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**Benthic Macroinvertebrate Response to
Water Quality
In Three Rivers of Eastern Ontario**

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**Thesis submitted to the
School of Graduate Studies and Research
University of Ottawa
In partial fulfillment of the requirements for the
M.Sc. degree in the
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**Thèse soumise à
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Abstract

The benthic macroinvertebrate response to water quality changes was examined in riffle zones of three Eastern Ontario Rivers (Ottawa River, Rideau River and Jock River) during the spring and summer of 1995 and 1996. Water quality gradients were detected within the rivers but these were weakly correlated to invertebrate benthos structure making it impossible to predict one from the other. However, the observed differences in water quality among sites and rivers, although significant, may not provide a large enough water quality gradient to observe a strong signal with the invertebrate data. A principal component analysis on the invertebrate densities revealed that invertebrate variability was greater between seasons than between years. May-June samples tended to have higher variability than July-August samples. These results support a standardized approach to the macroinvertebrate sampling period from year to year and the need to sample during a less variable time of the year such as late summer or early fall. Some of the inherent problems with benthic invertebrate indices are examined and the appropriateness of a coarse taxonomic level are discussed. In general, I found no evidence of strong impacts of water quality on the benthos structure of the three rivers. However, at certain locations where water quality parameters were unusually high particularly compared to the guideline, we observed an increase in invertebrate abundance. This study does provide a reference point for each of our large rivers, from which we can compare to future monitoring work.

Résumé

La relation entre la structure et l'abondance des communautés d'invertébrés macrobenthiques et la qualité de l'eau a été examinée en eaux rapides dans trois rivières de l'est de l'Ontario (la rivière des Outaouais, la rivière Rideau et la rivière Jock). Les communautés benthiques ont été échantillonnées à 18 sites différents des trois rivières, au printemps et à l'été de 1995 et 1996. La qualité de l'eau varie entre les sites de chaque rivière mais est peu corrélée à la structure des communautés d'invertébrés benthiques. Les résultats de l'analyse par composantes principales sur la densité des invertébrés révèlent que la variabilité des invertébrés était grandement saisonnière plutôt qu'annuelle pour les trois rivières. Les échantillons de mai et juin ont tendance à avoir une variabilité interannuelle plus grande que les échantillons de juillet et août, ce qui suggère que les programmes de surveillance à long terme auraient devraient être effectués à la fin de l'été ou au début de l'automne. De façon générale, nous n'avons détecté aucun impact majeur évident de la qualité de l'eau sur les structures des communautés benthiques dans les trois rivières. Cependant, à certains endroits où la qualité de l'eau semble la moins bonne, nous observons une augmentation de l'abondance des invertébrés. Cette étude pourra servir de référence pour les programmes de surveillance futurs de ces trois rivières.

Preface

I would like to express my appreciation to several key undergrad and graduate students that provided many hours of assistance in the field and in the laboratory in the early stages of this project. Specifically, I want to thank Vincent Mercier, Sherri-Lyn McKee, Teressa Trollope, Benoit Lalonde, Bryan Lozon, and Véronique Thériault for their assistance and advice with the field and the lab work and Alain Filion for his help with Systat. In addition, I would especially like to thank Antoine Morin, Department of Biology, University of Ottawa, for his advice and direction and the use of his lab and field equipment. As well I am grateful for the cooperation extended by the Region of Ottawa-Carleton for their support and assistance on this project and providing me with their water quality data. My thanks to Stephen Short for producing figure 1 and Ken Middlebrook for his programming assistance. Most of all I wish to thank my wife, Tara, for her support and patience throughout the past several years while completing this project.

Introduction

Water quality degradation is difficult to detect from collections of grab water samples because concentrations of solutes in running waters tend to have large temporal variability and because effluent releases are often episodic. Too often, the effects of water quality degradation are noticed because fish populations have declined or become contaminated by toxicants, long after the degradation of water quality has occurred. It has been argued that an early warning system can be obtained by monitoring the abundance and taxonomic composition of assemblages of benthic (bottom dwelling) macroinvertebrates and algae (Griffiths 1993, Resh & Jackson 1993, Washington 1984, Hilsenhoff 1982, 1988). In fact, many benthic macroinvertebrate indices have been developed specifically to address water quality concerns (Hilsenhoff 1982, 1988, Armitage et al. 1983, Gowns et al., 1995). Benthic macroinvertebrate taxa in these types of indices (sometimes more commonly known as biotic indices or metrics) are typically assigned numerical scores that describe a gradient in the chemical characteristics of the water. For example, taxa that are found where water quality has been degraded can be considered tolerant of pollution and are thus assigned low scores and likewise taxa found primarily where water quality is good can be considered sensitive to pollution and are assigned high scores (St-Onge 1998, Armitage et al. 1983). But, until recently, most biomonitoring efforts, including the use of biotic indices, have been restricted to small streams and their validity in larger rivers with often smaller water quality gradients remains to be demonstrated (Resh et al. 1995).

The Region of Ottawa-Carleton (the Region) has an ongoing water quality monitoring programme which includes the monitoring of the three largest rivers flowing through the municipality (Ottawa River, Rideau River and Jock River). The RMOC is also considering the possibility of adding a biomonitoring component to its routine activities, not only to detect possible present and future water quality impairments, but also to document the current status of the ecosystems.

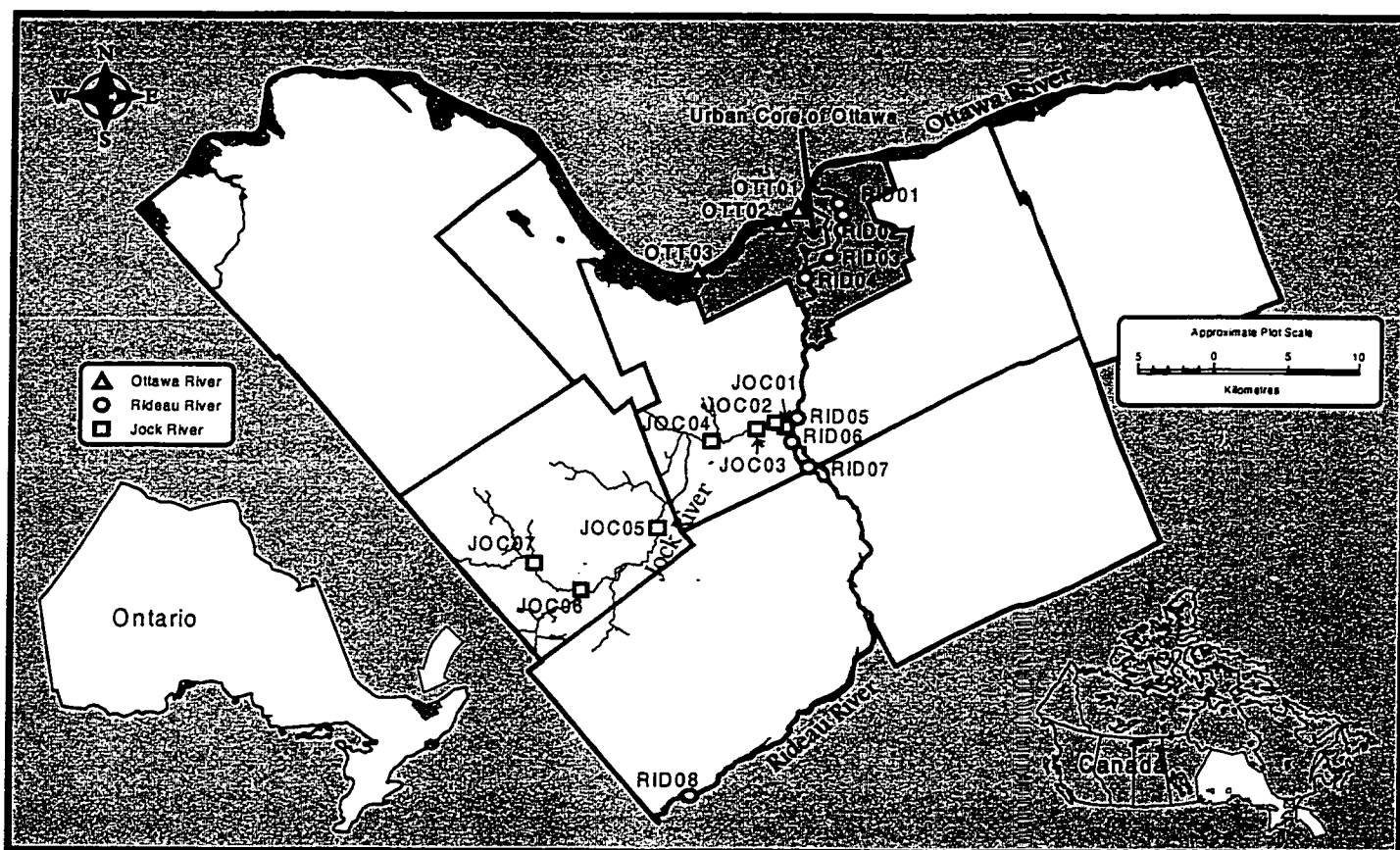
The purposes of this study are to describe the spatial and temporal variability of benthic invertebrate assemblages close to the historical water sample sites, to assess whether the structure of current assemblages is related to chemical characteristics of the water, and to provide recommendations to the Region regarding the implementation of a biomonitoring programme.

Material and methods

Study sites

The study was conducted at 18 sites on three rivers in eastern Ontario: 3 sites on the Ottawa River (1992 – 1996 Average Flow Rate = $1190 \text{ m}^3/\text{s}$ (Water Survey of Canada 1998)), 8 sites on the Rideau River (1992 – 1996 Average Flow Rate = $46 \text{ m}^3/\text{s}$) and 7 sites on the Jock River (1992 – 1996 Average Flow Rate = $7 \text{ m}^3/\text{s}$) (Fig. 1). All sites consisted of riffle zone habitats with similar water depth (mean=30 cm, SD=10 cm), average water column current velocity (mean=43 cm/s, SD=16 cm/s), and where the dominant substrates were rocks and gravel. Sites were chosen as close as possible to historical water quality sampling sites (usually downstream and within a 50 meters proximity).

Figure 1 - Map of Sampling Locations



Jock River

The Jock River is a subwatershed of the Rideau River and it discharges to the Rideau just downstream of Rideau station 5 (Fig. 1). The Jock River watershed drains an area of approximately 572 square kilometers (RMOC 1999a). Summer flows on the Jock River are partially controlled by two weirs; one just upstream of station 1 (Heart's Desire) and one upstream of station 7 at Ashton. The 7 sampling stations on the Jock River span the entire section of the river within the boundaries of the Region that includes rural agricultural landscapes upstream to more urban residential landscapes downstream. Downstream stations 1, 2 and 3 on the Jock can be considered in the section most influenced by urban discharges. The most significant inputs in this section are located just upstream of station 3 that include discharges from two stormwater management facilities, one of which services a large suburban development. The land use upstream of station 4 could be described as being more transitional because of the mix between urban and agricultural influences. Immediately upstream of station 4 there is agricultural activity occurring along the riverbanks and one industrial discharge from a lumberyard. Further upstream in this section between stations 4 and 5, there are some highly degraded tributaries entering the Jock River that drain primarily agricultural land. In contrast, the land use upstream of station 5 (in the section between stations 5 and 6) is primarily a class I protected wetland with virtually no agricultural or urban development. The stations furthest upstream (stations 6 and 7) can be considered in a section of the Jock being influenced by mostly agricultural land use.

Rideau River

The whole Rideau River watershed drains an area over 4,000 square kilometers and enters the Ottawa River just downstream of our Ottawa sampling station 1 (Fig. 1). The total length of the Rideau is 130 kilometers of which 70 kilometers are within the Region's boundaries (RMOC 1999a). Flows on the Rideau River are partially controlled by a series of man-made dams, sluice gates and stop-logs which were constructed in the early 1800's in combination with a series of canals and locks to facilitate the navigation of watercraft from Kingston to Ottawa. The 8 sampling stations on the Rideau River, within the boundaries of the Region, span the entire gradient from rural upstream landscapes to completely urbanized downstream landscapes (RMOC 1993). Downstream stations 1, 2, 3 and 4 on the Rideau are all located in the most developed section of the Rideau (within the urban core of the city) and hence subject to mostly urban discharges (i.e. storm sewers)

from low and high density residential, commercial and light industrial developments. For example: between stations 1 and 2 there are 7 storm sewer discharges; between stations 2 and 3 there are 26 storm sewer discharges and 1 creek entering the Rideau; between stations 3 and 4 there are 18 storm sewer discharges; and upstream of station 4 (between stations 4 and 5) there are 23 storm sewer discharges, 5 creek inputs, 1 river input, 23 intermittent flowing tributaries and 16 open storm drainage ditches (RMOC 1993). The land use between stations 5 and 7 can be described as being more transitional because of the mix between urban (mostly town and village residential developments) and agricultural influences. For instance, between stations 5 and 7 there are approximately 3 intermittent tributaries, 1 creek, and 22 open storm drainage ditches and/or swales. The 3 intermittent tributaries and the 1 creek all drain active agricultural land whereas the open ditches drain village and town developments. Upstream of stations 7 and 8 the land use becomes primarily rural agricultural and the creeks, tributaries and drains that enter the Rideau River in this section are draining mostly agriculturally developed land. There are approximately 40 to 50 inputs in this section along the Rideau between stations 7 and 8 from a combination of creeks, tributaries and drains.

Ottawa River

The Ottawa River has a length of 1,130 kilometers and total drainage basin area of more than 146,300 square kilometers (RMOC 1999a). Flows on the Ottawa River are partially controlled by a series of lakes, natural falls, control dams and hydroelectric generating stations (RMOC, 1999b). Only 3 stations were studied on the Ottawa River, corresponding to key locations with respect to local inputs to the river. All 3 stations were located on the Ontario side of the River, within the boundaries of the urbanized core of Ottawa (Fig. 1). Station 1 is located furthest downstream in the central core of the city, station 2 in the mid-core, and station 3 on the upstream boundary of the urban core. Land use within the urban core boundaries (between our stations 1 and 3) is comprised of mainly high-density and low density residential, high density commercial, and a few heavy and light industrial/municipal areas. For example, between stations 1 and 2 there are 5 storm sewer discharges, 2 industrial/municipal discharges, and 2 combined sewer overflows (CSO's) entering the Ottawa River from the Ontario side. CSO's are designed to transport storm and sanitary wastewater in the same system and the actual overflow to the river occurs when the flows in the combined system exceed a set interception rate (RMOC 1999b). Overflows occur during spring run-off events

and heavy seasonal rains or thunderstorms. CSO's are primarily found in the older sections of the city because this was the way the sewer system was designed back before the present day separated sewer system became standard required practice. Upstream between stations 2 and 3 there are 12 storm sewer discharges, 1 industrial/municipal discharge and 1 creek entering the Ottawa River from the Ontario side. Land use upstream of station 3 can be best described as a mix between low density residential, residential village and town and rural agricultural. For instance, from station 3 upstream to approximately the Region's boundary there are 8 storm sewers, approximately 6 creeks, approximately 9 tributaries, and 2 rivers discharging from the Ontario side into the Ottawa River (RMOC 1999b).

Water quality monitoring by the RMOC

The chemical and bacterial water quality data was collected by the Region of Ottawa-Carleton between May 1995 and August 1996. Bacterial samples were analyzed using the membrane filtration technique (using the membrane fecal coliform media (mFC) for fecal coliform analysis and the basal membrane fecal coliform media (basal mFC) where the dyes and lactose are reduced to isolate for *Escherichia coli*), cations and anions were analyzed on a Radiometer™ VIT 90 titrator and automated DX100 Dionex™ ion chromatograph, nutrients were analyzed using a Skalar™ autoanalyzer and metals were analyzed using the CETAC™ ultrasonic nebulizer and a Varian™ Liberty 110 sequential inductively coupled plasma spectrometer (ICP) (RMOC 1996). In all, the Region produced a total of 23 237 data points on 32 different parameters (Table 1). However, sampling effort (both timing and frequency, Table 2) varied among sites, and the set of analyses also varied among water samples. Log transformed water quality averages per site can be found in Appendix I.

