SUNNYSIDE COGENERATION ASSOCIATES
ACT/007/035
ANNUAL REPORT
1994

Sunnyside Cogeneration

April 1995

Prepared by:
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1121 East 3900 South, Suite C-100
Salt Lake City, UT 84124
(801) 261-0090

Additional information was provided by:
Sunnyside Cogeneration Associates
Environmental Power Corporation
Callister, Nebeker & McCullough
Savage Industries, Inc.
Huntingdon

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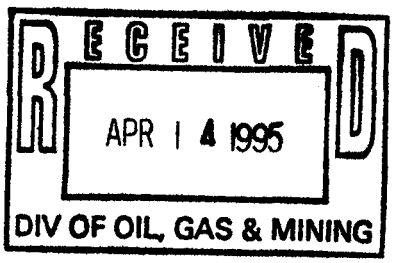
April 14, 1995



Ms. Pamela Grubaugh-Littig
Division of Oil, Gas and Mining
3 Traid Center - Suite 350
Salt Lake City, Utah 84180-1203

RE: Permit No. ACT/007/035: Sunnyside Cogeneration Associates
1994 Annual Report

Dear Pam:

Sunnyside Cogeneration Associates is submitting herewith the 1994 Annual Report. The report is comprehensive of the activities that occurred within the SCA Permit Site during 1994.

Three copies of the report are provided for the Division.

If you have any questions, please feel free the call the plant manager.

Sincerely,

Thomas G. Eckstein
Acting Plant Manager

TGE/lls

Attachments

c.c. Bob Evans, NRG
Jim O'Donnell, NRG
Doug Burnham, B&W
Alane Boyd, EWP
Jim Comas, EWP
Scott Carlson, EWP
Brian Burnett, CNM
Bill Malencik, DOGM
file

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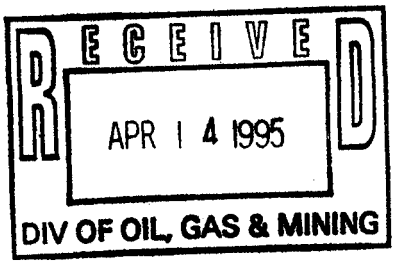

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COAL MINING AND RECLAMATIONS OPERATIONS FOR 1994

State of Utah
Department of Natural Resources
Division of Oil, Gas and Mining
3 Triad Center, Suite 350
355 West North Temple
Salt Lake City, Utah 84180-1203
(801) 538-5340

Permittee: Sunnyside Cogeneration Associates

Mine Name: Sunnyside Cogeneration Associates

Company Representative: Mr. David Pearce

Resident Agent: Mr. Fred Finlinson

Permit Number: ACT/007/035

MSHA ID Number: 1211-UT-09-01818-01

Date of Initial Permanent Program Permit: February 4, 1993

Date of Permit Renewal: February 4, 1998

Quantity of Coal Mined (tonnage) 1994: 390,000 tons

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SUNNYSIDE COGENERATION ASSOCIATES
1994 ANNUAL REPORT

A. GENERAL INFORMATION

Missing Permit Data

The last major component of the permit was submitted to the Division on January 13, 1995. Some additional minor background data which is to be collected during 1995 remains to be submitted. SCA is waiting for a technical analysis of the permit items submitted during 1994 in order to respond to any deficiencies.

A program to characterize the material within and underlying the Refuse Pile is expected to occur during 1995.

Monitoring Changes

Baseline and UPDES water monitoring within the DOGM Permit Area continued throughout 1994. A special study of the Coarse Refuse Seep began in May 1994 and is expected to continue through May 1995.

The UPDES Permit for the Sunnyside Cogeneration Facility was modified in November 1994 by the Division of Water Quality in order to add two additional discharge points (unrelated to the mining operation within the DOGM permit boundary) and to correct information concerning the discharge from outfall 004 (the permit previously indicated that 004 discharged to Grassy Trail Creek but was corrected to say Icelander Creek). The modified UPDES permit was submitted to DOGM to replace the former permit in Chapter 7, Appendix 7-1 of the SCA Permit.

Final Reclamation earthwork and reseeding was completed on the Old Coarse Refuse Road in the late Fall of 1994. Regular vegetation monitoring will begin in 1995 and continue annually as required in the permit.

B. SUMMARY OF WATER MONITORING DATA

Included with this report is a summary of the water monitoring that was accomplished for the Sunnyside Cogeneration Associates (SCA) Permit Site from January to December, 1994. The monitoring was performed by Huntingdon of Salt Lake City, Utah. Huntingdon provided all field data and analyses for the water monitoring, while Eckhoff, Watson, and Preator Engineering (EWP) coordinated with applicable agencies and filed current information on-site. EWP also began a special study of the flows at the Coarse Refuse Seep locations in May, 1994.

A summary of the water monitoring data is included as Lotus (WK1) and Quattro Pro (WQ1) files on the enclosed disk.

Baseline Water Monitoring Locations

Table One lists the baseline water monitoring locations along with their corresponding location ID and sampling elevation. These sites are shown on various plates throughout Chapter 7 of the SCA Permit number ACT/007/035 and are marked in the field. **Appendix A** includes a summary and interpretation of the water monitoring data. The Baseline Water Monitoring Schedule is included in Chapter 7, Appendix 7-8, of the SCA Permit.

Collection of baseline water monitoring data began in June, 1993. This monitoring is scheduled to be conducted for two years (until June 1995) after which the baseline sites will be monitored as operational sites according to a list of parameters to be negotiated between DWQ, DOGM, and SCA.

TABLE ONE: BASELINE WATER MONITORING LOCATIONS

SITE	LOCATION ID	SAMPLING ELEVATION
Coarse Refuse Seep at Source	CRS	6192
Coarse Refuse Seep at Railroad Culvert (EWP Special Study)	CRC	6163
Coarse Refuse Seep at Boundary	CRB	6122
Icelander Columbia Dugway Spring 1350 (Whitmore Spring)	F-2	6032
Icelander Creek	ICE-1	6182
East Carbon City Well (Dragerton Well) (Municipal Use-Groundwater)	Well	6402

Operational Water Monitoring Locations and UPDES Permit Information

The UPDES Permit issued to SCA is included in the SCA Permit as Appendix 7-1. Table Two lists each of the operational (UPDES) monitoring stations and the corresponding outfall number, location, and sampling elevation. **Appendix A** includes a data summary and interpretation for each of these sites. These sites are shown on various plates throughout Chapter 7 of the SCA Permit number ACT/007/035. The Operational (UPDES) Water Monitoring Schedule is included in Chapter 7, Appendix 7-8, of the SCA Permit.

TABLE TWO: OPERATIONAL (UPDES) WATER MONITORING LOCATIONS

SITE	OUTFALL NUMBER	LOCATION	SAMPLING ELEVATION
Clear Water Pond	004	Lat: 39°32'52" Long: 110°23'11"	6520
Rail Cut Pond	007	Lat: 39°32'14" Long: 110°23'48"	6204
Old Coarse Refuse Pond	008	Lat: 39°32'20" Long: 110°23'03"	6491
Pasture Pond	009	Lat: 39°32'28" Long: 110°23'58"	6485
Coarse Refuse Toe Pond	012	Lat: 39°32'28" Long: 110°23'58"	6165
Coal Pile Sediment Pond	014	Lat: 39°32'45" Long: 110°23'26"	6474
Borrow Area Pond	016	Lat: 39°32'25" Long: 110°23'45"	6513

C. PRECIPITATION OR OTHER CLIMATOLOGICAL DATA

SCA has obtained precipitation and climatological data for 1994 from the Sunnyside Weather Station operated by the City of Sunnyside. This data is included as **Appendix B.** The 1994 climatological data is also included as Lotus (WK1) and Quattro Pro (WQ1) files on the enclosed disk. Previous climatological information is included in Appendix 7-2 of the SCA Permit.

The Division of Air Quality Modified Approval Order issued to SCA on February 7, 1994 is included with this report as **Appendix F.**

Appendix G includes a copy of the report of Quarterly Ambient Air Monitoring Results at the SCA Facility for the Fourth Quarter, 1994. This report was prepared by Huntingdon of Salt Lake City, Utah.

D. SUBSIDENCE MONITORING REPORT

No subsidence monitoring is required by the Sunnyside Cogeneration Permit. No material damage or diminution within the Permit Area will be caused by subsidence because no underground coal resources are available within the permit area which would cause subsidence. No past or future underground coal mining operations have or are likely to occur within the SCA Permit Area.

E. REVEGETATION EFFORTS

During 1994, many different areas were reseeded. A list of the Interim and Final seeding schedules used are included as **Exhibit 1**. Photographs of the areas that have been reseeded were taken in the Spring of 1995 and are included as **Exhibit 2**. **Drawings A-1, A-2,** and **A-3** show the locations of areas reseeded during 1994 and identify the seed mix used. Quantitative monitoring of the reseeded areas was not required during 1994.

Final reclamation earthwork and reseeding was performed on the Old Coarse Refuse Road (OCRR) during 1994. Reseeding was done within the Fall seeding window. Photographs in Exhibit 2 seem to show many areas where vegetation is beginning to grow. SCA is in the process of requesting partial bond release for the work completed. SCA will be performing revegetation monitoring of the OCRR as required for final reclamation.

The third and fourth lifts of the Coarse Refuse Pile were covered with two feet of borrow material in 1993. Interim seeding was completed in March 1994. Photographs of the lifts are shown in

Exhibit 2. A significant amount of vegetation existed in 1994 and the area is already beginning to green up again for 1995.

During an intense fall storm, some ditches down the face of the Refuse Pile were washed out. SCA replaced these ditches with 36" culverts. Interim seeding was completed in December 1994.

Two erosion areas on the east bank of the East Slurry Cell were repaired and reseeded during 1994. Photographs shown in Exhibit 2 seem to show that some vegetation is beginning to grow.

Following completion of the reclamation work on the OCRR, the slopes of the borrow area were roughened and reseeded. Interim seeding was completed in December 1994. Photographs shown in Exhibit 2 do not yet show significant quantities of vegetation, but additional growth is expected to occur throughout the upcoming year.

The Access Road Topsoil Stockpile was created and seeded prior to 1994. Additional seeding was done in March 1994 to improve the vegetation cover. Photographs shown in Exhibit 2 seem to show that the vegetation is improving.

Storage Area #1 was created during 1994. The topsoil was stockpiled towards the east end of the storage area. This stockpile received interim seeding in March 1994 and seems to have a significant amount of vegetation.

SCA may need to periodically examine the areas treated with the interim seed mix to verify that vegetation is growing adequate to meet the erosion control needs. Areas which receive final reclamation treatment will be monitored as specified in the permit.

F. IMPOUNDMENT CERTIFICATION

Each impoundment was inspected as summarized in Table 5 - 1 in the SCA Permit. The quarterly inspection/certification reports are included in **Appendix C**.

No evidence of instability, structural weakness, or hazardous conditions was found during the inspections. All of the impoundments met or exceeded the storage capacity requirements identified in the permit.

G. ANNUAL OVERBURDEN, SPOIL, AND REFUSE DATA

Refuse

During 1994, SCA mined a combined total of 390,000 tons of coarse refuse and fines in the cogeneration facility. A summary of the monthly mined quantities is identified in **Appendix D, Table D-1**. According to information provided by Savage Industries (the excavation contractor), the areas where excavation occurred are generally within the zone shown in the five year plan identified in the Mine Sequencing Maps of the SCA Permit (Plates 9 - 4 through 9 - 7). Plate 9 - 4 from the SCA Permit has been included with this report to show the mine sequencing plan. The only area outside of the zone expected to have been reached during 1994 was at the west end of the West Slurry Cell. In this area the excavation reached one lift lower than the original plan in order to obtain the quality of refuse needed by the plant.

During 1994, approximately 6,850 tons of run of mine coal was purchased from outside sources and used in the Cogeneration Facility. Due to cessation of operations at the Sunnyside Coal Mine, very little coarse refuse and slurry were delivered to the SCA Permit Area.

Prior to being utilized in the cogeneration facility, the coarse refuse was tested for specific parameters to determine the quality of the material. A summary of the test results is included as **Appendix D, Table D-2** .

Spoil

A thorough foundation investigation of the Excess Spoil Disposal Area was conducted during 1994. The report prepared by SHB-AGRA has been included into the SCA Permit as Appendix 9-2. Additional design information based on the foundation investigation was added to the SCA Permit as Appendix 9-5. The site selected as the Excess Spoil Disposal Area appears to be adequate to meet the requirements of the regulations. Inspections of the area are being conducted as required.

The total amount of spoils placed into the Excess Spoil Disposal Area during 1994 was approximately 12,000 yards of soil material from the dike of the West Slurry Cell which was removed in June, 1994. The soil material appeared to be of good quality without concerns of acid or toxic potentials. A sample was taken but the analytical results were not available at the time this report was prepared. A copy of the results will be sent to the Division when available.

H. ANNUAL REPORTS OF OFFICERS SUBMITTED TO THE DEPARTMENT OF COMMERCE

The annual reports of officers which were submitted to the Utah Department of Commerce, Division of Corporations and Commercial Code for the corporations Kaiser Power of Sunnyside, Inc. and Kaiser Systems, Inc. are included as **Appendix E**.

EXHIBIT 1
SEED MIXTURES USED IN REVEGETATION

SEEDING SCHEDULE
ATRIPLEX/GRASS AREAS

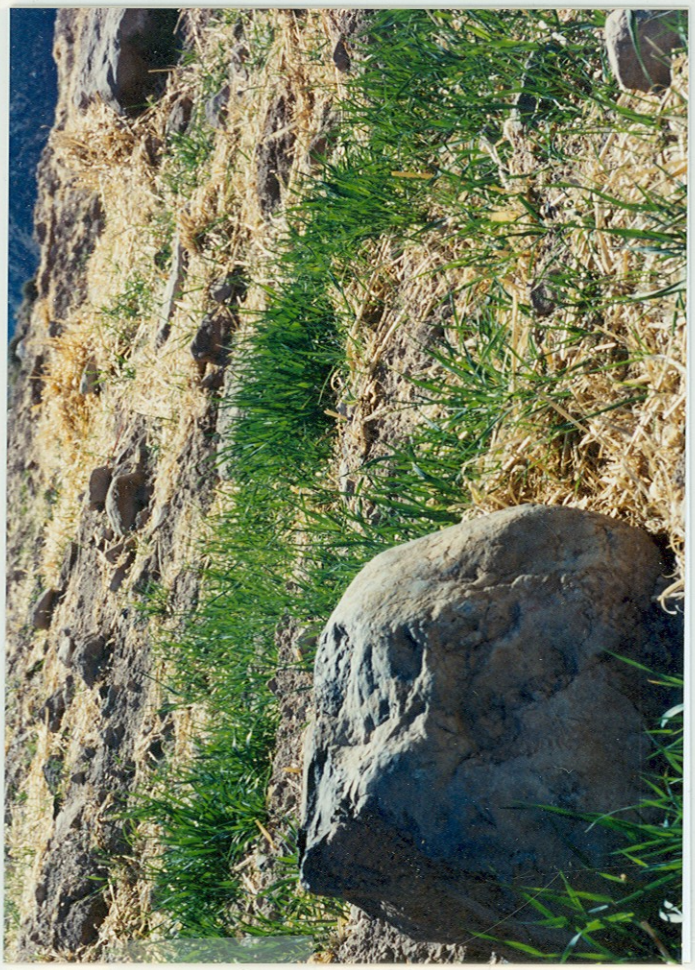
SPECIES	DRILL RATE SEEDS/FT²	DRILL RATE #PLS/ACRE	BROADCAST RATE SEEDS/FT²	BROADCAST RATE #PLS/ACRE
GRASSES				
Elymus lanceolatus				
Thickspike Wheatgrass	2.9	1.0	5.8	2.0
Elymus smithii				
Western Wheatgrass	5.8	2.0	11.6	4.0
Sitanion hystrix				
Squirreltail	13.2	3.0	26.4	6.0
Stipa Comata				
Needle-and-Threadgrass	3.4	1.0	6.8	2.0
Stipa hymenoides				
Indian Ricegrass	8.6	2.0	17.2	4.0
Elymus trachycaulus				
Slender Wheatgrass	1.3	0.5	2.6	1.0
FORBS				
Linum lewsii				
Lewis Flax	13.1	2.0	26.2	4.0
Melilotus officianalis				
Yellow Sweetclover	11.9	2.0	23.8	4.0
Sphaeralcea grossulariifolia				
Gooseberry Globemallow	11.5	1.0	23.0	2.0
SHRUBS				
Atriplex canescens				
Fourwing Saltbrush	4.4	3.0	8.8	6.0
Atriplex confertifolia				
Shadscale	4.5	3.0	9.0	6.0
Ceratoides lanata				
Winterfat	5.1	2.0	10.2	4.0
Atriplex/gardneri				
Gardner Saltbrush	3.0	1.0	6.0	2.0
	88.7	23.5	177.4	47.0

INTERIM SEED SCHEDULE		
SPECIES	**SEEDS/POUND**	**BROADCAST RATE #PLS/Acre**
Agropyron trichophorum pubescent wheatgrass	90,000	3.6
Agropyron trachycalum slender wheatgrass	135,000	4.8
Agropyron dasystachum thickspike wheatgrass	186,000	1.8
Elymus cinereus great basin wildrye	130,000	3.77
Saniguisorba minor small burnett	55,000	3.0
Achillea lanulosa western yarrow	4,123,635	0.1
Medicago Sativa alfalfa	16,000	2.0
TOTAL #PLS		**19.07**

EXHIBIT 2
PHOTOGRAPHS OF THE REVEGETATION AREAS

East Slurry Cell Bank

Borrow Area



Final Reclamation of the Old Coarse Refuse Road

Third and Fourth Lifts of the Refuse Pile

Final Reclamation of the

Old Coarse Refuse Road

Final Reclamation of the

Old Coarse Refuse Road

Access Road Topsoil Stockpile

Storage Area #1 Topsoil Stockpile

APPENDIX A

APPENDIX A **1994 OPERATIONAL (UPDES) AND BASELINE WATER MONITORING DATA SUMMARY**

INTRODUCTION

This report consists of a summary and interpretation of the water quality monitoring data collected during 1994 as part of the Sunnyside Cogeneration Facility DOGM Permit Water Quality Monitoring Plan. The DOGM monitoring plan includes quarterly collection of water quality samples and monthly collection of field parameter data at five Baseline monitoring locations, and inspection and sample collection of the Sunnyside Cogeneration Facility (SCF) UPDES permit outfall locations. The monitoring locations are listed in Table A - 1. Huntingdon was responsible for collecting the required water quality samples and field parameter data during the monitoring period of January through December, 1994.

The monthly field-parameter data collected by Huntingdon during the monitoring period is presented in Table A-2. Huntingdon collected quarterly water quality samples on January 18, April 21, June 24, August 28, and December 20, 1994. The water quality samples were then sent to the Utah certified Huntingdon laboratory in Billings, Montana. The analytical laboratory results of the water samples taken by Huntingdon are summarized in Table A-4. A copy of the analytical data and the chain of custody documentation is included as Attachment A.

Field data sheets documenting the UPDES Permit outfall locations and the DOGM Baseline Water Quality monitoring locations are included as Attachment B.

In addition to the DOGM Baseline and the UPDES monitoring, Eckhoff, Watson and Preator Engineering (EWP) began a special study of the flows from the Coarse Refuse Seep. Events of the study were coordinated with the Division of Water Quality (DWQ) and DOGM. Three weirs were installed in April at the Source (CRS), Railroad Culvert (CRC), and the Permit Boundary (CRB). The values of flow before this time period were visually estimated by Huntingdon. EWP measured field parameters weekly and took water samples monthly.

The field parameter data collected by EWP is located in Table A-3. Laboratory testing on the samples collected by EWP was performed by Mountain States Analytical. The laboratory results are summarized in Table A-5. A copy of the analytical data and the chain of custody documentation is included as Attachment C. A copy of the field data sheets is included in Attachment D.

For decades the Sunnyside Coal Mine (SCC) has used the area now located within the SCA Permit Boundary as a refuse disposal site. Coarse refuse and slurry has been transported to and placed in and around the West and East Slurry Cells and Slurry Ponds #1 and #2. In January 1994, SCC significantly scaled back production and within a few months ceased operations. The slurry water had long been suspected as being a major contributor to the source of the Coarse Refuse Seep. Although the weirs were not installed to measure flows at the seep until April, there has been a significant reduction of flow measured at the three weirs. Continuing observations into the 1995 runoff season will help to determine if another source of water is contributing to the seep flows.

INTERPRETATION OF DATA

At the time of report preparation, the data collected from 1993, 1994, and the beginning of 1995 was on hand. The trends of the water quality for all locations in 1994 tend to be similar to the water quality of 1993 as well as 1995. This report compares the available parameters of water quality at each of the locations over time. The following evaluations of the Baseline sites were made during this report:

- Different water chemistry types of each location;
- Changes in water chemistry over time for each location;
- A comparison of specific conductivity, dissolved oxygen, total dissolved solids and temperature over time for each location.

Additional evaluations are included using data from the special study of the Coarse Refuse Seep conducted by EWP.

To facilitate the evaluation of different water chemistry types present and the changes in water chemistry at each location over time, the major ion data for the quarterly sampling by Huntingdon and the monthly data sampling by EWP were plotted on Stiff diagrams. The Stiff plots are included as figures A-1 through A-12.

A review of the Stiff plots indicates two distinct groupings of water chemistry noted by the following trends:

- The Icelander Creek, F-2 Spring (Whitmore Spring), and the Dragerton Well seem to have similar water chemistry. They have a balanced chemistry of Sodium and Sulfate and moderate amounts of Magnesium;
- The samples taken from the Coarse Refuse Seep contain water rich in sulfate, magnesium, and calcium.

The field parameter data as well as the laboratory results contain significant trends in the different types of water parameters. Figures A - 13 through A - 16 are graphs which compare the temperature, specific conductivity, dissolved oxygen and total dissolved solids of each of the flows over the period of January to December, 1994. The following observations can be made from the graphs:

- The temperature measured at the CRS is consistently higher than at the other Baseline sites.
- The Specific Conductivity of the CRS and CRB is much higher than the other Baseline sites;

- The dissolved oxygen (DO) of the CRS is significantly lower than at the other Baseline sites;

- The Total Dissolved Solids (TDS) of CRS and CRB samples was much higher than the other Baseline sites.

The elevated temperature of the CRS may be attributed to oxidation processes occurring within the refuse pile. The low values of DO at the CRS may be related to low turbulence in the ground water and / or oxidation processes in the coarse refuse material. The elevated values of TDS for the Coarse Refuse Seep flows may be the result of water percolating through the Mancos Shale and/or leaching of the refuse material which consists primarily of waste coal in direct contact with the Mancos Shale. The high readings of specific conductivity for the Coarse Refuse Seep samples reflect the large amount of dissolved solids and namely the ions present in the discharge.

