04	21.2	7.6	7.6	325	42	60			610	60
8573	LINDSEY	08/02/88	12:48	21.7	8.1	8.3	287	42	60			640	63
8693	LINDSEY	09/15/88	7:55	18.7	7.5	8.6	259	25	40			410	40
8722	LINDSEY	10/13/88	8:35	17.0	8.0	9.1	274	20	50			410	40
8760	LINDSEY	11/17/88	9:16	12.8	7.8	9.5	258	19	35			360	35
8806	LINDSEY	12/06/88	9:15	10.2	7.2	11.0	249	17	30			370	36
9074	LINDSEY	01/17/89	9:30	7.8	7.5	11.8	331	18	35			500	49
9154	LINDSEY	02/15/89	8:45	8.0	6.9	12.3	370	11	30			340	33
9229	LINDSEY	03/14/89	9:00	14.2	8.0	9.3	480	13	35			630	61
9258	LINDSEY	04/11/89	7:25	18.7	7.5	8.0	453	16	35			590	58
9354	LINDSEY	05/09/89	8:20	19.4	7.8	8.2	406	19	35			420	41
9481	LINDSEY	06/13/89	8:10	18.7	7.5	8.9	315	46	80			700	70
9555	LINDSEY	07/11/89	8:25	21.0	7.2	8.6	263	28	60	3.2		500	49
9608	LINDSEY	08/16/89	9:05	22.2	7.8	9.5	219	18	40	2.7		560	56
9624	LINDSEY	09/13/89	8:20	19.4	7.6	9.0	234	23	40	3.2		370	36
9644	LINDSEY	10/12/89	9:36	19.2	7.2		332	29	50	5.2		660	63
9673	LINDSEY	11/14/89	13:05	14.1	7.9	9.2	265	14	40	3.4		450	44
9695	LINDSEY	12/12/89	11:05	10.0	7.3	11.3	268	11	25	13.0		460	44
9566	LJONES01	07/19/89	8:20	22.4	6.5	3.0	401	44	160	9.3		1200	120
910581	LJONES01	07/31/91	9:33	22.4		4.0	588	22	160	9.0	0.355	960	92
910623	LJONES01	08/20/91	7:24	20.0	6.6	4.3	385	24	125	6.5	0.258	720	68

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TFPC DATA REPORT (cont.)

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
910789	LJONES01	10/22/91	7:44	18.1	6.8		712	23	100	12.0	0.495	1400	130
9567	LJONES02	07/19/89	8:52	24.0	6.4	4.7	322	15	80	9.3		1400	140
910582	LJONES02	07/31/91	11:22	23.5		5.4	501	15	140	14.0	0.594	1400	140
910628	LJONES02	08/20/91	10:05	21.8	6.0		749	8	200	37.0	1.560	2200	220
910794	LJONES02	10/22/91	9:54	17.8	6.8		568	5	100	13.0	0.620	770	74
8554	LPOTATOWHITE	07/20/88	11:10	25.5	7.4	7.0	159	10	15	1.7		380	37
8612	LPOTATOWHITE	08/10/88	8:33	21.9	7.8		167	10	10	2.3		260	25
8627	LPOTATOWHITE	08/17/88	8:40	22.2	7.7		189	8	15	2.2		240	24
8654	LPOTATOWHITE	08/24/88	8:25	21.8	8.1		192	12	15	3.6		360	36
8670	LPOTATOWHITE	08/31/88	8:30	24.0	8.0		222	7	10	3.7		340	33
8777	LPOTATOWHITE	11/30/88	11:48	10.6	8.2	8.5	177	22	50	4.8		630	63
8791	LPOTATOWHITE	12/07/88	9:55	10.0	8.3	9.6	203	9	20	4.5		430	43
8821	LPOTATOWHITE	12/20/88	9:55	8.6	8.0	10.3	209	7	15	2.5		340	33
8848	LPOTATOWHITE	12/28/88	8:50	6.5	7.6	11.4	194	9	20	2.6		370	36
9062	LPOTATOWHITE	01/11/89	9:25	6.7	8.0		236	8	25	3.8		430	43
9082	LPOTATOWHITE	01/18/89	9:15	7.3	7.9	11.4	221	7	25	3.5		430	43
9107	LPOTATOWHITE	01/26/89	8:07	7.2	7.9	11.4	249	5	20			220	22
9120	LPOTATOWHITE	02/02/89	9:45	8.5	7.7	10.2	246	5	20	5.9		270	26
9377	LPOTATOWHITE	06/01/89	8:50	19.4	7.8	11.2	163	6	15	3.3		260	25
9403	LPOTATOWHITE	06/15/89	7:24	21.3	7.7	8.5	173	8	10	2.2		330	33
9416	LPOTATOWHITE	06/19/89	8:02	21.7	8.1	8.4	189	7	15	2.2		290	29
9497	LPOTATOWHITE	07/06/89	10:00	23.3	7.8	8.7	147	10	20	15.0		360	35
9510	LPOTATOWHITE	07/13/89	7:53	22.5	7.9	8.8	162	7	15	2.3		390	38
9523	LPOTATOWHITE	07/20/89	7:02	22.9	7.0	8.6	147	6	15	2.2		320	32
9536	LPOTATOWHITE	07/27/89	6:50	21.5	8.2	8.7	136	9	10	2.2		280	28
8553	LPOTTERM	07/20/88	10:25	25.0	7.5	7.2	158	9	20	1.8		390	38
8611	LPOTTERM	08/10/88	8:14	22.0	7.7		169	10	10	2.2		270	26
8626	LPOTTERM	08/17/88	8:19	21.8			175	8	10	2.3		450	45
8653	LPOTTERM	08/24/88	8:10	21.2	7.7		198	10	15	4.0		280	28
8669	LPOTTERM	08/31/88	8:15	23.9	7.3		210	8	10	3.1		390	38
8776	LPOTTERM	11/30/88	10:18	10.0	8.1	8.8	173	22	50	4.9		730	73
8790	LPOTTERM	12/07/88	8:30	10.0	7.5		221	12	25	5.4		480	47
8818	LPOTTERM	12/20/88	9:00	8.7	7.4	10.7	216	9	15	3.3		370	36
8845	LPOTTERM	12/28/88	8:20	6.7	7.6	11.8	196	9	25	3.0		400	39
9059	LPOTTERM	01/11/89	8:40	6.6	7.6		217	10	20	3.6		420	42
9079	LPOTTERM	01/18/89	8:41	6.9	8.3	11.5	212	8	30	3.8		350	34
9104	LPOTTERM	01/26/89	10:01	8.6	6.6	11.0	234	6	10	2.2		170	16
9117	LPOTTERM	02/02/89	8:50	8.3	7.3	10.3	249	6	20	3.8		380	37
9374	LPOTTERM	06/01/89	7:50	19.8	8.1	8.1	169	7	10	3.9		890	79
9387	LPOTTERM	06/08/89	7:30	19.8	8.3	10.0	161	8	5	2.4		280	27
9400	LPOTTERM	06/15/89	8:15	21.6	7.6	8.4	181	11	15	2.3		350	34
9413	LPOTTERM	06/19/89	8:35	21.1	8.0	8.3	181	9	15	2.1		270	27
9494	LPOTTERM	07/06/89	7:30	20.5	8.2	8.9	143	7	20	2.7		280	27

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TFPC DATA REPORT (cont.)

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
9507	LPOTTERM	07/13/89	8:18	23.2	7.9	8.9	170	7	15	1.9		330	30
9520	LPOTTERM	07/20/89	6:45	22.5	7.3	8.6	133	8	15	2.1		310	31
9597	LPOTTERM	07/25/89	8:24	22.3	7.8	9.2	120	13				380	38
9533	LPOTTERM	07/27/89	6:25	21.6	8.3	8.7	132	13	10	2.0		250	25
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
900413	LPOTTERM	07/26/90	8:15	24.2	7.7	7.5	138	8	10	1.6	0.043	210	21
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
910100	LPOTTERM	01/29/91	9:55	9.0	7.0	10.9	248	5	20	4.0	0.118	330	32
910322	LPOTTERM	04/23/91	8:10	16.0	7.9	8.8	230	9	10	2.9	0.075	370	36
910538	LPOTTERM	07/24/91	8:44	22.6		7.1	182	9	25	2.4	0.078	290	28
910650	LPOTTERM	08/21/91	9:41	22.1	7.5	8.1	170	8	20	3.0	0.051	240	24
910816	LPOTTERM	10/23/91	9:21	17.6	7.1	6.9	151	5	15	2.1	0.051	250	24
8005	MALLARDIS	01/06/88	10:00	7.8	8.0	11.4	7070	18	15			880	47
8112	MALLARDIS	02/18/88	9:45	12.0	8.0	11.5	5400	28	20			1200	70
8210	MALLARDIS	03/17/88	11:09	15.0	7.8	9.0	7760	18	20			1100	58
8246	MALLARDIS	04/14/88	11:16	17.5	7.8	8.7	3590					590	35
8391	MALLARDIS	05/19/88	8:38	18.4	7.8	8.4	9110	28	35			860	45
8413	MALLARDIS	06/07/88	9:26	8.3	8.4	7.9	9540	21	40			700	37
8453	MALLARDIS	07/06/88	10:00	23.4	7.9	7.5	11500	11	20			1000	52
8575	MALLARDIS	08/02/88	10:30	21.7	7.9	8.0	12400	28	25			790	42
8696	MALLARDIS	09/15/88	9:55	19.9	7.6	8.3	11000	22	20			720	38
8725	MALLARDIS	10/13/88	10:40	18.2	7.8	8.4	9930	15	35			530	28
8763	MALLARDIS	11/17/88	11:20	15.0	7.9	9.2	15000	20	15			900	46
8809	MALLARDIS	12/06/88	11:15	12.9	7.4	10.4	16400	19	15			840	43
9077	MALLARDIS	01/17/89	11:20	10.5	7.3	11.6	12500	25	20			2200	120
9157	MALLARDIS	02/15/89	10:30	10.2	6.3	11.6	15000	14	15			990	50
9232	MALLARDIS	03/14/89	11:04	14.8	7.8	9.5	764	28	50			640	54
9261	MALLARDIS	04/11/89	9:10	19.3	7.4	8.6	1180	31	50			780	55
9357	MALLARDIS	05/09/89	10:20	19.4	7.4	8.4	5950	27	25			1200	64
9484	MALLARDIS	06/13/89	10:00	20.1	7.1	9.1	2650	29	60			750	47
9558	MALLARDIS	07/11/89	10:30	22.3	7.5	9.1	7930	29	20	2.4		780	42
9610	MALLARDIS	08/16/89	10:47	23.1	7.5	9.7	2580	15	20	2.2		500	31
9627	MALLARDIS	09/13/89	10:15	21.0	7.2	9.4	4960	11	15	2.5		460	27
9647	MALLARDIS	10/12/89	8:12	19.0	7.2	8.6	7890	11	10	3.1		740	39
9676	MALLARDIS	11/14/89	10:15	15.6	7.8	8.7	13800	12	15	2.1		940	49
9698	MALLARDIS	12/12/89	14:05	12.4	7.6	10.2	14200	13	10	1.9		870	45
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

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

TFPC DATA REPORT (cont.)

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
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
900349	MALLARDIS	07/16/90	9:06	23.0	6.7	8.4	9780	26		2.8	0.075	1300	68
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
900551	MALLARDIS	08/13/90	8:00	22.5	8.1	7.0	7450	14		2.4	0.074	840	46
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
900741	MALLARDIS	10/16/90	7:30	19.8	7.9	7.8	11200	9		2.1	0.077	920	47
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
910005	MALLARDIS	01/02/91	10:15	8.4	7.0	11.3	11200	10		2.3	0.068	870	46
910033	MALLARDIS	01/15/91	9:55	8.9	7.5	11.6	9310	4		2.3	0.083	870	47
910063	MALLARDIS	01/28/91	9:30	9.2	7.6	9.7	14400	17	20	1.8	0.073	850	43
910144	MALLARDIS	02/13/91	13:10	13.5	7.7	10.6	16000	15		2.2	0.072	860	44
910161	MALLARDIS	02/26/91	11:40	15.9	7.4	9.7	18500	25	25	2.5	0.085	1000	51
910200	MALLARDIS	03/11/91	13:05	13.7	7.3	9.3	8210	19		2.9	0.094	1100	59
910257	MALLARDIS	03/26/91	12:20	13.6	7.4	9.6	3400	22	40	11.0	0.141	1300	80
910286	MALLARDIS	04/09/91	13:55	16.6	7.6	9.2	1340	26		4.8	0.138	1000	75
910381	MALLARDIS	05/21/91	10:25	19.4	7.9	8.5	12100	29	35	2.9	0.116	1300	66
910411	MALLARDIS	06/13/91	6:25	18.6	7.8		14500	18		2.5	0.110	1400	71
910442	MALLARDIS	06/26/91	13:37	20.8	7.3	10.7	8830	22		3.3	0.112	940	49
910471	MALLARDIS	07/08/91	10:05	21.8	7.4	9.4	8480	23		2.4	0.079	1000	54
910535	MALLARDIS	07/24/91	11:51	21.5		7.8	8380	22	40	2.2	0.080	620	33
910562	MALLARDIS	08/05/91	7:20	19.6	7.6	9.1	7340	14	35	2.6	0.083	1000	53
910647	MALLARDIS	08/21/91	12:30	21.8	7.4	8.7	9060	16	30	3.5	0.287	910	48
910677	MALLARDIS	09/11/91	9:15	19.9	8.0		13000	24	35	2.3	0.046	930	47
910706	MALLARDIS	09/24/91	11:00	22.9	7.8	8.6	7600	10		2.3	0.038	710	38
910736	MALLARDIS	10/08/91	9:15	20.8	8.3	7.8	7210	11		2.2	0.075	680	37
910813	MALLARDIS	10/23/91	11:37	18.5	7.4	8.4	14500	13	20	1.6	0.064	640	33
910851	MALLARDIS	11/19/91	9:15	13.4	6.9	10.7	13200	11	20	2.3	0.064	670	35
910889	MALLARDIS	12/09/91	9:20	10.6	7.2	11.0	14900	8	20	2.1	0.064	690	35
910584	MANDEVILLEPP01	07/31/91	10:02	23.2		2.7	501	12	140	12.0	0.505	1200	120

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TFPC DATA REPORT (cont.)

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
910626	MANDEVILLEPP01	08/20/91	8:32	19.6	6.6		428	16	175	13.0	0.545	1100	110
910792	MANDEVILLEPP01	10/22/91	8:51	16.7	6.9		486	13	350	29.0	2.090	2600	260
910585	MANDEVILLEPP02	07/31/91	10:24	22.1		6.3	486	20	200	18.0	0.877	2100	200
910627	MANDEVILLEPP02	08/20/91	8:54	19.4	7.0		531	11	250	26.0	1.410	2300	230
910793	MANDEVILLEPP02	10/22/91	9:14	16.8	6.8		709	12	250	34.0	1.500	2900	280
8335	MAZE	05/03/88	7:38	15.7	7.8	8.3	1480	28	25			710	60
8426	MAZE	06/14/88	7:20	23.0	7.8	6.9	1350	52	40			680	58
8427	MAZE	06/14/88	7:20	23.0	7.8	6.9				4.1		550	45
8461	MAZE	07/12/88	7:19	23.5	7.9	7.1	1530	64	35			1100	93
8462	MAZE	07/12/88	7:19	23.5	7.9	7.1				4.2		910	76
8583	MAZE	08/09/88	9:00	22.4	7.8	6.8	1360	96	40			800	71
8584	MAZE	08/09/88	9:00	22.4	7.8	6.8	1360			4.3		640	53
8687	MAZE	09/06/88	7:20	24.6	7.8	6.1				4.2		670	53
8686	MAZE	09/06/88	7:20	24.6	7.8	6.1	1480	33	40			770	64
8712	MAZE	10/04/88	7:34	18.5	8.0	8.8	1530	22	25			740	59
8713	MAZE	10/04/88	7:34	18.5	8.0	8.8				4.4		620	50
8743	MAZE	11/01/88	8:54	15.8	7.5	8.3				3.6		430	33
8742	MAZE	11/01/88	8:54	15.8	7.5	8.3	1290	21	25			520	43
8812	MAZE	12/13/88	8:57	10.4	7.4	9.3	1280	14	20			700	57
9053	MAZE	01/10/89	8:30	10.4	7.3	8.4	1340	13	40			690	62
9131	MAZE	02/07/89	8:15	5.6	7.2	10.6	1520	9	20			320	25
9212	MAZE	03/07/89	8:00	14.9	7.4	7.7	1100	22	35			730	65
9247	MAZE	04/04/89	7:36	16.4	8.0	6.9	1400	22	25			790	67
9345	MAZE	05/02/89	7:40	19.2	7.4	6.8	915	36	40			830	77
9427	MAZE	06/06/89	7:25	21.3	7.9	7.1	1280	64	35			830	71
9547	MAZE	07/05/89	9:10	23.5	7.7	7.5	1210	96	50	6.0		600	49
9602	MAZE	08/03/89	7:40	21.8	7.7	8.3	1130	105	70	5.0		690	58
9616	MAZE	09/06/89	7:36	21.8	7.6	7.8	1320	31	50	4.5		690	59
9636	MAZE	10/02/89	9:49	20.1	6.8	9.0	1120	23	35			450	39
9662	MAZE	11/07/89	8:10	13.5	7.4	8.5	1040	20	20	3.5		560	47
9684	MAZE	12/05/89	7:55	9.6	8.4		1120	15	20	3.7		620	52
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
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
900767	MAZE	10/23/90	7:10	15.9	7.8	7.6	997	7	60	3.0	0.071	520	42
900861	MAZE	11/13/90	8:50	13.0	7.8	8.8	1070	8	5	2.6	0.066	330	27
900912	MAZE	12/11/90	9:00	10.5	7.6	7.7	1160	8	10	2.7	0.063	370	29

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TFPC DATA REPORT (cont.)

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
910082	MAZE	01/31/91	9:10	9.3	7.7	8.6	1430	5	15	2.5	0.060	440	33
910151	MAZE	02/13/91	8:45	13.1	7.7	8.0	1610	11			0.068		
910167	MAZE	02/27/91	8:35	14.5	7.9	8.3	1540	9	20	2.4	0.049	400	29
910263	MAZE	03/26/91	11:05	11.8	7.8	9.1	746	96	250		0.417	1400	130
910346	MAZE	04/24/91	8:20	17.7	8.9	8.2	1030	32	30	4.2	0.106	570	49
910387	MAZE	05/21/91	7:45	17.8	7.5	9.2	635	21	25	3.0	0.075	450	39
910434	MAZE	06/25/91	8:40	20.9	7.9	8.9	1600	68	70	4.5	0.088	780	56
910508	MAZE	07/23/91	10:27	25.1	7.9	8.1	1150	64	80	4.5	0.121	860	71
910612	MAZE	08/20/91	9:00	22.4	8.0	7.7	1200	62	70	4.1	0.099	690	55
910680	MAZE	09/10/91	7:30	19.2	8.5	8.0	1380	21	50	4.7	0.107	740	57
910779	MAZE	10/22/91	7:30	18.2	7.6	7.7	1080	15	25	3.8	0.078	500	40
910854	MAZE	11/21/91	8:50	12.5	8.0	9.3	955	9	20	2.8	0.059	360	30
910892	MAZE	12/11/91	8:30	9.4	7.2	10.9	996	8	15	2.8	0.057	320	26
8165	MCCORWIL01	03/10/88	10:28	12.5	7.3		386	10	25			780	77
8266	MCCORWIL01	04/21/88	11:23	17.5	6.9	6.1	333	22	60				
8375	MCCORWIL01	05/09/88	10:27	22.2	7.1	4.8	250	16	60	6.4		720	71
8351	MCCORWIL01	05/09/88	10:27	22.2	7.1	4.8	250	16	60	6.6		660	65
8487	MCCORWIL01	07/21/88	10:48	25.5	7.0	4.9	166	32	80	3.3		390	39
9016	MCCORWIL01	01/06/89	12:35	7.6	7.6	10.6	311	16	40	8.0		410	41
9278	MCCORWIL01	04/20/89	10:21	19.8	7.6	6.5	120	40	80	3.6		480	48
9448	MCCORWIL01	06/29/89	9:52	19.9	7.6	6.0	151	20	40	2.5		420	42
8166	MCCORWIL02	03/10/88	10:44	9.5	7.3		458	20	25			790	79
8267	MCCORWIL02	04/21/88	11:54	17.5	6.9	6.6	153	29	80				
8352	MCCORWIL02	05/09/88	10:52	21.7	7.4	6.2	204	31	30	4.7		660	66
8488	MCCORWIL02	07/21/88	11:13	25.4	6.9	4.9	167	56	100			440	44
9017	MCCORWIL02	01/06/89	13:05	7.5	7.6	12.1	391	12	50	3.2		320	32
9279	MCCORWIL02	04/20/89	9:59	18.8	7.5	6.6	268	136	120	5.9		690	69
9449	MCCORWIL02	06/29/89	9:33	20.0	7.5	7.2	204	80	100	2.9		450	45
8072	MIDDLER	01/21/88	7:39	7.8	7.2	10.8	445	13	50			770	73
8130	MIDDLER	02/23/88	7:15	12.0	7.2	10.8	321	9	20			300	29
8221	MIDDLER	03/24/88	7:30	17.9	7.2	9.4	472	4	20			370	34
8320	MIDDLER	04/28/88	7:35	17.5	7.7	8.7	324	9	25			480	45
8397	MIDDLER	05/26/88	9:30	19.5	8.2	8.6	340	25	40			450	43
8429	MIDDLER	06/22/88	7:34	23.0	7.0	6.8	396	15	40			390	38
8464	MIDDLER	07/14/88	10:00	22.4	7.4	7.4	383	13	35			620	58
8602	MIDDLER	08/11/88	8:23	22.7	7.9		407	10	25	3.1		520	47
8586	MIDDLER	08/16/88	9:40	22.9	7.4	7.5	401	9	25			410	37
8620	MIDDLER	08/17/88	9:46	23.4	7.6		401	11	25	3.1		330	29
8649	MIDDLER	08/24/88	9:35	22.8	7.8		373	10	20	3.3		340	30
8665	MIDDLER	08/31/88	9:35	23.6	8.5		467	8	20	4.7		540	49
8698	MIDDLER	09/22/88	7:32	20.3	7.3	7.6	442	6	20			420	39
8727	MIDDLER	10/20/88	8:55	19.8	7.3	8.0	501	36	25			790	75
8749	MIDDLER	11/10/88	9:05	16.7	8.0	8.5	660	5	30			540	45

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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
8780	MIDDLER	11/30/88	12:10	11.8	7.9	9.9	596	5	25	4.7		640	55
8794	MIDDLER	12/07/88	11:00	10.6	8.2	9.4	529	11	25	5.1		560	51
8832	MIDDLER	12/20/88	10:20	10.7	7.3	10.7	608	8	35			880	79
8823	MIDDLER	12/21/88	10:55	8.5	7.9	10.0	603	9	35	5.5		920	84
8850	MIDDLER	12/28/88	9:59	7.0	7.7	11.4	564	7	35	5.8		760	71
9064	MIDDLER	01/11/89	10:15	6.2	8.0		469	9	35	5.7		770	71
9084	MIDDLER	01/18/89	10:15	6.9	7.2	10.6	414	8	35	5.7		650	61
9109	MIDDLER	01/26/89	9:40	7.5		11.2	434	7	30			430	40
9096	MIDDLER	01/31/89	9:45	9.6	7.0	10.9	428	6	35			450	41
9122	MIDDLER	02/02/89	10:45	8.1	7.6	10.3	449	5	25	4.8		450	41
9186	MIDDLER	02/28/89	9:20	13.1	6.8	10.4	438	6	20			910	85
9239	MIDDLER	03/28/89	7:49	15.5	7.0	7.7	271	10	35			670	64
9336	MIDDLER	04/25/89	7:12	16.7	8.4	8.5	200	8	25			410	40
9366	MIDDLER	05/23/89	7:03	19.4	8.3	8.0	259		25			390	38
9379	MIDDLER	06/01/89	9:50	20.5	8.0	11.2	255	13	30	4.3		380	36
9392	MIDDLER	06/08/89	9:15	21.3	7.8	9.5	240	17	35	3.2		320	31
9405	MIDDLER	06/15/89	7:15	24.3	7.5	7.1	271	16	30	2.9		470	45
9418	MIDDLER	06/20/89	8:11	22.4	7.5	7.1	255	16	40	2.6		390	38
9486	MIDDLER	06/21/89	8:45	22.7	7.4	7.3	257	17	35	2.8		270	25
9499	MIDDLER	07/06/89	6:30	23.6	7.6	7.2	248	12	35	3.1		540	53
9512	MIDDLER	07/13/89	9:10	24.2	8.0	8.0	229	9	25	2.8		420	40
9560	MIDDLER	07/18/89	9:15	26.6	7.2	7.8	244	12	25	2.8		360	34
9525	MIDDLER	07/20/89	9:17	24.8	6.5	7.9	248	11	35	3.2		440	42
9588	MIDDLER	07/25/89	9:50	25.7	7.8	8.2	200	10				460	43
9538	MIDDLER	07/27/89	9:05	24.2	7.4	8.1	229	10	20	2.7		380	36
9629	MIDDLER	09/20/89	6:45	19.5	8.5	9.3	347	9	15	4.1		580	54
9649	MIDDLER	10/17/89	10:40	19.7	7.0	8.1	436	8	20	3.2		420	39
9668	MIDDLER	11/07/89	12:00	15.9	7.8	9.0	423	7	15	2.7		440	41
9690	MIDDLER	12/05/89	11:36	13.3	7.6		442	5	15	5.6		460	41
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
910094	MIDDLER	01/29/91	10:15	8.9	7.6	11.1	588	6	25	5.6	0.204	590	52
910162	MIDDLER	02/26/91	13:40	16.6	7.4	9.2	713	5	25	5.1	0.170	630	54

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

TFPC DATA REPORT (cont.)

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
910258	MIDDLER	03/25/91	13:50	13.3	7.3	9.2	456	9	40	5.9	0.197	790	73
910316	MIDDLER	04/23/91	11:10	16.8	6.8	8.9	300	10	30	5.1	0.187	670	65
910383	MIDDLER	05/21/91	12:55	19.9	7.9	8.0	355	7	20	4.0	0.135	570	53
910439	MIDDLER	06/28/91	11:00	21.2	8.0	7.9	500	7	25	3.7	0.118		
910523	MIDDLER	07/24/91	10:22	26.2	7.0	7.9	427	9	25	3.2	0.102	390	35
910638	MIDDLER	08/21/91	10:08	24.6		6.9	370	8	35	3.2	0.101	470	43
910685	MIDDLER	09/10/91	10:10	22.5	7.7	6.3	357	5	25	3.4	0.100	510	46
910804	MIDDLER	10/23/91	10:30	19.0	7.3	7.4	362	7	25	2.7	0.084	370	34
910858	MIDDLER	11/21/91	10:15	13.3	7.9	9.6	566	5	25	3.8	0.122	490	43
910896	MIDDLER	12/11/91	11:00	10.4	7.2	11.3	688	3	20	4.1	0.131	560	47
9583	MIDMOWRY	07/25/89	7:45	23.7	7.2	8.2	800	44				700	59
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
910093	MIDMOWRY	01/29/91	10:45	11.0	7.1	11.5	1200	6	20	3.0	0.053	330	26
910315	MIDMOWRY	04/23/91	10:45	17.2	7.5	7.5	1200	21	35	6.9	0.184	990	85
910637	MIDMOWRY	08/21/91	9:33	23.6		8.8	907	21	40	4.1	0.106	610	50
910803	MIDMOWRY	10/23/91	9:55	17.7	7.9	8.5	850	11	30	2.6	0.064	470	39
8644	MIDWOODWARD	08/10/88	8:10	22.6	7.8							330	29
8603	MIDWOODWARD	08/11/88	8:10	22.6	7.8		387	9	20	2.8		370	32
8643	MIDWOODWARD	08/17/88	9:34	23.4	7.7							380	33
8628	MIDWOODWARD	08/17/88	9:34	23.4	7.7		398	9	20	2.9		400	36
8650	MIDWOODWARD	08/24/88	9:25	22.8	7.8		373	8	20	3.0		890	85
8651	MIDWOODWARD	08/24/88	9:25	22.8	7.8							1300	130
8667	MIDWOODWARD	08/31/88	9:25	23.7	8.4							400	35
8666	MIDWOODWARD	08/31/88	9:25	23.7	8.4		467	9	20	3.5		450	40
8793	MIDWOODWARD	12/07/88	10:45	10.5	8.0	9.2	511	10	30	5.0		620	55
8822	MIDWOODWARD	12/20/88	10:40	8.5	7.8	9.9	611	9	30	5.3		680	61
8849	MIDWOODWARD	12/28/88	9:02	6.5	7.5	11.1	586	10	40	7.2		990	94
9063	MIDWOODWARD	01/11/89	10:00	6.2	8.2		464	8	35	5.5		680	63
9083	MIDWOODWARD	01/18/89	9:45	6.8	6.8	11.2	398	13	40	5.4		580	55
9108	MIDWOODWARD	01/26/89	9:17	7.3		10.9	432	6	30			460	42
9121	MIDWOODWARD	02/02/89	10:35	8.1	7.5	10.2	470	5	25	6.0		410	37
9378	MIDWOODWARD	06/01/89	9:30	20.3	8.0	9.7	244	16	30	3.4		350	34
9391	MIDWOODWARD	06/08/89	9:00	21.2	7.8	9.6	238	20	35	3.2		290	28
9404	MIDWOODWARD	06/15/89	9:00	23.5	7.7	7.4	264	16	30	3.1		450	44
9417	MIDWOODWARD	06/20/89	7:32	23.0	7.6	7.0	258	16	40	2.7		450	44
9498	MIDWOODWARD	07/06/89	6:00	23.4	6.9	7.3	251	14	35	3.1		710	70
9511	MIDWOODWARD	07/13/89	10:04	24.5	7.6	7.9	228	8	25	2.8		480	47
9524	MIDWOODWARD	07/20/89	10:00	25.2	6.1	7.8	244	10	30	3.2		450	43
9537	MIDWOODWARD	07/27/89	9:43	24.3	7.7	8.0	230	8	20	3.6		430	42

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

TFPC DATA REPORT (cont.)

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
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
910101	MOKGEORGIANA	01/29/91	10:20	9.2	6.9	11.6	195	6	10	2.1	0.041	190	19
910323	MOKGEORGIANA	04/23/91	8:30	16.4	8.5	8.4	226	9	10	2.4	0.109	280	28
910537	MOKGEORGIANA	07/24/91	9:11	22.8		7.1	157	7	15	2.1	0.048	190	19
910649	MOKGEORGIANA	08/21/91	10:03	22.8	7.5	8.3	170	9	20	1.8	0.035	180	18
910815	MOKGEORGIANA	10/23/91	9:46	18.0	7.0	7.4	146	5	10	2.0	0.046	180	18
8551	MOKRABVGEORGIAN	07/20/88	9:50	24.0	7.6	7.5	151	7	10	1.5		390	38
8610	MOKRABVGEORGIAN	08/10/88	7:56	21.8	7.6		164	8	10	2.2		340	32
8625	MOKRABVGEORGIAN	08/17/88	7:53	21.8			175	9	15	1.9		320	31
8652	MOKRABVGEORGIAN	08/24/88	7:52	21.8	7.9		187	8	10	2.4		1200	120
8668	MOKRABVGEORGIAN	08/31/88	8:00	24.0	6.8		208	6	10	3.0		310	30
8775	MOKRABVGEORGIAN	11/30/88	9:47	9.9	8.4	8.9	175	29	50	6.4		650	64
8789	MOKRABVGEORGIAN	12/07/88	9:00	10.2	8.0	10.3	196	9	15	5.4		320	31
8819	MOKRABVGEORGIAN	12/20/88	9:20	8.5	7.9	11.0	179	8	10	2.0		230	22
9060	MOKRABVGEORGIAN	01/11/89	8:55	6.4	8.1		200	13	30	3.7		380	38
9080	MOKRABVGEORGIAN	01/18/89	10:43	7.9	6.9	11.4	201	14	30	3.2		400	40
9105	MOKRABVGEORGIAN	01/26/89	7:50	7.3	7.4	11.2	261	6	20	3.3		220	22
9118	MOKRABVGEORGIAN	02/02/89	9:50	8.4	7.6	10.4	213	6	20	2.7		270	27
9375	MOKRABVGEORGIAN	06/01/89	8:10	19.6	7.8	8.7	157	7	5	2.6		220	22
9388	MOKRABVGEORGIAN	06/08/89	7:55	20.4	7.9	9.3	152	7	5	2.1		260	26
9401	MOKRABVGEORGIAN	06/15/89	6:45	21.5	8.5	8.2	164	9	10	3.0		530	52
9414	MOKRABVGEORGIAN	06/19/89	6:39	20.6	7.9	8.5	155	6	10	2.0		260	26
9495	MOKRABVGEORGIAN	07/06/89	7:15	21.2	7.8	9.2	145	7	10	2.2		470	44
9508	MOKRABVGEORGIAN	07/13/89	6:33	21.5	7.9	8.7	144	10	10	3.0		320	31
9521	MOKRABVGEORGIAN	07/20/89	8:20	22.5	6.6	9.1	127	8	10	1.8		280	28
9596	MOKRABVGEORGIAN	07/25/89	8:00	21.4	7.7	9.1	120	10				360	36
9534	MOKRABVGEORGIAN	07/27/89	8:09	21.3	7.3	9.2	120	20	5	1.7		230	23
8355	MOSSDALE01	05/09/88	8:32	16.4	7.1	2.8	680	23	30	3.4		460	41
8492	MOSSDALE01	07/19/88	7:02	24.0	7.6	8.1	1000	260	100	6.8		620	56
9021	MOSSDALE01	01/04/89	8:33	7.8	7.4	7.5	761	7	10	2.2		300	25
9280	MOSSDALE01	04/18/89	7:38	16.1	7.4	7.6	858	39	40	5.7		540	47
9450	MOSSDALE01	06/27/89	7:39	21.3	8.1	6.8	1780	5	50	6.8		740	51
8036	MOSSDALE02	01/12/88	9:30	10.7	7.3	5.0	667	88	15			320	29
8173	MOSSDALE02	03/08/88	9:30	14.7	7.5	5.0	699	9	15			590	53
8271	MOSSDALE02	04/19/88	9:29	14.9	7.3	4.2	1770	13	50				
8356	MOSSDALE02	05/09/88	8:46	18.3	8.5	9.0	923	4	15	3.4		650	55
8493	MOSSDALE02	07/19/88	7:18	24.0	7.6	6.7	942	46	70			620	55
9022	MOSSDALE02	01/04/89	8:46	11.3	7.3	4.1	805	4	10	1.9		300	26
9281	MOSSDALE02	04/18/89	7:52	17.1	7.5	7.1	936	28	60	7.2		830	74

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TFPC DATA REPORT (cont.)

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
9451	MOSSDALE02	06/27/89	7:58	22.4	7.6	4.6	936	37	50	5.2		500	43
8038	MOSSDALE04	01/12/88	10:00	6.4	7.6	6.3	689	80	80			750	71
8175	MOSSDALE04	03/08/88	10:07	13.0	7.5	4.7	1080	46	60			910	84
8273	MOSSDALE04	04/19/88	10:00	15.7	8.3	11.5	1540	16	80				
8358	MOSSDALE04	05/09/88	9:15	17.6	7.5	5.0	2070	51	40	6.0		970	81
8495	MOSSDALE04	07/19/88	8:00	25.0	7.7	6.9	1120	25	90	9.1		1200	110
9024	MOSSDALE04	01/04/89	9:11	6.2	7.5	4.1	594	81	60	15.0			
8275	MOSSDALE08	04/19/88	10:48	15.4	7.5	11.5	896	7	80				
8276	MOSSDALE09	04/19/88	10:37	15.6	7.3	3.9	1010	8	25				
8043	MOSSDALE10	01/12/88	8:50	9.3	7.1	2.1	1520	5	50			1500	150
8171	MOSSDALE10	03/08/88	8:45	11.9	6.0	1.6	1360	7	80			1300	120
8277	MOSSDALE10	04/19/88	8:49	14.0	7.3	1.6	1340	4	80				
8362	MOSSDALE10	05/09/88	7:54	16.8	7.2	2.5	900	2	60	10.0		1200	120
8499	MOSSDALE10	07/19/88	5:27	22.5	7.5	2.0	992	9	50	6.7		700	64
9028	MOSSDALE10	01/04/89	7:46	5.6	7.1	2.8	910	29	100	17.0			
8044	MOSSDALE11	01/12/88	9:10	6.8	7.3	5.5	605	250	20			560	54
8172	MOSSDALE11	03/08/88	9:00	11.4	7.3	2.0	653	170	40			260	22
8278	MOSSDALE11	04/19/88	9:09	15.5	7.3	4.9	564	15	80				
8363	MOSSDALE11	05/09/88	8:14	17.8	8.0	6.1	589	19	120	17.0		1700	170
8500	MOSSDALE11	07/19/88	6:00	23.0	7.4	3.2	1080	14	70	7.1		710	63
9029	MOSSDALE11	01/04/89	8:15	6.2	7.2	3.2	586	36	60	8.7			
9288	MOSSDALE11	04/18/89	7:10	16.6	8.0	8.3	876	3	<5	1.7		150	12
9456	MOSSDALE11	06/27/89	7:23	18.5	8.2	8.7	958	5	5	1.6		120	9
8033	MOSSTRPP02	01/12/88	8:00	8.1	7.5	10.6	670	18	40			640	59
8168	MOSSTRPP02	03/07/88	12:40	16.9	7.4	13.1	803	16	50			1200	110
8268	MOSSTRPP02	04/18/88	11:50	19.0	8.1	9.0	917	15	40				
8353	MOSSTRPP02	05/09/88	9:17	17.7	8.3	10.5	918	20	60	9.6		990	89
9019	MOSSTRPP02	01/04/89	10:24	6.4	8.0	12.5	806	7	35	7.9		870	79
8034	MOSSTRPP03	01/12/88	8:20	8.2	7.3	8.2	779	20	60			930	90
8169	MOSSTRPP03	03/07/88	13:00	17.3	7.3	17.3	951	14	80			1400	130
8269	MOSSTRPP03	04/18/88	11:33	6.6	7.7	8.9	740	21	40				
8354	MOSSTRPP03	05/09/88	8:57	16.9	8.0	8.5	512	23	80	12.0		1100	100
9020	MOSSTRPP03	01/04/89	10:10	7.2	7.9	10.8	726	9	35	6.7			
9589	MRIVBACON	07/25/89	11:10	26.2	7.6	8.4	200	8				440	42
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
900438	MRIVBACON	07/30/90	12:00	25.6	7.4	7.9	281	6		2.8	0.092	470	44
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

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TFPC DATA REPORT (cont.)

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
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
900612	MRIVBACON	09/10/90	11:05	24.9	7.9	7.5	302	8		3.4	0.119	570	54
900632	MRIVBACON	09/18/90	13:05	23.7	7.9	7.2	327	5		3.5	0.122	580	55
900675	MRIVBACON	09/24/90	13:00	23.6	7.9	8.7	368	4	25	3.7	0.116	550	52
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
900877	MRIVBACON	11/27/90	12:50	11.8	7.4	10.0	618	2		3.3	0.108	550	46
900927	MRIVBACON	12/11/90	12:30	10.5	8.5	8.8	542	3	10	4.2	0.129	630	55
910004	MRIVBACON	01/02/91	14:10	7.2	7.1	11.0	536	3		5.3	0.184	720	65
910032	MRIVBACON	01/15/91	14:50	9.0	6.7	10.0	501	4		5.2	0.188	790	73
910095	MRIVBACON	01/29/91	9:45	8.9	7.5	10.9	532	5	25	5.6	0.207	590	53
910143	MRIVBACON	02/13/91	11:20	12.1	7.0	7.4	557	5		5.5	0.193	590	53
910163	MRIVBACON	02/26/91	14:20	16.2	7.3	9.5	610	5	25	6.0	0.170	670	59
910199	MRIVBACON	03/11/91	11:10	13.1	7.1	9.4	514	5		5.2	0.172	620	56
910259	MRIVBACON	03/25/91	14:35	13.5	7.4	9.3	469	8	50	6.0	0.205	800	75
910285	MRIVBACON	04/09/91	12:00	16.7	7.2	8.8	306	13		8.4	0.277	1200	120
910317	MRIVBACON	04/23/91	11:45	16.9	7.5	8.7	294	10	35	5.2	0.191	760	75
910384	MRIVBACON	05/21/91	14:00	20.5	7.9	8.2	359	7	20	4.0	0.137	600	57
910408	MRIVBACON	06/11/91	8:50	23.1	7.5	7.3	468	8		5.6	0.128	590	54
910440	MRIVBACON	06/28/91	11:30	21.2	7.5	7.8	451	7	25	3.6	0.109		
910469	MRIVBACON	07/08/91	7:28	23.3	7.3	8.3	414	7		3.4	0.100	550	50
910525	MRIVBACON	07/24/91	12:00	25.1	7.0	7.7	404	8	25	3.1	0.098	360	32
910560	MRIVBACON	08/05/91	10:00	23.5		7.3	415	13	35	3.8	0.106	520	47
910639	MRIVBACON	08/21/91	10:46	24.5		7.5	347	6	30	3.1	0.102	610	57
910686	MRIVBACON	09/10/91	10:40	23.2	7.7	7.0	323	7	25	3.3	0.098	460	42
910704	MRIVBACON	09/24/91	7:20	22.0	7.4	7.2	365	6		2.9	0.069	370	33
910734	MRIVBACON	10/08/91	7:05	20.5	7.2	7.2	398	6			0.111	450	42
910805	MRIVBACON	10/23/91	11:10	19.6	7.3	7.1	365	6	25	3.0	0.112	430	39
910859	MRIVBACON	11/21/91	9:50	13.4	8.0	9.3	547	4	30	3.7	0.118	480	42
910897	MRIVBACON	12/11/91	11:20	10.3	7.1	11.3	609	3	25	3.5	0.137	600	52
910522	MRIVTRACY	07/24/91	10:01	24.4	7.1	7.2	454	20	40	3.7	0.129	440	40
8078	NATOMAS	01/21/88	11:35	11.7	7.3	9.5	429	102	35			1000	99
8077	NATOMAS	01/21/88	11:35	11.7	7.3	9.5				9.3		870	86
8135	NATOMAS	02/23/88	11:05	14.6	7.9	10.8				4.1		540	50
8136	NATOMAS	02/23/88	11:05	14.6	7.9	10.8	921	19	10			580	55
8227	NATOMAS	03/24/88	10:15	19.1	8.0	7.0				4.0		630	60
8226	NATOMAS	03/24/88	10:15	19.1	8.0	7.0	867	20	35			610	59
8326	NATOMAS	04/28/88	6:05	18.2	8.6	9.8				4.4		890	87

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TFPC DATA REPORT (cont.)

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
8325	NATOMAS	04/28/88	6:05	18.2	8.6	9.8	416	22	40			2400	240
8402	NATOMAS	05/26/88	6:29	19.9	7.8	2.0	617	30	35			700	69
8434	NATOMAS	06/22/88	9:49	24.8	7.6	4.5	391	37	20			840	83
8435	NATOMAS	06/22/88	9:49	24.8	7.6	4.5				7.0		710	70
8468	NATOMAS	07/14/88	7:30	23.0	7.6	5.5	485	33	80			1000	100
8469	NATOMAS	07/14/88	7:30	23.0	7.6	5.5				6.0		850	84
8592	NATOMAS	08/16/88	6:33	21.1	7.7	7.4				4.7		590	58
8591	NATOMAS	08/16/88	6:33	21.1	7.7	7.4	349	25	50			690	68
8703	NATOMAS	09/22/88	9:42	19.4	7.3	8.0	482	38	50			800	78
8704	NATOMAS	09/22/88	9:42	19.4	7.3	8.0				5.3		760	74
8733	NATOMAS	10/20/88	6:15	18.3	7.8	8.8				3.9		280	27
8732	NATOMAS	10/20/88	6:15	18.3	7.8	8.8	429	24	40			330	32
8755	NATOMAS	11/10/88	7:00	15.2	7.3	8.1				5.2		560	55
8754	NATOMAS	11/10/88	7:00	15.2	7.3	8.1	356	32	50			810	80
8838	NATOMAS	12/20/88	7:40	10.9	8.4	12.0				6.7		1100	110
8837	NATOMAS	12/20/88	7:40	10.9	8.4	12.0	501	26	50			1100	110
9101	NATOMAS	01/31/89	7:00	10.3	7.7	10.8	777	22	40			300	28
9102	NATOMAS	01/31/89	7:00	10.3	7.7	10.8				3.2		240	21
9192	NATOMAS	02/28/89	7:05	13.0	7.9	9.9				5.6		360	33
9191	NATOMAS	02/28/89	7:05	13.0	7.9	9.9	824	36	60			570	55
9244	NATOMAS	03/28/89	10:50	16.6	7.5	5.9	509	58	100			900	89
9342	NATOMAS	04/25/89	9:58	16.3	8.1	7.9				3.8		910	83
9341	NATOMAS	04/25/89	9:58	16.3	8.1	7.9	613	22	35			570	55
9372	NATOMAS	05/23/89	10:04	19.5	7.6	7.2				3.3		380	37
9371	NATOMAS	05/23/89	10:04	19.5	7.6	7.2	283	29	40			410	40
9491	NATOMAS	06/21/89	6:05	20.6	7.5	5.4	401	28	50	6.0		680	67
9492	NATOMAS	06/21/89	6:05	20.6	7.5	5.4				5.3		670	66
9564	NATOMAS	07/18/89	6:15	24.3	7.3	8.9	310	26	60	4.2		600	59
9612	NATOMAS	08/16/89	6:45	22.2	7.3	6.6	348	52	50	5.8		780	77
9633	NATOMAS	09/20/89	9:30	18.8	7.1	6.1	367	20	70	6.7		820	82
9653	NATOMAS	10/17/89	9:12	18.0	8.1	10.5	724	17	35	10.0		470	44
9679	NATOMAS	11/14/89	7:10	11.7	8.3	10.8	716	13	35	3.1		370	34
9701	NATOMAS	12/12/89	7:45	8.7	7.9	10.7	766	18	25	3.2		400	37
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
900159	NATOMAS	03/21/90	13:20	22.0	8.3	8.2	878	44	25	3.9	0.075	390	36
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
900385	NATOMAS	07/25/90	8:50	22.5	7.9	5.6	565	25	20	8.3	0.154	590	58
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

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TFPC DATA REPORT (cont.)

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
900852	NATOMAS	11/13/90	8:35	12.5	7.5	8.0	455	21	35	3.0	0.083	430	42
900921	NATOMAS	12/11/90	7:55	7.9	8.8	9.4	519	24	25	4.0	0.104	420	41
910086	NATOMAS	01/31/91	13:10	10.7	8.2	9.9	811	10	25	3.6	0.080	510	47
910158	NATOMAS	02/26/91	8:10	14.2	8.1	11.8	823	32	25	4.4	0.085	610	57
910254	NATOMAS	03/25/91	8:35	9.9	7.2	10.0	230	100	250		0.301	590	59
910350	NATOMAS	04/24/91	13:00	17.6	8.1	9.0	813	13	25	4.5	0.119	600	57
910378	NATOMAS	05/21/91	7:00	18.2	8.6	10.1	625	17	50	5.1	0.128	670	64
910427	NATOMAS	06/24/91	7:18	19.0	7.8	7.8	587	27	50	6.2	0.166	660	64
910505	NATOMAS	07/22/91	11:00	24.6	7.5	8.1	476	29	70	5.4	0.222	750	74
910669	NATOMAS	08/19/91	14:04	25.7	7.4		446	33	60	5.2	0.131	530	52
910672	NATOMAS	09/11/91	5:50	19.0	7.6	6.5	511	22	60	5.1	0.116	610	59
910777	NATOMAS	10/21/91	12:40	21.7	7.7	8.1	628	23	80	7.1	0.203	680	66
910846	NATOMAS	11/19/91	13:13	13.7	7.3	13.2	598	22	100	5.6	0.151	670	65
910884	NATOMAS	12/09/91	13:10	14.1	8.0	12.9	571	24	100	5.8	0.139	690	67
8045	NETHERLAND01	01/20/88	8:00	5.9	7.5	10.2	825	51	60			900	86
8180	NETHERLAND01	03/11/88	7:38	9.1	8.1		1250	23	30			740	67
8301	NETHERLAND01	04/18/88	7:09	14.0	7.3	8.3	270	102	20				
8364	NETHERLAND01	05/09/88	7:10	18.4	7.8	8.0	396	80	40	3.5		490	48
8501	NETHERLAND01	07/22/88	7:16	21.8	7.4	7.6	222	190	35	3.1		480	48
9051	NETHERLAND01	01/09/89	8:21	7.0		13.1	733	25	40	3.5		380	34
9289	NETHERLAND01	04/21/89	7:20	17.8	8.1	9.4	1430	28	25	6.3		1000	91
9457	NETHERLAND01	06/30/89	7:00	18.7	7.0	8.4	235	160	15	4.8		490	48
8046	NETHERLAND02	01/20/88	7:30	5.4	7.5	10.1	819	54	60			900	86
8181	NETHERLAND02	03/11/88	7:24	7.3	8.1		1480	44	35			1000	89
8279	NETHERLAND02	04/22/88	6:37	14.0	7.1	7.0	261	108	60				
8365	NETHERLAND02	05/09/88	6:46	17.6	7.7	6.8	376	92	40	5.2		450	43
8502	NETHERLAND02	07/22/88	6:48	22.4	7.2	4.8	206	92	35	3.2		440	44
9030	NETHERLAND02	01/09/89	7:58	7.1		12.2	671	17	35	3.8		350	32
9290	NETHERLAND02	04/21/89	7:06	18.1	7.8	8.4	1200	20	30	7.2		980	86
9458	NETHERLAND02	06/30/89	6:40	19.0	6.6	7.1	200	140	20	2.1		410	41
8004	NOBAY	01/06/88	11:10	11.0	8.0	11.8	332	5	5			300	29
8111	NOBAY	02/18/88	11:00	11.4	8.0	10.8	351	4	10			420	42
8209	NOBAY	03/17/88	9:55	14.4	8.1	9.2	328	3	10			300	30
9577	NORTHCAN	07/25/89	9:33	24.7			220	11				430	41
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
900562	NORTHCAN	08/13/90	9:30	25.1	7.8	6.4	320	5		3.2	0.094	140	12
900542	NORTHCAN	08/22/90	11:15	25.9	8.2	7.7	292	6	25	2.8	0.094	670	61

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TFPC DATA REPORT (cont.)

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
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
900624	NORTHCAN	09/11/90	10:30	23.0	7.3	8.0	317	5		3.2	0.111	610	57
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
900712	NORTHCAN	10/09/90	10:45	19.5	7.7	7.5	484	4		3.4	0.112	550	48
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
900845	NORTHCAN	11/14/90	11:25	13.6	7.9		605	3		3.2	0.100	500	43
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
910016	NORTHCAN	01/02/91	12:40	5.4	7.5	11.6	604	5		6.1	0.217	820	74
910044	NORTHCAN	01/16/91	11:45	8.2	7.5	10.5	557	4		5.4	0.191	690	63
910117	NORTHCAN	01/29/91	14:00	8.5	7.6	10.4	575	4	30	5.5	0.204	600	53
910135	NORTHCAN	02/14/91	11:35	13.2	7.7	9.3	587	3		5.1	0.186	630	56
910181	NORTHCAN	02/25/91	11:40	13.6	7.7	9.6	683	4		5.3	0.185	730	64
910211	NORTHCAN	03/12/91	11:40	12.5	7.9	9.0	583	4		5.0	0.173	580	52
910247	NORTHCAN	03/26/91	13:37	14.6	7.7	9.5	532	8		6.4	0.215	800	74
910277	NORTHCAN	04/09/91	13:45	19.5	7.8	6.5	321	14		7.5	0.282	1200	120
910339	NORTHCAN	05/22/91	11:44	20.0	7.3	9.0	414	7	30	4.3	0.153	510	48
910420	NORTHCAN	06/13/91	9:20	22.2	8.0		495	7		4.6	0.127	700	64
910451	NORTHCAN	06/26/91	9:05	21.0	7.9	7.5	514	8		4.0	0.129	590	51
910481	NORTHCAN	07/10/91	8:50	24.0	7.8	6.5	464	8		3.8	0.123	610	55
910552	NORTHCAN	07/24/91	9:16	24.0	7.4	7.3	438	8	30	3.8	0.113	400	35
910572	NORTHCAN	08/07/91	8:50	22.6		7.3	432	9	35	3.6	0.117	560	49
910664	NORTHCAN	08/21/91	9:28	23.3	7.0		381	10	30	3.4	0.109	530	49
910696	NORTHCAN	09/12/91	9:20		7.3	6.6	365	11		3.1	0.099	490	44
910716	NORTHCAN	09/26/91	8:35	22.3	7.6	7.6	417	7		2.9	0.105	370	32
910747	NORTHCAN	10/10/91	8:35	21.2	7.6	6.8	397	11		2.9	0.081	550	51
910830	NORTHCAN	10/23/91	9:10	18.7	7.5	8.1	387	8	25	3.0	0.089	370	32
910907	NORTHCAN	12/19/91	10:10	7.6	7.6	9.9	770	8		5.0	0.182	690	59
9575	NVICWOOD	07/25/89	8:53	24.6			200	8				440	42
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
900448	NVICWOOD	07/31/90	9:10	24.0	7.4	6.5	344	8		2.9	0.101	590	54
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

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TFPC DATA REPORT (cont.)

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
900580	NVICWOOD	08/28/90	10:05	22.9	7.7		382	5		2.6	0.085	620	55
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
900935	NVICWOOD	12/12/90	11:15	9.6	7.4	8.0	624	3		4.6	0.150	700	61
910014	NVICWOOD	01/02/91	12:10	5.5	7.4	11.6	615	4		6.2	0.218	810	73
910042	NVICWOOD	01/16/91	11:15	8.2	7.0	10.8	582	5		6.2	0.230	720	66
910115	NVICWOOD	01/29/91	13:30	8.7	7.5	9.8	659	10	40	6.5	0.238	670	59
910133	NVICWOOD	02/14/91	11:10	13.0	7.7	9.4	855	5		4.8	0.170	630	51
910179	NVICWOOD	02/25/91	11:10	13.6	7.7	9.6	958	5		4.9	0.168	680	54
910209	NVICWOOD	03/12/91	11:10	12.3	8.1	9.0	576	4		5.0	0.164	600	54
910245	NVICWOOD	03/26/91	13:07	15.5	7.7	9.6	524	8		6.7	0.212	740	70
910275	NVICWOOD	04/09/91	12:50	17.9	7.6	7.4	311	13		7.4	0.284	1100	100
910337	NVICWOOD	05/22/91	11:11	20.3	7.5	9.2	457	7	30	4.2	0.130	520	48
910418	NVICWOOD	06/13/91	8:54	22.7	8.0		519	7		4.0	0.125	630	56
910449	NVICWOOD	06/26/91	8:40	21.2	7.8	7.8	585	8		3.4	0.099	460	38
910479	NVICWOOD	07/10/91	8:30	23.5	7.8	7.0	544	8		3.3	0.102	590	51
910550	NVICWOOD	07/24/91	8:54	23.7	7.6	7.7	474	6	30	3.2	0.100	390	33
910570	NVICWOOD	08/07/91	8:30	23.5		7.5	510	8	30	4.3	0.097	490	41
910662	NVICWOOD	08/21/91	9:07	23.2	7.1		487	7	30	3.0	0.091	490	41
910694	NVICWOOD	09/12/91	8:55	21.5	7.2	6.4	359	8		2.9	0.105	430	39
910714	NVICWOOD	09/26/91	8:00	21.8	7.5	6.3	408	6		2.8	0.098	360	32
910745	NVICWOOD	10/10/91	8:05	21.3	7.5	6.8	401	9		2.8	0.081	370	33
910828	NVICWOOD	10/23/91	8:45	18.8	7.7	7.0	424	7	30	2.6	0.081	390	35
910905	NVICWOOD	12/19/91	9:50	7.5	7.5	9.8	900	4	25	4.3	0.140	630	50
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
900606	OLDR-DMC-CLIFT	09/05/90	11:45	23.2	7.5	6.6	554	7		3.0	0.087	740	65
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

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TFPC DATA REPORT (cont.)