Persistent toxic organic compounds (i.e. PCB's, pesticides etc.) were not part of the Region's regular monitoring program and hence were not considered in this work. Concentrations of these substances have been historically at trace levels in the water column and typically are undetectable in the larger rivers of Eastern Ontario (ORWQCC 1989, RMOC 1993, Merriman and McCrea 1985). This is not to say that certain localized areas are not affected but general historical river levels have been documented as having non-toxic concentrations in the water.

Table 1. Number of observations (n) for the 32 water quality parameters provided by the RMOC for the period May 1995 to August 1996.

Code	n	Units	Method Detection Limit(MDL)	Parameter
AL	693	mg/L	0.003	Aluminum (Al)
ALK	898	mg/L as CaCO ₃	1.0	Alkalinity
CA	696	mg/L	0.04	Calcium (Ca)
CD	696	mg/L	0.0003	Cadmium (Cd)
CL	893	mg/L	0.1	Chloride (Cl)
CO	696	mg/L	0.001	Cobalt (Co)
COND	882	micro-siemens/cm	5.0	Conductivity
CR	696	mg/L	0.0007	Chromium (Cr)
CU	696	mg/L	0.0005	Copper (Cu)
DOC	6	mg/L	0.5	Dissolved organic carbon
ECOLI	1046	colony forming units/100ml		<i>Escherichia coli</i>
FCOLI	675	colony forming units/100ml		Fecal coliform
FE	696	mg/L	0.002	Iron (Fe)
K	696	mg/L	0.06	Potassium (K)
MG	696	mg/L	0.02	Magnesium (Mg)
MN	696	mg/L	0.0004	Manganese (Mn)
MO	696	mg/L	0.0004	Molybdenum (Mo)
NA	696	mg/L	0.005	Sodium (Na)
NH3	851	mg/L	0.003	Ammonia + Ammonium (NH ₃ +NH ₄)
NI	696	mg/L	0.0008	Nickel (Ni)
NOX	849	mg/L	0.01	Nitrite-Nitrate (NO ₂ +NO ₃)
PB	696	mg/L	0.001	Lead (Pb)
PH	898	pH units		pH
PHENOL	81	mg/L	0.5	Phenol
SI	695	mg/L	0.01	Silicon (Si)
SO4	893	mg/L	0.1	Sulphate (SO ₄)
SRP	852	mg/L	0.002	Soluble reactive phosphorus
TKN	852	mg/L	0.01	Total Kjeldahl nitrogen
TP	852	mg/L	0.005	Total phosphorus
TSS	891	mg/L	~1.0	Total suspended solids
VA	696	mg/L	0.002	Vanadium (Va)
ZN	696	mg/L	0.002	Zinc (Zn)

Table 2. Water quality sampling frequency for each sampling site between May 1995 and August 1996.
Number of sampling dates for each site in 1995 and 1996.

Sampling site	1995	1996
JOC01	21	7
JOC02	20	7
JOC04	45	6
JOC05	20	7
JOC06	22	7
JOC07	22	7
OTT01	1	5
OTT02		6
OTT03	4	4
RID01		6
RID02	6	38
RID03	6	37
RID04	6	6
RID05	36	29
RID06	36	27
RID07	31	22
RID08	5	7

Field and laboratory work to describe benthic assemblages

Benthos samples were collected on 4 occasions at each site. Late spring/early summer samples were collected between May 25 and June 1 in 1995, and between June 10 and June 18 in 1996. Late summer samples were collected between July 24 and July 28 in 1995, and between July 26 and August 1 in 1996.

At each site, 8 rocks were randomly collected from the river bottom and placed in plastic whirlpak bags and preserved with 95% ethanol for later macroinvertebrate sorting and identification and periphytic chlorophyll analysis. Water depth (cm) and average water column current velocity (m/s) were recorded for each rock using a Gurley™ Pigmy current meter (Appendix II).

In the lab all the invertebrates were removed from each rock by washing and brushing over a set of sieves. Samples were divided into the 1000 µm and 500 µm size fractions and then counted and coarsely identified under a stereomicroscope (6X). Invertebrates were assigned to major taxa (usually phylum, class or order), although identification of Ephemeroptera, Plecoptera, Trichoptera and Chironomidae further proceeded to the family level (Table 3) (Merritt and Cummins 1984, Thorp and Covich 1991). Some samples were split using a Folsom™ plankton splitter if the benthic macroalgae inhibited sorting. A 12 ml subsample of ethanol was collected from each whirlpak bag

24 hours after rock collection, centrifuged, and then the chlorophyll concentration estimated spectrophotometrically by the method of Ostrofsky and Rigler (1987).

To determine rock surface area, each rock was covered completely with tinfoil and the weight of the tinfoil required to cover the rock was determined. This weight was converted to square centimeters based on the areal density (g/cm^2) of tinfoil. The overall mean rock surface area was 163 cm^2 with a range from 50 cm^2 to 345 cm^2 (Appendix II). Invertebrate densities ($\text{individuals}/\text{m}^2$) and periphyton chlorophyll standing stock ($\text{mg chlor.a}/\text{m}^2$) were expressed per unit of total rock area (Appendix II).

Table 3. Taxa used in this study, and corresponding sensitivity (or tolerance) index in the protocols used by the Québec (PQ) provincial government (St-Onge 1998), the Idaho protocol (Idaho Division of Environmental Quality 1996), and the Biological Monitoring Working Party (BMWP) protocol (Armitage et al. 1983).

Code	Name	PQ Sensitivity	Idaho Tolerance	BMWP Sensitivity	Tolerant/Sensitive
Eph	Ephemeroptera				
Plec	Plecoptera				
Trich	Trichoptera				
Coleo	Coleoptera			5	
Chiro	Chironominae	1	6	2	Tolerant
Ortho	Orthocladinae		6		Tolerant
Tanyp	Tanypodinae		6		Tolerant
Simul	Simuliidae		6	5	
Dipt	Other Diptera		7		
Gast	Gastropoda	2	7		Tolerant
Zebra	Zebra mussel				
Bival	Other Bivalvia	2	8	3	
Amphi	Amphipoda	2	4		
Isopo	Isopoda	1	8	3	Tolerant
Nema	Nematoda		5		
Oligo	Oligochaeta	1	5	1	Tolerant
Platy	Platyhelminthes		4	5	
Hydra	Hydra		5		
Other	Other – miscellaneous taxa				
E_Cae	Ephemeroptera-Caenidae	2	7	7	
E_Trico	Ephemeroptera-Leptohyphidae (formerly known as Tricorythidae)		4		Sensitive
E_Hept	Ephemeroptera-Heptageniidae	5	4	10	Sensitive
E_Bae	Ephemeroptera-Baetidae	2	4	4	
E_Ephe	Ephemeroptera-Ephemerellidae	6	1	10	Sensitive
E_Lepto	Ephemeroptera-Leptophlebiidae	7	4	10	Sensitive
T_Hpsy	Trichoptera-Hydropsychidae	3	4	5	
T_Phil	Trichoptera-Philopotamidae	8	3	8	Sensitive
T_Poly	Trichoptera-Polycentropodidae	4	6		
T_Hpti	Trichoptera-Hydroptilidae	5	4	6	
T_Gloss	Trichoptera-Glossomatidae	7	2		Sensitive
T_Rhya	Trichoptera-Rhyacophilidae	4	0		Sensitive
T_Limn	Trichoptera-Limnephilidae	3	4		
T_Lepto	Trichoptera-Leptoceridae	4	4	10	Sensitive
T_Heli	Trichoptera-Helicopsychidae		3		Sensitive
T_Psy	Trichoptera-Psychomyiidae	4	2		Sensitive
T_Lepi	Trichoptera-Lepidostomatidae	6	3	10	Sensitive
T_Bra	Trichoptera-Brachycentridae	8	1	10	Sensitive
P_1	Plecoptera- Maybe Perlidae				
P_2	Plecoptera- Unknown				
P_Perli	Plecoptera- Perlidae	9	1	10	Sensitive

Data analysis

Water characteristics

Overall descriptions of spatial differences in water quality were produced for each river by plotting the mean values and 95% confidence limits using the entire set of observations for the May 1995 to August 1996 period. Additionally, the proportion of observations exceeding limits from the provincial water quality guidelines (Table 4, MOE 1994, MNR 1994) were also plotted to describe differences in water quality among stations. Water quality parameters that were consistently at analytical detection limits (i.e. Cd, Cr, Ni, and Pb) were excluded from these plots since actual concentrations were unknown. Since the RMOC had used automatic water samplers at a few stations (for example JOC04 in 1995), the complete data set contained low frequency data (weekly or monthly) from the regular monitoring program, and high frequency data covering 48-hour periods at a few sites. In order to reduce the influence of the dense data regions and presumably reduce the statistical dependence of these repeated measures, readings were averaged by week (Appendix I), and then these weekly averages were aggregated to test for significant differences in water quality among stations. Annual and summer averages were computed from these weekly means.

Principal component analysis (PCA) was performed on the log-transformed summer averages from 1995 and 1996 water quality data (except pH) to describe major patterns of variation. Water quality parameters that were consistently at analytical detection limits (i.e. Cd, Cr, Ni, and Pb) were excluded from this analysis since actual concentrations were unknown. Temporal and spatial variation was examined by plotting distribution ellipses of the first 3 principal component factors for all 3 rivers together.

Table 4. Provincial water quality guidelines for the Province of Ontario (MOE 1994, MNR 1994).

Concentrations above the limit are considered undesirable.

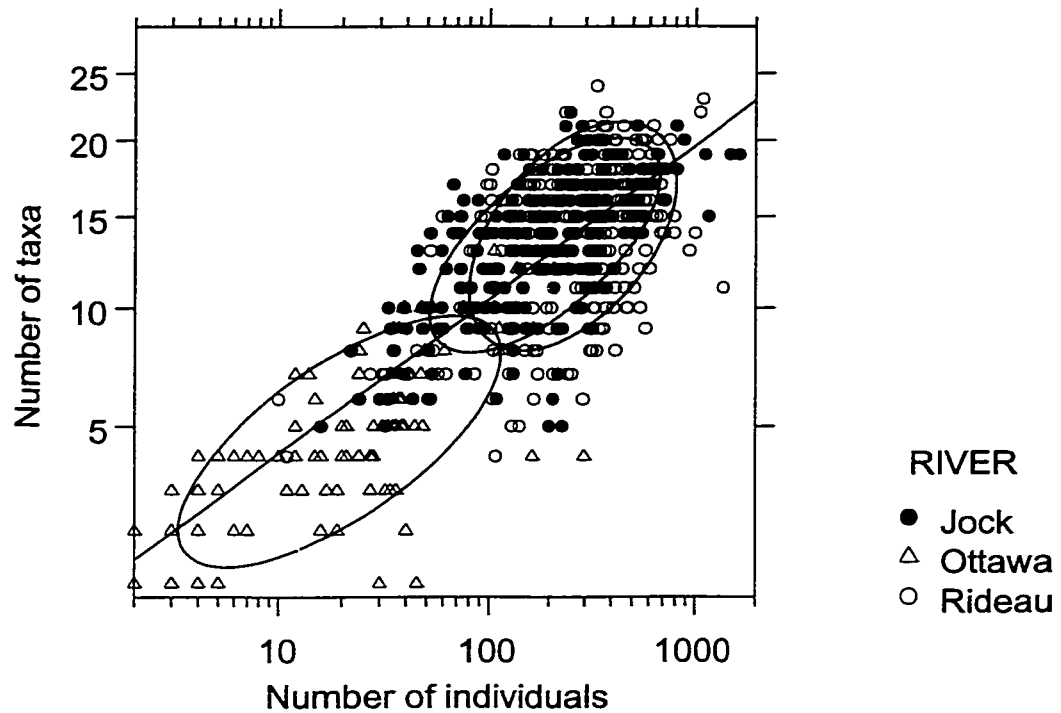
Parameter	Limit	Units
Al	0.075	mg/L
Cd	0.0005	mg/L
Co	0.0009	mg/L
Cr	0.1	mg/L
Cu	0.005	mg/L
ECOLI (new guideline in 1994)	100	<i>Escherichia coli</i> counts/100ml
FCOLI (guideline prior to 1995)	100	Fecal coliform counts/100ml
Fe	0.3	mg/L
Ni	0.025	mg/L
Pb	0.005	mg/L
PHENOLS	0.001	mg/L
Total Phosphorus (TP)	0.03	mg/L
Total Suspended Solids (TSS)	80	mg/L
Zn	0.02	mg/L

Spatial and temporal variability of macroinvertebrates

Log-transformed mean site densities and standard error of the mean (SEM) were compared among sites, seasons and years in each river. As a result of the presence of zero counts in the invertebrate data, a detection limit ($\log(x+1)$) was added to the invertebrate data. PCA was performed on the log density of the 8 most dominant taxa or approximately 85% of the 173,000 individuals collected. Ordination and component factors of the first 3 PCA factors were plotted to examine spatial and temporal patterns on all 3 rivers together and each river separately.

Four indices were computed to describe the invertebrate composition: the % EPT (Ephemeroptera, Plecoptera, Trichoptera) of all individuals, the % tolerant taxa of all individuals, the % sensitive taxa of all individuals and a taxa richness index (TRI) that corrected the number of taxa for sampling effort. The percent EPT was used because these three groups contain several of the more sensitive taxa. Table 3 displays the indices that were used to determine the % tolerant taxa and % sensitive taxa (St-Onge 1998, Idaho Division of Environmental Quality 1996, Armitage et al. 1983). The Quebec and BMWP scores ranged from pollution tolerant taxa with low scores to pollution sensitive taxa with high scores (1-10) while the Idaho scores ranged from pollution tolerant taxa with high scores to pollution sensitive taxa with low scores (10-0). Other indices were considered, such as the BioMap (Griffiths 1993) protocol developed in southwestern Ontario, however this specific index requires genus/species taxonomic identification in order to apply its taxa scores. To compute the TRI the number of taxa observed on each rock was regressed on the total number of individuals on the rock. The residual to the central regression line was taken as the richness corrected for effort (Fig. 2). Calculated invertebrate densities and benthic indices data can be found in Appendix II.

Figure 2. Relationship between taxa richness and number of individuals identified on each rock. The line is the overall regression $((\text{Number of taxa})^{0.5} = 0.83 + 1.20 \log(\text{Number of individuals}))$, $r^2 = 0.64$, residual mean square = 0.25, $n = 576$). Confidence ellipses contain approximately 68% of the data for each river.



Covariation of benthic assemblages and water quality

Pearson correlation coefficients were calculated between average indices for the summer of 1995 and 1996 versus water quality for 1995 and 1996 (excluding water quality parameters at detection limits). Spatial patterns were then examined by plotting the 4 benthic indices against their strongest water quality correlates.

Results

Spatial Patterns of Water quality

Jock River

The spatial patterns of water quality parameters on the Jock River are presented in Figure 3. Significant differences in water quality existed between sites as evidenced by the comparatively small 95% confidence intervals of the means. In particular, noticeable increases in ion concentrations were observed from the upstream to downstream stations, specifically chloride (Cl), sodium (Na) and sulfate (SO₄). A similar pattern was also observed for nitrite-nitrate (NOX). The largest increase in the concentration of these ions and nitrate-nitrite occurred at station 04 on the Jock River. Peak concentrations of total suspended solids (TSS) and copper (Cu) were also observed at station 04.