The frequent monitoring of the Coarse Refuse Seep performed by EWP provided a good look at trends and fluctuations. Figures A-17 through A-25 are included to show some of these. The flows at the seep were not accurately measured prior to cessation of the operations of the Sunnyside Coal Mine (SCC). The estimates made by Huntingdon during times when SCC was sending slurry into the East Slurry Cell were commonly higher than 100 gpm. In May, after the three weirs were installed, flows were measured at the CRS at less than 13 gpm. By December, flows at the CRS had decreased to less than 3 gpm. Flow measurements at the CRC and CRB have larger fluctuations than at the CRS, and do not necessarily demonstrate decreasing trends as strongly. Continuing observations into the 1995 runoff season are expected to show whether or not an increase will occur.

The pH measured at the CRS, CRC, and CRB has shown a significant increase. This may be a result of a lesser portion of the water flowing through the refuse. None of the measurements performed by EWP indicated a pH at the CRS of less than 6.5.

Total Iron concentrations exist mostly in particle form and clearly decrease to negligible amounts by the time they reach the permit boundary. Fluctuations occurred at the CRS and a definite trend is not yet clear in Figure A-20. The total Boron concentration is largely made up of dissolved boron and did not have a major decrease in concentration between the CRS and CRB even though there was a large increase in flow. A significant portion of the total Manganese concentration is in the dissolved form but there is a clearly decrease in the concentration at the CRB when compared to the CRS.

As should be expected, as the flows at the CRS decreased throughout the year, the mass contribution of iron, boron, and manganese has also decreased. Figures A-23, A-24, and A-25 show these trends.

EWP will be continuing the study of the Coarse Refuse Seep through May 1995 on the same intensive frequency as was conducted during 1994. Additional analysis of the Coarse Refuse Seep Monitoring data is expected to be performed and compared with the Baseline data. This

additional analysis of the Baseline and the Coarse Refuse Seep Monitoring data will be used to help determine the extent of future monitoring activities.

ANALYTICAL VARIANCES

Two analytical differences between the work by Huntingdon and by EWP should be noted:

- The laboratory work performed on the samples taken by Huntingdon did not include analysis of potassium
- The laboratory work performed on the samples taken by EWP did not include analysis of Chloride ion

The lack of a value for potassium in the Huntingdon samples appears to be negligible when comparing the stiff diagrams of the Huntingdon samples to the stiff diagrams of the EWP samples. The amount of potassium detected in the EWP samples at the Coarse Refuse Seep did not significantly alter the shape of the stiff diagrams.

The Chloride ion was not part of the study performed by EWP because it was already being monitored by Huntingdon. The stiff diagrams for the EWP samples were drawn with Cl^- at zero. The Cl^- measured by Huntingdon was typically between five and ten meq/l. A modification to the EWP stiff diagrams to infer that Cl^- had similar quantities as in the Huntingdon samples could be justified.

Also, the laboratory detection of sulfate in the samples taken by EWP at the Coarse Refuse Seep during the month of November appears to be erroneous when compared to the values for the rest of the year. The sulfate parameter plotted on the stiff diagrams for the EWP samples during the month of November seem to be inconsistent with the other months. There may have been an error in the samples or the analysis for that month.

TABLES

Table A - 1

Compliance Monitoring Locations

Sunnyside Cogeneration Associates Facility
Sunnyside, Utah

DOGM Permit Boundary Water Quality Monitoring Plan

DOGM UPDES Permit Monitoring Locations

Outfall 004, Coal Runoff Basin
Outfall 007, Rail Cut Pond
Outfall 008, Old Coarse Refuse Road Pond
Outfall 009, Pasture Sediment Pond
Outfall 012, Coarse Refuse Toe Pond
Outfall 014, Coal Pile Sediment Pond
Outfall 016, Borrow Area Pond

DOGM Baseline Water Quality Monitoring Locations

ICE - 1 , Icelander Creek
F - 2, Whitmore Springs
CRS, Coarse Refuse Seep Source
CRB, Coarse Refuse Seep Boundary
WELL - 1, Draegerton Well

Table A - 2
Sunnyside Cogeneration Facility
Field Parameter Data performed by Huntingdon
Monitoring Period: January 1994, to June 1994

QUARTER 1		Jan/13/94					Feb/28/94					Mar/28/94				
		Field Parameters					Field Parameters					Field Parameters				
Monitoring Location	Location I.D.	Temp. (C)	pH (s.u.)	SC (umhos)	Dissolved Oxygen (ug/l)	Flow Rate (gpm)	Temp. (C)	pH (s.u.)	SC (umhos)	Dissolved Oxygen (ug/l)	Flow Rate (gpm)	Temp. (C)	pH (s.u.)	SC (umhos)	Dissolved Oxygen (ug/l)	Flow Rate (gpm)
Icelander Creek	ICE - 1	5.1	8.29	2220	6.4	200[a]	8.9	8.16	1450	7.3	150[a]	12.9	7.90	2830	6.0	90[a]
Columbia Dugway Spring	F - 2	5.6	8.51	1820	6.2	90[a]	7.7	7.62	2180	6.9	35[a]	13.6	8.01	1500	6.4	26[a]
Coarse Refuse Seep Source	CRS	21.2	7.08	4750	2.4	100*	36.5	6.74	4470	0.9	100*	23.7	6.51	5400	1.4	100*
Coarse Refuse Seep Boundary	CRB	5.0	8.17	3100	6.0	200*	15.6	7.90	4370	6.8	120*	14.6	7.61	3500	6.5	120*
Draegerton Well	Well - 1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA
Coal Runoff Pond	Outfall 004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Rail Cut Pond	Outfall 007	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Old Coarse Refuse Road Pond	Outfall 008	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pasture Sediment Pond	Outfall 009	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Coarse Refuse Toe Pond	Outfall 012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Coal Pile Sediment Pond	Outfall 014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Borrow Area Pond	Outfall 016	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

QUARTER 2		Apr/19/94					May/31/94					Jun/23/94				
		Field Parameters					Field Parameters					Field Parameters				
Monitoring Location	Location I.D.	Temp. (C)	pH (s.u.)	SC (umhos)	Dissolved Oxygen (ug/l)	Flow Rate (gpm)	Temp. (C)	pH (s.u.)	SC (umhos)	Dissolved Oxygen (ug/l)	Flow Rate (gpm)	Temp. (C)	pH (s.u.)	SC (umhos)	Dissolved Oxygen (ug/l)	Flow Rate (gpm)
Icelander Creek	ICE - 1	17.2	8.23	2860	6.4	100[a]	13.1	8.28	2257	9.9	300[a]	21.9	8.74	2120	6.5	127°
Columbia Dugway Spring	F - 2	15.5	8.4	1800	8.6	36[a]	12.5	8.16	1650	9.9	35[a]	18.7	8.49	2130	7.0	60[a]
Coarse Refuse Seep Source	CRS	26.9	6.83	4550	3.2	10[a]	23.6	6.64	4650	1.9	8.5[a]	37.2	6.88	5140	1.5	8.51^
Coarse Refuse Seep Boundary	CRB	19.3	7.96	4890	7.4	38[a]	14.1	7.73	4599	9.0	20[a]	20.9	7.99	4950	7.2	40^
Draegerton Well	Well - 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17.2	7.63	1710	7.2	50[a]
Coal Runoff Pond	Outfall 004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND
Rail Cut Pond	Outfall 007	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND
Old Coarse Refuse Road Pond	Outfall 008	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND
Pasture Sediment Pond	Outfall 009	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND
Coarse Refuse Toe Pond	Outfall 012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND
Coal Pile Sediment Pond	Outfall 014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND
Borrow Area Pond	Outfall 016	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND

Note:

NA indicates that data is not available due to lack of discharge.

NS indicates that data is not available due to lack of sampling port.

Flow rates were measured as follows:

* The flow rates were estimated due to a lack of an appropriate measuring location.

^ The flow rates were measured using a weir.

[a] The flow rates were measured using a calibrated container and a stopwatch.

° The flow rates were measured using the floating debris method.

Table A - 2 (continued)
Sunnyside Cogeneration Facility
Field Parameter Data performed by Huntingdon
Monitoring Period: July 1994, to December 1994

QUARTER 3		Jul/21/1994					Aug/22/1994					Sep/27/1994				
		Field Parameters					Field Parameters					Field Parameters				
Monitoring Location	Location I.D.	Temp. (C)	pH (s.u.)	SC (umhos)	Dissolved Oxygen (ug/l)	Flow Rate (gpm)	Temp. (C)	pH (s.u.)	SC (umhos)	Dissolved Oxygen (ug/l)	Flow Rate (gpm)	Temp. (C)	pH (s.u.)	SC (umhos)	Dissolved Oxygen (ug/l)	Flow Rate (gpm)
Icelander Creek	ICE - 1	21.2	8.34	2150	7.1	127°	25.7	8.71	2170	6.3	5°	18.2	8.50	2341	15.4	4
Columbia Dugway Spring	F - 2	18.9	7.98	3401	7.9	43[a]	22.4	7.85	3120	8.5	23[a]	19.5	8.26	2218	14.9	7
Coarse Refuse Seep Source	CRS	25.9	6.96	5480	1.3	8.5^	27.5	7.01	5130	1.2	7.1^	26.2	6.58	5450	1.2	8.5
Coarse Refuse Seep Boundary	CRB	20.4	7.82	5200	6.8	40^	24.2	7.50	5130	7.3	36^	21.8	7.86	5180	7.8	40
Draegerton Well	Well - 1	15.0	8.37	1790	8.8	50[a]	18.3	7.97	2270	7.9	NA	14.7	7.65	1511	9.4	NA
Coal Runoff Pond	Outfall 004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Rail Cut Pond	Outfall 007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Old Coarse Refuse Road Pond	Outfall 008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pasture Sediment Pond	Outfall 009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Coarse Refuse Toe Pond	Outfall 012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Coal Pile Sediment Pond	Outfall 014	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Borrow Area Pond	Outfall 016	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

QUARTER 4		Oct/19/94					Nov/21/94					Dec/19/94				
		Field Parameters					Field Parameters					Field Parameters				
Monitoring Location	Location I.D.	Temp. (C)	pH (s.u.)	SC (umhos)	Dissolved Oxygen (ug/l)	Flow Rate (gpm)	Temp. (C)	pH (s.u.)	SC (umhos)	Dissolved Oxygen (ug/l)	Flow Rate (gpm)	Temp. (C)	pH (s.u.)	SC (umhos)	Dissolved Oxygen (ug/l)	Flow Rate (gpm)
Icelander Creek	ICE - 1	9.9	8.59	2491	8.8	120	1.1	8.84	2165	15.5	20	3.0	8.08	2392.5	15.4	6.0
Columbia Dugway Spring	F - 2	10.5	8.35	2340	8.6	30	3.4	8.63	2200	13.9	24	3.5	8.20	2310.0	15.6	26.0
Coarse Refuse Seep Source	CRS	21.1	6.86	5565	2.3	8.5	18.9	7.11	5088	5.3	4.7	20.4	6.77	4986.7	3.5	4.7
Coarse Refuse Seep Boundary	CRB	13.0	8.06	5320	7.8	48	6.1	8.44	5093	13.9	40	6.6	7.92	5214.0	14.9	40.0
Draegerton Well	Well - 1	12.2	8.41	644	7.8	NA	7.1	8.10	1215	10.9	NA	8.3	7.26	1428.3	8.6	NA
Coal Runoff Pond	Outfall 004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Rail Cut Pond	Outfall 007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Old Coarse Refuse Road Pond	Outfall 008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pasture Sediment Pond	Outfall 009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Coarse Refuse Toe Pond	Outfall 012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Coal Pile Sediment Pond	Outfall 014	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Borrow Area Pond	Outfall 016	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Note:
NA indicates that data is not available due to lack of discharge.
NS indicates that data is not available due to lack of sampling port.
Flow rates were measured as follows:

* The flow rates were estimated due to a lack of an appropriate measuring location.
^ The flow rates were measured using a weir.
[a] The flow rates were measured using a calibrated container and a stopwatch.
° The flow rates were measured using the floating debris method.

Table A - 3

SUNNYSIDE COGENERATION ASSOCIATES
COARSE REFUSE SEEP MONITORING performed by EWP

PARAMETER	19-May-94			27-May-94			8-Jun-94			16-Jun-94		
	CRS	CRC	CRB	CRS	CRC	CRB	CRS	CRC	CRB	CRS	CRC	CRB
Flow gpm	8.5	29	48	12	36	52	8.5	40	48	7.1	29	40
Temperature C	25.50	15.92	15.55	25.80	17.79	16.77	24.40	16.97	15.50	26.97	19.06	19.62
pH	6.8	7.6	8.1	6.6	7.2	7.8	6.6	7.3	7.8	6.6	7.3	7.8
Spec. Cond mS	5.50	5.62	5.18	5.60	5.60	5.07	5.50	5.60	5.30	5.48	5.62	5.28
Disolved Oxygen mg/l	4.20	6.15	7.64	3.60	6.04	6.87	4.00	7.00	8.00	3.80	6.33	7.61

PARAMETER	23-Jun-94			30-Jun-94			8-Jul-94			14-Jul-94		
	CRS	CRC	CRB	CRS	CRC	CRB	CRS	CRC	CRB	CRS	CRC	CRB
Flow gpm	7.1	29	36	7.1	32	40	7.1	32	40	7.1	32	32
Temperature C	27.9	20.37	22.75	24.32	18.10	15.90	25.61	18.80	17.60	26.01	20.30	19.75
pH	6.6	7.3	7.8	6.7	7.3	7.9	6.8	7.4	8.06	6.6	7.4	7.98
Spec. Cond mS	5.5	5.60	5.29	5.50	5.66	5.40	5.50	5.67	5.40	5.50	5.68	5.40
Disolved Oxygen mg/l	2.6	5.50	6.40	1.10	5.60	7.30	1.20	5.70	7.40	1.90	5.70	7.02

PARAMETER	21-Jul-94			29-Jul-94			4-Aug-94			11-Aug-94		
	CRS	CRC	CRB	CRS	CRC	CRB	CRS	CRC	CRB	CRS	CRC	CRB
Flow gpm	7.1	29	26	7.1	32	48	8.5	32	36	7.1	32	48
Temperature C	26.6	21.2	22.6	25.3	19.8	17.5	25.5	20.6	18.3	25.2	19.7	18.5
pH	6.8	7.5	7.9	6.9	7.5	8.1	6.9	7.5	8.2	6.9	7.6	8.2
Spec. Cond mS	5.5	5.7	5.4	5.6	5.7	5.5	5.5	5.8	5.5	5.5	5.7	5.6
Disolved Oxygen mg/l	1.5	5.0	6.1	1.0	5.3	7.3	1.1	5.2	6.6	1.4	5.1	6.8

PARAMETER	19-Aug-94			26-Aug-94			31-Aug-94			9-Sep-94		
	CRS	CRC	CRB	CRS	CRC	CRB	CRS	CRC	CRB	CRS	CRC	CRB
Flow gpm	7.1	32	36	7.1	32	29	5.8	32	26	5.8		48
Temperature C	24.6	19.4	17.2	23.9	19.5	16.1	25.6	20.7	20.3	24.9	20.1	17.6
pH	6.9	7.6	8.2	6.9	7.6	8.2	6.9	7.6	8.2	7.0	7.5	8.3
Spec. Cond mS	5.5	5.7	5.6	5.5	5.7	5.6	5.5	5.8	5.6	5.5	5.2	5.5
Disolved Oxygen mg/l	2.0	5.8	6.9	1.5	5.3	6.9	1.2	5.2	7.4	1.5	4.9	7.2

PARAMETER	16-Sep-94			20-Sep-94			29-Sep-94			6-Oct-94		
	CRS	CRC	CRB	CRS	CRC	CRB	CRS	CRC	CRB	CRS	CRC	CRB
Flow gpm	5.8		40	8.5		40	7.1	32	40	8.5	32	40
Temperature C	23.3	18.0	14.2	23.9	19.8	16.0	24.3	18.7	15.0	22.8	16.7	12.7
pH	7.2	7.8	8.4	7.1	8.0	8.3	7.2	7.8	8.4	7.2	7.9	8.5
Spec. Cond mS	5.5	5.6	5.50	5.5	5.5	5.5	5.5	5.7	5.5	5.5	5.7	5.5
Disolved Oxygen mg/l	1.6	6.0	7.80	1.6	6.1	7.6	1.4	5.3	7.5	1.4	5.5	8.5

PARAMETER	13-Oct-94			21-Oct-94			28-Oct-94			4-Nov-94		
	CRS	CRC	CRB	CRS	CRC	CRB	CRS	CRC	CRB	CRS	CRC	CRB
Flow gpm	7.1	32	36	7.1	32.0	40	4.7	29.0	40	4.7	29.0	40
Temperature C	22.7	17.8	13.0	23.1	14.9	12.6	22.1	15.2	9.9	22.3	14.7	9.1
pH	7.3	7.9	8.5	7.3	8.3	8.6	7.4	7.9	8.6	7.3	7.9	8.5
Spec. Cond mS	5.5	5.7	5.50	5.5	5.7	5.4	5.0	5.7	5.5	5.4	5.7	5.4
Disolved Oxygen mg/l	1.6	5.4	7.70	1.5	7.0	8.3	1.6	5.8	8.4	1.5	5.9	8.1

PARAMETER	9-Nov-94			17-Nov-94			22-Nov-94			9-Dec-94		
	CRS	CRC	CRB	CRS	CRC	CRB	CRS	CRC	CRB	CRS	CRC	CRB
Flow gpm	4.7	29	40	4.7	26	32	4.7	23	29	2.1	21	32
Temperature C	22.4	14.4	9.0	22.4	14.0	9.1	18.1	11.0	7.0	17.9	11.3	5.4
pH	7.4	7.9	8.7	7.4	7.9	8.6	7.5	8.0	8.8	7.7	8.1	8.8
Spec. Cond mS	5.5	5.7	5.5	5.4	5.6	5.6	5.5	5.1	5.2	5.5	5.6	5.4
Disolved Oxygen mg/l	1.6	5.8	8.6	1.8	5.9	8.1	2.3	6.5	7.3	2.7	5.4	7.7

Table A - 3 (continued)

SUNNYSIDE COGENERATION ASSOCIATES
COARSE REFUSE SEEP MONITORING performed by EWP

PARAMETER	15-Dec-94			22-Dec-94			6-Jan-95			12-Jan-95		
	CRS	CRC	CRB	CRS	CRC	CRB	CRS	CRC	CRB	CRS	CRC	CRB
Flow gpm	2.8	26	40	2.8	21	40	2.1	21	40	2.1	21	40
Temperature C	17.3	12.2	5.9	18.1	13.4	7.0	17.3	11.2	3.7	17.5	11.1	5.2
pH	7.7	8.1	8.9	7.6	8.0	8.9	7.8	8.0	9.1	7.8	8.1	8.9
Spec. Cond mS	3.0	5.5	5.4	5.5	4.5	5.3	5.4	5.6	5.3	5.5	5.4	5.4
Disolved Oxygen mg/l	2.8	4.9	7.5	2.8	5.6	7.6	2.7	5.6	9.0	2.6	5.0	8.0

PARAMETER	21-Jan-95			27-Jan-95			1-Feb-95			9-Feb-95		
	CRS	CRC	CRB	CRS	CRC	CRB	CRS	CRC	CRB	CRS	CRC	CRB
Flow gpm	2.1	21	40	2.1	26	40	2.1	32	40	2.1	36	43
Temperature C	17.6	11.3	6.0	17.3	11.2	5.8	18.1	11.7	5.2	17.1	11.8	5.7
pH	7.8	8.2	9.1	7.8	8.1	9	7.8	8.3	9.1	7.5	8.1	8.9
Spec. Cond mS	5.4	5.5	5.3	5.5	5.5	5.4	2.6	4.8	5.2	4.9	5.1	5.4
Disolved Oxygen mg/l	2.0	4.5	8.3	2.4	4.4	8.0	2.0	4.4	7.1	2.7	4.5	7.2

PARAMETER	23-Feb-95			28-Feb-95			1-Mar-95			9-Mar-95		
	CRS	CRC	CRB	CRS	CRC	CRB	CRS	CRC	CRB	CRS	CRC	CRB
Flow gpm	2.1	36	40	2.1	32	40	2.1	32	40	2.8	32	40
Temperature C	18.0	11.2	5.8	19.8	11.9	5.4	19.8	11.3	5.9	18.5	11.8	6.0
pH	7.9	8.0	9.0	8.1	8.3	8.8	8.1	8.0	8.7	7.8	8.1	8.8
Spec. Cond mS	5.1	5.5	5.4	5.6	5.2	5.1	5.4	5.6	5.3	5.0	5.5	5.2
Disolved Oxygen mg/l	2.5	4.8	8.0	2.1	5.1	7.8	2.6	4.9	8.1	2.7	5.6	7.8

Table A - 4
Sunnyside Cogeneration Associates Facility
Quarterly Compliance Sampling Results June 1993 to December 1994
(Monitoring performed by Huntingdon)