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
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
900791	OLDR-DMC-CLIFT	10/24/90	11:15	18.1	7.6	8.0	725	4	10	3.3	0.104	650	52
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
910018	OLDR-DMC-CLIFT	01/02/91	13:05	5.4	7.4	11.6	648	5		6.3	0.209	880	79
910046	OLDR-DMC-CLIFT	01/16/91	12:10	8.0	7.7	10.5	601	4		5.4	0.194	740	66
910119	OLDR-DMC-CLIFT	01/29/91	14:30	8.5	7.5	10.6	639	5	30	6.0	0.196	620	53
910137	OLDR-DMC-CLIFT	02/14/91	12:00	13.0	7.5	8.0	1000	14		3.6	0.103	490	40
910183	OLDR-DMC-CLIFT	02/25/91	12:05	13.6	7.7	8.9	836	6		4.9	0.178	690	57
910213	OLDR-DMC-CLIFT	03/12/91	12:05	12.5	8.1	9.0	700	5		5.1	0.161	620	53
910249	OLDR-DMC-CLIFT	03/26/91	14:00	13.0	7.6	8.2	700	30		9.6	0.338	1400	140
910279	OLDR-DMC-CLIFT	04/09/91	14:05	16.1	7.7	6.8	321	14		7.2	0.256	1200	120
910341	OLDR-DMC-CLIFT	05/22/91	12:00	19.6	7.3	8.8	465	11	35	4.1	0.131	520	47
910422	OLDR-DMC-CLIFT	06/13/91	9:40	22.6	8.0		585	13		3.8	0.120	590	50
910453	OLDR-DMC-CLIFT	06/26/91	9:30	20.9	7.9	7.9	610	11		3.6	0.113	600	51
910483	OLDR-DMC-CLIFT	07/10/91	9:15	24.3	7.8	6.6	553	13		3.8	0.123	590	52
910554	OLDR-DMC-CLIFT	07/24/91	9:37	24.5	7.5	7.4	512	15	35	4.1	0.106	420	36
910574	OLDR-DMC-CLIFT	08/07/91	9:15	23.0		7.5	518	12	35	3.3	0.108	550	48
910666	OLDR-DMC-CLIFT	08/21/91	9:44	23.5	7.4		681	17	35	3.8	0.100	550	47
910698	OLDR-DMC-CLIFT	09/12/91	9:45	22.2	7.2	6.7	454	13		3.0	0.090	430	38
910718	OLDR-DMC-CLIFT	09/26/91	9:05	21.8	7.6	7.9	461	12		2.9	0.108	490	42
910749	OLDR-DMC-CLIFT	10/10/91	9:00	21.6	7.6	6.9	446	12		2.8	0.075	400	35
910832	OLDR-DMC-CLIFT	10/23/91	9:50	19.4	7.8	7.0	457	8	25	2.8	0.077	350	30
910909	OLDR-DMC-CLIFT	12/19/91	10:35	7.7	7.7	9.8	897	4		3.8	0.153	420	34
9580	OLDRIVDMC	07/25/89	10:40	25.7			620	17				560	48
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

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TFPC DATA REPORT (cont.)

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
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
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
910020	OLDRIVDMC	01/02/91	13:30	5.5	7.6	12.0	740	5		5.4	0.177	900	78
910048	OLDRIVDMC	01/16/91	12:30	9.5	7.9	10.4	861	6		4.3	0.133	710	61
910121	OLDRIVDMC	01/29/91	14:50	8.5	7.6	10.4	681	6	30	5.4	0.196	650	55
910139	OLDRIVDMC	02/14/91	12:20	14.1	7.4	7.6	1140	15		3.5	0.081	410	33
910185	OLDRIVDMC	02/25/91	12:25	13.7	7.8	9.0	883	8		4.8	0.159	750	62
910215	OLDRIVDMC	03/12/91	12:20	13.5	8.2	8.8	914	8		5.2	0.146	690	59
910251	OLDRIVDMC	03/26/91	14:20	13.5	7.6	7.8	693	34		10.0	0.335	1200	110
910281	OLDRIVDMC	04/09/91	14:33	16.5	7.9	6.5	349	16		7.3	0.251	1400	140
910343	OLDRIVDMC	05/22/91	12:17	19.5	7.5	8.7	470	14	30	4.4	0.136	550	50
910424	OLDRIVDMC	06/13/91	9:59	22.7	7.0		606	14		3.8	0.123	620	54
910455	OLDRIVDMC	06/26/91	9:50	21.2	7.8	7.7	637	14		4.0	0.118	620	52
910485	OLDRIVDMC	07/10/91	9:40	24.2	7.7	6.2	568	17		3.4	0.120	540	46
910556	OLDRIVDMC	07/24/91	9:50	24.5	7.5	7.1	536	15	35	3.4	0.113	400	34
910576	OLDRIVDMC	08/07/91	9:30	22.8		7.0	580	16	40	3.5	0.112	610	52
910668	OLDRIVDMC	08/21/91	9:56	23.5	7.4		735	18	35	4.1	0.102	580	49
910700	OLDRIVDMC	09/12/91	10:00	22.5	7.2	6.5	449	10		3.1	0.094	470	41
910720	OLDRIVDMC	09/26/91	9:25	22.3	7.6	8.0	540	7		2.8	0.087	500	42
910751	OLDRIVDMC	10/10/91	9:15	21.7	7.6	7.0	440	10		2.7	0.081	390	35
910834	OLDRIVDMC	10/23/91	10:05	19.4	7.8	7.7	492	10	25	2.6	0.076	410	36
910911	OLDRIVDMC	12/19/91	10:50	7.8	7.7	10.1	939	6		3.3	0.098	360	29
9585	OLDRTRACY	07/25/89	7:00	24.1	7.6	7.9	850	23				500	41
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
910091	OLDRTRACY	01/29/91	11:20	9.4		10.1	1320	14	25	2.8	0.059	400	32
910313	OLDRTRACY	04/23/91	9:50	16.7	8.2	11.0	1510	23	30	5.6	0.161	950	78
910520	OLDRTRACY	07/24/91	9:05	24.2	7.6	7.0	1110	19	50	4.0	0.112	560	45
910635	OLDRTRACY	08/21/91	8:35	22.7		7.0	1140	19	50	5.0	0.116	640	53
910801	OLDRTRACY	10/23/91	9:05	18.5	7.7	6.3	1220	13	35	3.5	0.095	480	38
910586	ORWOODPP	07/31/91	12:54	26.1		6.4	914	21	80	8.3	0.295	940	87
910630	ORWOODPP	08/20/91	11:22	22.9	7.3		848	15	80	7.8	0.304	920	84

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910796	ORWOODPP	10/22/91	11:01	16.9	7.3		1670	14	80	8.8	0.330	1200	110
910587	PALMTRPP	07/31/91	12:08	26.3		4.5	840	8	140	14.0	0.629	1700	160
910629	PALMTRPP	08/20/91	10:56	25.2	6.9		769	10	125	12.0	0.515	1400	130
910795	PALMTRPP	10/22/91	10:44	18.5	7.2		1010	38	250	14.0	1.160	880	82
8047	PESCADER001	01/12/88	6:40	8.9	7.5	7.5	2140	52	20			930	75
8280	PESCADER001	04/19/88	7:06	16.3	7.3	6.5	1360	23	25				
8366	PESCADER001	05/09/88	11:46	18.5	8.2	10.0	1250	20	35	4.5		580	47
8503	PESCADER001	07/18/88	13:28	32.5	7.9	7.6	1280	51	50	5.6		650	55
9031	PESCADER001	01/03/89	11:26	6.9	7.6	8.3	2020	39	25	3.2			
9291	PESCADER001	04/17/89	11:06	20.4	7.7	9.7	1810	39	50	4.8		750	58
9459	PESCADER001	06/26/89	10:21	19.8	7.8	8.7	1070	63	40	4.1		560	44
900022	PESCADER001	01/23/90	13:00	9.6	7.2	8.3	1900	23	25	3.0		320	26
900213	PESCADER001	04/24/90	17:55	20.1	8.2	16.8	2290	17	60	4.5	0.115	750	54
900305	PESCADER001	06/27/90	11:10	23.1	7.9	5.6	1430	24	70	8.5	0.203		
900396	PESCADER001	07/25/90	7:30	20.2	8.2	10.0	1580	75	30	5.9	0.146	730	58
900508	PESCADER001	08/21/90	13:55	25.9		6.3	1150	14	60	14.0	0.203	420	35
900774	PESCADER001	10/23/90	11:25	18.2	9.5	8.0	2090	48	140	5.0	0.098	720	54
910067	PESCADER001	01/28/91	11:10	13.1	7.3	6.7	2390	28	40	2.9	0.080	300	22
910510	PESCADER001	07/23/91	13:07	29.5	7.7	7.4	1150	40	80	4.5	0.121	840	69
910614	PESCADER001	08/20/91	10:41	23.5	7.6	6.5	1550	60	75	6.2	0.141	880	72
910781	PESCADER001	10/22/91	8:35	17.4	7.6	6.1	1880	34	50	6.7	0.144	670	53
8048	PESCADER002	01/12/88	7:00	7.4	7.5	7.5	2180	52	60			770	63
8504	PESCADER002	07/18/88	13:56	34.5	7.7	9.0	1560	44	120	8.7		970	84
9032	PESCADER002	01/03/89	11:43	7.5	7.3	8.9	1740	26	20	2.4			
9292	PESCADER002	04/17/89	11:19	19.9	7.8	9.0	1690	56	60	4.9		770	60
9460	PESCADER002	06/26/89	10:34	21.4	7.8	9.3	1530	48	60	6.6		900	73
900023	PESCADER002	01/23/90	13:25	11.2	7.1	7.0	1460	34	30	2.2		250	20
900212	PESCADER002	04/24/90	17:40	19.7	7.8	12.7	2280	22	80	4.4	0.105	740	54
900306	PESCADER002	06/27/90	11:20	23.2	7.5	5.0	1370	12	80	11.0	0.293		
900397	PESCADER002	07/25/90	8:00	20.2	7.6	9.4	2000	36	35	6.2	0.152	760	58
900509	PESCADER002	08/21/90	14:10	25.4		5.2	1230	17	60	12.0	0.225	960	82
900775	PESCADER002	10/23/90	11:40	19.4	10.0	12.9	1960	23	60	5.0	0.110	810	60
910068	PESCADER002	01/28/91	12:20	13.8	7.3	10.3	2060	88	70	2.7	0.190	320	24
910512	PESCADER002	07/23/91	13:31	28.9	8.1	9.9	1270	26	80	5.5	0.144	780	64
910615	PESCADER002	08/20/91	11:01	23.5	7.6	7.0	1600	60	100	6.9	0.160	950	79
910782	PESCADER002	10/22/91	8:50	16.9	7.7	4.8	2270	25	70	8.2	0.197	1100	85
8049	PESCADER003	01/12/88	7:15	6.8	7.5	8.7	2560	33	40			770	62
8282	PESCADER003	04/19/88	7:26	14.8	7.5	7.2	1200	42	80				
8367	PESCADER003	05/09/88	12:03	19.6	8.4	12.0	1370	24	40	4.5		840	70
8505	PESCADER003	07/18/88	14:14	32.5	8.1	10.1	1850	27	70	5.9		760	60
9033	PESCADER003	01/03/89	12:00	6.3	7.5	11.4	2320	16	20	3.0			
9293	PESCADER003	04/17/89	11:31	19.1	7.6	9.3	1680	33	50	5.6		790	62
9461	PESCADER003	06/26/89	10:44	21.3	7.8	7.7	1510	66	50	6.4		850	67

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TFPC DATA REPORT (cont.)

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900024	PESCADER003	01/23/90	13:40	8.8	7.4	9.0	2160	28	20	2.9		300	23
900214	PESCADER003	04/24/90	17:15	19.7	8.1	13.1	1950	23	60	4.5	0.115	810	61
900307	PESCADER003	06/27/90	11:40	23.3	8.2	8.5	1600			7.4	0.190		
900398	PESCADER003	07/25/90	8:25	20.9	7.9	8.8	1560	36	50	7.6	0.183	720	58
900510	PESCADER003	08/21/90	14:29	25.7		8.2	1720	23	70	6.9	0.149	910	72
900776	PESCADER003	10/23/90	11:55	20.2	10.2	9.4	2280	21	100	4.5	0.096	640	47
910069	PESCADER003	01/28/91	12:00	11.1	9.9	9.9	2060	36	60	2.6	0.097	420	31
910511	PESCADER003	07/23/91	12:30	26.5	7.6	8.5	1780	23	60	7.5	0.190	1300	100
910616	PESCADER003	08/20/91	11:20	23.2	8.6	7.2	1910	56	100	6.2	0.128	890	69
910783	PESCADER003	10/22/91	9:10	17.1	7.7	5.8	2510	21	70	12.0	0.202	1000	81
8283	PESCADER004	04/19/88	8:00	14.7	7.1	4.1	1400	34	80				
8506	PESCADER004	07/18/88	14:46	30.5	8.1	7.8	1890	10	60	6.7		790	65
9294	PESCADER004	04/17/89	11:47	20.5	8.8	9.9	1650	10	40	5.8		900	69
9462	PESCADER004	06/26/89	10:58	21.4	7.9	6.2	1660	5	50	5.8		730	57
900025	PESCADER004	01/23/90	14:20	12.4	8.4	10.0	3060	18	25	4.0		650	42
900117	PESCADER004	02/19/90	12:55	10.0	8.1	9.7	2210	14	20	6.2		580	43
900399	PESCADER004	07/25/90	8:50	19.2	7.9	9.5	1540	22	35	6.2	0.166	710	57
900777	PESCADER004	10/23/90	12:20	18.7	10.2	3.6	2480	124	50	8.7	0.241	1400	110
910070	PESCADER004	01/28/91	11:35	12.0	7.1	7.0	2980	22	25	5.9	0.142	1200	85
910513	PESCADER004	07/23/91	12:03	25.4	7.3	3.0	1730	9	50	8.5	0.230	1200	98
910784	PESCADER004	10/22/91	9:45	17.6	8.0	7.4	1810	24	80	12.0	0.270	1200	98
8052	PIERSONPP01	01/20/88	7:00	7.4	6.7	8.2	826	30	80			2600	260
8187	PIERSONPP01	03/11/88	6:58	8.2	7.4		543	60	60			2600	260
8284	PIERSONPP01	04/22/88	6:00	14.5	7.1	5.4	635	19	100				
8369	PIERSONPP01	05/09/88	6:07	16.8	7.4	6.0	463	23	80	10.0		1700	170
8507	PIERSONPP01	07/22/88	6:15	22.1	6.9	4.5	268	40	60	5.5		750	74
9035	PIERSONPP01	01/09/89	7:33	8.0		9.2	476	19	70	10.0		940	93
9295	PIERSONPP01	04/21/89	6:38	17.1	7.0	7.2	540	29	70	11.0		1500	150
9463	PIERSONPP01	06/30/89	6:00	19.1	7.5	5.6	481	28	40	7.7		1100	110
8613	POTNODE252	08/10/88	8:51	22.0	7.9		193	8	15	2.4		260	26
8645	POTNODE252	08/10/88	8:51	22.0	7.9							260	25
8629	POTNODE252	08/17/88	8:57	22.4	7.4		222	7	15	2.2		290	27
8642	POTNODE252	08/17/88	8:57	22.4	7.4							310	30
8655	POTNODE252	08/24/88	8:40	21.8	7.8		207	7	10	2.5		350	34
8656	POTNODE252	08/24/88	8:40	21.8	7.8							290	28
8671	POTNODE252	08/31/88	8:45	23.2	8.4				10	3.0		300	27
8672	POTNODE252	08/31/88	8:45	23.2	8.4							250	22
8778	POTNODE252	11/30/88	12:10	10.5	8.0	9.1	252	18	40	4.9		630	61
8792	POTNODE252	12/07/88	9:30	10.3	8.4	9.5	282	13	35	5.1		560	54
8820	POTNODE252	12/20/88	9:35	8.6	7.9	10.6	288	7	20	4.1		470	45
8847	POTNODE252	12/28/88	10:00	6.9	7.5	11.5	298	8	25	4.1		510	49
9061	POTNODE252	01/11/89	9:15	6.3	8.0		265	9	30	4.4		490	48
9081	POTNODE252	01/18/89	9:45	7.4	6.8	11.4	264	7	30	4.5		510	50

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TFPC DATA REPORT (cont.)

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
9106	POTNODE252	01/26/89	9:16	7.7	7.5	11.3	309	5	25			310	29
9119	POTNODE252	02/02/89	9:15	8.2	7.4	10.5	458	5	20	3.5		310	28
9376	POTNODE252	06/01/89	8:35	19.4	7.7	10.1	162	9	20	2.4		250	24
9389	POTNODE252	06/08/89	8:15	19.9	7.7	9.9	184	12	15	2.4		290	28
9402	POTNODE252	06/15/89	7:20	21.3	7.9	9.4	183	13	20	2.7		330	32
9415	POTNODE252	06/19/89	7:20	20.8	7.7	8.7	188	11	20	2.1		280	27
9496	POTNODE252	07/06/89	9:15	23.7	7.1	8.5	150	13	20	2.2		380	35
9509	POTNODE252	07/13/89	7:11	22.0	7.4	8.4	174	7	15	2.8		370	36
9522	POTNODE252	07/20/89	7:40	23.2	7.6	8.7	178	8	15	2.3		320	31
9535	POTNODE252	07/27/89	7:26	22.4	7.8	8.8	142	8	15	2.4		330	32
8053	PROSPECTPP01	01/20/88	8:20	7.1	7.4	8.5	1390	20	100			2000	200
8188	PROSPECTPP01	03/11/88	7:59	9.1	7.9		1080	32	100			2000	200
8285	PROSPECTPP01	04/22/88	7:38	14.0	7.3	5.3	539	57	80				
8370	PROSPECTPP01	05/09/88	7:43	16.9	7.6	7.0	222	72	60	4.2		640	64
8508	PROSPECTPP01	07/22/88	7:47	22.0	7.5	5.3	183	52	50	3.0		380	38
8054	RINDGEPP01	01/14/88	11:26	9.4	6.7	5.7	890	8	160			3100	300
8190	RINDGEPP01	03/08/88	12:21	14.4	7.1		1220	18	200			1600	150
8287	RINDGEPP01	04/20/88	9:30	16.5	6.7	0.6	935	15	120				
8371	RINDGEPP01	05/09/88	9:39	20.7	7.5	5.8	910	13	160	18.0		2500	240
8509	RINDGEPP01	07/20/88	10:06	23.0	6.7	2.6	748	7	140			1900	190
9037	RINDGEPP01	01/05/89	11:30	8.5	7.0	7.0	865	7	120	19.0			
9143	RINDGEPP01	02/06/89	11:15	6.5	7.4	5.8	1470	8	160	17.0		1200	110
9297	RINDGEPP01	04/19/89	9:49	21.2	7.3	3.3	1680	18	100	15.0		2100	190
9465	RINDGEPP01	06/28/89	9:26	19.9	6.7	5.4	722	13	80	13.0		1900	190
900011	RINDGEPP01	01/22/90	6:30	9.1	6.7	3.9	1380	7	120	29.0		2600	250
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
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	120
910072	RINDGEPP01	01/31/91	8:25	9.1	7.4	3.9	1350	19	160	37.0	2.660	3400	330
910291	RINDGEPP01	04/18/91	8:00	16.6	7.2	5.7	1570	18	75	14.0	0.478	1800	160
8055	RINDGEPP02	01/14/88	11:00	9.2	6.3	4.8	588	6	175			2200	210
8191	RINDGEPP02	03/08/88	11:53	14.3	7.1		1100	24	120			1700	160
8288	RINDGEPP02	04/20/88	10:04	16.5	7.3	8.1	236	15	25				
8372	RINDGEPP02	05/09/88	10:10	22.5	7.1	1.2	728	10	160	23.0		2000	190
8510	RINDGEPP02	07/20/88	9:23	22.0	6.7	3.9	870	16	240	27.0		2300	230
9038	RINDGEPP02	01/05/89	10:50	11.0	6.8	5.9	910	4	120	44.0			
9144	RINDGEPP02	02/06/89	10:50	4.4	7.8	9.4	1260	14	160	22.0		1200	110
9298	RINDGEPP02	04/19/89	9:21	18.9	7.6	7.3	465	14	70	8.0		1000	100
9466	RINDGEPP02	06/28/89	8:56	18.9	6.9	6.0	770	14	140	15.0		2400	230
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	200

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TFPC DATA REPORT (cont.)

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
900376	RINDGEPP02	07/24/90	8:20	22.1		2.1	514	9	100	22.0	1.067	2200	210
900489	RINDGEPP02	08/20/90	9:15	22.1	6.2	3.1	485	3	150	27.0	1.270	2100	200
900755	RINDGEPP02	10/22/90	8:00	14.9	7.1	3.3	884	8	140	28.0	1.042	2300	200
910073	RINDGEPP02	01/31/91	9:10	9.2	7.3	6.3	1370	17	140	28.0	1.130	1100	99
910292	RINDGEPP02	04/18/91	8:50	16.2	7.2	7.7	1090	13	125	14.0	0.520	1700	160
910767	RINDGEPP02	10/21/91	9:25	17.8	7.0	6.6	541	4	80	18.0	0.750	1400	140
8056	RIOBLANC001	01/14/88	10:30	9.6	7.3	9.2	2500	17	25			720	52
8192	RIOBLANC001	03/09/88	11:27	14.2	7.5		731	8	35			990	90
8289	RIOBLANC001	04/20/88	8:45	14.5	7.5	7.6	1360	13	40				
8373	RIOBLANC001	05/09/88	9:07	20.2	7.6	7.5	647	6	40	5.7		750	68
8511	RIOBLANC001	07/20/88	8:42	21.5	7.5	3.4	739	16	40	5.4		670	60
9039	RIOBLANC001	01/05/89	10:15	8.7	7.6	10.1	732	29	40	4.3			
9141	RIOBLANC001	02/06/89	10:25	3.8	8.9	11.7	1010	11	30	4.3		410	32
9299	RIOBLANC001	04/19/89	8:49	17.8	7.6	5.4	1240	9	30	5.2		690	57
9467	RIOBLANC001	06/28/89	8:32	19.4	7.9	10.3	941	10	50	6.3		1200	110
8057	RIOBLANC002	01/14/88	10:15	9.9	7.3	6.0	880	8	15			720	64
8193	RIOBLANC002	03/09/88	11:15	14.2	7.5		460	14	40			1100	100
8290	RIOBLANC002	04/20/88	8:39	15.0	7.3	3.9	457	16	40				
8374	RIOBLANC002	05/09/88	8:52	19.8	7.6	6.0	377	12	80	6.9		870	86
8512	RIOBLANC002	07/20/88	8:23	21.0	7.5	4.0	784	7	40	5.8		780	70
9040	RIOBLANC002	01/05/89	10:00	10.2	7.7	8.2	593	15	35	4.1			
9142	RIOBLANC002	02/06/89	10:10	3.4	8.6	11.5	1060	10	30	4.4		370	29
9300	RIOBLANC002	04/19/89	8:35	18.3	7.6	5.0	806	7	30	5.2		700	62
9468	RIOBLANC002	06/28/89	8:24	20.2	7.5	7.5	460	11	25	3.7		870	83
8014	ROCKSL	01/07/88	11:20	9.9	7.4	13.2	755	10	25			540	46
8094	ROCKSL	02/10/88	10:00	12.1	7.3	10.0	385	12	30			740	71
8149	ROCKSL	03/03/88	11:05	13.6	7.8	10.7	711	5	20			530	44
8238	ROCKSL	04/05/88	9:00	15.5	7.5	9.8	679	6	15			410	33
8333	ROCKSL	05/03/88	10:05	18.6	7.8	9.2	315	12	30			520	49
8425	ROCKSL	06/14/88	10:24	23.2	7.5	6.7	434	21	35			430	38
8460	ROCKSL	07/12/88	10:03	25.0	7.3	7.1	787	10	25			530	47
8582	ROCKSL	08/09/88	12:20	24.1	7.8	7.9	852	12	20			370	28
8685	ROCKSL	09/06/88	9:50	25.0	7.5	7.3	950	9	20			440	33
8717	ROCKSL	10/04/88	10:15	19.9	7.4	8.4	925	7	15			410	31
8747	ROCKSL	11/01/88	11:10	17.7	7.6	9.0	1080	6	15			520	37
8816	ROCKSL	12/13/88	11:24	12.0	7.1	10.7	950	9	25			950	76
9057	ROCKSL	01/10/89	11:30	8.5	7.1	11.6	755	6	25			490	40
9135	ROCKSL	02/07/89	10:30	6.5	6.9	9.1	1250	11	30			520	36
9216	ROCKSL	03/07/89	10:30	13.5	7.4	10.5	852	5	20			540	40
9251	ROCKSL	04/04/89	9:49	16.6	7.6	8.3	194	13	40			540	53
9349	ROCKSL	05/02/89	9:50	19.4	7.5	8.7	211	11	25			420	41
9431	ROCKSL	06/06/89	10:10	21.8	7.7	7.9	271	19	35			490	46
9551	ROCKSL	07/05/89	11:30	25.4	7.6	7.9	284	17	35	2.7		340	32

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TFPC DATA REPORT (cont.)

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
9620	ROCKSL	09/06/89	9:45	22.9	7.2	8.8	552	6	10	2.4		620	56
9640	ROCKSL	10/02/89	7:09	20.3	7.6	10.8	520	8	20	3.5		420	36
9666	ROCKSL	11/07/89	11:15	15.7	7.8	8.9	638	5	15	2.5		500	41
9688	ROCKSL	12/05/89	11:00	12.9	7.7		810	4	10	2.6		610	49
900054	ROCKSL	01/24/90	8:50	8.3	7.8	10.5	962	8	25	3.5		710	56
900137	ROCKSL	02/23/90	12:25	10.8	7.0	12.5	598	7	20	3.7		860	78
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
900293	ROCKSL	06/26/90	11:15	23.0	7.8	6.8	377	9	25	3.3	0.080	430	39
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
900647	ROCKSL	09/17/90	9:55	21.9	7.9	7.4	548	5		2.5	0.070	570	48
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
900933	ROCKSL	12/12/90	10:35	9.5	7.5	8.4	1100	3		3.3	0.113	700	51
910012	ROCKSL	01/02/91	11:20	5.1	7.7	12.0	907	4		3.8	0.121	680	53
910040	ROCKSL	01/16/91	10:45	7.7	7.0	11.5	862	3		3.9	0.130	600	48
910113	ROCKSL	01/29/91	12:55	8.5	7.6	10.1	897	5	25	4.7	0.172	730	57
910131	ROCKSL	02/14/91	10:30	12.0	7.7	9.6	1070	4		4.5	0.164	690	53
910177	ROCKSL	02/25/91	10:15	13.1	7.8	9.9	1080	4		4.5	0.158	750	58
910207	ROCKSL	03/12/91	10:25	11.9	8.2	9.0	859	6		4.5	0.143	770	62
910243	ROCKSL	03/26/91	12:05	12.5	7.8	10.2	567	11		5.6	0.202	760	68
910273	ROCKSL	04/09/91	12:00	16.2	7.9	8.0	323	16		6.1	0.260	910	88
910335	ROCKSL	05/22/91	10:32	19.8	8.1	9.2	596	9	30	4.0	0.109	520	44
910416	ROCKSL	06/13/91	8:10	22.5	8.0		713	9		3.2		560	45
910447	ROCKSL	06/26/91	8:00	21.0	7.8	7.4	647	10		3.0	0.084	460	36
910477	ROCKSL	07/10/91	7:50	22.0	7.6	6.7	630	9		2.9	0.082	460	38
910548	ROCKSL	07/24/91	8:13	23.0	7.5	7.9	596	9	30	2.7	0.083	340	27

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TFPC DATA REPORT (cont.)

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
910568	ROCKSL	08/07/91	7:45	22.8		7.2	546	8	25	3.2	0.085	420	34
910660	ROCKSL	08/21/91	8:32	22.2	7.2		550	8	25	2.5	0.075	400	32
910692	ROCKSL	09/12/91	8:20	20.5	7.3	7.2	722	10		2.5	0.078	460	35
910712	ROCKSL	09/26/91	7:23	20.9	7.7	6.8	741	7		2.4	0.074	420	31
910743	ROCKSL	10/10/91	7:30	20.9	7.7	7.6	554	7		2.4	0.068	370	30
910826	ROCKSL	10/23/91	8:00	18.9	7.7	8.1	637	5	20	2.2	0.070	330	26
910903	ROCKSL	12/19/91	9:00	7.4	7.4	9.9	967	3	25	3.7	0.117	510	39
8695	SACRRIOVISTA	09/15/88	8:51	20.9	7.9	7.7	235	14	15			300	29
8724	SACRRIOVISTA	10/13/88	8:00	18.0	7.7	8.1	183	12	20			190	18
8762	SACRRIOVISTA	11/17/88	10:10	14.3	7.3	9.1	242	8	10			260	25
8808	SACRRIOVISTA	12/06/88	8:30	10.3	7.1	10.3	204	18	30			440	43
9076	SACRRIOVISTA	01/17/89	8:50	8.5	7.2	11.6	237	10	25			330	32
9156	SACRRIOVISTA	02/15/89	8:05	8.3	6.9	11.5	207	7	15			190	19
9231	SACRRIOVISTA	03/14/89	10:03	11.5	7.5	8.9	122	58	100			560	55
9260	SACRRIOVISTA	04/11/89	6:45	16.8	7.4	8.2	183	10	15			290	29
9356	SACRRIOVISTA	05/09/89	7:30	19.3	7.6	8.5	186	11	15			210	21
9483	SACRRIOVISTA	06/13/89	7:25	19.3	7.1	8.5	173	13	20			350	35
9557	SACRRIOVISTA	07/11/89	7:40	21.8	6.9	8.8	154	10	15	1.8		270	26
9595	SACRRIOVISTA	07/25/89	7:36	21.0	7.0	7.5	120	9				360	36
9626	SACRRIOVISTA	09/13/89	7:40	20.0	7.5	9.0	190	9	10	2.0		190	19
9646	SACRRIOVISTA	10/12/89	9:08	19.3	7.3	7.7	193	7	10	2.1		270	25
9675	SACRRIOVISTA	11/14/89	12:15	14.6	7.7	9.2	264	6	5	2.6		330	31
9697	SACRRIOVISTA	12/12/89	12:10	10.7	7.5	10.4	166	8	10	2.6		240	23
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
900330	SACRRIOVISTA	07/09/90	9:30	22.0	7.9	7.9	209	9		3.5		560	55
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
900527	SACRRIOVISTA	08/22/90	10:35	23.6	7.8	9.6	175	9	15	1.8	0.043	300	29
900572	SACRRIOVISTA	08/27/90	7:24	22.0	7.5	7.8	200	6		2.0	0.050	380	38
900594	SACRRIOVISTA	09/04/90	8:20	22.0	8.2		218	6		2.5	0.057	460	45
900614	SACRRIOVISTA	09/10/90	7:45	20.9	7.9	7.5	243	7			0.058	390	38
900634	SACRRIOVISTA	09/18/90	8:05	20.2	7.7	8.0	224	7		2.1	0.058	320	32
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
900722	SACRRIOVISTA	10/10/90	6:40	17.8	7.6	8.1	276	9		2.1	0.047	310	29

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TFPC DATA REPORT (cont.)

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
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
910006	SACRRIOVISTA	01/02/91	9:05	8.2	7.3	11.0	246	5		2.6	0.044	320	30
910034	SACRRIOVISTA	01/15/91	8:30	8.8	7.5	12.2	221	4		2.1	0.040	260	25
910102	SACRRIOVISTA	01/29/91	10:40	9.4	7.5	11.2	291	8	15	2.1	0.049	230	22
910145	SACRRIOVISTA	02/13/91	14:15	13.2	7.6	10.3	1170	10		2.8	0.086	490	36
910160	SACRRIOVISTA	02/26/91	9:50	14.5	7.3	9.5	405	11	25	2.7	0.060	340	31
910201	SACRRIOVISTA	03/11/91	14:25	13.3	6.9	9.0	401	37		5.7	0.199	720	69
910256	SACRRIOVISTA	03/25/91	10:30	12.4	7.2	9.4	236	39	60	5.4	0.168	610	60
910287	SACRRIOVISTA	04/09/91	14:55	18.0	7.5	8.3	275	17		3.7	0.086	510	51
910324	SACRRIOVISTA	04/23/91	8:45	15.8	8.2	9.1	288	17	20	3.2	0.105	510	50
910380	SACRRIOVISTA	05/21/91	9:15	18.4	7.9	8.1	289	17	20	2.2	0.059	320	29
910409	SACRRIOVISTA	06/11/91	11:38	24.1	7.9	8.0	204	11			0.051	260	25
910429	SACRRIOVISTA	06/24/91	9:30	19.1	7.5	8.0	225	21	25	2.0	0.048	230	22
910470	SACRRIOVISTA	07/08/91	10:54	23.0	7.4	8.8	213	14		2.3	0.056	310	31
910533	SACRRIOVISTA	07/24/91	9:37	22.2		8.0	198	19	30	2.2	0.069	190	18
910561	SACRRIOVISTA	08/05/91	6:05	20.8	7.6	9.1	257	16	30	2.3	0.057	310	31
910645	SACRRIOVISTA	08/21/91	10:31	21.9	7.6	8.0	193	13	25	2.1	0.051	190	19
910674	SACRRIOVISTA	09/11/91	8:25	20.8	7.9		292	17	30	2.7	0.031	340	32
910705	SACRRIOVISTA	09/24/91	11:45	26.2	7.6	9.8	220	7		2.0	0.025	190	19
910735	SACRRIOVISTA	10/08/91	10:30	21.1	7.5	8.0	185	7		2.5	0.061	240	24
910811	SACRRIOVISTA	10/23/91	7:39	17.8	7.1	7.6	250	11	20	1.9	0.045	190	17
910848	SACRRIOVISTA	11/19/91	10:58	14.0	6.7	8.9	266	9	25	2.1	0.051	230	22
910886	SACRRIOVISTA	12/09/91	10:50	9.8	8.0	10.5	394	8	25	2.1	0.047	230	20
8547	SALMONOLD	07/19/88	13:50	29.5	8.1	7.0	950	24	30			730	62
9570	SANDMOUND	07/25/89	7:49	23.2			320	11				530	48
900057	SANDMOUND	01/24/90	10:35	8.2	7.9	10.4	842	9	30	4.0		640	52
900239	SANDMOUND	04/25/90	7:25	17.0	8.2	8.9	960	6	20	3.5	0.082	390	28
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
900422	SANDMOUND	07/26/90	7:55	22.9	8.3	7.8	462	9	10	2.5	0.068	380	32
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
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

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TFPC DATA REPORT (cont.)

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
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
900825	SANDMOUND	10/31/90	10:10	17.3	7.7	9.3	786	2		2.6	0.074	450	33
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
910010	SANDMOUND	01/02/91	11:00	5.2	7.7	11.9	879	2		3.8	0.110	690	53
910038	SANDMOUND	01/16/91	10:05	7.3	7.3	11.8	903	5		3.7	0.119	750	59
910109	SANDMOUND	01/29/91	11:30	8.5	7.7	10.9	903	4	25	4.4	0.157	660	52
910129	SANDMOUND	02/14/91	10:05	11.6	7.6	9.5	1050	4		4.4	0.160	660	50
910175	SANDMOUND	02/25/91	9:50	12.8	7.9	10.1	1050	4		7.1	0.142	670	51
910205	SANDMOUND	03/12/91	9:50	11.4	7.7	9.4	879	6		4.2	0.135	690	54
910241	SANDMOUND	03/26/91	11:45	12.7	7.8	10.2	486	12		5.7	0.202	790	73
910271	SANDMOUND	04/09/91	11:40	17.2	8.0	8.5	274	15		5.9	0.232	910	89
910331	SANDMOUND	05/22/91	10:01	18.4	7.8	9.4	641	8	25	3.3	0.102	490	41
910414	SANDMOUND	06/13/91	7:48	22.1	8.1		641	9		3.2	0.093	560	45
910445	SANDMOUND	06/26/91	7:40	19.4	8.0	7.6	621	11		2.8	0.075	470	37
910475	SANDMOUND	07/10/91	7:30	21.5	7.8	7.6	654	8		2.8	0.087	460	37
910544	SANDMOUND	07/24/91	7:27	22.3	7.6	8.2	624			2.7	0.088	350	27
910566	SANDMOUND	08/07/91	7:25	22.0		7.4	527	8	30	2.6	0.075	440	36
910656	SANDMOUND	08/21/91	8:15	21.1	7.1		544	9	30	2.6	0.076	380	31
910690	SANDMOUND	09/12/91	8:00	20.3	7.5	7.5	702	13		2.5	0.068	480	37
910710	SANDMOUND	09/26/91	7:05	20.4	7.9	7.5	673	12		2.2	0.094	400	31
910741	SANDMOUND	10/10/91	7:15	20.5	7.7	7.6	515	5		2.3	0.060	310	25
910822	SANDMOUND	10/23/91	7:15	18.4	7.7	8.0	742	5	20	2.5	0.065	390	29
910901	SANDMOUND	12/19/91	8:35	7.5	7.4	10.1	1020	7	25	3.3	0.107	490	36
9574	SANTAFEBACON	07/25/89	8:32	24.1			200	8				440	42
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

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TFPC DATA REPORT (cont.)

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
900662	SANTAFEBACON	09/25/90	11:09	22.0	7.6	6.8	368	3		3.2	0.105	400	37
900684	SANTAFEBACON	10/02/90	10:20	22.2	7.5	7.3	565	7		2.8	0.083	470	39
900709	SANTAFEBACON	10/09/90	10:00	18.8	7.9	8.0	710	4		2.9	0.086	550	44
900729	SANTAFEBACON	10/15/90	10:10	19.1	7.9	11.4	766	3		3.0	0.087	600	47
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
910013	SANTAFEBACON	01/02/91	11:55	5.3	7.5	11.8	593	4		5.4	0.179	760	68
910041	SANTAFEBACON	01/16/91	11:00	7.6	7.0	11.1	563	4		5.1	0.169	640	58
910114	SANTAFEBACON	01/29/91	13:10	8.6	7.6	10.3	767	6	30	30.0	0.192	630	52
910132	SANTAFEBACON	02/14/91	10:55	12.2	7.8	9.5	914	5		4.5	0.162	690	54
910178	SANTAFEBACON	02/25/91	10:50	13.5	7.7	9.8	979	5		4.8	0.165	790	62
910208	SANTAFEBACON	03/12/91	11:00	12.2	8.1	8.8	665	4		4.7	0.156	650	55
910244	SANTAFEBACON	03/26/91	12:30	12.9	7.8	9.8	564	10		6.0	0.198	800	73
910274	SANTAFEBACON	04/09/91	12:40	21.8	7.9	7.8	290	14		7.1	0.272	1200	120
910336	SANTAFEBACON	05/22/91	10:58	19.9	7.7	9.1	507	9	25	4.0	0.125	600	54
910417	SANTAFEBACON	06/13/91	8:42	22.7	7.9		490	8		3.8	0.114	570	51
910448	SANTAFEBACON	06/26/91	8:30	21.6	7.8	7.3	605	9		3.2	0.095	480	40
910478	SANTAFEBACON	07/10/91	8:20	23.1	7.8	6.8	564	8		3.1	0.098	500	41
910549	SANTAFEBACON	07/24/91	8:43	23.7	7.6	7.9	544	8	30	2.9	0.091	390	32
910569	SANTAFEBACON	08/07/91	8:20	23.0		7.6	506	10	30	3.0	0.093	410	34
910661	SANTAFEBACON	08/21/91	9:00	23.6	7.2		510	8	25	3.0	0.095	450	37
910693	SANTAFEBACON	09/12/91	8:40	21.3	7.3	6.6	390	8		2.9	0.099	420	37
910713	SANTAFEBACON	09/26/91	7:45	21.4	7.7	6.0	430	5		2.6	0.095	350	30
910744	SANTAFEBACON	10/10/91	7:55	21.2	7.7	6.7	398	7		2.8	0.087	400	36
910827	SANTAFEBACON	10/23/91	8:30	18.9	7.7	6.8	404	6	25	2.7	0.084	360	31
910904	SANTAFEBACON	12/19/91	9:35	7.5	7.7	9.9	908	3	30	4.1	0.136	570	44
8064	SHIMATR	01/14/88	8:30	9.0	7.3	7.1	763	20	20			490	46
8196	SHIMATR	03/09/88	9:05	13.5	7.5	7.7	651	32	30			630	61
8293	SHIMATR	04/20/88	6:33	5.1	7.2	4.2	640	72	40				
8377	SHIMATR	05/09/88	6:24	19.2	7.6	4.2	696	11	40	6.5		1000	97
8514	SHIMATR	07/20/88	5:57	23.7	7.3	5.2	577	20	120	13.0		1200	120
9043	SHIMATR	01/05/89	8:00	7.6	7.1	9.6	538	44	50	6.4			
9137	SHIMATR	02/06/89	8:32	3.1	9.4	11.6	673	10	30			430	40
9303	SHIMATR	04/19/89	6:45	17.9	7.3	4.4	663	9	30	5.8		680	65
9471	SHIMATR	06/26/89	6:45	17.9	7.0	6.7	344	22	100	11.0		1800	180
900333	SJRJERSEY	07/10/90	7:10	22.2	8.3	7.5	1630	10		2.7	0.082	730	49
900353	SJRJERSEY	07/17/90	8:10	23.1	8.1	7.8	705	9		2.6	0.069	620	50
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

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

TFPC DATA REPORT (cont.)

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
900554	SJRJERSEY	08/13/90	7:50	19.4	8.6	7.6	637	8		2.7	0.059	360	28
900532	SJRJERSEY	08/22/90	9:00	22.6	7.9	8.3	745	7	20	2.1	0.059	540	41
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
900657	SJRJERSEY	09/25/90	9:50	21.1	8.3	7.7	1470	12		2.5	0.068	710	49
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
910008	SJRJERSEY	01/02/91	10:15	6.0	8.0	11.4	1950	5		3.0	0.970	740	48
910036	SJRJERSEY	01/16/91	9:35	7.8	7.3	11.9	1600	4		3.2	0.087	680	47
910107	SJRJERSEY	01/29/91	10:40	8.7	7.9	10.8	1560	6	20	3.4	0.110	670	46
910127	SJRJERSEY	02/14/91	9:30	11.5	7.5	9.7	1630	4		3.3	0.114	630	42
910173	SJRJERSEY	02/25/91	10:15	12.8	8.0	9.4	1750	4		3.8	0.118	750	51
910203	SJRJERSEY	03/12/91	9:10	11.8	8.1	9.2	1190	16		4.2	0.133	830	60
910239	SJRJERSEY	03/26/91	11:05	13.0	7.8	9.9	500	18		5.9	0.285	750	69
910269	SJRJERSEY	04/09/91	11:10	15.5	7.8	8.1	383	17		5.6	0.202	690	65
910329	SJRJERSEY	05/22/91	8:38	17.6	8.3	10.0	994	13	25	6.2	0.104	520	38
910412	SJRJERSEY	06/13/91	7:15	20.2	8.3		2120	18		3.3	0.085	750	48
910443	SJRJERSEY	06/26/91	7:10	19.8	7.7	8.0	1550	15		3.2	0.076	610	40
910473	SJRJERSEY	07/10/91	7:00	21.0	7.6	8.0	1470	18		2.8	0.069	500	35
910542	SJRJERSEY	07/24/91	7:00	21.0	7.4	9.1	1280	18	35	2.5	0.069	410	27
910564	SJRJERSEY	08/07/91	6:50	20.8		8.6	1030	17	35	2.5	0.075	580	41
910654	SJRJERSEY	08/21/91	6:50	19.7	7.7		929	14	30	2.3	0.060	440	31
910688	SJRJERSEY	09/12/91	7:30	20.4	7.1	8.1	1950	16		3.0	0.065	580	36
910708	SJRJERSEY	09/26/91	6:40	20.4	7.3	9.0	1540	12		2.3	0.063	480	32
910739	SJRJERSEY	10/10/91	6:50	20.3	7.3	7.8	1180	11		2.4	0.053	390	27
910820	SJRJERSEY	10/23/91	6:40	18.2	7.0	8.1	2500	13	25	2.1	0.063	400	24
910899	SJRJERSEY	12/19/91	8:00	7.5	7.1	10.3	2390	4	20	2.9	0.078	480	30
9582	SJRMOSSDALE	07/25/89	6:00	22.7	7.0	9.3	800	44				640	54
900036	SJRMOSSDALE	01/24/90	8:30	8.2	7.8	10.3	1310	15	20	3.8		490	40
900217	SJRMOSSDALE	04/25/90	7:05	17.0	7.6	9.0	823	11	40	4.3	0.113	640	57
900401	SJRMOSSDALE	07/26/90	7:40	23.0	7.6	9.2	853	19	10	3.1	0.082	420	34
900513	SJRMOSSDALE	08/22/90	14:05	26.3		7.2	738	23	35	2.7	0.075	650	54
900795	SJRMOSSDALE	10/24/90	7:58	17.9	7.0	8.0	739	14	25	2.4	0.061	480	39
910088	SJRMOSSDALE	01/29/91	14:25	13.0		11.1	1100	11	15	2.1	0.042	360	28
910310	SJRMOSSDALE	04/23/91	7:25	18.0	8.1	9.7	1330	27	40	4.6	0.117	710	59

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TFPC DATA REPORT (cont.)

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
910517	SJRMOSSDALE	07/24/91	6:45	23.6	8.5	8.2	962	27	70	3.4	0.090	560	46
910632	SJRMOSSDALE	08/21/91	6:22	22.4	8.4	8.4	950	26	50	3.4	0.090	630	51
910798	SJRMOSSDALE	10/23/91	6:35	17.1	7.6	8.9	727	11	30	2.5	0.064	330	27
910578	STATENPP01	07/31/91	6:11	23.4	6.7	5.0	263	7	140	14.0	0.691	1700	170
910608	STATENPP01	08/19/91	11:26	23.5	6.8		245	7	160	17.0	0.803	1600	160
910775	STATENPP01	10/21/91	11:25	16.8	6.9	2.5	715	39	400	16.0	1.675	1800	170
910579	STATENPP02	07/31/91	6:29	21.7	8.2	6.3	315	13	140	11.0	0.544	1300	130
910609	STATENPP02	08/19/91	11:50	22.7	6.6		293	10	80	9.0	0.413	760	74
910776	STATENPP02	10/21/91	11:40	19.5	6.7	2.0	830	56	250	31.0	1.365	2500	240
8441	STATION04B	06/28/88	13:55	23.8	7.9							510	44
9573	STATION04B	07/25/89	8:11	23.7			350	9				460	40
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
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
910011	STATION04B	01/02/91	11:10	5.1	7.6	12.1	880	4		4.2	0.123	640	50
910039	STATION04B	01/16/91	10:25	7.4	7.0	11.3	861	3		3.8	0.124	640	52
910112	STATION04B	01/29/91	12:30	8.5	7.6	10.8	878	4	25	4.5	0.163	620	48
910130	STATION04B	02/14/91	10:20	11.5	7.7	9.7	1090	4		4.2	0.148	690	52
910176	STATION04B	02/25/91	10:05	13.5	7.8	10.0	1080	4		4.6	1.490	760	58
910206	STATION04B	03/12/91	10:10	11.9	8.2	9.2	779	5		4.4	0.144	740	61
910242	STATION04B	03/26/91	11:55	12.5	7.7	10.1	549	10		5.9	0.257	760	69
910272	STATION04B	04/09/91	11:53	17.2	8.0	8.0	320	16		6.4	0.238	680	65
910334	STATION04B	05/22/91	10:25	18.7	7.9	9.2	613	10	25	5.7	0.107	510	43
910415	STATION04B	06/13/91	8:01	22.5	8.0		719	8		3.1	0.104	570	46

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TFPC DATA REPORT (cont.)

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
910446	STATION04B	06/26/91	7:50	19.2	8.1	7.4	639	9		3.2	0.086	540	43
910476	STATION04B	07/10/91	7:40	22.0	7.6	7.2	648	10		2.8	0.082	470	38
910547	STATION04B	07/24/91	8:06	22.9	7.6	8.0	595	10	30	2.6	0.094	330	26
910567	STATION04B	08/07/91	7:40	22.4		7.5	539	9	30	2.7	0.120	400	32
910659	STATION04B	08/21/91	8:23	22.1	7.0		551	8	25	2.7	0.079	380	31
910691	STATION04B	09/12/91	8:10	20.9	7.2	7.3	702	10		2.5	0.076	430	33
910711	STATION04B	09/26/91	7:20	20.8	7.2	6.7	705	8		2.3	0.076	400	30
910742	STATION04B	10/10/91	7:25	20.9	7.7	7.6	563	6		2.4	0.066	340	27
910825	STATION04B	10/23/91	7:55	18.8	7.6	7.7	665	5	20	2.2	0.062	360	28
910902	STATION04B	12/19/91	8:45	7.5	7.5	10.0	950	4	25	3.6	0.118	520	39
8442	STATION05A	06/28/88	14:13	23.6	7.9							420	36
8443	STATION06A	06/28/88	14:39	23.2	8.0	0.0	469	19				420	37
9576	STATION09	07/25/89	9:12	24.5			300	11				470	43
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
900469	STATION09	08/07/90	9:20	24.9	7.7	7.4	542	7		4.0	0.083	600	51
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
900888	STATION09	11/28/90	11:20	10.6	7.8	9.6	845	2		3.6	0.090	520	39
900936	STATION09	12/12/90	11:25	9.4	7.4	8.2	910	4		3.7	0.114	630	48
910015	STATION09	01/02/91	12:20	5.3	7.5	12.0	821	5		4.8	0.163	780	64
910043	STATION09	01/16/91	11:30	8.0	7.5	10.9	793	5		5.2	0.186	720	62
910116	STATION09	01/29/91	13:40	8.5	7.4	10.4	788	6	30	5.2	0.191	670	55
910134	STATION09	02/14/91	11:20	12.9	7.7	9.3	915	6		4.8	0.171	620	50
910180	STATION09	02/25/91	11:20	13.3	7.7	9.4	947	5		4.8	0.188	700	55
910210	STATION09	03/12/91	11:25	12.3	8.1	9.0	852	5		4.6	0.153	650	52
910246	STATION09	03/26/91	13:18	12.7	7.7	9.9	584	10		5.8	0.215	790	72
910276	STATION09	04/09/91	13:25	19.5	7.8	7.9	311	15		6.6	0.259	960	93

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TFPC DATA REPORT (cont.)

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
910338	STATION09	05/22/91	11:29	19.5	7.7	8.6	503	9	30	3.8	0.127	480	43
910419	STATION09	06/13/91	9:06	22.8	8.0		622	10		3.4	0.110	620	52
910450	STATION09	06/26/91	8:50	21.0	7.8	7.7	611	10		3.3	0.102	560	45
910480	STATION09	07/10/91	8:40	24.0	7.8	6.5	570	10		3.4	0.131	560	48
910551	STATION09	07/24/91	9:02	23.7	7.4	7.7	537	10	35	2.9	0.101	370	31
910571	STATION09	08/07/91	8:40	23.0		7.6	513	9	30	3.4	0.102	480	40
910663	STATION09	08/21/91	9:20	23.4	7.3		507	8	30	3.0	0.094	480	41
910695	STATION09	09/12/91	9:05	21.7	7.2	6.9	617	12		2.8	0.088	480	38
910715	STATION09	09/26/91	8:05	21.7	7.5	6.5	661	11		2.6	0.091	400	31
910746	STATION09	10/10/91	8:20	21.3	7.6	7.3	539	10		2.5	0.067	360	30
910829	STATION09	10/23/91	8:55	18.9	7.7	7.2	531	6	25	2.4	0.074	370	31
910906	STATION09	12/19/91	10:00	7.5	7.7	9.8	879	4	30	4.7	0.150	640	52
8065	TERMPP01	01/15/88	7:20	13.8	7.2	6.5	930	6	120			2400	230
8197	TERMPP01	03/10/88	9:45	10.7	7.1		889	10	140			2500	240
8294	TERMPP01	04/21/88	10:05	17.0	7.3	7.3	961	14	60				
8291	TERMPP01	04/21/88	10:05	17.0	7.3	7.3	962	14	80				
8378	TERMPP01	05/09/88	9:34	21.4	7.4	5.0	910	11	100	11.0		1600	150
8515	TERMPP01	07/21/88	10:00	23.5	6.9	4.6	425	11	120	10.0		1400	130
9044	TERMPP01	01/06/89	11:45	7.7	7.2	7.8	801	6	80	12.0		1300	120
9304	TERMPP01	04/20/89	9:21	18.9	7.7	8.6	480	19	60	6.7		850	80
9472	TERMPP01	06/29/89	8:46	18.0	7.5	6.8	484	12	80	8.7		2000	190
8066	TERMPP02	01/15/88	7:45	9.9	7.0	7.0	786	8	125			1900	180
8198	TERMPP02	03/10/88	9:28	9.8	7.3		716	12	80			1400	130
8295	TERMPP02	04/21/88	9:36	16.7	6.9	7.0	798	12	80				
8379	TERMPP02	05/09/88	9:07	18.8	7.5	7.1	719	15	100	8.7		1700	160
8516	TERMPP02	07/21/88	9:30	23.0	7.0	5.0	542	11	60	5.1		800	74
9045	TERMPP02	01/06/89	11:25	7.2	7.5	7.9	782	9	100	34.0		1500	150
9305	TERMPP02	04/20/89	9:06	18.8	7.5	7.8	704	13	60	8.0		1100	100
9473	TERMPP02	06/29/89	8:28	19.0	7.7	5.6	591	228	160	10.0		5100	500
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
900521	TURNERCUT	08/22/90	9:00	23.1		7.1	259	5	25	3.2	0.114	540	51
900803	TURNERCUT	10/24/90	12:48	20.2	7.1	7.5	786	3	20	3.5	0.103	660	57
910096	TURNERCUT	01/29/91	9:00	7.9	7.8	10.0	528	5	40	7.7	0.281	620	58
910318	TURNERCUT	04/23/91	12:25	17.2	7.5	8.7	285	11	25	5.2	0.185	440	42
910528	TURNERCUT	07/24/91	14:25	26.1	7.1	7.9	406	5	30	4.0	0.139	480	46
910640	TURNERCUT	08/21/91	11:22	25.0		7.3	381	6	35	4.5	0.150	470	42
910806	TURNERCUT	10/23/91	11:45	19.6	7.3	7.2	540	5	25	3.4	0.100	480	43
8604	UJONESSIPH01	08/10/88	12:01	22.6	6.7	2.2	417	4	20	3.1		460	41
8636	UJONESSIPH01	08/17/88	7:22	20.8	6.7	1.5	407	2	20	3.2		310	28
9420	UJONESSIPH01	06/20/89	7:52	21.2	7.4	2.4	279	3	30	5.0		640	62
9514	UJONESSIPH01	07/14/89	9:24	23.3	7.4	4.1	239	5	25	3.2		460	44
8663	UJONESSIPH02	08/24/88	7:47	22.0	7.1	3.0	378	21	60	3.5		520	49

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TFPC DATA REPORT (cont.)