Several water quality parameters on the Jock River exceed the provincial water quality guidelines. Figure 4 presents the proportion of water samples that exceeded specific water quality parameter guidelines at each station from 1995 to 1996. The greatest proportion of water samples exceeding the provincial guidelines occurred with aluminum (Al), bacteria (ECOLI, FCOLI) and total phosphorus (TP). These parameters exceeded the guidelines consistently at all our sampling stations on the Jock River. The proportion of aluminum samples exceeding the guidelines was greatest at station 07 and the proportion of total phosphorus samples exceeding the guidelines was greatest at station 04. The number of bacteria samples exceeding the guideline was greatest at the upstream stations on the Jock River, declining somewhat with stations downstream. A high peak in the number of samples exceeding the copper guideline was also observed at station 04.

Figure 3. Longitudinal patterns of water quality parameters in the Jock River in 1995-1996. Means and 95% Confidence intervals(CIs) of the mean. Water flows from site 7 to site 1.

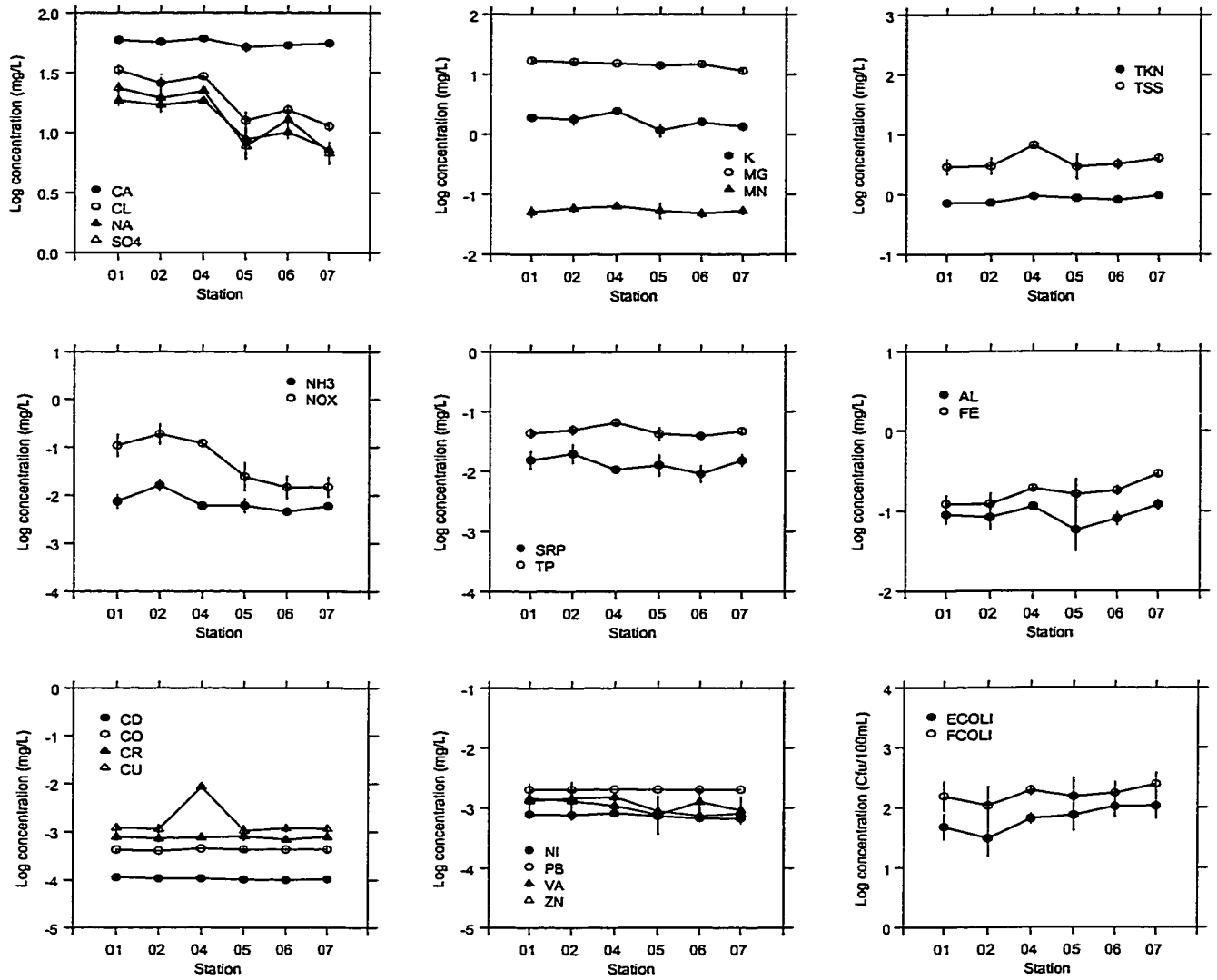
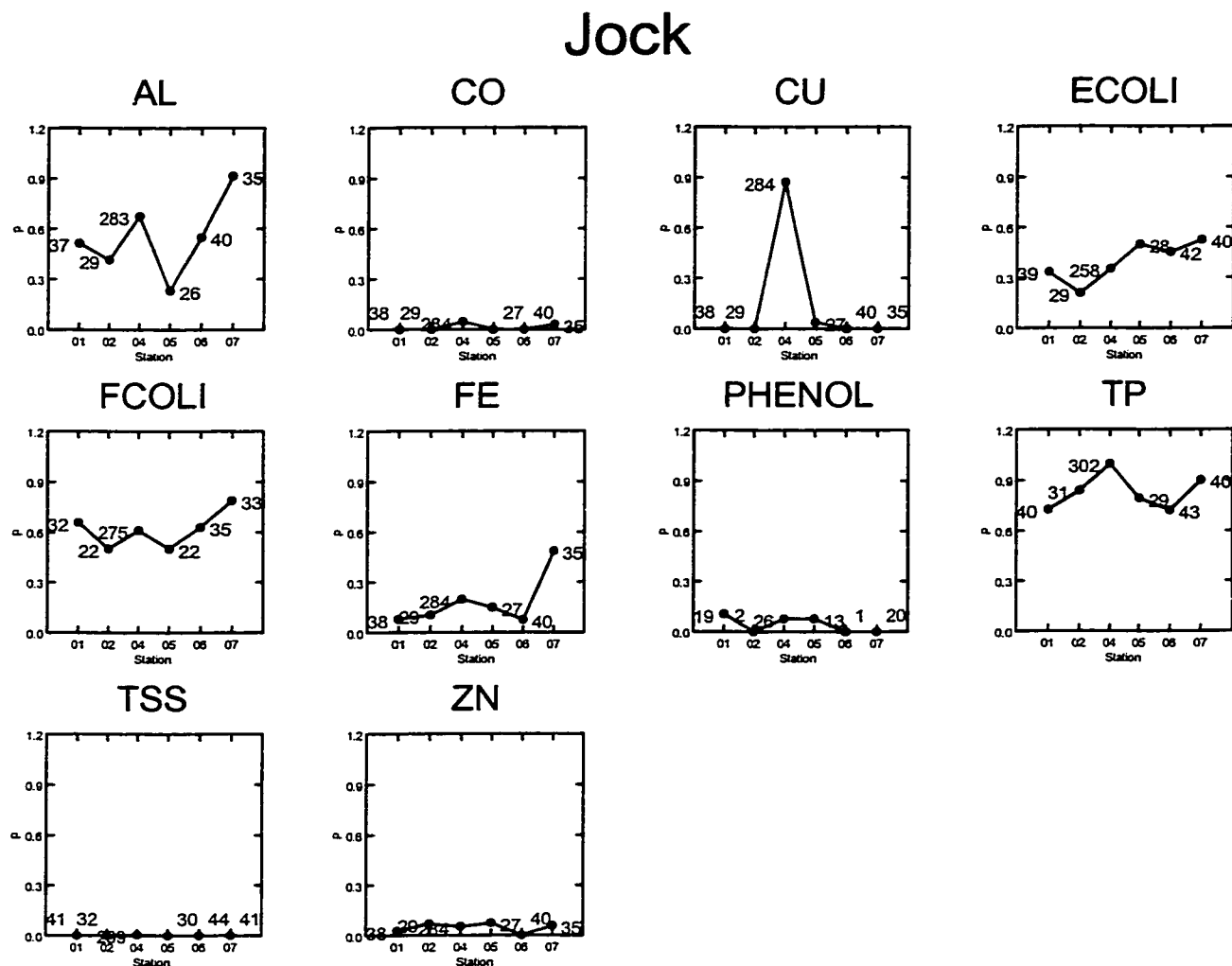


Figure 4. Longitudinal pattern of the proportion of water samples exceeding the provincial water quality guidelines in the Jock River in 1995-1996. The numbers next to each data point are the sample sizes (i.e. total number of water samples collected at each station).



Rideau River

Spatial water quality patterns differed significantly between sites in the Rideau River as evidenced by the comparatively small 95% confidence intervals of the means (Fig. 5). For instance, ion concentrations (Ca, Cl, Na, SO₄) increased gradually from upstream stations to downstream stations. Similar patterns were observed with potassium (K) and total phosphorus (TP). A transition in water quality occurs with some of the parameters between station 05 and station 04 where the river enters the urban area of Ottawa. For instance, the nitrite-nitrate (NOX) concentrations, the soluble reactive phosphorus (SRP) concentrations, some of the ion concentrations (Na, SO₄, Cl) and the ECOLI bacteria levels all begin to be elevated at station 4, remaining elevated at stations further downstream of station 04 relative to stations upstream of station 04. An increase in several parameters occurs between station 08 and station 07. Specifically, total ammonia (NH₃) concentrations, NOX concentrations, SRP concentrations and bacteria counts (FCOLI, ECOLI) increase from station 08 to 07. Zinc concentrations begin to increase at station 03, continuing to increase downstream to station 01.

Several water quality parameters exceeded the provincial water quality guidelines in the Rideau River during the period from 1995 to 1996. Figure 6 shows the proportion of water samples that exceeded the provincial water quality parameter guidelines. The greatest proportion of water samples exceeding the guidelines occurred with aluminum (Al), total phosphorus (TP) and bacteria (ECOLI, FCOLI). These parameters exceeded the guidelines consistently at all our sampling stations on the Rideau River. The largest increase in the proportion of water samples exceeding the TP guideline occurred between station 08 and 07 with the proportion of water samples exceeding the TP guideline continuing to gradually increase downstream. An increased proportion of samples exceeding the bacteria (FCOLI, ECOLI) guidelines was observed at stations 04, 03 and 06. The number of water samples exceeding the aluminum guideline peaked at stations 05 and 01. The proportion of samples exceeding the iron (Fe) and zinc (Zn) guidelines started to increase further downstream at stations 02 and 01.

Figure 5. Longitudinal patterns of water quality parameters in the Rideau River in 1995-1996. Means and 95% CIs of the mean. Water flows from site 8 to site 1.

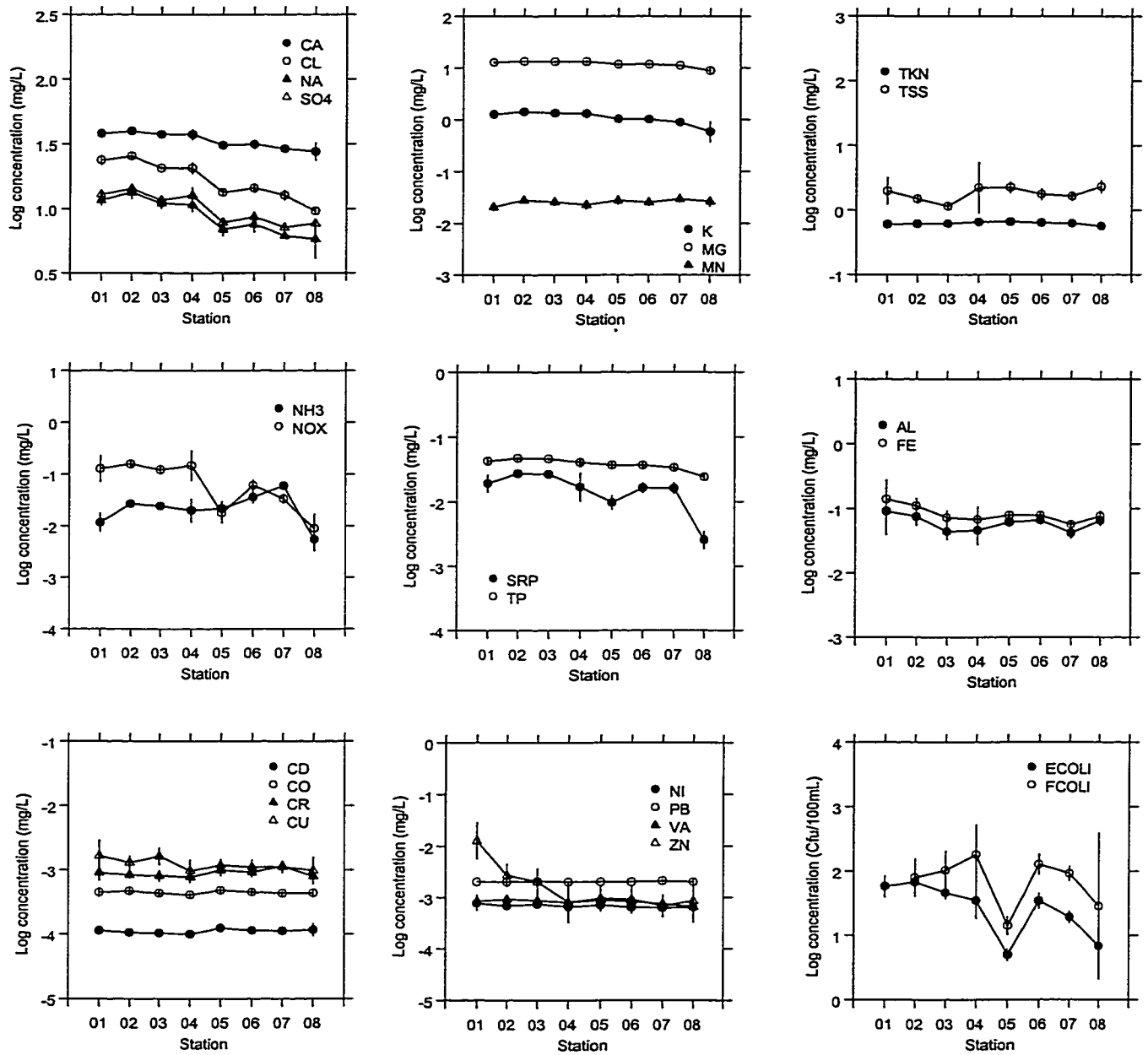
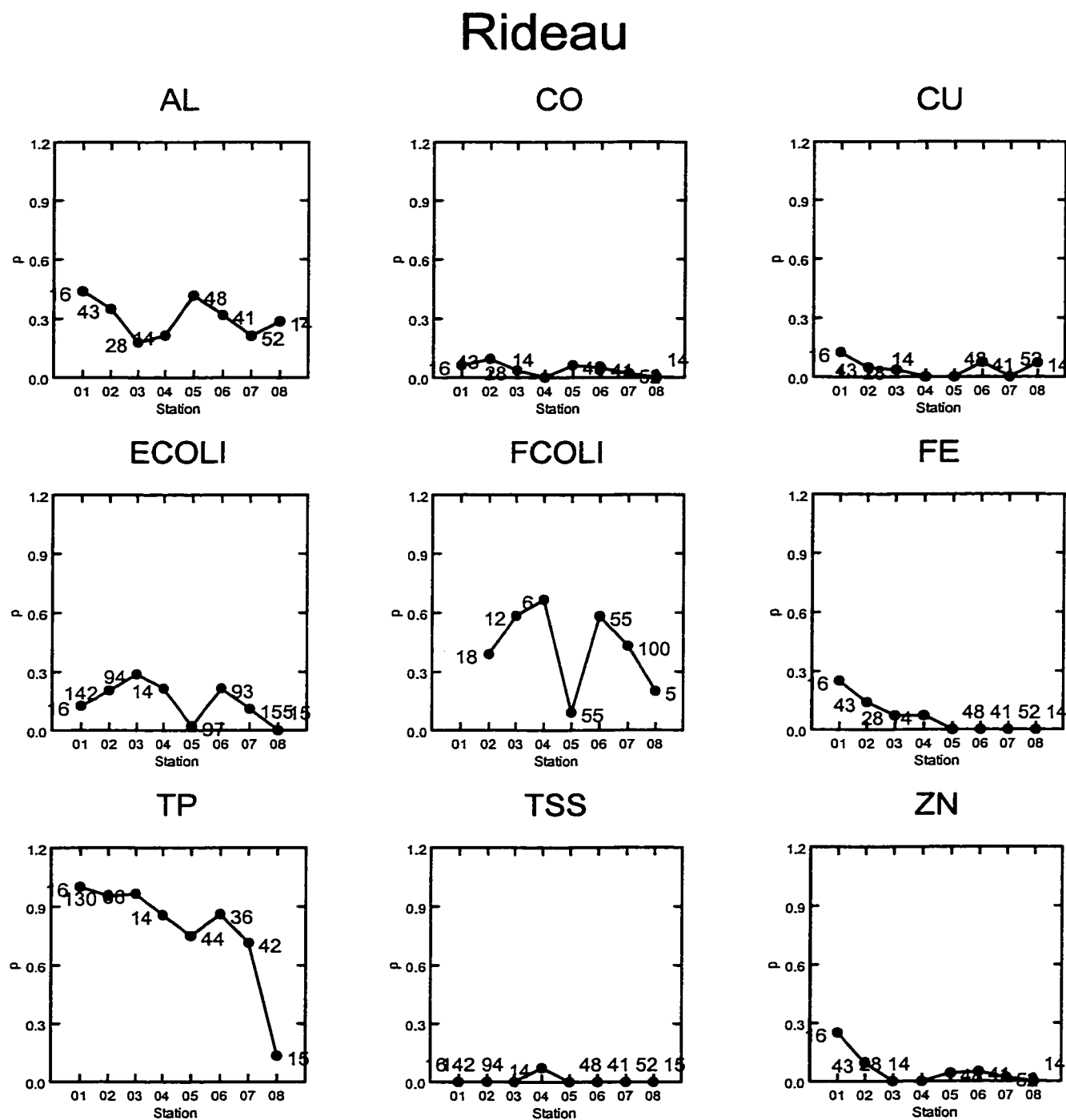