SAMPLE LOCATION		Analytical Parameters															
		Metals (mg/l)													Inorganics (mg/l)		
		Aluminum Dissolved	Arsenic Dissolved	Boron Dissolved	Cadmium Dissolved	Copper Dissolved	Iron Dissolved	Iron Total	Lead Dissolved	Mangenese Dissolved	Mangenese Total	Molybdenum Dissolved	Selenium Dissolved	Zinc Dissolved	Electrical Conductivity	Oil & Grease	Sulfide as S
ICE - 1	06/93	0.2	<0.002	0.3	<0.003	<0.02	<0.05	0.08	<0.01	<0.02	<0.02	<0.05	<0.002	<0.02	na	<1	<1
	10/93	0.1	<0.002	0.3	<0.001	<0.02	<0.05	<0.05	<0.002	<0.02	<0.02	<0.05	<0.002	<0.02	2410	<1	<1
	1/94	<0.5	<0.002	<0.5	<0.001	<0.10	<0.25	0.3	<0.002	<0.1	<0.1	<0.25	<0.002	<0.1	2260	2	na
	4/94	<1.0	<0.002	<1.0	<0.001	<0.2	<0.5	0.35	<0.002	<0.2	0.1	<0.5	<0.002	<0.2	2800	<1	na
	7/94	<0.1	<0.002	0.2	<0.001	<0.02	<0.05	0.07	<0.002	<0.02	<0.02	<0.05	<0.002	<0.02	2220	<1	na
	9/94	0.3	<0.002	0.2	<0.001	<0.02	<0.05	0.16	<0.002	<0.02	<0.02	<0.05	<0.002	<0.02	2350	<1	na
	12/94	0.2	<0.002	0.2	<0.001	<0.02	<0.05	0.26	<0.002	<0.04	<0.02	<0.05	0.003	<0.02	2500	<1	na
F - 2	06/93	0.2	<0.002	0.3	<0.003	<0.02	<0.05	0.26	<0.01	<0.02	0.04	<0.05	<0.002	<0.02	na	<1	<1
	10/93	0.2	<0.002	0.3	<0.001	<0.02	<0.05	0.41	<0.002	0.04	0.06	<0.05	<0.002	1.02	2240	3	<1
	1/94	<0.5	<0.002	<0.5	<0.001	<0.10	<0.25	0.3	<0.002	<0.1	0.1	<0.25	<0.002	<0.1	1830	<1	na
	4/94	<1.0	<0.002	<1.0	<0.001	<0.2	<0.5	0.3	<0.002	<0.2	0.1	<0.5	<0.002	<0.2	2280	<1	na
	7/94	<0.1	<0.002	0.2	<0.001	<0.02	<0.05	0.54	<0.002	<0.02	<0.02	<0.05	<0.002	<0.02	2280	<1	na
	9/94	0.2	<0.002	0.2	<0.001	<0.02	<0.05	0.54	<0.002	<0.02	0.04	<0.05	<0.002	<0.02	2260	<1	na
	12/94	<0.1	<0.002	0.1	<0.001	<0.02	0.08	0.1	<0.002	<0.02	<0.02	<0.05	<0.002	<0.02	1300	<1	na
CRS	06/93	0.6	<0.002	1.0	<0.003	<0.02	<0.12	8.9	<0.01	1.75	1.5	<0.1	<0.002	0.08	na	<1	<1
(HUNT)	10/93	0.5	<0.002	1.1	<0.001	<0.02	6.3	47	<0.002	1.35	2.2	<0.05	<0.002	0.33	5310	<1	<1
	1/94	<0.5	0.005	1.0	<0.001	<0.10	12	21	<0.002	0.33	0.6	<0.25	<0.002	<0.1	4640	<1	na
	4/94	<1.0	<0.002	<1.0	<0.001	<0.2	4.63	11	<0.002	1.9	1.65	<0.5	<0.002	<0.2	5550	4	na
	7/94	0.1	0.002	1.0	<0.001	<0.02	8.4	9.6	<0.002	0.64	0.69	<0.05	<0.002	<0.02	5520	<1	na
	9/94	0.2	0.002	0.6	<0.001	<0.02	9.5	10.4	<0.002	1.08	1.56	<0.05	<0.002	<0.02	5280	<1	na
	12/94	0.2	<0.002	1.2	<0.001	<0.06	9.2	10.2	<0.002	1.38	1.75	<0.05	<0.002	<0.02	5410	<1	na
CRB	06/93	0.6	<0.002	0.7	<0.003	<0.02	<0.12	<0.12	<0.01	<0.02	<0.02	<0.1	<0.002	0.1	na	<1	<1
(HUNT)	10/93	0.5	<0.002	1.0	<0.001	<0.02	19.2	*<0.05	<0.002	1.35	*<0.02	<0.05	<0.002	0.35	4860	1	1
	1/94	<0.5	<0.002	0.7	<0.001	<0.10	<0.25	<0.25	<0.002	<0.2	<0.1	<0.25	<0.002	<0.1	4890	<1	na
	4/94	<1.0	<0.002	<1.0	<0.001	<0.2	<0.5	0.01	<0.002	0.2	<0.1	<0.5	<0.002	<0.2	4960	<1	na
	7/94	<0.1	<0.002	0.6	<0.001	<0.02	*<0.25	*<0.15	<0.002	*<0.1	*<0.06	0.07	<0.002	0.03	5160	<1	na
	9/94	0.3	<0.002	0.8	<0.001	<0.02	<0.25	<0.25	<0.002	*<0.1	*<0.06	<0.05	<0.002	<0.02	5460	<1	na
	12/94	0.3	<0.002	0.9	<0.001	<0.06	<0.15	0.18	<0.002	0.12	0.15	<0.05	<0.002	<0.02	5190	<1	na
WELL	06/93	<0.1	<0.002	0.2	<0.003	<0.02	<0.05	<0.0	<0.01	<0.02	<0.02	<0.05	<0.002	0.02	na	<1	6
	10/93	<0.1	<0.002	0.3	<0.001	<0.02	<0.05	0.14	<0.002	<0.02	<0.02	<0.05	<0.002	<0.02	2100	<1	<1
	1/94	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
	4/94	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
	7/94	<0.1	<0.002	0.1	<0.001	<0.02	<0.05	0.1	<0.002	<0.02	<0.02	<0.05	<0.002	<0.02	1830	2	nd
	9/94	0.2	<0.002	0.2	<0.001	<0.02	<0.05	0.1	<0.002	<0.02	0.03	<0.05	<0.002	<0.02	1520	<1	nd
	12/94	0.1	<0.002	0.2	<0.001	<0.02	0.28	0.3	<0.002	0.08	0.09	<0.05	0.004	<0.02	2280	<1	nd
004	06/93	nd	nd	nd	nd	nd	nd	0.7	nd	nd	nd	nd	nd	nd	nd	5	nd
	10/93	na	<0.002	na	<0.003	<0.02	na	0.33	<0.01	na	na	na	<0.002	0.08	na	<1	na
	1/94	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
	4/94	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
	7/94	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
	9/94	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
	12/94	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd

Note:
A < sign indicates the value reported was the practical quantitation limit for this sample using the method described. Concentrations of analyte, if present, below this were not quantifiable.
* - Higher detection limit reported due to the interferences present in the sample.
na - not applicable
nd - no discharge

Table A - 4 (continued)

SAMPLE LOCATION		Analytical Parameters															
		Inorganics (mg/l)			Anions (mg/l)					Cations (mg/l)				Nutrients (mg/l)			
		Settleable Solids	Dissolved Solids	Suspended Solids	Bicarbonate Alkalinity	Carbonate Alkalinity	Total Alkalinity	Chloride as Cl	Sulfate as SO4	Calcium as Ca	Hardness as CaCO3	Magnesium as Mg	Sodium as Na	Ammonia as N	Nitrite as N	Nitrate as N	Phosphorous Total
ICE - 1	06/93	<0.1	1920	8	505	0	414	66	1060	126	944	153	318	0.31	<0.05	1.72	0.02
	10/93	<0.2	1600	<2	593	0	486	65	777	90	660	105	340	<0.05	<0.05	0.77	0.05
	1/94	<0.1	1780	11	519	0	425	59	943	110	850	140	298	0.13	<0.05	0.69	0.05
	4/94	<0.1	1860	71	443	11	382	60	985	108	854	142	294	0.08	na	0.32	0.02
	7/94	<0.1	1590	<4	541	11	463	62	782	96	759	126	288	<0.05	<0.05	0.48	0.03
	9/94	<0.1	1580	7	509	17	446	67	742	60	618	114	320	0.11	<0.05	0.05	0.02
	12/94	<0.1	1780	9	593	14	510	74	770	104	787	128	312	<0.05	<0.05	0.5	0.02
F - 2	06/93	<0.1	1910	10	569	0	466	64	985	144	965	147	306	<0.05	0.06	1.54	0.02
	10/93	<0.2	1500	9	622	0	510	59	700	102	650	96	300	0.11	<0.05	0.88	0.06
	1/94	<0.1	1390	<5	605	0	496	44	632	94	690	110	260	<0.05	<0.05	0.97	<0.02
	4/94	<0.1	1430	7	553	11	472	56	644	97	712	114	274	<0.05	na	0.75	0.02
	7/94	<0.1	1500	<5	593	11	505	56	700	108	738	114	273	<0.05	<0.05	0.94	0.02
	9/94	<0.1	1540	8	601	6	502	60	690	96	697	111	256	<0.05	<0.05	0.48	<0.02
	12/94	<0.1	894	3	492	0	403	23	290	72	452	66	141	<0.05	<0.05	0.66	<0.02
CRS (HUNT)	06/93	0.2	5210	15	553	0	453	97	3380	570	2945	370	550	1.86	<0.05	0.38	0.23
	10/93	<0.2	5200	41	548	0	449	96	2930	558	2800	342	543	1.73	<0.05	0.33	0.68
	1/94	0.4	4930	16	570	0	467	97	3180	560	2800	340	530	2.11	<0.05	0.22	0.76
	4/94	<0.1	4890	34	553	0	453	101	2960	558	2890	350	515	1.42	na	<0.05	0.27
	7/94	<0.1	4910	14	559	0	458	105	3080	597	2980	363	501	1.26	<0.05	0.37	0.17
	9/94	<0.1	5410	25	608	0	498	106	2930	546	2630	309	471	1.33	<0.05	0.22	0.15
	12/94	<0.1	5300	19	608	0	498	101	2930	561	2710	318	525	1.58	<0.05	<0.05	0.14
CRB (HUNT)	06/93	<0.1	4610	<2	394	0	323	131	3010	513	2638	330	483	0.11	<0.05	1.34	<0.02
	10/93	<0.2	4700	<5	384	0	315	116	2710	550	2810	350	555	<0.05	<0.05	1.07	0.05
	1/94	<0.1	4320	<5	369	0	302	121	2780	490	2400	290	450	<0.05	<0.05	1.33	<0.02
	4/94	<0.1	4620	10	380	0	311	134	2630	494	2666	309	450	<0.05	na	0.73	0.02
	7/94	<0.1	4490	<5	398	0	326	166	2820	480	2470	310	475	<0.05	<0.05	0.44	0.04
	9/94	<0.1	5230	<5	405	0	332	213	2780	486	2460	303	450	<0.05	<0.05	0.39	0.02
	12/94	<0.1	5070	<1	440	0	361	197	2800	570	2780	330	507	0.07	<0.05	0.7	<0.02
WELL	06/93	<0.1	1250	<2	599	0	491	34	510	93	578	84	231	<0.05	<0.05	0.9	<0.02
	10/93	<0.2	1400	<2	599	0	491	47	604	99	590	84	276	<0.05	<0.05	1.21	0.05
	1/94	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
	4/94	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
	7/94	<0.1	1180	<5	593	0	486	33	479	78	515	78	7	<0.05	<0.05	0.85	<0.02
	9/94	<0.1	981	<5	463	0	379	30	412	81	511	75	144	<0.05	<0.05	0.8	<0.02
	12/94	<0.1	1690	<2	650	14	557	70	740	117	823	129	291	<0.05	<0.05	0.44	<0.02
004	06/93	nd	1180	61	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
	10/93	na	1200	66	580	10	493	86	436	24	134	18	432	na	na	na	na
	1/94	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
	4/94	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
	7/94	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
	9/94	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
	12/94	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd

Note:
A < sign indicates the value reported was the practical quantitation limit for this sample using the method described. Concentrations of analyte, if present, below this were not quantifiable.
* - Higher detection limit reported due to the interferences present in the sample.
na - not applicable
nd - no discharge

Table A - 5

SUNNYSIDE COGENERATION ASSOCIATES
COARSE REFUSE SEEP MONITORING performed by EWP

PARAMETER	19-May-94			16-Jun-94			21-Jul-94		
mg/l	CRS	CRC	CRB	CRS	CRC	CRB	CRS	CRC	CRB
NON-FILTERED SAMPLES									
Boron	1.01	1.01	0.75	1.14	1.06	0.91	1.05	1.04	0.9
Aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND
Calcium	482	447	430	525	479	478	492	441	452
Copper	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iron	7.21	2.49	0.12	7.17	2.03	ND	6.73	3.99	ND
Magnesium	312	312	281	347	333	321	315	308	303
Manganese	1.32	0.56	ND	1.57	0.56	ND	1.46	0.68	ND
Nickel	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium	33.1	33.9	25.3	40.3	37.1	30.9	34.8	33.7	28
Sodium	492	503	437	473	498	486	441	428	440
Mercury	ND	ND	ND	ND	ND	ND	ND	ND	ND
Alkalinity-Bicarbonate	456	382	302	466	390	302	480	394	306
Alkalinity-Carbonate	ND	ND	ND	ND	ND	ND	ND	ND	ND
Alkalinity-Hydroxide	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Suspended Solids	24	11	ND	21	8	ND	22	28	ND
Total Dissolved Solids	5170	5110	4360	5580	5500	5170	5280	5550	5190
Hardness CaCO3	2640	2620	2400	2860	2800	2530	2900	2840	2610
Nitrogen-Ammonia	0.9	ND	ND	1.3	ND	ND	1.2	ND	ND
BOD total	<6	<6	<6	ND	ND	ND	<6	<6	<2
Cyanide	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenolics	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acidity	51	21	7	43	13	3	52	25	8
Sulfate	2960	3080	2800	3130	3160	2790	3210	3430	3140
FILTERED SAMPLES									
Aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND
Boron	0.99	1.00	0.74	1.16	1.05	0.91	1.12	1.1	0.86
Calcium	469	451	429	518	465	469	515	466	431
Copper	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iron	ND	0.12	ND	0.15	0.14	ND	0.31	0.23	0.13
Magnesium	301	311	277	344	327	315	334	330	288
Manganese	1.27	0.52	ND	1.52	0.54	ND	1.49	0.62	ND
Mercury	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium	32.6	32.3	24.8	40.4	36.7	30.2	37.4	36.8	26.7
Sodium	469	490	439	475	490	477	477	468	415

PARAMETER	25-Aug-94			20-Sep-94						27-Oct-94		
mg/l	CRS	CRC	CRB	CRS		CRC		CRB		CRS	CRC	CRB
NON-FILTERED SAMPLES												
Boron	1.03	1.10	0.91	1.01	1.03	1.04	1.08	0.82	0.79	1.1	1.08	0.85
Aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Calcium	473	485	464	471	476	445	453	441	432	500	493	454
Copper	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iron	7.07	3.47	ND	8.78	8.84	15.6	3.9	ND	ND	8.73	4.48	0.12
Magnesium	301	341	313	297	303	309	320	295	287	316	344	303
Manganese	1.35	0.87	ND	1.43	1.45	1.41	1.13	0.07	0.07	1.45	1.14	0.21
Nickel	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium	33.9	36.7	28.9	35.7	36.3	36.5	38.2	28.2	27	37	36.6	27.8
Sodium	421	474	448	437	440	441	461	426	406	455	486	428
Alkalinity-Bicarbonate	480	388	314	470		386		322		486	424	348
Alkalinity-Carbonate	ND	ND	ND	ND		ND		ND		ND	ND	ND
Alkalinity-Hydroxide	ND	ND	ND	ND		ND		ND		ND	ND	ND
Total Suspended Solids	18	17	ND	67		14		ND		20	29	ND
Total Dissolved Solids	2190	5330	5120	5490		5680		5240		5450	5520	5190
Hardness CaCO3	3000	2850	2730	2650		2950		2550		2850	2860	2740
Nitrogen-Ammonia	1.2	ND	ND	1.7		ND		ND		1.7	ND	ND
Acidity	60.4	36.2	20	72		22		12		59	31	2
Sulfate	3310	3330	3560	3260		3820		3070		4220	2650	2590
FILTERED SAMPLES				13-Oct-94								
Aluminum	ND	ND	ND	ND		ND		ND		ND	ND	ND
Boron	1.06	1.13	0.95	1.13		1.14		0.86		0.96	1.13	0.88
Calcium	474	487	483	503		483		470		432	473	469
Copper	ND	ND	ND	ND		ND		ND		ND	ND	ND
Iron	0.55	0.29	ND	ND		ND		ND		0.18	ND	ND
Magnesium	304	344	327	318		338		313		274	340	316
Manganese	1.33	0.56	ND	1.47		1.3		0.19		1.26	1.32	0.22
Nickel	ND	ND	ND	ND		ND		ND		ND	ND	ND
Potassium	34.5	37.6	30.2	37.5		39.2		29.2		32	38.1	29
Sodium	435	487	465	466		491		453		395	485	448
Iron (total)				8.99		3.5		0.14				
Total Suspended Solids				21		9		ND				

Table A - 5 (continued)

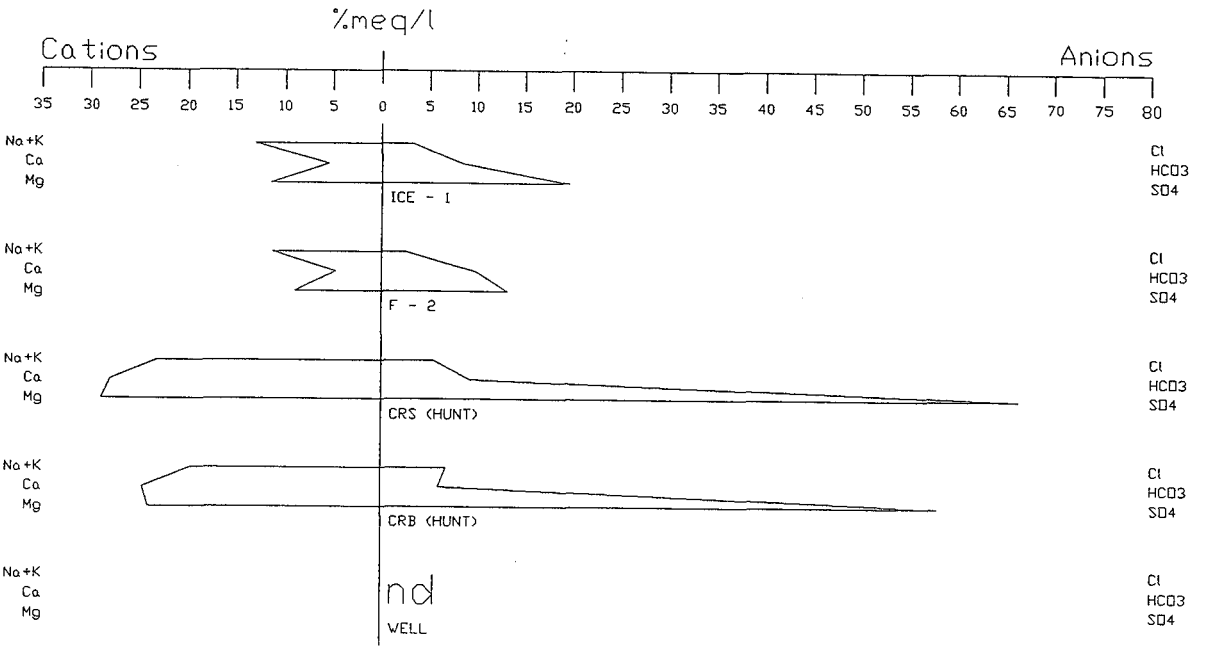
SUNNYSIDE COGENERATION ASSOCIATES
COARSE REFUSE SEEP MONITORING performed by EWP

PARAMETER	22-Nov-94			22-Dec-94			21-Jan-95		
mg/l	CRS	CRC	CRB	CRS	CRC	CRB	CRS	CRC	CRB
NON-FILTERED SAMPLES									
Boron	1.1	1.10	0.8	1.2	1.1	0.9	1.0	0.9	0.7
Iron	7.19	7.49	ND	7.53	6.45	ND	6.15	3.60	0.12
Manganese	1.46	1.24	0.24	1.49	1.22	0.21	1.37	0.82	0.17
Alkalinity-Bicarbonate	460	420	342	478	422	344	478	392	346
Alkalinity-Carbonate	ND	ND	ND	ND	ND	ND	ND	ND	ND
Alkalinity-Hydroxide	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Suspended Solids	16	18	ND	19	16	ND	6	8	ND
Total Dissolved Solids	5430	5660	5200	5360	5530	5200	5480	5340	5030
Hardness CaCO3	2730	2710	2560	2740	2740	2650	2820	2800	2650
Nitrogen-Ammonia	1.5	0.6	ND	1.7	0.6	ND	1.7	ND	ND
Acidity	101	49.4	12.2	62.2	42.4	9	107	49	6
Sulfate	629	652	643	3240	3320	2860	3340	3480	3070
FILTERED SAMPLES									
Boron	1.2	1.1	0.8	1.2	1.1	0.8	1.0	0.8	0.7
Calcium	542	486	476	521	494	490	468	428	428
Iron	1.36	0.59	ND	1.05	0.19	ND	2.04	0.45	ND
Magnesium	345	349	311	333	357	324	293	297	280
Manganese	1.6	1.34	0.25	1.49	1.15	0.21	137	0.81	0.17
Potassium	40.3	36.5	27.2	39.6	37.7	29.5	32.6	27.2	23.3
Sodium	526	527	475	493	524	470	423	396	377

PARAMETER	28-Feb-95								
mg/l	CRS	CRC	CRB	CRS	CRC	CRB	CRS	CRC	CRB
NON-FILTERED SAMPLES									
Boron	1.3	1.0	0.9						
Iron	8.26	4.19	ND						
Manganese	1.64	0.78	0.11						
Alkalinity-Bicarbonate	484	404	330						
Alkalinity-Carbonate	ND	ND	ND						
Alkalinity-Hydroxide	ND	ND	ND						
Total Suspended Solids	12	16	ND						
Total Dissolved Solids	4950	5070	4780						
Hardness CaCO3	2960	2760	2580						
Nitrogen-Ammonia	1.7	ND	ND						
Acidity	63	35.8	5.0						
Sulfate	3270	3220	2940						
FILTERED SAMPLES									
Boron	1.4	1.1	0.9						
Calcium	545	487	511						
Iron	2.43	0.27	ND						
Magnesium	350	341	342						
Manganese	1.62	0.97	0.11						
Potassium	41.2	33	29.5						
Sodium	482	447	427						