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
9395	UJONESSIPH02	06/08/89	7:29	19.3	7.3	4.5	252	6	25	4.6		410	40
9408	UJONESSIPH02	06/15/89	7:45	23.2	7.2	3.5	266	8	30	3.8		440	43
8067	UPEGBERTPP01	01/20/88	9:45	6.3	7.3	10.1	728	42	50				
8199	UPEGBERTPP01	03/11/88	9:14	10.5	7.9		1160	22	60			1600	160
8296	UPEGBERTPP01	04/22/88	9:26	15.8	7.8	7.3	704	36	100				
8380	UPEGBERTPP01	05/09/88	9:15	19.9	8.5	10.5	771	21	60	9.3		2100	210
8517	UPEGBERTPP01	07/22/88	9:20	23.1	7.5	6.5	344	88	40	5.1		750	75
9046	UPEGBERTPP01	01/09/89	9:33	7.1		10.6	457	44	80	6.7		530	53
9474	UPEGBERTPP01	06/30/89	8:40	20.2	7.0	5.8	511	160	50	8.4		2100	210
8068	UPEGBERTPP02	01/20/88	10:15	6.3	7.5	10.1	506	68	140				
8297	UPEGBERTPP02	04/22/88	9:48	15.5	7.2	7.3	637	68	80				
8381	UPEGBERTPP02	05/09/88	9:35	18.4	7.9	8.8	647	116	40	5.3		860	85
8518	UPEGBERTPP02	07/22/88	9:55	24.3	7.4	6.5	277	104	25	3.8		740	68
9047	UPEGBERTPP02	01/09/89	9:54	7.5		9.9	597	190	100	6.6		340	33
9307	UPEGBERTPP02	04/21/89	8:47	17.6	7.4	6.2	701	16	80	12.0		1300	130
9475	UPEGBERTPP02	06/30/89	9:00	20.8	6.6	6.9	375	100	40	6.1		1800	180
8201	UPEGBERTPP03	03/11/88	9:37	7.6	7.5		716	30	60			1200	120
8298	UPEGBERTPP03	04/22/88	10:05	14.0	7.5	5.7	1780	280	60				
8382	UPEGBERTPP03	05/09/88	9:53	20.1	8.1	7.6	2240	72	40	16.0		2400	240
8519	UPEGBERTPP03	07/22/88	10:15	25.9	7.3	4.2	331	128	50	5.6		710	70
9048	UPEGBERTPP03	01/09/89	10:07	7.7		10.7	553	40	60	5.8		600	60
9476	UPEGBERTPP03	06/30/89	9:15	20.8	6.3	6.1	342	140	25	5.1		670	66
900031	UPJONESPP01	01/23/90	11:00							37.0		3900	380
8071	UPJONESPP02	01/14/88	7:30	8.4	6.6	7.0	756	66	80			1700	170
8203	UPJONESPP02	03/09/88	7:45	14.1	6.9	6.1	789	48	160			1500	150
8300	UPJONESPP02	04/18/88	12:40	18.4	6.9	2.9	960	20	120				
8384	UPJONESPP02	05/09/88	10:06	20.2	7.3	4.0	1120	46	120	10.0		1400	140
8520	UPJONESPP02	07/18/88	10:30	27.0	7.1	0.0	860	60	120	8.1		1000	96
8601	UPJONESPP02	08/11/88	11:24	23.2	6.8	2.8	598	12	70	8.3		1200	110
8624	UPJONESPP02	08/17/88	7:45	19.9	6.9	3.1	721	27	140	14.0		1400	140
8661	UPJONESPP02	08/24/88	8:15	20.6	7.0	3.7	766	28	100	10.0		1400	140
8677	UPJONESPP02	08/31/88	7:45	23.3	6.6	5.2	516	19	50	4.8		590	54
8784	UPJONESPP02	11/30/88	9:26	11.4	7.1	5.6	718	28	80	7.5		900	84
8798	UPJONESPP02	12/07/88	9:20	11.4	7.1	7.3	799	32	80	7.1		850	78
8854	UPJONESPP02	12/28/88	8:20	5.0	7.1	10.4	728	64	60	9.8		1200	120
9050	UPJONESPP02	01/03/89	9:35	6.1	7.1	9.0	759	99	60	9.6			
9070	UPJONESPP02	01/11/89	9:00	5.7		9.5	745	230	140	12.0		1400	140
9087	UPJONESPP02	01/18/89	9:20	7.1	6.7	8.7	795	66	60	10.0		1200	110
9112	UPJONESPP02	01/26/89	9:02	9.2		6.5	958	24	80			670	63
9125	UPJONESPP02	02/03/89	8:58	9.8	6.7	9.1	1070	23	80	8.1		810	72
9310	UPJONESPP02	04/17/89	9:27	18.4	7.3	4.2	694	21	100	12.0		970	91
9380	UPJONESPP02	06/01/89	7:12	23.2	7.5	3.6	843	27	80	12.0		1100	110
9393	UPJONESPP02	06/08/89	7:05	18.0	7.6	4.6	688	33	120	12.0		1400	130

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TFPC DATA REPORT (cont.)

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
9406	UPJONESPP02	06/15/89	7:15	22.3	7.5	4.6	533	22	80	8.6		1200	110
9419	UPJONESPP02	06/20/89	7:17	20.8	7.4	3.5	840	26	100	7.9		1200	120
9477	UPJONESPP02	06/26/89	9:00	22.9	7.6	3.5	453	50	100	6.1		700	67
9500	UPJONESPP02	07/07/89	5:45	23.8	7.0	3.9	532	33	100	8.7		1500	140
9513	UPJONESPP02	07/14/89	9:48	22.9	7.2	4.5	494	23	80	8.8		1200	120
9526	UPJONESPP02	07/21/89	9:47	23.6	5.7	1.9	667	15	100	13.0		1400	140
9539	UPJONESPP02	07/28/89	9:28	21.2	7.3	2.8	539	102	100	10.0		1100	110
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	100
900209	UPJONESPP02	04/24/90	14:10	18.3	7.3	4.6	774	21	100	8.2	0.296	1000	98
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
900771	UPJONESPP02	10/23/90	9:15	16.5	8.8	4.1	925	52	100	8.6	0.364	1300	120
910064	UPJONESPP02	01/28/91	13:25	12.6	7.0	6.5	975	30	120	9.5	0.370	1100	110
910524	UPJONESPP02	07/24/91	11:30	24.1	6.5	4.5	678	72	160	7.8	0.325	780	73
910622	UPJONESPP02	08/20/91	7:09	19.5	6.7	4.6	621	25	100	9.5	0.397	840	80
910788	UPJONESPP02	10/22/91	7:32	17.3	6.6		703	27	140	16.0	0.734	1600	150
910580	VENICE	07/31/91	7:45	21.6	7.5	7.4	415	6	140	14.0	0.677	1600	160
910605	VENICE	08/19/91	6:50	20.2	7.2	4.0	476	8	120	15.0	0.734	1400	140
910772	VENICE	10/21/91	6:55	18.0	6.7	3.1	410	1	200	29.0	1.470	2700	270
8009	VERNALIS	01/07/88	8:05	10.3	7.4	11.1				3.9		540	45
8010	VERNALIS	01/07/88	8:05	10.3	7.4	11.1	1080	11	15			540	46
8090	VERNALIS	02/10/88	7:30	12.4	7.4	9.8	1320	16	20			680	60
8089	VERNALIS	02/10/88	7:30	12.4	7.4	9.8				7.1		610	52
8144	VERNALIS	03/15/88	7:45	12.3	7.6	10.0	800	19	20			370	32
8145	VERNALIS	03/15/88	7:45	12.3	7.6	10.0				2.4		440	38
8234	VERNALIS	04/05/88	6:40	14.3	7.5	4.3				3.4		440	38
8233	VERNALIS	04/05/88	6:40	14.3	7.5	4.3	801	14	20			490	43
8329	VERNALIS	05/03/88	7:11	16.6	7.8	88.7				2.8		390	31
8328	VERNALIS	05/03/88	7:11	16.6	7.8	8.7	802	18	15			470	40
8420	VERNALIS	06/14/88	6:35	21.6	7.7	8.3	738	21	25			510	44
8421	VERNALIS	06/14/88	6:35	21.6	7.7	8.3				5.4		410	35
8455	VERNALIS	07/12/88	6:18	22.0	7.8	7.7	954	46	35			700	62
8456	VERNALIS	07/12/88	6:18	22.0	7.8	7.7				3.2		530	46
8577	VERNALIS	08/09/88	8:00	20.8	7.2	8.2			20			630	56
8578	VERNALIS	08/09/88	8:00	20.8	7.2	8.2				3.5		480	41
8689	VERNALIS	09/06/88	6:45	22.2	7.7	6.9				3.1		460	39
8681	VERNALIS	09/06/88	6:45	22.2	7.7	6.9	896	24	25			550	48
8710	VERNALIS	10/04/88	6:58	18.1	8.0	8.0	911	15	20			410	34
8711	VERNALIS	10/04/88	6:58	18.1	8.0	8.0	911			6.5		540	46
8741	VERNALIS	11/01/88	8:15	15.3	7.3	8.9				2.8		260	21
8740	VERNALIS	11/01/88	8:15	15.3	7.3	8.9	857	17	15			320	27

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TFPC DATA REPORT (cont.)

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
8811	VERNALIS	12/13/88	8:25	10.2	7.2	10.0	869	10	20			530	45
9052	VERNALIS	01/10/89	7:45	9.2	7.2	9.1	1080	13	30			650	58
9130	VERNALIS	02/07/89	7:45	5.6	7.1	11.1	1270	8	20			250	20
9211	VERNALIS	03/07/89	7:30	14.4	7.3	8.5	836	16	35			540	48
9246	VERNALIS	04/04/89	7:13	15.5	8.3	7.7	825	14	20			510	44
9344	VERNALIS	05/02/89	7:15	18.5	7.3	7.8	715	27	35			620	57
9426	VERNALIS	06/06/89	6:50	19.6	7.3	8.0	649	25	25			510	45
9546	VERNALIS	07/05/89	8:25	21.9	7.7	8.1	671	36	35	3.0		400	36
9601	VERNALIS	08/03/89	7:10	21.4	8.2	8.8	770	52	50	3.6		540	47
9615	VERNALIS	09/06/89	7:13	21.1	7.7	8.4	845	21	30	8.6		830	76
9635	VERNALIS	10/02/89	9:25	20.0	7.1	9.2	830	19	30	4.1		460	39
9661	VERNALIS	11/07/89	7:20	13.4	7.3	8.5	862	16	20	3.1		510	44
9683	VERNALIS	12/05/89	7:30	9.7	7.9		978	13	15	3.4		570	47
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
900150	VERNALIS	03/20/90	7:50	16.3	6.2	8.0	968	12	20	3.5	0.078	520	44
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
900500	VERNALIS	08/21/90	10:20	23.0	7.9	7.3	797	30	40	3.1	0.087	600	50
900639	VERNALIS	09/25/90	10:05	21.2	7.4	7.5	849	13	25	3.3	0.089	570	48
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
910081	VERNALIS	01/31/91	8:40	9.5	7.6	8.8	1130	6	15	2.3	0.053	320	25
910150	VERNALIS	02/13/91	8:15	13.0	7.8	8.7	1250	11		3.2	0.061		
910165	VERNALIS	02/27/91	8:00	14.7	8.0	9.3	1100	6	15	3.4	0.043	400	32
910262	VERNALIS	03/26/91	9:15	12.0	7.7	8.9	883	68	100	7.9	0.229	1200	110
910345	VERNALIS	04/24/91	7:50	17.3	9.5	8.4	979	32	30	5.0	0.166	570	48
910386	VERNALIS	05/21/91	7:15	17.6	7.8	9.3	398	17	20	3.0	0.065	410	37
910433	VERNALIS	06/25/91	9:10	20.4	7.9	9.3	1090	33	50	3.1	0.092	530	40
910509	VERNALIS	07/23/91	11:00	25.8	8.1	5.6	930	66	60	3.5	0.099	660	55
910613	VERNALIS	08/20/91	9:38	22.5	8.1	8.3	856	36	50	3.3	0.076	550	45
910679	VERNALIS	09/10/91	6:50	19.4	8.2	7.7	1060	17	50	4.0	0.098	550	43
910780	VERNALIS	10/22/91	7:50	18.3	7.6	8.2	935	13	25	3.4	0.075	450	37
910853	VERNALIS	11/21/91	8:25	12.8	8.4	9.5	675	9	25	2.4	0.056	340	28
910891	VERNALIS	12/11/91	8:10	10.6	7.1	11.0	826	7	15	2.9	0.054	340	28
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	130
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	160

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TFPC DATA REPORT (cont.)

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
900478	WEBB01	08/20/90	7:15	19.7	7.4	5.2	781	31	200	16.0	0.683	1800	170
900744	WEBB01	10/22/90	7:40	15.4	8.0	4.9	747	88	200	14.0	0.975	1700	160
910052	WEBB01	01/28/91	9:45	11.4	6.3	4.6	1920	42	250	27.0	0.788	1600	150
910352	WEBB01	04/25/91	9:35	15.5	6.5	3.5	1110	100	400	22.0	0.864	2000	190
910487	WEBB01	07/22/91	7:15	19.1	6.8	6.0	887		400	23.0	1.005	2600	250
910589	WEBB01	08/19/91	7:00	18.5	7.4	4.8	820	56	400	20.0	0.798	2100	200
910756	WEBB01	10/21/91	7:45	17.0	7.2	3.4	819	64	200	17.0	0.805	900	84
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	280
900479	WEBB02	08/20/90	7:50	20.5	7.2	4.5	669	10	350	57.0	2.540	3600	350
900745	WEBB02	10/22/90	8:10	15.5	7.7	7.0	568	17	80	10.0	0.466	1600	150
910053	WEBB02	01/28/91	10:20	9.5	6.9	8.3	1070	17	200	40.0	1.840	1600	150
910353	WEBB02	04/25/91	9:50	15.0	6.6	4.7	867	36	350	24.0	1.280	2200	220
910488	WEBB02	07/22/91	7:45	19.5	6.7	3.4	638	31	350	20.0	1.073	2200	220
910590	WEBB02	08/19/91	7:30	18.5	7.0	2.2	729	50	350	11.0	0.561	1400	140
910757	WEBB02	10/21/91	8:00	16.6	7.2	4.5	685	14	160	20.0	0.906	2000	190
910583	WOODWARDPP	07/31/91	8:54	22.2		5.5	479	29	80	3.7	0.128	450	41
910621	WOODWARDPP	08/20/91	6:38	18.6	6.7	4.1	472	11	50	4.1	0.145	460	42
910787	WOODWARDPP	10/22/91	6:51	16.9	6.2	10.2	458	32	120	5.0	0.208	970	80
9578	WSTCANCLIFT	07/25/89	9:55	24.8			280	11				490	45
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
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
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

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

TFPC DATA REPORT (cont.)

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
900938	WSTCANCLIFT	12/12/90	11:55	9.4	7.4	8.3	831	3		3.7	0.144	710	55
910017	WSTCANCLIFT	01/02/91	12:55	5.4	7.4	11.8	781	4		5.3	0.182	780	66
910045	WSTCANCLIFT	01/16/91	12:00	8.0	7.6	10.5	584	5		5.5	0.194	690	62
910118	WSTCANCLIFT	01/29/91	14:15	8.6	7.5	10.6	694	5	30	5.4	0.193	620	53
910136	WSTCANCLIFT	02/14/91	11:55	13.4	7.6	9.0	763	8		4.7	0.165	620	52
910182	WSTCANCLIFT	02/25/91	11:55	13.6	7.7	9.1	833	5		5.0	0.177	680	56
910212	WSTCANCLIFT	03/12/91	11:55	12.5	8.1	9.0	823	6		4.7	0.174	610	50
910248	WSTCANCLIFT	03/26/91	13:50	13.2	7.6	8.4	679	22		8.8	0.299	1400	140
910278	WSTCANCLIFT	04/09/91	14:00	16.1	7.7	8.1	325	16		6.8	0.273	1100	110
910340	WSTCANCLIFT	05/22/91	11:55	19.4	7.3	8.4	474	10	30	4.4	0.134	560	51
910421	WSTCANCLIFT	06/13/91	9:30	22.5	8.0		590	12		3.8	0.120	610	52
910452	WSTCANCLIFT	06/26/91	9:25	20.8	8.0	7.9	611	11		3.7	0.113	570	48
910482	WSTCANCLIFT	07/10/91	9:10	24.0	7.8	6.5	550	10		3.6	0.129	600	52
910553	WSTCANCLIFT	07/24/91	9:30	24.0	7.4	7.8	507	13	35	3.7	0.109	400	34
910573	WSTCANCLIFT	08/07/91	9:05	22.9		7.4	514	12	35	3.3	0.109	550	47
910665	WSTCANCLIFT	08/21/91	9:38	23.4	7.4		525	16	35	3.5	0.101	500	43
910697	WSTCANCLIFT	09/12/91	9:30	22.7	7.2	6.8	529	15		2.8	0.088	470	39
910717	WSTCANCLIFT	09/26/91	8:50	21.8	7.5	8.6	628	12		2.7	0.088	440	35
910748	WSTCANCLIFT	10/10/91	8:55	21.4	7.5	7.1	485	12		2.6	0.077	390	34
910831	WSTCANCLIFT	10/23/91	9:30	19.3	7.8	7.1	448	7	25	2.7	0.080	340	30
910908	WSTCANCLIFT	12/19/91	10:30	7.6	7.7	9.8	858	6		4.1	0.128	520	42

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

MINOR ELEMENTS DATA REPORT

LAB#	STA. NAME	SAMP.DATE	TIME	TEMP oC	PH	DO mg/L	EC uS/cm	As mg/L	Ba mg/L	Fe mg/L	Cr mg/L	Cu mg/L	Mn mg/L	Hg mg/L	Zn mg/L	Li mg/L	Ni mg/L
910618	AGDCLIFTON	08/20/91	12:05	23.7	9.4	4.9	4170	0.006									
7008	AGDEMPIRE	01/13/87	11:15	7.5	6.3	1.7	996		<1.	2.410	<0.005	0.007	1.180		0.026	<0.05	<0.005
7046	AGDEMPIRE	02/10/87	10:00	11.5	6.6	3.5	1660		<1.	2.320	<0.005	0.009	1.940		0.038	<0.05	0.008
7069	AGDEMPIRE	03/10/87	10:50	13.5	6.8	3.0	2390		<1.	0.604	<0.005	0.009	0.892		0.032	<0.05	0.010
7172	AGDEMPIRE	04/16/87	8:30	21.5	7.5	7.2	2510		<1.	0.156	<0.005	<0.005	2.200		0.012	<0.05	0.007
7207	AGDEMPIRE	05/27/87	8:30	19.5	6.6	5.3	408		<1.	0.568	<0.005	0.014	0.234		0.027	<0.05	<0.005
7245	AGDEMPIRE	06/11/87	9:30	21.0	6.9	6.4	503		<1.	0.174	<0.005	<0.005	0.242		0.013	<0.05	<0.005
7406	AGDEMPIRE	09/24/87	8:15	19.3	7.3	3.6	2960		<1.	0.073	<0.005	<0.005	0.605		0.074	<0.05	<0.005
7449	AGDEMPIRE	10/28/87	9:10	19.0	7.2	2.1	1340		<1.	0.292	<0.005	<0.005	1.420			<0.05	<0.005
7547	AGDEMPIRE	11/24/87	9:30	12.5	7.2	8.1	312		<1.	0.117	<0.005	<0.005	0.216		0.016	<0.05	0.005
7607	AGDEMPIRE	12/16/87	8:45	8.2	6.5	6.2	695		<1.	0.211	<0.005	0.006	0.270		0.032	<0.05	<0.005
8075	AGDEMPIRE	01/21/88	9:05	8.6	6.4	6.5	1720		<1.	1.210	<0.005	<0.005	1.430		0.014	<0.05	<0.005
8133	AGDEMPIRE	02/23/88	8:50	11.3	6.8	5.4	1980		<1.	2.820	<0.005	0.007	2.120		0.022	<0.05	0.008
8223	AGDEMPIRE	03/23/88	8:30	16.8	7.0	9.1	811		<1.	0.488	<0.005	<0.005	0.442		0.018	<0.05	0.006
8322	AGDEMPIRE	04/28/88	8:25	16.1	6.6	5.3	631		<1.	0.824	<0.005	<0.005	0.340		0.017	<0.05	<0.005
8399	AGDEMPIRE	05/26/88	7:30	18.8	7.5	1.1	1000		<1.	0.764	<0.005	0.007	0.568		0.148	<0.05	<0.005
8431	AGDEMPIRE	06/22/88	6:27	22.3	7.3	2.6	674		<1.	0.488	<0.005	<0.005	0.276		0.006	<0.05	<0.005
8466	AGDEMPIRE	07/14/88	8:55	23.0	6.8	0.6	1420		<1.	3.100	<0.005	<0.005	2.080		0.009	<0.05	0.005
8588	AGDEMPIRE	08/16/88	7:59	21.3	6.9	2.3	537		<1.	0.464	<0.005	<0.005	0.134		0.007	<0.05	0.005
8700	AGDEMPIRE	09/22/88	6:35	16.6	7.2	2.0	2140		<1.	0.124	<0.005	<0.005	0.340		0.008	<0.05	<0.005
8729	AGDEMPIRE	10/20/88	7:45	19.2	5.9	2.4	1180		<0.1	0.220	<0.005	0.006	0.366		0.041	<0.05	0.011
8751	AGDEMPIRE	11/10/88	8:25	16.0	6.8	4.2	1350		<0.1	0.984	<0.005	<0.005	0.522		0.010	<0.05	0.012
8834	AGDEMPIRE	12/20/88	9:00	14.7	6.8	3.9	585		<1.	1.830	<0.005	<0.005	0.252		0.018	<0.05	0.008
9098	AGDEMPIRE	01/31/89	8:30	10.5	6.6	3.6	1500		<1.	5.360	<0.005	0.006	1.830		0.013	<0.05	0.011
9188	AGDEMPIRE	02/28/89	8:30	13.5	6.8	4.1	1720		<1.	2.680	0.007	<0.005	1.880		0.014	<0.05	0.008
9241	AGDEMPIRE	03/28/89	8:56	16.4	6.9	4.4	2030		<1.	2.500	<0.005	<0.005	1.680		0.022	<0.05	0.009
9338	AGDEMPIRE	04/25/89	8:13	15.2	7.3	5.6	2320		<1.	0.144	<0.005	<0.005	0.264		0.040	<0.05	0.009
9368	AGDEMPIRE	05/23/89	8:18	17.6	6.7	8.7	800		<1.	0.550	<0.005	0.006	0.312		0.019	<0.05	0.009
9488	AGDEMPIRE	06/21/89	7:30	20.4	6.9	4.5	524		<1.	0.196	<0.005	<0.005	0.174		0.014	<0.05	<0.005
9562	AGDEMPIRE	07/18/89	7:40	24.0	6.8	3.8	422		<1.	0.650	<0.005	0.006	0.228		<0.005	<0.05	0.008
9605	AGDEMPIRE	08/03/89	9:55	22.4	7.4	5.9	346		<1.	0.328	<0.005	<0.005	0.212		<0.005	<0.05	<0.005
9631	AGDEMPIRE	09/20/89	7:40	19.0	7.2	4.0	2310		<1.	2.350	<0.005	<0.005	2.420		0.013	<0.05	0.007
9651	AGDEMPIRE	10/17/89	12:45	19.6		3.3	2440		<1.	4.020	<0.005	<0.005	2.280		0.033	<0.05	0.006
9670	AGDEMPIRE	11/07/89	11:40	16.0	7.5	5.4	1600		<1.	0.244	<0.005	0.005	1.520		0.017	<0.05	0.005
9692	AGDEMPIRE	12/05/89	13:11	13.4	7.1		1340		<1.	0.305	<0.005	<0.005	0.885		0.011	<0.05	<0.005
7013	AGDGRAND	01/13/87	8:05	7.0	7.1	7.9	458		<1.	0.692	<0.005	0.013	0.260		0.036	<0.05	0.006
7041	AGDGRAND	02/10/87	7:30	14.5	7.2	7.4	559		<1.	0.176	<0.005	0.005	0.384		0.014	<0.05	0.013
7076	AGDGRAND	03/10/87	7:45	13.0	7.1	6.6	852		<1.	0.055	<0.005	0.007	0.382		0.023	<0.05	0.016
7179	AGDGRAND	04/16/87	6:30	17.0	7.0	6.2	358		<1.	0.165	<0.005	<0.005	0.148		0.021	<0.05	<0.005
7214	AGDGRAND	05/20/87	6:30	17.0	7.3	8.2	251		<1.	0.129	<0.005	0.009	0.066		0.022	<0.05	<0.005
7252	AGDGRAND	06/11/87	6:40	20.0	7.3	6.3	398		<1.	0.167	<0.005	<0.005	0.065		0.007	<0.05	<0.005
7390	AGDGRAND	09/03/87	9:30	23.1	7.3	5.0	499		<1.	0.087	<0.005	<0.005	0.105		0.082	<0.05	<0.005
7431	AGDGRAND	10/08/87	6:30	16.5	7.3	7.2	364		<1.	0.062	<0.005	<0.005	0.208		0.018	<0.05	<0.005
7435	AGDGRAND	10/08/87	6:30	16.5	7.3	7.2	340		<1.		<0.005	<0.005	0.222		0.033	<0.05	<0.005
7534	AGDGRAND	11/03/87	7:20	13.5	7.2	7.0	441		<1.	0.238	<0.005	0.005	0.061		0.032	<0.05	0.007
7557	AGDGRAND	12/01/87	7:30	10.6	7.3	9.1	436		<1.	0.117	<0.005	<0.005	0.189		0.017	<0.05	<0.005
8007	AGDGRAND	01/06/88	8:25	9.2	7.1	8.1	832		<1.	0.440	<0.005	0.006	0.071		0.018	<0.05	0.013
8114	AGDGRAND	02/18/88	7:30	9.3	7.2	8.8	642		<1.	0.166	<0.005	0.005	0.308		0.020	<0.05	0.009

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

MINOR ELEMENTS DATA REPORT (cont.)

LAB#	STA. NAME	SAMP.DATE	TIME	TEMP oC	PH	DO mg/L	EC uS/cm	As mg/L	Ba mg/L	Fe mg/L	Cr mg/L	Cu mg/L	Mn mg/L	Hg mg/L	Zn mg/L	Li mg/L	Ni mg/L
8211	AGDGRAND	03/18/88	7:19	13.0	7.1	8.0	324		<1.	0.118	<0.005	<0.005	0.132		0.022	<0.05	<0.005
8392	AGDGRAND	05/19/88	6:55	18.2	7.4	6.7	278		<1.	0.084	<0.005	<0.005	0.107		<0.005	<0.05	<0.005
8414	AGDGRAND	06/07/88	6:17	15.8	7.1	6.5	308		<1.	0.075	<0.005	<0.005	0.104		<0.005	<0.05	<0.005
8449	AGDGRAND	07/06/88	6:54	20.0	7.0	5.7	276		<1.	0.075	<0.005	<0.005	0.065		0.007	<0.05	<0.005
8571	AGDGRAND	08/02/88	8:10	18.8	7.4	6.4	222		<1.	0.092	<0.005	<0.005	0.049		0.014	<0.05	<0.005
8691	AGDGRAND	09/15/88	6:55	18.8	6.9	5.2	363		<1.	0.060	<0.005	<0.005	0.091		0.007	<0.05	<0.005
8720	AGDGRAND	10/13/88	7:00	15.6	7.2	6.7	409		<1.	0.118	<0.005	<0.005	0.092		0.007	<0.05	0.008
8758	AGDGRAND	11/17/88	8:09	9.9	7.2	8.6	398		<1.	0.247	<0.005	<0.005	0.141		0.006	<0.05	0.006
8804	AGDGRAND	12/06/88	7:40	10.8	7.2	9.2	370		<1.	0.069	<0.005	<0.005	0.159		0.006	<0.05	<0.005
9072	AGDGRAND	01/17/89	7:50	9.8	7.1	9.1	482		<1.	0.168	<0.005	<0.005	0.164		0.005	<0.05	0.005
9227	AGDGRAND	03/14/89	7:54	12.0	6.7	7.8	756		<1.	0.245	<0.005	0.005	0.455		0.014	<0.05	0.011
9256	AGDGRAND	04/11/89	6:20	16.3	7.2	6.9	357		<1.	0.080	<0.005	<0.005	0.144		0.014	<0.05	<0.005
9352	AGDGRAND	05/09/89	6:30	19.0	7.5	6.3	314		<1.	0.080	<0.005	<0.005	0.079		0.006	<0.05	<0.005
9479	AGDGRAND	06/13/89	6:35	18.2	7.1	7.0	292		<1.	0.022	<0.005	<0.005	0.053		0.160	<0.05	0.005
9554	AGDGRAND	07/11/89	7:00	19.9	6.8	6.5	325		<1.	0.070	<0.005	<0.005	0.091		0.007	<0.05	<0.005
9607	AGDGRAND	08/16/89	7:57	21.2	7.6	7.2	360		<1.	0.063	<0.005	<0.005	0.072		<0.005	<0.05	<0.005
9623	AGDGRAND	09/13/89	6:45	18.9	8.3	6.8	264		<1.	0.086	<0.005	<0.005	0.072		<0.005	<0.05	<0.005
9643	AGDGRAND	10/12/89	6:42	18.3	7.2		531		<1.	0.102	<0.005	<0.005	0.201		0.016	<0.05	0.007
9672	AGDGRAND	11/14/89	8:45	13.1	7.4	6.2	458		<1.	0.162	<0.005	<0.005	0.137		0.007	<0.05	<0.005
9694	AGDGRAND	12/12/89	9:45	7.4	7.4	11.1	515		<E<3	0.424	<0.005	<0.005	0.222		0.006	<0.05	0.008
7010	AGDTYLER	01/13/87	9:00	6.0	7.1	7.6	746		<1.	0.356	<0.005	0.008	0.896		0.029	<0.05	0.007
7043	AGDTYLER	02/10/87	8:30	12.5	6.9	5.5	647		<1.	0.632	<0.005	0.009	0.556		0.023	<0.05	0.017
7072	AGDTYLER	03/10/87	9:00	12.5	6.8	6.4	1100		<1.	0.340	<0.005	<0.005	1.000		0.008	<0.05	0.013
7175	AGDTYLER	04/16/87	7:15	17.0	7.2	6.8	310		<1.	0.067	<0.005	0.007	0.168		0.012	<0.05	<0.005
7210	AGDTYLER	05/20/87	7:15	16.5	7.4	7.2	249		<1.	0.110	<0.005	0.008	0.110		0.010	<0.05	0.006
7248	AGDTYLER	06/11/87	7:45	21.0	7.3	6.4	198		<1.	0.314	<0.005	<0.005	0.052		0.032	<0.05	<0.005
7371	BANKS	08/17/87	11:15	21.9	7.4	7.6	639		<1.	0.035	<0.005	<0.005	0.027		0.018	<0.05	<0.005
910518	BANKS	07/24/91	7:38	21.2	7.4	8.0	601	0.003									
910558	BANKS	08/05/91	8:30	20.8	8.5	8.6	685	0.003									
910633	BANKS	08/21/91	7:19	21.4	8.1	8.5	497	0.003									
910682	BANKS	09/10/91	8:30	19.6	8.2	7.2	499	0.003									
910702	BANKS	09/24/91	8:30	22.8	7.7	6.6	565	0.002									
910732	BANKS	10/08/91	8:05	21.5	7.7	7.0	526	0.002									
910799	BANKS	10/23/91	7:35	18.0	7.7	7.9	469	0.002									
910673	BARKERNOBAY	09/11/91	7:30	18.4	7.7		285	0.003									
910812	BARKERNOBAY	10/23/91	12:57	16.7	6.9	7.7		0.002									
910648	CONCOSPP1	08/21/91	11:35	24.0	7.9	7.4	699	0.003									
910814	CONCOSPP1	10/23/91	10:43	17.7	7.1	7.6	585	0.002									
910519	DMC	07/24/91	8:23	23.4	7.1	7.8	521	0.003									
910559	DMC	08/05/91	9:05	22.0		7.8	572	0.003									
910634	DMC	08/21/91	7:45	21.6		7.5	460	0.003									
910684	DMC	09/10/91	9:30	21.4	7.8	6.4	451	0.003									
910703	DMC	09/24/91	8:10	22.5	7.5	7.3	570	0.002									
910733	DMC	10/08/91	7:50	21.1	8.1	7.3	509	0.002									
910800	DMC	10/23/91	8:15	18.2	7.5	7.9	465	0.002									
910530	GREENES	07/24/91	5:40	22.0	7.5	7.2	143	0.002									
910642	GREENES	08/21/91	5:45	21.5	7.4	7.5	182	0.002									
910676	GREENES	09/11/91	10:50	21.7	7.7		188	0.002									

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

MINOR ELEMENTS DATA REPORT (cont.)

LAB#	STA. NAME	SAMP.DATE	TIME	TEMP oC	PH	DO mg/L	EC uS/cm	As mg/L	Ba mg/L	Fe mg/L	Cr mg/L	Cu mg/L	Mn mg/L	Hg mg/L	Zn mg/L	Li mg/L	Ni mg/L
910737	GREENES	10/08/91	11:05	22.1	8.0	7.9	132	0.001									
910808	GREENES	10/23/91	6:06	16.0	6.7	7.7	169	0.001									
9566	LJONES01	07/19/89	8:20	22.4	6.5	3.0	401		<1.	2.050	<0.005	<0.005	0.316	<0.001	0.006	<0.05	<0.005
9567	LJONES02	07/19/89	8:52	24.0	6.4	4.7	322		<1.	0.153	<0.005	<0.005	0.079	<0.001	0.006	<0.05	<0.005
910535	MALLARDIS	07/24/91	11:51	21.5		7.8	8380	0.003									
910562	MALLARDIS	08/05/91	7:20	19.6	7.6	9.1	7340	0.003									
910562	MALLARDIS	08/05/91	7:20	19.6	7.6	9.1	7340	0.003									
910647	MALLARDIS	08/21/91	12:30	21.8	7.4	8.7	9060	0.004									
910677	MALLARDIS	09/11/91	9:15	19.9	8.0		13000	0.003									
910706	MALLARDIS	09/24/91	11:00	22.9	7.8	8.6	7600	0.002									
910736	MALLARDIS	10/08/91	9:15	20.8	8.3	7.8	7210	0.002									
910813	MALLARDIS	10/23/91	11:37	18.5	7.4	8.4	14500	0.002									
8335	MAZE	05/03/88	7:38	15.7	7.8	8.3	1480		<1.	<0.005	<0.005	<0.005	0.060		<0.005	<0.05	<0.005
8426	MAZE	06/14/88	7:20	23.0	7.8	6.9	1350		<1.	0.007	<0.005	<0.005	0.027		<0.005	<0.05	<0.005
8461	MAZE	07/12/88	7:19	23.5	7.9	7.1	1530		<1.	0.011	<0.005	<0.005	0.029		0.040	<0.05	<0.005
8583	MAZE	08/09/88	9:00	22.4	7.8	6.8	1360		<1.	0.009	<0.005	<0.005	0.036		0.007	<0.05	<0.005
8686	MAZE	09/06/88	7:20	24.6	7.8	6.1	1480		<1.	0.009	<0.005	<0.005	0.031		0.021	<0.05	0.005
8712	MAZE	10/04/88	7:34	18.5	8.0	8.8	1530		<1.	0.032	<0.005	0.006	0.091		0.006	<0.05	<0.005
8742	MAZE	11/01/88	8:54	15.8	7.5	8.3	1290		<1.	0.010	<0.005	<0.005	0.030		0.008	<0.05	<0.005
8812	MAZE	12/13/88	8:57	10.4	7.4	9.3	1280		<1.	0.028	<0.005	<0.005	0.043		0.005	<0.05	<0.005
9053	MAZE	01/10/89	8:30	10.4	7.3	8.4	1340		<1.	0.032	<0.005	<0.005	0.047		<0.005	<0.05	<0.005
9131	MAZE	02/07/89	8:15	5.6	7.2	10.6	1520		<1.	0.025	<0.005	<0.005	0.060		<0.005	<0.05	<0.005
9212	MAZE	03/07/89	8:00	14.9	7.4	7.7	1100		<1.	0.021	<0.005	<0.005	0.063		0.013	<0.05	<0.005
9247	MAZE	04/04/89	7:36	16.4	8.0	6.9	1400		<1.	0.012	<0.005	<0.005	0.076		0.017	<0.05	<0.005
9345	MAZE	05/02/89	7:40	19.2	7.4	6.8	915		<1.	0.021	<0.005	<0.005	0.025		0.011	<0.05	<0.005
9427	MAZE	06/06/89	7:25	21.3	7.9	7.1	1280		<1.	<0.005	<0.005	<0.005	0.033		0.063	<0.05	0.028
9547	MAZE	07/05/89	9:10	23.5	7.7	7.5	1210		<1.	<0.005	<0.005	<0.005	<0.005		<0.005	<0.05	<0.005
9602	MAZE	08/03/89	7:40	21.8	7.7	8.3	1130		<1.	0.008	<0.005	0.012	0.038		0.023	<0.05	<0.005
9616	MAZE	09/06/89	7:36	21.8	7.6	7.8	1320		<1.	0.020	<0.005	<0.005	0.028		<0.005	<0.05	<0.005
9636	MAZE	10/02/89	9:49	20.1	6.8	9.0	1120		<1.	0.017	<0.005	<0.005	0.036		0.007	<0.05	<0.005
9662	MAZE	11/07/89	8:10	13.5	7.4	8.5	1040		<1.	0.045	<0.005	<0.005	0.062		0.009	<0.05	<0.005
9684	MAZE	12/05/89	7:55	9.6	8.4		1120		<1.	0.012	<0.005	<0.005	0.043		0.005	<0.05	<0.005
7426	NATOMAS	09/24/87	7:00	18.2	7.4	5.7	614		<1.	0.024	<0.005	<0.005	0.039		0.029	<0.05	<0.005
7453	NATOMAS	10/28/87	7:20	19.5	7.3	5.5	334		<1.	0.051	<0.005	<0.005	0.045		0.017	<0.05	<0.005
7550	NATOMAS	11/24/87	7:45	11.5	7.4	6.7	746		<1.	0.014	<0.005	<0.005	0.057		0.029	<0.05	<0.005
7610	NATOMAS	12/16/87	10:30	7.7	7.5	10.3	704		<1.	0.268	<0.005	<0.005	0.142		0.011	<0.05	<0.005
8078	NATOMAS	01/21/88		11.7	7.3	9.5	429			0.141			0.775		0.028	<0.05	<0.005
8136	NATOMAS	02/23/88	11:05	14.6	7.9	10.8	921						0.060			<0.05	<0.005
8226	NATOMAS	03/24/88	10:15	19.1	8.0	7.0	867		<1.	0.008	<0.005	<0.005	0.103		<0.005	<0.05	<0.005
8325	NATOMAS	04/28/88	6:05	18.2	8.6	9.8	416		<1.	0.038	<0.005	<0.005	0.005		0.006	<0.05	<0.005
8402	NATOMAS	05/26/88	6:29	19.9	7.8	2.0	617		<1.	0.011	<0.005	<0.005	0.053		0.010	<0.05	<0.005
8434	NATOMAS	06/22/88	9:49	24.8	7.6	4.5	391		<1.	0.079	<0.005	<0.005	0.045		0.008	<0.05	<0.005
8468	NATOMAS	07/14/88	7:30	23.0	7.6	5.5	485		<1.	0.022	<0.005	<0.005	0.042		0.009	<0.05	<0.005
8591	NATOMAS	08/16/88	6:33	21.1	7.7	7.4	349		<1.	0.053	<0.005	<0.005	0.007		0.009	<0.05	<0.005
8703	NATOMAS	09/22/88	9:42	19.4	7.3	8.0	482		<1.	0.019	<0.005	<0.005	0.029		<0.005	<0.05	<0.005
8732	NATOMAS	10/20/88	6:15	18.3	7.8	8.8	429		<1.	0.008	<0.005	<0.005	0.009		0.016	<0.05	0.005
8754	NATOMAS	11/10/88	7:00	15.2	7.3	8.1	356		<1.	0.013	<0.005	<0.005	0.024		0.010	<0.05	<0.005
8837	NATOMAS	12/20/88	7:40	10.9	8.4	12.0	501		<1.	0.045	<0.005	<0.005	0.039		0.009	<0.05	<0.005

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

MINOR ELEMENTS DATA REPORT (cont.)

LAB#	STA. NAME	SAMP.DATE	TIME	TEMP oC	PH	DO mg/L	EC uS/cm	As mg/L	Ba mg/L	Fe mg/L	Cr mg/L	Cu mg/L	Mn mg/L	Hg mg/L	Zn mg/L	Li mg/L	Ni mg/L
9101	NATOMAS	01/31/89	7:00	10.3	7.7	10.8	777		<1.	0.040	<0.005	<0.005	0.082		0.006	<0.05	<0.005
9191	NATOMAS	02/28/89	7:05	13.0	7.9	9.9	824		<1.	0.008	<0.005	<0.005	0.250		<0.005	<0.05	<0.005
9244	NATOMAS	03/28/89	10:50	16.6	7.5	5.9	509		<1.	0.083	<0.005	<0.005	0.100		0.010	<0.05	0.005
9341	NATOMAS	04/25/89	9:58	16.3	8.1	7.9	613		<1.	0.012	<0.005	0.023	0.038		0.041	<0.05	0.026
9371	NATOMAS	05/23/89	10:04	19.5	7.6	7.2	283		<1.	0.028	<0.005	<0.005	0.035		<0.005	<0.05	<0.005
9491	NATOMAS	06/21/89	6:05	20.6	7.5	5.4	401		<1.	0.009	<0.005	0.006	0.081		0.076	<0.05	0.013
9564	NATOMAS	07/18/89	6:15	24.3	7.3	8.9	310		<1.	0.009	<0.005	<0.005	0.005		0.008	<0.05	<0.005
9612	NATOMAS	08/16/89	6:45	22.2	7.3	6.6	348		<1.	0.042	<0.005	0.005	0.063		0.020	<0.05	<0.005
9633	NATOMAS	09/20/89	9:30	18.8	7.1	6.1	367		<1.	0.184	<0.005	<0.005	0.067		<0.005	<0.05	<0.005
9653	NATOMAS	10/17/89	9:12	18.0	8.1	10.5	724		<1.	0.010	<0.005	<0.005	0.006		0.012	<0.05	<0.005
9679	NATOMAS	11/14/89	7:10	11.7	8.3	10.8	716		<1.	0.005	<0.005	<0.005	0.155		0.005	<0.05	<0.005
9701	NATOMAS	12/12/89	7:45	8.7	7.9	10.7	766		<E<3	<0.005	<0.005	<0.005	0.350		<0.005	<0.05	<0.005
910542	SJRJERSEY	07/24/91	7:00	21.0	7.4	9.1	1280										
910564	SJRJERSEY	08/07/91	6:50	20.8		8.6	1030										
910654	SJRJERSEY	08/21/91	6:50	19.7	7.7		929										
910688	SJRJERSEY	09/12/91	7:30	20.4	7.1	8.1	1950										
9568	TWITCHELLPP01	07/19/89	10:34	22.1	6.0	4.1	387		<1.	1.630	<0.005	<0.005	0.173	<0.001	0.006	<0.05	<0.005
910836	TWITCHELLPP01	10/18/91	9:00	19.1	4.9	6.6		5.88E3									
910837	TWITCHELLPP02	10/18/91	9:15	17.1	6.2	5.5		0.007									
910838	TWITCHELLPP03	10/18/91	9:45	20.3	5.1	5.1		0.070									
910839	TWITCHELLPP04	10/18/91	10:00	16.9	6.6	4.6		0.002									
7016	VERNALIS	01/22/87	11:20	8.5	7.3	11.1	679			0.018	<0.005	<0.005	0.054		0.012	<0.05	<0.005
7056	VERNALIS	02/24/87	11:15	11.5	7.5	9.9	868			0.016	<0.005	<0.005	0.054		0.006	<0.05	<0.005
7105	VERNALIS	03/24/87	10:45	13.0	7.3	9.6	831		<1.	0.108	<0.005	<0.005	0.028		0.014	<0.05	<0.005
7182	VERNALIS	04/30/87	9:45	19.0	7.3	8.4	564		<1.	0.027	<0.005	<0.005	0.029		0.008	<0.05	<0.005
7217	VERNALIS	05/28/87	6:45	18.0	7.4	8.2	622		<1.	0.320	<0.005	<0.005	0.019		0.011	<0.05	<0.005
7280	VERNALIS	06/23/87	7:15	22.5	7.7	4.6	807		<1.	0.324	0.006	<0.005	0.208		0.014	<0.05	0.008
7396	VERNALIS	09/09/87	7:00	21.5	6.8	7.2	734		<1.	0.084	<0.005	0.006	0.072		0.121	<0.05	<0.005
7439	VERNALIS	10/22/87	6:58	18.5	7.4	8.2	807		<1.	0.045	<0.005	0.007	0.031		0.018	<0.05	<0.005
7539	VERNALIS	11/05/87	7:20	15.0	7.6	8.7	951		<1.	0.024	<0.005	<0.005	0.029		0.061	<0.05	<0.005
7566	VERNALIS	12/08/87	8:00	13.6	7.4	9.4	974		<1.	0.021	<0.005	<0.005	0.028		0.011	<0.05	<0.005
8010	VERNALIS	01/07/88	8:05	10.3	7.4	11.1	1080		<1.	1.580	<0.005	<0.005	0.083		<0.005	<0.05	<0.005
8090	VERNALIS	02/10/88	8:30	12.4	7.4	9.8	1320		<1.	0.011	<0.005	<0.005	0.051		0.008	<0.05	<0.005
8144	VERNALIS	03/15/88	7:45	12.3	7.6	10.0	800		<1.	0.014	<0.005	<0.005	0.034		0.020	<0.05	<0.005
8233	VERNALIS	04/05/88	6:40	14.3	7.5	4.3	801		<1.	0.017	<0.005	<0.005	0.045		0.007	<0.05	<0.005
8328	VERNALIS	05/03/88	7:11	16.6	7.8	8.7	802		<1.	0.006	<0.005	<0.005	0.021		<0.005	<0.05	<0.005
8420	VERNALIS	06/14/88	6:35	21.6	7.7	8.3	738		<1.	0.016	<0.005	<0.005	0.039		0.007	<0.05	<0.005
8455	VERNALIS	07/12/88	6:18	22.0	7.8	7.7	954		<1.	0.057	<0.005	0.005	0.037		0.045	<0.05	<0.005
8577	VERNALIS	08/09/88	8:00	20.8	7.2	8.2	846		<1.	0.010	<0.005	<0.005	0.018		0.009	<0.05	<0.005
8681	VERNALIS	09/06/88	6:45	22.2	7.7	6.9	896		<1.	0.018	<0.005	<0.005	0.021		0.005	<0.05	<0.005
8710	VERNALIS	10/04/88	6:58	18.1	8.0	8.0	911		<1.	0.030	<0.005	0.005	0.012		0.012	<0.05	<0.005
8740	VERNALIS	11/01/88	8:15	15.3	7.3	8.9	857		<1.	0.012	<0.005	<0.005	0.033		0.017	<0.05	<0.005
8811	VERNALIS	12/13/88	8:25	10.2	7.2	10.0	869		<1.	0.023	<0.005	<0.005	0.048		0.009	<0.05	<0.005
9052	VERNALIS	01/10/89	7:45	9.2	7.2	9.1	1080		<1.	0.045	<0.005	<0.005	0.032		<0.005	<0.05	<0.005
9130	VERNALIS	02/07/89	7:45	5.6	7.1	11.1	1270		<1.	0.014	<0.005	<0.005	0.076		<0.005	<0.05	<0.005
9211	VERNALIS	03/07/89	7:30	14.4	7.3	8.5	836		<1.	0.021	<0.005	<0.005	0.030		0.010	<0.05	<0.005
9246	VERNALIS	04/04/89	7:13	15.5	8.3	7.7	825		<1.	0.012	<0.005	<0.005	0.042		0.022	<0.05	<0.005
9344	VERNALIS	05/02/89	7:15	18.5	7.3	7.8	715		<1.	0.022	<0.005	<0.005	0.023		0.007	<0.05	<0.005

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

MINOR ELEMENTS DATA REPORT (cont.)

LAB#	STA. NAME	SAMP.DATE	TIME	TEMP oC	PH	DO mg/L	EC uS/cm	As mg/L	Ba mg/L	Fe mg/L	Cr mg/L	Cu mg/L	Mn mg/L	Hg mg/L	Zn mg/L	Li mg/L	Ni mg/L
9426	VERNALIS	06/06/89	6:50	19.6	7.3	8.0	649		<1.	0.013	<0.005	<0.005	0.033		0.013	<0.05	<0.005
9546	VERNALIS	07/05/89	8:25	21.9	7.7	8.1	671		<1.	<0.005	<0.005	<0.005	<0.005		0.007	<0.05	<0.005
9601	VERNALIS	08/03/89	7:10	21.4	8.2	8.8	770		<1.	0.020	<0.005	<0.005	0.032		<0.005	<0.05	<0.005
9615	VERNALIS	09/06/89	7:13	21.1	7.7	8.4	845		<1.	0.019	<0.005	<0.005	0.025		0.006	<0.05	<0.005
9635	VERNALIS	10/02/89	9:25	20.0	7.1	9.2	830		<1.	0.021	<0.005	<0.005	0.028		<0.005	<0.05	<0.005
9661	VERNALIS	11/07/89	7:20	13.4	7.3	8.5	862		<1.	0.007	<0.005	<0.005	0.045		0.016	<0.05	<0.005
9683	VERNALIS	12/05/89	7:30	9.7	7.9		978		<1.	0.014	<0.005	<0.005	0.036		0.005	<0.05	<0.005
910509	VERNALIS	07/23/91	11:00	25.8	8.1	5.6	930	0.002									
910613	VERNALIS	08/20/91	9:38	22.5	8.1	8.3	856	0.003									
910679	VERNALIS	09/10/91	6:50	19.4	8.2	7.7	1060	0.003									
910780	VERNALIS	10/22/91	7:50	18.3	7.6	8.2	935	0.002									

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

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			———>
8157	AGDCLIFTON	03/07/88	14:15	18.7	6.0	9.2	3510	496	788		0.004		661	116	90	2.8	133	456	5.1	2180
8258	AGDCLIFTON	04/18/88	13:45	17.6	7.1	4.7	5100	875	1200		0.002		738	109	113	1.9	312	589	11.	3240
8342	AGDCLIFTON	05/09/88	11:04	18.9	7.4	6.9	6460	1160	1580		0.002		913	123	147	1.7	360	725	16.	4080
8478	AGDCLIFTON	07/18/88	11:34	23.5	7.1	3.4	5100	874	1170				722	96	117	1.5	318	612	12.	3280
9007	AGDCLIFTON	01/03/89	10:42	13.2	7.3	6.7	5620	979	1360				773	100	127	2.5	358	578	16.	3530
9269	AGDCLIFTON	04/17/89	10:23	17.6	6.8	5.6	4710	765	1100				746	114	112	1.6	202	626	8.6	2960
9439	AGDCLIFTON	06/26/89	9:50	19.5	7.1	5.8	4980	807	1130				685	98	107	1.5	298	603	12.	3150
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
900140	AGDCLIFTON	02/27/90	12:00	15.0	6.8	8.2	6140	1080	1520	3.80	0.002		834	118	131	1.9	349	630	15.	3860
900202	AGDCLIFTON	04/24/90	10:40	17.5	7.4	9.0	6270	1060	1520	4.10	0.002		911	134	140	2.1	296	704	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
910084	AGDCLIFTON	01/31/91	10:35	13.2	7.3	6.6	6220	1100	1510	4.07	0.003		816	109	132	1.8	391	672	17.	3880
910348	AGDCLIFTON	04/24/91	11:05	16.1	7.5	4.6	6400	1090	1540	4.00	0.003		946	128	152	2.1	354	752	14.	4000
910514	AGDCLIFTON	07/23/91	15:15	30.2	8.5	9.8	1950	318	443	1.62	<0.001		246	39	36	4.6	208	139	4.4	1140
910618	AGDCLIFTON	08/20/91	12:05	23.7	9.4	4.9	4170	824	962	4.03	<0.001		353	44	59	2.6	616	216	11.	2480
910785	AGDCLIFTON	10/22/91	10:40	18.6	7.2	4.9	4780	837	1060	2.80	0.003		643	86	104	1.7	362	521	12.	2900
7008	AGDEMPIRE	01/13/87	11:15	7.5	6.3	1.7	996	75	173				339	73	38	4.5	129	105	0.3	700
7046	AGDEMPIRE	02/10/87	10:00	11.5	6.6	3.5	1660	132	332											
7069	AGDEMPIRE	03/10/87	10:50	13.5	6.8	3.0	2390	216	542				699	148	80	2.5	142	231	0.4	1530
7172	AGDEMPIRE	04/16/87	8:30	21.5	7.5	7.2	2510	222	638				676	152	72	2.7	192	87	0.3	1500
7207	AGDEMPIRE	05/27/87	8:30	19.5	6.6	5.3	408	32	53				110	24	12	1.7	68	31	0.3	271
7245	AGDEMPIRE	06/11/87	9:30	21.0	6.9	6.4	503	36	64				157	33	18	1.7	75	53	0.2	313
7406	AGDEMPIRE	09/24/87	8:15	19.3	7.3	3.6	2960	274	700		<0.001		646	135	75	3.5	198	25	0.3	1490
7478	AGDEMPIRE	10/19/87	7:00	16.0	7.1	2.0	1720	174	429				429	91	49	2.8	182	25	0.2	977
7449	AGDEMPIRE	10/28/87	9:10	19.0	7.2	2.1	1340	122	310		<0.001		350	76	39	3.2	149	33	0.2	977
7547	AGDEMPIRE	11/24/87	9:30	12.5	7.2	8.1	312	21	14		<0.001		121	22	16	1.6	127	20	0.2	205
7578	AGDEMPIRE	12/10/87	9:54	13.5	6.2	4.9	594	40	52		<0.001		219	48	24	6.2	62	135	0.4	450
7607	AGDEMPIRE	12/16/87	8:45	8.2	6.5	6.2	695	49	86		<0.001		239	53	26	4.5	67	139	0.4	570
8026	AGDEMPIRE	01/14/88	9:00	9.2	6.3	4.7	1010	88	152		<0.001		385	85	42	5.6	101	175	0.4	771
8075	AGDEMPIRE	01/21/88	9:05	8.6	6.4	6.5	1720	132	339		0.002		572	122	65	0.7	101	258	0.4	1290
8133	AGDEMPIRE	02/23/88	8:50	11.3	6.8	5.4	1980	160	404		<0.001		596	128	67	2.9	156	225	0.4	1390
8161	AGDEMPIRE	03/09/88	9:35	13.7	7.1		1970	177	445		<0.001		576	122	66	2.3	177	119	0.4	1400
8223	AGDEMPIRE	03/23/88	8:30	16.8	7.0	9.1	811	79	89		<0.001		266	57	30	4.2	219	78	0.4	576
8322	AGDEMPIRE	04/28/88	8:25	16.1	6.6	5.3	631	54	57		<0.001		219	48	24	1.7	81	138	0.5	506
8346	AGDEMPIRE	05/09/88	7:12	20.1	7.2	6.5	926	88	133		<0.001		301	66	33	1.7	135	140	0.5	672
8399	AGDEMPIRE	05/26/88	7:30	18.8	7.5	1.1	1000	108	152		<0.001		300	64	34	2.8	223	67	0.4	687
8431	AGDEMPIRE	06/22/88	6:27	22.3	7.3	2.6	674	72	94		<0.001		200	42	23	2.6	148	47	0.4	474
8466	AGDEMPIRE	07/14/88	8:55	23.0	6.8	0.6	1420	125	242		<0.001		502	107	57	2.2	166	208	0.6	1050
8482	AGDEMPIRE	07/20/88	6:40	22.5	7.0	0.4	792	73	137				254	54	29	1.9	134	61	0.3	512
8588	AGDEMPIRE	08/16/88	7:59	21.3	6.9	2.3	537	47	85		<0.001		168	36	19	1.3	96	36	0.3	357
8700	AGDEMPIRE	09/22/88	6:35	16.6	7.2	2.0	2140	231	552		<0.001		580	120	68	3.3	256	46	0.4	1340
8729	AGDEMPIRE	10/20/88	7:45	19.2	5.9	2.4	1180	118	242		<0.001		393	136	13	0.7	114	163	0.3	917
8751	AGDEMPIRE	11/10/88	8:25	16.0	6.8	4.2	1350	121	240		<0.001		385	70	51	3.4	100	186	0.4	915

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

MINERAL DATA REPORT (cont.)