Figure 6. Longitudinal pattern of the proportion of water samples exceeding the provincial water quality guidelines in the Rideau River in 1995-1996. The numbers next to each data point are the sample sizes (i.e. total number of water samples collected at each station).



Ottawa River

Most of the water quality parameters that were measured in the Ottawa River between 1995 and 1996 did not change between the stations (Fig. 7). The exception to this was the observed increase in bacteria levels from the upstream to downstream stations. However, based on the 95% confidence limits the differences observed in bacteria levels would not be significant.

Aluminum (Al) was the only water quality parameter that consistently exceeded the provincial guideline in the Ottawa River (Fig. 8). An increased proportion of water samples exceeding the ECOLI and FCOLI guidelines was observed at the downstream stations on the Ottawa River.

Figure 7. Longitudinal patterns of water quality parameters in the Ottawa River in 1995-1996. Means and 95% CIs of the mean. Water flows from site 3 to site 1.

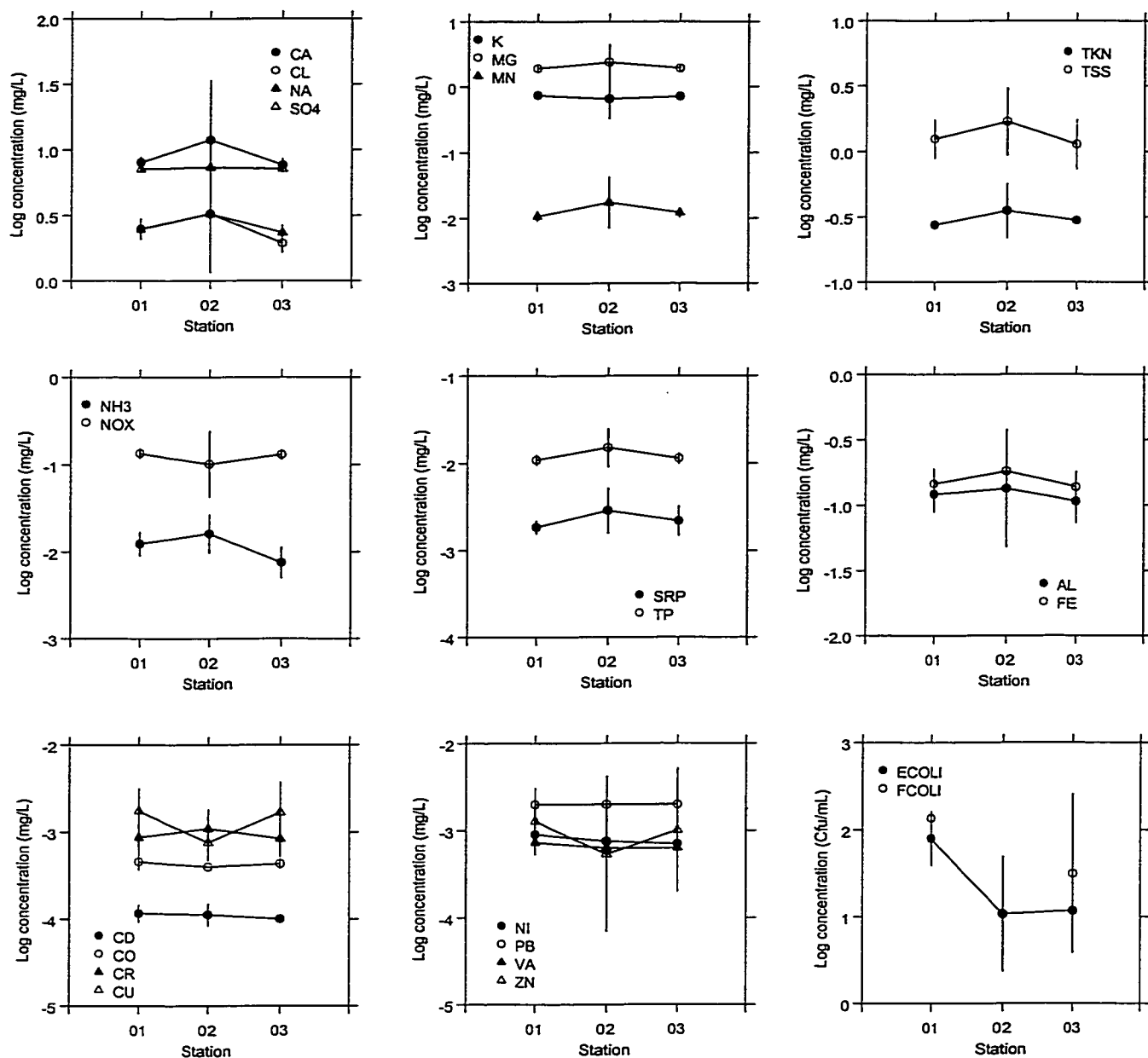
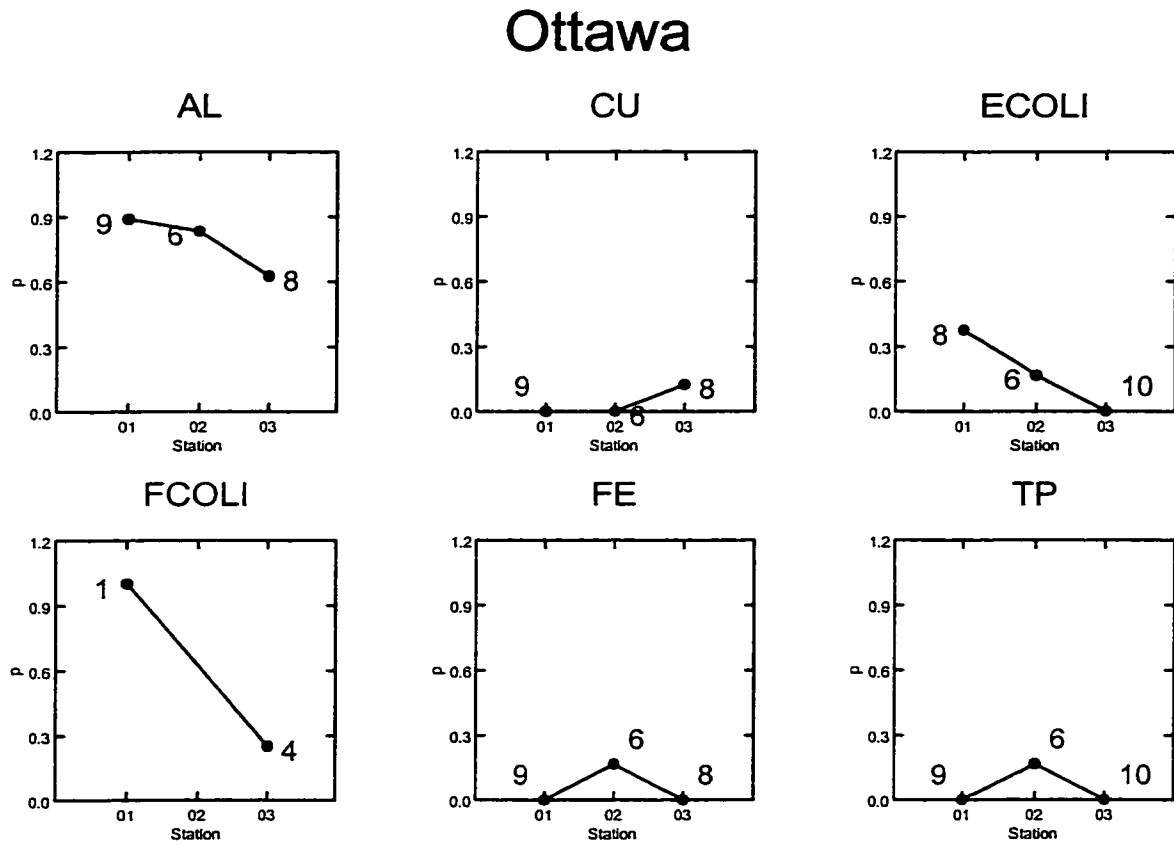


Figure 8. Longitudinal pattern of the proportion of water samples exceeding the provincial water quality guidelines in the Ottawa River in 1995-1996. The numbers next to each data point are the sample sizes (i.e. total number of water samples collected at each station).

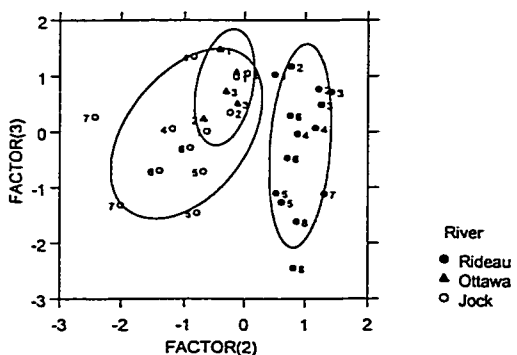
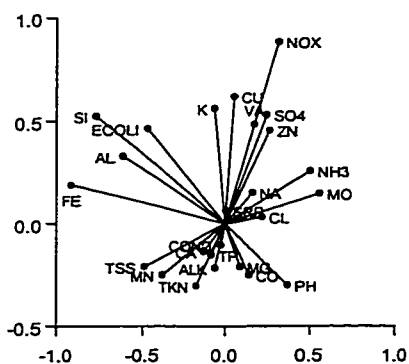
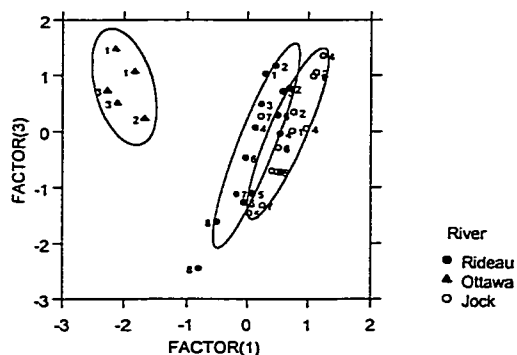
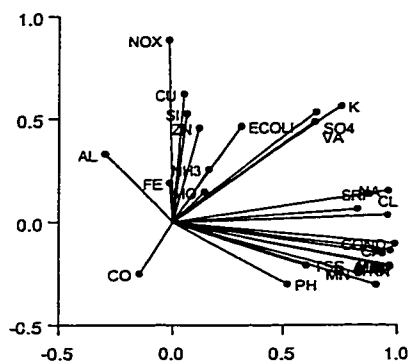
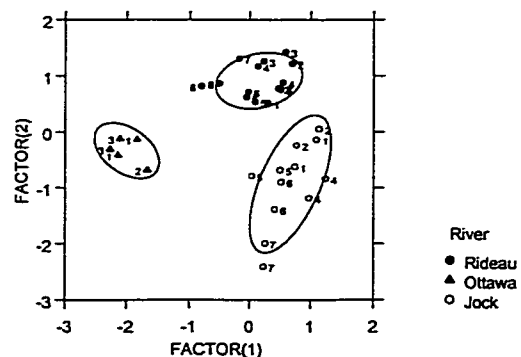
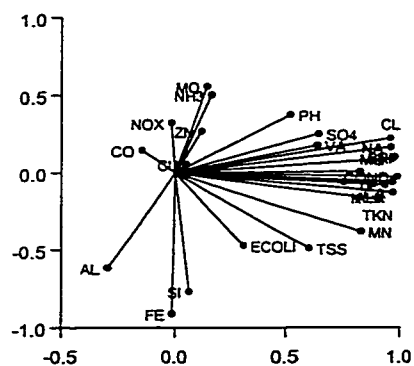


Comparison of the 3 rivers

PCA results on the average of each water quality parameter at each sample station are presented in Figure 9. Factor loadings and ordinations on the first three principal components explained 70% of the variation in the average water quality data. Factor loadings from the first principal component factor(1) explained 43% of the variation in average water quality data. Variation along this axis was primarily influenced by conductivity (COND), ions (CA, NA, CL), total phosphorus (TP) and total Kjeldahl nitrogen (TKN) (first factor loadings plot in Figure 9). This axis clearly reveals the differences among the 3 rivers, particularly the separation of the Ottawa from the Rideau and Jock rivers, which is quite obvious on the first ordination plot. Factor(2) explained 14% of the variation in water quality and was strongly influenced by iron (FE) and silicon (SI), and to a lesser extent by aluminum (AL), molybdenum (Mo) and ammonia (NH₃). According to the first ordination plot in Figure 9, the factor(2) axis separates the Rideau River from the Jock River with some influence on upstream-downstream gradients in the Jock River. The third principal component factor(3) explained 13% of the variation in water quality and was strongly influenced by NOX (second factor loadings plot in Figure 9). Upstream-downstream gradients in water quality within each river were quite apparent along the factor(3) axis in the second ordination plot.

The PCA revealed, water quality differences among the 3 rivers (i.e. there is relatively little overlap of ellipses on the first two axes), as well as upstream-downstream gradients in water quality (i.e. site numbers for each river vary predictably on the ordination plots) that are strongly influenced by downstream increases in conductivity (COND)(major ions) and nitrite-nitrate (NOX). This pattern is particularly apparent in the Rideau and Jock Rivers (Fig. 3 and 5). The ordination plots of the sampled sites also indicate that yearly variability in average water quality was relatively small because the duplicate site numbers that correspond to 1995 and 1996 data, tended to be near each other.