FIGURES

January 1994



ECKHOFF WATSON AND PREATOR ENGINEERING

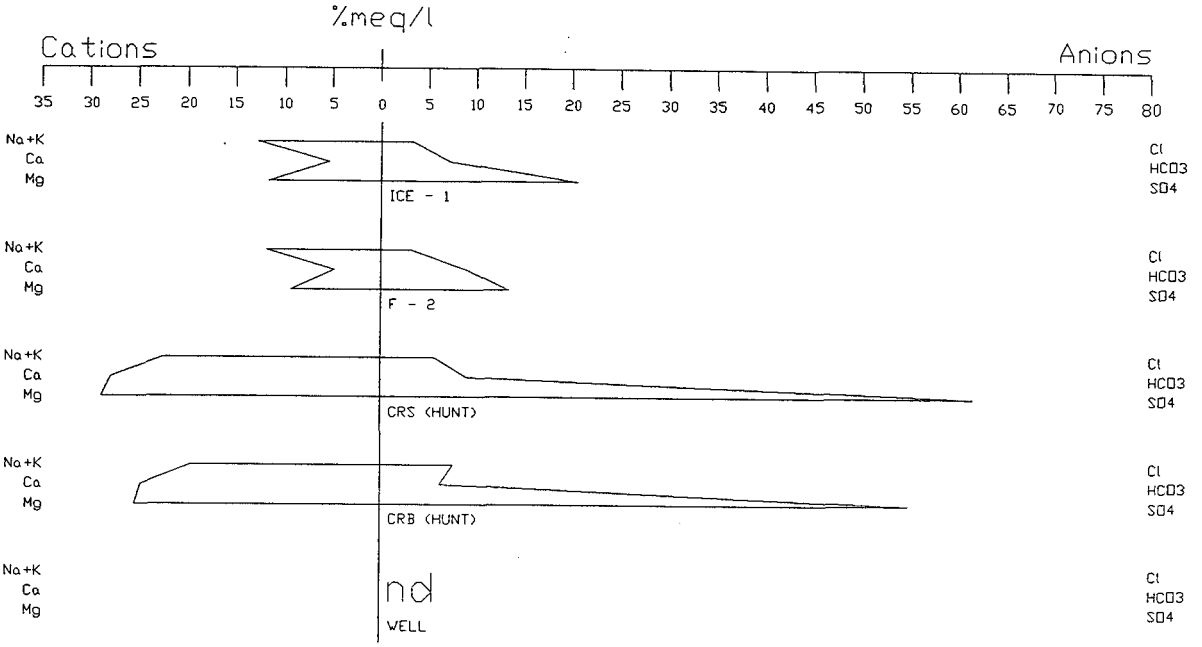
ENGINEERS PLANNERS SURVEYORS

Figure A-1

SUNNYSIDE COGENERATION ASSOCIATES

1994 Annual Report - Water Quality Analysis

April 1994

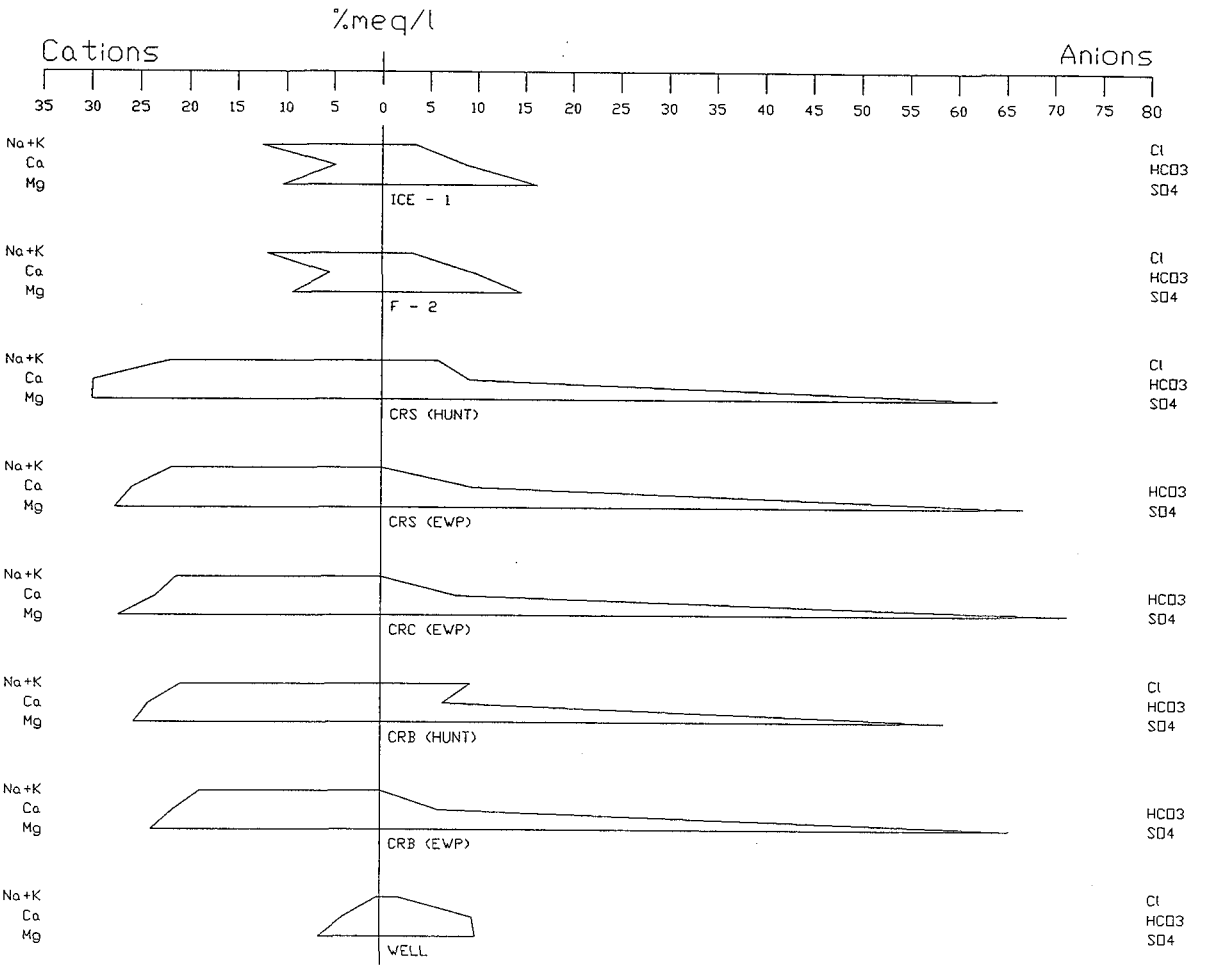


ECKHOFF WATSON AND PREATOR ENGINEERING
ENGINEERS PLANNERS SURVEYORS

Figure A-2

SUNNYSIDE COGENERATION ASSOCIATES
1994 Annual Report - Water Quality Analysis

July 1994



ECKHOFF WATSON AND PREATOR ENGINEERING

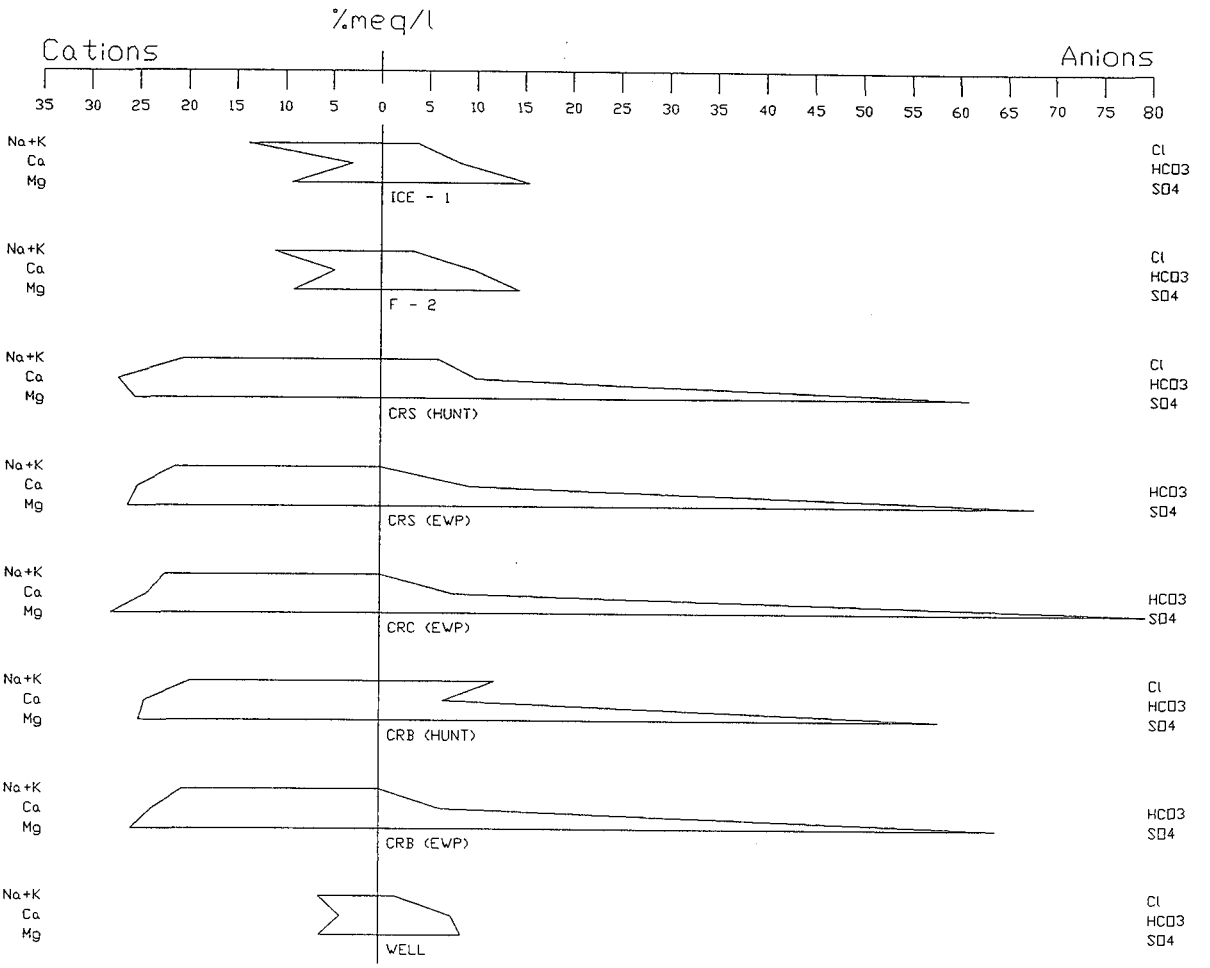
ENGINEERS PLANNERS SURVEYORS

Figure A-3

SUNNYSIDE COGENERATION ASSOCIATES

1994 Annual Report - Water Quality Analysis

September 1994



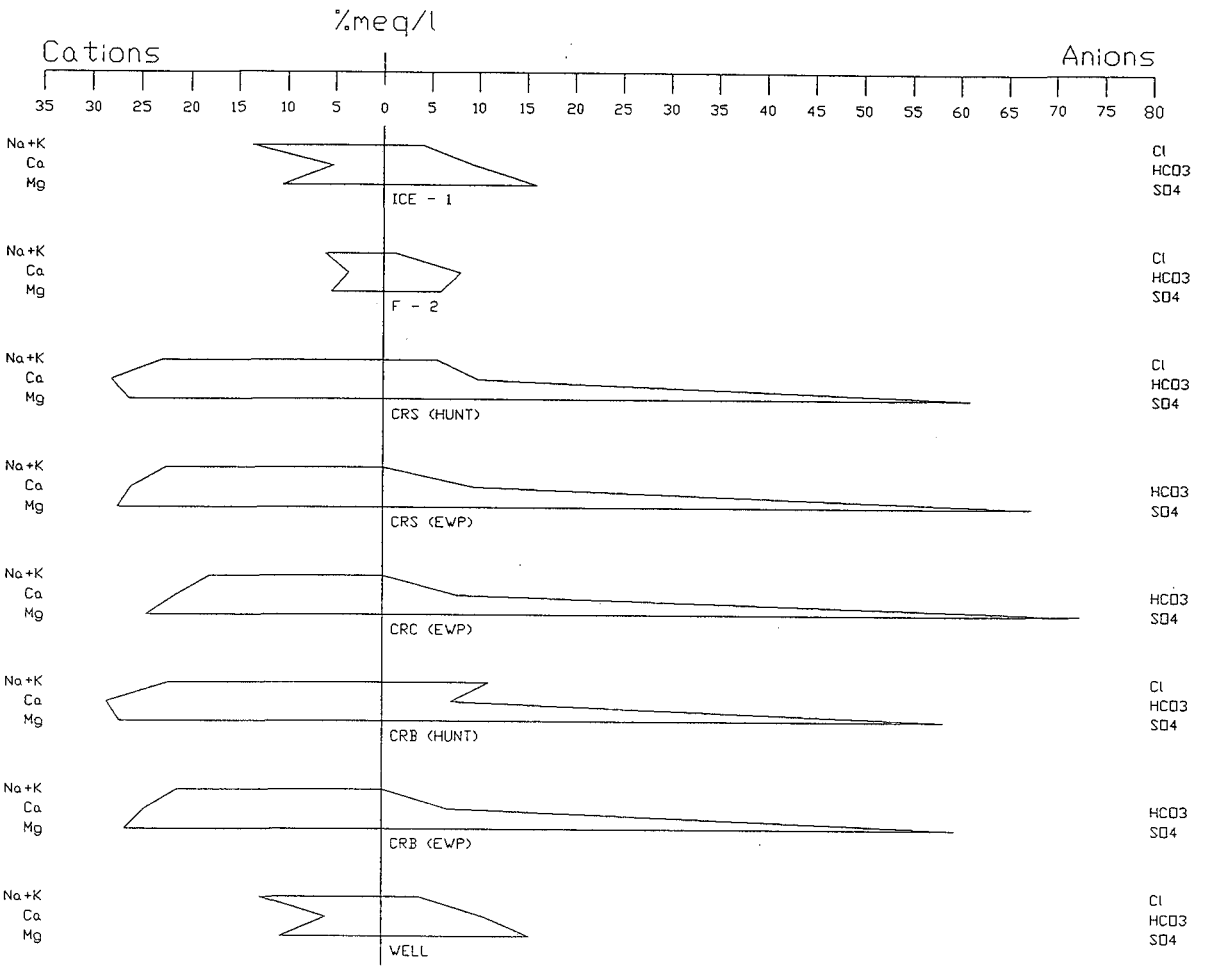
ECKHOFF WATSON AND PREATOR ENGINEERING

ENGINEERS PLANNERS SURVEYORS Figure A-4

SUNNYSIDE COGENERATION ASSOCIATES

1994 Annual Report - Water Quality Analysis

December 1994



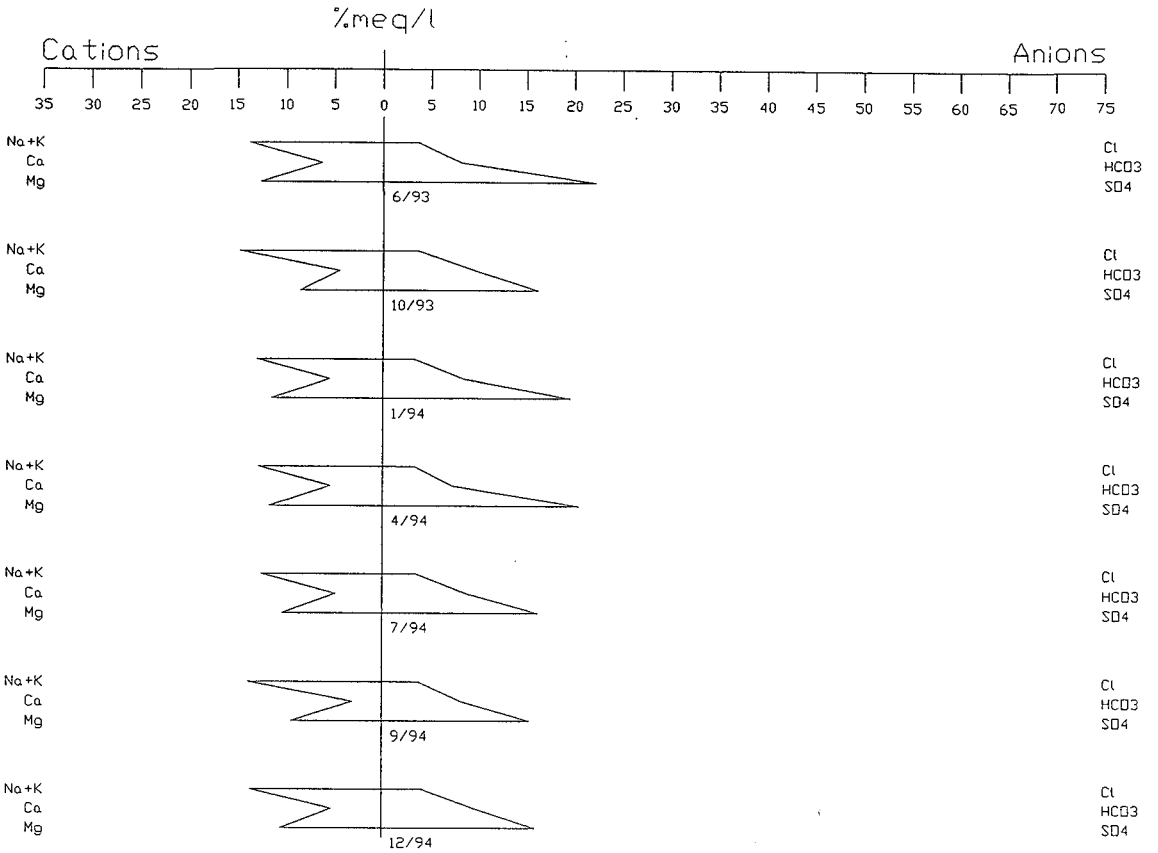
ECKHOFF WATSON AND PREATOR ENGINEERING
ENGINEERS PLANNERS SURVEYORS

Figure A-5

SUNNYSIDE COGENERATION ASSOCIATES

1994 Annual Report - Water Quality Analysis

ICE - 1



ECKHOFF WATSON AND PREATOR ENGINEERING

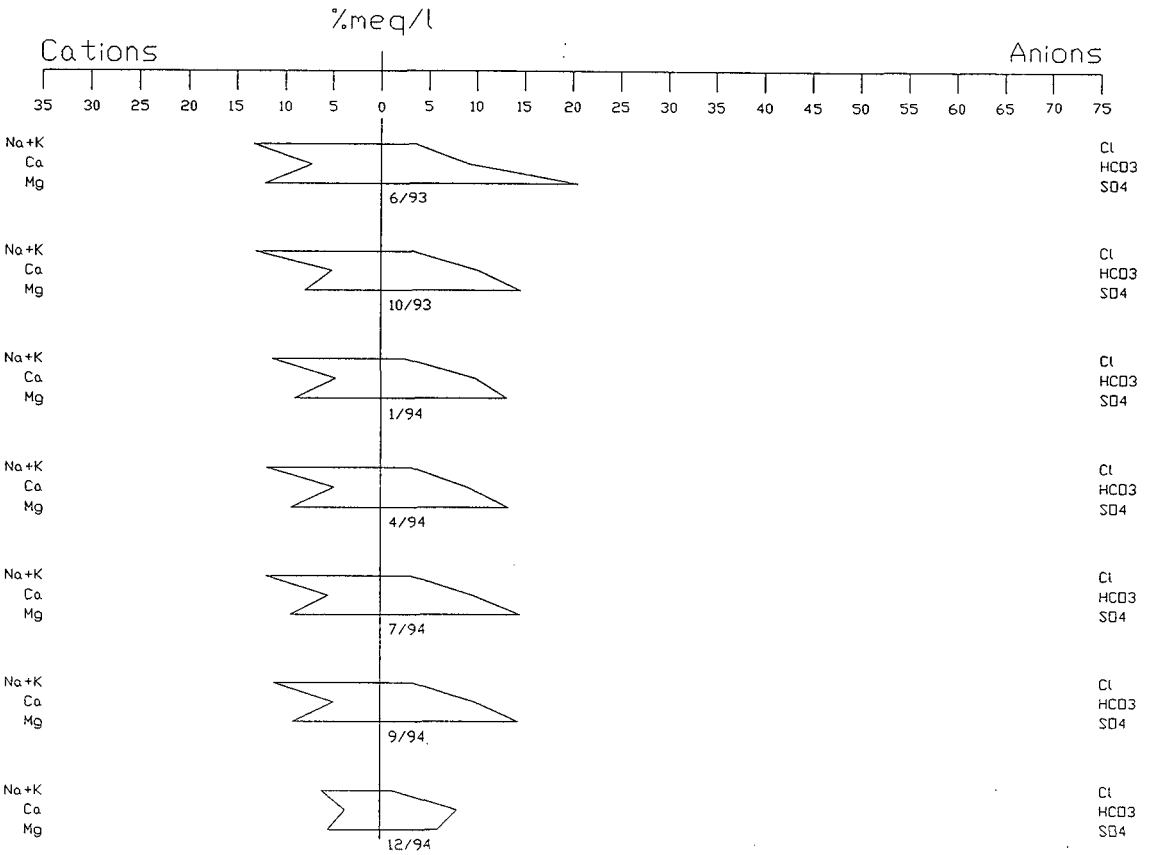
ENGINEERS PLANNERS SURVEYORS

Figure A-6

SUNNYSIDE COGENERATION ASSOCIATES

1994 Annual Report - Water Quality Analysis

F - 2



ECKHOFF WATSON AND PREATOR ENGINEERING

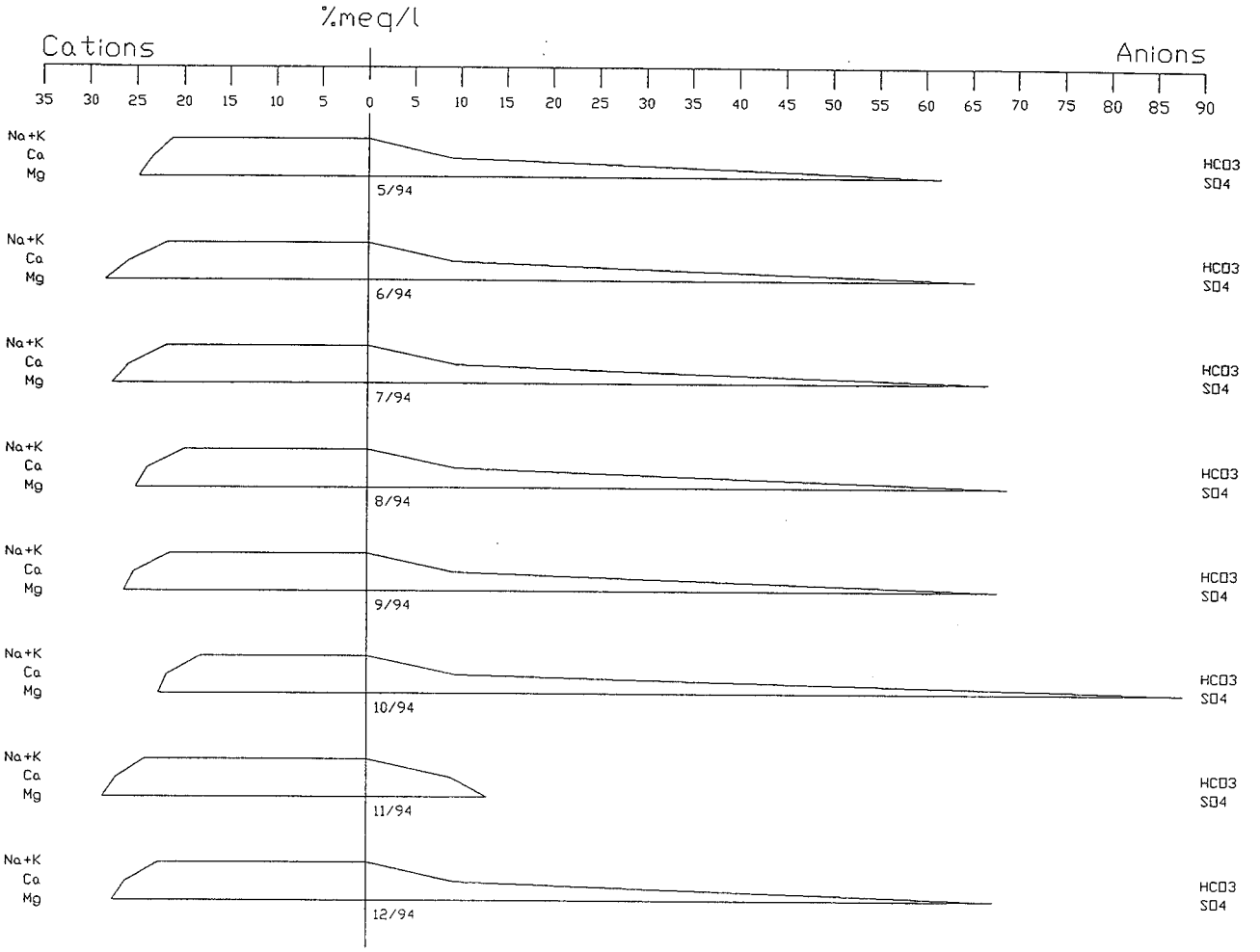
ENGINEERS PLANNERS SURVEYORS

Figure A-7

SUNNYSIDE COGENERATION ASSOCIATES

1994 Annual Report - Water Quality Analysis

COARSE REFUSE SEEP AT THE SOURCE - CRS (EWP)