LAB#	STA. NAME	SAMP.DATE	TIME	TEMP	pH	DO	EC	Na	Cl	Br	Se	Asbest	Hard.	Ca	Mg	K	ALK	SO4	B	TDS
				oC		mg/L	uS/cm	mg/L	mg/L	mg/L	mg/L	MF/L	<——				mg/L			——>
8834	AGDEMPIRE	12/20/88	9:00	14.7	6.8	3.9	585	42	67		<0.001		216	47	24	4.1	78	91	0.4	444
9011	AGDEMPIRE	01/05/89	8:45	7.5	6.9	5.1	769	55	104				281	60	32	3.2	105	107	0.4	586
9098	AGDEMPIRE	01/31/89	8:30	10.5	6.6	3.6	1500	125	262		<0.001		488	118	47	2.	193	165	0.6	1160
9188	AGDEMPIRE	02/28/89	8:30	13.5	6.8	4.1	1720	147	334		<0.001		564	120	64	3.	182	167	0.4	1170
9241	AGDEMPIRE	03/28/89	8:56	16.4	6.9	4.4	2030	178	442		<0.001		622	140	66	2.7	180	155	0.4	1410
9273	AGDEMPIRE	04/17/89	7:17	18.8	7.5	6.7	2160	212	542				596	130	66	2.5	204	81	0.4	1280
9338	AGDEMPIRE	04/25/89	8:13	15.2	7.3	5.6	2320	230	594		<0.001		596	130	66	2.2	197	61	0.4	1420
9368	AGDEMPIRE	05/23/89	8:18	17.6	6.7	8.7	800	56	92		<0.001		302	75	28	6.5	78	114	0.6	632
9488	AGDEMPIRE	06/21/89	7:30	20.4	6.9	4.5	524	43	67		<0.001		167	37	18	1.8	78	67	0.2	356
9443	AGDEMPIRE	06/28/89	7:18	18.7	7.0	4.5	629	49	91				199	45	21	1.9	71	91	0.3	463
9469	AGDEMPIRE	06/28/89	7:18	18.7	7.0	4.5	630	50	92				208	47	22	2.	69	88	0.3	452
9562	AGDEMPIRE	07/18/89	7:40	24.0	6.8	3.8	422	33	49		<0.001		142	32	15	2.1	88	42	0.4	329
9605	AGDEMPIRE	08/03/89	9:55	22.4	7.4	5.9	346	30	48		<0.001		107	23	12	1.1	68	26	0.1	223
9631	AGDEMPIRE	09/20/89	7:40	19.0	7.2	4.0	2310	153	492		<0.001		912	207	96	5.	275	200	0.5	1490
9651	AGDEMPIRE	10/17/89	12:45	19.6		3.3	2440	232	654		<0.001		644	144	69	3.4	178	30	0.3	1320
9670	AGDEMPIRE	11/07/89	11:40	16.0	7.5	5.4	1600	146	379		<0.001		472	105	51	2.2	142	60	0.2	932
9692	AGDEMPIRE	12/05/89	13:11	13.4	7.1		1340	111	277		<0.001		406	90	44	4.2	107	110	0.3	875
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
900115	AGDEMPIRE	02/19/90	10:50	6.8	7.1	11.1	2320	198	568				687	148	77	2.5	137	178	0.3	1430
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
900315	AGDEMPIRE	06/28/90	7:00	21.2	7.1	3.7	1090	88	220	0.92			323	70	36	2.6	102	78	0.2	627
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
910077	AGDEMPIRE	01/31/91	11:05	9.9	7.0	4.3	1710	114	325	0.75						4.4	157	221	0.5	1170
910296	AGDEMPIRE	04/18/91	11:15	17.4	6.5	6.5	2040	145	313	0.77			692	145	80	2.7	86	251	0.5	1420
910502	AGDEMPIRE	07/22/91	6:53	21.1	6.9	5.2	572	53	116	0.31			150	32	17	1.9	68	44	0.2	362
910604	AGDEMPIRE	08/19/91	7:44	20.3	7.2	4.0	1060	78	250	0.65			335	70	39	1.3	98	53	0.2	637
910771	AGDEMPIRE	10/21/91	7:31	17.5	7.0	6.0	2070	198	510	1.95			524	111	60	3.6	199	25	0.2	1180
7013	AGDGRAND	01/13/87	8:05	7.0	7.1	7.9	458	34	23		<0.001									
7041	AGDGRAND	02/10/87	7:30	14.5	7.2	7.4	559	42	32											
7079	AGDGRAND	03/10/87	7:45	13.0	7.1	6.6	853	45	50											
7076	AGDGRAND	03/10/87	7:45	13.0	7.1	6.6	852	54	49		<0.001		317	53	45	1.3	223	133	0.5	594
7179	AGDGRAND	04/16/87	6:30	17.0	7.0	6.2	358	21	17											
7214	AGDGRAND	05/20/87	6:30	17.0	7.3	8.2	251	18	12				90	16	12	1.6	77	26	0.2	170
7252	AGDGRAND	06/11/87	6:40	20.0	7.3	6.3	398	33	27				131	21	19	1.5	130	22	0.2	229
7390	AGDGRAND	09/03/87	9:30	23.1	7.3	5.0	499	44	41		<0.001		175	27	26	1.9	168	32	0.3	303
7435	AGDGRAND	10/08/87	6:30	16.5	7.3	7.2	340	20	15		<0.001		109	19	15	1.6	113	12	0.2	194
7431	AGDGRAND	10/08/87	6:30	16.5	7.3	7.2	364	26	23		<0.001		116	20	16	1.9	121	14	0.2	194
7534	AGDGRAND	11/03/87	7:20	13.5	7.2	7.0	441	31	20		<0.001		162	27	23	1.2	149	33	0.3	287
7557	AGDGRAND	12/01/87	7:30	10.6	7.3	9.1	436	30	20		<0.001		156	26	22	1.5	162	27	0.3	282
8007	AGDGRAND	01/06/88	8:25	9.2	7.1	8.1	832	59	52		<0.001		336	59	46	1.7	189	137	0.5	565
8114	AGDGRAND	02/18/88	7:30	9.3	7.2	8.8	642	45	38		<0.001		253	42	36	1.4	188	81	0.4	448
8211	AGDGRAND	03/17/88	7:19	13.0	7.1	8.0	324	19	15		<0.001		116	20	16	1.5	101	30	0.2	200

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LAB#	STA. NAME	SAMP.DATE	TIME	TEMP	pH	DO	EC	Na	Cl	Br	Se	Asbest	Hard.	Ca	Mg	K	ALK	SO4	B	TDS
				oC		mg/L	uS/cm	mg/L	mg/L	mg/L	mg/L	MF/L	<—				mg/L			—>
8247	AGDGRAND	04/15/88	7:40	15.1	6.9	7.3	361	28	21		<0.001		132	23	18	1.6	114	42	0.2	228
8392	AGDGRAND	05/19/88	6:55	18.2	7.4	6.7	278	18	12		<0.001		105	19	14	1.6	91	27	0.1	178
8414	AGDGRAND	06/07/88	6:17	15.8	7.1	6.5	308	20	14		<0.001		114	21	15	1.8	94	36	0.1	200
8449	AGDGRAND	07/06/88	6:54	20.0	7.0	5.7	276	17	11		<0.001		108	20	14	1.3	92	35	0.2	180
8571	AGDGRAND	08/02/88	8:10	18.8	7.4	6.4	222	14	10		<0.001		85	16	11	1.3	73	20	0.1	146
8691	AGDGRAND	09/15/88	6:55	18.8	6.9	5.2	363	25	20		<0.001		150	27	20	2.1	118	45	0.2	236
8720	AGDGRAND	10/13/88	7:00	15.6	7.2	6.7	409	27	23		<0.001		163	29	22	1.6	121	48	0.3	272
8758	AGDGRAND	11/17/88	8:09	9.9	7.2	8.6	398	30	20		<0.001		144	23	21	1.7	154	24	0.3	264
8804	AGDGRAND	12/06/88	7:40	10.8	7.2	9.2	370	27	18		<0.001		150	27	20	1.4	145	23	0.3	238
9072	AGDGRAND	01/17/89	7:50	9.8	7.1	9.1	482	36	27		<0.001		194	33	27	1.3	166	45	0.3	323
9152	AGDGRAND	02/15/89	7:30	9.5	7.0	9.4	564	44	34				224	37	32	1.3	196	53	0.4	374
9227	AGDGRAND	03/14/89	7:54	12.0	6.7	7.8	756	48	41		<0.001		313	56	42	1.6	190	125	0.4	515
9256	AGDGRAND	04/11/89	6:20	16.3	7.2	6.9	357	22	16		<0.001		130	24	17	1.5	108	43	0.2	228
9352	AGDGRAND	05/09/89	6:30	19.0	7.5	6.3	314	25	22		<0.001		101	19	13	1.4	96	24	0.2	202
9479	AGDGRAND	06/13/89	6:35	18.2	7.1	7.0	292	26	16		<0.001		88	17	11	1.4	95	24	0.2	184
9554	AGDGRAND	07/11/89	7:00	19.9	6.8	6.5	325		23		<0.001						92	29	0.2	205
9607	AGDGRAND	08/16/89	7:57	21.2	7.6	7.2	360	30	27		<0.001		116	20	16	1.4	126	16	0.2	210
9623	AGDGRAND	09/13/89	6:45	18.9	8.3	6.8	264	19	12		<0.001		97	19	12	1.5	98	17	0.1	160
9643	AGDGRAND	10/12/89	6:42	18.3	7.2		531	35	25		<0.001		224	40	30	1.9	222	33	0.4	339
9672	AGDGRAND	11/14/89	8:45	13.1	7.4	6.2	458	37	25		<0.001		170	30	23	1.3	177	26	0.4	289
9694	AGDGRAND	12/12/89	9:45	7.4	7.4	11.1	515	39	24		<0.001		195	35	26	1.2	188	48	0.5	332
7010	AGDTYLER	01/13/87	9:00	6.0	7.1	7.6	746	56	109				282	47	40	2.5	195	37	0.2	453
7043	AGDTYLER	02/10/87	8:30	12.5	6.9	5.5	647	42	73											
7072	AGDTYLER	03/10/87	9:00	12.5	6.8	6.4	1100	71	129				420	71	59	1.8	171	157	0.2	743
7175	AGDTYLER	04/16/87	7:15	17.0	7.2	6.8	310	16	18				85	16	11	1.3	81	19	0.1	184
7210	AGDTYLER	05/20/87	7:15	16.5	7.4	7.2	249	18	14				92	17	12	1.6	91	16	0.2	183
7248	AGDTYLER	06/11/87	7:45	21.0	7.3	6.4	198	12	9				66	13	8	1.7	67	12	0.1	133
7004	AMERICAN	01/08/87	6:50	9.0	7.1	12.0	64	2	1											
7026	AMERICAN	02/05/87	6:30	10.0	6.9	11.2	70	2	2					7	2	0.8				
7064	AMERICAN	03/03/87	6:45	11.0	7.5	11.3	69	2	2											
7162	AMERICAN	04/09/87	5:30	16.0	7.2	9.2	69	3	2											
7201	AMERICAN	05/13/87	5:15	19.5	7.2	8.5	80	2	2											
7237	AMERICAN	06/04/87	5:15	18.0	7.3	9.4	85	3	2											
7409	AMERICAN	09/24/87	5:45	17.0	6.8	8.3	78	2	2											
7452	AMERICAN	10/28/87	6:30	20.0	7.1	8.2	73	4	3											
7549	AMERICAN	11/24/87	6:30	10.5	8.0	9.5	66	2	2											
7608	AMERICAN	12/16/87	10:00	11.0	7.1	9.3	81	5	3											
8076	AMERICAN	01/21/88	11:00	9.8	7.2	12.5	87	4	3											
8134	AMERICAN	02/23/88	10:30	12.9	7.2	10.8	85	3	4											
8225	AMERICAN	03/24/88	11:00	19.1	7.2	10.8	78	3	3											
8324	AMERICAN	04/28/88	5:25	14.7	8.0	9.3	77	3	3											
8401	AMERICAN	05/26/88	5:50	16.5	8.2	8.8	75	3	3											
8433	AMERICAN	06/22/88	9:19	19.9	7.2	8.9	76	3	3											
8471	AMERICAN	07/14/88	5:50	17.8	6.6	8.5	76	3	3											
8590	AMERICAN	08/16/88	5:45	20.5	7.0	7.6	72	4	3											
8702	AMERICAN	09/22/88	9:00	20.4	7.0	7.9	70	3	3											

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

MINERAL DATA REPORT (cont.)

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 mg/L	SO4	B	TDS —>
8734	AMERICAN	10/20/88	5:30	19.5	6.6	8.4	69	3	3											
8731	AMERICAN	10/20/88	5:30	19.5	6.6	8.4	74	3	3											
8753	AMERICAN	11/10/88	6:15	16.2	6.5	9.1	68	3	3											
8836	AMERICAN	12/20/88	7:00	11.4	6.8	10.8	82	3	3											
9100	AMERICAN	01/31/89	6:30	10.3	7.7	12.2	102	4	4											
9190	AMERICAN	02/28/89	6:30	12.0	6.2	11.3	85	4	4											
9243	AMERICAN	03/28/89	10:14	11.8	7.7	10.3	75	3	3											
9340	AMERICAN	04/25/89	9:26	12.0	7.7	10.4	70	3	2											
9370	AMERICAN	05/23/89	9:31	14.4	7.7	10.1	65	3	2											
9490	AMERICAN	06/21/89	5:30	14.9	7.3	9.6	61	2	2											
9563	AMERICAN	07/18/89	5:35	22.7	7.1	8.7	60	4	2											
9611	AMERICAN	08/16/89	6:00	18.2	6.7		55	2	2											
9632	AMERICAN	09/20/89	9:00	18.7	7.9	8.3	56	2	<1											
9652	AMERICAN	10/17/89	8:30	17.3	7.1	8.5	54	3	2											
9678	AMERICAN	11/14/89	6:25	13.2	7.2	9.5	58	3	2											
9700	AMERICAN	12/12/89	7:05	9.3	8.0	11.0	64	3	2											
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
900266	AMERICAN	05/22/90	6:25	15.9	7.4	9.4	78	4	4	0.02			30	7	3	0.7	27	5	<0.1	51
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
910157	AMERICAN	02/26/91	7:30	12.6	8.4	10.4	67	4	3	<0.01			23	6	2	0.7	24	3	<0.1	43
910253	AMERICAN	03/25/91	8:00	11.0	6.5	10.1	77	3	3	<0.01			30	7	3	1.3	24	5	<0.1	54
910377	AMERICAN	05/21/91	6:10	18.5	7.6	8.9	79	3	2	<0.01			30	7	3	0.9	29	4	<0.1	54
910426	AMERICAN	06/24/91	6:32	15.4	7.7	8.6	69	3	1	<0.01			28	6	3	0.7	26	3	<0.1	48
910671	AMERICAN	09/11/91	6:25	18.8	8.0		65	3	3	<0.01			23	6	2	0.9	25	3	<0.1	43
910845	AMERICAN	11/19/91	12:39	13.8	7.0	11.2	65	3	3	<0.01			23	6	2	0.8	25	3	<0.1	44
910883	AMERICAN	12/09/91	12:30	14.8	8.1	10.8	62	3	3	<0.01			23	6	2	0.7	24	3	<0.1	43
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
910065	BACON01	01/28/91	14:20	12.1	7.2	8.1	812	100	177	0.63			141	25	19	4.8	72	40	0.2	455
910526	BACON01	07/24/91	12:24	24.4	6.7	7.1	476	54	93	0.29			94	16	13	3.1	70	25	0.1	262
910624	BACON01	08/20/91	7:52	19.8	6.4	3.4	702	85	143	0.46			149	30	18	2.9	72	56	0.2	417
910790	BACON01	10/22/91	8:00	17.6	6.7		631	74	128	0.41			119	21	16	3.3	76	22	0.1	338
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
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

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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 mg/L	SO4	B	TDS —>
910066	BACON02	01/28/91	13:55	10.2	7.0	7.2	1050	98	173	0.48			280	61	31	8.	72	178	0.3	672
910527	BACON02	07/24/91	13:27	25.4	6.8	6.8	481	56	95	0.33			96	17	13	3.2	68	28	0.1	263
910625	BACON02	08/20/91	8:14	20.5	7.0		443	48	68	0.30			101	19	13	3.	65	31	0.1	255
910791	BACON02	10/22/91	8:35	17.2	6.8		526	60	94	0.30			108	20	14	3.4	71	31	0.1	291
7017	BANKS	01/22/87	9:45	6.5	7.3	12.0	309	28	34		0.003									
7055	BANKS	02/24/87	9:45	11.5	7.3	10.7	446	41	55		<0.001									
7107	BANKS	03/24/87	9:30	13.0	7.5	9.7	568	57	69		0.001									
7184	BANKS	04/30/87	8:40	18.5	8.4	10.0	396	34	38		<0.001									
7219	BANKS	05/28/87	10:30	18.0	7.4	11.0	397	39	52		<0.001									
7229	BANKS	06/02/87	9:00	21.5	7.5	8.1														
7281	BANKS	06/23/87	10:30	22.5	7.6	8.3	487	51	75		<0.001									
7371	BANKS	08/17/87	11:15	21.9	7.4	7.6	639	85	130		0.002		119	18	18	2.4	74	33	0.2	359
7442	BANKS	10/22/87	8:00	19.5	7.4	7.9	814	116	173		<0.001									
7540	BANKS	11/05/87	9:00	17.5	7.4	8.7	703	91	143		<0.001									
7567	BANKS	12/08/87	9:00	11.3	7.7	10.8	835	100	175		<0.001									
8011	BANKS	01/07/88	9:24	8.2	7.3	11.8	574	64	105		<0.001									
8086	BANKS	01/25/88	10:20	9.9	7.6	10.6					0.002									
8097	BANKS	02/02/88	10:32	9.8	7.3	10.3	460	49	71		<0.001									
8091	BANKS	02/10/88	8:55	11.4	7.3	9.5	392	37	51		0.001									
8101	BANKS	02/19/88	12:30	11.1	7.6	11.7	372	32	43		<0.001									
8105	BANKS	02/22/88	11:34	12.4	7.3	10.1	378	33	44		<0.001									
8142	BANKS	02/24/88	16:30	13.9							<0.001									
8146	BANKS	03/03/88	9:00	13.7	7.6	10.5	593	70	106		<0.001									
8206	BANKS	03/08/88	10:40	15.0	7.6	8.6	523	55	86		0.002									
8218	BANKS	03/22/88	10:18	15.5	7.6	10.2	626	71	113		<0.001									
8230	BANKS	03/29/88	9:15	15.0	7.6	9.6	716	91	141		<0.001									
8235	BANKS	04/05/88	7:50	15.4	7.5	9.3	661	79	120		<0.001									
8242	BANKS	04/12/88	9:40	18.3	7.6	9.1	569	65	97		<0.001									
8303	BANKS	04/19/88	9:38	15.8	7.4		435	47	68		<0.001									
8307	BANKS	04/26/88	9:49	16.0	7.3	9.1	392	41	56		<0.001									
8330	BANKS	05/03/88	8:35	16.6	7.9	8.9	372	39	50		<0.001									
8386	BANKS	05/10/88	9:50	19.0	7.6	8.2	382	40	50		<0.001									
8405	BANKS	05/17/88	10:15	18.5	7.7	8.5	344	34	45		<0.001									
8409	BANKS	05/31/88	9:50	18.0	7.7	8.8	392	42	58		<0.001									
8422	BANKS	06/14/88	8:27	23.0	7.5	6.7	457	51	70		<0.001									
8438	BANKS	06/28/88	9:40	22.0	7.8	8.0	480	58	86		<0.001									
8457	BANKS	07/12/88	8:30	21.5	7.8	8.0	575	66	107		<0.001									
8567	BANKS	07/26/88	9:45	24.5	7.7	7.1	664	82	141		<0.001									
8579	BANKS	08/09/88	10:15	22.0	7.4	7.9	675	93	152		<0.001									
8595	BANKS	08/23/88	8:30	22.5	7.6	7.4	588	73	114		<0.001									
8682	BANKS	09/06/88	8:20	24.2	7.8	6.7	721	91	152		<0.001									
8707	BANKS	09/20/88	9:32	18.4	7.6	8.7	687	87	138		<0.001									
8714	BANKS	10/04/88	8:35	20.1	7.4	8.0	689	86	124		<0.001									
8744	BANKS	11/01/88	9:45	17.6	6.7	8.8	692	87	135		<0.001									
8766	BANKS	11/15/88	11:15	15.0	7.4	9.2	800	99	170		<0.001									
8771	BANKS	11/29/88	10:47	11.7	7.8	10.7	749	92	156		<0.001									

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

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			—>
8813	BANKS	12/13/88	10:02	11.3	7.1	10.7	739	92	156		<0.001									
8841	BANKS	12/27/88	10:35	6.7	7.2	11.6	757	94	158		<0.001									
9054	BANKS	01/10/89	9:20	12.5	7.0	11.4	610	72	112		<0.001									
9092	BANKS	01/24/89	11:20	8.1	7.2	11.2	564	65	103		<0.001									
9146	BANKS	02/02/89	8:00	8.2	7.0		662	80	128		<0.001									
9132	BANKS	02/07/89	9:00	5.9	6.8	12.1	748	91	148		<0.001									
9165	BANKS	02/09/89	8:10	6.7	6.7	12.0	863	109	186		<0.001									
9177	BANKS	02/14/89	8:10	7.2	7.6		762	95	152		<0.001									
9182	BANKS	02/16/89	8:20	9.5	6.7	11.4	785	98	157		<0.001									
9195	BANKS	02/23/89	12:15	12.4	7.1	11.0	758	91	152		<0.001									
9204	BANKS	03/02/89	10:30	12.3	7.5	10.4	680	81	137		<0.001		124	20	18	3.9	75	39	0.1	377
9213	BANKS	03/07/89	8:50	13.6	7.3	10.0	646	78	127		<0.001									
9236	BANKS	03/21/89	10:36	15.6	7.7	8.4	471	52	79		<0.001									
9248	BANKS	04/04/89	8:24	16.2	8.2	7.9	286	26	34		<0.001									
9332	BANKS	04/18/89	7:20	18.0	8.0		221	18	20		<0.001									
9346	BANKS	05/02/89	8:30	18.4	7.8	8.0	237	20	21		<0.001									
9428	BANKS	06/06/89	8:20	20.5	8.1	7.9	300	28	35		<0.001									
9548	BANKS	07/05/89	10:18	23.0	7.7	8.2	291	28	35		<0.001									
9587	BANKS	07/25/89	9:00	23.8	7.7	9.2	300	33	55					14	6		61	18		190
9603	BANKS	08/03/89	8:35	23.0	7.9	9.2					<0.001									
9617	BANKS	09/06/89	8:38	21.5	7.2	8.6	377	43	61		<0.001									
9637	BANKS	10/02/89	8:38	18.8	7.5	10.0	430	55	70		<0.001									
9663	BANKS	11/07/89	9:15	15.1	7.7	8.8	523	60	95		<0.001									
9685	BANKS	12/05/89	9:22	11.8	7.6		651	78	132		<0.001									
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
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									
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
900301	BANKS	06/27/90	9:15	20.4	8.1	8.2	577	66	102	0.36	<0.001		112	20	15	3.6	74	37	0.2	319
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
900568	BANKS	08/27/90	10:24	22.7		7.8	396	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					

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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 mg/L	SO4	B	TDS —>
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
900817	BANKS	10/30/90	12:00	18.3	7.8	8.8	726	91	144	0.54			126	21	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
910002	BANKS	01/02/91	12:25	4.7	7.1	11.4	877	107	185	0.64			142	24	20					
910030	BANKS	01/15/91	13:05	9.4	6.6	10.0	752	89	142	0.45			146	27	19					
910089	BANKS	01/29/91	12:05	9.8		9.6	772	91	147	0.50	<0.001		157	28	21	4.8	80	57	0.2	428
910141	BANKS	02/13/91	9:35	13.0	7.6	8.7	819	98	155	0.53	<0.001		161	28	22					
910169	BANKS	02/27/91	11:25	14.2	7.8	9.1	866	109	181	0.64	<0.001		153	25	22	5.2	86	53	0.2	475
910197	BANKS	03/11/91	9:40	13.7	7.4	9.1	843	109	176	0.59	<0.001		124	24	23					
910265	BANKS	03/26/91	14:00	12.0	7.9	10.2	553	62	95	0.32	<0.001		114	21	15	4.	67	41	0.2	312
910283	BANKS	04/09/91	10:18	15.7	7.2	8.6	378	35	58	0.18			97	19	12					
910311	BANKS	04/23/91	8:20	15.6	8.0	10.1	335	30	38	0.14	<0.001		94	18	12	3.	72	28	0.1	201
910389	BANKS	05/21/91	10:50	18.2	7.6	9.5	425	43	57	0.18	<0.001		108	20	14	3.1	82	33	0.2	244
910406	BANKS	06/11/91	9:50	24.3	7.5	6.9	577	64	97	0.32			122	21	17					
910436	BANKS	06/25/91	12:50	19.5	8.0	8.5	644	78	131	0.37	<0.001		127	21	18	4.2	84	38	0.2	352
910467	BANKS	07/08/91	8:22	24.8	7.6	7.7	600	71	110	0.38			118	19	17					
910518	BANKS	07/24/91	7:38	21.2	7.4	8.0	601	72	128	0.35	<0.001		120	20	17	4.1	78	34	0.2	328
910558	BANKS	08/05/91	8:30	20.8	8.5	8.6	685	69	154	0.39			111	18	16	3.8				
910633	BANKS	08/21/91	7:19	21.4	8.1	8.5	497	59	101	0.37	<0.001		98	16	14	3.3	68	25	0.1	270
910682	BANKS	09/10/91	8:30	19.6	8.2	7.2	499	55	85	0.35	<0.001		91	15	13	3.1	69	28	0.1	263
910702	BANKS	09/24/91	8:30	22.8	7.7	6.6	565	70	110	0.37			95	15	14					
910732	BANKS	10/08/91	8:05	21.5	7.7	7.0	526	62	92	0.31			104	17	15	3.4				
910799	BANKS	10/23/91	7:35	18.0	7.7	7.9	469	54	79	0.25	<0.001		98	16	14	3.2	73	24	0.1	252
910855	BANKS	11/21/91	11:15	13.8	8.2	9.8	659	82	133	0.45	<0.001		118	19	17	4.2	69	45	0.2	354
910893	BANKS	12/11/91	9:20	9.5	7.1	11.2	735	92	152	0.47	<0.001		124	20	18	4.4	72	43	0.2	394
7395	BARKER	09/03/87	8:00	20.5	7.3	5.5	734	33	23											
7438	BARKER	10/08/87	10:40	19.8	7.4	7.6	561	39	28											
7530	BARKER	11/03/87	8:50	15.0	7.3	7.1	568	49	36											
7561	BARKER	12/01/87	9:15	11.2	7.3	10.6	599	52	46											
8002	BARKER	01/06/88	12:10	9.3	7.3	10.4	387	37	30											
8109	BARKER	02/18/88	12:15	10.3	7.5	10.1	540	52	46											
8216	BARKER	03/17/88	9:00	13.7	7.6	10.2	639	63	61											
8251	BARKER	04/14/88	8:57	16.3	7.4	8.4	539	45	34											
8396	BARKER	05/19/88	10:05	24.3	7.9	5.6	673	64	61											
8419	BARKER	06/07/88	7:52	18.1	7.7	6.8	590	55	50											
8452	BARKER	07/06/88	8:30	21.6	7.5	7.5	366	34	27											
8574	BARKER	08/02/88	12:30	21.8	7.9	8.0	241	20	16											
8694	BARKERNOBAY	09/15/88	8:18	17.9	7.3	8.5	274	21	16											
8723	BARKERNOBAY	10/13/88	9:05	16.9	7.5	7.6	323	26	21											
8761	BARKERNOBAY	11/17/88	9:36	12.4	7.4	9.0	298	22	20											
8807	BARKERNOBAY	12/06/88	10:15	9.9	7.1	10.8	283	23	21											
9075	BARKERNOBAY	01/17/89	9:50	8.2	7.3	11.5	381	34	34											

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

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			—>
9155	BARKERNOBAY	02/15/89	9:15	8.4	6.9	12.2	419	37	37											
9230	BARKERNOBAY	03/14/89	9:27	15.0	7.7	9.1	609	62	74											
9259	BARKERNOBAY	04/11/89	7:45	19.1	7.3	7.3	495	49	47											
9355	BARKERNOBAY	05/09/89	8:50	19.5	7.5	8.2	477	45	38											
9482	BARKERNOBAY	06/13/89	8:35	18.8	7.4	8.2	358	30	25											
9556	BARKERNOBAY	07/11/89	8:55	20.9	7.3	7.8	289	22	18											
9609	BARKERNOBAY	08/16/89	9:31	22.0	7.7	8.8	247	18	14											
9625	BARKERNOBAY	09/13/89	8:50	19.8	7.2	8.3	249	19	13											
9645	BARKERNOBAY	10/12/89	9:54	19.0	7.0		322	26	22											
9674	BARKERNOBAY	11/14/89	13:40	13.7	7.8	9.4	314	25	23											
9696	BARKERNOBAY	12/12/89	11:35	10.9	7.8	10.5	315	26	24											
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
900280	BARKERNOBAY	06/26/90	7:35	21.4	8.4	8.0	384	36	36	0.11			111	18	16	3.	102	31	0.2	255
900391	BARKERNOBAY	07/25/90	14:25	24.8	7.4	9.6	313	27	26	0.08			94	16	13	2.3	94	20	<0.1	183
900503	BARKERNOBAY	08/21/90	7:20	19.7		6.8	260	22	18	0.08			87	15	12	2.1	83	16	<0.1	157
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
910062	BARKERNOBAY	01/28/91	7:50	7.8	8.6	9.4	341	29	27	0.05			100	17	14	2.3	101	28	0.2	195
910159	BARKERNOBAY	02/26/91	9:10	13.5	7.5	9.8	356	32	28	0.07			111	18	16	2.5	105	30	0.2	204
910255	BARKERNOBAY	03/25/91	9:40	11.8	7.4	8.8	463	46	44	0.08			126	19	19	3.3	110	45	0.3	272
910379	BARKERNOBAY	05/21/91	8:15	18.2	7.9	7.1	506	46	39	0.07			159	24	24	3.3	150	54	0.4	297
910428	BARKERNOBAY	06/24/91	8:43	17.5	7.5	7.8	352	30	27	0.06			111	18	16	2.7	108	32	0.2	209
910646	BARKERNOBAY	08/21/91	13:35	21.0	7.1	7.1	290	26	22	0.05			95	15	14	2.3	97	19	0.1	170
910673	BARKERNOBAY	09/11/91	7:30	18.4	7.7		285	23	19	0.04			91	15	13	2.4	91	19	0.1	167
910812	BARKERNOBAY	10/23/91	12:57	16.7	6.9	7.7				0.05										
910847	BARKERNOBAY	11/19/91	11:42	12.7	6.8	10.8	258	21	19	0.04			84	14	12	2.	82	17	0.1	148
910885	BARKERNOBAY	12/09/91	11:30	9.5	7.2	11.4	265	22	21	0.04			84	14	12	2.	81	17	<0.1	156
7111	BOULDIN1	03/26/87	8:30	13.5	7.2	8.3	591	46	43											
7299	BOULDIN1	08/06/87	11:40	23.6	7.3	7.2	262	21	28		<0.001		81	16	10	1.5	65	15	0.1	
7470	BOULDIN1	10/16/87	10:15	18.0	6.9	2.4	688	72	40				240	50	28	4.7	288	32	0.6	596
7572	BOULDIN1	12/11/87	8:15	11.5	6.7	3.6	430	34	32		<0.001		146	32	16	0.4	122	49	0.3	315
8017	BOULDIN1	01/19/88	7:50	10.1	6.4	4.5	937	72	77		<0.001		357	69	45	3.3	171	197	0.4	729
8151	BOULDIN1	03/10/88	8:51	9.1	7.3		936	105	94		<0.001		295	59	36	3.	251	108	0.4	644
8252	BOULDIN1	04/21/88	7:26	16.5	7.1	8.1	305	26	24		<0.001		100	20	12	1.8	88	23	0.1	201
8336	BOULDIN1	05/09/88	8:37	18.6	7.1	8.5	201	15	13		<0.001		68	14	8	1.3	68	17	0.1	136
8472	BOULDIN1	07/21/88	8:57	23.3	7.0	5.3	178	14	9				62	13	7	1.5	74	12	0.1	119
8598	BOULDIN1	08/10/88	11:18	23.1	7.2	7.3	186	14	10											
8621	BOULDIN1	08/17/88	9:16	21.5	7.2	3.5	338	28	19											
8657	BOULDIN1	08/24/88	9:31	21.6	7.4	3.4	323	29	23											
8673	BOULDIN1	08/31/88	9:13	21.5	7.0	3.0	349	34	26											

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

MINERAL DATA REPORT (cont.)

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			—>
8786	BOULDIN1	11/30/88	11:15	9.3	7.0	5.3	471	32	34				181	36	22	6.9	153	38	0.3	348
8800	BOULDIN1	12/07/88	11:04	10.9	7.8	7.1	418	30	27				162	32	20	5.6	136	35	0.3	305
8829	BOULDIN1	12/20/88	9:00	8.1	7.2	6.5	574	39	41				216	42	27	6.6	119	100	0.3	423
8856	BOULDIN1	12/28/88	9:25	5.0	7.3	7.8	584	43	48				209	39	27	5.1	120	92	0.3	421
9001	BOULDIN1	01/06/89	10:15	7.0	6.9	7.7	582	41	46				232	45	29	5.1	146	75	0.3	438
9068	BOULDIN1	01/11/89	10:40	5.6		9.2	522	38	42				194	38	24	4.6	129	65	0.3	406
9089	BOULDIN1	01/18/89	9:31	6.2	7.2	7.1	509	39	36				196	39	24	4.9	150	56	0.4	398
9114	BOULDIN1	01/26/89	8:28	6.6	7.4	9.5	527	45	40				183	37	22	2.7	141	68	0.2	359
9127	BOULDIN1	02/03/89	10:09	9.8	6.1	5.4	829	59	74				313	58	41	3.5	188	119	0.3	607
9263	BOULDIN1	04/20/89	8:43	19.4	7.2	5.7	531	51	28				172	36	20	1.8	100	127	0.4	392
9384	BOULDIN1	06/01/89	8:51	21.4	7.4	4.5	573	52	75				170	35	20	1.6	112	61	0.2	370
9397	BOULDIN1	06/08/89	8:57	19.3	7.2	3.8	373	32	39				120	25	14	1.9	101	27	0.2	247
9410	BOULDIN1	06/15/89	9:35	22.0	7.2	5.4	241	18	13				80	17	9	1.9	65	28	0.1	162
9423	BOULDIN1	06/19/89	7:40	18.9	7.1	5.2	300	23	21				100	22	11	2.2	70	38	0.2	221
9433	BOULDIN1	06/29/89	8:09	18.2	7.6	4.9	349	24	19				125	30	12	3.5	90	48	0.2	248
9504	BOULDIN1	07/06/89	9:45	23.3	7.1	3.6	384	25	18				143	34	14	2.8	98	51	0.2	282
9517	BOULDIN1	07/14/89	7:29	20.0	7.1	2.5	485	33	20				191	47	18	3.6	143	65	0.3	365
9530	BOULDIN1	07/21/89	7:25	22.1	6.6	3.9	305	21	18				112	25	12	2.2	85	37	0.2	222
9543	BOULDIN1	07/28/89	7:11	20.5	7.3	4.1	236	15	11				87	20	9	1.4	72	28	0.2	179
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
910078	BOULDIN1	01/31/91	12:00	10.8	7.4	5.7	583	45	42	0.25						3.1	136	85	0.3	424
910297	BOULDIN1	04/18/91	12:40	21.1	7.0	7.0	765	76	55	0.46			232	50	26	4.5	146	136	0.4	549
910503	BOULDIN1	07/22/91	9:25	21.4	7.0	4.8	241	17	17	0.07			84	17	10	1.6	76	21	0.2	164
910606	BOULDIN1	08/19/91	9:57	20.7	6.6		263	20	18	0.08			92	19	11	1.5	75	28	0.2	179
910773	BOULDIN1	10/21/91	10:10	17.5	2.9	7.0	383	25	24	0.15			154	32	18	1.7	156	8	0.2	265
7112	BOULDIN2	03/26/87	9:00	13.5	7.0	6.2	504	46	42											
7300	BOULDIN2	08/06/87	12:20	25.5	7.1	7.1	182	13	8		<0.001		59	12	7	1.3	58	17	0.1	
7471	BOULDIN2	10/16/87	9:45	17.4	6.8	5.4	342	24	16				118	24	14	2.9	91	44	0.3	288
7573	BOULDIN2	12/11/87	8:55	12.5	6.9	5.3	533	37	31		<0.001		208	42	25	4.2	136	96	0.4	430
8018	BOULDIN2	01/19/88	8:25	5.8	6.0	5.5	698	38	48		0.002		280	56	34	2.5	31	203	0.2	531
8152	BOULDIN2	03/10/88	8:39	11.1	6.5		553	41	51		<0.001		187	37	23	2.1	103	90	0.5	450
8253	BOULDIN2	04/21/88	8:00	17.0	6.7	4.2	494	38	46		<0.001		183	37	22	2.2	99	65	0.3	387
8337	BOULDIN2	05/09/88	7:52	18.9	7.4	7.7	279	23	23		<0.001		100	20	12	1.6	84	21	0.2	200
8473	BOULDIN2	07/21/88	8:26	23.9	6.5	3.3	202	14	11				74	15	9	1.	56	30	0.1	150
8599	BOULDIN2	08/10/88	10:44	21.2	7.1	5.5	218	16	12											
8622	BOULDIN2	08/17/88	9:44	22.7	6.8	5.0	440	36	36											
8658	BOULDIN2	08/25/88	9:55	22.6	7.3	4.2	350	30	26											
8674	BOULDIN2	08/31/88	9:36	22.7	7.3	2.5	312	31	29											
8787	BOULDIN2	11/30/88	11:52	9.9	7.2	3.2	467	27	26				178	35	22	7.4	153	47	0.3	353
8801	BOULDIN2	12/07/88	11:41	11.9	7.4	5.0	412	25	22				172	34	21	6.3	146	34	0.3	318

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

MINERAL DATA REPORT (cont.)

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 mg/L	SO4	B	TDS —>
8830	BOULDIN2	12/20/88	8:30	8.6	6.7	3.8	597	36	44				239	46	30	7.	111	114	0.4	448
8857	BOULDIN2	12/28/88	10:30	7.7	7.3	4.6	745	51	62				298	60	36	8.9	100	176	0.6	641
9002	BOULDIN2	01/06/89	11:00	7.3	6.9	5.7	769	50	76				300	56	39	5.4	160	124	0.4	591
9069	BOULDIN2	01/11/89	11:06	6.0		8.2	624	42	60				222	43	28	4.5	121	99	0.4	488
9090	BOULDIN2	01/18/89	10:17	8.3	6.9	4.3	707	47	68				295	59	36	4.1	134	140	0.4	566
9115	BOULDIN2	01/26/89	9:36	8.1	6.6	7.2	425	24	22				156	31	19	2.	34	107	0.2	329
9128	BOULDIN2	02/03/89	10:42	10.0		5.9	632	44	60				226	41	30	2.5	73	132	0.3	481
9264	BOULDIN2	04/20/89	8:21	18.9	7.5	9.6	333	25	21				111	23	13	1.8	70	58	0.2	237
9385	BOULDIN2	06/01/89	9:18	22.4	7.1	4.7	466	38	61				134	29	15	1.6	64	56	0.3	342
9398	BOULDIN2	06/08/89	9:23	21.0	6.7	5.1	270	21	19				86	18	10	1.5	49	43	0.2	216
9411	BOULDIN2	06/15/89	10:15	23.2	6.5	4.9	256	20	16				82	18	9	1.4	38	47	0.3	227
9424	BOULDIN2	06/19/89	6:51	19.3	6.6	5.3	258	22	18				88	19	10	1.6	64	37	0.3	226
9434	BOULDIN2	06/29/89	7:47	18.2	7.2	5.7	296	22	20				100	22	11	2.	60	46	0.2	224
9505	BOULDIN2	07/06/89	9:00	22.6	7.4	3.9	197	15	11				68	14	8	1.6	57	21	0.2	152
9518	BOULDIN2	07/14/89	6:52	20.4	7.1	6.9	182	13	10				64	14	7	1.2	57	19	0.2	139
9531	BOULDIN2	07/21/89	8:02	22.8	6.4	6.4	218	16	14				73	16	8	1.4	52	31	0.2	167
9544	BOULDIN2	07/28/89	7:50	20.8	7.4	5.3	195	14	11				70	15	8	1.2	48	29	0.2	169
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
900199	BOULDIN2	04/23/90	12:40	18.3	6.2	4.3	257	18	17	0.13			86	18	10	1.4	56	35	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
900383	BOULDIN2	07/24/90	13:03	24.5		1.8	308	25	25	0.17			105	22	12	1.7	70	33	0.2	241
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
900495	BOULDIN2	08/20/90	13:54	26.0	8.7	5.8	177	13	9	0.05			59	12	7	1.6	57	11	<0.1	125
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
910079	BOULDIN2	01/31/91	12:20	10.3	7.3	4.3	544	40	49	0.34						3.7	139	52	0.4	419
910298	BOULDIN2	04/18/91	12:00	19.0	7.3	9.7	545	43	49	0.30			192	39	23	2.3	106	80	0.3	416
910504	BOULDIN2	07/22/91	9:53	22.4	6.5	6.1	242	18	26	0.08			77	16	9	1.5	58	24	0.2	175
910607	BOULDIN2	08/19/91	10:15	20.9	6.4		225	19	18	0.07			73	16	8	1.2	56	28	0.2	169
910774	BOULDIN2	10/21/91	10:30	18.5	6.8	3.2	263	20	21	0.08			81	16	10	2.	79	18	0.1	164
8614	BOULDSIPH01	08/10/88	11:53	23.0	7.1	8.9	175	11	8											
8630	BOULDSIPH01	08/17/88	8:54	22.3	7.4	5.5	179	12	8											
8659	BOULDSIPH01	08/24/88	9:08	22.8	7.9	7.8	194	14	10											
8675	BOULDSIPH01	09/01/88	8:50	22.7	7.0	7.0	199	15	9											
8785	BOULDSIPH01	11/30/88	10:27	9.8	7.0	3.6	293	15	15				122	24	15	5.5	111	14	0.2	190
8799	BOULDSIPH01	12/07/88	10:28	12.5	7.3	6.7	267	15	12				105	22	12	1.7	78	29	0.2	178
8828	BOULDSIPH01	12/20/88	8:00	10.5	6.4	6.3	263	18	10				102	21	12	1.8	100	15	0.1	166
8855	BOULDSIPH01	12/28/88	7:50	6.4	7.2	12.0	196	13	10				68	14	8	1.9	67	13	<0.1	122
9067	BOULDSIPH01	01/11/89	10:16	7.7		8.0	292	20	12				109	22	13	1.8	117	13	0.1	193
9088	BOULDSIPH01	01/18/89	8:27	7.7	9.1	9.2	225	17	13				78	15	10	2.3	74	17	0.1	143
9113	BOULDSIPH01	01/26/89	7:40	7.2	7.0	6.4	330	21	11				120	25	14	1.7	126	10	0.1	195
9383	BOULDSIPH01	06/01/89	8:25	21.1	7.2	7.6	427	33	20				148	31	17	1.4	100	72	<0.1	296
9396	BOULDSIPH01	06/08/89	8:36	20.6	7.6	7.4	167	11	8				59	12	7	1.6	60	10	<0.1	108
9409	BOULDSIPH01	06/15/89	9:00	22.1	7.5	7.5	187	13	8				68	14	8	1.4	67	12	<0.1	121
9422	BOULDSIPH01	06/19/89	8:23	21.7	7.9	8.4	176	12	9				62	13	7	1.4	62	11	<0.1	110
9503	BOULDSIPH01	07/06/89	10:15	23.5	7.4	8.7	147	10	6				52	11	6	1.2	50	9	<0.1	92

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

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 mg/L	B	TDS —>
9516	BOULDSIPH01	07/14/89	8:10	22.9	7.7	8.5	172	11	11				62	13	7	1.2	57	8	<0.1	103
9529	BOULDSIPH01	07/21/89	6:24	22.5	7.1	8.7	132	8	5				46	10	5	1.1	50	7	<0.1	84
9532	BOULDSIPH01	07/21/89	6:24	22.5	7.1	8.7	132	8	5				46	10	5	1.2	49	8	<0.1	85
7301	BRANNANPP01	08/06/87	11:05	22.1	6.9	5.5	294	29	36		<0.001		79	15	10	2.2	71	18	0.1	
7472	BRANNANPP01	10/16/87	9:00	15.7	6.9	4.9	361	36	52				90	16	12	2.2	93	8	0.1	236
7574	BRANNANPP01	12/11/87	9:30	11.5	6.7	6.1	595	56	82		<0.001		157	30	20	3.2	62	92	0.2	382
8019	BRANNANPP01	01/19/88	10:00	7.5	6.5	8.1	854	70	102		<0.001		279	51	37	2.9	82	162	0.2	593
8153	BRANNANPP01	03/10/88	8:11	10.2	6.8		538	51	68		<0.001		152	28	20	2.	88	61	0.3	366
8254	BRANNANPP01	04/21/88	7:50	15.0	6.7	4.2	356	36	40		<0.001		108	20	14	1.8	88	32	0.2	266
8338	BRANNANPP01	05/09/88	7:19	20.2	7.1	4.2	378	42	47		<0.001		104	20	13	1.8	101	19	0.3	279
8474	BRANNANPP01	07/21/88	7:37	21.1	6.9	4.6	292	29	40				76	14	10	1.9	60	18	0.1	181
9003	BRANNANPP01	01/06/89	9:30	6.4	6.9	7.2	833	66	95				269	47	37	2.6	60	176	0.2	590
9265	BRANNANPP01	04/20/89	7:49	19.4	7.2	5.0	582	48	58				184	34	24	2.1	86	103	0.2	401
9435	BRANNANPP01	06/29/89	7:24	18.7	7.7	3.9	288	25	24				90	18	11	1.7	69	32	0.1	195
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
910060	BRANNANPP01	01/28/91	14:50	10.6	7.3	6.9	574	47	63	0.13			177	33	23	2.2	64	97	0.2	380
910360	BRANNANPP01	04/25/91	7:00	12.5	6.8	7.9	596	56	78	0.24			177	33	23	2.1	96	67	0.2	406
910495	BRANNANPP01	07/22/91	12:53	24.7	6.8	7.3	336	31	42	0.11			92	17	12	1.8	64	34	0.2	216
910764	BRANNANPP01	10/21/91	12:30	17.3	7.5	3.4	373	39	49	0.18			85	16	11	2.3	103	5	0.1	232
7302	BRANNANPP02	08/06/87	9:45	22.6	6.9	3.0	505	44	80		<0.001		143	26	19	4.	94	23	0.2	
7473	BRANNANPP02	10/16/87	8:00	15.9	6.7	0.6	597	43	95				170	30	23	3.3	114	4	0.2	395
7575	BRANNANPP02	12/11/87	9:45	13.0	6.4	1.7	649	49	96		<0.001		179	32	24	3.5	74	70	0.2	392
8020	BRANNANPP02	01/19/88	8:50	8.3	6.8	7.4	974	80	122		0.001		334	58	46	3.6	129	168	0.3	673
8154	BRANNANPP02	03/10/88	7:24	12.8	6.7		643	44	95		<0.001		197	36	26	3.8	93	35	0.2	409
8255	BRANNANPP02	04/21/88	6:37	15.5	6.7	0.1	602	44	92		<0.001		202	38	26	3.4	131	31	0.4	418
8339	BRANNANPP02	05/09/88	6:17	17.1	6.8		585	44	92		<0.001		198	38	25	3.	151	21	0.4	426
8475	BRANNANPP02	07/21/88	6:23	20.5	6.6	2.4	663	50	100				238	44	31	3.6	109	79	0.3	512
9004	BRANNANPP02	01/06/89	9:10	7.5	6.7	2.3	773	58	115				261	47	35	4.1	90	93	0.2	522
9266	BRANNANPP02	04/20/89	6:50	16.5	6.9	2.9	538	42	89				162	32	20	3.4	94	6	0.2	375
9436	BRANNANPP02	06/29/89	6:41	17.2	6.9	2.0	565	44	93				167	32	21	3.5	110	6	0.2	386
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
910059	BRANNANPP02	01/28/91	7:45	9.6	7.1	5.7	585	40	97	0.39			171	32	22	3.6	100	21	0.3	382
910359	BRANNANPP02	04/25/91	6:35	14.7	7.0	2.8	579	40	78	0.38			174	32	23	3.2	104	16	0.2	384
910494	BRANNANPP02	07/22/91	12:44	23.3	7.1	10.5	360	34	50	0.15			92	17	12	2.2	69	28	0.1	218
910763	BRANNANPP02	10/21/91	12:15	18.9	7.4	2.6				0.33										

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

MINERAL DATA REPORT (cont.)

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 —mg/L—	SO4	B	TDS —>
7303	BRANNANPP03	08/06/87	10:15	22.0	7.3	7.2	671	50	102		0.001		223	38	31	3.2	141	46	0.2	
7474	BRANNANPP03	10/16/87	8:20	15.8	6.5	1.2	1330	74	221				489	82	69	5.5	159	140	0.3	810
8021	BRANNANPP03	01/19/88	9:05	8.3	6.6	2.5	1000	73	140		<0.001		349	59	49	4.4	137	146	0.3	645
8155	BRANNANPP03	03/10/88	7:39	13.8	6.8		1380	78	219		<0.001		516	88	72	6.	161	139	0.3	782
8256	BRANNANPP03	04/21/88	7:00	16.0	6.5	0.0	1370	73	217		<0.001		534	90	75	5.5	233	150	0.4	802
8340	BRANNANPP03	05/09/88	6:38	17.8	6.8		1250	70	195		<0.001		484	85	66	5.1	243	107	0.3	751
8476	BRANNANPP03	07/21/88	6:49	20.0	6.6	0.0	1010	79	150				364	65	49	5.	183	106	0.4	734
9005	BRANNANPP03	01/06/89	8:50	6.0	7.1	6.9	1080	92	152				370	66	50	6.8	119	190	0.3	791
9267	BRANNANPP03	04/20/89	7:28	17.2	6.8	2.9	1540	98	259				537	98	71	5.8	241	176	0.5	879
9437	BRANNANPP03	06/29/89	7:05	17.3	6.9	3.9	941	61	129				334	63	43	3.4	112	133	0.3	604
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
900372	BRANNANPP03	07/24/90	12:50	23.5	6.9	4.9	299	25	32	0.15			94	18	12	1.6	70	19	0.2	198
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
910058	BRANNANPP03	01/28/91	14:30	10.7	7.3	6.6	941	83	124	0.27			308	56	41	4.4	123	162	0.2	610
910358	BRANNANPP03	04/25/91	7:30	14.5	6.4	3.0	1310	73	206	0.44			468	82	64	5.1	184	141	0.3	822
910493	BRANNANPP03	07/22/91	12:30	23.4	7.1	10.1	403	40	57	0.17			103	18	14	2.8	82	27	0.1	231
7304	BRANNANPP04	08/06/87	10:45	22.4	7.1	6.3	328	32	37		<0.001		90	16	12	1.8	85	18	0.1	
7475	BRANNANPP04	10/16/87	8:40	16.4	6.9	3.3	599	58	92				156	26	22	2.7	143	23	0.3	358
7577	BRANNANPP04	12/11/87	10:05	11.5	7.0	6.5	780	75	110		<0.001		241	42	33	3.9	150	94	0.3	492
8022	BRANNANPP04	01/19/88	9:40	11.2	6.8	7.1	889	79	96		0.001		290	50	40	2.9	196	108	0.3	595
8156	BRANNANPP04	03/10/88	7:54	11.9	7.3		1000	86	133		<0.001		351	60	49	3.	220	99	0.3	642
8257	BRANNANPP04	04/21/88	7:24	15.5	6.7	6.0	662	59	85		<0.001		220	40	29	2.1	119	90	0.2	421
8341	BRANNANPP04	05/09/88	6:57	17.4	7.5	8.0	403	35	44		<0.001		133	25	17	1.6	103	29	0.2	251
8477	BRANNANPP04	07/21/88	7:15	20.7	6.6	3.9	579	52	84				181	33	24	1.8	78	81	0.2	369
9006	BRANNANPP04	01/06/89	8:15	7.4	6.4	7.0	1260	119	200				412	71	57	3.2	143	187	0.4	913
9268	BRANNANPP04	04/20/89	7:28	18.4	7.3	6.3	892	85	136				266	49	35	2.5	173	81	0.3	578
9438	BRANNANPP04	06/29/89	7:05	16.7	7.4	6.5	414	38	51				119	23	15	2.1	88	33	0.2	254
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
910057	BRANNANPP04	01/28/91	14:05	11.0	7.3	6.2	1310	146	239	0.71			341	59	47	5.	158	137	0.4	801
910357	BRANNANPP04	04/25/91	7:50	13.3	7.0	8.3	1190	130	191	0.69			323	57	44	2.1	233	87	0.4	735
910492	BRANNANPP04	07/22/91	12:10	24.1	6.9	9.4	378	36	50	0.15			103	18	14	2.2	83	26	0.2	226
910761	BRANNANPP04	10/21/91	11:50	19.3	7.5	4.9	962	110	144	0.67			251	43	35	2.7	249	22	0.4	587
8139	CHECK 12	02/24/88	22:40	14.0	7.9						<0.001									
8527	CHECK 12	07/12/88	15:35				553	66	104											
8138	CHECK 13	02/24/88	22:05	14.0	8.1						<0.001									
8528	CHECK 13	07/12/88	14:45	20.5	8.1	9.8	604	71	106											

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

MINERAL DATA REPORT (cont.)

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 mg/L	SO4	B	TDS —>
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
910050	CHECK 13	01/15/91	10:40	9.4	6.7	10.7	799	95	147	0.50			148	28	19					
910168	CHECK 13	02/27/91	10:05	14.1	8.2	10.0	824	100	158	0.56	<0.001		163	29	22	4.8	78	64	0.3	453
910264	CHECK 13	03/26/91	12:05	12.8	7.8	10.1	682	78	115	0.37	0.001		139	26	18	4.1	80	61	0.2	385
910347	CHECK 13	04/24/91	9:30	15.4	8.7	9.2	391	36	47	0.13	<0.001		104	20	13	3.3	74	38	0.2	233
910388	CHECK 13	05/21/91	9:05	17.0	7.8	9.8	639	71	107	0.35	<0.001		131	25	18	4.	82	52	0.2	356
910435	CHECK 13	06/25/91	10:40	18.3	8.1	8.7	695	81	136	0.38	<0.001		143	26	19	4.4	84	54	0.2	399
910507	CHECK 13	07/23/91	8:57	21.5	8.4	8.2	699	82	141	0.38	<0.001		143	26	19	4.3	84	57	0.2	393
910611	CHECK 13	08/20/91	7:40	21.3	8.3	8.0	637	77	127	0.43	<0.001		125	22	17	4.	80	44	0.2	350
7019	CLIFTON	01/22/87	8:30	6.5	7.3	11.5	300	26	32											
7053	CLIFTON	02/24/87	8:45	11.5	7.3	10.1	435	38	51											
7109	CLIFTON	03/24/87	8:30	13.5	7.3	9.6	730	77	91											
7186	CLIFTON	04/30/87	7:30	20.0	8.3	11.1	365	29	32											
7221	CLIFTON	05/28/87	8:45	19.5	7.4	9.0	401	39	58											
7283	CLIFTON	06/23/87	8:45	23.0	8.3	7.4	483	49	70											
7401	CLIFTON	09/09/87	9:45	22.4	7.4	8.1	646	79	133											
7444	CLIFTON	10/22/87	8:45	19.5	7.4	7.3	777	95	165											
7542	CLIFTON	11/05/87	10:30	17.5	7.4	8.3	616	73	115											
7569	CLIFTON	12/08/87	10:00	11.3	7.4	10.2	847	108	182											
8013	CLIFTON	01/07/88	10:36	7.3	7.3	12.0	588	66	111											
8093	CLIFTON	02/10/88	9:25	11.2	7.1	9.8	364	32	44											
8148	CLIFTON	03/15/88	10:20	13.6	7.5	10.7	574	65	103											
8237	CLIFTON	04/05/88	8:30	16.4	7.5	9.4	672	79	120											
8332	CLIFTON	05/03/88	9:25	17.7	7.7	8.8	337	33	44											
8424	CLIFTON	06/14/88	9:39	22.9	7.5	6.9	416	44	62											
8459	CLIFTON	07/12/88	9:23	23.0	7.5		560	67	108											
8581	CLIFTON	08/09/88	11:30	23.8	7.6	7.4	616	82	133											
8684	CLIFTON	09/06/88	9:15	24.6	7.6	7.2	713	86	131											
8716	CLIFTON	10/04/88	9:36	20.8	7.8	7.9	617	73	110											
8746	CLIFTON	11/01/88	10:34	17.5	7.6	8.3	844	106	141											
8815	CLIFTON	12/13/88	10:45	11.5	7.1	10.6	726	91	154											
9056	CLIFTON	01/10/89	10:45	8.7	7.0	11.5	655	79	128											
9134	CLIFTON	02/07/89	9:50	6.6	6.9	10.8	827	104	178											
9215	CLIFTON	03/07/89	9:30	13.5	7.2	9.8	503	56	86											
9250	CLIFTON	04/04/89	9:10	16.3	7.7	8.0	231	19	25											
9348	CLIFTON	05/02/89	9:20	19.2	8.0	8.6	238	20	22											
9430	CLIFTON	06/06/89	9:30	22.0	7.8	8.1	266	25	30											
9550	CLIFTON	07/05/89	12:30	24.8	7.7	7.6	333	31	39											
9639	CLIFTON	10/02/89	7:57	19.4	7.7	10.5	405		66											
9665	CLIFTON	11/07/89	10:20	15.9	7.7	8.4	469	52	78											
9687	CLIFTON	12/05/89	10:06	12.2	7.7		565	66	102											
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

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

MINERAL DATA REPORT (cont.)