Figure 9. Principal component analysis of average water quality in the Jock, Ottawa, and Rideau River in 1995 and 1996. Factor loadings (left) and ordinations of sampled sites (right) on the first 3 principal components explaining 38, 14 and 13% of the variability respectively. Ellipses on the ordination enclose approximately 68% of the data points for each group. Small numbers correspond to sampling sites.



Temporal and Longitudinal patterns of abundance of dominant and sensitive invertebrates

Jock River

The highest observed densities of the most dominant taxa in the Jock River in 1995 and 1996 were recorded within the Chironominae (midge fly larvae), Orthocladinae (midge fly larvae) and Trichoptera (caddisfly larvae) taxa (Fig. 10). Peaks in the density of several taxa were observed at station 04 on the Jock. This was particularly obvious with the Chironominae (midge fly larvae), Tanypodinae (midge fly larvae), Trichoptera (caddisfly larvae), Oligochaeta (aquatic worms) and Platyhelminthes (flatworms). In most cases, the density of these taxa was significantly higher at station 04 than at the other stations based on the standard error of the mean (SEM) densities at each site (Fig. 10).

The density of most taxa varied seasonally based on the observed differences between spring and summer sampling dates (Fig. 10). For example, Orthocladinae and Oligochaeta dominated the May-June samples relatively consistently at all stations whereas Trichoptera and Ephemeroptera (mayflies) were typically more dominant in the July-August samples.

The year to year variability in taxa density within a site was often quite substantial (Fig. 10). For instance, the 1996 July-August Orthocladinae densities at station 3 on the Jock River were up to 10 times higher than the densities observed in the 1995 July-August samples at station 3. As well, the 1995 May-June Orthocladinae densities at station 1 were up to 10 times higher than the densities observed in the May-June 1996 samples at the same site. On the other hand, the Oligochaeta densities exhibited very little variation in densities within a site from year to year.

Plots of the most abundant sensitive taxa (i.e. families of Mayflies and Caddisflies) in the Jock River show some similar seasonal and yearly patterns (Fig. 11). Three of the taxa have their largest peak densities occurring at station 4 (Mayfly: Leptohyphidae, Caddisflies: Leptoceridae and Philopotamidae). In addition, mayflies in the family Leptophlebiidae and the caddisflies in the family Helicopsychidae both show clear downstream declines in density whereas the mayflies in the family Ephemerellidae show the reverse pattern with an increase in downstream density.

Figure 10. Longitudinal patterns of abundance (mean and standard error of the mean (SEM), individuals/m² (ind m⁻²)) of dominant taxa in the Jock River in 1995 and 1996.

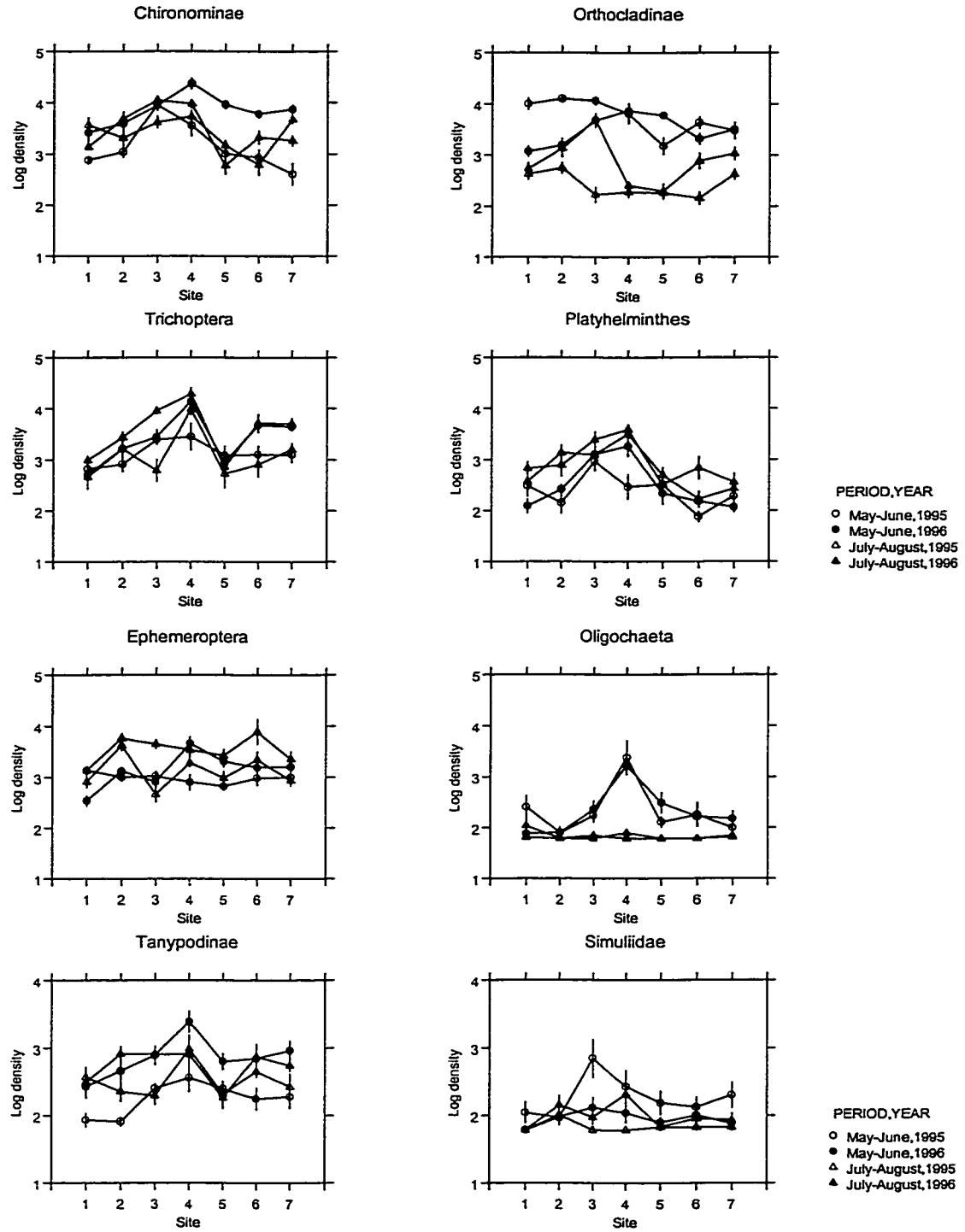
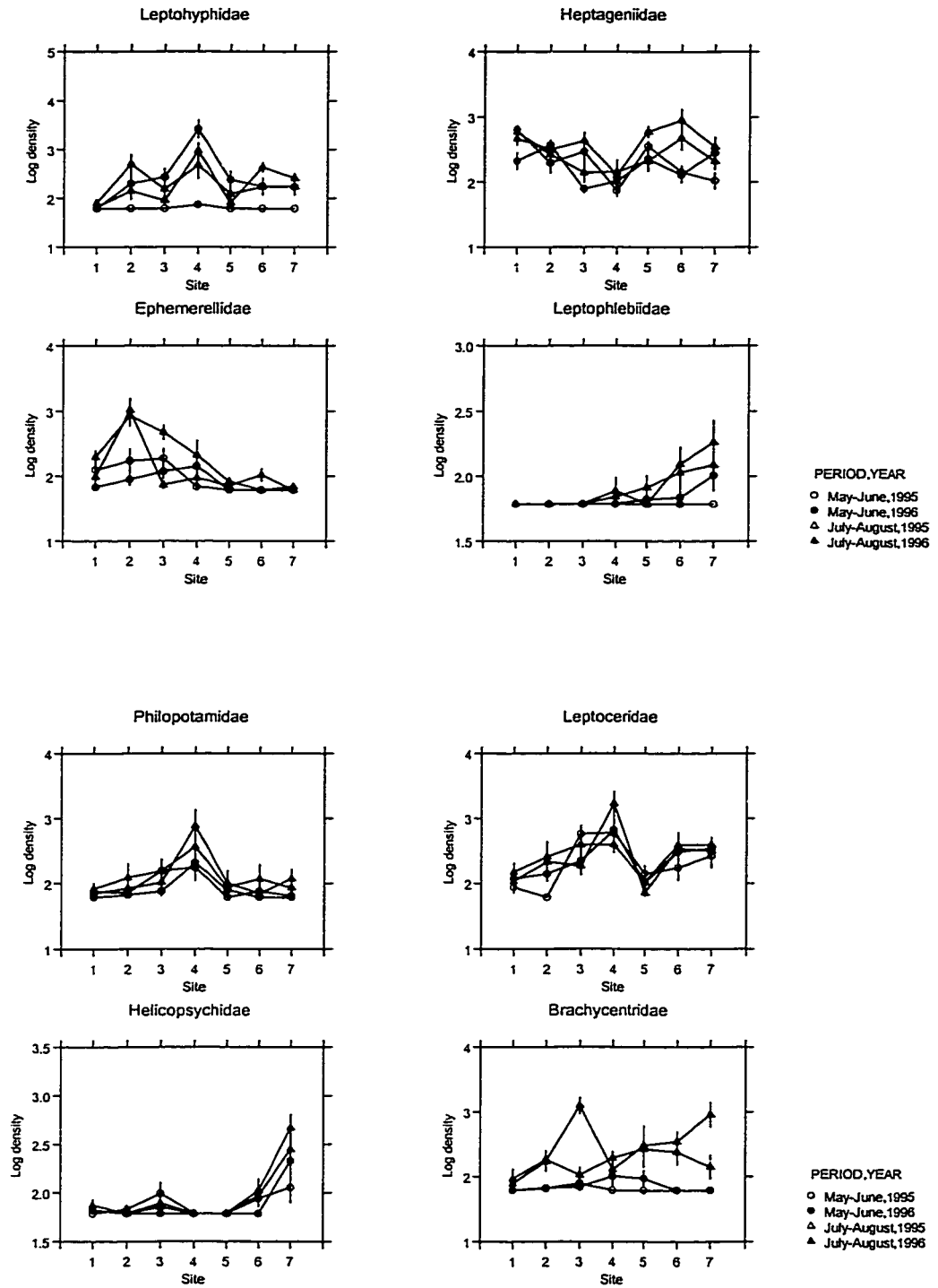


Figure 11. Longitudinal pattern of abundance (mean and SEM, ind m⁻²) of the most abundant sensitive taxa in the Jock River in 1995 and 1996.



Rideau River

Of the most dominant taxa in the Rideau River in 1995 and 1996, the density of Chironominae, Trichoptera and Platyhelminthes taxa were consistently the highest (Fig. 12). The density of Ephemeroptera increased from the upstream to the downstream stations and the density of Platyhelminthes declined significantly from station 5 to station 4. In general, densities were quite variable among the sites on the Rideau River.

Seasonal and yearly differences in taxa density were significant for several of the most dominant taxa in the Rideau River (Fig. 12). For example, the Orthocladinae densities for May-June 1995 samples at station 3 were at least 10 times greater than the densities observed in July-August 1995 at station 3. Likewise the Platyhelminthes densities at station 5 in July-August of 1995 were at least 10 times greater than those observed in May-June of 1995 at the same station. Again at station 5, the Ephemeroptera densities in July-August of 1996 were at least 10 times greater than that observed in the May-June 1996 samples. Significant yearly differences in taxa density were noticeable for Chironominae at station 4 (May-June 1995/96), for Orthocladinae at station 3 (July-August 1995/96) and for Trichoptera at station 7 (May-June 1995/96).

Plots of the most abundant sensitive taxa (families of mayfly and caddisfly larvae) show that several taxa decline in density from station 8 to station 7 (Fig. 13). As well, the mayfly family Heptageniidae and the caddisfly family Leptoceridae both show some consistent peak densities at station 6 and station 2 on the Rideau. Peak densities at these same stations occur with some other taxa but are less consistent over seasons and years. Most of these sensitive taxa exhibit larger seasonal variations within a station than yearly variation. In general, there are no clear longitudinal patterns but most of these sensitive taxa do well in the downstream stations of the Rideau River.

Figure 12. Longitudinal patterns of abundance (mean and SEM, ind m⁻²) of dominant taxa in the Rideau River in 1995 and 1996