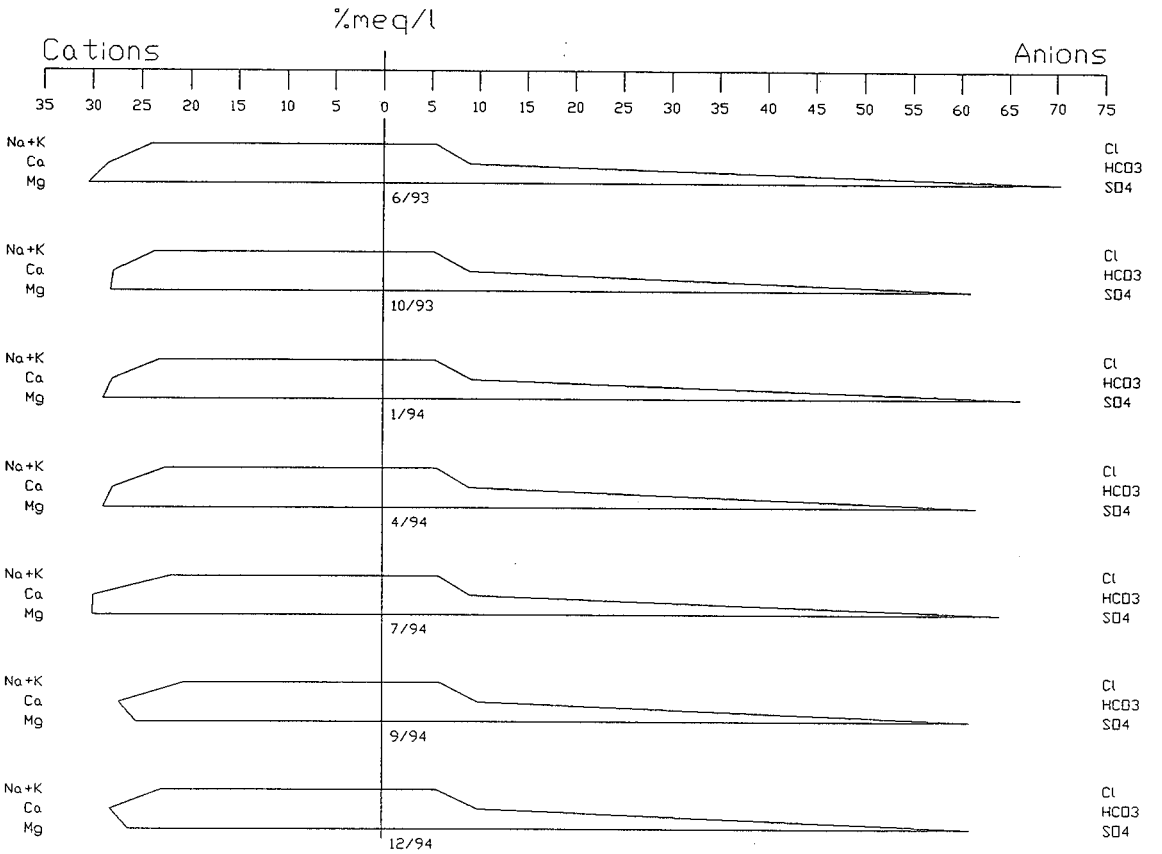


ECKHOFF WATSON AND PREATOR ENGINEERING
ENGINEERS PLANNERS SURVEYORS

Figure A-8

SUNNYSIDE COGENERATION ASSOCIATES
1994 Annual Report - Water Quality Analysis

COARSE REFUSE SEEP AT THE SOURCE - CRS (HUNT)



ECKHOFF WATSON AND PREATOR ENGINEERING

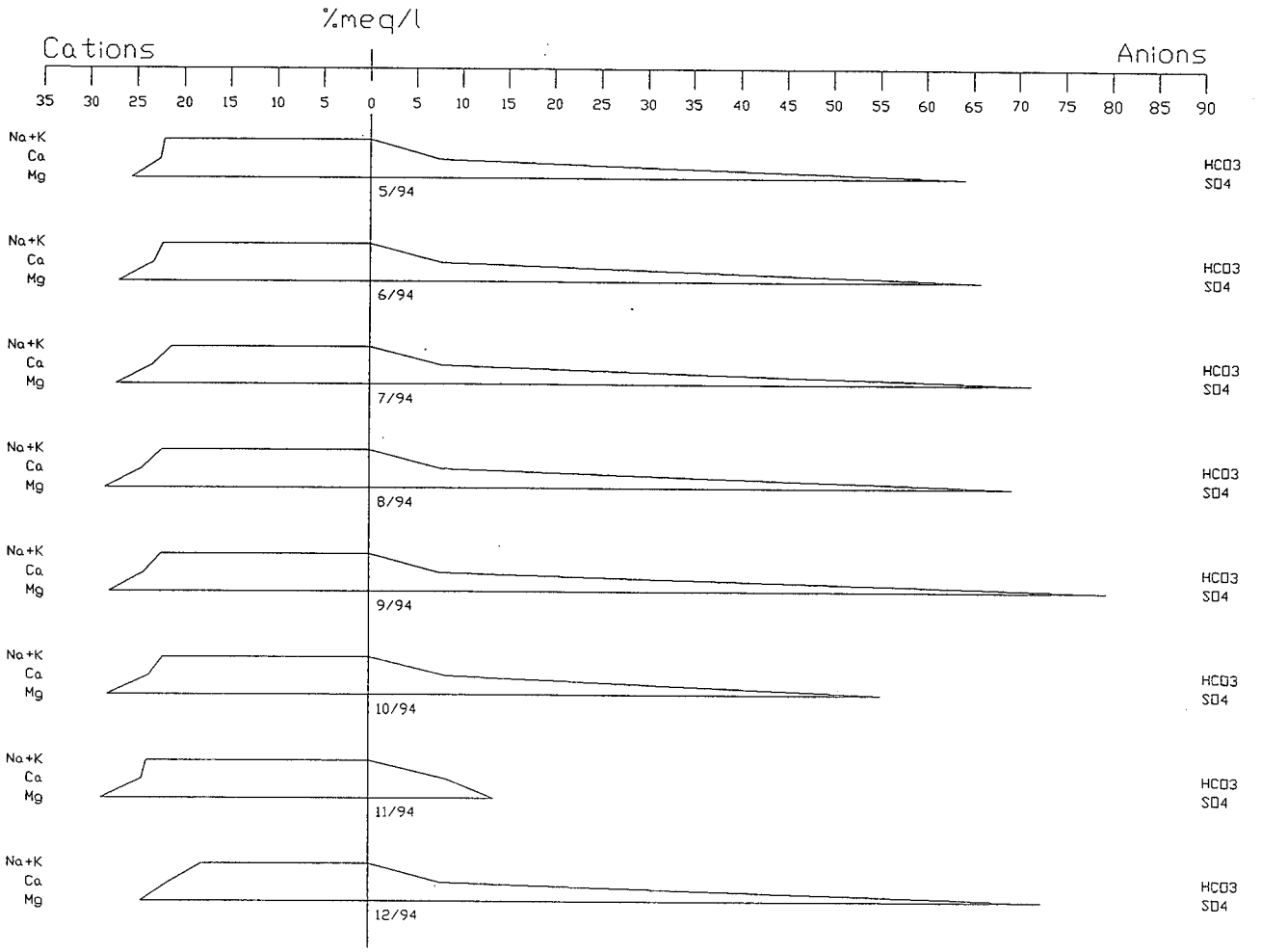
ENGINEERS PLANNERS SURVEYORS

Figure A-9

SUNNYSIDE COGENERATION ASSOCIATES

1994 Annual Report - Water Quality Analysis

COARSE REFUSE SEEP AT THE CULVERT - CRC (EWP)



ECKHOFF WATSON AND PREATOR ENGINEERING

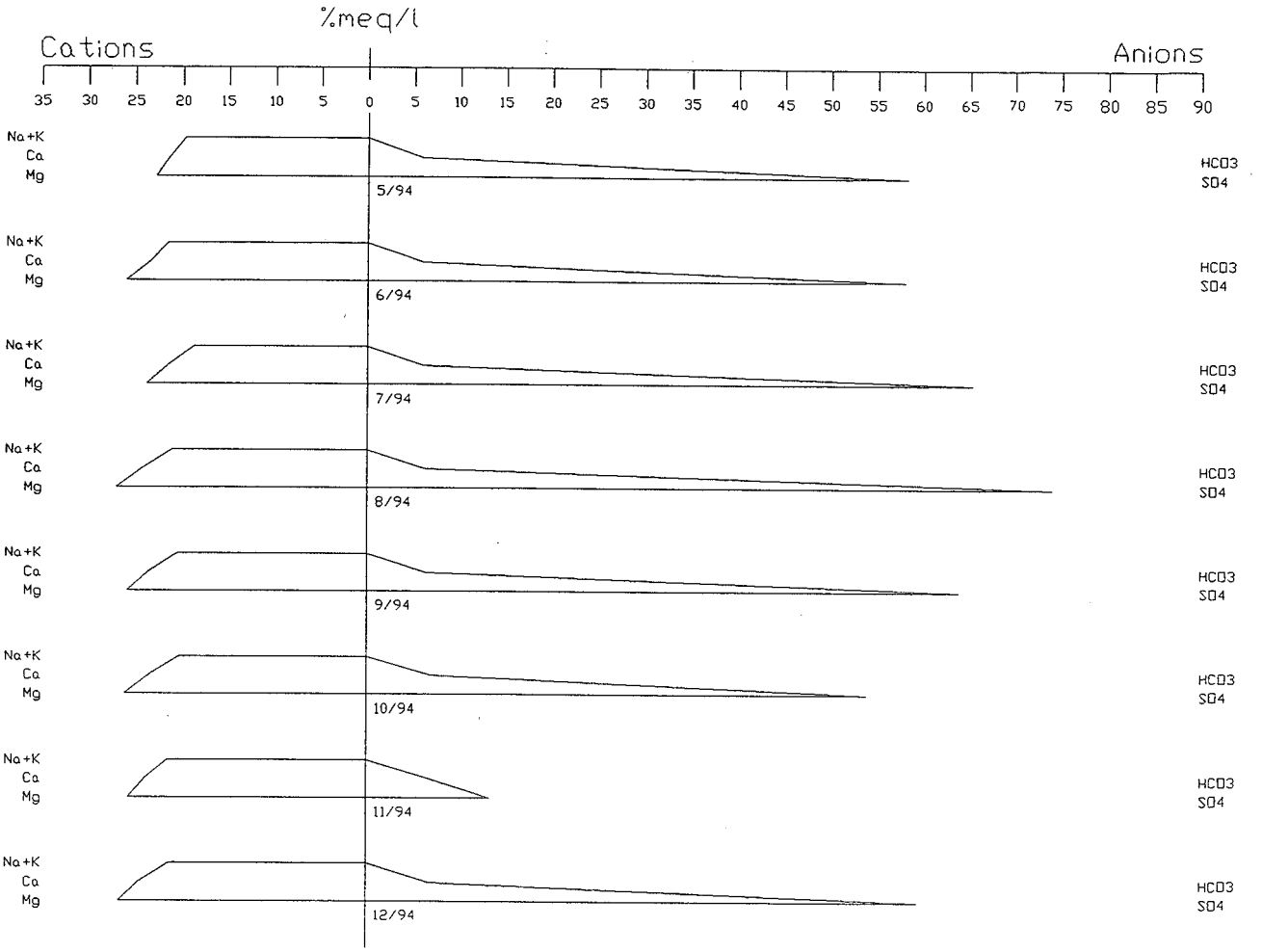
ENGINEERS PLANNERS SURVEYORS

Figure A-10

SUNNYSIDE COGENERATION ASSOCIATES

1994 Annual Report - Water Quality Analysis

COARSE REFUSE SEEP AT THE BOUNDARY - CRB (EWP)



ECKHOFF WATSON AND PREATOR ENGINEERING

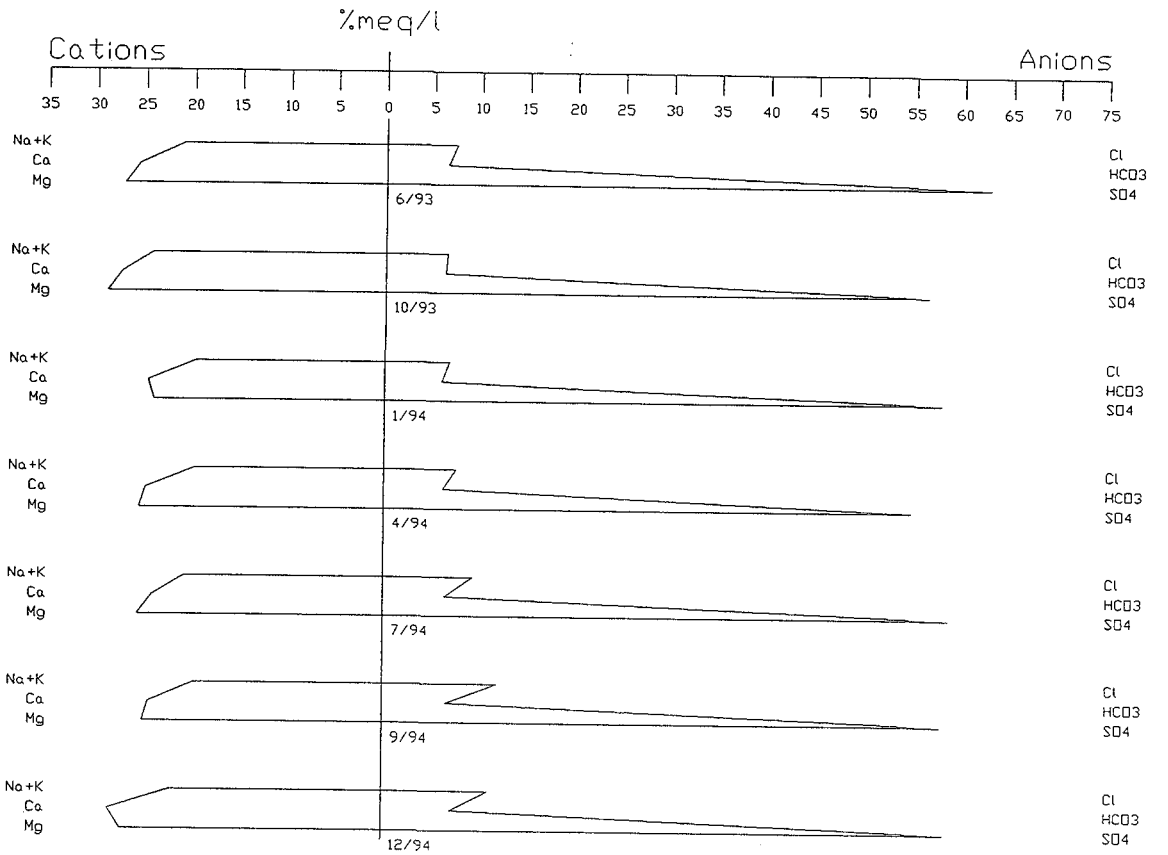
ENGINEERS PLANNERS SURVEYORS

Figure A-11

SUNNYSIDE COGENERATION ASSOCIATES

1994 Annual Report - Water Quality Analysis

COARSE REFUSE SEEP AT THE BOUNDARY - CRB (HUNT)