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			———>
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
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
910085	CLIFTON	01/31/91	11:00	9.5	7.5	9.1	731	83	146	0.45	<0.001		138	24	19	4.6	76	48	0.2	410
910170	CLIFTON	02/27/91	12:25	14.4	7.7	9.3	840	106	177	0.63			151	24	22	5.2	78	50	0.2	467
910266	CLIFTON	03/26/91	15:00	11.9	7.8	10.1	548	61	96	0.34			116	20	16	3.8	68	38	0.1	305
910349	CLIFTON	04/24/91	11:20	16.3	8.0	8.7	792	83	116	0.32	0.002		187	37	23	4.1	104	102	0.4	461
910390	CLIFTON	05/21/91	11:45	20.9	7.7	8.8	527	54	73	0.24			129	25	16	3.2	88	47	0.2	297
910437	CLIFTON	06/25/91	13:15	21.0	7.9	7.9	607	73	126	0.36			118	19	17	4.1	80	33	0.2	332
910515	CLIFTON	07/23/91	15:50	27.0	6.8		528	61	106	0.30	<0.001		107	18	15	3.5	73	32	0.1	286
910683	CLIFTON	09/10/91	9:05	21.7	8.1	6.6	469	57	87	0.36			91	15	13	3.3	62	22	<0.1	244
910856	CLIFTON	11/21/91	11:45	13.8	7.8	9.8	688	86	141	0.48			119	18	18	4.4	65	37	0.2	365
910894	CLIFTON	12/11/91	9:50	9.1	7.1	11.7	810	102	158	0.50			147	26	20	4.4	81	58	0.3	443
7526	COLUSA	10/21/87	7:50	17.5	7.3	7.6	475	47	24				145	25	20	2.5	157	55	0.2	292
8023	COLUSA	01/20/88	11:50	7.6	7.5	10.5	568	62	32		0.001		152	28	20	3.7	139	96	0.2	354
8158	COLUSA	03/11/88	11:12	12.9	7.5		799	86	47		<0.001		240	40	34	2.1	218	122	0.3	490
8259	COLUSA	04/22/88	11:35	16.0	7.9	8.8	330	32	13		<0.001		101	19	13	2.	104	39	0.1	204
8343	COLUSA	05/09/88	11:23	21.7	8.0	7.1	402	43	16		<0.001		114	21	15	2.	124	50	0.2	248
8479	COLUSA	07/22/88	12:36	29.5	7.9	7.8	554	60	24				185	31	26	1.4	205	70	0.4	348
9008	COLUSA	01/09/89	11:36	7.6		12.2	948	113	55				275	44	40	2.9	236	175	0.3	596
9270	COLUSA	04/21/89	10:19	21.1	8.2	8.1	531	56	26				154	27	21	2.5	166	65	0.3	320
9440	COLUSA	06/30/89	12:45	23.8	6.7	7.3	717	80	35				191	32	27	1.7	230	93	0.4	440
900695	CONCOSPP1	10/01/90	10:10	18.6	7.3	7.8	625	79	124	0.51			108	17	16					
910382	CONCOSPP1	05/21/91	11:40	19.9	8.2	7.9	537	58	89	0.27			118	19	17	3.7	87	36	0.2	295
910430	CONCOSPP1	06/24/91	10:20	21.2	7.8	7.6	705	90	155	0.47			123	18	19	4.7	78	38	0.2	387
910648	CONCOSPP1	08/21/91	11:35	24.0	7.9	7.4	699	71	145	0.45			99	15	15	7.1		31	0.1	368
910675	CONCOSPP1	09/11/91	9:50	21.4	8.2		782	87	166	0.50			108	15	17	4.3	67	34	0.1	405
910814	CONCOSPP1	10/23/91	10:43	17.7	7.1	7.6	585	72	118	0.38			104	15	16	3.7	69	28	0.1	302
910849	CONCOSPP1	11/19/91	10:01	12.2	7.0	12.3	836	112	186	0.66			132	18	21	5.3	68	42	0.1	443
910887	CONCOSPP1	12/09/91	10:10	9.6	8.5	12.3	988	134	233	0.77			146	19	24	6.2	67	49	0.2	529
9571	CONNMAND	07/25/89	7:22	23.8			200	26	26					16	6		55	17		130
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
910110	CONNMAND	01/29/91	11:50	8.4	7.7	10.2	541	60	97	0.33			108	20	14	3.8	71	32	0.1	297
910545	CONNMAND	07/24/91	7:43	22.7	7.6	8.4	429	50	72	0.28			87	15	12	3.	65	22	<0.1	233
910657	CONNMAND	08/21/91	6:10	22.0	7.2		369	41	62	0.25			80	14	11	2.5	61	17	<0.1	201

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

MINERAL DATA REPORT (cont.)

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 mg/L	SO4	B	TDS —>
910823	CONNMAND	10/23/91	7:30	19.2	7.7	7.4	343	38	55	0.16			78	13	11	2.4	63	16	<0.1	182
9593	DELTACRCHAN	07/25/89	6:46	20.3	7.7	9.3	120	6	1					9	5		48	6		68
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
910104	DELTACRCHAN	01/29/91	11:45	10.2	7.3	11.5	185	12	7	0.01			64	14	7	1.7	69	9	<0.1	112
910326	DELTACRCHAN	04/23/91	9:25	16.6	8.6	8.5	225	15	12	0.05			81	16	10	1.7	78	15	<0.1	139
910531	DELTACRCHAN	07/24/91	6:30	21.5	7.4	7.0	154	11	7	0.02			52	11	6	1.4	55	10	<0.1	93
910643	DELTACRCHAN	08/21/91	6:27	20.3	7.2	7.8	164	13	8	0.02			56	11	7	1.4	60	10	<0.1	104
910809	DELTACRCHAN	10/23/91	6:39	17.3	7.2	7.1	150	9	7	0.02			54	10	7	1.4	56	8	<0.1	88
7018	DMC	01/22/87	9:00	6.5	7.3	11.5	356	33	40		0.001									
7054	DMC	02/24/87	9:15	10.5	7.3	9.7	860	88	102		0.002									
7108	DMC	03/24/87	8:45	13.0	7.5	9.6	804	88	104		0.003									
7185	DMC	04/30/87	8:00	20.0	8.3	10.3	359	29	32		<0.001									
7220	DMC	05/28/87	8:30	18.5	7.5	8.6	405	39	57		<0.001									
7282	DMC	06/23/87	8:15	23.0	7.5	7.5	466	49	70		<0.001									
7400	DMC	09/09/87	9:20	22.0	7.4	7.7	503	59	90		<0.001									
7443	DMC	10/22/87	8:30	19.0	7.4	7.2	751	89	155		<0.001									
7541	DMC	11/05/87	10:00	18.0	7.3	8.5	620	77	116		<0.001									
7568	DMC	12/08/87	9:45	11.3	7.3	10.2	847	113	181		<0.001									
8012	DMC	01/07/88	10:05	7.6	7.1	12.0	488	49	80		<0.001									
8098	DMC	02/02/88	11:00	9.9	7.3	9.5	748	83	106		<0.001									
8092	DMC	02/10/88	8:55	11.1	7.2	9.5	376	33	45		<0.001									
8102	DMC	02/19/88	13:10	11.9	7.7	10.9	1200	145	169		0.005									
8141	DMC	02/24/88	16:50	14.7							<0.001									
8147	DMC	03/03/88	9:45	13.3	7.4	10.5	575	59	81		0.001									
8205	DMC	03/08/88	11:16	17.0	7.5	9.4	437	42	61		<0.001									
8219	DMC	03/22/88	10:42	15.5	7.4	10.0	633	73	120		<0.001									
8231	DMC	03/29/88	9:50	15.0	7.5	9.5	763	89	132		0.001									
8236	DMC	04/05/88	8:10	15.0	7.5	9.6	635	74	120		<0.001									
8243	DMC	04/12/88	10:21	18.1	7.4	9.1	490	52	72		<0.001									
8304	DMC	04/19/88	10:01	16.0	7.8		390	42	60		<0.001									
8308	DMC	04/26/88	10:13	16.2	7.4	8.8	793	93	108		0.002									
8331	DMC	05/03/88	8:57	17.4	7.7	9.0	344	36	47		<0.001									
8387	DMC	05/10/88	10:45	17.5	7.7	8.1	489	51	66		<0.001									
8406	DMC	05/17/88	10:50	19.0	7.7	8.7	342	33	45		<0.001									
8410	DMC	05/31/88	10:30	20.0	7.5	8.3	510	54	74		<0.001									
8423	DMC	06/14/88	8:56	22.3	7.5	6.8	441	46	65		<0.001									
8439	DMC	06/28/88	10:15	23.0	7.7	7.2	476	50	74		<0.001									
8458	DMC	07/12/88	8:55	23.0	7.6	7.8	571	69	112		<0.001									
8568	DMC	07/26/88	10:12	26.0	7.7	6.6	772	89	133		<0.001									
8580	DMC	08/09/88	10:50	23.2	7.7	7.9	710	83	128		<0.001									
8596	DMC	08/23/88	9:10	23.8	7.6	6.9	860	100	131		0.002									
8683	DMC	09/06/88	8:45	24.7	7.7	6.9	814	97	138		0.001									

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

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			——>
8708	DMC	09/20/88	9:55	19.1	7.6	8.7	828	94	126		0.002									
8715	DMC	10/04/88	8:59	19.7	7.4	7.6	783	91	129		<0.001									
8737	DMC	10/18/88	10:20	20.5	7.7	7.8	632	76	120		<0.001									
8745	DMC	11/01/88	10:11	17.0	7.4	8.2	883	104	140		0.001									
8772	DMC	11/29/88	11:10	12.1	7.8	10.4	674	79	132		<0.001									
8814	DMC	12/13/88	10:22	11.4	7.1	10.6	675	83	137		<0.001									
8842	DMC	12/27/88	11:00	7.1	7.3	11.3	791	99	174		<0.001									
9055	DMC	01/10/89	9:55	13.0	7.0	11.2	563	64	105		<0.001									
9147	DMC	02/02/89	8:30	8.4	7.1		611	71	112		<0.001									
9133	DMC	02/07/89	9:30	6.4	6.9	11.9	662	78	128		<0.001									
9166	DMC	02/09/89	8:45	6.8	6.8	12.0	897	115	198		<0.001									
9178	DMC	02/14/89	7:35	7.3	7.6		758	87	116		0.001									
9183	DMC	02/16/89	8:00	9.7	6.6	11.0	743	88	125		<0.001									
9161	DMC	02/21/89	10:45	12.5	7.4	10.3	799	93	130		0.001									
9196	DMC	02/23/89	12:45	12.8	7.1	10.8	699	84	137		<0.001									
9205	DMC	03/02/89	10:51	12.4	7.6	10.4	634	78	124		<0.001		124	20	18	3.9	76	37	0.1	349
9214	DMC	03/07/89	9:10	13.2	7.3	9.9	567	64	97		<0.001									
9249	DMC	04/04/89	8:46	16.2	8.0	7.8	313	229	37		<0.001									
9333	DMC	04/18/89	6:45	18.1	7.6		209	16	18		<0.001									
9347	DMC	05/02/89	8:55	18.9	7.5	8.5	265	22	25		<0.001									
9361	DMC	05/16/89	9:46	21.3	7.7	8.0	312	28	35		<0.001									
9429	DMC	06/06/89	9:10	20.8	8.0	7.8	270	26	31		<0.001									
9549	DMC	07/05/89	10:42	23.4	7.8	7.7	276	26	32		<0.001									
9586	DMC	07/25/89	8:30	24.8	7.3	8.1	540	77	50					43	16		86	58		330
9604	DMC	08/03/89	8:50	23.4	8.0	8.8					<0.001									
9618	DMC	09/06/89	9:02	21.7	7.3	8.4	338	35	46		<0.001									
9638	DMC	10/02/89	8:14	19.2	7.9	10.2	364	39	54		<0.001									
9664	DMC	11/07/89	9:50	15.3	7.6	8.8	488	54	79		<0.001									
9686	DMC	12/05/89	9:39	11.6	7.7		689	78	112		<0.001									
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
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
900098	DMC	02/21/90	9:57	9.4	7.3	11.9	872	101	116	0.37	0.003		189	41	21	3.8	99	131	0.6	521
900144	DMC	03/07/90	11:30	12.9	7.7	9.4	484	52	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
900260	DMC	05/23/90	11:00	18.5	8.1	8.2	577	69	111	0.32	<0.001		100	17	14	3.6	64	34	0.1	313
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					
900457	DMC	08/06/90	10:00	26.1	7.8	6.1	473	54	81	0.31			98	18	13					
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					

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

MINERAL DATA REPORT (cont.)

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 mg/L	SO4	B	TDS —>
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
900876	DMC	11/27/90	12:00	10.9	7.8	10.7	850	99	139	0.44			182	38	21					
900916	DMC	12/11/90	13:15	11.0	7.5	8.5	781	94	161	0.55	<0.001		138	23	19	5.	74	46	0.2	420
910003	DMC	01/02/91	13:05	7.0	7.5	11.2	785	87	138	0.45			157	30	20					
910031	DMC	01/15/91	12:35	9.8	6.8	10.0	696	80	127	0.41			139	26	18					
910090	DMC	01/29/91	13:50	11.4		11.1	911	108	158	0.51	<0.001		196	37	25	4.6	99	110	0.4	522
910142	DMC	02/13/91	10:20	12.6	7.6	9.7	792	94	156	0.53	<0.001		152	26	21					
910171	DMC	02/27/91	13:10	14.4	7.7	9.2	894	110	177	0.62	<0.001		174	30	24	5.	88	68	0.3	498
910198	DMC	03/11/91	10:10	13.7	7.5	8.2	1150	143	179	0.50	0.002		202	52	30					
910267	DMC	03/26/91	15:35	11.9	7.8	10.0	509	54	82	0.30	<0.001		114	21	15	3.5	67	38	0.1	286
910284	DMC	04/09/91	10:55	16.6	7.3	8.4	762	84	104	0.29			175	37	20					
910312	DMC	04/23/91	9:00	16.1	7.1	9.2	476	47	61	0.17	<0.001		126	24	16	3.2	83	51	0.2	280
910391	DMC	05/21/91	12:30	20.5	7.4	8.6	461	49	74	0.21	<0.001		114	21	15	3.3	81	34	0.2	258
910407	DMC	06/11/91	10:20	25.6	7.4	6.8	576	66	101	0.34			118	19	17					
910438	DMC	06/25/91	13:45	20.8	7.7	8.0	633	78	128	0.36	<0.001		123	21	17	4.1	82	37	0.2	348
910468	DMC	07/08/91	8:45	24.3	7.3	7.8	555	64	101	0.36			107	18	15					
910519	DMC	07/24/91	8:23	23.4	7.1	7.8	521	61	102	0.35	<0.001		100	17	14	3.5	72	29	0.2	283
910559	DMC	08/05/91	9:05	22.0		7.8	572	67	114	0.37			116	20	16	3.8				
910634	DMC	08/21/91	7:45	21.6		7.5	460	54	91	0.34	<0.001		91	15	13	3.1	66	23	0.1	249
910684	DMC	09/10/91	9:30	21.4	7.8	6.4	451	52	79	0.33	<0.001		84	14	12	3.	65	22	<0.1	236
910703	DMC	09/24/91	8:10	22.5	7.5	7.3	570	70	109	0.38			102	16	15					
910733	DMC	10/08/91	7:50	21.1	8.1	7.3	509	60	88	0.30			98	16	14	3.3				
910800	DMC	10/23/91	8:15	18.2	7.5	7.9	465	52	76	0.25	<0.001		100	17	14	3.1	72	26	0.1	248
910857	DMC	11/21/91	10:50	13.7	7.8	9.6	654	80	132	0.44	<0.001		118	19	17	4.2	68	42	0.2	350
910895	DMC	12/11/91	10:20	9.3	7.0	12.0	862	103	143	0.43	<0.001		191	37	24	3.5	108	96	0.4	489
7113	EGBERTPP01	03/30/87	8:45	13.5	7.3	5.9	1100	67	44											
7306	EGBERTPP01	08/13/87	10:05	19.3	7.0	6.5	305	19	12				120	20	17	0.5	104	32	0.2	205
7476	EGBERTPP01	10/20/87	10:00	15.0	7.4	6.6	667	41	26		<0.001		273	40	42	1.8	264	46	0.3	417
8024	EGBERTPP01	01/20/88	9:10	6.3	7.1	9.3	968	60	40		0.001		460	64	73	1.3	274	204	0.4	711
8159	EGBERTPP01	03/11/88	8:38	6.1	7.3		1080	72	44		<0.001		518	72	82	2.1	426	119	0.5	710
8260	EGBERTPP01	04/22/88	8:30	14.0	7.1	6.5	337	21	14		<0.001		137	22	20	1.8	105	43	0.2	217
8344	EGBERTPP01	05/09/88	8:30	15.5	7.4	3.2	903	57	33		<0.001		421	60	66	2.	381	100	0.5	621
8480	EGBERTPP01	07/22/88	8:34	21.5	7.0	6.6	297	19	13				124	20	18	2.2	120	35	0.2	197
9009	EGBERTPP01	01/09/89	9:00	8.0		11.8	547	35	25				233	34	36	1.9	200	61	0.2	353
9271	EGBERTPP01	04/21/89	7:53	17.2	7.4	5.7	524	37	25				204	32	30	1.8	180	62	0.3	339
9441	EGBERTPP01	06/30/89	7:45	19.9	6.6	5.5	253	17	12				90	16	12	1.8	77	24	0.1	159
7114	EGBERTPP02	03/30/87	9:15	14.0	7.8	11.7	1760	91	76											

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

MINERAL DATA REPORT (cont.)

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 mg/L	SO4	B	TDS —>
7477	EGBERTPP02	10/20/87	10:20	16.0	7.6	5.7	1220	69	39		0.001		619	83	100	3.	530	152	0.7	850
8025	EGBERTPP02	01/20/88	9:50	7.0	7.2	9.0	1350	70	58		<0.001		677	88	111	1.2	195	462	0.6	1030
8160	EGBERTPP02	03/11/88	9:04	8.5	8.1		1820	94	74		<0.001		1010	134	163	2.7	436	540	0.8	1530
8261	EGBERTPP02	04/22/88	9:07	16.0	8.1	9.5	875	54	38		<0.001		414	57	66	2.5	276	158	0.5	609
8345	EGBERTPP02	05/09/88	8:55	17.1	8.2	4.5	1140	72	44		<0.001		600	82	96	2.5	441	181	0.7	830
8481	EGBERTPP02	07/22/88	9:01	22.9	7.0	3.7	484	28	17				203	30	31	3.	179	39	0.3	294
9010	EGBERTPP02	01/09/89	9:20	7.2		9.5	951	55	40				477	61	79	3.	376	120	0.4	657
9272	EGBERTPP02	04/21/89	8:15	16.2	7.7	11.1	1550	83	72				730	101	116	3.5	374	440	0.8	1160
9442	EGBERTPP02	06/30/89	8:15	19.6	6.4	7.4	379	25	16				131	21	19	1.7	62	88	0.2	240
9470	EGBERTPP02	06/30/89	8:15	19.6	6.4	7.4	378	26	16				135	21	20	1.8	61	86	0.2	239
900334	FALSETIP-WEBB	07/10/90	7:35	22.3	8.1	7.6	610	76	122	0.45			109	17	16					
900354	FALSETIP-WEBB	07/17/90	8:25	22.9	8.3	7.4	450	56	95	0.34			88	14	13					
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					
910009	FALSETIP-WEBB	01/02/91	10:35	5.4	7.8	11.4	1160	188	322	1.09			165	20	28					
910037	FALSETIP-WEBB	01/16/91	9:50	7.3	7.5	11.9	1090	150	256	0.93			149	20	24					
910108	FALSETIP-WEBB	01/29/91	11:05	8.5	7.8	10.9	1130	154	269	0.98						7.9	72	50	0.2	602
910128	FALSETIP-WEBB	02/14/91	9:50	11.5	7.7	9.6	1280	182	313	1.10			181	23	30					
910174	FALSETIP-WEBB	02/25/91	9:25	12.8	7.9	9.9	1320	189	320	1.09			192	24	32					
910204	FALSETIP-WEBB	03/12/91	9:30	11.9	8.1	9.3	1060	149	246	0.87			160	21	26					
910240	FALSETIP-WEBB	03/26/91	11:25	12.4	7.8	10.2	471	54	81	0.30			103	18	14					
910270	FALSETIP-WEBB	04/09/91	11:25	15.5	7.8	8.4	320	29	37	0.13			90	16	12					
910330	FALSETIP-WEBB	05/22/91	8:48	17.8	7.9	9.6	752	97	170	0.57			130	19	20	5.2	80	36	0.2	410
910413	FALSETIP-WEBB	06/13/91	7:30	20.9	8.2		1150	152	273	1.03			165	20	28					
910444	FALSETIP-WEBB	06/26/91	7:25	19.7	8.2	7.6	783	113	173	0.57			125	17	20					
910474	FALSETIP-WEBB	07/10/91	7:15	21.0	7.8	7.9	715	93	156	0.62			114	16	18					
910543	FALSETIP-WEBB	07/24/91	7:14	21.0	7.6	8.6	710	93	176	0.60			114	16	18	4.9	65	32	0.1	377
910565	FALSETIP-WEBB	08/07/91	7:10	21.3		7.9	594	77	144	0.49			96	14	15	4.				
910689	FALSETIP-WEBB	09/12/91	7:45	20.0	7.5	7.9	1260	184	311	1.49			162	17	29					
910709	FALSETIP-WEBB	09/26/91	6:55	19.8	7.7	8.5	950	131	220	0.78			135	16	23					

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

MINERAL DATA REPORT (cont.)

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 mg/L	B	TDS >
910740	FALSETIP-WEBB	10/10/91	7:00	20.3	7.8	7.9	802	105	181	0.63			122	16	20	5.				
910821	FALSETIP-WEBB	10/23/91	7:00	18.4	7.7	8.1	1210	164	299	1.00			163	19	28	7.6	66	51	0.2	624
910900	FALSETIP-WEBB	12/19/91	8:10	7.5	7.3	10.0	1280	186	312	0.92			174	20	30	8.4				
9594	GEORGSLWALNUT	07/25/89	7:03	20.4	7.5	9.3	120	8	2					9	3		48	8		64
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
900810	GEORGSLWALNUT	10/24/90	10:45	17.9	7.6	8.6	156	10	7	0.01			52	11	6	1.5	56	7	<0.1	94
910103	GEORGSLWALNUT	01/29/91	11:30	10.4	7.4	11.5	184	12	7	0.01			64	14	7	1.7	70	9	<0.1	113
910325	GEORGSLWALNUT	04/23/91	9:15	16.9	7.6	8.3	227	15	11	0.05			81	16	10	1.7	80	14	<0.1	134
910532	GEORGSLWALNUT	07/24/91	6:49	21.6	8.2	7.0	156	11	8	0.02			50	10	6	1.4	53	10	<0.1	94
910644	GEORGSLWALNUT	08/21/91	7:00	19.7	7.2	7.3	175	14	9	0.02			59	12	7	1.5	60	11	<0.1	107
910810	GEORGSLWALNUT	10/23/91	7:02	17.4	7.0	7.4	147	9	7	0.02			50	10	6	1.4	55	7	<0.1	86
9207	GRANTLNCAN	03/02/89	11:32	13.7	7.7	8.2	1430	178	206		0.006		341	74	38	5.	142	254	1.1	886
9584	GRANTLNCAN	07/25/89	7:20	24.5	6.6	7.9	800	110	130					68	24		110	100		510
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
910092	GRANTLNCAN	01/29/91	11:05	12.7	7.0	10.7	1240	148	196	0.62			292	61	34	4.2	143	187	0.7	741
910314	GRANTLNCAN	04/23/91	10:15	17.4	9.2	10.0	1360	158	226	0.70			309	63	37	4.6	154	189	0.8	803
910521	GRANTLNCAN	07/24/91	9:27	24.0	7.7	7.4	974	109	176	0.52			231	48	27	4.5	127	112	0.5	564
910636	GRANTLNCAN	08/21/91	9:03	23.7		7.1	1000	115	174	0.55			240	50	28	5.8	133	109	0.5	578
910802	GRANTLNCAN	10/23/91	9:28	18.8	7.7	5.7	997	112	156	0.05			237	49	28	4.	146	104	0.4	569
9579	GRANTOLD	07/25/89	10:07	25.4			800	130	130					63	19		110	120		510
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					
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

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

MINERAL DATA REPORT (cont.)

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 mg/L	SO4	B	TDS —>
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					
910019	GRANTOLD	01/02/91	13:15	5.4	7.9	13.0	1100	122	164	0.53			241	52	27					
910047	GRANTOLD	01/16/91	12:20	10.6	8.3	9.9	1150	134	167	0.53			259	56	29					
910120	GRANTOLD	01/29/91	14:35	8.5	7.6	10.6	700	80	133	0.49			128	23	17	4.6	79	49	0.2	376
910138	GRANTOLD	02/14/91	12:10	13.9	7.4	8.0	1080	128	168	0.54			245	50	29					
910184	GRANTOLD	02/25/91	12:15	13.8	7.7	9.1	840	103	157	0.60			158	27	22					
910214	GRANTOLD	03/12/91	12:10	13.5	8.2	8.0	1210	148	180	0.55			267	56	31					
910250	GRANTOLD	03/26/91	14:08	13.3	7.6	8.1	698	74	84	0.23			168	36	19					
910280	GRANTOLD	04/09/91	14:17	16.1	7.7	7.5	666	73	88	0.26			157	33	18					
910342	GRANTOLD	05/22/91	12:08	19.4	7.4	8.8	479	49	65	0.20			117	22	15	3.3	85	38	0.2	273
910423	GRANTOLD	06/13/91	9:48	22.6	7.0		575	72	102	0.37			120	20	17					
910454	GRANTOLD	06/26/91	9:40	21.0	7.8	7.8	636	75	108	0.40			124	20	18					
910484	GRANTOLD	07/10/91	9:25	24.1	7.6	6.3	564	65	98	0.36			116	20	16					
910555	GRANTOLD	07/24/91	9:41	24.4	7.5	7.3	511	47	102	0.36			141	30	16	2.5	72	30	0.1	276
910575	GRANTOLD	08/07/91	9:20	22.8		7.1	536	62	112	0.36			107	18	15	3.4				
910667	GRANTOLD	08/21/91	9:50	23.5	7.5		840	93	135	0.44			187	37	23	4.7	111	78	0.4	471
910699	GRANTOLD	09/12/91	9:55	22.4	7.2	6.5	423	48	71	0.29			84	14	12					
910719	GRANTOLD	09/26/91	9:15	22.0	7.6	7.8	457	53	80	0.26			91	15	13					
910750	GRANTOLD	10/10/91	9:05	21.7	7.6	6.7	430	47	70	0.22			94	16	13	3.				
910833	GRANTOLD	10/23/91	9:55	19.4	7.8	7.0	463	53	81	0.24			98	16	14	3.1	71	26	0.1	247
910910	GRANTOLD	12/19/91	10:40	7.7	7.6	9.9	909	105	150	0.45			196	39	24	3.6				
7012	GREENES	01/13/87	7:15	7.5	7.3	11.0	178	11	7				59	12	7	1.8	68	11	0.1	109
7040	GREENES	02/10/87	6:45	12.0	7.3	9.4	193	14	10				66	13	8	1.6	72	15	0.1	124
7075	GREENES	03/10/87	6:45	13.5	7.1	8.4	128	7	5				43	9	5	1.4	50	6	0.1	88
7177	GREENES	04/16/87	5:45	16.5	7.2	5.6	178	10	7				59	12	7	1.3	66	9	0.1	114
7212	GREENES	05/20/87	5:45	20.0	7.4	7.7	172	12	7				63	12	8	1.5	61	10	<0.1	113
7250	GREENES	06/11/87	5:50	21.0	7.3	7.6	176	11	7				59	12	7	1.3	63	8	<0.1	102
7393	GREENES	09/03/87	10:15	23.7	7.1	9.0	204	14	11				68	14	8	1.4	71	12	<0.1	128
7434	GREENES	10/08/87	5:35	20.0	7.2	8.7	159	9	5				50	10	6	1.2	58	7	<0.1	87
7529	GREENES	11/03/87	6:40	16.5	7.1	8.1	180	12	9				63	12	8	1.	66	10	<0.1	106
7559	GREENES	12/01/87	6:45	11.5	7.2	10.4	210	14	10				70	13	9	1.8	73	14	<0.1	123
8001	GREENES	01/06/88	7:45	8.6	7.3	10.5	172	10	8				63	12	8	1.4	58	12	<0.1	108
8108	GREENES	02/18/88	6:30	10.5	7.4	10.5	224	14	11				77	16	9	1.6	71	14	<0.1	141
8213	GREENES	03/17/88	6:50	13.4	7.2	10.3	219	15	11				74	15	9	1.4	73	16	<0.1	134
8249	GREENES	04/14/88	6:23	14.6	7.2	9.4	146	9	5				54	12	6	1.4	57	6	<0.1	92
8394	GREENES	05/19/88	5:50	18.1	7.7	7.9	196	14	9				68	14	8	1.7	71	12	<0.1	122
8416	GREENES	06/07/88	5:30	18.0	7.1	8.5	211	16	10				74	15	9	1.6	78	14	<0.1	130
8448	GREENES	07/06/88	6:08	20.8	7.3	7.5	142	10	6				52	11	6	1.3	54	7	<0.1	
8570	GREENES	08/02/88	7:00	21.5	7.2	7.3	159	10	7				59	12	7	1.4	61	9	<0.1	105
8690	GREENES	09/15/88	6:25	20.0	7.3	7.6	226	17	10				72	14	9	1.8	86	12	0.1	133
8719	GREENES	10/13/88	6:00	18.2	7.3	7.1	154	9	6				56	11	7	1.3	58	8	<0.1	91
8757	GREENES	11/17/88	7:29	12.2	8.3	9.1	203	15	10				70	13	9	1.9	68	14	<0.1	123
8803	GREENES	12/06/88	7:00	10.6	7.0	10.5	198	13	9				74	15	9	1.8	69	13	<0.1	119

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

MINERAL DATA REPORT (cont.)

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			—>
9071	GREENES	01/17/89	7:15	8.6	7.1	11.9	207	14	9				74	15	9	1.6	67	17	0.1	131
9151	GREENES	02/14/89	6:45	8.7	6.5	11.7	186	12	8				68	14	8	1.5	67	9	<0.1	110
9226	GREENES	03/14/89	7:26	12.7	6.4	9.0	114	6	4				43	9	5	1.6	43	6	<0.1	79
9351	GREENES	05/09/89	5:50	19.6	7.6	7.8	148	7	7				52	11	6	1.2	51	8	<0.1	96
9478	GREENES	06/13/89	6:00	19.9	7.1	8.4	167	11	7				54	12	6	1.4	60	10	<0.1	105
9553	GREENES	07/11/89	6:05	22.0	7.0	8.5	144	9	6				52	11	6	1.1	53	8	<0.1	92
9592	GREENES	07/25/89	6:18	20.5	8.3	9.3	110	6	1					8	5		48	16		57
9622	GREENES	09/13/89	5:55	20.1	7.2	9.1	167	10	6				59	12	7	1.3	65	8	<0.1	100
9642	GREENES	10/12/89	6:13	18.7	7.2		169	11	8				59	12	7	1.3	60	10	<0.1	98
9671	GREENES	11/14/89	8:05	12.8	7.4	9.6	153	10	8				52	11	6	1.2	55	8	<0.1	89
9693	GREENES	12/12/89	9:00	9.9	7.1	11.4	142	12	6				46	10	5	1.2	54	7	<0.1	89
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
900856	GREENES	11/13/90	10:05	14.0	8.1	7.2	179	11	7	0.01			59	12	7	1.6	62	9	<0.1	107
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
910049	GREENES	01/15/91	12:10	10.8	8.3	11.4	190	13	10	0.02			62	13	7					
910105	GREENES	01/29/91	12:10	9.3	7.1	11.4	186	12	8	0.01			62	13	7	1.7	69	10	<0.1	114
910164	GREENES	02/26/91	15:50	17.1	7.3	9.3	211	15	10	0.02			72	14	9	2.	78	10	0.1	122
910260	GREENES	03/25/91	16:00	12.8	7.2	9.5	224	15	12	0.02			74	15	9	2.1	66	18	<0.1	142
910327	GREENES	04/23/91	9:50	16.7	8.1	8.3	247	17	13	0.05			84	17	10	1.9	82	17	<0.1	151
910399	GREENES	05/21/91	15:30	19.9	7.6	7.8	188	12	11	0.02			74	15	9	1.8	64	13	<0.1	115
910431	GREENES	06/24/91	11:55	21.4	7.1	7.4	168	11	9	0.02			52	11	6	1.6	59	9	<0.1	103
910530	GREENES	07/24/91	5:40	22.0	7.5	7.2	143	10	6	0.02			50	10	6	1.5	55	7	<0.1	90
910642	GREENES	08/21/91	5:45	21.5	7.4	7.5	182	12	14	0.02			56	11	7	1.3	59	9	<0.1	110
910676	GREENES	09/11/91	10:50	21.7	7.7		188	13	10	0.02			63	12	8	1.5	66	10	<0.1	110
910737	GREENES	10/08/91	11:05	22.1	8.0	7.9	132	7	5	0.01			50	10	6	1.1				
910808	GREENES	10/23/91	6:06	16.0	6.7	7.7	169	11	11	0.03			54	10	7	1.4	57	10	0.1	99
910850	GREENES	11/19/91	7:48	11.5	6.9	10.9	177	12	8	0.02			59	12	7	1.9	64	9	<0.1	109
910888	GREENES	12/09/91	7:40	9.1	7.8	10.1	170	12	8	0.01			59	12	7	1.9	64	8	0.1	108
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
900482	HOLLAND01	08/20/90	9:30	23.3		4.9	810	88	139	0.50			187	37	23	5.	90	77	0.2	502
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
910056	HOLLAND01	01/28/91	13:00	10.0	7.2	5.4	2030	236	349	0.90			543	102	70	10.	184	352	0.7	1300

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

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 mg/L	SO4	B	TDS —>
910356	HOLLAND01	04/25/91	12:35	17.0	6.8	11.2	979	98	168	0.47			252	55	28	3.3	76	143	0.3	633
910491	HOLLAND01	07/22/91	10:35	24.5	6.9	3.9	878	106	187	0.62			178	35	22	5.5	110	52	0.3	534
910593	HOLLAND01	08/19/91	8:55	20.1	7.4	3.7	1000	122	192	0.61			242	44	32	6.2	178	51	0.3	564
910760	HOLLAND01	10/21/91	10:30	17.6	7.3	1.7	757	79	149	0.52			169	38	18	3.6	84	44	0.2	473
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
910055	HOLLAND02	01/28/91	12:30	9.4	7.1	6.1	1940	226	351	0.86			522	95	69	7.4	154	321	0.5	1240
910355	HOLLAND02	04/25/91	12:45	16.0	6.5	7.4	915	105	184	0.48			200	41	24	3.9	64	86	0.2	585
910490	HOLLAND02	07/22/91	10:15	23.5	7.1	6.9	982	116	181	0.53			214	36	30	6.1	168	68	0.4	576
910592	HOLLAND02	08/19/91	9:20	22.5	7.6	5.0	1100	137	197	0.56			264	45	37	6.2	197	82	0.5	641
910759	HOLLAND02	10/21/91	10:20	17.6	7.3	2.9	882	98	158	0.57			205	39	26	4.	148	38	0.2	522
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
900184	HOLLAND03	04/23/90	9:35	17.5	7.4	6.0	1090	117	200				277	55	34	3.6	190	49	0.3	643
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
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
910054	HOLLAND03	01/28/91	12:00	11.0	7.2	3.4	1180	125	227	0.75			300	61	36	4.8	183	62	0.3	725
910354	HOLLAND03	04/25/91	13:20	16.3	7.2	7.3	1110	124	164	0.41			264	45	37	5.	172	132	0.5	665
910489	HOLLAND03	07/22/91	9:43	21.5	7.3	4.2	1310	165	238	0.68			298	50	42	4.9	235	89	0.5	775
910591	HOLLAND03	08/19/91	9:40	23.1	7.0	1.5	881	95	184	0.59			192	39	23	5.7	113	50	0.4	516
910758	HOLLAND03	10/21/91	9:50	17.7	7.4	4.1	922	108	177	0.62			208	42	25	4.	154	32	0.2	542
9598	HONKER	07/25/89	8:59	23.8	7.4	8.6	160	12	9					12	5		55	10		77
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
900228	HONKER	04/25/90	7:45	17.2	6.2	9.2	161	10	10				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
910099	HONKER	01/29/91	9:10	8.6	7.0	11.1	254	18	20	0.06			84	17	10	2.	79	14	0.1	152
910321	HONKER	04/23/91	7:45	16.0	8.9	9.0	234	16	17	0.07			81	16	10	1.9	82	14	<0.1	142
910539	HONKER	07/24/91	7:40	22.4	7.3	6.7	173	12	13	0.04			59	12	7	1.5	56	9	<0.1	104
910651	HONKER	08/21/91	9:00	21.8	7.8	8.4	184	13	12	0.04			62	13	7	2.	61	8	<0.1	106
910817	HONKER	10/23/91	8:50	17.6	7.1	6.9	144	8	8	0.02			50	10	6	1.2	53	7	<0.1	83
7115	KINGISPP01	03/26/87	11:30	12.5	6.0	1.0	757	53	66											
7309	KINGISPP01	08/07/87	6:15	19.8	7.1	3.2	555	39	37											
7480	KINGISPP01	10/19/87	7:40	15.8	7.1	4.2	546	37	47				210	46	23	1.1	205	15	<0.1	345
7579	KINGISPP01	12/10/87	10:48	14.0	7.3	7.3	619	45	62		<0.001		236	45	30	2.2	176	46	0.2	378
8027	KINGISPP01	01/14/88	9:20	10.7	7.3	5.1	673	54	60		<0.001		241	52	27	0.9	233	29	0.1	422
8162	KINGISPP01	03/09/88	10:18	13.3	7.1		420	30	24		<0.001		189	46	18	1.	177	12	0.1	317
8263	KINGISPP01	04/20/88	7:33	60.0	14.6	7.1	390	20	20		<0.001		164	41	15	1.4	170	9	0.1	266

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

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			—>
8348	KINGISPP01	05/09/88	7:52	18.8	7.5	4.7	403	22	19		<0.001		173	43	16	0.9	180	6	0.1	270
8484	KINGISPP01	07/20/88	7:09	20.5	7.4	3.1	439	32	27				168	36	19	5.1	194	13	0.1	276
9138	KINGISPP01	02/06/89	9:15	5.9	8.6	8.2	456	27	22				184	44	18	1.2	175	14	<0.1	299
9445	KINGISPP01	06/28/89	7:40	17.1	7.3	2.6	392	21	18				164	41	15	1.	179	6	<0.1	260
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
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
910075	KINGISPP01	01/31/91	10:15	11.5	7.6	4.5	352	19	14	0.07						0.8	162	5	<0.1	230
910294	KINGISPP01	04/18/91	10:15	16.9	7.4	4.5	378	21	15	0.10			158	40	14	0.9	173	3	<0.1	252
910500	KINGISPP01	07/22/91	7:24	20.1	7.2	2.4	377	19	16	0.09			159	39	15	1.2	179	5	0.1	242
910602	KINGISPP01	08/19/91	8:20	17.7	6.7		359	20	16	0.09			153	38	14	1.1	170	2	<0.1	229
910769	KINGISPP01	10/21/91	7:55	16.0	7.5	3.3	373	20	15	0.09			153	38	14	1.1	177	2	<0.1	246
7116	KINGISPP02	03/26/87	11:45	14.5	7.3	5.8	1510	123	291											
7310	KINGISPP02	08/07/87	7:20	20.4	6.7	2.1	503	38	33		<0.001		178	45	16	4.7	194	8	0.2	
7481	KINGISPP02	10/19/87	8:00	15.0	6.9	2.0	500	39	33				151	34	16	3.	194	11	0.1	334
7580	KINGISPP02	12/10/87	11:48	14.0	7.0	4.6	652	52	45		<0.001		234	56	23	5.6	191	56	0.2	439
8028	KINGISPP02	01/14/88	10:00	8.7	7.0	6.2	508	40	35		<0.001		176	41	18	2.3	176	29	0.1	346
8163	KINGISPP02	03/09/88	10:59	13.9	7.2		572	43	42		<0.001		216	52	21	1.6	172	45	0.2	416
8264	KINGISPP02	04/20/88	8:18	14.0	7.1	3.5	506	36	37		<0.001		190	48	17	1.8	188	22	0.1	
8349	KINGISPP02	05/09/88	8:29	20.6	7.9	5.8	496	37	38		<0.001		185	46	17	1.	193	9	0.2	330
8485	KINGISPP02	07/20/88	7:57	23.0	7.1	2.3	652	60	55				205	54	17	2.8	196	64	0.2	450
9014	KINGISPP02	01/05/89	9:30	8.3	7.5	7.2	606	49	46				216	50	22	3.	205	38	0.2	404
9139	KINGISPP02	02/06/89	9:50	2.0	8.0	7.5	544	42	38				187	42	20	3.9	187	27	0.1	341
9276	KINGISPP02	04/19/89	8:18	17.6	7.5	3.1	538	42	34				206	53	18	1.4	217	21	0.1	348
9446	KINGISPP02	06/28/89	8:08	16.7	7.1	2.7	477	37	30				174	45	15	1.1	205	7	<0.1	314
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
910074	KINGISPP02	01/31/91	9:45	9.4	7.6	8.5	509	38	40	0.18						1.	191	17	0.1	322
910293	KINGISPP02	04/18/91	9:40	17.0	7.4	4.6	592	45	47	0.22			208	52	19	2.2	199	33	0.1	386
910499	KINGISPP02	07/22/91	8:36	21.1	7.1	4.4	858	69	160	0.47			258	59	27	7.5	143	59	0.2	539
910601	KINGISPP02	08/19/91	9:02	20.7	6.6		931	73	162	0.32			274	57	32	23.	99	127	0.3	601
910768	KINGISPP02	10/21/91	8:30	16.8	7.4	4.5	485	38	33	0.16			169	43	15	1.2	200	8	0.1	314
7117	KINGISPP03	03/26/87	12:15	17.5	7.1	3.5	443	26	20											
7311	KINGISPP03	08/07/87	7:00	20.1	7.1	3.1	945	62	151		<0.001		339	73	38	2.8	194	52	0.2	
7482	KINGISPP03	10/19/87	7:20	16.0	7.1	3.9	689	54	91				227	48	26	1.8	187	25	0.1	411
7581	KINGISPP03	12/10/87	11:18	13.0	7.2	7.9	598	46	71		<0.001		205	44	23	2.6	91	81	0.2	384
8029	KINGISPP03	01/14/88	9:40	9.2	7.3	6.8	1140	94	193		<0.001		410	82	50	1.6	258	52	0.1	706
8164	KINGISPP03	03/09/88	10:39	15.1	7.3		848	66	148		<0.001		276	58	32	1.5	168	33	0.1	571

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

MINERAL DATA REPORT (cont.)

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			—>
8265	KINGISPP03	04/20/88	7:51		7.3	5.2	900	72	163		<0.001		302	60	37	1.7	191	27	0.1	531
8350	KINGISPP03	05/09/88	8:13	21.0	7.9	6.8	960	81	154		<0.001		329	69	38	1.3	252	22	0.1	590
8486	KINGISPP03	07/20/88	7:30	23.0	7.4	4.8	895	76	157				295	62	34	3.8	204	33	0.2	535
9015	KINGISPP03	01/05/89	9:10	8.2	7.2	7.3	1210	95	248				399	84	46	3.	162	61	0.2	777
9140	KINGISPP03	02/06/89	9:30	2.0	8.6	12.9	1670	136	353				542	110	65	1.6	257	53	0.1	959
9277	KINGISPP03	04/19/89	7:39	17.1	7.4	2.5	397	21	17				172	44	15	0.9	184	8	<0.1	269
9301	KINGISPP03	04/19/89	7:39	17.1	7.4	2.5	397	21	16				172	44	15	0.9	182	6	0.1	265
9447	KINGISPP03	06/28/89	7:53	18.7	7.0	4.4	470	35	58				153	33	17	2.	104	29	0.1	286
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
910076	KINGISPP03	01/31/91	10:45	9.5	7.7	10.4	1530	125	322	1.23						1.3	251	40	0.1	836
910295	KINGISPP03	04/18/91	10:40	16.9	7.5	7.3	707	58	122	0.47			212	47	23	2.5	128	26	0.1	400
910501	KINGISPP03	07/22/91	8:14	22.1	7.4	5.1	447	32	58	0.19			150	32	17	3.1	104	29	0.1	277
910603	KINGISPP03	08/19/91	8:37	19.6	6.8		994	75	176	0.55			331	70	38	8.	153	103	0.2	645
910770	KINGISPP03	10/21/91	8:13	16.7	7.3	6.4	996	81	154	0.67			337	69	40	1.3	261	22	<0.1	590
9572	LATHAM	07/25/89	7:05	23.8			180	26	14					14	7		55	15		120
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
910111	LATHAM	01/29/91	12:05	8.5	7.6	10.0	489	51	77	0.28						3.6	73	30	0.1	273
910546	LATHAM	07/24/91	7:50	23.0	7.5	8.0	363	39	58	0.19			80	14	11	2.5	65	19	<0.1	200
910658	LATHAM	08/21/91	7:52	21.2	7.2		310	32	46	0.20			74	13	10	2.2	61	14	<0.1	174
910824	LATHAM	10/23/91	7:40	18.9	7.6	7.2	289	30	41	0.12			74	13	10	2.1	61	14	<0.1	158
7007	LCONNECT	01/13/87	10:30	7.5	7.1	10.1	209	13	18											
7045	LCONNECT	02/10/87	10:30	11.5	7.2	9.6	235	16	21											
7068	LCONNECT	03/10/87	10:30	13.5	7.1	9.1	261	16	25											
7170	LCONNECT	04/16/87	9:15	19.5	7.2	6.8	228	13	16											
7205	LCONNECT	05/20/87	8:30	21.5	7.4	8.5	194	13	12											
7243	LCONNECT	06/11/87	9:15	22.5	7.8	8.0	241	17	18											
7405	LCONNECT	09/24/87	8:30	20.5	7.4	7.9	270	17	13											
7448	LCONNECT	10/28/87	8:50	20.0	7.2	7.4	244	24	28											
7546	LCONNECT	11/24/87	10:50	14.0	7.2	8.2	215	15	16											
7605	LCONNECT	12/16/87	8:30	8.2	7.3	11.3	178	14	11											
8073	LCONNECT	01/21/88	8:42	8.8	7.2	10.4	262	21	29											
8131	LCONNECT	02/23/88	8:20	11.5	7.3	10.1	240	15	16											
8222	LCONNECT	03/24/88	8:45	15.3	7.4	9.6	225	14	16											
8321	LCONNECT	04/28/88	9:05	16.6	7.7	8.8	174	10	10											
8398	LCONNECT	05/26/88	7:50	20.5	8.0	9.6	226	18	18											
8430	LCONNECT	06/22/88	6:08	21.9	7.4	7.4	261	21	22											

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

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 mg/L	SO4	B	TDS —>
8465	LCONNECT	07/14/88	9:15	22.4	7.3	7.2	174	12	10											
8587	LCONNECT	08/16/88	8:30	22.0	7.5	7.4	184	13	10											
8699	LCONNECT	09/22/88	6:09	18.7	7.6	8.0	275	22	23											
8728	LCONNECT	10/20/88	8:10	19.4	7.1	7.7	386	38	60											
8750	LCONNECT	11/10/88	8:15	16.1	6.8	8.4	206	14	13											
9097	LCONNECT	01/31/89	8:45	9.9	7.0	10.6	255	18	17											
9187	LCONNECT	02/28/89	8:20	13.0	6.8	9.8	228	16	16											
9240	LCONNECT	03/28/89	8:40	14.8	7.4	8.1	148	8	9											
9337	LCONNECT	04/25/89	8:02	16.8	8.1	8.5	163	10	10											
9367	LCONNECT	05/23/89	8:07	18.7	8.1	8.7	165	11	10											
9487	LCONNECT	06/21/89	7:50	21.5	7.5	8.1	204	14	14											
9561	LCONNECT	07/18/89	8:15	23.9	7.1	7.4	176	11	12											
9599	LCONNECT	07/25/89	9:16	25.1	7.4	7.9	130	10	4					9	9		50	9		49
9630	LCONNECT	09/20/89	7:30	19.5	8.3	8.6	200	14	8											
9650	LCONNECT	10/17/89	12:21	20.6		8.3	162	11	9											
9669	LCONNECT	11/07/89	14:20	14.3	7.5	8.9	162	10	10											
9691	LCONNECT	12/05/89	13:25	13.3	7.6		195	14	14											
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
910098	LCONNECT	01/29/91	8:40	9.0	6.9	10.7	344	27	39	0.11			105	22	12	2.2	81	24	0.1	207
910320	LCONNECT	04/23/91	7:30	16.0	9.1	9.4	251	17	20	0.08			88	17	11	1.8	83	16	<0.1	150
910540	LCONNECT	07/24/91	8:06	22.6		7.1	275	28	40	0.13			70	13	9	2.1	60	14	<0.1	154
910652	LCONNECT	08/21/91	8:50	21.8	7.8	8.4	245	23	29	0.09			63	12	8	1.7	60	12	<0.1	139
910818	LCONNECT	10/23/91	8:32	17.4	7.3	7.1	160	10	12	0.03			56	11	7	1.3	53	7	<0.1	90
7001	LINDSEY	01/08/87	8:30	7.5	7.3	10.1	492	44	46											
7023	LINDSEY	02/05/87	8:50	10.0	7.5	9.6	547	52	53											
7061	LINDSEY	03/03/87	8:15	11.0	8.0	9.9	518	50	52											
7164	LINDSEY	04/09/87	7:00	16.5	7.9	8.7	606	65	63											
7198	LINDSEY	05/13/87	7:00	23.5	7.9	7.3	530	48	44											
7234	LINDSEY	06/04/87	7:15	19.5	7.9	7.7	593	53	53											
7387	LINDSEY	09/03/87	8:30	21.2	7.5	6.5	461	42	36											
7428	LINDSEY	10/08/87	11:55	20.0	7.4	8.1	523	39	36											
7531	LINDSEY	11/03/87	8:25	15.5	7.6	8.2	513	48	43											
7554	LINDSEY	12/01/87	8:30	10.9	7.4	9.7	509	46	46											
8003	LINDSEY	01/06/88	12:34	11.2	7.3	10.0	723	72	89											
8110	LINDSEY	02/18/88	12:30	11.7	7.3	9.7	551	58	58											
8208	LINDSEY	03/17/88	8:39	14.1	7.5	10.1	547	56	53											
8245	LINDSEY	04/14/88	9:36	18.4	7.8	8.9	593	58	56											
8389	LINDSEY	05/19/88	10:27	20.2	7.8	4.6	605	58	58											
8412	LINDSEY	06/07/88	7:30	17.7	7.6	4.3	525	49	46											
8451	LINDSEY	07/06/88	8:04	21.2	7.6	7.6	325	29	23											
8573	LINDSEY	08/02/88	12:48	21.7	8.1	8.3	287	26	21											
8693	LINDSEY	09/15/88	7:55	18.7	7.5	8.6	259	20	15											

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

MINERAL DATA REPORT (cont.)

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			—>
8722	LINDSEY	10/13/88	8:35	17.0	8.0	9.1	274	21	16											
8760	LINDSEY	11/17/88	9:16	12.8	7.8	9.5	258	19	18											
8806	LINDSEY	12/06/88	9:15	10.2	7.2	11.0	249	20	18											
9074	LINDSEY	01/17/89	9:30	7.8	7.5	11.8	331	28	27											
9154	LINDSEY	02/15/89	8:45	8.0	6.9	12.3	370	33	31											
9229	LINDSEY	03/14/89	9:00	14.2	8.0	9.3	480	46	51											
9258	LINDSEY	04/11/89	7:25	18.7	7.5	8.0	453	44	38											
9354	LINDSEY	05/09/89	8:20	19.4	7.8	8.2	406	37	30											
9481	LINDSEY	06/13/89	8:10	18.7	7.5	8.9	315	27	23											
9555	LINDSEY	07/11/89	8:25	21.0	7.2	8.6	263	21	18											
9608	LINDSEY	08/16/89	9:05	22.2	7.8	9.5	219	17	13											
9624	LINDSEY	09/13/89	8:20	19.4	7.6	9.0	234	18	12											
9644	LINDSEY	10/12/89	9:36	19.2	7.2		332	28	28											
9673	LINDSEY	11/14/89	13:05	14.1	7.9	9.2	265	20	19											
9695	LINDSEY	12/12/89	11:05	10.0	7.3	11.3	268	21	19											
9566	LJONES01	07/19/89	8:20	22.4	6.5	3.0	401	39	51		<0.001		98	21	11	2.8	81	41	0.2	247
910581	LJONES01	07/31/91	9:33	22.4		4.0	588	66	101	0.27			140	28	17	4.4	86	51	0.2	346
910623	LJONES01	08/20/91	7:24	20.0	6.6	4.3	385	42	58	0.23			88	17	11	3.	68	20	0.1	226
910789	LJONES01	10/22/91	7:44	18.1	6.8		712	71	102	0.22			175	37	20	3.8	73	96	0.2	419
9567	LJONES02	07/19/89	8:52	24.0	6.4	4.7	322	28	35		<0.001		84	19	9	3.	62	36	0.1	198
910582	LJONES02	07/31/91	11:22	23.5		5.4	501	51	71	0.24			118	24	14	3.5	66	55	0.2	302
910628	LJONES02	08/20/91	10:05	21.8	6.0		749	66	109	0.20			220	50	23	2.9	44	134	0.4	511
910794	LJONES02	10/22/91	9:54	17.8	6.8		568	58	80	0.22			140	28	17	5.6	98	51	0.3	331
8554	LPOTATOWHITE	07/20/88	11:10	25.5	7.4	7.0	159	11	9											100
8612	LPOTATOWHITE	08/10/88	8:33	21.9	7.8		167	11	8											
8627	LPOTATOWHITE	08/17/88	8:40	22.2	7.7		189	13	10											
8654	LPOTATOWHITE	08/24/88	8:25	21.8	8.1		192	13	10											
8670	LPOTATOWHITE	08/31/88	8:30	24.0	8.0		222	16	10											
8777	LPOTATOWHITE	11/30/88	11:48	10.6	8.2	8.5	177	11	11				63	12	8	1.8	56	12	<0.1	108
8791	LPOTATOWHITE	12/07/88	9:55	10.0	8.3	9.6	203	13	11				74	15	9	2.	78	14	<0.1	124
8821	LPOTATOWHITE	12/20/88	9:55	8.6	8.0	10.3	209	14	11				74	15	9	1.8	71	14	<0.1	129
8848	LPOTATOWHITE	12/28/88	8:50	6.5	7.6	11.4	194	14	12				72	14	9	2.	66	12	<0.1	120
9062	LPOTATOWHITE	01/11/89	9:25	6.7	8.0		236	17	15				81	16	10	1.8	75	19	0.1	148
9082	LPOTATOWHITE	01/18/89	9:15	7.3	7.9	11.4	221	15	13				78	15	10	1.7	72	17	0.1	138
9107	LPOTATOWHITE	01/26/89	8:07	7.2	7.9	11.4	249	18	16				88	17	11	1.8	82	20	<0.1	154
9120	LPOTATOWHITE	02/02/89	9:45	8.5	7.7	10.2	246	17	16				81	16	10	1.7	77	18	<0.1	152
9377	LPOTATOWHITE	06/01/89	8:50	19.4	7.8	11.2	163	11	9				54	12	6	1.3	56	10	<0.1	103
9403	LPOTATOWHITE	06/15/89	7:24	21.3	7.7	8.5	173	12	8				59	12	7	1.3	61	11	<0.1	108
9416	LPOTATOWHITE	06/19/89	8:02	21.7	8.1	8.4	189	13	12				64	14	7	1.4	62	11	<0.1	114
9497	LPOTATOWHITE	07/06/89	10:00	23.3	7.8	8.7	147	10	7				52	11	6	1.2	51	9	<0.1	92
9510	LPOTATOWHITE	07/13/89	7:53	22.5	7.9	8.8	162	11	9				50	12	5	1.3	56	9	<0.1	100
9523	LPOTATOWHITE	07/20/89	7:02	22.9	7.0	8.6	147	9	8				52	11	6	1.2	50	8	<0.1	90
9536	LPOTATOWHITE	07/27/89	6:50	21.5	8.2	8.7	136	8	8				46	10	5	1.	48	7	<0.1	83
8553	LPOTTERM	07/20/88	10:25	25.0	7.5	7.2	158	10	9											119
8611	LPOTTERM	08/10/88	8:14	22.0	7.7		169	11	8											
8626	LPOTTERM	08/17/88	8:19	21.8			175	12	7											

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

MINERAL DATA REPORT (cont.)