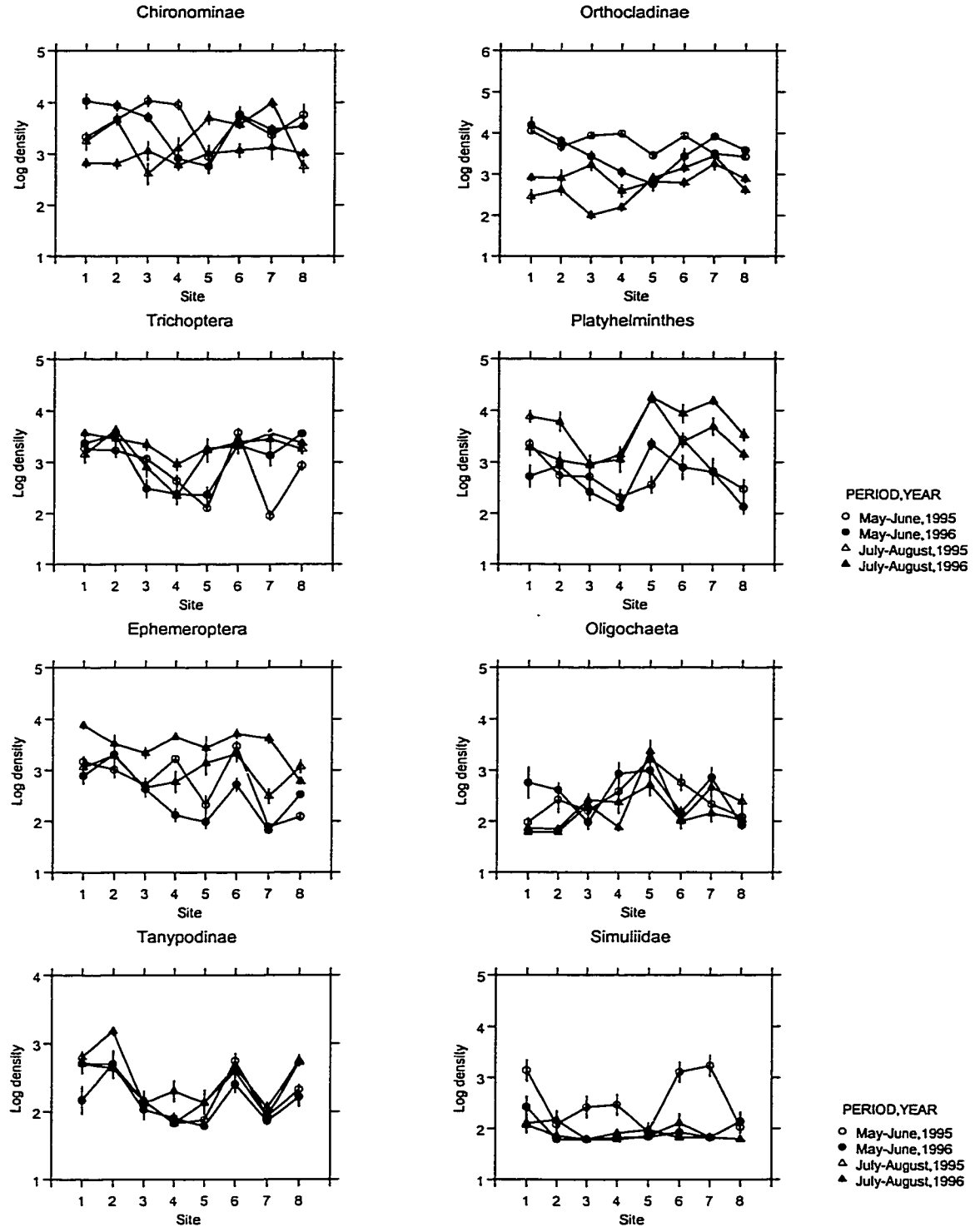
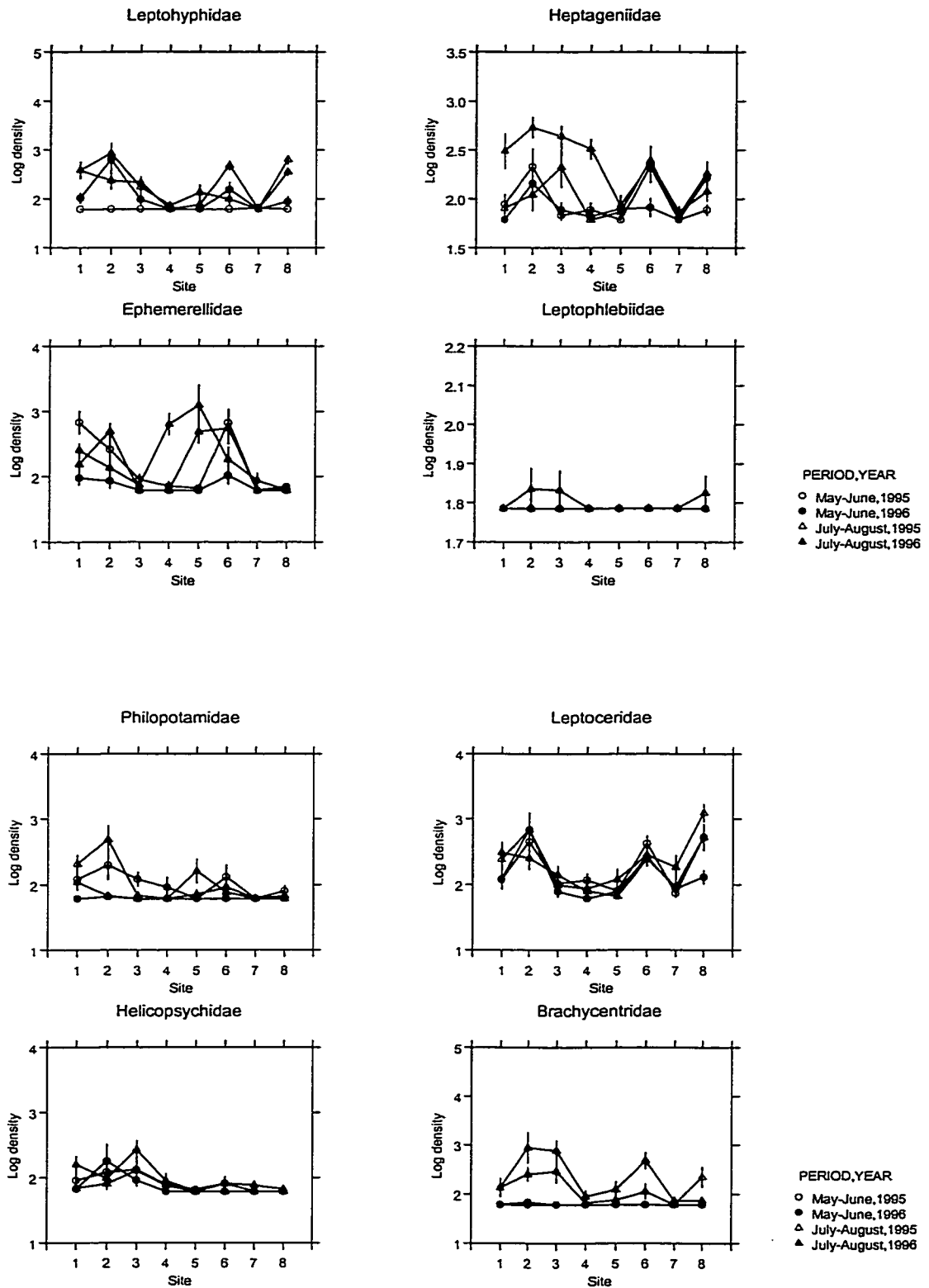


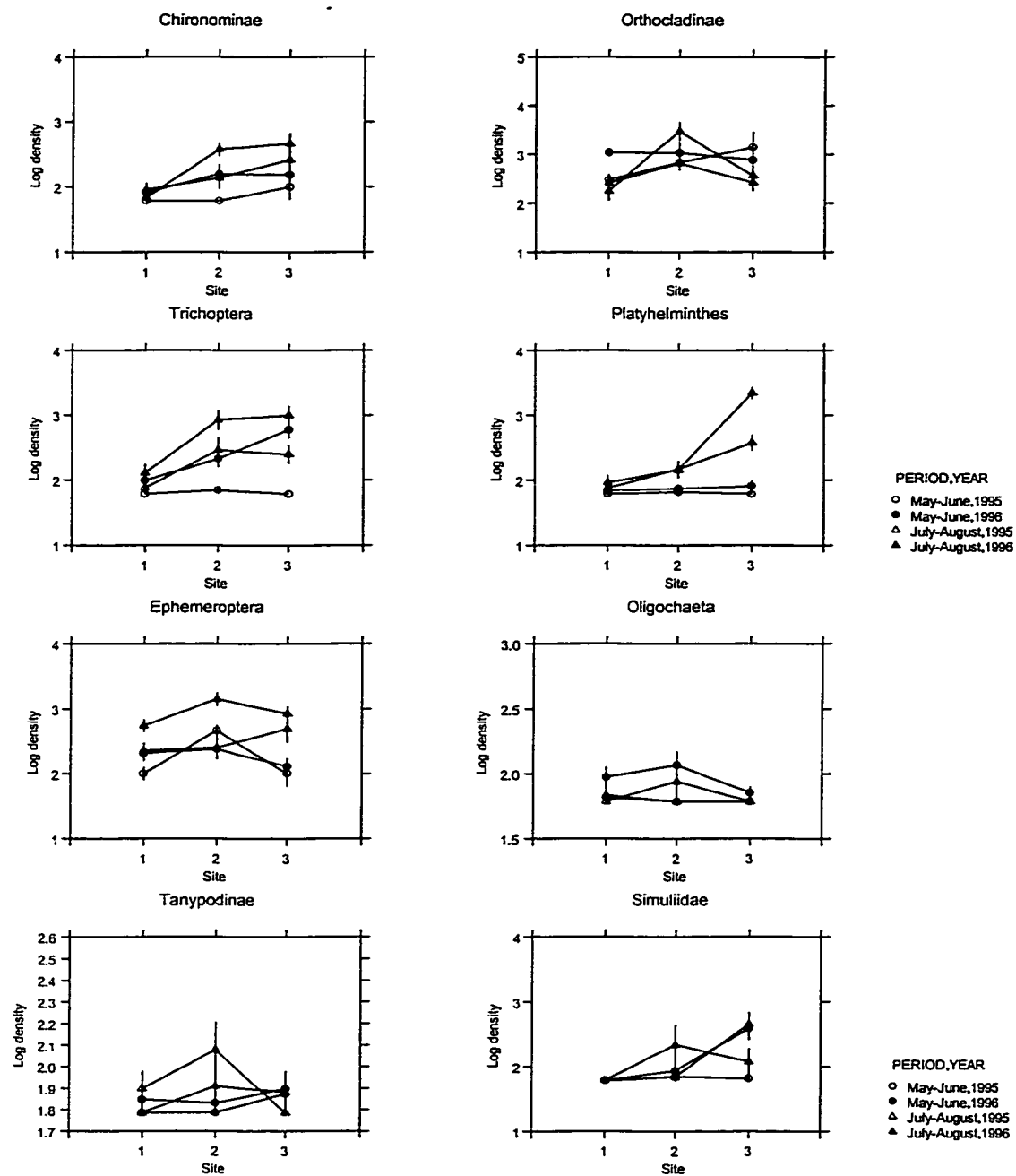
Figure 13. Longitudinal pattern of abundance (mean and SEM, ind m^{-2}) of the most abundant sensitive taxa in the Rideau River in 1995 and 1996.



Ottawa River

Spatial and temporal patterns of invertebrate densities of the most dominant taxa in the Ottawa River in 1995 and 1996 are presented in Figure 14. In general, the Chironominae, Trichoptera, Platyhelminthes and Simuliidae densities decreased significantly at the furthest downstream station on the Ottawa River (station 1). Station 1 was somewhat dominated by Orthocladinae densities in the May-June samples and somewhat by Ephemeroptera densities in the July-August samples. On the other hand, upstream stations 2 and 3 were dominated by Orthocladinae in the May-June samples whereas the July-August samples at upstream stations were dominated by Trichoptera and Platyhelminthes. In general, the seasonal and annual variation in taxa densities within a station on the Ottawa River were quite significant. The seasonal differences in taxa densities were typically greater than the annual year to year differences.

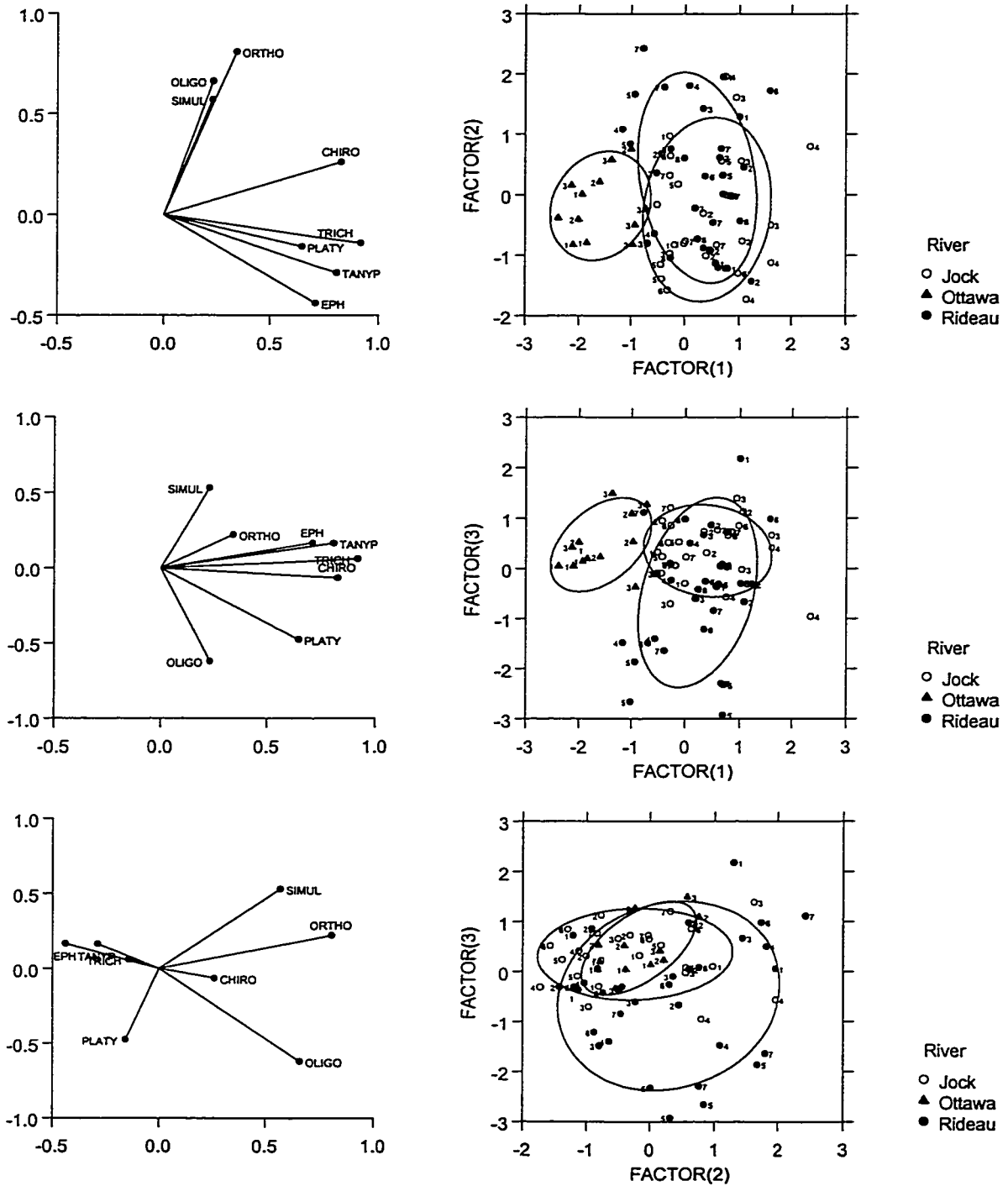
Figure 14. Longitudinal patterns of abundance (mean and SEM, ind m^{-2}) of dominant taxa in the Ottawa River in 1995 and 1996



Spatial and temporal variability of benthic assemblage structure

The PCA results in Figure 15 provide a visual description of the variability in the 8 most dominant invertebrate taxa in the three rivers. Overall the first three factor components explain 73% of the variability in invertebrate abundance among all our sampling stations in all 3 rivers. Factor(1) axis (in the first set of factor loading and ordination plots), which accounted for 38% of the variability, was most influenced by the Trichoptera and Chironominae taxa although overall abundance also played a role too. This axis essentially describes the separation of the Ottawa River stations from the Rideau and Jock River stations. Factor(2) axis (in the first set of factor loading and ordination plots), which accounted for 22% of the variability, was most influenced by Orthocladinae, Oligochaeta and Simuliidae taxa. However, along this axis there was no clear upstream-downstream pattern observed on any of the rivers. Factor(3) axis (in the second and third set of factor loading and ordination plots), which accounted for 13% of the variability, did not show any clear patterns or strong influences. Essentially the ordination patterns on the 3 rivers overlapped each other. In general, the ordination plots do indicate a large degree of within-site variability among the sampling dates (i.e. sites are not relatively close to each other on repeated sampling dates).

Figure 15. Principal components analysis of the dominant invertebrates (the 8 most abundant taxa that correspond to 85% of the organisms collected) in the three rivers. The first, second, and third factors account for 38%, 22% and 13% of the variability respectively. Factor loadings (left) and ordination of each sampled site for all sampling dates. Ellipses enclose approximately 68% of the data for each group. Small numbers correspond to the site number in each river.



Jock River

According to the component factors and ordination plots in Figure 16, the invertebrate assemblage structure in the Jock River varied mainly among seasons but to some extent among years. As well, the among-year variation was greater in the May-June (spring) samples than the July-August (summer) samples (i.e. the replicate site numbers that correspond to the May-June 1995 and 1996 data, tended to be further apart compared to the July-August 1995 and 1996 data). The seasonal separation in the Jock can be explained by the higher abundance of Orthocladinae, Oligochaeta and Simuliidae in the May-June samples than the July-August samples.

To describe the spatial patterns of the benthic invertebrate assemblage structure in the Jock River several standard metrics are presented in Figure 17. For instance, the total invertebrate density and total number of taxa show a significant increase at station 4, consistently on all sampling dates. There was a tendency for the %EPT to decline slightly in a downstream pattern although this pattern is interrupted somewhat between station 3 and 2. In general, the % tolerant taxa and % sensitive taxa are quite variable among the stations and they vary more seasonally than they do yearly. However, a slight downstream decrease in the % sensitive taxa was noticeable at least downstream to station 3 but only in the July-August samples. The corrected richness index was stable throughout the stations showing no apparent response between stations 5 and 4 as previously observed with the plot of the number of taxa.

Figure 16. Temporal variability of the assemblage structure for the dominant invertebrates of the Jock River in 1995 and 1996.