ECKHOFF WATSON AND PREATOR ENGINEERING

ENGINEERS PLANNERS SURVEYORS

Figure A-12

SUNNYSIDE COGENERATION ASSOCIATES

1994 Annual Report - Water Quality Analysis

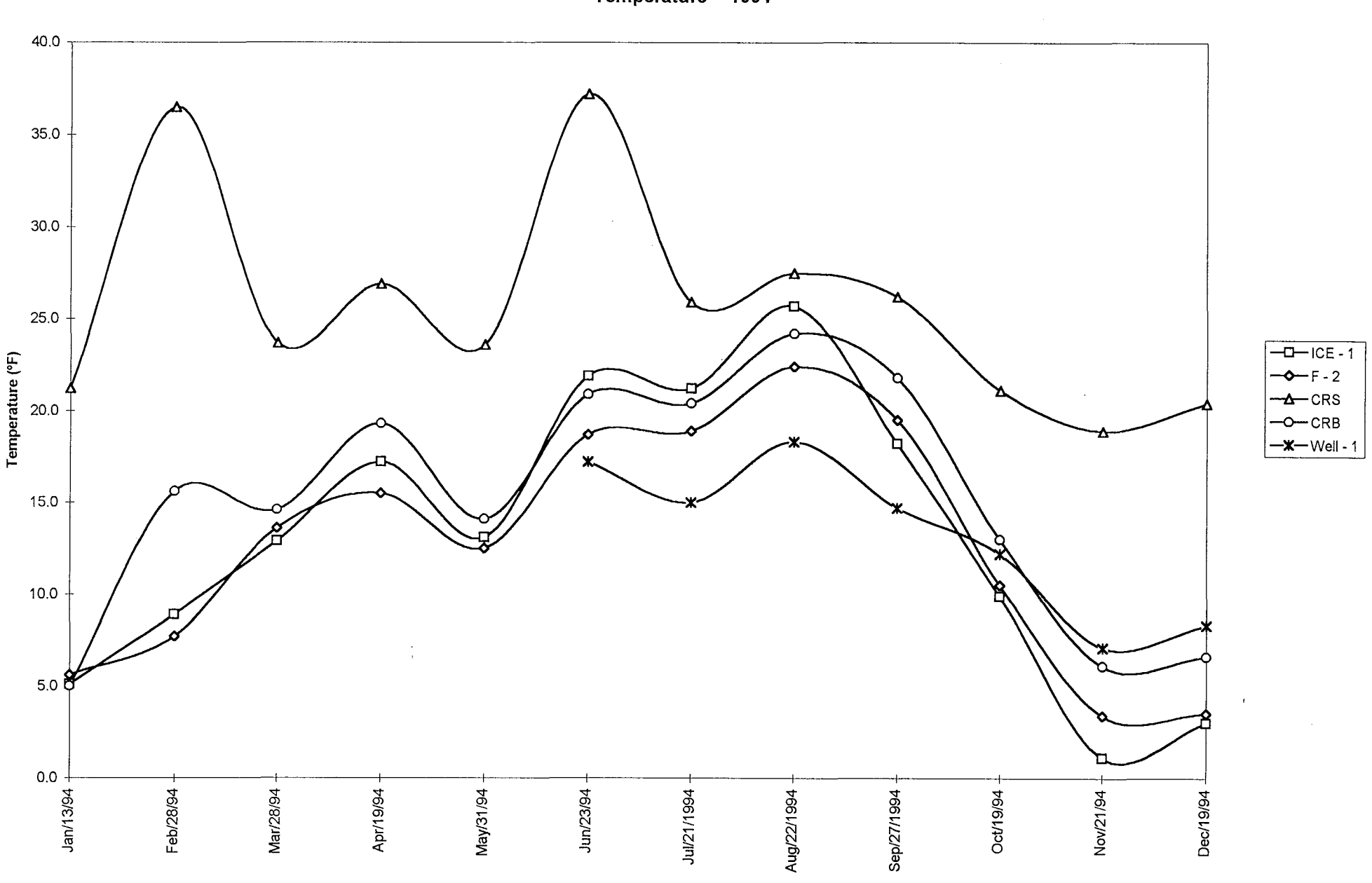


Figure A - 13

ECKHOFF, WATSON AND PREATOR ENGINEERING

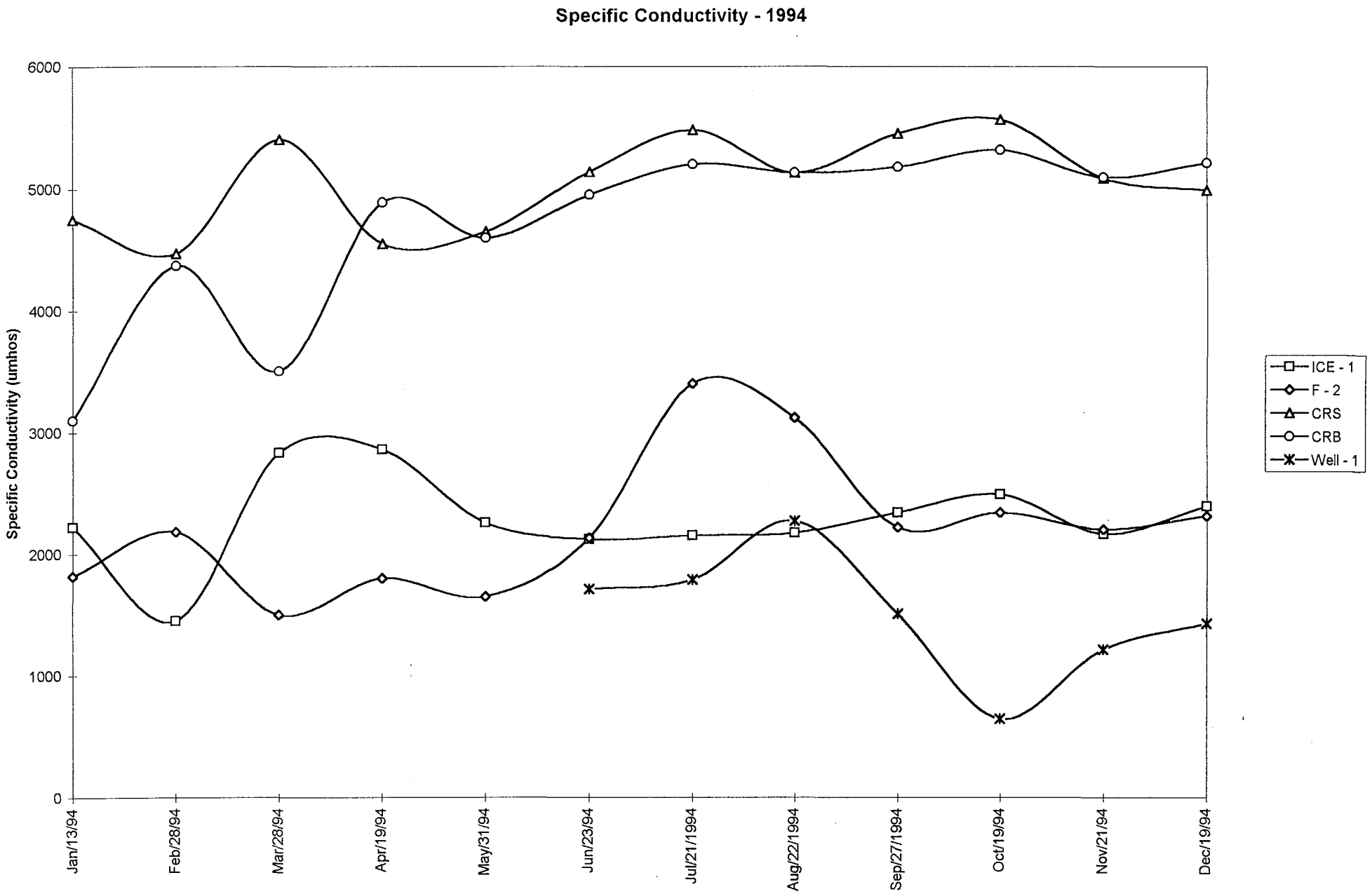


Figure A - 14

ECKHOFF, WATSON AND PREATOR ENGINEERING

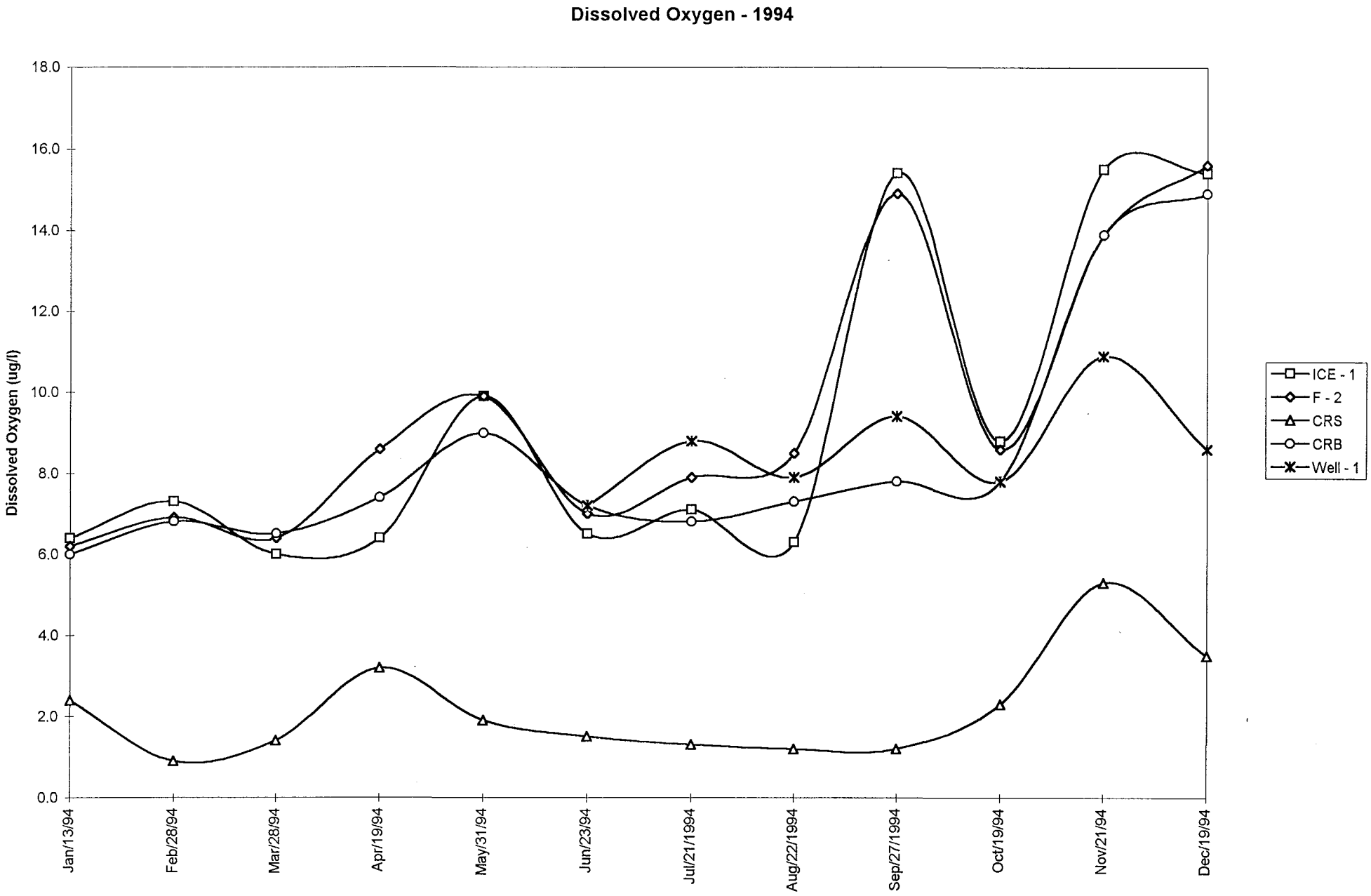


Figure A - 15

ECKHOFF, WATSON AND PREATOR ENGINEERING

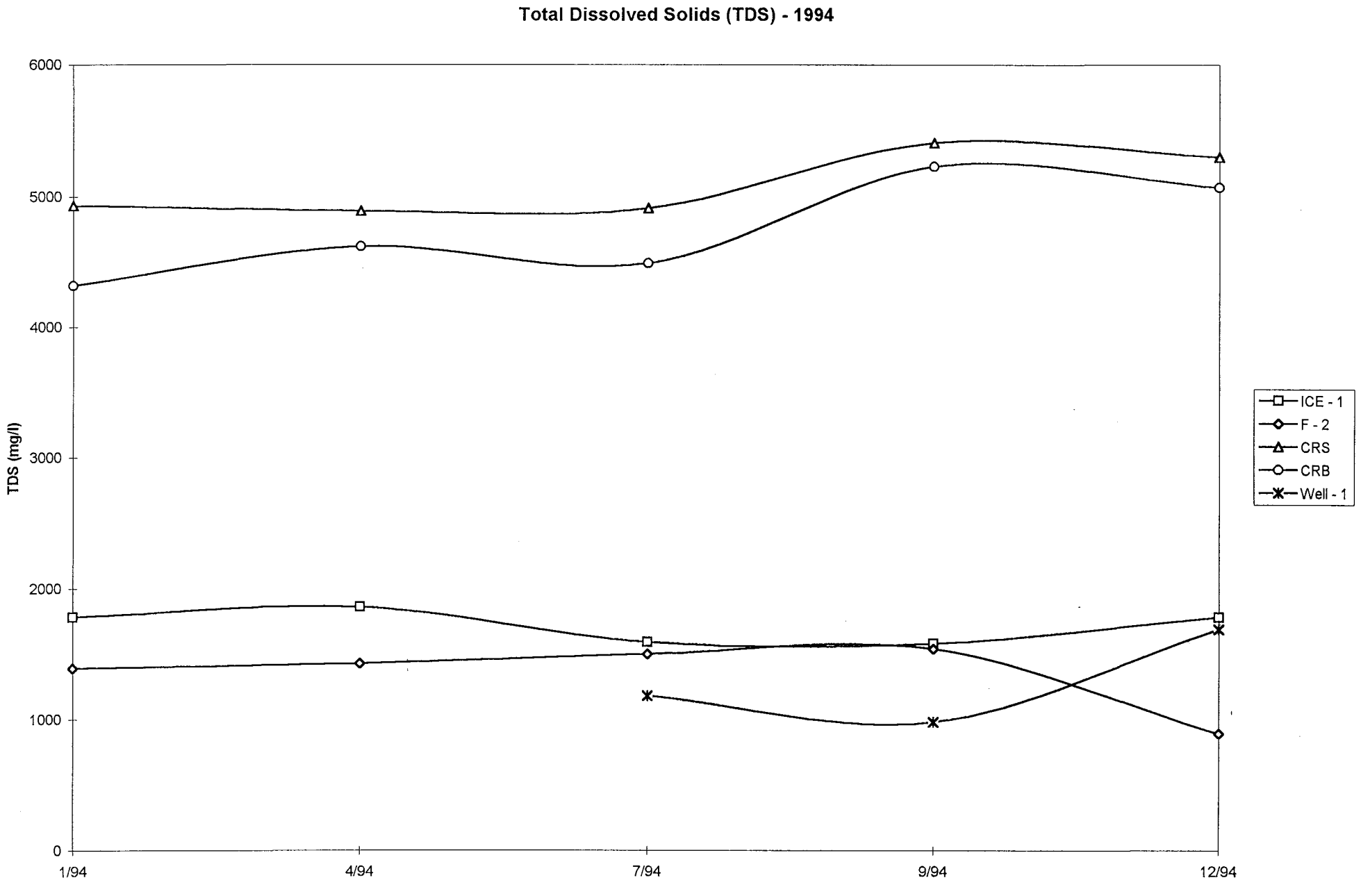
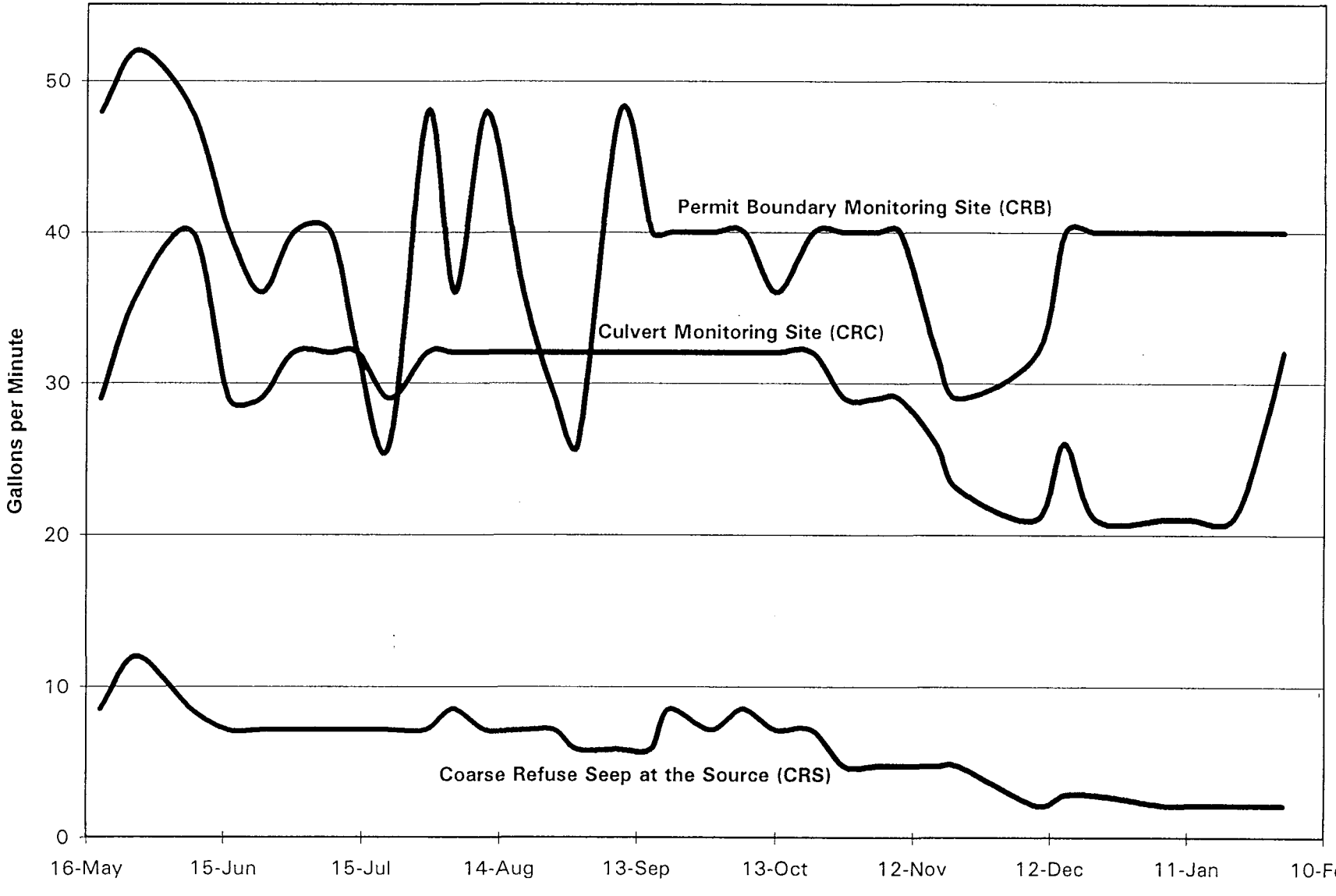