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 mg/L	B	TDS —>
8653	LPOTTERM	08/24/88	8:10	21.2	7.7		198	14	11											
8669	LPOTTERM	08/31/88	8:15	23.9	7.3		210	15	9											
8776	LPOTTERM	11/30/88	10:18	10.0	8.1	8.8	173	11	10				63	12	8	1.8	54	12	<0.1	104
8790	LPOTTERM	12/07/88	8:30	10.0	7.5		221	15	15				74	15	9	2.1	68	15	<0.1	134
8818	LPOTTERM	12/20/88	9:00	8.7	7.4	10.7	216	15	12				74	15	9	1.9	72	14	<0.1	131
8845	LPOTTERM	12/28/88	8:20	6.7	7.6	11.8	196	13	10				68	14	8	1.9	68	13	<0.1	119
9059	LPOTTERM	01/11/89	8:40	6.6	7.6		217	15	12				78	15	10	1.8	79	16	0.1	136
9079	LPOTTERM	01/18/89	8:41	6.9	8.3	11.5	212	15	11				78	15	10	1.8	70	16	0.1	134
9104	LPOTTERM	01/26/89	10:01	8.6	6.6	11.0	234	15	12				81	16	10	1.5	81	18	<0.1	148
9117	LPOTTERM	02/02/89	8:50	8.3	7.3	10.3	249	17	16				84	17	10	1.7	76	18	<0.1	151
9374	LPOTTERM	06/01/89	7:50	19.8	8.1	8.1	169	12	9				54	12	6	1.5	57	10	<0.1	106
9387	LPOTTERM	06/08/89	7:30	19.8	8.3	10.0	161	11	7				54	12	6	1.5	57	9	<0.1	100
9400	LPOTTERM	06/15/89	8:15	21.6	7.6	8.4	181	13	11				62	13	7	1.4	61	11	<0.1	112
9413	LPOTTERM	06/19/89	8:35	21.1	8.0	8.3	181	13	10				62	13	7	1.4	62	11	<0.1	114
9494	LPOTTERM	07/06/89	7:30	20.5	8.2	8.9	143	10	6				52	11	6	1.2	52	8	<0.1	92
9507	LPOTTERM	07/13/89	8:18	23.2	7.9	8.9	170	11	11				59	12	7	1.3	57	9	<0.1	104
9520	LPOTTERM	07/20/89	6:45	22.5	7.3	8.6	133	8	5				46	10	5	1.1	49	7	<0.1	84
9597	LPOTTERM	07/25/89	8:24	22.3	7.8	9.2	120	9	4					9	5		47	8		75
9533	LPOTTERM	07/27/89	6:25	21.6	8.3	8.7	132	8	7				46	10	5	1.	47	6	<0.1	82
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
900413	LPOTTERM	07/26/90	8:15	24.2	7.7	7.5	138	8	6	0.02			46	10	5	1.1	50	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
910100	LPOTTERM	01/29/91	9:55	9.0	7.0	10.9	248	18	14	0.05			80	17	9	1.9	78	14	0.1	149
910322	LPOTTERM	04/23/91	8:10	16.0	7.9	8.8	230	16	17	0.07			81	16	10	1.8	77	14	<0.1	137
910538	LPOTTERM	07/24/91	8:44	22.6		7.1	182	13	15	0.04			59	12	7	1.4	57	9	<0.1	109
910650	LPOTTERM	08/21/91	9:41	22.1	7.5	8.1	170	13	11	0.03			59	12	7	1.6	58	8	<0.1	106
910816	LPOTTERM	10/23/91	9:21	17.6	7.1	6.9	151	9	8	0.02			54	10	7	1.3	53	7	<0.1	90
7003	MALLARDIS	01/08/87	11:45	9.0	7.5	10.5	7800	1260	2310				831	59	166	53.	73	336	0.6	4500
7025	MALLARDIS	02/05/87	11:30	11.0	7.7	10.6	5780	972	1710				675	46	136	2.	83	289	0.5	3430
7063	MALLARDIS	03/03/87	11:15	11.5	7.4	9.9	2280	359	620				268	28	48	15.	70	100	0.2	1190
7167	MALLARDIS	04/09/87	10:00	18.0	7.6	9.2	1780	280	470				225	24	40	12.	69	85	0.2	1030
7200	MALLARDIS	05/13/87	9:30	23.0	8.2	5.0	7480	1240	2250				857	63	170	50.	76	317	0.7	4270
7236	MALLARDIS	06/04/87	10:30	20.5	7.9	8.5	12000	1980	3640				1340	88	271	8.	78	497	1.	6850
7430	MALLARDIS	10/08/87	8:15	20.8	7.9	7.4	12200	2110	3960				1350	91	273	79.	83	536	1.	7420
7533	MALLARDIS	11/03/87	11:20	18.8	7.8	7.8	13700	2370	4430				1660	107	337	91.	82	666	1.1	8220
7556	MALLARDIS	12/01/87	11:40	13.2	7.9	8.2	15600	2880	5390				1760	106	362	100.	79	764	1.3	10700
8005	MALLARDIS	01/06/88	10:00	7.8	8.0	11.4	7070	1200	2180				654	11	152	46.	77	324	0.6	3960
8112	MALLARDIS	02/18/88	9:45	12.0	8.0	11.5	5400	944	1630				663	51	130	35.	85	227	0.5	3340
8210	MALLARDIS	03/17/88	11:09	15.0	7.8	9.0	7760	1320	2360				907	68	179	49.	105	340	0.7	4560
8246	MALLARDIS	04/14/88	11:16	17.5	7.8	8.7	3590	566	1030				433	35	84	24.	76	157	0.4	2020
8391	MALLARDIS	05/19/88	8:38	18.4	7.8	8.4	9110	1620	2870				1110	78	222	62.	78	396	0.8	5550
8413	MALLARDIS	06/07/88	9:26	8.3	8.4	7.9	9540	1660	3040				1140	82	228	64.	79	432	0.8	5790
8453	MALLARDIS	07/06/88	10:00	23.4	7.9	7.5	11500	2080	3720				1430	94	291	79.	94	513	1.	7190
8575	MALLARDIS	08/02/88	10:30	21.7	7.9	8.0	12400	2300	4100				1520	113	301	70.	78	575	1.1	7650

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

MINERAL DATA REPORT (cont.)

LAB#	STA. NAME	SAMP.DATE	TIME	TEMP	pH	DO	EC	Na	Cl	Br	Se	Asbest	Hard.	Ca	Mg	K	ALK	SO4	B	TDS
				oC		mg/L	uS/cm	mg/L	mg/L	mg/L	mg/L	MF/L	<—				mg/L			—>
8696	MALLARDIS	09/15/88	9:55	19.9	7.6	8.3	11000	1960	3620				1320	93	264	76.	81	512	1.	7020
8725	MALLARDIS	10/13/88	10:40	18.2	7.8	8.4	9930	1730	3120				1170	81	234	66.	96	434	0.8	5960
8763	MALLARDIS	11/17/88	11:20	15.0	7.9	9.2	15000	2700	4930				1770	118	358	102.	86	670	1.4	9290
8809	MALLARDIS	12/06/88	11:15	12.9	7.4	10.4	16400	2890	5490				2030	134	411	116.	85	767	1.4	10100
9077	MALLARDIS	01/17/89	11:20	10.5	7.3	11.6	12500	2220	4060				1500	98	306	4.3	84	575	1.1	7630
9157	MALLARDIS	02/15/89	10:30	10.2	6.3	11.6	15000	2520	4920				1620	105	331	98.	88	395	1.2	9360
9232	MALLARDIS	03/14/89	11:04	14.8	7.8	9.5	764	107	173				108	15	17	5.1	56	33	<0.1	421
9261	MALLARDIS	04/11/89	9:10	19.3	7.4	8.6	1180	178	301				152	18	26	7.6	57	52	0.1	804
9357	MALLARDIS	05/09/89	10:20	19.4	7.4	8.4	5950	990	1770				674	49	134	29.	68	263	0.5	3320
9484	MALLARDIS	06/13/89	10:00	20.1	7.1	9.1	2650	416	738				290	27	54	16.	62	112	0.2	1400
9558	MALLARDIS	07/11/89	10:30	22.3	7.5	9.1	7930	1280	2390				830	62	164	52.	69	331	0.7	4490
9610	MALLARDIS	08/16/89	10:47	23.1	7.5	9.7	2580	403	687				281	25	53	16.	58	103	0.2	1370
9627	MALLARDIS	09/13/89	10:15	21.0	7.2	9.4	4960	813	1450				552	46	106	23.	68	207	0.4	2680
9647	MALLARDIS	10/12/89	8:12	19.0	7.2	8.6	7890	1360	2421				849	63	168	50.	77	334	0.6	4440
9676	MALLARDIS	11/14/89	10:15	15.6	7.8	8.7	13800	2380	4450				1460	102	294	93.	78	612	1.1	8090
9698	MALLARDIS	12/12/89	14:05	12.4	7.6	10.2	14200	2540	4550				1600	110	321	99.	77	754	1.2	8350
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
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					
900349	MALLARDIS	07/16/90	9:06	23.0	6.7	8.4	9780	1750	3070	13.00			1080	81	213					
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					
900551	MALLARDIS	08/13/90	8:00	22.5	8.1	7.0	7450	1280	2280	9.10			804	58	160					
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					
900741	MALLARDIS	10/16/90	7:30	19.8	7.9	7.8	11200	1800	3520	12.30			1110	79	222					
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
910005	MALLARDIS	01/02/91	10:15	8.4	7.0	11.3	11200	1940	3520				1210	92	238					
910033	MALLARDIS	01/15/91	9:55	8.9	7.5	11.6	9310	1620	2870	9.90			978	72	194					
910063	MALLARDIS	01/28/91	9:30	9.2	7.6	9.7	14400	2560	4710	16.60			1630	107	332	101.	86	662	1.2	8580
910144	MALLARDIS	02/13/91	13:10	13.5	7.7	10.6	16000	2280	5270	19.10			2520	249	461					
910161	MALLARDIS	02/26/91	11:40	15.9	7.4	9.7	18500	3320	6060	22.60			2120	138	432	128.	91	874	1.6	11000

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

MINERAL DATA REPORT (cont.)

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 mg/L	SO4	B	TDS —>
910200	MALLARDIS	03/11/91	13:05	13.7	7.3	9.3	8210	1380	2530	8.98			926	66	185					
910257	MALLARDIS	03/26/91	12:20	13.6	7.4	9.6	3400	536	951	3.28			381	32	73	23.	68	147	0.3	1840
910286	MALLARDIS	04/09/91	13:55	16.6	7.6	9.2	1340	192	328	1.14			178	20	31					
910381	MALLARDIS	05/21/91	10:25	19.4	7.9	8.5	12100	2160	4090	18.10			1390	95	281	83.	78	475	1.1	7070
910411	MALLARDIS	06/13/91	6:25	18.6	7.8		14500	2620	4580	20.40			1690	115	340					
910442	MALLARDIS	06/26/91	13:37	20.8	7.3	10.7	8830	1490	2850	11.60			1010	73	202					
910471	MALLARDIS	07/08/91	10:05	21.8	7.4	9.4	8480	1440	2620	12.40			958	67	192					
910535	MALLARDIS	07/24/91	11:51	21.5		7.8	8380	1420	2510	12.00			942	64	190	55.	80	335	0.7	4700
910562	MALLARDIS	08/05/91	7:20	19.6	7.6	9.1	7340	1200	2370	10.40			828	58	166	48.				
910647	MALLARDIS	08/21/91	12:30	21.8	7.4	8.7	9060	1610	2790	10.40			1040	70	210	62.	76	364	0.7	5110
910677	MALLARDIS	09/11/91	9:15	19.9	8.0		13000	2340	4110	16.00			1530	102	310	92.	80	544	1.1	7560
910706	MALLARDIS	09/24/91	11:00	22.9	7.8	8.6	7600	1250	2280	7.99			805	57	161	50.				
910736	MALLARDIS	10/08/91	9:15	20.8	8.3	7.8	7210	1260	2170	8.50			819	56	165	48.				
910813	MALLARDIS	10/23/91	11:37	18.5	7.4	8.4	14500	2580	4700	17.00			1630	110	330	97.	83	679	1.2	8540
910851	MALLARDIS	11/19/91	9:15	13.4	6.9	10.7	13200	2350	4200				1520	100	308	92.	79	572	1.1	7750
910889	MALLARDIS	12/09/91	9:20	10.6	7.2	11.0	14900	2640	4860	17.00			1730	112	353	98.	81	659	1.3	8840
910584	MANDEVILLEPP01	07/31/91	10:02	23.2		2.7	501	47	68	0.27			127	26	15	2.	61	59	0.2	310
910626	MANDEVILLEPP01	08/20/91	8:32	19.6	6.6		428	44	63	0.25			109	22	13	2.2	84	20	0.2	268
910792	MANDEVILLEPP01	10/22/91	8:51	16.7	6.9		486	44	60	0.18			139	29	16	4.9	98	53	0.4	340
910585	MANDEVILLEPP02	07/31/91	10:24	22.1		6.3	486	50	70	0.30			114	24	13	2.4	57	52	0.2	320
910627	MANDEVILLEPP02	08/20/91	8:54	19.4	7.0		531	59	91	0.33			129	27	15	3.2	96	26	0.3	362
910793	MANDEVILLEPP02	10/22/91	9:14	16.8	6.8		709	62	94	0.26			204	42	24	7.7	122	81	0.3	462
8335	MAZE	05/03/88	7:38	15.7	7.8	8.3	1480	183	220		0.004		352	75	40	4.9	165	229	1.	927
8426	MAZE	06/14/88	7:20	23.0	7.8	6.9	1350	168	191		0.004		333	69	39	4.4	167	226	1.1	890
8461	MAZE	07/12/88	7:19	23.5	7.9	7.1	1530	190	231		0.006		372	78	43	4.7	176	255	1.2	949
8583	MAZE	08/09/88	9:00	22.4	7.8	6.8	1360	167	207		0.004		317	66	37	4.9	159	190	1.	841
8686	MAZE	09/06/88	7:20	24.6	7.8	6.1	1480	187	210		0.004		342	71	40	5.1	181	232	1.1	892
8712	MAZE	10/04/88	7:34	18.5	8.0	8.8	1530	194	242		0.004		300	69	31	4.8	204	197	0.8	905
8739	MAZE	10/18/88	8:55	19.9	7.4	8.1	1360	166	218		0.002		309	61	38	4.4	182	171	0.7	784
8742	MAZE	11/01/88	8:54	15.8	7.5	8.3	1290	155	200		0.003		291	59	35	4.6	164	176	0.8	759
8769	MAZE	11/15/88	9:45	14.5	7.4	8.3	1330	160	198		0.002		329	71	37	4.8	165	187	0.8	805
8774	MAZE	11/29/88	9:54	11.9	7.5	8.1	1280	159	190		0.003		255	51	31	5.8	147	192	0.8	783
8812	MAZE	12/13/88	8:57	10.4	7.4	9.3	1280	156	195		0.003		299	59	37	5.4	158	180	0.8	773
8844	MAZE	12/27/88	9:30	6.5	6.5	10.0	1370	180	202		0.003		302	60	37	6.	153	214	1.	817
9053	MAZE	01/10/89	8:30	10.4	7.3	8.4	1340	170	192		0.004		282	52	37	8.	156	208	0.8	797
9095	MAZE	01/24/89	10:10	9.4	7.5	8.9	1450	177	208		0.004		319	62	40	6.2	154	248	1.	913
9149	MAZE	02/02/89	6:30	8.9	7.3		1550	225			0.006									
9131	MAZE	02/07/89	8:15	5.6	7.2	10.6	1520	188	212		0.007		343	68	42	6.	154	248	1.2	936
9168	MAZE	02/09/89	6:30	6.9	7.0	10.4	1440	178	200		0.006									
9180	MAZE	02/14/89	6:20	8.2	7.1		1480	187	203		0.006									
9185	MAZE	02/16/89	6:35	10.8	7.0	8.5	1440	182	202		0.005									
9163	MAZE	02/21/89	9:42	14.7	7.7	7.8	1700	205	244		0.008		382	82	43	5.7	160	318	1.3	1060
9203	MAZE	03/02/89	9:30	13.2	7.7	8.0	1690	217	242		0.009		378	82	42	5.8	158	304	1.4	1070
9212	MAZE	03/07/89	8:00	14.9	7.4	7.7	1100	138	145		0.006		246	54	27	2.9	123	182	0.8	680
9235	MAZE	03/21/89	9:45	16.9	7.3	6.9	1600	201	224		0.009		362	79	40	5.	160	286	1.2	1020
9247	MAZE	04/04/89	7:36	16.4	8.0	6.9	1400	174	199		0.005		318	68	36	4.9	151	233	1.	874

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

MINERAL DATA REPORT (cont.)

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			—>
9335	MAZE	04/18/89	5:30	19.3	7.8		1170	149	159		0.006		276	61	30	4.2	128	204	0.9	733
9345	MAZE	05/02/89	7:40	19.2	7.4	6.8	915	111	118		0.003		208	42	25	3.5	113	146	0.7	553
9363	MAZE	05/16/89	8:42	21.3	7.8	7.8	1330	161	188		0.005		314	68	35	4.6	159	214	0.9	815
9427	MAZE	06/06/89	7:25	21.3	7.9	7.1	1280	160	181		0.005		312	69	34	4.3	149	203	0.9	789
9547	MAZE	07/05/89	9:10	23.5	7.7	7.5	1210	141	169		0.004		293	63	33	4.4	152	193	0.9	747
9602	MAZE	08/03/89	7:40	21.8	7.7	8.3	1130	134	159		0.003		266	57	30	4.6	148	167	0.8	687
9616	MAZE	09/06/89	7:36	21.8	7.6	7.8	1320	160	191		0.004		309	66	35	4.8	172	199	0.9	796
9636	MAZE	10/02/89	9:49	20.1	6.8	9.0	1120	138	155		0.004		252	53	29	4.8	146	168	0.8	673
9662	MAZE	11/07/89	8:10	13.5	7.4	8.5	1040	130	149		0.002		236	50	27	3.8	138	146	0.6	607
9684	MAZE	12/05/89	7:55	9.6	8.4		1120	140	160		0.002		242	51	28	4.2	138	166	0.8	690
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
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
900178	MAZE	04/04/90	11:00	19.0	7.4		1220	146	176		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
900767	MAZE	10/23/90	7:10	15.9	7.8	7.6	997	115	152	0.56	<0.001		222	46	26	4.3	144	114	0.4	582
900861	MAZE	11/13/90	8:50	13.0	7.8	8.8	1070	129	160	0.50	0.002		231	48	27	3.9	140	141	0.6	625
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
910082	MAZE	01/31/91	9:10	9.3	7.7	8.6	1430	178	219	0.70	0.004		337	69	40	4.2	159	254	0.9	871
910151	MAZE	02/13/91	8:45	13.1	7.7	8.0	1610	242	230	0.85	0.006		270	37	43				<0.1	
910167	MAZE	02/27/91	8:35	14.5	7.9	8.3	1540	187	236	0.83	0.004		353	72	42	3.6	180	233	0.9	920
910263	MAZE	03/26/91	11:05	11.8	7.8	9.1	746	80	86	0.23	0.002		177	38	20	6.7	96	119	0.5	463
910289	MAZE	04/09/91	9:15	16.1	7.7	8.5	1700	223	246		0.005		278	75	22					
910346	MAZE	04/24/91	8:20	17.7	8.9	8.2	1030	120	140	0.42	0.004		226	46	27	3.8	113	172	0.7	616
910387	MAZE	05/21/91	7:45	17.8	7.5	9.2	635	69	88	0.28	0.001		149	30	18	2.7	82	82	0.3	363
910434	MAZE	06/25/91	8:40	20.9	7.9	8.9	1600	198	295	0.84	0.003		387	76	48	4.6	205	205	0.9	984
910508	MAZE	07/23/91	10:27	25.1	7.9	8.1	1150	133	188	0.54	0.002		277	55	34	4.8	159	156	0.7	695
910612	MAZE	08/20/91	9:00	22.4	8.0	7.7	1200	141	199	0.63	0.002		282	57	34	4.6	165	146	0.6	702
910680	MAZE	09/10/91	7:30	19.2	8.5	8.0	1380	170	210	1.08	<0.001		326	63	41	4.3	188	178	0.7	812
910779	MAZE	10/22/91	7:30	18.2	7.6	7.7	1080	132	166	0.57	<0.001		253	50	31	4.2	164	116	0.4	624
910854	MAZE	11/21/91	8:50	12.5	8.0	9.3	955	115	143	0.46	0.001		208	42	25	3.2	124	121	0.5	554
910892	MAZE	12/11/91	8:30	9.4	7.2	10.9	996	131	154	0.43	<0.001		214	43	26	3.	130	120	0.4	582
7118	MCCORWIL01	03/25/87	12:00	15.0	7.2	9.2	494	30	28											
7312	MCCORWIL01	08/07/87	12:10	22.0	6.9	6.5	186	11	7		<0.001		66	13	8	1.5	64	13	<0.1	
7483	MCCORWIL01	10/20/87	7:00	16.4	7.3	5.5	337	17	7		<0.001		144	28	18	1.2	160	5	<0.1	196
8165	MCCORWIL01	03/10/88	10:28	12.5	7.3		386	22	15		<0.001		157	30	20	1.1	140	32	0.1	238
8266	MCCORWIL01	04/21/88	11:23	17.5	6.9	6.1	333	20	16		<0.001		131	26	16	1.7	96	41	<0.1	217
8375	MCCORWIL01	05/09/88	10:27	22.2	7.1	4.8	250	14	12		<0.001		100	20	12	1.7	95	14	0.1	162
8351	MCCORWIL01	05/09/88	10:27	22.2	7.1	4.8	250	15	11		<0.001		100	20	12	1.5	95	14	0.1	161

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MINERAL DATA REPORT (cont.)

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 mg/L	SO4	B	TDS —>
8487	MCCORWIL01	07/21/88	10:48	25.5	7.0	4.9	166	11	7				59	12	7	1.5	63	8	<0.1	106
9016	MCCORWIL01	01/06/89	12:35	7.6	7.6	10.6	311	15	11				138	27	17	1.2	131	16	<0.1	197
9278	MCCORWIL01	04/20/89	10:21	19.8	7.6	6.5	120	6	3				43	9	5	1.3	49	7	<0.1	84
9448	MCCORWIL01	06/29/89	9:52	19.9	7.6	6.0	151	10	7				52	11	6	1.3	52	9	<0.1	97
7119	MCCORWIL02	03/25/87	12:45	17.0	7.2	9.8	487	24	21											
7313	MCCORWIL02	08/07/87	12:45	25.3	7.7	7.0	173	11	7				63	12	8	1.7	74	8	<0.1	
7484	MCCORWIL02	10/20/87	7:20	15.0	7.2	4.9	355	14	6		<0.001		159	29	21	1.6	178	8	<0.1	205
8166	MCCORWIL02	03/10/88	10:44	9.5	7.3		458	21	19		<0.001		210	38	28	1.5	192	24	0.1	282
8267	MCCORWIL02	04/21/88	11:54	17.5	6.9	6.6	153	8	7		<0.001		60	11	8	1.6	49	12	<0.1	103
8352	MCCORWIL02	05/09/88	10:52	21.7	7.4	6.2	204	13	12		<0.001		74	15	9	1.8	70	12	0.1	128
8488	MCCORWIL02	07/21/88	11:13	25.4	6.9	4.9	167	11	8				56	11	7	1.6	60	9	<0.1	104
9017	MCCORWIL02	01/06/89	13:05	7.5	7.6	12.1	391	16	12				182	35	23	1.7	178	17	0.1	239
9279	MCCORWIL02	04/20/89	9:59	18.8	7.5	6.6	268	15	12				104	20	13	1.6	103	16	<0.1	172
9449	MCCORWIL02	06/29/89	9:33	20.0	7.5	7.2	204	12	10				68	14	8	1.3	54	13	<0.1	133
7006	MIDDLER	01/13/87	12:15	8.5	7.3	10.0	333	31	39											
7048	MIDDLER	02/10/87	11:45	11.5	7.2	9.8	384	36	46											
7067	MIDDLER	03/10/87	12:00	13.5	7.1	8.8	436	43	52											
7169	MIDDLER	04/16/87	10:00	20.0	7.2	7.8	440	40	50											
7204	MIDDLER	05/20/87	9:30	21.5	7.2	6.8	293	25	32											
7242	MIDDLER	06/11/87	10:45	23.0	6.9	8.9	404	39	51											
7404	MIDDLER	09/24/87	10:00	21.6	7.3	7.1	603	59	84											
7447	MIDDLER	10/28/87	10:15	20.5	7.3	7.3	565	69	97											
7545	MIDDLER	11/24/87	11:45	14.5	7.2	8.5	645	75	118											
7604	MIDDLER	12/16/87	7:45	9.6	7.5	11.1	581	68	104											
8072	MIDDLER	01/21/88	7:39	7.8	7.2	10.8	445	42	64											
8130	MIDDLER	02/23/88	7:15	12.0	7.2	10.8	321	25	32											
8221	MIDDLER	03/24/88	7:30	17.9	7.2	9.4	472	48	72											
8320	MIDDLER	04/28/88	7:35	17.5	7.7	8.7	324	30	38											
8397	MIDDLER	05/26/88	9:30	19.5	8.2	8.6	340	33	44											
8429	MIDDLER	06/22/88	7:34	23.0	7.0	6.8	396	41	54											
8464	MIDDLER	07/14/88	10:00	22.4	7.4	7.4	383	42	62											
8602	MIDDLER	08/11/88	8:23	22.7	7.9		407	47	74											
8586	MIDDLER	08/16/88	9:40	22.9	7.4	7.5	401	47	72											
8620	MIDDLER	08/17/88	9:46	23.4	7.6		401	46	72											
8649	MIDDLER	08/24/88	9:35	22.8	7.8		373	41	61											
8665	MIDDLER	08/31/88	9:35	23.6	8.5		467	56	89											
8698	MIDDLER	09/22/88	7:32	20.3	7.3	7.6	442	50	71											
8727	MIDDLER	10/20/88	8:55	19.8	7.3	8.0	501	54	81											
8749	MIDDLER	11/10/88	9:05	16.7	8.0	8.5	660	78	120											
8780	MIDDLER	11/30/88	12:10	11.8	7.9	9.9	596	64	101				128	23	17	3.6	77	48	0.2	331
8794	MIDDLER	12/07/88	11:00	10.6	8.2	9.4	529	58	90				119	21	16	3.5	72	39	0.2	295
8832	MIDDLER	12/20/88	10:20	10.7	7.3	10.7	608	71	115											
8823	MIDDLER	12/21/88	10:55	8.5	7.9	10.0	603	68	111				129	22	18	4.	69	45	0.2	334
8850	MIDDLER	12/28/88	9:59	7.0	7.7	11.4	564	63	94				128	23	17	3.8	71	48	0.2	314
9064	MIDDLER	01/11/89	10:15	6.2	8.0		469	49	71				117	22	15	3.3	73	42	0.1	275
9084	MIDDLER	01/18/89	10:15	6.9	7.2	10.6	414	40	56				110	21	14	2.9	75	36	0.1	244

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

MINERAL DATA REPORT (cont.)

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 mg/L	SO4	B	TDS —>
9109	MIDDLER	01/26/89	9:40	7.5		11.2	434	42	65				108	20	14	2.7	75	34	0.1	255
9096	MIDDLER	01/31/89	9:45	9.6	7.0	10.9	428	45	64											
9122	MIDDLER	02/02/89	10:45	8.1	7.6	10.3	449	47	68				112	20	15	2.9	79	26	0.1	265
9186	MIDDLER	02/28/89	9:20	13.1	6.8	10.4	438	46	67											
9239	MIDDLER	03/28/89	7:49	15.5	7.0	7.7	271	23	32											
9336	MIDDLER	04/25/89	7:12	16.7	8.4	8.5	200	15	16											
9366	MIDDLER	05/23/89	7:03	19.4	8.3	8.0	259	22	27											
9379	MIDDLER	06/01/89	9:50	20.5	8.0	11.2	255	23	27				70	15	8	1.9	59	20	<0.1	145
9392	MIDDLER	06/08/89	9:15	21.3	7.8	9.5	240	21	25				68	14	8	1.9	58	18	<0.1	133
9405	MIDDLER	06/15/89	7:15	24.3	7.5	7.1	271	24	30				70	15	8	2.	62	21	<0.1	154
9418	MIDDLER	06/19/89	8:11	22.4	7.5	7.1	255	23	27				70	15	8	1.9	60	19	<0.1	142
9486	MIDDLER	06/21/89	8:45	22.7	7.4	7.3	257	23	27											
9499	MIDDLER	07/06/89	6:30	23.6	7.6	7.2	248	22	26				68	14	8	1.8	61	18	<0.1	145
9512	MIDDLER	07/13/89	9:10	24.2	8.0	8.0	229	20	24				66	13	8	1.8	58	15	<0.1	132
9560	MIDDLER	07/18/89	9:15	26.6	7.2	7.8	244	21	27											
9525	MIDDLER	07/20/89	9:17	24.8	6.5	7.9	248	23	29				68	14	8	1.9	58	15	<0.1	144
9588	MIDDLER	07/25/89	9:50	25.7	7.8	8.2	200	25	29					16	3		57	18		130
9538	MIDDLER	07/27/89	9:05	24.2	7.4	8.1	229	19	26				59	12	7	1.6	56	14	<0.1	136
9629	MIDDLER	09/20/89	6:45	19.5	8.5	9.3	347	36	48											
9649	MIDDLER	10/17/89	10:40	19.7	7.0	8.1	436	46	60											
9668	MIDDLER	11/07/89	12:00	15.9	7.8	9.0	423	44	60											
9690	MIDDLER	12/05/89	11:36	13.3	7.6		442	48	70											
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
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
910094	MIDDLER	01/29/91	10:15	8.9	7.6	11.1	588	65	106	0.34			128	23	17	3.9	75	41	0.1	328
910162	MIDDLER	02/26/91	13:40	16.6	7.4	9.2	713	83	139	0.51			136	23	19	4.6	76	42	0.2	385
910258	MIDDLER	03/25/91	13:50	13.3	7.3	9.2	456	46	70	0.26			110	21	14	3.3	67	34	0.1	261
910316	MIDDLER	04/23/91	11:10	16.8	6.8	8.9	300	24	30	0.11			90	18	11	2.7	73	24	<0.1	180
910383	MIDDLER	05/21/91	12:55	19.9	7.9	8.0	355	37	45	0.15			101	19	13	2.9	72	23	0.1	198
910439	MIDDLER	06/28/91	11:00	21.2	8.0	7.9	500	67	99	0.26			103	18	14	3.5	76	28	0.2	276
910523	MIDDLER	07/24/91	10:22	26.2	7.0	7.9	427	47	70	0.26			94	16	13	3.1	70	24	0.1	232
910638	MIDDLER	08/21/91	10:08	24.6		6.9	370	41	59	0.24			82	15	11	2.7	64	19	<0.1	204
910685	MIDDLER	09/10/91	10:10	22.5	7.7	6.3	357	37	56	0.23			74	13	10	2.5	62	17	<0.1	190
910804	MIDDLER	10/23/91	10:30	19.0	7.3	7.4	362	37	52	0.14			85	16	11	2.6	69	24	0.1	198
910858	MIDDLER	11/21/91	10:15	13.3	7.9	9.6	566	65	102	0.32			112	20	15	3.8	69	41	0.2	314

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

MINERAL DATA REPORT (cont.)

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							
910896	MIDDLER	12/11/91	11:00	10.4	7.2	11.3	688	85	136	0.42			127	21	18	4.5	67	51	0.2	364
9583	MIDMOWRY	07/25/89	7:45	23.7	7.2	8.2	800	120	140					63	23		110	100		520
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
910093	MIDMOWRY	01/29/91	10:45	11.0	7.1	11.5	1200	144	186	0.60			279	59	32	4.	140	183	0.7	712
910315	MIDMOWRY	04/23/91	10:45	17.2	7.5	7.5	1200	115	240	0.64			314	68	35	3.8	111	118	0.3	680
910637	MIDMOWRY	08/21/91	9:33	23.6		8.8	907	110	159	0.50			218	46	25	5.9	117	99	0.3	518
910803	MIDMOWRY	10/23/91	9:55	17.7	7.9	8.5	850	96	130	0.41			195	40	23	3.2	131	87	0.3	479
8603	MIDWOODWARD	08/11/88	8:10	22.6	7.8		387	44	70											
8628	MIDWOODWARD	08/17/88	9:34	23.4	7.7		398	45	72											
8650	MIDWOODWARD	08/24/88	9:25	22.8	7.8		373	41	63											
8666	MIDWOODWARD	08/31/88	9:25	23.7	8.4		467	56	89											
8793	MIDWOODWARD	12/07/88	10:45	10.5	8.0	9.2	511	56	86				116	20	16	3.4	70	38	0.2	286
8822	MIDWOODWARD	12/20/88	10:40	8.5	7.8	9.9	611	69	114				127	21	18	4.1	69	42	0.1	338
8849	MIDWOODWARD	12/28/88	9:02	6.5	7.5	11.1	586	62	94				139	26	18	4.	69	58	0.2	332
9063	MIDWOODWARD	01/11/89	10:00	6.2	8.2		464	49	71				114	21	15	3.2	76	40	0.1	271
9083	MIDWOODWARD	01/18/89	9:45	6.8	6.8	11.2	398	39	53				108	20	14	2.8	76	34	0.1	242
9108	MIDWOODWARD	01/26/89	9:17	7.3		10.9	432	44	63				114	21	15	2.8	78	36	0.1	254
9121	MIDWOODWARD	02/02/89	10:35	8.1	7.5	10.2	470	50	76				112	20	15	3.1	79	29	0.1	275
9378	MIDWOODWARD	06/01/89	9:30	20.3	8.0	9.7	244	22	25				68	14	8	1.9	58	18	<0.1	138
9391	MIDWOODWARD	06/08/89	9:00	21.2	7.8	9.6	238	21	25				68	14	8	1.8	58	18	<0.1	133
9404	MIDWOODWARD	06/15/89	9:00	23.5	7.7	7.4	264	24	29				70	15	8	2.	62	21	<0.1	148
9417	MIDWOODWARD	06/19/89	7:32	23.0	7.6	7.0	258	23	27				70	15	8	1.9	62	20	<0.1	146
9498	MIDWOODWARD	07/06/89	6:00	23.4	6.9	7.3	251	22	26				70	15	8	1.8	61	18	<0.1	145
9511	MIDWOODWARD	07/13/89	10:04	24.5	7.6	7.9	228	20	24				66	13	8	1.7	58	14	<0.1	135
9524	MIDWOODWARD	07/20/89	10:00	25.2	6.1	7.8	244	22	28				68	14	8	1.9	58	15	<0.1	143
9537	MIDWOODWARD	07/27/89	9:43	24.3	7.7	8.0	230		26								56	14	<0.1	135
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
910101	MOKGEORGIANA	01/29/91	10:20	9.2	6.9	11.6	195	13	8	0.02			68	14	8	1.8	72	10	<0.1	117
910323	MOKGEORGIANA	04/23/91	8:30	16.4	8.5	8.4	226	15	11	0.05			81	16	10	1.7	83	14	<0.1	138
910537	MOKGEORGIANA	07/24/91	9:11	22.8		7.1	157	11	8	0.02			50	10	6	1.4	55	9	<0.1	97
910649	MOKGEORGIANA	08/21/91	10:03	22.8	7.5	8.3	170	11	9	0.02			52	11	6	1.4	58	7	<0.1	104
910815	MOKGEORGIANA	10/23/91	9:46	18.0	7.0	7.4	146	9	7	0.01			54	10	7	1.3	54	7	<0.1	87
8551	MOKRABVGEORGIAN	07/20/88	9:50	24.0	7.6	7.5	151	10	6											107
8610	MOKRABVGEORGIAN	08/10/88	7:56	21.8	7.6		164	11	7											
8625	MOKRABVGEORGIAN	08/17/88	7:53	21.8			175	12	7											
8652	MOKRABVGEORGIAN	08/24/88	7:52	21.8	7.9		187	13	7											
8668	MOKRABVGEORGIAN	08/31/88	8:00	24.0	6.8		208	15	9											

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

MINERAL DATA REPORT (cont.)

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 mg/L	SO4	B	TDS —>
8775	MOKRABVGEORGIAN	11/30/88	9:47	9.9	8.4	8.9	175	12	8				66	13	8	2.	52	13	<0.1	110
8789	MOKRABVGEORGIAN	12/07/88	9:00	10.2	8.0	10.3	196	13	10				72	14	9	1.9	67	13	<0.1	120
8819	MOKRABVGEORGIAN	12/20/88	9:20	8.5	7.9	11.0	179	12	7				66	13	8	1.7	67	10	<0.1	112
9060	MOKRABVGEORGIAN	01/11/89	8:55	6.4	8.1		200	14	10				72	14	9	1.6	69	16	0.1	129
9080	MOKRABVGEORGIAN	01/18/89	10:43	7.9	6.9	11.4	201	13	9				72	14	9	1.5	68	16	0.1	128
9105	MOKRABVGEORGIAN	01/26/89	7:50	7.3	7.4	11.2	261	19	15				90	18	11	1.8	85	22	<0.1	160
9118	MOKRABVGEORGIAN	02/02/89	9:50	8.4	7.6	10.4	213	13	10				74	15	9	1.6	71	13	<0.1	127
9375	MOKRABVGEORGIAN	06/01/89	8:10	19.6	7.8	8.7	157	10	7				54	12	6	1.4	56	10	<0.1	102
9388	MOKRABVGEORGIAN	06/08/89	7:55	20.4	7.9	9.3	152	10	7				52	11	6	1.4	55	9	<0.1	96
9401	MOKRABVGEORGIAN	06/15/89	6:45	21.5	8.5	8.2	164	11	7				59	12	7	1.3	60	10	<0.1	102
9414	MOKRABVGEORGIAN	06/19/89	6:39	20.6	7.9	8.5	155	11	7				54	12	6	1.7	55	10	<0.1	101
9495	MOKRABVGEORGIAN	07/06/89	7:15	21.2	7.8	9.2	145	10	6				52	11	6	13.	53	9	<0.1	90
9508	MOKRABVGEORGIAN	07/13/89	6:33	21.5	7.9	8.7	144	9	5				52	11	6	1.2	53	9	<0.1	91
9521	MOKRABVGEORGIAN	07/20/89	8:20	22.5	6.6	9.1	127	8	5				46	10	5	1.1	48	6	<0.1	80
9596	MOKRABVGEORGIAN	07/25/89	8:00	21.4	7.7	9.1	120	8	3					9	5		49	8		59
9534	MOKRABVGEORGIAN	07/27/89	8:09	21.3	7.3	9.2	120	7	4				43	9	5	1.1	46	7	<0.1	76
7123	MOSSDALE01	03/31/87	7:15	14.0	7.2	6.0	1650	190	232											
7317	MOSSDALE01	08/14/87	9:20	18.9	6.9	2.9	842	96	132				180	41	19	6.8	110	95	0.3	506
7488	MOSSDALE01	10/15/87	12:10	17.4	7.5	4.7	630	55	75				185	46	17	1.	134	67	0.2	384
8355	MOSSDALE01	05/09/88	8:32	16.4	7.1	2.8	680	60	82		<0.001		208	57	16	0.8	155	62	0.2	418
8492	MOSSDALE01	07/19/88	7:02	24.0	7.6	8.1	1000	115	146				228	52	24	5.9	84	124	0.4	618
9021	MOSSDALE01	01/04/89	8:33	7.8	7.4	7.5	761	68	110				250	64	22	0.9	170	55	0.2	469
9280	MOSSDALE01	04/18/89	7:38	16.1	7.4	7.6	858	92	137				205	51	19	6.9	100	89	0.3	510
9450	MOSSDALE01	06/27/89	7:39	21.3	8.1	6.8	1780	158	431				469	117	43	7.6	130	90	0.5	1090
7124	MOSSDALE02	03/31/87	7:30	15.0	7.6	2.4	722	72	76											
7318	MOSSDALE02	08/14/87	9:05	20.0	7.3	3.6	690	72	93				170	40	17	3.	112	80	0.3	424
8036	MOSSDALE02	01/12/88	9:30	10.7	7.3	5.0	667	59	91		<0.001		204	49	20	1.5	130	80	0.2	410
8173	MOSSDALE02	03/08/88	9:30	14.7	7.5	5.0	699	59	100		0.001		217	54	20	1.6	144	62	0.3	446
8271	MOSSDALE02	04/19/88	9:29	14.9	7.3	4.2	1770	144	421		<0.001		586	144	55	6.7	194	86	0.3	1100
8356	MOSSDALE02	05/09/88	8:46	18.3	8.5	9.0	923	90	137		<0.001		276	61	30	0.8	174	96	0.2	560
8493	MOSSDALE02	07/19/88	7:18	24.0	7.6	6.7	942	112	146				206	46	22	6.4	107	122	0.4	573
9022	MOSSDALE02	01/04/89	8:46	11.3	7.3	4.1	805	70	112				270	67	25	1.2	166	82	0.3	521
9281	MOSSDALE02	04/18/89	7:52	17.1	7.5	7.1	936	107	150				207	50	20	4.1	98	105	0.4	559
9451	MOSSDALE02	06/27/89	7:58	22.4	7.6	4.6	936	102	137				233	57	22	3.7	122	123	0.6	559
7125	MOSSDALE03	03/31/87	8:15	13.5	7.0	4.6	513	45	60											
7319	MOSSDALE03	08/14/87	8:45	16.5	6.9	3.5	980	113	148				257	57	28	4.5	142	121	0.5	616
7126	MOSSDALE04	03/31/87	8:35	16.0	7.5	3.0	519	50	53											
7320	MOSSDALE04	08/14/87	8:10	17.8	7.3	4.3	1970	274	289				465	89	59	3.7	454	183	0.5	1220
7491	MOSSDALE04	10/15/87	11:30	15.4	7.9	4.1	1330	177	187				279	54	35	5.6	327	68	0.5	768
8038	MOSSDALE04	01/12/88	10:00	6.4	7.6	6.3	689	75	81		<0.001		183	37	22	3.3	188	56	0.2	392
8175	MOSSDALE04	03/08/88	10:07	13.0	7.5	4.7	1080	130	152		0.002		306	60	38	4.8	220	100	0.3	641
8273	MOSSDALE04	04/19/88	10:00	15.7	8.3	11.5	1540	189	251		0.001		391	76	49	7.4	243	188	0.5	935
8358	MOSSDALE04	05/09/88	9:15	17.6	7.5	5.0	2070	275	299		<0.001		495	96	62	4.5	420	236	0.6	1260
8495	MOSSDALE04	07/19/88	8:00	25.0	7.7	6.9	1120	137	172				268	58	30	8.5	184	132	0.6	675
9024	MOSSDALE04	01/04/89	9:11	6.2	7.5	4.1	594	64	57				173	38	19	3.5	164	50	0.2	357
7127	MOSSDALE05	03/31/87	9:00	13.5	7.0	5.6	1370	94	107											

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

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			——>
7321	MOSSDALE05	08/14/87	7:20	17.9	7.2	3.4	922	115	134		0.002		215	48	23	4.8	145	110	0.4	554
7128	MOSSDALE06	03/31/87	9:20	16.0	8.0	1.8	2410	316	409											
7322	MOSSDALE06	08/05/87	10:45	23.5	7.1	1.0	969	106	130		0.001		256	58	27	10.	132	146	0.6	605
7129	MOSSDALE07	03/31/87	10:00	13.0	7.3	0.6	1100	102	159											
7324	MOSSDALE08	08/05/87	10:05	24.6	7.3	6.1	886	102	124		0.002		223	48	25	4.8	134	116	0.6	
7495	MOSSDALE08	10/15/87	8:40	14.9	7.1	2.5	914	97	126		0.002		205	44	23	5.2	157	83	0.4	547
8275	MOSSDALE08	04/19/88	10:48	15.4	7.5	11.5	896	104	126		0.001		218	46	25	6.7	138	128	0.6	552
7131	MOSSDALE09	03/31/87	11:45	15.5	8.1	7.5	2470	159	446											
7325	MOSSDALE09	08/05/87	9:50	22.1	7.4	7.1	917	104	125		0.004		243	53	27	7.	168	108	0.6	
7496	MOSSDALE09	10/15/87	8:50	14.5	7.3	6.2	971	105	138		0.002		224	47	26	4.2	158	102	0.4	566
8276	MOSSDALE09	04/19/88	10:37	15.6	7.3	3.9	1010	121	138		0.001		252	55	28	4.1	172	143	0.6	620
7132	MOSSDALE10	03/31/87	12:10	19.5	7.3	10.2	773	52	47											
7326	MOSSDALE10	08/14/87	10:05	18.3	7.3	2.0	1370	196	134				317	61	40	3.	360	167	0.4	853
7497	MOSSDALE10	10/15/87	12:35	14.8	7.3	1.8	1290	195	109		0.001		258	49	33	2.2	405	98	0.4	798
8043	MOSSDALE10	01/12/88	8:50	9.3	7.1	2.1	1520	188	185		<0.001		359	68	46	1.1	366	171	0.4	957
8171	MOSSDALE10	03/08/88	8:45	11.9	6.0	1.6	1360	173	170		0.001		351	68	44	4.6	363	96	0.4	837
8277	MOSSDALE10	04/19/88	8:49	14.0	7.3	1.6	1340	170	160		<0.001		375	76	45	7.1	410	91	0.4	836
8362	MOSSDALE10	05/09/88	7:54	16.8	7.2	2.5	900	104	116		<0.001		221	49	24	6.3	153	124	0.5	550
8499	MOSSDALE10	07/19/88	5:27	22.5	7.5	2.0	992	123	154				223	48	25	7.1	150	119	0.5	599
9028	MOSSDALE10	01/04/89	7:46	5.6	7.1	2.8	910	101	127				262	57	29	5.6	266	24	0.4	566
7327	MOSSDALE11	08/14/87	9:45	18.2	7.5	9.2	268	16	12				101	24	10	2.5	92	16	0.1	180
8044	MOSSDALE11	01/12/88	9:10	6.8	7.3	5.5	605	52	59		<0.001		184	44	18	1.8	182	47	0.2	369
8172	MOSSDALE11	03/08/88	9:00	11.4	7.3	2.0	653	59	61		0.001		194	45	20	1.9	194	45	0.2	397
8278	MOSSDALE11	04/19/88	9:09	15.5	7.3	4.9	564	49	56		0.001		161	38	16	11.	140	54	0.3	356
8363	MOSSDALE11	05/09/88	8:14	17.8	8.0	6.1	589	45	53		<0.001		195	47	19	14.	182	34	0.3	368
8500	MOSSDALE11	07/19/88	6:00	23.0	7.4	3.2	1080	97	190				317	79	29	8.9	166	55	0.3	639
9029	MOSSDALE11	01/04/89	8:15	6.2	7.2	3.2	586	50	61				198	43	22	6.8	173	34	0.2	336
9288	MOSSDALE11	04/18/89	7:10	16.6	8.0	8.3	876	87	128				251	56	27	1.	170	78	0.2	536
9456	MOSSDALE11	06/27/89	7:23	18.5	8.2	8.7	958	109	151				235	58	22	1.8	186	68	0.3	561
7120	MOSSTRPP01	03/30/87	12:00	21.5	6.8	8.8	1130	115	97											
7121	MOSSTRPP02	03/30/87	13:15	19.0	7.2	4.8	1040	104	140											
7315	MOSSTRPP02	08/14/87	11:05	22.6	7.5	6.2	838	104	134		<0.001		172	36	20	4.8	112	93	0.4	506
7486	MOSSTRPP02	10/19/87	11:30	20.3	7.5	7.5	681	71	92		<0.001		164	36	18	5.3	133	67	0.3	398
8033	MOSSTRPP02	01/12/88	8:00	8.1	7.5	10.6	670	69	86		0.003		184	41	20	5.2	131	84	0.2	396
8168	MOSSTRPP02	03/07/88	12:40	16.9	7.4	13.1	803	84	119		0.001		189	41	21	9.8	124	79	0.3	696
8268	MOSSTRPP02	04/18/88	11:50	19.0	8.1	9.0	917	113	140		<0.001		209	44	24	7.9	134	119	0.5	552
8353	MOSSTRPP02	05/09/88	9:17	17.7	8.3	10.5	918	110	137		<0.001		207	45	23	6.7	132	120	0.5	543
9019	MOSSTRPP02	01/04/89	10:24	6.4	8.0	12.5	806	86	110				214	46	24	5.8	139	96	0.4	488
7122	MOSSTRPP03	03/30/87	12:45	19.0	7.8	8.9	465	46	50											
7316	MOSSTRPP03	08/14/87	10:45	22.8	7.5	7.0	601	66	82		<0.001		141	30	16	5.4	96	63	0.2	366
7487	MOSSTRPP03	10/19/87	11:00	20.5	7.4	7.0	584	62	82		<0.001		141	30	16	3.7	113	58	0.2	340
8034	MOSSTRPP03	01/12/88	8:20	8.2	7.3	8.2	779	82	113		0.001		175	37	20	17.	109	86	0.3	480
8169	MOSSTRPP03	03/07/88	13:00	17.3	7.3	17.3	951	110	154		0.001		209	44	24	14.	108	110	0.4	598
8269	MOSSTRPP03	04/18/88	11:33	6.6	7.7	8.9	740	80	100		0.002		177	38	20	5.6	116	95	0.4	447
8354	MOSSTRPP03	05/09/88	8:57	16.9	8.0	8.5	512	46	54		<0.001		137	30	15	9.2	105	53	0.3	309
9020	MOSSTRPP03	01/04/89	10:10	7.2	7.9	10.8	726	80	98				187	40	21	6.	113	91	0.4	427

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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 mg/L	SO4	B	TDS >
9589	MRIVBACON	07/25/89	11:10	26.2	7.6	8.4	200	25	25					16	6		39	18		130
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
900438	MRIVBACON	07/30/90	12:00	25.6	7.4	7.9	281	28	39	0.15			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					
900612	MRIVBACON	09/10/90	11:05	24.9	7.9	7.5	302	29	36	0.18			78	15	10					
900632	MRIVBACON	09/18/90	13:05	23.7	7.9	7.2	327	32	41	0.20			81	16	10					
900675	MRIVBACON	09/24/90	13:00	23.6	7.9	8.7	368	37	49	0.21			90	18	11	3.1	80	23	0.1	208
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
900877	MRIVBACON	11/27/90	12:50	11.8	7.4	10.0	618	72	105	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
910004	MRIVBACON	01/02/91	14:10	7.2	7.1	11.0	536	58	93	0.30			110	21	14					
910032	MRIVBACON	01/15/91	14:50	9.0	6.7	10.0	501	53	83	0.26			110	21	14					
910095	MRIVBACON	01/29/91	9:45	8.9	7.5	10.9	532	58	92	0.29			113	22	14	3.8	74	35	0.1	296
910143	MRIVBACON	02/13/91	11:20	12.1	7.0	7.4	557	61	96	0.37			121	22	16					
910163	MRIVBACON	02/26/91	14:20	16.2	7.3	9.5	610	69	110	0.42			128	23	17	4.1	77	39	0.2	335
910199	MRIVBACON	03/11/91	11:10	13.1	7.1	9.4	514	54	84	0.30			121	22	16					
910259	MRIVBACON	03/25/91	14:35	13.5	7.4	9.3	469	48	72	0.26			113	22	14	3.4	67	37	0.1	269
910285	MRIVBACON	04/09/91	12:00	16.7	7.2	8.8	306	25	35	0.13			84	17	10					
910317	MRIVBACON	04/23/91	11:45	16.9	7.5	8.7	294	23	29	0.11			90	18	11	2.7	73	23	<0.1	178
910384	MRIVBACON	05/21/91	14:00	20.5	7.9	8.2	359	36	45	0.14			101	19	13	3.	73	24	0.1	202
910408	MRIVBACON	06/11/91	8:50	23.1	7.5	7.3	468	51	76	0.26			102	18	14					
910440	MRIVBACON	06/28/91	11:30	21.2	7.5	7.8	451	50	72	0.23			100	17	14	3.3	74	26	0.1	249
910469	MRIVBACON	07/08/91	7:28	23.3	7.3	8.3	414	46	68	0.21			94	16	13					
910525	MRIVBACON	07/24/91	12:00	25.1	7.0	7.7	404	44	66	0.22			87	15	12	3.	68	22	0.1	218
910560	MRIVBACON	08/05/91	10:00	23.5		7.3	415	42	68	0.23			87	15	12	2.9				
910639	MRIVBACON	08/21/91	10:46	24.5		7.5	347	38	55	0.22			76	14	10	2.5	63	18	<0.1	190
910686	MRIVBACON	09/10/91	10:40	23.2	7.7	7.0	323	34	48	0.20			74	13	10	2.3	63	16	0.2	171
910704	MRIVBACON	09/24/91	7:20	22.0	7.4	7.2	365	38	55	0.23			82	15	11					
910734	MRIVBACON	10/08/91	7:05	20.5	7.2	7.2	398	43	57	0.21			92	17	12	3.9				
910805	MRIVBACON	10/23/91	11:10	19.6	7.3	7.1	365	37	53	0.14			85	16	11	2.7	67	24	0.1	202
910859	MRIVBACON	11/21/91	9:50	13.4	8.0	9.3	547	62	93	0.31			112	20	15	3.7	70	45	0.2	301
910897	MRIVBACON	12/11/91	11:20	10.3	7.1	11.3	609	74	114	0.34			120	20	17	4.1	67	48	0.2	329
9208	MRIVTRACY	03/02/89	11:48	12.6	7.9	10.4	506	51	81		<0.001		124	23	16	2.8	75	41	0.1	287