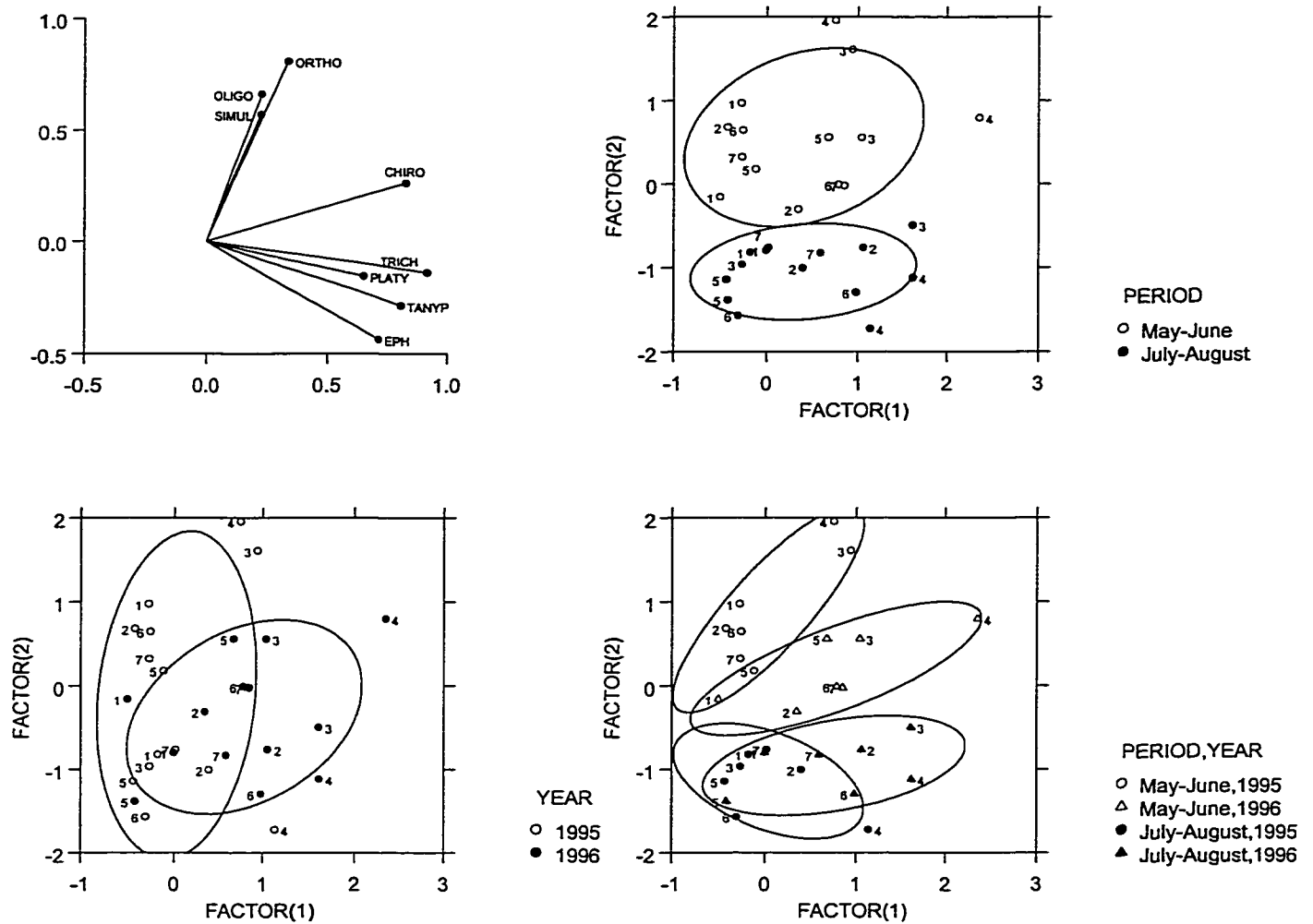
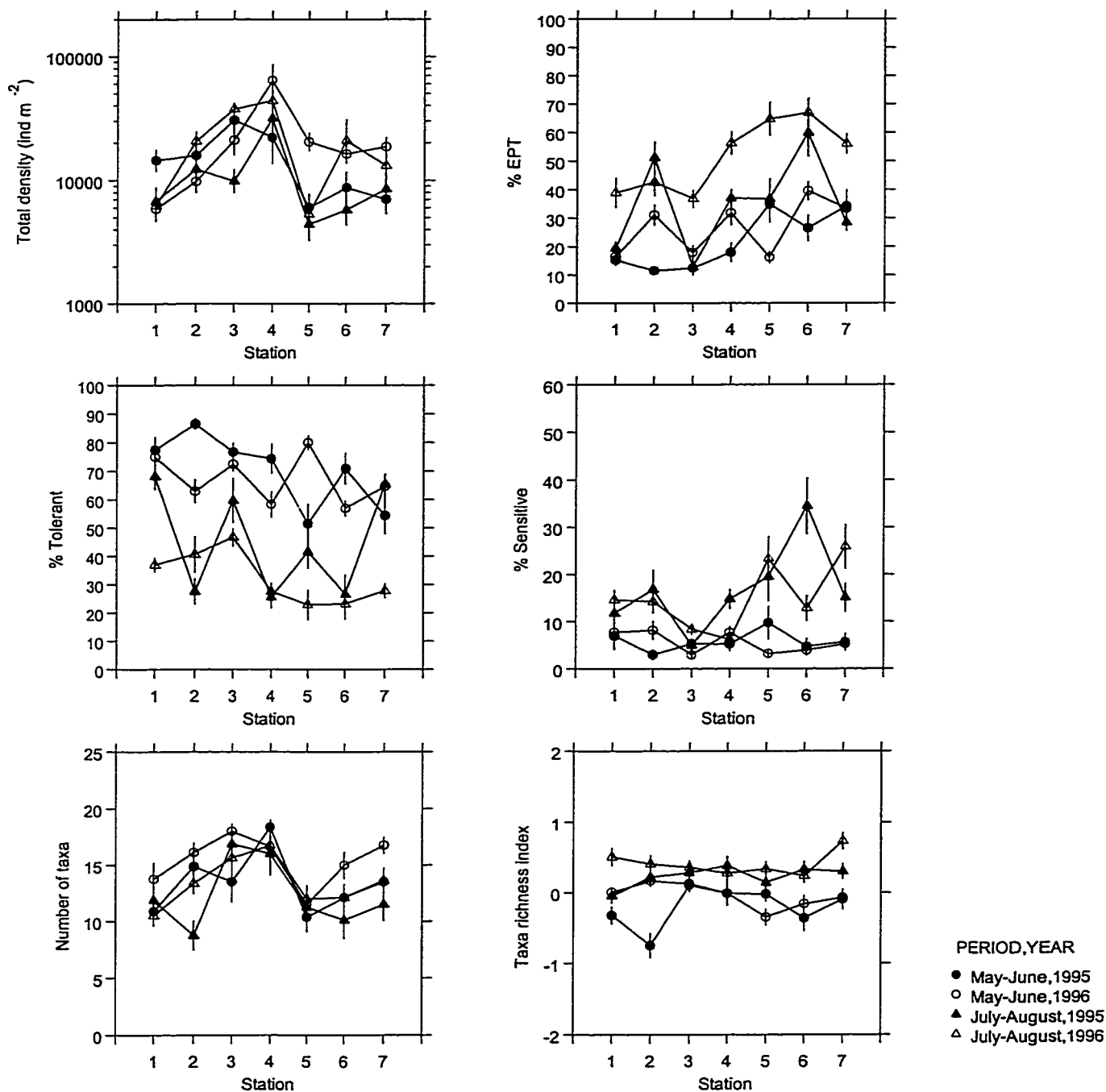


Figure 17. Longitudinal patterns of benthic indices in the Jock River in 1995 and 1996. Means and SEM.



Rideau River

The Rideau's invertebrate assemblage structure was very similar to that of the Jock River (Fig. 18). For example, the ordination plots from the PCA results for the Rideau indicate that invertebrate variability is greater seasonally than yearly. As it was in the Jock, the Oligochaeta, Orthocladinae and Simuliidae taxa in the Rideau were higher in the May-June (spring) samples than the July-August samples. In addition, the yearly invertebrate variation in the Rideau was somewhat larger in the May-June samples compared with the July-August samples, again a similar pattern to that in the Jock.

Several standard metrics are used in order to describe spatial patterns of the invertebrate assemblage in the Rideau River (Fig. 19). Generally speaking, the metrics were quite variable and the signals differed greatly among each of the metrics. However, there are some strong changes with some of the metrics at station 5 and station 6. Specifically the %EPT and % tolerant taxa decreased at station 5 and the % EPT, % sensitive taxa, number of taxa and taxa richness index increased at station 6. As well, the % sensitive taxa and taxa richness index dropped consistently from station 8 to station 7. There was some tendency for the % EPT, % sensitive taxa and taxa richness to exhibit a decrease at station 4 and 5 followed by an increase downstream to station 2. The % tolerant taxa varied considerably among seasons (i.e. May-June and July-August samples) and were consistently higher in the May-June samples compared with the July-August samples.

Figure 18. Temporal variability of the assemblage structure for the dominant invertebrates of the Rideau River in 1995 and 1996.

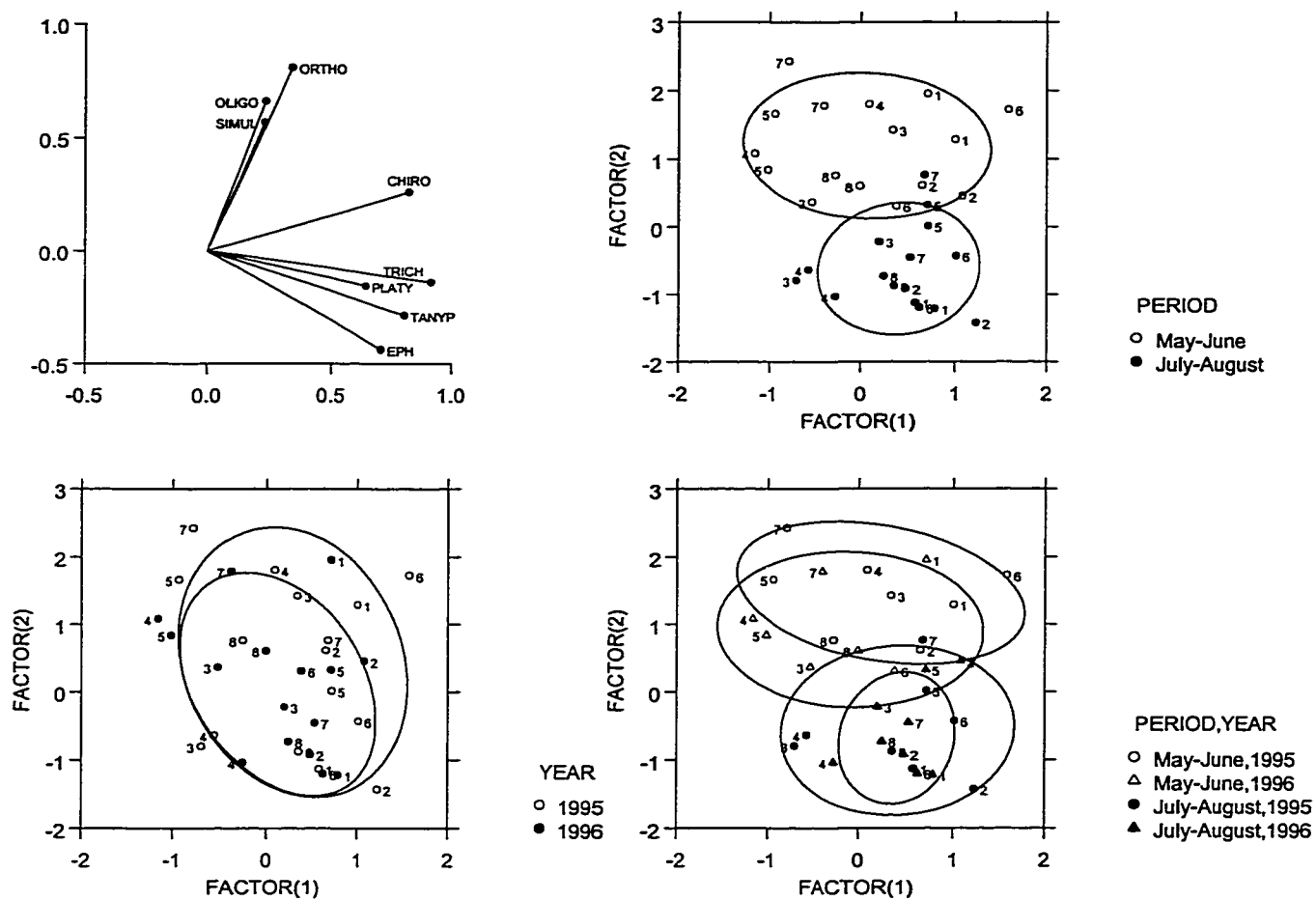
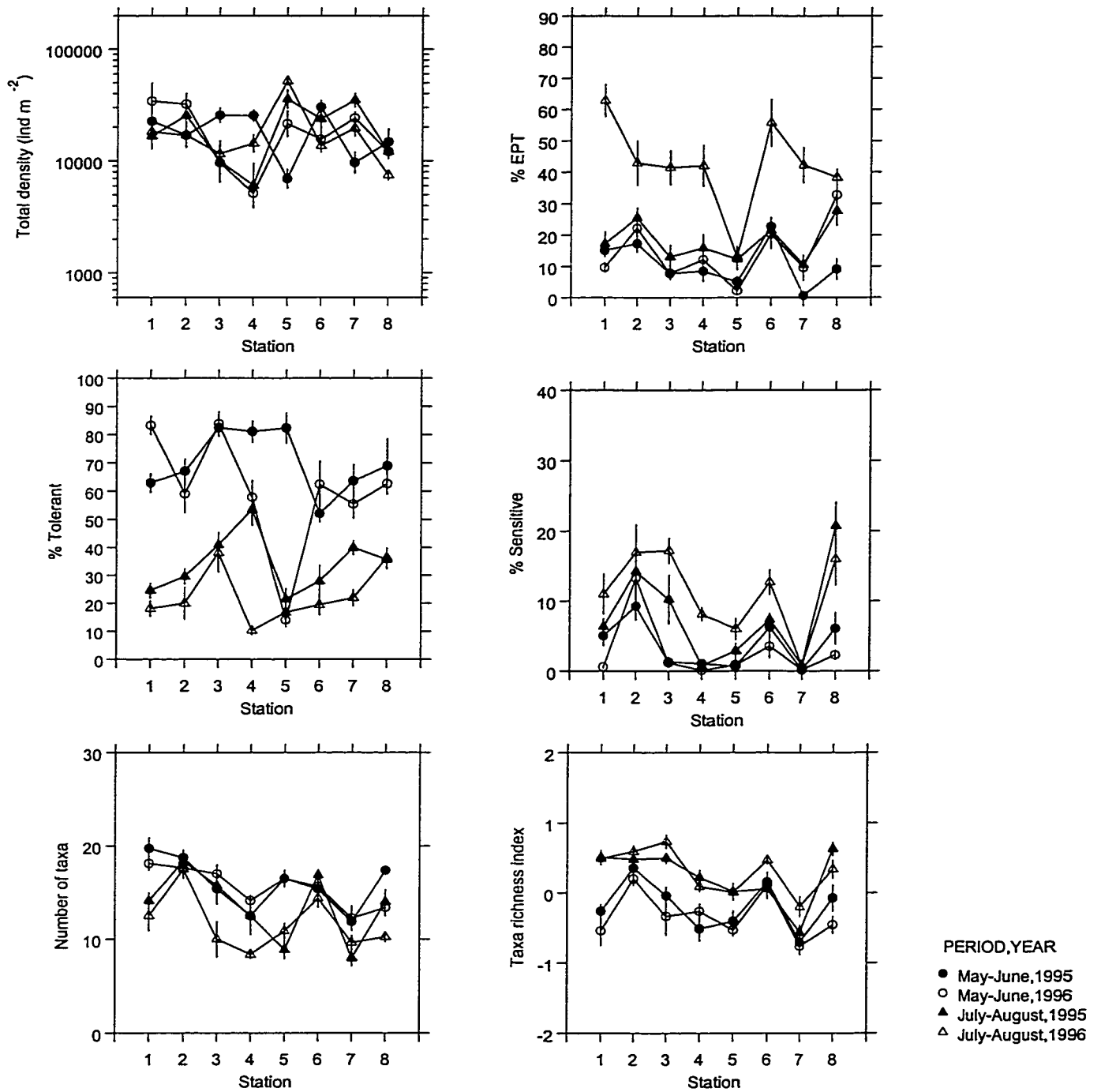


Figure 19. Longitudinal patterns of benthic indices in the Rideau River in 1995 and 1996.. Means and SEM.