Figure A - 16

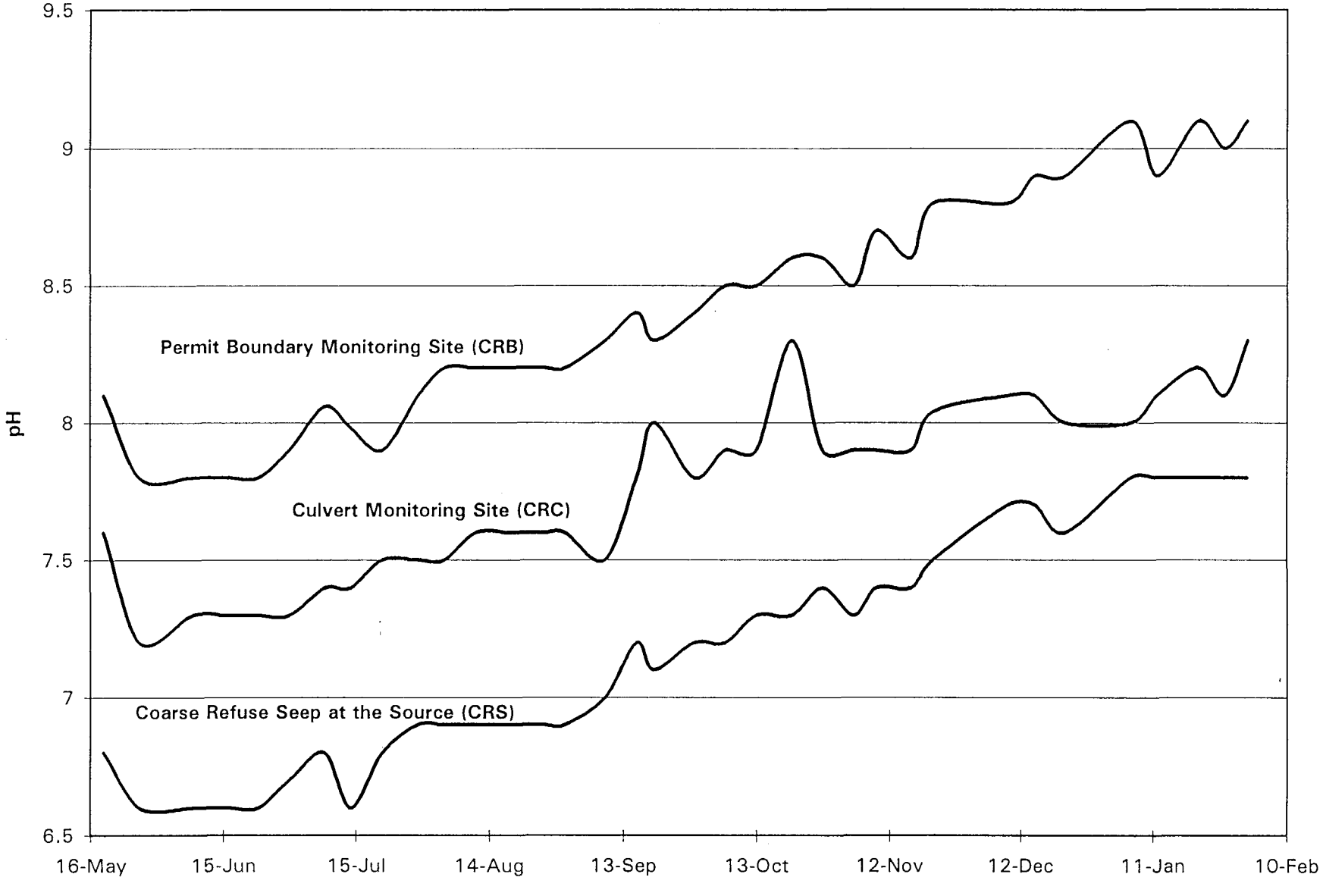
ECKHOFF, WATSON AND PREATOR ENGINEERING

Coarse Refuse Seep Flow



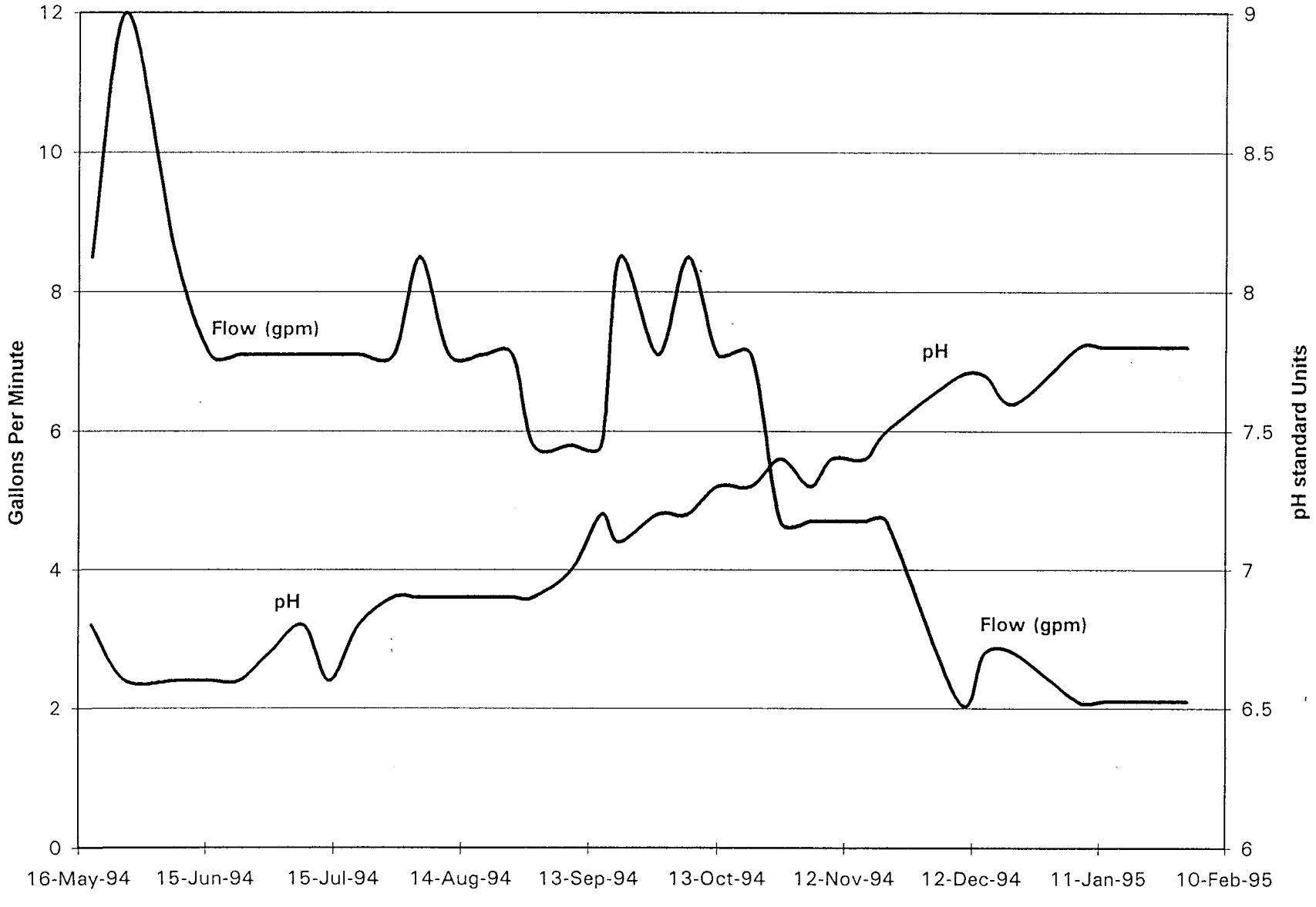
FLOW Figure A-17 2/17/95

Coarse Refuse Seep pH



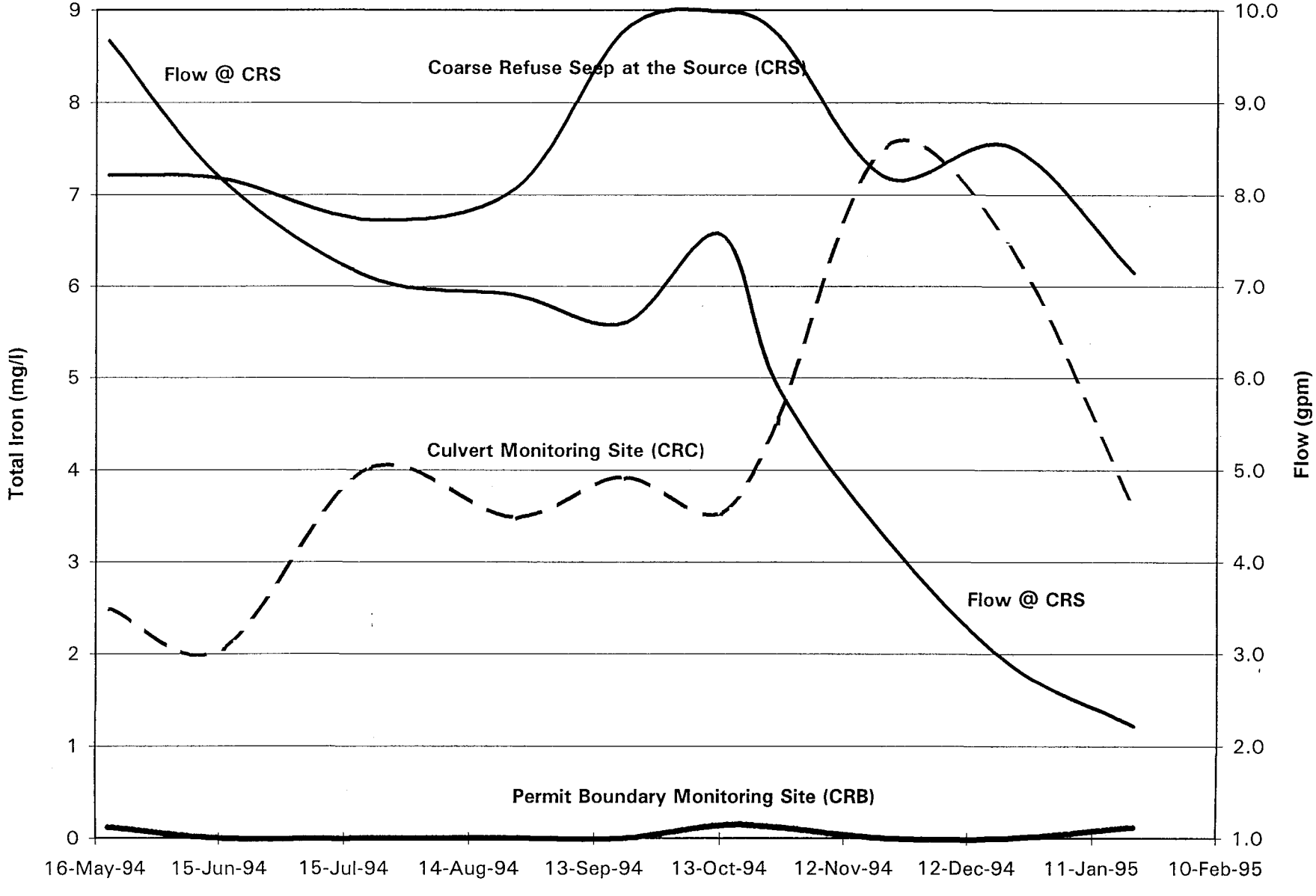
pH Figure A-18 2/17/95

Coarse Refuse Seep - Flow vs pH at CRS



Flow-vs-pH@CRS Figure A-19 2/17/95

Coarse Refuse Seep - Total Iron vs Flow @ CRS

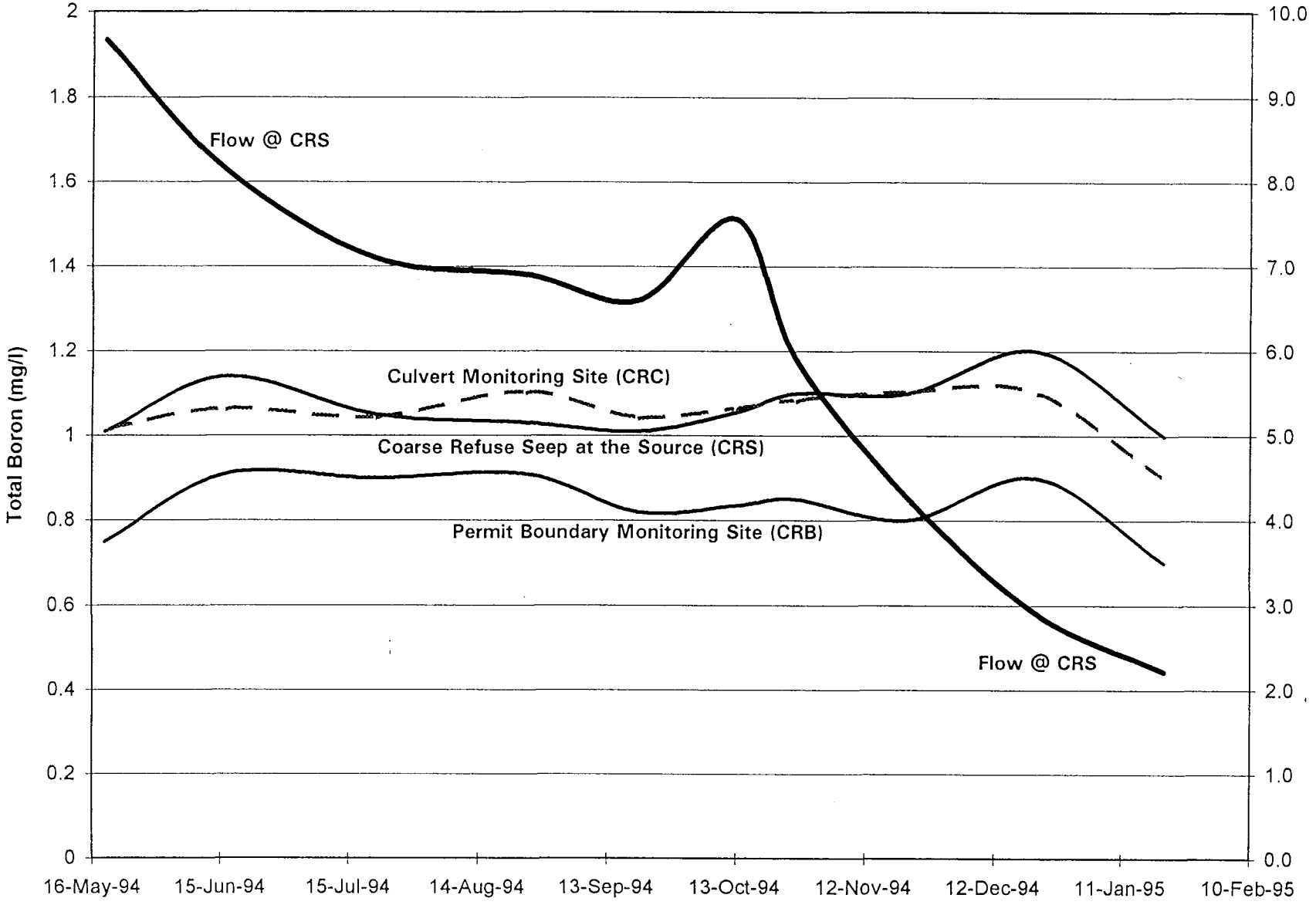


Iron

Figure A-20

2/17/95

Coarse Refuse Seep - Total Boron vs Flow @ CRS

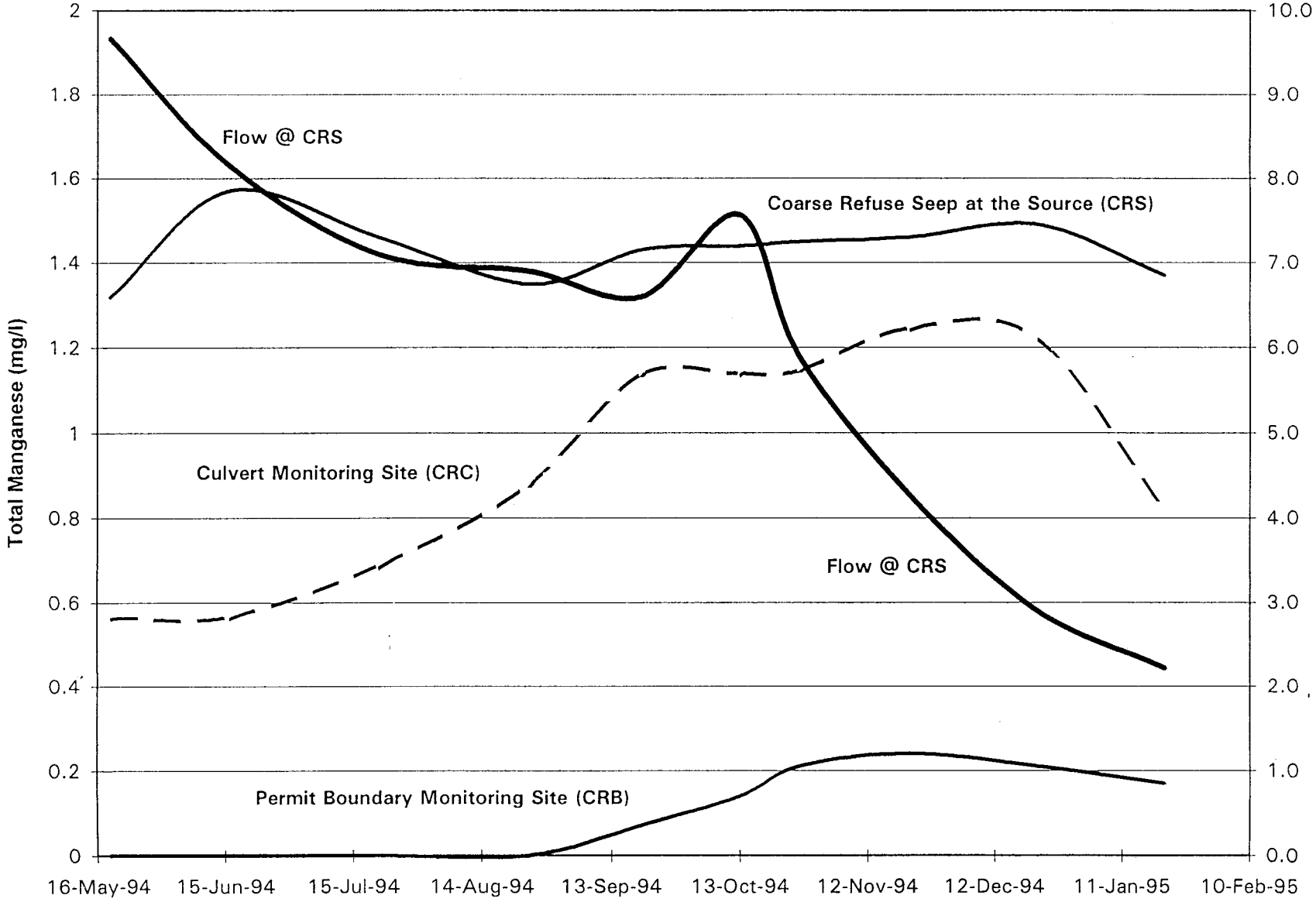


Boron

Figure A-21

2/17/95

Coarse Refuse Seep - Total Manganese vs Flow @ CRS

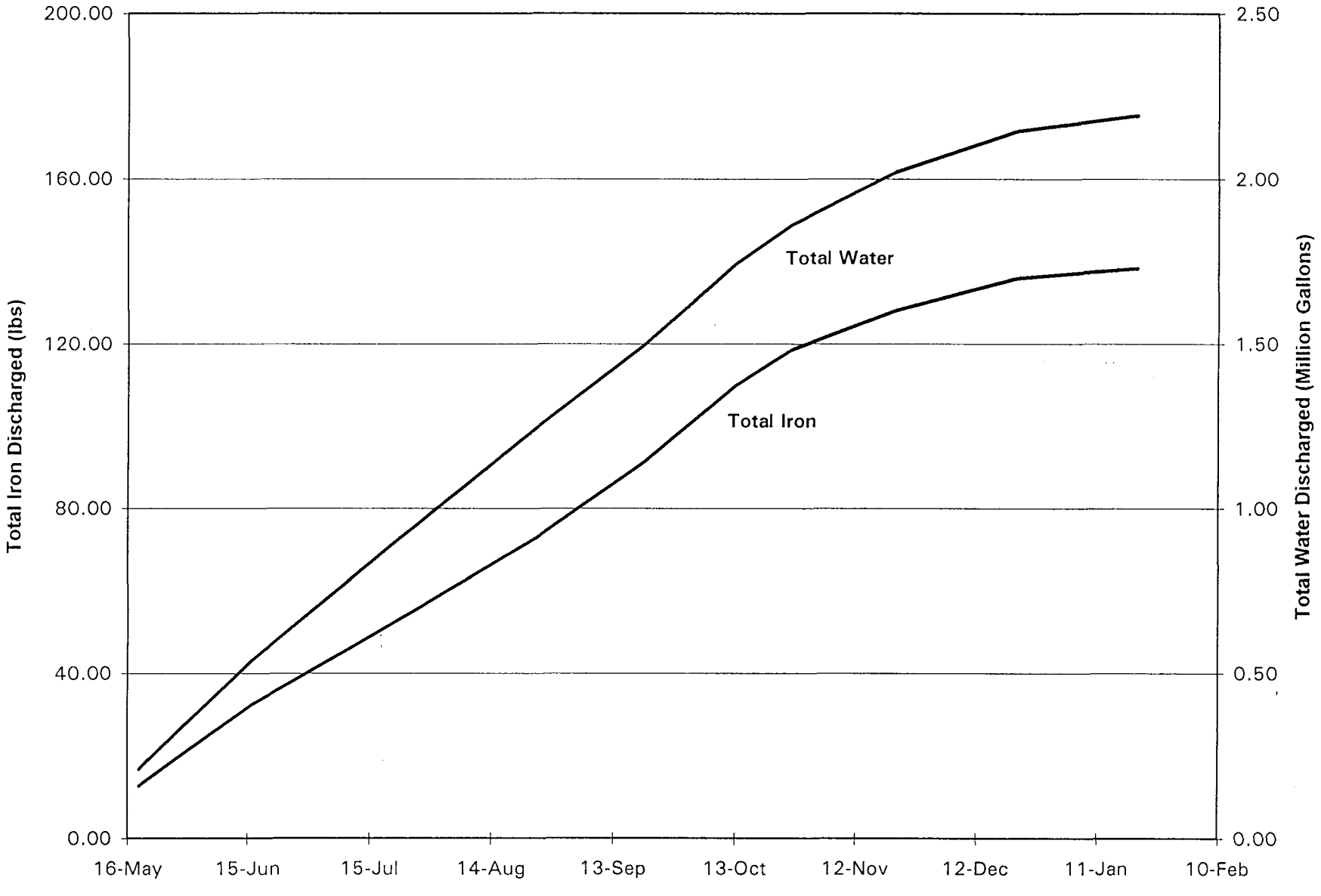


Manganese

Figure A-22

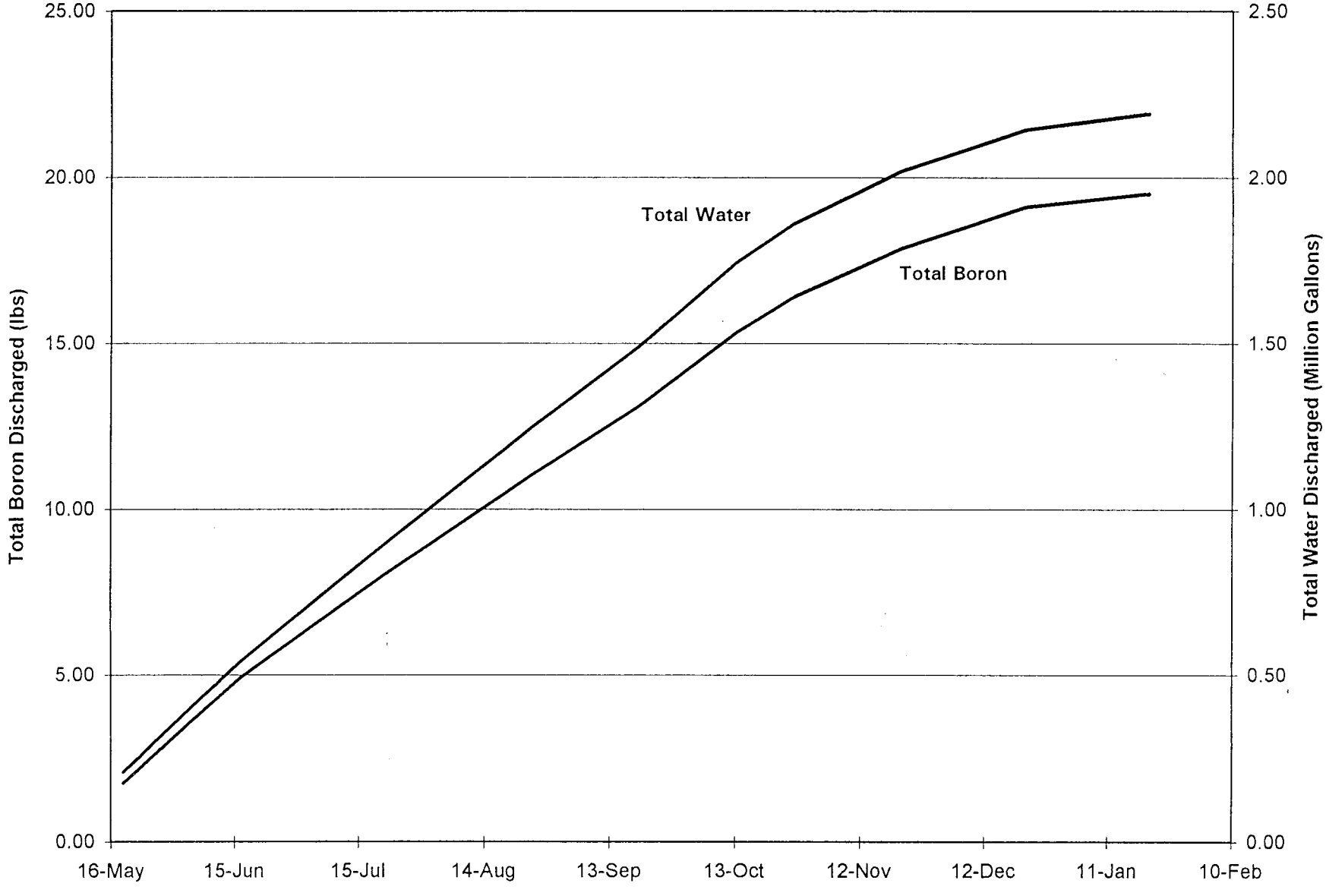
2/17/95

Coarse Refuse Seep - Total Iron @ CRS Cumulative Mass Contribution



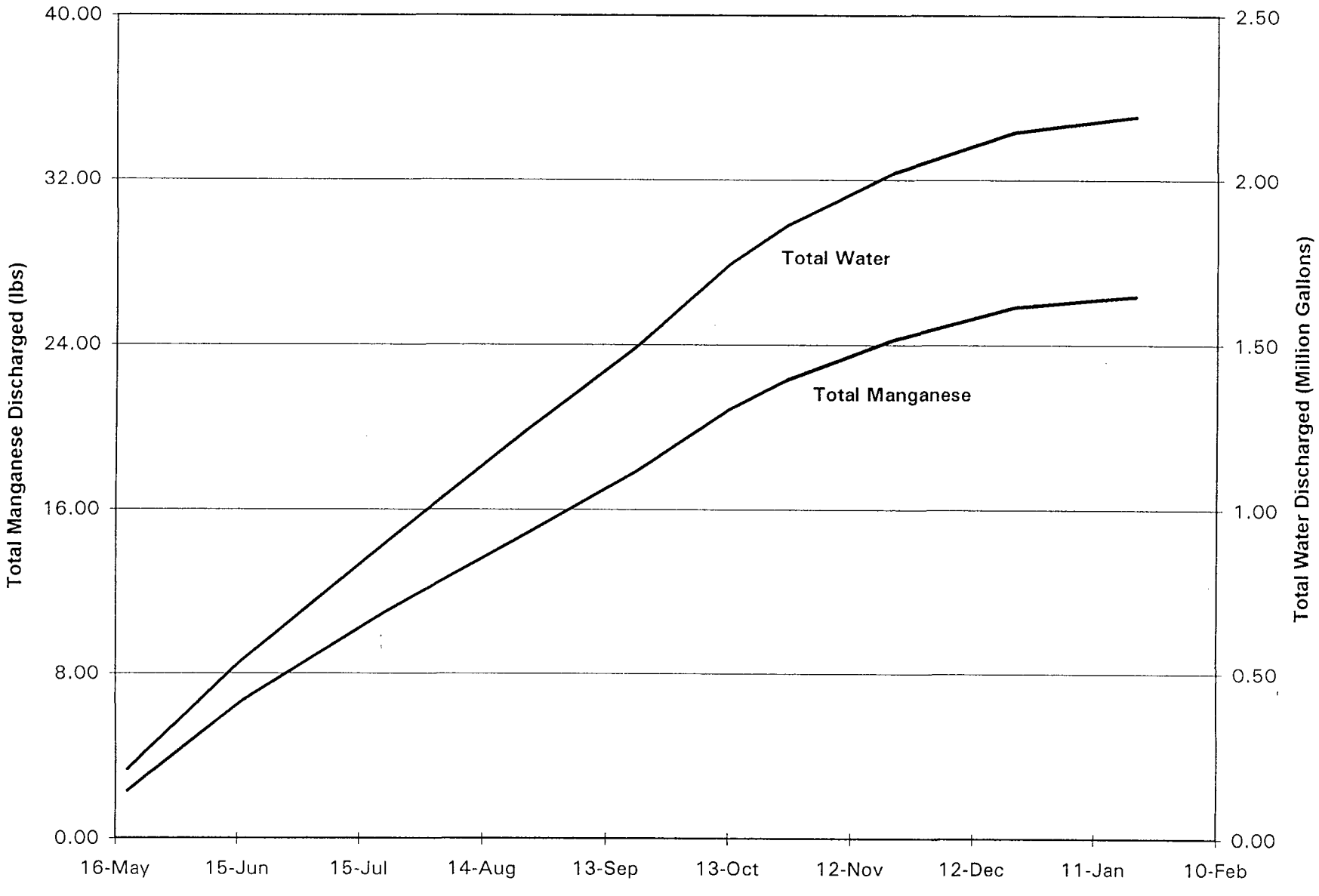
MASS IRON-CRS Figure A-23 2/17/95

Coarse Refuse Seep - Total Boron @ CRS Cumulative Mass Contribution



MASS BORON-CRS Figure A-24 2/17/95

Coarse Refuse Seep - Total Manganese @ CRS Cumulative Mass Contribution



MASS Manganese-CRS

Figure A-25

2/17/95

ATTACHMENT A

Huntingdon
Chen-Northern, Inc.
600 SOUTH 25TH STREET
P.O. BOX 30615
BILLINGS, MT 59107
(406) 248-9161
FAX (406) 248-9282

TECHNICAL REPORT

REPORT TO: ATTN: CHUCK WEMPLE
CHEN-NORTHERN, INC.
1127 WEST 2320 SOUTH, SUITE B
SALT LAKE CITY UT 84119

DATE: February 28, 1994
JOB NUMBER: 87-927
SHEET: 1 of 14
INVOICE NO.: 026905

REPORT OF: Surface Water Analysis - SCA DOGM 5-137.3-91

SAMPLE IDENTIFICATION:

On January 18, 1994, these surface water samples (our laboratory numbers 148524 through 148530) were received in our laboratory for analysis. Tests were conducted in accordance with the U.S. Environmental Protection Agency Manual EPA 600/4-79-020 *"Methods for Chemical Analysis of Water and Wastes."*

The test results are shown on the following pages.

A < sign indicates the value reported was the practical quantitation limit for this sample using the method described. Concentrations of analyte, if present, below this were not quantifiable.

The samples were received cool and were properly preserved in accordance with EPA guidelines.

Reviewed by David Commick

mc

Client Name: CHEN-NORTHERN, INC. SALT LAKE CITY, UT
Project No.: 87-927
Laboratory No.: 148527
Sample Name: ICE-1/0113394
Sample Date: 01/13/94
Collected by: GREG McDONALD
Time Sampled: 1454
Sample Type: SURFACE WATER

PARAMETER	MEASURED VALUE	METHOD DETECTION LIMIT	TIME OF ANALYSIS	DATE OF ANALYSIS	ANALYST
ANIONS					
Alkalinity Bicarbonate as	519 mg/l		1100	01/22/94	HB
Alkalinity Carbonate as C	0 mg/l		1100	01/22/94	HB
Alkalinity Total as CaCO3.	425 mg/l	0.84	1100	01/22/94	HB
Chloride as Cl	59 mg/l	1.41	1400	01/26/94	HB
Sulfate as SO4	943 mg/l	2.29	1115	02/02/94	CC
CATIONS					
Calcium as Ca	110 mg/l	0.39	1600	02/04/94	BH
Hardness as CaCO3	850 mg/l		1600	02/04/94	BH
Magnesium as Mg	140 mg/l	0.31	0930	01/21/94	BH
Potassium as K	10 mg/l	0.18	1400	01/28/94	AH
Sodium as Na	298 mg/l	0.81	1600	02/04/94	BH
INORGANICS					
Oil & Grease	2 mg/l	0.9	1030	01/27/94	TK
Settleable Solids	<0.1 ml/l	0.1	1045	01/19/94	CC
Total Dissolved Solids	1780 mg/l	11.7	1720	01/20/94	HB
Total Suspended Solids	11 mg/l	3.5	1300	01/21/94	HB
METALS					
Aluminum as Al (Dissolved	* <0.5 mg/l	0.023	1400	02/03/94	BH
Arsenic as As (Dissolved)	<0.002 mg/l	0.0014	0930	01/20/94	AH
Boron as B (Dissolved)	* <0.5 mg/l	0.045	1100	02/03/94	BH
Cadmium as Cd (Dissolved)	<0.001 mg/l	0.0002	1100	01/27/94	BH
Copper as Cu (Dissolved)	* <0.10 mg/l	0.005	1100	02/03/94	BH
Iron as Fe (Dissolved)	* <0.25 mg/l	0.008	1100	02/03/94	BH
Iron as Fe (Total)	0.30 mg/l	0.008	1630	02/03/94	BH
Lead as Pb (Dissolved)	<0.002 mg/l	0.0012	1300	01/20/94	AH
Manganese as Mn (Dissolve	* <0.10 mg/l	0.003	1100	02/03/94	BH
Manganese as Mn (Total)	* <0.10 mg/l	0.003	1630	02/03/94	BH
Molybdenum as Mo (Dissolv	* <0.25 mg/l	0.023	1100	02/03/94	BH
Selenium as Se (Dissolved	<0.002 mg/l	0.0011	1130	01/21/94	AH
Zinc as Zn (Dissolved)	* <0.10 mg/l	0.008	1100	02/03/94	BH

* Higher detection limit is due to interference present in the sample.