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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			—>
910522	MRIVTRACY	07/24/91	10:01	24.4	7.1	7.2	454	50	71	0.27			98	18	13	3.3	72	27	0.1	251
7426	NATOMAS	09/24/87	7:00	18.2	7.4	5.7	614	44	43		<0.001		203	35	28	1.3	196	28	0.1	330
7453	NATOMAS	10/28/87	7:20	19.5	7.3	5.5	334	24	26		<0.001		103	18	14	1.8	104	20	0.1	205
7550	NATOMAS	11/24/87	7:45	11.5	7.4	6.7	746	58	75		<0.001		287	49	40	3.9	252	53	0.1	454
7610	NATOMAS	12/16/87	10:30	7.7	7.5	10.3	704	55	62		<0.001		253	42	36	2.9	240	49	0.1	448
8078	NATOMAS	01/21/88	11:35	11.7	7.3	9.5	429	34	30		0.001		142	24	20	2.7	140	31	0.1	276
8136	NATOMAS	02/23/88	11:05	14.6	7.9	10.8	921	65	65		<0.001		284	46	41	1.5	288	54	0.2	419
8226	NATOMAS	03/24/88	10:15	19.1	8.0	7.0	867	72	81		<0.001		289	38	47	1.9	278	58	0.3	518
8325	NATOMAS	04/28/88	6:05	18.2	8.6	9.8	416	26	41		<0.001		156	26	22	1.6	129	23	<0.1	244
8402	NATOMAS	05/26/88	6:29	19.9	7.8	2.0	617	65	95		<0.001		164	26	24	3.4	131	32	0.2	356
8434	NATOMAS	06/22/88	9:49	24.8	7.6	4.5	391	32	31		<0.001		141	25	19	2.	135	24	0.2	247
8468	NATOMAS	07/14/88	7:30	23.0	7.6	5.5	485	38	42		<0.001		181	31	25	2.1	159	30	0.2	295
8591	NATOMAS	08/16/88	6:33	21.1	7.7	7.4	349	28	20		<0.001		125	22	17	1.4	134	17	0.2	210
8703	NATOMAS	09/22/88	9:42	19.4	7.3	8.0	482	40	37		<0.001		187	32	26	1.4	198	20	0.1	304
8732	NATOMAS	10/20/88	6:15	18.3	7.8	8.8	429	33	32		<0.001		150	27	20	1.9	147	21	0.1	250
8754	NATOMAS	11/10/88	7:00	15.2	7.3	8.1	356	27	27		<0.001		126	24	16	2.	118	19	0.1	226
8837	NATOMAS	12/20/88	7:40	10.9	8.4	12.0	501	39	42		<0.001		183	32	25	2.	159	33	0.1	290
9101	NATOMAS	01/31/89	7:00	10.3	7.7	10.8	777	68	68		<0.001		289	48	41	2.5	273	49	0.2	477
9191	NATOMAS	02/28/89	7:05	13.0	7.9	9.9	824	71	72		<0.001		304	51	43	2.4	290	53	0.2	484
9244	NATOMAS	03/28/89	10:50	16.6	7.5	5.9	509	42	33		<0.001		170	30	23	2.3	174	35	0.1	304
9341	NATOMAS	04/25/89	9:58	16.3	8.1	7.9	613	56	52		<0.001		205	34	29	1.8	207	36	0.4	361
9371	NATOMAS	05/23/89	10:04	19.5	7.6	7.2	283	25	16		<0.001		90	16	12	1.4	94	17	0.2	172
9491	NATOMAS	06/21/89	6:05	20.6	7.5	5.4	401	34	26		<0.001		137	25	18	1.8	139	26	0.2	238
9564	NATOMAS	07/18/89	6:15	24.3	7.3	8.9	310	25	17		<0.001		104	20	13	1.5	118	16	0.2	184
9612	NATOMAS	08/16/89	6:45	22.2	7.3	6.6	348	28	19		<0.001		121	22	16	1.3	139	13	0.2	205
9633	NATOMAS	09/20/89	9:30	18.8	7.1	6.1	367	29	29		<0.001		128	23	17	3.6	127	14	0.1	210
9653	NATOMAS	10/17/89	9:12	18.0	8.1	10.5	724	61	58		<0.001		261	47	35	1.9	273	38	0.2	435
9679	NATOMAS	11/14/89	7:10	11.7	8.3	10.8	716	56	60		<0.001		248	45	33	2.1	238	47	0.2	405
9701	NATOMAS	12/12/89	7:45	8.7	7.9	10.7	766	60	63		<0.001		282	50	38	2.	268	55	0.2	452
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
900159	NATOMAS	03/21/90	13:20	22.0	8.3	8.2	878	76	74	0.19			308	54	42	2.2	309	54	0.2	515
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
900385	NATOMAS	07/25/90	8:50	22.5	7.9	5.6	565	38	42	0.10			219	38	30	3.	185	40	0.2	334
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
900921	NATOMAS	12/11/90	7:55	7.9	8.8	9.4	519	42	37	0.08			181	33	24	2.	185	30	0.1	290
910086	NATOMAS	01/31/91	13:10	10.7	8.2	9.9	811	61	75	0.14			312	54	43	2.3	272	56	0.1	483
910158	NATOMAS	02/26/91	8:10	14.2	8.1	11.8	823	68	70	0.14			305	53	42	2.7	284	59	0.2	484
910254	NATOMAS	03/25/91	8:35	9.9	7.2	10.0	230	20	14	0.01			67	12	9	2.9	51	24	0.1	154
910350	NATOMAS	04/24/91	13:00	17.6	8.1	9.0	813	67	69	0.14	<0.001		288	46	42	2.3	273	60	0.4	472
910378	NATOMAS	05/21/91	7:00	18.2	8.6	10.1	625	44	54	0.08			246	41	35	2.4	203	48	0.3	370

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

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 mg/L	SO4	B	TDS —>
910427	NATOMAS	06/24/91	7:18	19.0	7.8	7.8	587	42	50	0.10			222	36	32	2.5	190	47	0.2	346
910505	NATOMAS	07/22/91	11:00	24.6	7.5	8.1	476	34	37	0.07	<0.001		174	30	24	2.1	166	32	0.2	278
910669	NATOMAS	08/19/91	14:04	25.7	7.4		446	30	33	0.06	<0.001		165	28	23	2.	159	25	0.2	258
910672	NATOMAS	09/11/91	5:50	19.0	7.6	6.5	511	35	35	0.08			191	32	27	2.2	179	28	0.2	296
910777	NATOMAS	10/21/91	12:40	21.7	7.7	8.1	628	55	52	0.12	<0.001		210	36	29	2.7	216	31	0.2	361
910846	NATOMAS	11/19/91	13:13	13.7	7.3	13.2	598	48	47	0.09			210	36	29	2.5	204	36	0.2	344
910884	NATOMAS	12/09/91	13:10	14.1	8.0	12.9	571	47	54	0.09			199	30	30	1.9	178	40	0.1	317
7134	NETHERLAND01	03/25/87	15:45	17.5	8.0	9.9	1550	152	239											
7328	NETHERLAND01	08/13/87	7:30	17.6	7.5	8.1	289	22	15				108	15	17	0.7	104	19	0.2	173
7499	NETHERLAND01	10/20/87	8:30	16.5	7.4	8.6	270	19	18		<0.001		86	13	13	1.7	94	14	0.1	158
8045	NETHERLAND01	01/20/88	8:00	5.9	7.5	10.2	825	69	108		<0.001		283	34	48	2.5	176	81	0.6	492
8180	NETHERLAND01	03/11/88	7:38	9.1	8.1		1250	115	153		<0.001		453	43	84	1.8	346	112	1.2	775
8301	NETHERLAND01	04/18/88	7:09	14.0	7.3	8.3	270	19	22		<0.001		101	14	16	1.6	88	15	0.1	158
8364	NETHERLAND01	05/09/88	7:10	18.4	7.8	8.0	396	29	43		<0.001		139	21	21	1.9	122	22	0.3	225
8501	NETHERLAND01	07/22/88	7:16	21.8	7.4	7.6	222	16	11				82	13	12	1.6	90	13	0.1	137
9051	NETHERLAND01	01/09/89	8:21	7.0		13.1	733	64	93				259	31	44	1.7	189	58	0.6	439
9289	NETHERLAND01	04/21/89	7:20	17.8	8.1	9.4	1430	132	239				462	63	74	3.	277	116	1.1	842
9457	NETHERLAND01	06/30/89	7:00	18.7	7.0	8.4	235	16	15				80	14	11	1.5	77	16	0.1	142
7135	NETHERLAND02	03/25/87	16:15	19.5	8.0	12.0	1030	96	139											
7329	NETHERLAND02	08/13/87	7:00	18.6	7.3	5.0	243	15	9				94	16	13	0.7	92	14	0.1	160
7500	NETHERLAND02	10/20/87	8:00	15.7	7.3	5.6	303	17	14		<0.001		107	18	15	2.	118	14	0.1	187
8046	NETHERLAND02	01/20/88	7:30	5.4	7.5	10.1	819	66	103		<0.001		284	36	47	2.3	175	82	0.6	490
8181	NETHERLAND02	03/11/88	7:24	7.3	8.1		1480	128	228		<0.001		514	64	86	2.6	320	126	1.	909
8279	NETHERLAND02	04/22/88	6:37	14.0	7.1	7.0	261	17	21		<0.001		98	16	14	1.7	83	14	0.1	155
8365	NETHERLAND02	05/09/88	6:46	17.6	7.7	6.8	376	27	39		<0.001		135	21	20	1.8	120	20	0.3	214
8502	NETHERLAND02	07/22/88	6:48	22.4	7.2	4.8	206	13	8				80	14	11	1.5	90	10	0.1	133
9030	NETHERLAND02	01/09/89	7:58	7.1		12.2	671	54	78				232	30	38	1.7	176	51	0.5	378
9290	NETHERLAND02	04/21/89	7:06	18.1	7.8	8.4	1200	109	194				397	57	62	2.8	252	94	0.9	748
9458	NETHERLAND02	06/30/89	6:40	19.0	6.6	7.1	200	13	11				67	12	9	1.3	65	12	<0.1	123
7002	NOBAY	01/08/87	10:25	9.0	8.0	11.5	301	8	4											
7024	NOBAY	02/05/87	10:00	11.5	8.2	11.0	316	10	6											
7062	NOBAY	03/03/87	9:45	12.0	8.4	11.2	331	9	6											
7166	NOBAY	04/09/87	8:30	17.5	8.5	9.8	322	11	6											
7199	NOBAY	05/13/87	8:00	20.0	8.1	9.0	327	9	5											
7235	NOBAY	06/04/87	8:30	18.0	8.3	9.3	328	9	5											
7388	NOBAY	09/03/87	6:55	18.8	7.5	9.8	309	10	5											
7429	NOBAY	10/08/87	9:30	17.1	8.4	9.6	353	10	7											
7532	NOBAY	11/03/87	9:45	14.5	8.1	10.1	313	9	5											
7555	NOBAY	12/01/87	10:15	11.9	8.1	10.1	310	9	6											
8004	NOBAY	01/06/88	11:10	11.0	8.0	11.8	332	12	8											
8111	NOBAY	02/18/88	11:00	11.4	8.0	10.8	351	14	8											
8209	NOBAY	03/17/88	9:55	14.4	8.1	9.2	328	9	6											
9577	NORTHCAN	07/25/89	9:33	24.7			220	27	3					17	5		58	17		140
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					

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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 mg/L	SO4	B	TDS —>
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					
900562	NORTHCAN	08/13/90	9:30	25.1	7.8	6.4	320	34	49	0.19			76	14	10					
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					
900624	NORTHCAN	09/11/90	10:30	23.0	7.3	8.0	317	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					
900712	NORTHCAN	10/09/90	10:45	19.5	7.7	7.5	484	53	74	0.27			108	20	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					
900845	NORTHCAN	11/14/90	11:25	13.6	7.9		605	69	104	0.34			124	23	16					
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					
910016	NORTHCAN	01/02/91	12:40	5.4	7.5	11.6	604	68	114	0.36			124	23	16					
910044	NORTHCAN	01/16/91	11:45	8.2	7.5	10.5	557	61	92	0.31			117	22	15					
910117	NORTHCAN	01/29/91	14:00	8.5	7.6	10.4	575	65	102	0.34			124	23	16	3.8	70	42	0.1	316
910135	NORTHCAN	02/14/91	11:35	13.2	7.7	9.3	587	65	103	0.38			125	22	17					
910181	NORTHCAN	02/25/91	11:40	13.6	7.7	9.6	683	78	128	0.44			141	25	19					
910211	NORTHCAN	03/12/91	11:40	12.5	7.9	9.0	583	64	99	0.37			128	23	17					
910247	NORTHCAN	03/26/91	13:37	14.6	7.7	9.5	532	53	84	0.26			129	25	16					
910277	NORTHCAN	04/09/91	13:45	19.5	7.8	6.5	321	27	38	0.14			90	18	11					
910339	NORTHCAN	05/22/91	11:44	20.0	7.3	9.0	414	41	56	0.16			108	20	14	3.2	81	32	0.2	237
910420	NORTHCAN	06/13/91	9:20	22.2	8.0		495	54	80	0.27			112	20	15					
910451	NORTHCAN	06/26/91	9:05	21.0	7.9	7.5	514	59	86	0.27			109	19	15					
910481	NORTHCAN	07/10/91	8:50	24.0	7.8	6.5	464	52	77	0.26			103	18	14					
910552	NORTHCAN	07/24/91	9:16	24.0	7.4	7.3	438	48	70	0.26			96	17	13	3.	71	26	<0.1	238
910572	NORTHCAN	08/07/91	8:50	22.6		7.3	432	47	71	0.26			90	16	12	2.9				
910664	NORTHCAN	08/21/91	9:28	23.3	7.0		381	41	57	0.25			82	15	11	2.6	64	34	0.1	208
910696	NORTHCAN	09/12/91	9:20		7.3	6.6	365	40	58	0.24			78	13	11					
910716	NORTHCAN	09/26/91	8:35	22.3	7.6	7.6	417	47	69	0.23			87	15	12					
910747	NORTHCAN	10/10/91	8:35	21.2	7.6	6.8	397	42	60	0.18			90	16	12	2.8				
910830	NORTHCAN	10/23/91	9:10	18.7	7.5	8.1	387	40	56	0.15			92	17	12	2.8	71	28	<0.1	209
910907	NORTHCAN	12/19/91	10:10	7.6	7.6	9.9	770	95	151	0.46			142	24	20	4.7				
9575	NVICWOOD	07/25/89	8:53	24.6			200	27	3					14	6		59	14		130
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
900448	NVICWOOD	07/31/90	9:10	24.0	7.4	6.5	344	37	55	0.19			76	14	10					

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

MINERAL DATA REPORT (cont.)

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			—>
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
900580	NVICWOOD	08/28/90	10:05	22.9	7.7		382	43	65	0.33			80	14	11					
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					
910014	NVICWOOD	01/02/91	12:10	5.5	7.4	11.6	615	67	111	0.34			126	24	16					
910042	NVICWOOD	01/16/91	11:15	8.2	7.0	10.8	582	63	97	0.32			119	23	15					
910115	NVICWOOD	01/29/91	13:30	8.7	7.5	9.8	659	78	126	0.45						4.5	124	46	0.2	360
910133	NVICWOOD	02/14/91	11:10	13.0	7.7	9.4	855	109	183	0.64			148	23	22					
910179	NVICWOOD	02/25/91	11:10	13.6	7.7	9.6	958	125	213	0.75			166	25	25					
910209	NVICWOOD	03/12/91	11:10	12.3	8.1	9.0	576	63	99	0.37			125	22	17					
910245	NVICWOOD	03/26/91	13:07	15.5	7.7	9.6	524	54	84	0.27			122	24	15					
910275	NVICWOOD	04/09/91	12:50	17.9	7.6	7.4	311	26	37	0.10			84	17	10					
910337	NVICWOOD	05/22/91	11:11	20.3	7.5	9.2	457	49	67	0.21			105	19	14	3.5	81	28	0.2	259
910418	NVICWOOD	06/13/91	8:54	22.7	8.0		519	57	89	0.31			109	19	15					
910449	NVICWOOD	06/26/91	8:40	21.2	7.8	7.8	585	69	115	0.37			111	18	16					
910479	NVICWOOD	07/10/91	8:30	23.5	7.8	7.0	544	65	97	0.40			102	16	15					
910550	NVICWOOD	07/24/91	8:54	23.7	7.6	7.7	474	55	93	0.33			98	16	14	3.3	69	25	0.1	255
910570	NVICWOOD	08/07/91	8:30	23.5		7.5	510	60	109	0.39			95	15	14	3.4				
910662	NVICWOOD	08/21/91	9:07	23.2	7.1		487	57	89	0.36			88	14	13	3.4	62	26	<0.1	261
910694	NVICWOOD	09/12/91	8:55	21.5	7.2	6.4	359	38	57	0.25			78	13	11					
910714	NVICWOOD	09/26/91	8:00	21.8	7.5	6.3	408	46	68	0.26			87	15	12					
910745	NVICWOOD	10/10/91	8:05	21.3	7.5	6.8	401	43	63	0.19			90	16	12	2.8				
910828	NVICWOOD	10/23/91	8:45	18.8	7.7	7.0	424	47	71	0.20			87	15	12	3.	68	24	<0.1	226
910905	NVICWOOD	12/19/91	9:50	7.5	7.5	9.8	900	116	196	0.65			146	22	22	5.6				
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					
900606	OLDR-DMC-CLIFT	09/05/90	11:45	23.2	7.5	6.6	554	59	82	0.40			118	24	14					
900626	OLDR-DMC-CLIFT	09/11/90	11:00	22.5	7.5	8.7	426	50	72	0.33			87	15	12					

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

MINERAL DATA REPORT (cont.)

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			—————>
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					
900791	OLDR-DMC-CLIFT	10/24/90	11:15	18.1	7.6	8.0	725	90	147	0.50			126	21	18	4.7	82	39	0.2	383
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					
910018	OLDR-DMC-CLIFT	01/02/91	13:05	5.4	7.4	11.6	648	75	124	0.38			130	24	17					
910046	OLDR-DMC-CLIFT	01/16/91	12:10	8.0	7.7	10.5	601	67	104	0.34			124	23	16					
910119	OLDR-DMC-CLIFT	01/29/91	14:30	8.5	7.5	10.6	639	74	120	0.45						4.4	68	43	0.1	345
910137	OLDR-DMC-CLIFT	02/14/91	12:00	13.0	7.5	8.0	1000	120	163	0.51			223	45	27					
910183	OLDR-DMC-CLIFT	02/25/91	12:05	13.6	7.7	8.9	836	103	172	0.60			156	26	22					
910213	OLDR-DMC-CLIFT	03/12/91	12:05	12.5	8.1	9.0	700	82	134	0.50			136	23	19					
910249	OLDR-DMC-CLIFT	03/26/91	14:00	13.0	7.6	8.2	700	75	86	0.23			168	36	19					
910279	OLDR-DMC-CLIFT	04/09/91	14:05	16.1	7.7	6.8	321	27	39	0.14			88	17	11					
910341	OLDR-DMC-CLIFT	05/22/91	12:00	19.6	7.3	8.8	465	49	68	0.21			112	20	15	3.4	82	32	0.2	260
910422	OLDR-DMC-CLIFT	06/13/91	9:40	22.6	8.0		585	71	105	0.38			120	20	17					
910453	OLDR-DMC-CLIFT	06/26/91	9:30	20.9	7.9	7.9	610	74	117	0.38			118	19	17					
910483	OLDR-DMC-CLIFT	07/10/91	9:15	24.3	7.8	6.6	553	63	95	0.36			111	18	16					
910554	OLDR-DMC-CLIFT	07/24/91	9:37	24.5	7.5	7.4	512	48	102	0.35			134	29	15	2.5	72	30	0.1	275
910574	OLDR-DMC-CLIFT	08/07/91	9:15	23.0		7.5	518	60	108	0.35			100	17	14	3.4				
910666	OLDR-DMC-CLIFT	08/21/91	9:44	23.5	7.4		681	75	109	0.32			146	27	19	4.	91	54	0.3	378
910698	OLDR-DMC-CLIFT	09/12/91	9:45	22.2	7.2	6.7	454	53	82	0.32			88	14	13					
910718	OLDR-DMC-CLIFT	09/26/91	9:05	21.8	7.6	7.9	461	54	82	0.26			91	15	13					
910749	OLDR-DMC-CLIFT	10/10/91	9:00	21.6	7.6	6.9	446	50	72	0.24			94	16	13	3.1				
910832	OLDR-DMC-CLIFT	10/23/91	9:50	19.4	7.8	7.0	457	52	79	0.22			94	16	13	3.1	70	26	<0.1	244
910909	OLDR-DMC-CLIFT	12/19/91	10:35	7.7	7.7	9.8	897	105	153	0.46			189	36	24	3.8				
9580	OLDRIVDMC	07/25/89	10:40	25.7			620	90	100					48	16		96	78		380
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					
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					

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

MINERAL DATA REPORT (cont.)

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 mg/L	SO4	B	TDS —>
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					
910020	OLDRIVDMC	01/02/91	13:30	5.5	7.6	12.0	740	88	139	0.46			151	29	19					
910048	OLDRIVDMC	01/16/91	12:30	9.5	7.9	10.4	861	100	140	0.47			172	34	21					
910121	OLDRIVDMC	01/29/91	14:50	8.5	7.6	10.4	681	81	131	0.52						4.6	69	46	0.2	364
910139	OLDRIVDMC	02/14/91	12:20	14.1	7.4	7.6	1140	133	177	0.55			262	54	31					
910185	OLDRIVDMC	02/25/91	12:25	13.7	7.8	9.0	883	105	175	0.60			167	29	23					
910215	OLDRIVDMC	03/12/91	12:20	13.5	8.2	8.8	914	109	148	0.48			194	38	24					
910251	OLDRIVDMC	03/26/91	14:20	13.5	7.6	7.8	693	74	82	0.22			168	36	19					
910281	OLDRIVDMC	04/09/91	14:33	16.5	7.9	6.5	349	31	43	0.15			97	19	12					
910343	OLDRIVDMC	05/22/91	12:17	19.5	7.5	8.7	470	49	66	0.20			112	20	15	3.3	84	35	0.2	264
910424	OLDRIVDMC	06/13/91	9:59	22.7	7.0		606	77	108	0.39			123	21	17					
910455	OLDRIVDMC	06/26/91	9:50	21.2	7.8	7.7	637	78	123	0.40			124	20	18					
910485	OLDRIVDMC	07/10/91	9:40	24.2	7.7	6.2	568	67	96	0.36			116	20	16					
910556	OLDRIVDMC	07/24/91	9:50	24.5	7.5	7.1	536	53	108	0.36			151	34	16	2.8	74	33	0.2	289
910576	OLDRIVDMC	08/07/91	9:30	22.8		7.0	580	67	117	0.37			116	20	16	3.5				
910668	OLDRIVDMC	08/21/91	9:56	23.5	7.4		735	83	117	0.39			157	30	20	4.	97	67	0.3	407
910700	OLDRIVDMC	09/12/91	10:00	22.5	7.2	6.5	449	50	75	0.30			91	15	13					
910720	OLDRIVDMC	09/26/91	9:25	22.3	7.6	8.0	540	64	99	0.31			104	17	15					
910751	OLDRIVDMC	10/10/91	9:15	21.7	7.6	7.0	440	49	71	0.23			94	16	13	3.1				
910834	OLDRIVDMC	10/23/91	10:05	19.4	7.8	7.7	492	56	80	0.26			103	18	14	3.2	75	36	0.1	263
910834	OLDRIVDMC	10/23/91	10:05	19.4	7.8	7.7	492	56	80	0.26			103	18	14	3.2	75	36	0.1	263
910911	OLDRIVDMC	12/19/91	10:50	7.8	7.7	10.1	939	110	153	0.46			205	41	25	3.6				
9206	OLDRTRACY	03/02/89	11:18	13.1	7.6	8.6	1410	168	208		0.006		319	65	38	5.	137	237	1.	873
9585	OLDRTRACY	07/25/89	7:00	24.1	7.6	7.9	850	110	140					76	23		130	130		530
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
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
910091	OLDRTRACY	01/29/91	11:20	9.4		10.1	1320	153	210	0.66			314	65	37	4.6	157	194	0.8	798
910313	OLDRTRACY	04/23/91	9:50	16.7	8.2	11.0	1510	179	255	0.78			348	70	42	5.6	161	221	0.9	906
910520	OLDRTRACY	07/24/91	9:05	24.2	7.6	7.0	1110	125	202	0.59			266	54	32	4.5	145	132	0.6	650
910635	OLDRTRACY	08/21/91	8:35	22.7		7.0	1140	127	195	0.53			274	57	32	5.7	140	133	0.6	659
910801	OLDRTRACY	10/23/91	9:05	18.5	7.7	6.3	1220	139	202	0.59			294	60	35	4.4	173	138	0.6	711
910586	ORWOODPP	07/31/91	12:54	26.1		6.4	914	101	160	0.44			224	40	30	4.2	123	104	0.5	536
910630	ORWOODPP	08/20/91	11:22	22.9	7.3		848	92	144	0.38			215	38	29	3.7	106	99	0.4	489
910796	ORWOODPP	10/22/91	11:01	16.9	7.3		1670	155	198	0.46			560	94	79	2.3	255	334	1.	1090
910587	PALMTRPP	07/31/91	12:08	26.3		4.5	840	93	162	0.46			193	36	25	5.4	81	100	0.3	497
910629	PALMTRPP	08/20/91	10:56	25.2	6.9		769	82	147	0.42			179	32	24	4.9	105	61	0.3	441

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

MINERAL DATA REPORT (cont.)

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 —mg/L—	SO4	B	TDS —>
910795	PALMTRPP	10/22/91	10:44	18.5	7.2		1010	95	139	0.41			294	60	35	3.8	140	143	0.3	623
7136	PESCADER001	04/01/87	10:00	15.5	7.3	7.5	2040	149	431											
7330	PESCADER001	08/05/87	7:30	22.2	7.3	3.1	1480	159	243		0.002		401	85	46	5.5	181	187	0.9	
7501	PESCADER001	10/15/87	6:30	16.2	7.3	6.3	2570	232	555				751	154	89	6.3	230	297	0.8	1760
8047	PESCADER001	01/12/88	6:40	8.9	7.5	7.5	2140	200	479		<0.001		684	132	86	1.1	156	242	0.5	1450
8280	PESCADER001	04/19/88	7:06	16.3	7.3	6.5	1360	132	232		0.001		406	82	49	3.6	169	170	0.6	849
8366	PESCADER001	05/09/88	11:46	18.5	8.2	10.0	1250	137	194		0.002		329	69	38	3.3	156	175	0.8	772
8503	PESCADER001	07/18/88	13:28	32.5	7.9	7.6	1280	150	206				329	71	37	3.4	166	184	1.	804
9031	PESCADER001	01/03/89	11:26	6.9	7.6	8.3	2020	168	424				692	142	82	2.5	198	215	0.4	1240
9291	PESCADER001	04/17/89	11:06	20.4	7.7	9.7	1810	181	337				552	122	60	3.4	174	243	0.8	1110
9459	PESCADER001	06/26/89	10:21	19.8	7.8	8.7	1070	117	158				276	61	30	3.4	142	147	0.7	647
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
910067	PESCADER001	01/28/91	11:10	13.1	7.3	6.7	2390	192	527	1.32			767	167	85	2.9	208	280	0.4	1380
910510	PESCADER001	07/23/91	13:07	29.5	7.7	7.4	1150	129	206	0.56			281	60	32	3.7	148	140	0.7	684
910614	PESCADER001	08/20/91	10:41	23.5	7.6	6.5	1550	164	302	1.34			411	89	46	5.4	181	175	0.7	922
910781	PESCADER001	10/22/91	8:35	17.4	7.6	6.1	1880	186	357	0.96			562	116	66	4.2	224	197	0.6	1080
7137	PESCADER002	04/01/87	8:30	16.0	7.4	8.6	1700	133	342											
7331	PESCADER002	08/05/87	8:00	22.4	7.3	5.4	1750	196	291		0.002		464	97	54	6.7	207	226	1.	
7502	PESCADER002	10/15/87	7:00	15.3	7.3	4.0	2710	257	572				727	136	94	8.	187	331	1.	1880
8048	PESCADER002	01/12/88	7:00	7.4	7.5	7.5	2180	195	478		<0.001		692	132	88	1.3	182	226	0.5	1260
8504	PESCADER002	07/18/88	13:56	34.5	7.7	9.0	1560	173	268				417	88	48	5.1	175	214	1.	955
9032	PESCADER002	01/03/89	11:43	7.5	7.3	8.9	1740	128	396				569	119	66	2.9	116	162	0.2	1160
9292	PESCADER002	04/17/89	11:19	19.9	7.8	9.0	1690	181	297				465	102	51	4.2	164	243	0.9	1070
9460	PESCADER002	06/26/89	10:34	21.4	7.8	9.3	1530	160	263				398	87	44	3.8	167	205	0.9	946
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
910068	PESCADER002	01/28/91	12:20	13.8	7.3	10.3	2060	180	454	1.11			658	143	73	2.5	166	242	0.3	1160
910512	PESCADER002	07/23/91	13:31	28.9	8.1	9.9	1270	141	240	0.60			317	66	37	3.8	158	151	0.7	771
910615	PESCADER002	08/20/91	11:01	23.5	7.6	7.0	1600	178	308	1.39			422	90	48	5.5	189	189	0.8	960
910782	PESCADER002	10/22/91	8:50	16.9	7.7	4.8	2270	258	396	1.20			588	117	72	8.	269	303	1.4	1400
7138	PESCADER003	04/01/87	9:30	16.5	7.6	4.8	2810	294	570											
7332	PESCADER003	08/05/87	8:30	22.2	7.3	5.9	1770	183	300				492	103	57	5.1	190	221	0.9	1140
7503	PESCADER003	10/15/87	7:30	15.7	7.1	5.4	3160	317	680				783	132	110	7.5	141	426	1.2	2120
8049	PESCADER003	01/12/88	7:15	6.8	7.5	8.7	2560	247	568		<0.001		760	136	102	10.	248	275	0.6	1500
8282	PESCADER003	04/19/88	7:26	14.8	7.5	7.2	1200	128	193		0.002		348	75	39	5.3	166	161	0.7	750
8367	PESCADER003	05/09/88	12:03	19.6	8.4	12.0	1370	151	216		0.002		347	73	40	3.7	158	200	0.9	830
8505	PESCADER003	07/18/88	14:14	32.5	8.1	10.1	1850	220	318				496	103	58	4.6	213	271	1.2	1160

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

MINERAL DATA REPORT (cont.)

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			——>
9033	PESCADER003	01/03/89	12:00	6.3	7.5	11.4	2320	175	535				754	152	91	3.	163	232	0.4	1380
9293	PESCADER003	04/17/89	11:31	19.1	7.6	9.3	1680	181	291				453	99	50	4.2	165	246	0.9	1050
9461	PESCADER003	06/26/89	10:44	21.3	7.8	7.7	1510	163	244				389	85	43	3.8	174	215	1.	932
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
910069	PESCADER003	01/28/91	12:00	11.1	9.9	9.9	2060	162	451	1.12			672	144	76	2.8	171	234	0.3	1160
910511	PESCADER003	07/23/91	12:30	26.5	7.6	8.5	1780	188	359	1.28			496	103	58	5.3	174	232	0.8	1090
910616	PESCADER003	08/20/91	11:20	23.2	8.6	7.2	1910	189	406	1.64			562	123	62	5.4	177	202	0.7	1120
910783	PESCADER003	10/22/91	9:10	17.1	7.7	5.8	2510	276	469	1.40			689	139	83	8.4	269	326	1.3	1540
8283	PESCADER004	04/19/88	8:00	14.7	7.1	4.1	1400	136	243		0.001		406	90	44	7.2	163	166	0.6	881
8506	PESCADER004	07/18/88	14:46	30.5	8.1	7.8	1890	232	328				492	98	60	4.9	216	287	1.4	1180
9294	PESCADER004	04/17/89	11:47	20.5	8.8	9.9	1650	202	283				374	74	46	3.8	134	252	1.2	1020
9462	PESCADER004	06/26/89	10:58	21.4	7.9	6.2	1660	204	267				423	92	47	5.1	206	241	1.2	1040
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
910070	PESCADER004	01/28/91	11:35	12.0	7.1	7.0	2980	372	546	1.74			768	156	92	8.	308	482	2.	1920
910513	PESCADER004	07/23/91	12:03	25.4	7.3	3.0	1730	197	319	1.12			440	92	51	5.2	247	210	1.1	1060
910784	PESCADER004	10/22/91	9:45	17.6	8.0	7.4	1810	193	344	1.00			472	95	57	8.2	204	184	0.6	1040
7140	PIERSONPP01	03/25/87	13:45	19.5	7.2	8.8	638	50	61											
7335	PIERSONPP01	08/06/87	7:30	22.5	7.1	5.8	248	17	15		<0.001		88	17	11	1.6	98	11	0.1	
7506	PIERSONPP01	10/16/87	6:30	15.2	7.2	6.0	337	18	16				126	24	16	2.3	130	15	0.1	210
8052	PIERSONPP01	01/20/88	7:00	7.4	6.7	8.2	826	57	75		<0.001		291	54	38	1.5	143	113	0.3	589
8187	PIERSONPP01	03/11/88	6:58	8.2	7.4		543	38	49		<0.001		199	35	27	1.5	145	50	0.2	364
8284	PIERSONPP01	04/22/88	6:00	14.5	7.1	5.4	635	47	73		<0.001		233	42	31	2.1	160	48	0.2	401
8369	PIERSONPP01	05/09/88	6:07	16.8	7.4	6.0	463	35	47		<0.001		168	31	22	1.8	139	28	0.2	294
8507	PIERSONPP01	07/22/88	6:15	22.1	6.9	4.5	268	21	18				98	18	13	1.4	105	15	0.1	169
9035	PIERSONPP01	01/09/89	7:33	8.0		9.2	476	30	32				180	34	23	1.8	126	54	0.2	323
9295	PIERSONPP01	04/21/89	6:38	17.1	7.0	7.2	540	41	53				196	37	25	0.9	155	40	0.2	340
9463	PIERSONPP01	06/30/89	6:00	19.1	7.5	5.6	481	34	41				176	31	24	1.6	127	49	0.1	299
8613	POTNODE252	08/10/88	8:51	22.0	7.9		193	17	16											
8629	POTNODE252	08/17/88	8:57	22.4	7.4		222	19	21											
8655	POTNODE252	08/24/88	8:40	21.8	7.8		207	15	14											
8671	POTNODE252	08/31/88	8:45	23.2	8.4		354	34	45											
8778	POTNODE252	11/30/88	12:10	10.5	8.0	9.1	252	21	27				74	13	10	2.2	61	16	<0.1	148
8792	POTNODE252	12/07/88	9:30	10.3	8.4	9.5	282	25	34				78	15	10	2.3	67	18	<0.1	165
8820	POTNODE252	12/20/88	9:35	8.6	7.9	10.6	288	25	30				85	16	11	2.3	70	20	<0.1	168
8847	POTNODE252	12/28/88	10:00	6.9	7.5	11.5	298	28	35				82	15	11	2.4	69	20	<0.1	168
9061	POTNODE252	01/11/89	9:15	6.3	8.0		265	21	22				85	16	11	2.	81	20	0.1	160
9081	POTNODE252	01/18/89	9:45	7.4	6.8	11.4	264	21	23				85	16	11	2.1	73	21	0.1	162
9106	POTNODE252	01/26/89	9:16	7.7	7.5	11.3	309	26	32				94	18	12	2.2	79	24	<0.1	185

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

MINERAL DATA REPORT (cont.)

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				—>
9119	POTNODE252	02/02/89	9:15	8.2	7.4	10.5	458	50	76				107	18	15	2.9	77	26	<0.1	263
9376	POTNODE252	06/01/89	8:35	19.4	7.7	10.1	162	11	10				54	12	6	1.4	54	9	<0.1	103
9389	POTNODE252	06/08/89	8:15	19.9	7.7	9.9	184	14	14				59	12	7	1.6	57	11	<0.1	110
9402	POTNODE252	06/15/89	7:20	21.3	7.9	9.4	183	14	13				59	12	7	1.4	59	12	<0.1	111
9415	POTNODE252	06/19/89	7:20	20.8	7.7	8.7	188	15	13				62	13	7	1.4	60	12	<0.1	111
9496	POTNODE252	07/06/89	9:15	23.7	7.1	8.5	150	10	7				52	11	6	1.2	52	9	<0.1	93
9509	POTNODE252	07/13/89	7:11	22.0	7.4	8.4	174	12	12				54	12	6	1.3	56	11	<0.1	107
9522	POTNODE252	07/20/89	7:40	23.2	7.6	8.7	178	14	16				54	12	6	1.4	52	10	<0.1	106
9535	POTNODE252	07/27/89	7:26	22.4	7.8	8.8	142	8	8				48	11	5	1.	48	8	<0.1	87
7142	PROSPECTPP01	03/25/87	15:00	19.5	7.8	8.0	187	12	7											
7336	PROSPECTPP01	08/13/87	8:45	19.4	6.9	4.8	200	12	7				80	14	11	1.2	74	15	0.1	128
7507	PROSPECTPP01	10/20/87	9:00	16.0	7.4	4.8	821	41	22		<0.001		400	53	65	1.9	372	72	0.8	547
8053	PROSPECTPP01	01/20/88	8:20	7.1	7.4	8.5	1390	84	65		0.002		677	101	103	1.6	374	321	0.8	1010
8188	PROSPECTPP01	03/11/88	7:59	9.1	7.9		1080	61	37		<0.001		544	73	88	1.5	461	114	0.8	748
8285	PROSPECTPP01	04/22/88	7:38	14.0	7.3	5.3	539	26	16		<0.001		254	39	38	1.7	227	40	0.4	334
8370	PROSPECTPP01	05/09/88	7:43	16.9	7.6	7.0	222	14	8		<0.001		87	15	12	1.5	88	13	0.2	136
8508	PROSPECTPP01	07/22/88	7:47	22.0	7.5	5.3	183	11	7				76	14	10	1.5	70	10	<0.1	114
7141	PROSPECTPP02	03/25/87	15:30	14.5	7.2	4.2	1210	74	46											
7145	RINDGEPP01	03/26/87	10:45	14.5	7.1	5.1	1550	166	285											
7338	RINDGEPP01	08/07/87	8:30	20.4	6.6	3.9	611	60	79				139	31	15	2.1	58	89	0.4	369
7509	RINDGEPP01	10/19/87	9:25	17.0	6.7	2.1	933	96	174				251	56	27	3.4	174	38	0.2	597
7582	RINDGEPP01	12/10/87	13:56	15.0	6.8	6.3	992	115	170		<0.001		232	50	26	7.	94	126	0.4	631
8054	RINDGEPP01	01/14/88	11:26	9.4	6.7	5.7	890	87	140		<0.001		239	53	26	7.4	117	104	0.3	559
8190	RINDGEPP01	03/08/88	12:21	14.4	7.1		1220	127	231		<0.001		312	69	34	3.1	171	71	0.3	731
8287	RINDGEPP01	04/20/88	9:30	16.5	6.7	0.6	935	100	162		<0.001		249	57	26	3.9	193	42	0.3	572
8371	RINDGEPP01	05/09/88	9:39	20.7	7.5	5.8	910	78	157		<0.001		293	63	33	2.4	157	65	0.2	591
8509	RINDGEPP01	07/20/88	10:06	23.0	6.7	2.6	748	78	116				222	51	23	3.	106	113	0.3	502
9037	RINDGEPP01	01/05/89	11:30	8.5	7.0	7.0	865	89	141				216	47	24	6.6	97	112	0.4	576
9143	RINDGEPP01	02/06/89	11:15	6.5	7.4	5.8	1470	156	283				370	79	42	4.2	145	144	0.4	956
9297	RINDGEPP01	04/19/89	9:49	21.2	7.3	3.3	1680	185	342				437	101	45	3.4	247	85	0.4	1010
9465	RINDGEPP01	06/28/89	9:26	19.9	6.7	5.4	722	76	104				176	41	18	3.4	92	94	0.3	435
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
900488	RINDGEPP01	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	RINDGEPP01	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
910072	RINDGEPP01	01/31/91	8:25	9.1	7.4	3.9	1350	145	267	0.76			335	78	34	4.6	127	157	0.5	884
910291	RINDGEPP01	04/18/91	8:00	16.6	7.2	5.7	1570	170	307	1.03			393	88	42	2.6	219	100	0.3	910
7144	RINDGEPP02	03/26/87	10:00	14.5	7.0	6.7	1180	107	203											
7339	RINDGEPP02	08/07/87	9:10	22.2	6.3	3.3	363	31	43		<0.001		110	24	12	1.4	71	42	0.2	
7510	RINDGEPP02	10/19/87	9:55	17.0	7.1	3.8	595	47	80				177	38	20	2.2	149	31	0.2	384
7583	RINDGEPP02	12/10/87	13:18	13.5	6.2	3.2	739	61	96		<0.001		237	52	26	4.6	78	133	0.3	511
8055	RINDGEPP02	01/14/88	11:00	9.2	6.3	4.8	588	45	70		<0.001		198	43	22	4.4	113	65	0.2	394
8191	RINDGEPP02	03/08/88	11:53	14.3	7.1		1100	98	195		<0.001		341	74	38	2.3	162	91	0.2	757
8288	RINDGEPP02	04/20/88	10:04	16.5	7.3	8.1	236	18	22		<0.001		77	16	9	1.8	66	16	<0.1	146
8372	RINDGEPP02	05/09/88	10:10	22.5	7.1	1.2	728	78	125		<0.001		187	40	21	5.2	155	17	0.3	459

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

MINERAL DATA REPORT (cont.)

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			—>
8510	RINDGEPP02	07/20/88	9:23	22.0	6.7	3.9	870	71	149				286	62	32	2.	122	103	0.3	591
9038	RINDGEPP02	01/05/89	10:50	11.0	6.8	5.9	910	75	147				286	62	32	4.4	97	134	0.3	671
9144	RINDGEPP02	02/06/89	10:50	4.4	7.8	9.4	1260	104	226				422	90	48	2.5	146	151	0.2	847
9298	RINDGEPP02	04/19/89	9:21	18.9	7.6	7.3	465	40	66				134	29	15	2.2	84	35	0.2	283
9466	RINDGEPP02	06/28/89	8:56	18.9	6.9	6.0	770	68	121				228	50	25	2.3	108	86	0.2	490
900012	RINDGEPP02	01/22/90	8:45	7.8	6.7	2.7	797		108								133	98	0.3	515
900111	RINDGEPP02	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	RINDGEPP02	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	RINDGEPP02	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	RINDGEPP02	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
900755	RINDGEPP02	10/22/90	8:00	14.9	7.1	3.3	884	61	104	1.70			312	74	31	5.	154	122	0.2	600
910073	RINDGEPP02	01/31/91	9:10	9.2	7.3	6.3	1370	116	240	0.81						2.9	157	180	0.3	851
910292	RINDGEPP02	04/18/91	8:50	16.2	7.2	7.7	1090	88	202	0.76			328	72	36	2.8	164	66	0.2	625
910767	RINDGEPP02	10/21/91	9:25	17.8	7.0	6.6	541	41	53	0.15			171	37	19	2.7	91	57	0.2	345
7143	RIOBLANC001	03/26/87	13:15	20.0	8.1	11.6	1160	121	189											
7340	RIOBLANC001	08/07/87	10:15	21.1	7.3	8.6	1290	138	181		<0.001		369	62	52	2.	320	55	0.1	
7511	RIOBLANC001	10/19/87	8:40	16.5	7.5	8.7	1550	166	309				431	72	61	1.3	286	35	0.1	931
7584	RIOBLANC001	12/10/87	12:43	15.5	7.4	7.6	1140	109	197		<0.001		381	72	49	1.3	280	36	0.1	685
8056	RIOBLANC001	01/14/88	10:30	9.6	7.3	9.2	2500	278	539		<0.001		572	64	100	1.4	357	67	0.1	1430
8192	RIOBLANC001	03/09/88	11:27	14.2	7.5		731	60	85		<0.001		261	55	30	0.9	234	23	0.1	457
8289	RIOBLANC001	04/20/88	8:45	14.5	7.5	7.6	1360	148	224		<0.001		378	64	53	2.2	312	56	0.1	795
8373	RIOBLANC001	05/09/88	9:07	20.2	7.6	7.5	647	50	73		<0.001		232	47	28	2.5	200	25	0.1	388
8511	RIOBLANC001	07/20/88	8:42	21.5	7.5	3.4	739	63	101				258	54	30	1.	234	12	0.1	448
9039	RIOBLANC001	01/05/89	10:15	8.7	7.6	10.1	732	70	98				229	39	32	1.8	198	35	0.1	451
9141	RIOBLANC001	02/06/89	10:25	3.8	8.9	11.7	1010	99	141				320	54	45	0.9	294	22	<0.1	594
9299	RIOBLANC001	04/19/89	8:49	17.8	7.6	5.4	1240	157	160				331	55	47	1.3	352	70	0.2	749
9467	RIOBLANC001	06/28/89	8:32	19.4	7.9	10.3	941	108	114				265	50	34	1.	294	46	0.1	569
7146	RIOBLANC002	03/26/87	13:45	17.0	7.6	4.0	1820	187	330											
7341	RIOBLANC002	08/07/87	9:55	21.2	7.1	4.1	450	38	38		<0.001		149	33	16	4.1	148	26	0.1	
7512	RIOBLANC002	10/19/87	8:25	14.5	7.3	6.9	979	93	150				294	55	38	1.1	253	42	<0.1	580
7585	RIOBLANC002	12/10/87	12:18	16.5	7.4	7.6	1160	115	192		<0.001		390	72	51	1.1	290	49	0.1	691
8057	RIOBLANC002	01/14/88	10:15	9.9	7.3	6.0	880	76	109		<0.001		312	59	40	1.1	256	46	0.1	529
8193	RIOBLANC002	03/09/88	11:15	14.2	7.5		460	27	26		<0.001		184	44	18	0.8	185	20	0.1	290
8290	RIOBLANC002	04/20/88	8:39	15.0	7.3	3.9	457	32	32		<0.001		172	39	18	2.5	172	18	0.1	279
8374	RIOBLANC002	05/09/88	8:52	19.8	7.6	6.0	377	26	30		<0.001		137	30	15	4.3	123	18	0.1	231
8512	RIOBLANC002	07/20/88	8:23	21.0	7.5	4.0	784	74	110				261	52	32	1.1	246	20	0.1	469
9040	RIOBLANC002	01/05/89	10:00	10.2	7.7	8.2	593	48	58				214	43	26	0.8	203	27	<0.1	370
9142	RIOBLANC002	02/06/89	10:10	3.4	8.6	11.5	1060	103	150				342	58	48	0.9	294	44	<0.1	626
9300	RIOBLANC002	04/19/89	8:35	18.3	7.6	5.0	806	89	93				231	43	30	1.8	242	42	0.1	487
9468	RIOBLANC002	06/28/89	8:24	20.2	7.5	7.5	460	33	36				173	38	19	0.7	174	16	<0.1	283
7020	ROCKSL	01/22/87	7:40	6.5	7.3	11.8	268	24	30											
7060	ROCKSL	02/24/87	7:45	11.0	7.3	10.5	355	30	41											
7110	ROCKSL	03/24/87	7:45	13.0	7.3	10.2	302	25	30											
7187	ROCKSL	04/30/87	6:30	19.5	8.3	9.8	314	25	28											
7222	ROCKSL	05/28/87	9:30	20.5	7.3	7.3	468	52	82											
7284	ROCKSL	06/23/87	9:45	23.5	7.3	7.3	488	54	87											

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

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			——>
7402	ROCKSL	09/09/87	10:15	22.6	7.4	9.1	923	125	210											
7445	ROCKSL	10/22/87	9:30	19.0	7.4	8.2	871	121	201											
7543	ROCKSL	11/05/87	11:15	17.5	7.3	8.9	617	73	116											
7570	ROCKSL	12/08/87	10:45	11.3	7.3	10.1	1140	154	277											
8014	ROCKSL	01/07/88	11:20	9.9	7.4	13.2	755	93	160											
8094	ROCKSL	02/10/88	10:00	12.1	7.3	10.0	385	37	51											
8149	ROCKSL	03/03/88	11:05	13.6	7.8	10.7	711	84	144											
8238	ROCKSL	04/05/88	9:00	15.5	7.5	9.8	679	82	139											
8333	ROCKSL	05/03/88	10:05	18.6	7.8	9.2	315	34	46											
8425	ROCKSL	06/14/88	10:24	23.2	7.5	6.7	434	51	76											
8460	ROCKSL	07/12/88	10:03	25.0	7.3	7.1	787	108	179											
8582	ROCKSL	08/09/88	12:20	24.1	7.8	7.9	852	120	216											
8685	ROCKSL	09/06/88	9:50	25.0	7.5	7.3	950	132	229											
8717	ROCKSL	10/04/88	10:15	19.9	7.4	8.4	925	126	211											
8747	ROCKSL	11/01/88	11:10	17.7	7.6	9.0	1080	152	256											
8816	ROCKSL	12/13/88	11:24	12.0	7.1	10.7	950	129	229											
9057	ROCKSL	01/10/89	11:30	8.5	7.1	11.6	755	96	159											
9135	ROCKSL	02/07/89	10:30	6.5	6.9	9.1	1250	172	303											
9216	ROCKSL	03/07/89	10:30	13.5	7.4	10.5	852	113	192											
9251	ROCKSL	04/04/89	9:49	16.6	7.6	8.3	194	15	19											
9349	ROCKSL	05/02/89	9:50	19.4	7.5	8.7	211	17	18											
9431	ROCKSL	06/06/89	10:10	21.8	7.7	7.9	271	27	37											
9551	ROCKSL	07/05/89	11:30	25.4	7.6	7.9	284	28	38											
9620	ROCKSL	09/06/89	9:45	22.9	7.2	8.8	552	69	106											
9640	ROCKSL	10/02/89	7:09	20.3	7.6	10.8	520	62	97											
9666	ROCKSL	11/07/89	11:15	15.7	7.8	8.9	638	78	135											
9688	ROCKSL	12/05/89	11:00	12.9	7.7		810	109	183											
900054	ROCKSL	01/24/90	8:50	8.3	7.8	10.5	962		222	0.69	<0.001						66	53	0.1	533
900137	ROCKSL	02/23/90	12:25	10.8	7.0	12.5	598	75	119	0.37			111	18	16	4.	67	33	0.1	330
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
900293	ROCKSL	06/26/90	11:15	23.0	7.8	6.8	377	41	58	0.20			80	14	11	2.8	69	20	0.1	209
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					
900647	ROCKSL	09/17/90	9:55	21.9	7.9	7.4	548	67	105	0.47			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					

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

MINERAL DATA REPORT (cont.)

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			—>
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					
900933	ROCKSL	12/12/90	10:35	9.5	7.5	8.4	1100	150	257	0.91			158	22	25					
910012	ROCKSL	01/02/91	11:20	5.1	7.7	12.0	907	120	207	0.73			137	20	21					
910040	ROCKSL	01/16/91	10:45	7.7	7.0	11.5	862	114	190	0.68			132	20	20					
910113	ROCKSL	01/29/91	12:55	8.5	7.6	10.1	897	120	199	0.74						6.3	73	46	0.1	488
910131	ROCKSL	02/14/91	10:30	12.0	7.7	9.6	1070	144	250	0.88			165	23	26					
910177	ROCKSL	02/25/91	10:15	13.1	7.8	9.9	1080	142	240	0.88			169	23	27					
910207	ROCKSL	03/12/91	10:25	11.9	8.2	9.0	859	117	184	0.65			143	21	22					
910243	ROCKSL	03/26/91	12:05	12.5	7.8	10.2	567	66	104	0.36			114	19	16					
910273	ROCKSL	04/09/91	12:00	16.2	7.9	8.0	323	30	42	0.16			85	16	11					
910335	ROCKSL	05/22/91	10:32	19.8	8.1	9.2	596	72	122	0.36			118	19	17	4.1	89	33	0.2	326
910416	ROCKSL	06/13/91	8:10	22.5	8.0		713	86	147	0.57			123	18	19					
910447	ROCKSL	06/26/91	8:00	21.0	7.8	7.4	647	79	133	0.47			113	17	17					
910477	ROCKSL	07/10/91	7:50	22.0	7.6	6.7	630	79	130	0.52			106	16	16					
910548	ROCKSL	07/24/91	8:13	23.0	7.5	7.9	596	75	135	0.48			104	15	16	4.	67	28	0.1	324
910568	ROCKSL	08/07/91	7:45	22.8		7.2	546	66	124	0.44			92	14	14	3.6				
910660	ROCKSL	08/21/91	8:32	22.2	7.2		550	67	110	0.37			90	13	14	3.6	62	22	<0.1	299
910692	ROCKSL	09/12/91	8:20	20.5	7.3	7.2	722	95	159	0.58			109	14	18					
910712	ROCKSL	09/26/91	7:23	20.9	7.7	6.8	741	100	162	0.56			112	15	18					
910743	ROCKSL	10/10/91	7:30	20.9	7.7	7.6	554	68	106	0.36			99	15	15	3.5				
910826	ROCKSL	10/23/91	8:00	18.9	7.7	8.1	637	82	133	0.43			108	15	17	4.1	65	32	0.1	331
910903	ROCKSL	12/19/91	9:00	7.4	7.4	9.9	967	129	215	0.74			145	20	23	6.2				
8695	SACRRIOVISTA	09/15/88	8:51	20.9	7.9	7.7	235	18	14				85	16	11	1.6	85	12	<0.1	138
8724	SACRRIOVISTA	10/13/88	8:00	18.0	7.7	8.1	183	13	10				63	12	8	1.5	62	10	<0.1	102
8762	SACRRIOVISTA	11/17/88	10:10	14.3	7.3	9.1	242	21	25				71	12	10	1.9	65	13	<0.1	140
8808	SACRRIOVISTA	12/06/88	8:30	10.3	7.1	10.3	204	14	11				72	14	9	1.8	66	14	<0.1	124
9076	SACRRIOVISTA	01/17/89	8:50	8.5	7.2	11.6	237	17	13				78	15	10	1.6	78	19	0.1	146
9156	SACRRIOVISTA	02/15/89	8:05	8.3	6.9	11.5	207	14	11				72	14	9	1.5	69	11	<0.1	126
9231	SACRRIOVISTA	03/14/89	10:03	11.5	7.5	8.9	122	7	5				43	9	5	1.3	43	6	<0.1	81
9260	SACRRIOVISTA	04/11/89	6:45	16.8	7.4	8.2	183	12	8				66	13	8	1.3	62	14	<0.1	115
9356	SACRRIOVISTA	05/09/89	7:30	19.3	7.6	8.5	186	11	14				63	12	8	1.3	56	12	<0.1	116
9483	SACRRIOVISTA	06/13/89	7:25	19.3	7.1	8.5	173	12	8				59	12	7	1.4	60	12	<0.1	109
9557	SACRRIOVISTA	07/11/89	7:40	21.8	6.9	8.8	154	10	6				52	11	6	1.2	56	9	<0.1	97
9595	SACRRIOVISTA	07/25/89	7:36	21.0	7.0	7.5	120	11	3					9	4		49	8		55
9626	SACRRIOVISTA	09/13/89	7:40	20.0	7.5	9.0	190	14	8				68	14	8	1.3	71	10	<0.1	111
9646	SACRRIOVISTA	10/12/89	9:08	19.3	7.3	7.7	193	13	11				66	13	8	1.5	64	11	<0.1	112
9675	SACRRIOVISTA	11/14/89	12:15	14.6	7.7	9.2	264	25	36				63	12	8	1.9	58	12	<0.1	146
9697	SACRRIOVISTA	12/12/89	12:10	10.7	7.5	10.4	166	11	8				59	12	7	1.5	58	10	<0.1	100
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

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

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			—>
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
900330	SACRRIOVISTA	07/09/90	9:30	22.0	7.9	7.9	209	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					
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					
900527	SACRRIOVISTA	08/22/90	10:35	23.6	7.8	9.6	175	12	8	0.04			59	12	7	1.3	65	8	<0.1	110
900572	SACRRIOVISTA	08/27/90	7:24	22.0	7.5	7.8	200	14	9	0.05			66	13	8					
900594	SACRRIOVISTA	09/04/90	8:20	22.0	8.2		218	16	11	0.06			72	14	9					
900614	SACRRIOVISTA	09/10/90	7:45	20.9	7.9	7.5	243	17	13	0.06			72	14	9					
900634	SACRRIOVISTA	09/18/90	8:05	20.2	7.7	8.0	224	17	12	0.30			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					
900722	SACRRIOVISTA	10/10/90	6:40	17.8	7.6	8.1	276	22	27	0.10			72	14	9					
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
910006	SACRRIOVISTA	01/02/91	9:05	8.2	7.3	11.0	246	21	21	0.06			72	14	9					
910034	SACRRIOVISTA	01/15/91	8:30	8.8	7.5	12.2	221	17	14	0.04			68	14	8					
910102	SACRRIOVISTA	01/29/91	10:40	9.4	7.5	11.2	291	27	30	0.09			78	15	10	2.3	76	16	0.1	165
910145	SACRRIOVISTA	02/13/91	14:15	13.2	7.6	10.3	1170	135	277	1.02			247	43	34					
910160	SACRRIOVISTA	02/26/91	9:50	14.5	7.3	9.5	405	42	56	0.19			100	17	14	3.	83	24	0.1	227
910201	SACRRIOVISTA	03/11/91	14:25	13.3	6.9	9.0	401	41	61	0.22			87	15	12					
910256	SACRRIOVISTA	03/25/91	10:30	12.4	7.2	9.4	236	17	12	0.02			81	16	10	2.1	69	21	0.1	149
910287	SACRRIOVISTA	04/09/91	14:55	18.0	7.5	8.3	275	20	14	0.03			92	17	12					
910324	SACRRIOVISTA	04/23/91	8:45	15.8	8.2	9.1	288	22	18	0.04			94	18	12	2.	95	23	0.1	174
910380	SACRRIOVISTA	05/21/91	9:15	18.4	7.9	8.1	289	26	32	0.08			82	15	11	2.4	77	18	0.2	167
910409	SACRRIOVISTA	06/11/91	11:38	24.1	7.9	8.0	204	16	13	0.04			63	12	8					
910429	SACRRIOVISTA	06/24/91	9:30	19.1	7.5	8.0	225	20	25	0.07			60	11	8	1.9	60	13	<0.1	134
910470	SACRRIOVISTA	07/08/91	10:54	23.0	7.4	8.8	213	18	14	0.04			63	12	8					
910533	SACRRIOVISTA	07/24/91	9:37	22.2		8.0	198	16	19	0.05			60	11	8	1.6	57	12	<0.1	116
910561	SACRRIOVISTA	08/05/91	6:05	20.8	7.6	9.1	257	15	29	0.04			60	11	8	1.6				
910645	SACRRIOVISTA	08/21/91	10:31	21.9	7.6	8.0	193	16	16	0.04			56	11	7	1.9	58	11	<0.1	115
910674	SACRRIOVISTA	09/11/91	8:25	20.8	7.9		292	29	37	0.15			74	13	10	2.1	67	15	<0.1	164
910705	SACRRIOVISTA	09/24/91	11:45	26.2	7.6	9.8	220	17	13	0.04			70	13	9					
910735	SACRRIOVISTA	10/08/91	10:30	21.1	7.5	8.0	185	12	12	0.02			60	11	8	1.3				
910811	SACRRIOVISTA	10/23/91	7:39	17.8	7.1	7.6	250	24	34	0.10			64	11	9	1.8	55	12	<0.1	139
910848	SACRRIOVISTA	11/19/91	10:58	14.0	6.7	8.9	266	26	34	0.10			67	12	9	2.1	63	13	<0.1	149
910886	SACRRIOVISTA	12/09/91	10:50	9.8	8.0	10.5	394	43	64	0.19			84	14	12	3.	72	18	0.1	219
8547	SALMONOLD	07/19/88	13:50	29.5	8.1	7.0	950	108	141											601

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

MINERAL DATA REPORT (cont.)