Client Name: CHEN-NORTHERN, INC. SALT LAKE CITY, UT
Project No.: 87-927
Laboratory No.: 148527
Sample Name: ICE-1/0113394
Sample Date: 01/13/94
Collected by: GREG McDONALD
Time Sampled: 1454
Sample Type: SURFACE WATER

PARAMETER	MEASURED VALUE	METHOD DETECTION LIMIT	TIME OF ANALYSIS	DATE OF ANALYSIS	ANALYST
NUTRIENTS					
Ammonia Nitrogen as N	0.13 mg/l	0.034	1515	01/24/94	CC
Nitrite as N	<0.05 mg/l	0.005	1200	01/20/94	DD
Phosphorous Total	0.05 mg/l	0.002	1600	02/09/94	CC
Nitrate as N	0.69 mg/l	0.005	1015	01/28/94	CC

Client Name: CHEN-NORTHERN, INC. SALT LAKE CITY, UT
Project No.: 87-927
Laboratory No.: 148526
Sample Name: F-2/011394
Sample Date: 01/13/94
Collected by: GREG McDONALD
Time Sampled: 1600
Sample Type: SURFACE WATER

PARAMETER	MEASURED VALUE	METHOD DETECTION LIMIT	TIME OF ANALYSIS	DATE OF ANALYSIS	ANALYST
ANIONS					
Alkalinity Bicarbonate as	605 mg/l		1100	02/10/94	HB
Alkalinity Carbonate as C	0 mg/l		1100	02/10/94	HB
Alkalinity Total as CaCO3	496 mg/l	0.84	1100	02/10/94	HB
Chloride as Cl	44 mg/l	1.41	1400	01/26/94	HB
Sulfate as SO4	632 mg/l	2.29	1115	02/02/94	CC
CATIONS					
Calcium as Ca	94 mg/l	0.39	1600	02/04/94	BH
Hardness as CaCO3	690 mg/l		1600	02/04/94	BH
Magnesium as Mg	110 mg/l	0.31	1600	02/04/94	BH
Potassium as K	7 mg/l	0.18	1400	01/28/94	AH
Sodium as Na	260 mg/l	0.81	1600	02/04/94	BH
INORGANICS					
Oil & Grease	<1 mg/l	0.9	1030	01/27/94	TK
Settleable Solids	<0.1 ml/l	0.1	0940	01/19/94	CC
Total Dissolved Solids	1390 mg/l	11.7	1720	01/20/94	HB
Total Suspended Solids	<5 mg/l	3.5	1300	01/21/94	HB
METALS					
Aluminum as Al (Dissolved	* <0.5 mg/l	0.023	1400	02/03/94	BH
Arsenic as As (Dissolved)	<0.002 mg/l	0.0014	0930	01/20/94	AH
Boron as B (Dissolved)	* <0.5 mg/l	0.045	1100	02/03/94	BH
Cadmium as Cd (Dissolved)	<0.001 mg/l	0.0002	1100	01/27/94	BH
Copper as Cu (Dissolved)	* <0.10 mg/l	0.005	1100	02/03/94	BH
Iron as Fe (Dissolved)	* <0.25 mg/l	0.008	1100	02/03/94	BH
Iron as Fe (Total)	0.30 mg/l	0.008	1630	02/03/94	BH
Lead as Pb (Dissolved)	<0.002 mg/l	0.0012	1300	01/20/94	AH
Manganese as Mn (Dissolve	* <0.10 mg/l	0.003	1100	02/03/94	BH
Manganese as Mn (Total)	0.10 mg/l	0.003	1630	02/03/94	BH
Molybdenum as Mo (Dissolv	* <0.25 mg/l	0.023	1100	02/03/94	BH
Selenium as Se (Dissolved	<0.002 mg/l	0.0019	1130	01/21/94	AH
Zinc as Zn (Dissolved)	* <0.10 mg/l	0.008	1100	02/03/94	BH

* Higher detection limit is due to interference present in the sample.

Client Name: CHEN-NORTHERN, INC. SALT LAKE CITY, UT
Project No.: 87-927
Laboratory No.: 148526
Sample Name: F-2/011394
Sample Date: 01/13/94
Collected by: GREG McDONALD
Time Sampled: 1600
Sample Type: SURFACE WATER

PARAMETER	MEASURED VALUE	METHOD DETECTION LIMIT	TIME OF ANALYSIS	DATE OF ANALYSIS	ANALYST
NUTRIENTS					
Ammonia Nitrogen as N	<0.05 mg/l	0.034	1515	01/24/94	CC
Nitrite as N	<0.05 mg/l	0.005	1200	01/20/94	DD
Phosphorous Total	<0.02 mg/l	0.002	1600	02/09/94	CC
Nitrate as N	0.97 mg/l	0.005	1015	01/28/94	CC

Client Name: CHEN-NORTHERN, INC. SALT LAKE CITY, UT
Project No.: 87-927
Laboratory No.: 148524
Sample Name: CRS/011494
Sample Date: 01/14/94
Collected by: GREG McDONALD
Time Sampled: 1035
Sample Type: SURFAACE WATER

PARAMETER	MEASURED VALUE	METHOD DETECTION LIMIT	TIME OF ANALYSIS	DATE OF ANALYSIS	ANALYST
ANIONS					
Alkalinity Bicarbonate as	570 mg/l		1100	02/10/94	HB
Alkalinity Carbonate as C	0 mg/l		1100	02/10/94	HB
Alkalinity Total as CaCO3	467 mg/l	0.84	1100	02/10/94	HB
Chloride as Cl	97 mg/l	1.41	1400	01/26/94	HB
Sulfate as SO4	3180 mg/l	2.29	1115	02/02/94	CC
CATIONS					
Calcium as Ca	560 mg/l	0.39	1600	02/04/94	BH
Hardness as CaCO3	2800 mg/l		1600	02/04/94	BH
Magnesium as Mg	340 mg/l	0.31	1600	02/04/94	BH
Potassium as K	56 mg/l	0.18	1400	01/28/94	AH
Sodium as Na	530 mg/l	0.81	1600	02/04/94	BH
INORGANICS					
Oil & Grease	<1 mg/l	0.9	1030	01/27/94	TK
Settleable Solids	0.4 ml/l	0.1	1150	01/19/94	CC
Total Dissolved Solids	4930 mg/l	11.7	1720	01/20/94	HB
Total Suspended Solids	16 mg/l	3.5	1300	01/21/94	HB
METALS					
Aluminum as Al (Dissolved	* <0.5 mg/l	0.023	1400	02/03/94	BH
Arsenic as As (Dissolved)	0.005 mg/l	0.0014	0930	01/20/94	AH
Boron as B (Dissolved)	1.0 mg/l	0.045	1100	02/03/94	BH
Cadmium as Cd (Dissolved)	<0.001 mg/l	0.0002	1100	01/27/94	BH
Copper as Cu (Dissolved)	* <0.10 mg/l	0.005	1100	02/03/94	BH
Iron as Fe (Dissolved)	12 mg/l	0.008	1100	02/03/94	BH
Iron as Fe (Total)	21 mg/l	0.008	1630	02/03/94	BH
Lead as Pb (Dissolved)	<0.002 mg/l	0.0012	1300	01/20/94	AH
Manganese as Mn (Dissolve	0.33 mg/l	0.003	1500	02/25/94	BH
Manganese as Mn (Total)	0.60 mg/l	0.003	1500	02/25/94	BH
Molybdenum as Mo (Dissolv	* <0.25 mg/l	0.023	1100	02/03/94	BH
Selenium as Se (Dissolved	<0.002 mg/l	0.0011	1130	01/21/94	AH
Zinc as Zn (Dissolved)	* <0.10 mg/l	0.008	1100	02/03/94	BH

* Higher detection limit is due to interference present in the sample.

Client Name: CHEN-NORTHERN, INC. SALT LAKE CITY, UT
Project No.: 87-927
Laboratory No.: 148524
Sample Name: CRS/011494
Sample Date: 01/14/94
Collected by: GREG McDONALD
Time Sampled: 1035
Sample Type: SURFAACE WATER

PARAMETER	MEASURED VALUE	METHOD DETECTION LIMIT	TIME OF ANALYSIS	DATE OF ANALYSIS	ANALYST
NUTRIENTS					
Ammonia Nitrogen as N	2.11 mg/l	0.034	1515	01/24/94	CC
Nitrite as N	<0.05 mg/l	0.005	1200	01/20/94	DD
Phosphorous Total	0.76 mg/l	0.002	1600	02/09/94	CC
Nitrate as N	0.22 mg/l	0.005	1015	01/28/94	CC

Client Name: CHEN-NORTHERN, INC. SALT LAKE CITY, UT
Project No.: 87-927
Laboratory No.: 148529
Sample Name: DUPLICATE 148524 CRS/011494
Sample Date: 01/14/94
Collected by: GREG McDONALD
Time Sampled: 1035
Sample Type: SURFACE WATER

PARAMETER	MEASURED VALUE	METHOD DETECTION LIMIT	TIME OF ANALYSIS	DATE OF ANALYSIS	ANALYST
ANIONS					
Alkalinity Bicarbonate as	547 mg/l		1100	01/22/94	HB
Alkalinity Carbonate as C	0 mg/l		1100	01/22/94	HB
Alkalinity Total as CaCO3	448 mg/l	0.84	1100	01/22/94	HB
Chloride as Cl	103 mg/l	1.41	1400	01/26/94	HB
Sulfate as SO4	3160 mg/l	2.29	1115	02/02/94	CC
CATIONS					
Calcium as Ca	560 mg/l	0.39	1600	02/04/94	BH
Hardness as CaCO3	2800 mg/l		0930	01/21/94	BH
Magnesium as Mg	340 mg/l	0.31	1600	02/04/94	BH
Potassium as K	56 mg/l	0.18	1400	01/28/94	AH
Sodium as Na	525 mg/l	0.81	1600	02/04/94	BH
INORGANICS					
Total Dissolved Solids	5100 mg/l	11.7	1720	01/20/94	HB
Total Suspended Solids	62 mg/l	3.5	1300	01/21/94	HB
METALS					
Aluminum as Al (Dissolved	* <0.5 mg/l	0.023	1400	02/03/94	BH
Arsenic as As (Dissolved)	0.005 mg/l	0.0014	0930	01/20/94	AH
Boron as B (Dissolved)	1.2 mg/l	0.045	1100	02/03/94	BH
Cadmium as Cd (Dissolved)	<0.001 mg/l	0.0002	1100	01/27/94	BH
Copper as Cu (Dissolved)	* <0.10 mg/l	0.005	1100	02/03/94	BH
Iron as Fe (Dissolved)	12 mg/l	0.008	1100	02/03/94	BH
Iron as Fe (Total)	20 mg/l	0.008	1630	02/03/94	BH
Lead as Pb (Dissolved)	<0.002 mg/l	0.0012	1300	01/20/94	AH
Manganese as Mn (Dissolve	0.32 mg/l	0.003	1500	02/25/94	BH
Manganese as Mn (Total)	0.60 mg/l	0.003	1500	02/25/94	BH
Molybdenum as Mo (Dissolv	* <0.25 mg/l	0.023	1100	02/03/94	BH
Selenium as Se (Dissolved	<0.002 mg/l	0.0011	1130	01/21/94	AH
Zinc as Zn (Dissolved)	* <0.10 mg/l	0.008	1100	02/03/94	BH

* Higher detection limit is due to interference present in the sample.

Client Name: CHEN-NORTHERN, INC. SALT LAKE CITY, UT
Project No.: 87-927
Laboratory No.: 148529
Sample Name: DUPLICATE 148524 CRS/011494
Sample Date: 01/14/94
Collected by: GREG McDONALD
Time Sampled: 1035
Sample Type: SURFACE WATER

PARAMETER	MEASURED VALUE	METHOD DETECTION LIMIT	TIME OF ANALYSIS	DATE OF ANALYSIS	ANALYST
NUTRIENTS					
Ammonia Nitrogen as N	2.13 mg/l	0.034	1515	01/24/94	CC
Nitrite as N	<0.05 mg/l	0.005	1200	01/20/94	DD
Phosphorous Total	0.75 mg/l	0.002	1600	02/09/94	CC
Nitrate as N	0.26 mg/l	0.005	1015	01/28/94	CC

Client Name: CHEN-NORTHERN, INC. SALT LAKE CITY, UT
Project No.: 87-927
Laboratory No.: 148525
Sample Name: CRB-011494
Sample Date: 01/14/94
Collected by: GREG McDONALD
Time Sampled: 1130
Sample Type: SURFACE WATER

PARAMETER	MEASURED VALUE	METHOD DETECTION LIMIT	TIME OF ANALYSIS	DATE OF ANALYSIS	ANALYST
ANIONS					
Alkalinity Bicarbonate as	369 mg/l		1100	01/22/94	HB
Alkalinity Carbonate as C	0 mg/l		1100	01/22/94	HB
Alkalinity Total as CaCO3	302 mg/l	0.84	1100	01/22/94	HB
Chloride as Cl	121 mg/l	1.41	1400	01/26/94	HB
Sulfate as SO4	2780 mg/l	2.29	1115	02/02/94	CC
CATIONS					
Calcium as Ca	490 mg/l	0.39	0930	01/21/94	BH
Hardness as CaCO3	2400 mg/l		0930	01/21/94	BH
Magnesium as Mg	290 mg/l	0.31	0930	01/21/94	BH
Potassium as K	39 mg/l	0.18	1400	01/28/94	AH
Sodium as Na	450 mg/l	0.81	0930	01/21/94	BH
INORGANICS					
Oil & Grease	<1 mg/l	0.9	1030	01/27/94	TK
Settleable Solids	<0.1 ml/l	0.1	0940	01/19/94	CC
Total Dissolved Solids	4320 mg/l	11.7	1720	01/20/94	HB
Total Suspended Solids	<5 mg/l	3.5	1300	01/21/94	HB
METALS					
Aluminum as Al (Dissolved	* <0.5 mg/l	0.023	1400	02/03/94	BH
Arsenic as As (Dissolved)	<0.002 mg/l	0.0014	0930	01/20/94	AH
Boron as B (Dissolved)	0.7 mg/l	0.045	1100	02/03/94	BH
Cadmium as Cd (Dissolved)	<0.001 mg/l	0.0002	1100	01/27/94	BH
Copper as Cu (Dissolved)	* <0.10 mg/l	0.005	1100	02/03/94	BH
Iron as Fe (Dissolved)	* <0.25 mg/l	0.008	1330	02/08/94	BH
Iron as Fe (Total)	* <0.25 mg/l	0.008	1630	02/03/94	BH
Lead as Pb (Dissolved)	<0.002 mg/l	0.0012	1300	01/20/94	AH
Manganese as Mn (Dissolve	* <0.20 mg/l	0.003	1100	02/03/94	BH
Manganese as Mn (Total)	* <0.10 mg/l	0.003	1630	02/03/94	BH
Molybdenum as Mo (Dissolv	* <0.25 mg/l	0.023	1100	02/03/94	BH
Selenium as Se (Dissolved	<0.002 mg/l	0.0011	1130	01/21/94	AH
Zinc as Zn (Dissolved)	* <0.10 mg/l	0.008	1100	02/03/94	BH

* Higher detection limit is due to interference present in the sample.

Client Name: CHEN-NORTHERN, INC. SALT LAKE CITY, UT
Project No.: 87-927
Laboratory No.: 148525
Sample Name: CRB-011494
Sample Date: 01/14/94
Collected by: GREG McDONALD
Time Sampled: 1130
Sample Type: SURFACE WATER

PARAMETER	MEASURED VALUE	METHOD DETECTION LIMIT	TIME OF ANALYSIS	DATE OF ANALYSIS	ANALYST
NUTRIENTS					
Ammonia Nitrogen as N	<0.05 mg/l	0.034	1515	01/24/94	CC
Nitrite as N	<0.05 mg/l	0.005	1200	01/20/94	DD
Phosphorous Total	<0.02 mg/l	0.002	1600	02/09/94	CC
Nitrate as N	1.33 mg/l	0.005	1015	01/28/94	CC

CHAIN OF CUSTODY RECORD

Huntingdon

Consulting Engineers · Environmental Scientists

- [x] Chen-Northern, Inc., Division
- [ ] Thomas-Hartig & Associates, Inc., Division
- [ ] Schaefer Dixon Associates, Inc., Division
- [ ] Herzog Associates, Inc., Division

Project or Site Name: SCA DOGM

Project Number: 5-137.3-91

Sampler Name (Printed): Greg McDonald

Contact or Report to: Chuck Wemple

Contact Address or Location: SLC, UT

Sampler Signature: [signature]

DATE COLLECTED	TIME COLLECTED	SAMPLE LOCATION OR DESCRIPTION	COMP OR GRAB	SAMPLE MATRIX	NO. OF CONTAINERS	ANALYSIS REQUIRED	NOTES	LAB NUMBER
						See Attached List	pH	
1/14/94	1035	CRS/011494	Grab	Water	6		2	148564
1/14/94	1130	CRB/011494	Grab	Water	6		2	65
1/13/94	1600	F-2/011394	Grab	Water	6		2	66
1/13/94	1454	ICE-1/011394	Grab	Water	6		2	67
1/13/94	1459	ICE-2/011394	Grab	Water	6		2	68
							Dp 148564 CRS/011494 1/14 1035	69
							Sp 148568 ICE-2/011394 1/13 1459	70
								71

Relinquished by:	Date	Time	Received by:
[signature]	1/17/94	1400	Carrier / Airborne
[signature]	1/18/94	1430	Chi Lee Bl... H. [illegible]

Remarks: Attn: Dave Council

1142 Cooler temp 6.1°C.
SLC Cooler temp 3.8°C

Huntingdon

(Formerly Chen-Northern, Inc.)
600 South 25th Street
P O Box 30615
Billings, MT 59107
(406) 248-9161
FAX (406) 248-9282

TECHNICAL REPORT

REPORT TO: ATTN: CHUCK WEMPLE
HUNTINGDON ENGINEERING &
ENVIRONMENTAL, INC.
1127 WEST 2320 SOUTH, SUITE B
SALT LAKE CITY UT 84119

DATE: June 1, 1994
JOB NUMBER: 87-927
SHEET: 1 of 5
INVOICE NO.: 026670

REPORT OF: Water Analysis - SCA DOGM (5-137.4-91)

SAMPLE IDENTIFICATION:

On April 21, 1994, these water samples (our laboratory numbers 150822 through 150825) were received in our laboratory for analysis. Tests were conducted in accordance with the U.S. Environmental Protection Agency Manual EPA 600/4-79-029 *"Methods for Chemical Analysis of Water and Wastes."*

The condition of the samples upon receipt at the laboratory is noted on the attached sample receipt checklist.

The test results are shown on the following pages.

A < sign indicates the value reported was the practical quantitation limit for this sample using the method described. Concentrations of analyte, if present, below this were not quantifiable.

Reviewed by David Commill

Attachment: Sample Receipt Checklist

rmr

Client Name: HUNTINGDON - SALT LAKE CITY, UT
Project No.: 87-927
Laboratory No.: 150824
Sample Name: ICE-1/041994
Sample Date: 04/19/94
Collected by: CHUCK WEMPLE
Time Sampled: 1330
Sample Type: WATER

PARAMETER	MEASURED VALUE	METHOD DETECTION LIMIT	TIME OF ANALYSIS	DATE OF ANALYSIS	ANALYST
ANIONS	**29.84 meq/l**				
Alkalinity Bicarbonate as HCO3	443 mg/l	-	1400	05/03/94	DD
Alkalinity Carbonate as CO3	11 mg/l	-	1400	05/03/94	DD
Alkalinity Total as CaCO3	382 mg/l	0.84	1400	05/03/94	DD
Chloride as Cl	60 mg/l	1.41	1530	04/27/94	DD
Sulfate as SO4	985 mg/l	2.29	1430	05/09/94	DD
CATIONS	**30.19 meq/l**				
Calcium as Ca	108 mg/l	0.39	1530	05/11/94	BH
Hardness as CaCO3	854 mg/l	-	1530	05/11/94	BH
Magnesium as Mg	142 mg/l	0.31	1530	05/11/94	BH
Potassium as K	13 mg/l	0.18	1000	05/09/94	AH
Sodium as Na	294 mg/l	0.81	1000	04/25/94	AH
INORGANICS					
Electrical Conductivity	2800 umhos/cm	7	1300	04/27/94	HB
Oil & Grease	<1 mg/l	0.9	1630	05/02/94	CC
Settleable Solids	<0.1 ml/l	0.1	1600	04/21/94	DD
Total Dissolved Solids	1860 mg/l	11.7	1400	04/26/94	HB
Total Suspended Solids	71 mg/l	3.5	1400	04/26/94	HB
METALS					
Aluminum as Al (Dissolved	*<1.0 mg/l	0.023	1330	05/04/94	BH
Arsenic as As (Dissolved)	<0.002 mg/l	0.0014	1400	05/02/94	AAH
Boron as B (Dissolved)	* <1 mg/l	0.045	1030	05/05/94	BH
Cadmium as Cd (Dissolved)	<0.001 mg/l	0.0002	1400	05/11/94	AH
Copper as Cu (Dissolved)	*<0.2 mg/l	0.005	1330	05/04/94	BH
Iron as Fe (Dissolved)	*<0.5 mg/l	0.008	1030	05/06/94	BH
Iron as Fe (Total)	0.35 mg/l	0.008	1400	05/06/94	BH
Lead as Pb (Dissolved)	<0.002 mg/l	0.012	1400	04/28/94	AH
Manganese as Mn (Dissolved)	*<0.2 mg/l	0.003	1330	05/04/94	BH
Manganese as Mn (Total)	0.10 mg/l	0.003	1515	05/06/94	BH
Molybdenum as Mo (Dissolved)	*<0.5 mg/l	0.023	1330	05/04/94	BH
Selenium as Se (Dissolved	<0.002 mg/l	0.0011	1400	05/04/94	AH
Zinc as Zn (Dissolved)	*<0.2 mg/l	0.008	1330	05/04/94	BH
NUTRIENTS					
Ammonia Nitrogen as N	0.08 mg/l	0.034	1600	04/25/94	CC
Nitrate + Nitrite as N	0.32 mg/l	0.05	1330	04/22/94	DD
Phosphorous Total	0.02 mg/l	0.002	1400	04/26/94	CC

* Higher detection level due to interference.