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			—>
9570	SANDMOUND	07/25/89	7:49	23.2			320	50	57					14	11		55	20		190
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
900239	SANDMOUND	04/25/90	7:25	17.0	8.2	8.9	960	135	226	0.79			140	18	23	3.2	65	43	0.2	510
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					
900422	SANDMOUND	07/26/90	7:55	22.9	8.3	7.8	462	56	88	0.32			82	13	12	3.	59	21	0.1	246
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
900825	SANDMOUND	10/31/90	10:10	17.3	7.7	9.3	786	105	169	0.62			150	19	25					
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					
910010	SANDMOUND	01/02/91	11:00	5.2	7.7	11.9	879	116	203	0.70			130	19	20					
910038	SANDMOUND	01/16/91	10:05	7.3	7.3	11.8	903	117	195	0.63			130	19	20					
910109	SANDMOUND	01/29/91	11:30	8.5	7.7	10.9	903	119	202	0.74			137	20	21	6.3	72	44	0.2	491
910129	SANDMOUND	02/14/91	10:05	11.6	7.6	9.5	1050	144	234	0.86			165	23	26					
910175	SANDMOUND	02/25/91	9:50	12.8	7.9	10.1	1050	141	245	0.86			162	22	26					
910205	SANDMOUND	03/12/91	9:50	11.4	7.7	9.4	879	118	193	0.68			141	20	22					
910241	SANDMOUND	03/26/91	11:45	12.7	7.8	10.2	486	52	84	0.30			103	18	14					
910271	SANDMOUND	04/09/91	11:40	17.2	8.0	8.5	274	22	28	0.10			81	16	10					
910331	SANDMOUND	05/22/91	10:01	18.4	7.8	9.4	641	80	140	0.42			119	18	18	4.5	80	33	0.2	351
910414	SANDMOUND	06/13/91	7:48	22.1	8.1		641	75	127	0.48			115	18	17					
910445	SANDMOUND	06/26/91	7:40	19.4	8.0	7.6	621	78	129	0.44			106	16	16					
910475	SANDMOUND	07/10/91	7:30	21.5	7.8	7.6	654	83	138	0.54			110	16	17					
910544	SANDMOUND	07/24/91	7:27	22.3	7.6	8.2	624	80	145	0.53			106	16	16	4.4	65	28	0.1	332
910566	SANDMOUND	08/07/91	7:25	22.0		7.4	527	65	119	0.41			92	14	14	3.6				
910656	SANDMOUND	08/21/91	8:15	21.1	7.1		544	68	109	0.39			92	14	14	3.6	61	20	0.1	290
910690	SANDMOUND	09/12/91	8:00	20.3	7.5	7.5	702	92	152	0.56			105	14	17					
910710	SANDMOUND	09/26/91	7:05	20.4	7.9	7.5	673	86	141	0.48			112	15	18					
910741	SANDMOUND	10/10/91	7:15	20.5	7.7	7.6	515	62	98	0.32			92	14	14	3.3				
910822	SANDMOUND	10/23/91	7:15	18.4	7.7	8.0	742	91	167	0.53			118	16	19	4.8	64	32	0.1	383
910901	SANDMOUND	12/19/91	8:35	7.5	7.4	10.1	1020	139	237	0.74			149	20	24	6.6				
9574	SANTAFEBACON	07/25/89	8:32	24.1			200	23	30					14	6		57	15		130
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

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

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			—>
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					
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					
900684	SANTAFEBACON	10/02/90	10:20	22.2	7.5	7.3	565	70	104	0.44			104	17	15					
900709	SANTAFEBACON	10/09/90	10:00	18.8	7.9	8.0	710	90	144	0.55			122	19	18					
900729	SANTAFEBACON	10/15/90	10:10	19.1	7.9	11.4	766	98	161	0.60			122	19	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					
910013	SANTAFEBACON	01/02/91	11:55	5.3	7.5	11.8	593	70	114	0.37			119	21	16					
910041	SANTAFEBACON	01/16/91	11:00	7.6	7.0	11.1	563	63	97	0.33			112	20	15					
910114	SANTAFEBACON	01/29/91	13:10	8.6	7.6	10.3	767	91	158	0.56						5.3	68	53	0.1	418
910132	SANTAFEBACON	02/14/91	10:55	12.2	7.8	9.5	914	118	202	0.70			150	22	23					
910178	SANTAFEBACON	02/25/91	10:50	13.5	7.7	9.8	979	129	220	0.77			163	24	25					
910208	SANTAFEBACON	03/12/91	11:00	12.2	8.1	8.8	665	80	128	0.47			129	22	18					
910244	SANTAFEBACON	03/26/91	12:30	12.9	7.8	9.8	564	64	100	0.34			119	21	16					
910274	SANTAFEBACON	04/09/91	12:40	21.8	7.9	7.8	290	24	33	0.13			84	17	10					
910336	SANTAFEBACON	05/22/91	10:58	19.9	7.7	9.1	507	57	88	0.26			114	19	16	3.6	81	30	0.2	282
910417	SANTAFEBACON	06/13/91	8:42	22.7	7.9		490	54	80	0.28			103	18	14					
910448	SANTAFEBACON	06/26/91	8:30	21.6	7.8	7.3	605	74	118	0.40			113	17	17					
910478	SANTAFEBACON	07/10/91	8:20	23.1	7.8	6.8	564	67	104	0.46			102	16	15					
910549	SANTAFEBACON	07/24/91	8:43	23.7	7.6	7.9	544	66	116	0.41			99	15	15	3.6	68	27	0.1	294
910569	SANTAFEBACON	08/07/91	8:20	23.0		7.6	506	60	109	0.39			95	15	14	3.4				
910661	SANTAFEBACON	08/21/91	9:00	23.6	7.2		510	60	97	0.37			92	14	14	3.4	63	22	<0.1	272
910693	SANTAFEBACON	09/12/91	8:40	21.3	7.3	6.6	390	44	66	0.29			78	13	11					
910713	SANTAFEBACON	09/26/91	7:45	21.4	7.7	6.0	430	48	73	0.28			91	15	13					
910744	SANTAFEBACON	10/10/91	7:55	21.2	7.7	6.7	398	43	62	0.19			90	16	12	2.8				
910827	SANTAFEBACON	10/23/91	8:30	18.9	7.7	6.8	404	44	66	0.19			87	15	12	2.9	67	24	<0.1	215
910904	SANTAFEBACON	12/19/91	9:35	7.5	7.7	9.9	908	119	200	0.67			143	21	22	5.8				
7147	SHIMATR	03/26/87	14:15	20.0	7.8	8.8	754	53	73											
7342	SHIMATR	08/07/87	11:05	21.8	7.1	4.4	631	47	55		0.002		242	59	23	1.6	221	34	0.1	
7513	SHIMATR	10/19/87	10:30	17.5	7.3	4.8	559	38	42				189	41	21	1.4	199	25	<0.1	344
7588	SHIMATR	12/10/87	9:13	14.0	7.3	5.7	585	41	52		<0.001		220	50	23	1.6	206	33	0.1	362
8064	SHIMATR	01/14/88	8:30	9.0	7.3	7.1	763	54	85		<0.001		299	67	32	1.5	220	54	0.1	479
8196	SHIMATR	03/09/88	9:05	13.5	7.5	7.7	651	44	56		<0.001		243	53	27	1.7	194	53	0.1	414
8293	SHIMATR	04/20/88	6:33	5.1	7.2	4.2	640	44	65		<0.001		244	55	26	2.2	201	38	0.1	394

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

MINERAL DATA REPORT (cont.)

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 mg/L	B	TDS —>
8377	SHIMATR	05/09/88	6:24	19.2	7.6	4.2	696	44	60		<0.001		281	60	32	2.	230	45	0.1	428
8514	SHIMATR	07/20/88	5:57	23.7	7.3	5.2	577	49	58				167	34	20	14.	138	30	0.1	358
9043	SHIMATR	01/05/89	8:00	7.6	7.1	9.6	538	42	57				176	39	19	2.9	114	48	0.1	327
9137	SHIMATR	02/06/89	8:32	3.1	9.4	11.6	673	46	68				255	56	28	1.5	203	40	<0.1	412
9303	SHIMATR	04/19/89	6:45	17.9	7.3	4.4	663	46	60				262	62	26	2.3	216	38	0.1	414
9471	SHIMATR	06/26/89	6:45	17.9	7.0	6.7	344	29	25				105	24	11	4.7	95	20	0.1	209
900333	SJRJERSEY	07/10/90	7:10	22.2	8.3	7.5	1630	276	418	1.50			204	24	35					
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					
900532	SJRJERSEY	08/22/90	9:00	22.6	7.9	8.3	745	104	169	0.64			112	15	18	4.8	61	32	0.1	403
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					
900657	SJRJERSEY	09/25/90	9:50	21.1	8.3	7.7	1470	210	369	1.70			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
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					
910008	SJRJERSEY	01/02/91	10:15	6.0	8.0	11.4	1950	286	518	1.76			231	25	41					
910036	SJRJERSEY	01/16/91	9:35	7.8	7.3	11.9	1600	234	403	1.40			198	23	34					
910107	SJRJERSEY	01/29/91	10:40	8.7	7.9	10.8	1560	224	395	1.35			196	24	33	11.	71	67	0.2	823
910127	SJRJERSEY	02/14/91	9:30	11.5	7.5	9.7	1630	240	417	1.57			217	24	38					
910173	SJRJERSEY	02/25/91	10:15	12.8	8.0	9.4	1750	257	439	1.52			234	26	41					
910203	SJRJERSEY	03/12/91	9:10	11.8	8.1	9.2	1190	165	284	1.01			168	21	28					
910239	SJRJERSEY	03/26/91	11:05	13.0	7.8	9.9	500	56	89	0.32			107	18	15					
910269	SJRJERSEY	04/09/91	11:10	15.5	7.8	8.1	383	39	56	0.20			94	16	13					
910329	SJRJERSEY	05/22/91	8:38	17.6	8.3	10.0	994	137	235	0.83			157	20	26	6.6	81	46	0.2	541
910412	SJRJERSEY	06/13/91	7:15	20.2	8.3		2120	305	559	2.60			265	27	48					
910443	SJRJERSEY	06/26/91	7:10	19.8	7.7	8.0	1550	219	404	1.77			203	22	36					
910473	SJRJERSEY	07/10/91	7:00	21.0	7.6	8.0	1470	218	372	1.13			197	21	35					
910542	SJRJERSEY	07/24/91	7:00	21.0	7.4	9.1	1280	177	321	1.11	<0.001		167	19	29	8.2	67	55	0.2	671
910564	SJRJERSEY	08/07/91	6:50	20.8		8.6	1030	149	262	0.17			144	18	24	6.8				
910654	SJRJERSEY	08/21/91	6:50	19.7	7.7		929	127	219	0.81			137	17	23	5.8	61	34	0.1	500
910688	SJRJERSEY	09/12/91	7:30	20.4	7.1	8.1	1950	286	510	2.16			232	22	43					
910708	SJRJERSEY	09/26/91	6:40	20.4	7.3	9.0	1540	226	389	1.64			192	19	35					
910739	SJRJERSEY	10/10/91	6:50	20.3	7.3	7.8	1180	172	292	1.05			160	18	28	7.3				
910820	SJRJERSEY	10/23/91	6:40	18.2	7.0	8.1	2500	365	668	2.40			294	27	55	15.	69	102	0.2	1300
910899	SJRJERSEY	12/19/91	8:00	7.5	7.1	10.3	2390	366	625	1.98			287	26	54	16.				

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

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 —mg/L—	SO4	B	TDS —>
9200	SJRMOSSDALE	03/02/89	8:30	13.1	7.6	8.7	1370	167	194		0.006		316	69	35	4.8	139	235	1.1	852
9582	SJRMOSSDALE	07/25/89	6:00	22.7	7.0	9.3	800	120	130					54	18		120	120		530
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
900217	SJRMOSSDALE	04/25/90	7:05	17.0	7.6	9.0	823	100	111				175	37	20	3.4	106	118	0.6	486
900401	SJRMOSSDALE	07/26/90	7:40	23.0	7.6	9.2	853	94	122	0.43			201	44	22	3.	115	101	0.5	525
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
900795	SJRMOSSDALE	10/24/90	7:58	17.9	7.0	8.0	739	81	108	0.37			168	36	19	3.1	108	78	0.3	418
910088	SJRMOSSDALE	01/29/91	14:25	13.0		11.1	1100	126	169	0.58			267	56	31	3.6	135	166	0.6	650
910310	SJRMOSSDALE	04/23/91	7:25	18.0	8.1	9.7	1330	157	197	0.60			311	62	38	4.4	150	217	0.8	806
910517	SJRMOSSDALE	07/24/91	6:45	23.6	8.5	8.2	962	105	168	0.49			233	49	27	3.5	129	122	0.5	571
910632	SJRMOSSDALE	08/21/91	6:22	22.4	8.4	8.4	950	105	156	0.50			233	49	27	3.8	140	111	0.5	555
910798	SJRMOSSDALE	10/23/91	6:35	17.1	7.6	8.9	727	80	108	0.34			170	35	20	3.	118	74	0.3	415
910578	STATENPP01	07/31/91	6:11	23.4	6.7	5.0	263	21	23	0.07			88	17	11	1.8	79	20	0.2	179
910608	STATENPP01	08/19/91	11:26	23.5	6.8		245	21	21	0.08			81	16	10	1.7	75	16	0.2	168
910775	STATENPP01	10/21/91	11:25	16.8	6.9	2.5	715	68	74	0.33			217	44	26	2.3	243	5	0.3	424
910579	STATENPP02	07/31/91	6:29	21.7	8.2	6.3	315	26	42	0.14			98	18	13	1.4	78	17	0.2	196
910609	STATENPP02	08/19/91	11:50	22.7	6.6		293	25	39	0.13			90	16	12	1.4	73	14	0.1	177
910776	STATENPP02	10/21/91	11:40	19.5	6.7	2.0	830	74	158	0.62			233	42	31	6.6	151	13	0.3	483
8441	STATION04B	06/28/88	13:55				512	62	96				107	18	15	3.5	75	31	0.1	286
9573	STATION04B	07/25/89	8:11	23.7			350	56	68					14	11		57	22		200
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					
910011	STATION04B	01/02/91	11:10	5.1	7.6	12.1	880	107	198	0.70			132	20	20					
910039	STATION04B	01/16/91	10:25	7.4	7.0	11.3	861	114	187	0.68			132	20	20					
910112	STATION04B	01/29/91	12:30	8.5	7.6	10.8	878	115	195	0.72			139	21	21	6.2	71	44	0.1	495

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

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 mg/L	SO4	B	TDS ->
910130	STATION04B	02/14/91	10:20	11.5	7.7	9.7	1090	151	257	0.91			166	22	27					
910176	STATION04B	02/25/91	10:05	13.5	7.8	10.0	1080	145	250	0.89			169	23	27					
910206	STATION04B	03/12/91	10:10	11.9	8.2	9.2	779	100	163	0.60			139	21	21					
910242	STATION04B	03/26/91	11:55	12.5	7.7	10.1	549	64	101	0.35			111	18	16					
910272	STATION04B	04/09/91	11:53	17.2	8.0	8.0	320	29	40	0.14			92	17	12					
910334	STATION04B	05/22/91	10:25	18.7	7.9	9.2	613	75	127	0.38			118	19	17	4.2	81	32	0.2	334
910415	STATION04B	06/13/91	8:01	22.5	8.0		719	91	148	0.58			123	18	19					
910446	STATION04B	06/26/91	7:50	19.2	8.1	7.4	639	79	131	0.46			113	17	17					
910476	STATION04B	07/10/91	7:40	22.0	7.6	7.2	648	82	135	0.53			110	16	17					
910547	STATION04B	07/24/91	8:06	22.9	7.6	8.0	595	73	134	0.49			104	15	16	4.	67	28	0.1	322
910567	STATION04B	08/07/91	7:40	22.4		7.5	539	66	120	0.42			92	14	14	3.6				
910659	STATION04B	08/21/91	8:23	22.1	7.0		551	69	110	0.38			96	14	15	3.7	62	25	<0.1	298
910691	STATION04B	09/12/91	8:10	20.9	7.2	7.3	702	93	156	0.55			105	14	17					
910711	STATION04B	09/26/91	7:20	20.8	7.2	6.7	705	92	149	0.51			112	15	18					
910742	STATION04B	10/10/91	7:25	20.9	7.7	7.6	563	69	110	0.34			96	14	15	3.5				
910825	STATION04B	10/23/91	7:55	18.8	7.6	7.7	665	85	138	0.47			108	15	17	4.3	65	32	0.1	344
910902	STATION04B	12/19/91	8:45	7.5	7.5	10.0	950	127	215	0.67			145	20	23	6.2				
8442	STATION05A	06/28/88	14:13	23.6	7.9		533	65	103				111	18	16	3.7	74	31	0.1	300
8443	STATION06A	06/28/88	14:39	23.2	8.0	0.0	469	56	90				98	16	14	3.3	72	26	0.1	262
9209	STATION09	03/02/89	12:10	12.6	7.8	10.7	689	91	144		<0.001		123	18	19	4.4	69	36	0.1	380
9576	STATION09	07/25/89	9:12	24.5			300	50	6					16	8		60	19		190
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					
900469	STATION09	08/07/90	9:20	24.9	7.7	7.4	542	68	112	0.44			95	15	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					
900650	STATICN09	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					
900888	STATION09	11/28/90	11:20	10.6	7.8	9.6	845	109	182	0.64			134	21	20					
900936	STATION09	12/12/90	11:25	9.4	7.4	8.2	910	118	202	0.72			142	22	21					
910015	STATION09	01/02/91	12:20	5.3	7.5	12.0	821	103	178	0.60			137	22	20					
910043	STATION09	01/16/91	11:30	8.0	7.5	10.9	793	96	160	0.57			133	22	19					
910116	STATION09	01/29/91	13:40	8.5	7.4	10.4	788	99	164	0.58						5.3	72	48	0.2	422

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

MINERAL DATA REPORT (cont.)

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			————>
910134	STATION09	02/14/91	11:20	12.9	7.7	9.3	915	118	198	0.68			155	24	23					
910180	STATION09	02/25/91	11:20	13.3	7.7	9.4	947	128	211	0.77			166	25	25					
910210	STATION09	03/12/91	11:25	12.3	8.1	9.0	852	107	182	0.65			148	23	22					
910246	STATION09	03/26/91	13:18	12.7	7.7	9.9	584	67	103	0.35			123	21	17					
910276	STATION09	04/09/91	13:25	19.5	7.8	7.9	311	27	38	0.15			85	16	11					
910338	STATION09	05/22/91	11:29	19.5	7.7	8.6	503	56	74	0.25			114	19	16	3.6	82	31	0.2	281
910419	STATION09	06/13/91	9:06	22.8	8.0		622	74	118	0.44			122	19	18					
910450	STATION09	06/26/91	8:50	21.0	7.8	7.7	611	76	112	0.43			115	18	17					
910480	STATION09	07/10/91	8:40	24.0	7.8	6.5	570	69	105	0.39			109	17	16					
910551	STATION09	07/24/91	9:02	23.7	7.4	7.7	537	64	112	0.39			102	16	15	3.6	70	28	0.1	288
910571	STATION09	08/07/91	8:40	23.0		7.6	513	60	109	0.38			98	16	14	3.4				
910663	STATION09	08/21/91	9:20	23.4	7.3		507	61	94	0.36			95	15	14	3.4	64	28	0.1	274
910695	STATION09	09/12/91	9:05	21.7	7.2	6.9	617	78	128	0.46			101	14	16					
910715	STATION09	09/26/91	8:05	21.7	7.5	6.5	661	83	137	0.49			110	16	17					
910746	STATION09	10/10/91	8:20	21.3	7.6	7.3	539	65	101	0.34			99	15	15	3.4				
910829	STATION09	10/23/91	8:55	18.9	7.7	7.2	531	64	104	0.30			99	15	15	3.5	69	34	<0.1	279
910906	STATION09	12/19/91	10:00	7.5	7.7	9.8	879	113	188	0.58			148	23	22	5.4				
7343	TERMPP01	08/06/87	13:15	24.7	7.0	6.1	472	33	59		<0.001		165	33	20	1.6	116	26	0.1	
7514	TERMPP01	10/16/87	11:20	17.8	7.1	7.8	1310	119	247				448	84	58	1.9	303	30	0.1	840
7589	TERMPP01	12/11/87	7:10	11.5	6.3	4.5	646	44	50		<0.001		224	47	26	1.9	99	125	0.3	453
8065	TERMPP01	01/15/88	7:20	13.8	7.2	6.5	930	65	150		<0.001		326	63	41	6.2	205	55	0.2	624
8197	TERMPP01	03/10/88	9:45	10.7	7.1		889	64	144		<0.001		288	56	36	1.5	154	64	0.2	665
8291	TERMPP01	04/21/88	10:05	17.0	7.3	7.3	962	56	188		<0.001		365	72	45	1.9	170	31	0.1	584
8294	TERMPP01	04/21/88	10:05	17.0	7.3	7.3	961	57	188		<0.001		365	72	45	2.	173	31	0.1	579
8378	TERMPP01	05/09/88	9:34	21.4	7.4	5.0	910	57	168		<0.001		343	68	42	2.	188	23	0.2	529
8515	TERMPP01	07/21/88	10:00	23.5	6.9	4.6	425	29	52				154	32	18	1.5	112	24	0.1	267
9044	TERMPP01	01/06/89	11:45	7.7	7.2	7.8	801	60	129				277	55	34	2.1	176	37	0.1	548
9304	TERMPP01	04/20/89	9:21	18.9	7.7	8.6	480	30	66				158	32	19	2.3	108	20	0.1	296
9472	TERMPP01	06/29/89	8:46	18.0	7.5	6.8	484	36	65				163	34	19	1.5	116	25	0.1	303
7153	TERMPP02	03/26/87	7:45	12.5	7.2	4.4	850	71	150											
7344	TERMPP02	08/06/87	13:30	23.6	7.2	6.5	587	46	99		<0.001		182	35	23	2.	115	21	0.1	
7515	TERMPP02	10/16/87	10:50	16.7	7.1	5.2	571	50	83				157	30	20	1.9	144	16	<0.1	327
7590	TERMPP02	12/11/87	7:45	11.0	6.9	7.2	546	43	69		<0.001		170	35	20	2.6	130	41	0.2	341
8066	TERMPP02	01/15/88	7:45	9.9	7.0	7.0	786	65	123		<0.001		240	45	31	4.	156	53	0.2	485
8198	TERMPP02	03/10/88	9:28	9.8	7.3		716	54	114		<0.001		225	42	29	1.9	136	36	0.2	492
8295	TERMPP02	04/21/88	9:36	16.7	6.9	7.0	798	66	138		<0.001		257	50	32	1.9	136	46	0.1	481
8379	TERMPP02	05/09/88	9:07	18.8	7.5	7.1	719	59	128		<0.001		232	45	29	2.6	144	22	0.2	423
8516	TERMPP02	07/21/88	9:30	23.0	7.0	5.0	542	46	97				160	31	20	1.4	103	19	<0.1	310
9045	TERMPP02	01/06/89	11:25	7.2	7.5	7.9	782	66	118				249	47	32	3.1	146	61	0.2	523
9305	TERMPP02	04/20/89	9:06	18.8	7.5	7.8	704	66	120				198	38	25	3.4	139	23	0.1	403
9473	TERMPP02	06/29/89	8:28	19.0	7.7	5.6	591	42	78				191	40	22	2.4	104	48	0.1	372
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
900521	TURNERCUT	08/22/90	9:00	23.1		7.1	259	23	30	0.14			72	14	9	1.8	63	15	<0.1	151
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
910096	TURNERCUT	01/29/91	9:00	7.9	7.8	10.0	528	52	81	0.24			125	27	14	3.5	82	42	0.2	300

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

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 —mg/L—	SO4	B	TDS —>
910318	TURNERCUT	04/23/91	12:25	17.2	7.5	8.7	285	22	27	0.09			90	18	11	2.8	72	22	<0.1	174
910528	TURNERCUT	07/24/91	14:25	26.1	7.1	7.9	406	42	62	0.19			97	19	12	2.8	73	28	0.1	228
910640	TURNERCUT	08/21/91	11:22	25.0		7.3	381	40	56	0.20			94	18	12	2.6	68	25	0.1	212
910806	TURNERCUT	10/23/91	11:45	19.6	7.3	7.2	540	57	78	0.22			124	25	15	4.3	85	52	0.2	301
8604	UJONESSIPH01	08/10/88	12:01	22.6	6.7	2.2	417	49	77											
8636	UJONESSIPH01	08/17/88	7:22	20.8	6.7	1.5	407	47	73											
9420	UJONESSIPH01	06/20/89	7:52	21.2	7.4	2.4	279	26	30				77	16	9	2.3	72	18	0.1	155
9514	UJONESSIPH01	07/14/89	9:24	23.3	7.4	4.1	239	21	25				68	14	8	1.5	62	16	<0.1	140
8663	UJONESSIPH02	08/24/88	7:47	22.0	7.1	3.0	378	42	62											
9395	UJONESSIPH02	06/08/89	7:29	19.3	7.3	4.5	252	23	27				68	14	8	1.9	63	18	<0.1	142
9408	UJONESSIPH02	06/15/89	7:45	23.2	7.2	3.5	266	24	29				70	15	8	2.	65	19	<0.1	147
7345	UPEGBERTPP01	08/13/87	10:40	18.6	7.5	7.3	382	31	22				132	20	20	2.5	115	37	0.3	251
7516	UPEGBERTPP01	10/20/87	10:45	15.7	7.4	1.0	511	41	36		<0.001		169	23	27	4.3	179	36	0.3	312
8067	UPEGBERTPP01	01/20/88	9:45	6.3	7.3	10.1	728	61	60		<0.001		271	36	44	3.5	206	85	0.4	445
8199	UPEGBERTPP01	03/11/88	9:14	10.5	7.9		1160	93	79		<0.001		487	60	82	3.3	392	140	0.6	787
8296	UPEGBERTPP01	04/22/88	9:26	15.8	7.8	7.3	704	60	57		<0.001		252	35	40	5.3	204	72	0.5	433
8380	UPEGBERTPP01	05/09/88	9:15	19.9	8.5	10.5	771	67	57		<0.001		297	38	49	4.2	262	74	0.6	462
8517	UPEGBERTPP01	07/22/88	9:20	23.1	7.5	6.5	344	27	20				126	19	19	3.	135	25	0.2	211
9046	UPEGBERTPP01	01/09/89	9:33	7.1		10.6	457	36	39				161	23	25	2.4	135	36	0.2	262
9306	UPEGBERTPP01	04/21/89	8:27	17.9	7.7	7.5	580	49	43				196	29	30	4.5	162	66	0.4	354
9474	UPEGBERTPP01	06/30/89	8:40	20.2	7.0	5.8	511	40	47				172	26	26	4.3	135	44	0.3	304
7346	UPEGBERTPP02	08/13/87	11:10	18.3	7.3	7.0	375	28	20				146	22	22	1.4	125	34	0.3	230
7517	UPEGBERTPP02	10/20/87	11:00	17.0	7.3	4.9	526	35	30		<0.001		209	29	33	2.7	219	24	0.3	316
8068	UPEGBERTPP02	01/20/88	10:15	6.3	7.5	10.1	506	32	40		<0.001		195	27	31	4.1	106	86	0.2	307
8297	UPEGBERTPP02	04/22/88	9:48	15.5	7.2	7.3	637	50	50		<0.001		236	35	36	4.4	189	65	0.4	384
8381	UPEGBERTPP02	05/09/88	9:35	18.4	7.9	8.8	647	41	38		<0.001		285	40	45	2.2	250	48	0.4	380
8518	UPEGBERTPP02	07/22/88	9:55	24.3	7.4	6.5	277	21	16				98	16	14	2.4	94	18	0.2	162
9047	UPEGBERTPP02	01/09/89	9:54	7.5		9.9	597	44	58				211	30	33	3.4	146	59	0.2	345
9307	UPEGBERTPP02	04/21/89	8:47	17.6	7.4	6.2	701	62	62				229	34	35	5.7	182	84	0.5	433
9475	UPEGBERTPP02	06/30/89	9:00	20.8	6.6	6.9	375	27	22				124	20	18	3.1	103	25	0.2	231
7347	UPEGBERTPP03	08/13/87	11:30	20.0	7.3	6.6	538	49	60				187	27	29	6.4	156	44	0.3	337
7518	UPEGBERTPP03	10/20/87	11:25	16.7	7.5	5.9	781	62	44		0.001		288	43	44	5.	303	42	0.4	484
8201	UPEGBERTPP03	03/11/88	9:37	7.6	7.5		716	65	63		<0.001		221	29	36	3.3	188	72	0.5	446
8298	UPEGBERTPP03	04/22/88	10:05	14.0	7.5	5.7	1780	140	153		0.002		777	115	119	6.3	326	437	0.7	1260
8382	UPEGBERTPP03	05/09/88	9:53	20.1	8.1	7.6	2240	190	196		<0.001		940	129	150	6.5	455	584	1.1	1620
8519	UPEGBERTPP03	07/22/88	10:15	25.9	7.3	4.2	331	28	22				111	18	16	3.5	124	26	0.2	203
9048	UPEGBERTPP03	01/09/89	10:07	7.7		10.7	553	41	41				199	30	30	3.	179	46	0.2	314
9308	UPEGBERTPP03	04/21/89	8:58	17.3	7.6	6.6	586	54	44				184	29	27	6.4	162	64	0.5	354
9476	UPEGBERTPP03	06/30/89	9:15	20.8	6.3	6.1	342	27	21				114	19	16	2.9	103	28	0.2	209
7148	UPJONESPP01	03/30/87	10:45	17.5	6.8	5.0	1010	124	163											
7149	UPJONESPP02	03/30/87	11:15	17.0	7.0	5.4	507	52	60											
7349	UPJONESPP02	08/12/87	8:50	20.4	6.9	3.8	626	68	96				143	29	17	2.4	79	71	0.3	392
7520	UPJONESPP02	10/19/87	12:15	17.5	6.7	4.8	739	78	124				161	33	19	1.9	85	74	0.3	458
7592	UPJONESPP02	12/10/87	8:10	13.5	6.5	4.4	895	84	132		<0.001		253	57	27	3.6	75	171	0.3	573
8071	UPJONESPP02	01/14/88	7:30	8.4	6.6	7.0	756	71	113		<0.001		192	42	21	5.	81	116	0.2	477
8203	UPJONESPP02	03/09/88	7:45	14.1	6.9	6.1	789	79	130		<0.001		186	38	22	3.4	87	88	0.3	513

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

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 mg/L	SO4	B	TDS —>
8300	UPJONESPP02	04/18/88	12:40	18.4	6.9	2.9	960	109	158		<0.001		238	51	27	4.3	127	118	0.4	598
8384	UPJONESPP02	05/09/88	10:06	20.2	7.3	4.0	1120	131	201		<0.001		258	54	30	3.7	141	117	0.5	666
8520	UPJONESPP02	07/18/88	10:30	27.0	7.1	0.0	860	100	154				204	42	24	2.9	122	80	0.4	510
8601	UPJONESPP02	08/11/88	11:24	23.2	6.8	2.8	598	68	102											
8624	UPJONESPP02	08/17/88	7:45	19.9	6.9	3.1	721	79	124											
8661	UPJONESPP02	08/24/88	8:15	20.6	7.0	3.7	766	85	128											
8677	UPJONESPP02	08/31/88	7:45	23.3	6.6	5.2	516	62	95											
8784	UPJONESPP02	11/30/88	9:26	11.4	7.1	5.6	718	73	112				177	36	21	2.8	105	75	0.3	436
8798	UPJONESPP02	12/07/88	9:20	11.4	7.1	7.3	799	83	134				192	39	23	3.1	111	83	0.3	477
8854	UPJONESPP02	12/28/88	8:20	5.0	7.1	10.4	728	79	125				174	35	21	5.9	74	80	0.2	417
9050	UPJONESPP02	01/03/89	9:35	6.1	7.1	9.0	759	80	128				179	37	21	5.3	79	82	0.2	470
9070	UPJONESPP02	01/11/89	9:00	5.7		9.5	745	73	117				177	38	20	6.	63	95	0.2	478
9087	UPJONESPP02	01/18/89	9:20	7.1	6.7	8.7	795	80	119				207	45	23	5.6	78	108	0.2	518
9112	UPJONESPP02	01/26/89	9:02	9.2		6.5	958	104	153				242	51	28	3.8	114	125	0.3	601
9125	UPJONESPP02	02/03/89	8:58	9.8	6.7	9.1	1070	120	183				255	51	31	3.2	127	127	0.4	672
9310	UPJONESPP02	04/17/89	9:27	18.4	7.3	4.2	694	71	111				174	40	18	3.8	74	84	0.3	428
9380	UPJONESPP02	06/01/89	7:12	23.2	7.5	3.6	843	96	137				192	42	21	3.2	108	88	0.3	501
9393	UPJONESPP02	06/08/89	7:05	18.0	7.6	4.6	688	74	111				150	32	17	2.8	95	71	0.3	405
9406	UPJONESPP02	06/15/89	7:15	22.3	7.5	4.6	533	58	80				123	26	14	2.7	84	49	0.2	313
9419	UPJONESPP02	06/20/89	7:17	20.8	7.4	3.5	840	92	137				193	41	22	2.9	109	87	0.4	494
9477	UPJONESPP02	06/26/89	9:00	22.9	7.6	3.5	453	45	62				105	22	12	2.3	73	42	0.2	263
9500	UPJONESPP02	07/07/89	5:45	23.8	7.0	3.9	532	54	73				128	28	14	3.1	88	55	0.2	314
9513	UPJONESPP02	07/14/89	9:48	22.9	7.2	4.5	494	50	68				119	26	13	3.4	73	56	0.2	296
9526	UPJONESPP02	07/21/89	9:47	23.6	5.7	1.9	667	69	101				155	34	17	5.4	84	77	0.3	401
9539	UPJONESPP02	07/28/89	9:28	21.2	7.3	2.8	539	54	78				125	27	14	4.5	73	56	0.2	321
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
900209	UPJONESPP02	04/24/90	14:10	18.3	7.3	4.6	774	86	134				159	34	18	6.2	102	61	0.3	442
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
900771	UPJONESPP02	10/23/90	9:15	16.5	8.8	4.1	925	107	162	0.57			190	40	22	4.6	97	90	0.4	543
910064	UPJONESPP02	01/28/91	13:25	12.6	7.0	6.5	975	108	162	0.41			223	48	25	4.2	103	124	0.3	583
910524	UPJONESPP02	07/24/91	11:30	24.1	6.5	4.5	678	74	127	0.35			144	28	18	5.1	86	58	0.2	385
910622	UPJONESPP02	08/20/91	7:09	19.5	6.7	4.6	621	76	117	0.33			131	26	16	4.2	83	47	0.2	359
910788	UPJONESPP02	10/22/91	7:32	17.3	6.6		703	69	102	0.21			173	38	19	4.4	69	94	0.3	426
910580	VENICE	07/31/91	7:45	21.6	7.5	7.4	415	43	60	0.21			111	23	13	1.3	95	19	0.2	260
910605	VENICE	08/19/91	6:50	20.2	7.2	4.0	476	50	69	0.27			127	26	15	2.5	122	18	0.2	301
910605	VENICE	08/19/91	6:50	20.2	7.2	4.0	476	50	69	0.27			127	26	15	2.5	122	18	0.2	301
910772	VENICE	10/21/91	6:55	18.0	6.7	3.1	410	32	34	0.08			129	27	15	2.4	71	73	0.3	283
7016	VERNALIS	01/22/87	11:20	8.5	7.3	11.1	679	73	88		<0.001		148	31	17	2.7	93	100	0.4	415
7056	VERNALIS	02/24/87	11:15	11.5	7.5	9.9	868	93	105		0.003		180	39	20	3.4	99	142	0.6	514
7105	VERNALIS	03/24/87	10:45	13.0	7.3	9.6	831	100	105		0.003		198	43	22	0.8	107	152	0.7	530
7182	VERNALIS	04/30/87	9:45	19.0	7.3	8.4	564	59	74		0.001		139	29	16	3.	87	73	0.3	349
7217	VERNALIS	05/28/87	6:45	18.0	7.4	8.2	622	66	77				150	32	17	2.9	93	72	0.4	363
7280	VERNALIS	06/23/87	7:15	22.5	7.7	4.6	807	88	104		0.002		181	36	22	3.3	112	114	0.5	455

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

MINERAL DATA REPORT (cont.)

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				—>
7396	VERNALIS	09/09/87	7:00	21.5	6.8	7.2	734	81	99		0.001		175	37	20	3.1	111	88	0.4	439
7439	VERNALIS	10/22/87	6:58	18.5	7.4	8.2	807	91	117		0.002		181	36	22	3.1	123	81	0.3	476
7539	VERNALIS	11/05/87	7:20	15.0	7.6	8.7	951	118	142		0.002		228	47	27	1.8	135	120	0.6	584
7566	VERNALIS	12/08/87	8:00	13.6	7.4	9.4	974	118	146		0.002		217	44	26	3.4	125	153	0.6	579
8010	VERNALIS	01/07/88	8:05	10.3	7.4	11.1	1080	138	156		0.002		260	53	31	5.2	137	166	0.6	661
8016	VERNALIS	01/07/88	8:05	10.3	7.4	11.1					0.002									
8087	VERNALIS	01/25/88	9:30	10.6	7.4	9.7					0.004									
8096	VERNALIS	02/02/88	9:40	11.1	7.5	9.1	1330	177	187		0.005									
8090	VERNALIS	02/10/88	8:30	12.4	7.4	9.8	1320	167	180		0.006		308	64	36	4.6	145	222	0.9	816
8104	VERNALIS	02/22/88	10:31	13.2	7.6	10.0	1380	169	196		0.006		347	73	40	7.6	145	239	1.	886
8204	VERNALIS	03/08/88	9:30	15.5	7.6	8.8	925	108	122		0.005		212	47	23	3.2	108	150	0.7	594
8144	VERNALIS	03/15/88	7:45	12.3	7.6	10.0	800	93	103		0.002		189	41	21	2.6	97	126	0.5	603
8217	VERNALIS	03/22/88	9:23	16.3	7.2	8.6	834	96	112		0.002		186	38	22	3.	107	131	0.6	507
8229	VERNALIS	03/29/88	8:15	16.4	7.6	9.3	812	100	114		0.004		141	24	26	2.9	121	120	0.6	480
8233	VERNALIS	04/05/88	6:40	14.3	7.5	4.3	801	92	111		0.002		188	39	22	2.8	104	117	0.5	480
8241	VERNALIS	04/12/88	8:23	18.8	7.4	8.3	842	94	118		0.003		193	41	22	3.1	110	125	0.5	507
8302	VERNALIS	04/19/88	8:52	15.9	7.4		722	82	94		0.003		180	39	20	3.2	102	106	0.4	441
8306	VERNALIS	04/26/88	8:27	16.1	7.4	8.6	726	82	92		0.002		176	39	19	3.4	92	119	0.5	442
8328	VERNALIS	05/03/88	7:11	16.6	7.8	8.7	802	97	113		0.002		193	41	22	3.1	101	118	0.5	485
8385	VERNALIS	05/10/88	8:25	18.5	7.9	8.6	781	85	104		0.002		184	39	21	3.	103	119	0.5	490
8404	VERNALIS	05/17/88	8:45	18.0	7.9	8.4	815	91	115		0.002		195	40	23	2.8	109	118	0.4	521
8408	VERNALIS	05/31/88	8:20	18.5	7.9	8.7	737	78	95		0.002		172	36	20	3.	104	100	0.4	467
8420	VERNALIS	06/14/88	6:35	21.6	7.7	8.3	738	102	116		0.002		213	44	25	3.1	52	131	0.6	527
8437	VERNALIS	06/28/88	8:00	21.4	7.8	7.8	745	87	101				187	40	21	3.1	98	115	0.5	450
8455	VERNALIS	07/12/88	6:18	22.0	7.8	7.7	954	112	137		0.003		238	51	27	3.5	132	145	0.7	582
8566	VERNALIS	07/26/88	8:20	23.5	7.9	7.6	716	80	102		0.002		175	37	20	2.8	111	102	0.5	434
8577	VERNALIS	08/09/88	8:00	20.8	7.2	8.2	846	100	125		0.002		202	43	23	3.8	116	118	0.6	518
8594	VERNALIS	08/23/88	7:30	21.6	7.6	7.3	840	98	120				205	44	23	3.3	116	121	0.6	515
8681	VERNALIS	09/06/88	6:45	22.2	7.7	6.9	896	111	135		0.002		211	45	24	3.9	122	123	0.6	547
8710	VERNALIS	10/04/88	6:58	18.1	8.0	8.0	911	106	138		0.002		217	44	26	3.3	129	108	0.4	530
8735	VERNALIS	10/18/88	8:25	18.6	7.6	8.4	893	108	139		0.001		209	41	26	3.5	130	104	0.4	554
8740	VERNALIS	11/01/88	8:15	15.3	7.3	8.9	857	101	129		0.002		201	41	24	3.4	120	110	0.5	505
8765	VERNALIS	11/15/88	9:10	14.9	7.3	9.1	847	106	123		0.001		162	22	26	3.6	115	108	0.4	498
8811	VERNALIS	12/13/88	8:25	10.2	7.2	10.0	869	96	126		0.002		190	38	23	4.	115	117	0.5	514
9052	VERNALIS	01/10/89	7:45	9.2	7.2	9.1	1080	135	150		0.002		257	52	31	6.4	135	166	0.7	652
9091	VERNALIS	01/24/89	9:40	9.1	8.6	9.6	1180	148	168		0.003		293	58	36	5.3	137	199	0.8	740
9130	VERNALIS	02/07/89	7:45	5.6	7.1	11.1	1270	158	179		0.006		296	61	35	5.	138	205	0.9	793
9176	VERNALIS	02/14/89	6:55	7.7	7.4		1250	158	179		0.005									
9181	VERNALIS	02/16/89	7:00	10.5	7.0	9.1	1220	150	167		0.004									
9159	VERNALIS	02/21/89	9:15	14.4	8.2	8.3	1460	184	206		0.006		343	73	39	5.2	143	251	1.1	897
9194	VERNALIS	02/23/89	11:00	16.2	8.2	8.0	1350	81	185		0.006									
9202	VERNALIS	03/02/89	9:15	12.6	7.8	8.8	1180	145	164		0.005		277	60	31	4.4	122	205	0.9	726
9211	VERNALIS	03/07/89	7:30	14.4	7.3	8.5	836	95	107		0.004		187	42	20	4.8	98	125	0.6	499
9234	VERNALIS	03/21/89	9:24	15.3	7.3	7.9	732	84	92		0.004		167	37	18	3.	87	114	0.5	444
9246	VERNALIS	04/04/89	7:13	15.5	8.3	7.7	825	99	112		0.003		192	42	21	3.	97	130	0.5	496
9331	VERNALIS	04/18/89	6:00	16.8	8.0		676	76	85		0.003		164	36	18	2.9	85	103	0.5	406

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

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			—>
9344	VERNALIS	05/02/89	7:15	18.5	7.3	7.8	715	82	89		0.002		170	35	20	3.2	94	110	0.5	436
9359	VERNALIS	05/16/89	8:20	19.6	7.6	8.7	661	73	85		0.002		159	34	18	3.	92	94	0.4	396
9426	VERNALIS	06/06/89	6:50	19.6	7.3	8.0	649	66	83		0.002		151	34	16	2.6	87	96	0.4	381
9546	VERNALIS	07/05/89	8:25	21.9	7.7	8.1	671	70	84		0.002		162	35	18	2.8	92	95	0.4	397
9601	VERNALIS	08/03/89	7:10	21.4	8.2	8.8	770	85	105		0.002		182	40	20	3.2	110	102	0.5	450
9615	VERNALIS	09/06/89	7:13	21.1	7.7	8.4	845	95	115		0.002		198	43	22	3.7	119	120	0.6	495
9635	VERNALIS	10/02/89	9:25	20.0	7.1	9.2	830	97	109		0.003		189	41	21	4.2	120	113	0.5	487
9661	VERNALIS	11/07/89	7:20	13.4	7.3	8.5	862	100	121		0.002		196	42	22	3.7	122	112	0.5	492
9683	VERNALIS	12/05/89	7:30	9.7	7.9		978	118	135		0.002		215	45	25	3.	123	143	0.8	593
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
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									
900150	VERNALIS	03/20/90	7:50	16.3	6.2	8.0	968	116	134	0.43	0.004		215	48	23	3.4	106	163	0.6	575
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
900500	VERNALIS	08/21/90	10:20	23.0	7.9	7.3	797	88	111	0.45	0.002		193	41	22	3.4	110	102	0.4	474
900639	VERNALIS	09/25/90	10:05	21.2	7.4	7.5	849	95	121	0.49	0.002		196	42	22	3.4	131	99	0.4	496
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
910081	VERNALIS	01/31/91	8:40	9.5	7.6	8.8	1130	132	168	0.58	0.003		271	56	32	3.6	141	174	0.6	681
910150	VERNALIS	02/13/91	8:15	13.0	7.8	8.7	1250	148	177	0.55	0.004		286	60	33				<0.1	
910165	VERNALIS	02/27/91	8:00	14.7	8.0	9.3	1100	127	164	0.55	0.002		265	55	31	3.4	147	149	0.6	647
910262	VERNALIS	03/26/91	9:15	12.0	7.7	8.9	883	98	113	0.30	0.003		198	43	22	5.7	99	148	0.6	534
910288	VERNALIS	04/09/91	8:20	15.7	7.8	8.9	1550	200	221		0.005		252	68	20					
910345	VERNALIS	04/24/91	7:50	17.3	9.5	8.4	979	114	134	0.40	0.003		221	44	27	4.	114	156	0.6	582
910386	VERNALIS	05/21/91	7:15	17.6	7.8	9.3	398	41	48	0.16	<0.001		102	21	12	2.	61	49	0.2	222
910433	VERNALIS	06/25/91	9:10	20.4	7.9	9.3	1090	128	179	0.61	0.002		260	53	31	1.7	146	119	0.6	658
910509	VERNALIS	07/23/91	11:00	25.8	8.1	5.6	930	106	156	0.42	0.002		223	45	27	3.7	130	121	0.5	544
910613	VERNALIS	08/20/91	9:38	22.5	8.1	8.3	856	102	141	0.44	0.002		201	41	24	3.6	127	94	0.4	489
910679	VERNALIS	09/10/91	6:50	19.4	8.2	7.7	1060	125	157	0.57	<0.001		249	50	30	3.6	152	123	0.5	616
910780	VERNALIS	10/22/91	7:50	18.3	7.6	8.2	935	109	142	0.47	<0.001		217	44	26	3.8	144	95	0.4	535
910853	VERNALIS	11/21/91	8:25	12.8	8.4	9.5	675	76	92	0.31	0.001		152	31	18	2.6	96	80	0.3	396
910891	VERNALIS	12/11/91	8:10	10.6	7.1	11.0	826	94	123	0.35	<0.001		183	37	22	2.6	116	95	0.4	481
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
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
900744	WEBB01	10/22/90	7:40	15.4	8.0	4.9	747	68	118	0.77			209	44	24	4.1	183	7	0.2	460
910052	WEBB01	01/28/91	9:45	11.4	6.3	4.6	1920	138	269	0.64			734	152	86	4.	62	554	0.3	1360

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

MINERAL DATA REPORT (cont.)

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			—>
910352	WEBB01	04/25/91	9:35	15.5	6.5	3.5	1110	91	158	0.62			371	76	44	3.9	121	198	0.2	719
910487	WEBB01	07/22/91	7:15	19.1	6.8	6.0	887	82	153	0.59			261	52	32	3.8	168	66	0.2	546
910589	WEBB01	08/19/91	7:00	18.5	7.4	4.8	820	85	147	0.56			239	46	30	3.5	198	19	0.2	474
910756	WEBB01	10/21/91	7:45	17.0	7.2	3.4	819	78	115	0.45			225	42	29	4.	202	25	0.2	483
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
910053	WEBB02	01/28/91	10:20	9.5	6.9	8.3	1070	98	175	0.62			329	69	38	6.4	88	182	0.3	725
910353	WEBB02	04/25/91	9:50	15.0	6.6	4.7	867	88	152	0.56			223	45	27	3.6	79	94	0.2	557
910488	WEBB02	07/22/91	7:45	19.5	6.7	3.4	638	74	145	0.54			138	27	17	3.3	88	5	0.2	394
910590	WEBB02	08/19/91	7:30	18.5	7.0	2.2	729	84	171	0.63			153	30	19	3.4	93	16	0.1	426
910757	WEBB02	10/21/91	8:00	16.6	7.2	4.5	685	75	124	0.46			156	31	19	3.6	121	24	0.2	413
910583	WOODWARDPP	07/31/91	8:54	22.2		5.5	479	50	86	0.29			111	23	13	1.8	80	27	0.1	273
910621	WOODWARDPP	08/20/91	6:38	18.6	6.7	4.1	472	50	87	0.30			109	22	13	1.9	79	23	0.1	272
910787	WOODWARDPP	10/22/91	6:51	16.9	6.2	10.2	458	49	74	0.23			102	21	12	2.4	80	26	0.2	265
9578	WSTCANCLIFT	07/25/89	9:55	24.8			280	38	5					15	6		59	18		170
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
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					
910017	WSTCANCLIFT	01/02/91	12:55	5.4	7.4	11.8	781	93	159	0.53			136	23	19					
910045	WSTCANCLIFT	01/16/91	12:00	8.0	7.6	10.5	584	64	99	0.33			117	22	15					
910118	WSTCANCLIFT	01/29/91	14:15	8.6	7.5	10.6	694	84	135	0.54						4.9	69	46	0.2	376
910136	WSTCANCLIFT	02/14/91	11:55	13.4	7.6	9.0	763	91	145	0.51			150	27	20					
910182	WSTCANCLIFT	02/25/91	11:55	13.6	7.7	9.1	833	105	172	0.60			156	26	22					

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

MINERAL DATA REPORT (cont.)

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			—>
910212	WSTCANCLIFT	03/12/91	11:55	12.5	8.1	9.0	823	104	171	0.62			148	23	22					
910248	WSTCANCLIFT	03/26/91	13:50	13.2	7.6	8.4	679	73	88	0.25			163	34	19					
910278	WSTCANCLIFT	04/09/91	14:00	16.1	7.7	8.1	325	29	41	0.16			88	17	11					
910340	WSTCANCLIFT	05/22/91	11:55	19.4	7.3	8.4	474	51	69	0.21			109	19	15	3.4	82	31	0.2	267
910421	WSTCANCLIFT	06/13/91	9:30	22.5	8.0		590	68	106	0.38			116	20	16					
910452	WSTCANCLIFT	06/26/91	9:25	20.8	8.0	7.9	611	74	118	0.39			118	19	17					
910482	WSTCANCLIFT	07/10/91	9:10	24.0	7.8	6.5	550	64	97	0.35			107	18	15					
910553	WSTCANCLIFT	07/24/91	9:30	24.0	7.4	7.8	507	58	101	0.35			100	17	14	3.4	71	29	0.1	274
910573	WSTCANCLIFT	08/07/91	9:05	22.9		7.4	514	60	106	0.35			98	16	14	3.3				
910665	WSTCANCLIFT	08/21/91	9:38	23.4	7.4		525	58	87	0.32			107	18	15	3.3	73	29	0.2	288
910697	WSTCANCLIFT	09/12/91	9:30	22.7	7.2	6.8	529	65	103	0.34			92	14	14					
910717	WSTCANCLIFT	09/26/91	8:50	21.8	7.5	8.6	628	77	129	0.44			106	16	16					
910748	WSTCANCLIFT	10/10/91	8:55	21.4	7.5	7.1	485	57	84	0.28			98	16	14	3.2				
910831	WSTCANCLIFT	10/23/91	9:30	19.3	7.8	7.1	448	51	77	0.22			94	16	13	3.	70	26	<0.1	236
910908	WSTCANCLIFT	12/19/91	10:30	7.6	7.7	9.8	858	105	165	0.52			161	28	22	4.6				

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