Ottawa River

The PCA ordinations of the invertebrate assemblage structure on the Ottawa River show the seasonal variation differences between the May-June samples and July-August samples (Fig. 20). Otherwise there were no clear differences observed on a yearly basis but among date variations were considerable.

Spatial patterns of benthic invertebrate metrics were not all that evident in the Ottawa River (Fig. 21). In most cases the metrics were quite variable within and among stations and between sampling dates. However, total density did decline somewhat downstream consistently on all sampling dates. On the other hand the taxa richness index and the % sensitive taxa increased downstream but only for the 1995 sampling dates.

Figure 20. Temporal variability of the assemblage structure for the dominant invertebrates of the Ottawa River in 1995 and 1996..

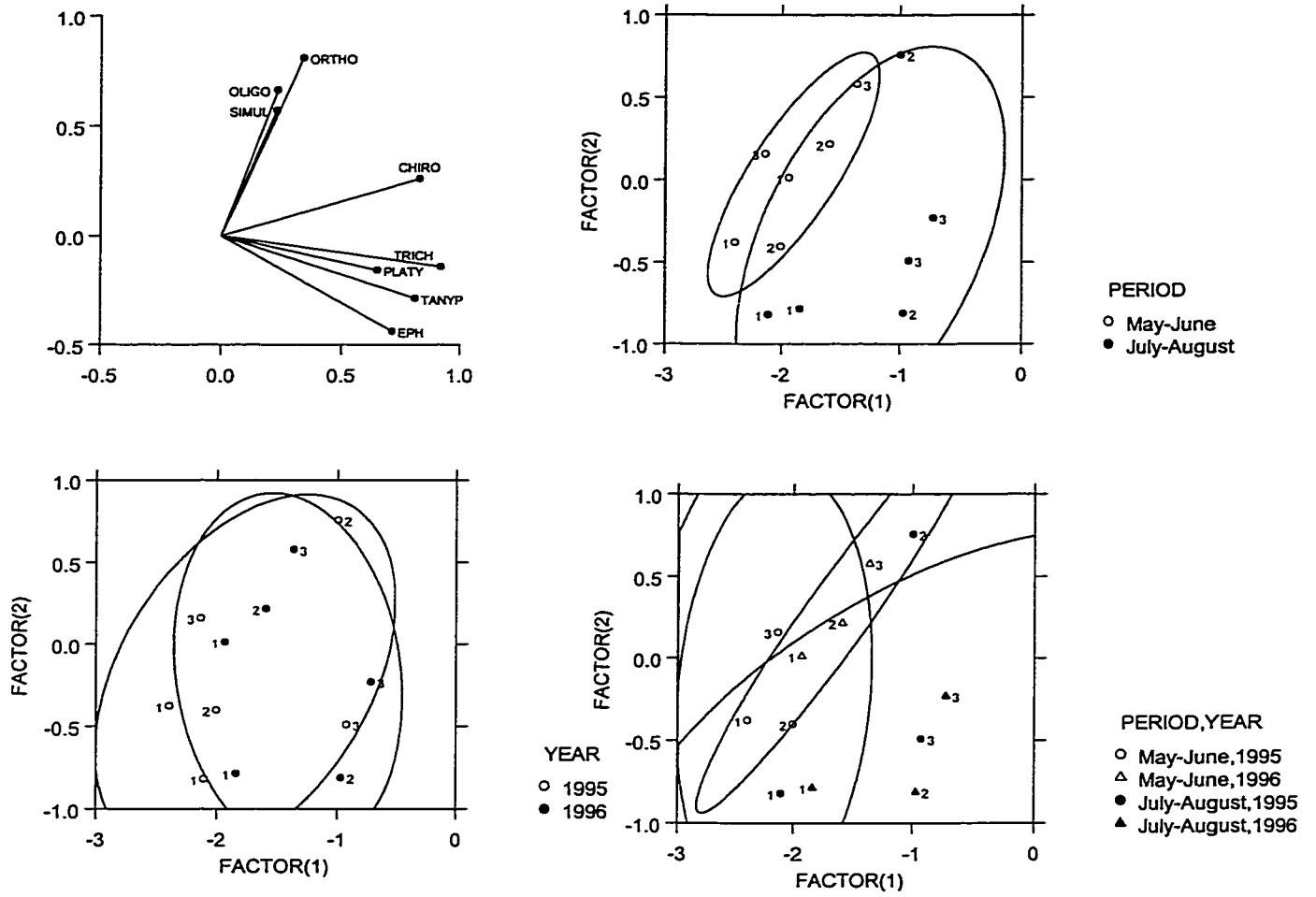
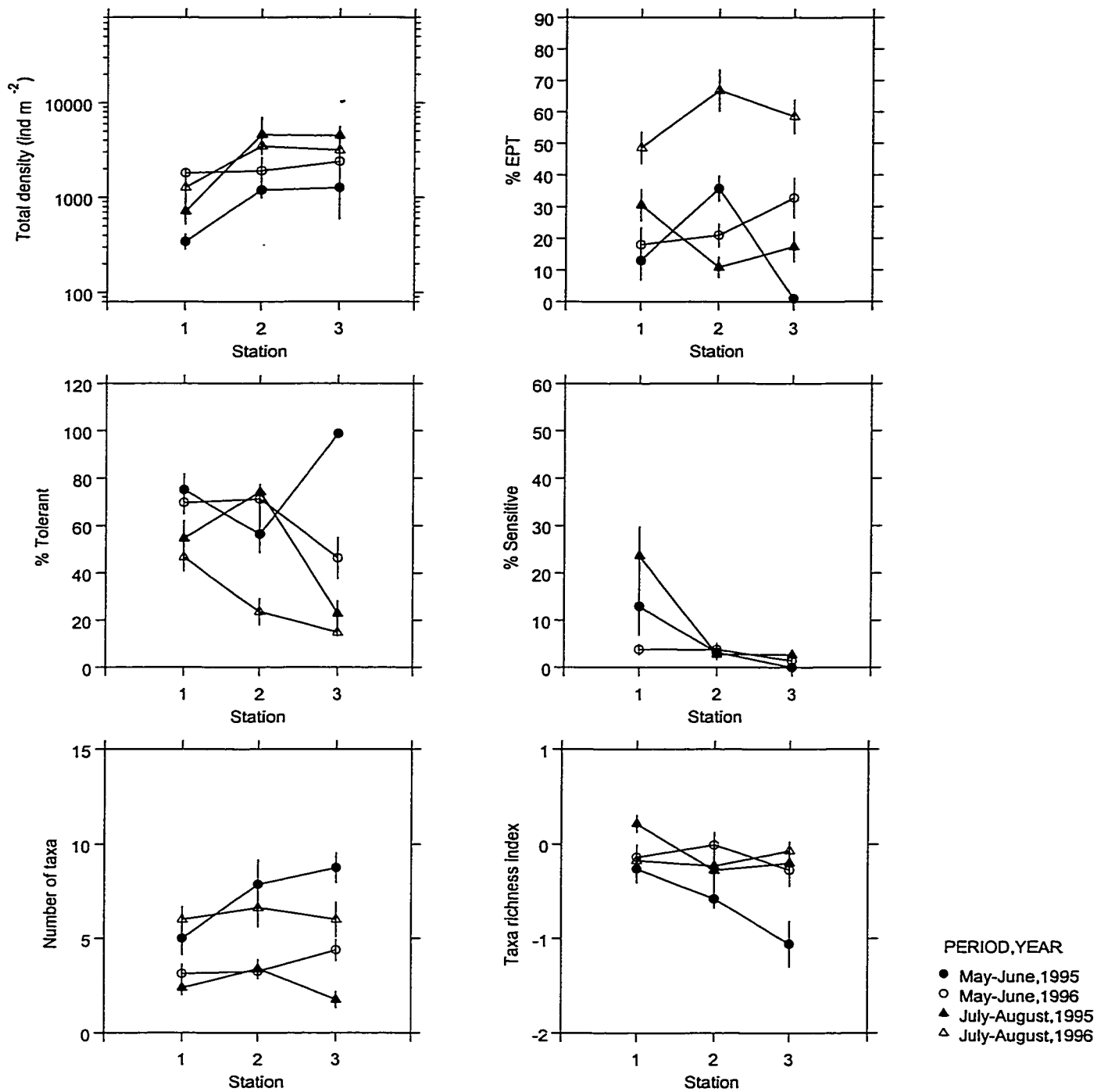


Figure 21. Longitudinal patterns of benthic indices in the Ottawa River in 1995 and 1996. Means and SEM.



Covariation of water quality and macroinvertebrate assemblages

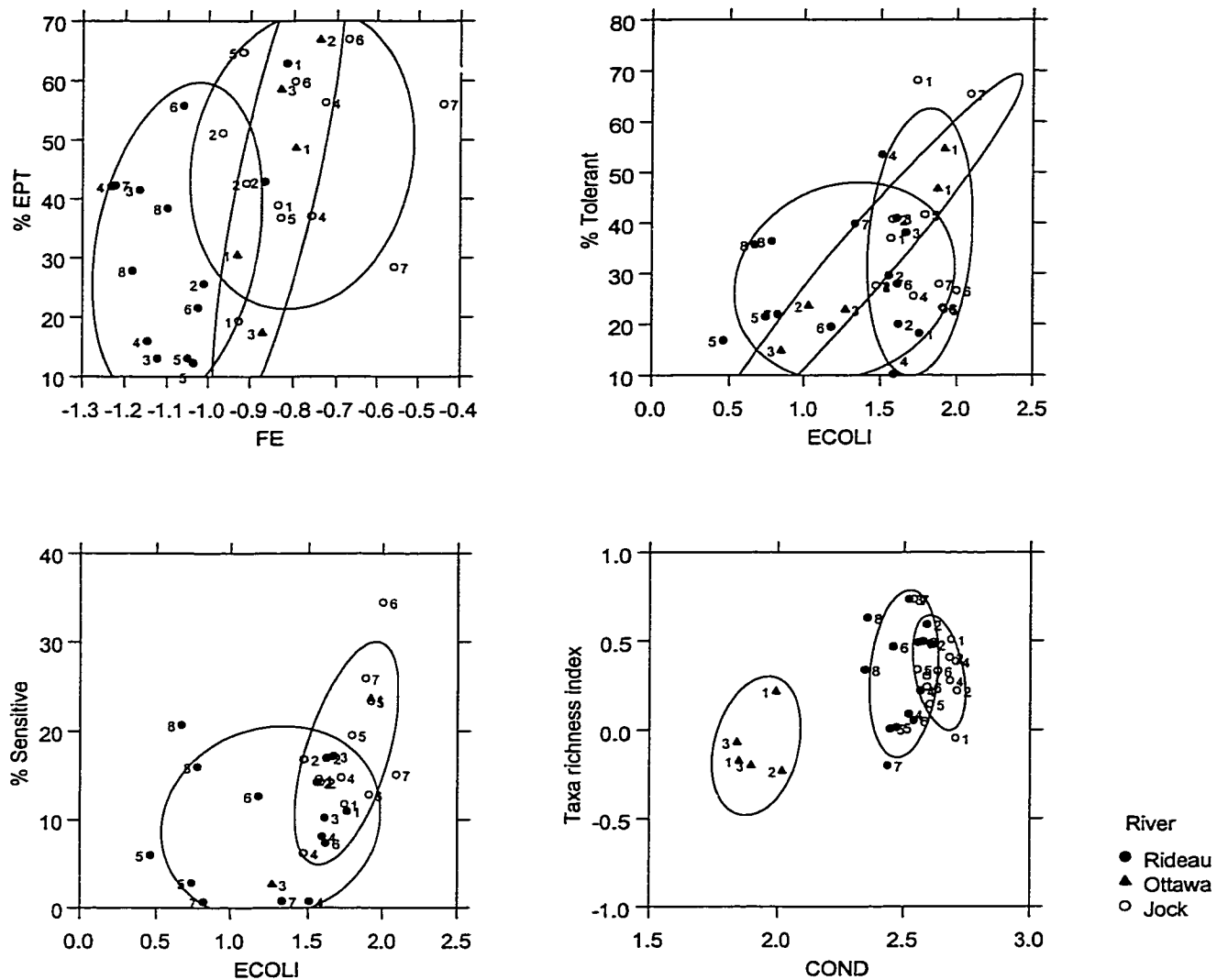
Benthic macroinvertebrate assemblages were not strongly related to water quality. This is depicted in Table 5, which presents the Pearson correlation coefficients between the invertebrate benthic metrics and the water quality parameters. Although 22 of the 124 correlation coefficients were “significant”, none of them were strong enough to still be significant after correction for the large number of correlations computed.

Moreover, the stronger correlations identified between the benthic metrics and the water quality parameters can partially be accounted for by the differences among the rivers (Fig. 22).

Table 5. Pearson correlation coefficients between benthic indices for July-August 1995 and 1996 and water quality and site parameters. Note that, although the bold coefficients are higher than the critical value at $\alpha=0.05$ and $n=31$, none are significant after the Bonferoni correction to account for the large number of correlations computed.

	% EPT	% Tolerant	% Sensitive	Taxa richness index
AL	0.389	0.000	0.149	-0.114
ALK	-0.007	0.057	0.190	0.525
CA	-0.009	0.116	0.218	0.513
CL	-0.186	0.049	-0.079	0.513
CO	-0.212	-0.086	0.043	0.290
COND	-0.052	0.079	0.137	0.525
CU	-0.069	0.011	-0.051	0.032
ECOLI	0.254	0.386	0.470	0.288
FE	0.444	0.100	0.436	0.059
K	-0.166	0.223	0.012	0.131
MG	-0.103	0.016	0.064	0.512
MN	0.050	0.087	0.175	0.374
MO	-0.341	0.058	-0.082	0.222
NA	-0.193	0.096	-0.037	0.472
NH3	-0.016	-0.272	-0.502	-0.058
NOX	-0.161	0.129	-0.301	-0.141
PH	0.064	-0.316	0.102	0.300
SI	0.399	0.252	0.451	-0.089
SO4	-0.273	0.191	-0.169	0.180
SRP	0.141	-0.097	-0.073	0.454
TKN	-0.069	0.056	0.174	0.444
TP	0.038	-0.081	0.034	0.521
TSS	-0.093	0.224	0.147	0.202
VA	-0.314	0.252	-0.127	0.083
ZN	0.037	-0.097	0.146	0.355
WQFACTOR(1)	-0.087	0.081	0.070	0.477
WQFACTOR(2)	-0.415	-0.211	-0.426	0.018
WQFACTOR(3)	-0.005	0.206	-0.058	-0.113
Water DEPTH	-0.110	0.125	-0.227	-0.150
Current velocity	0.117	-0.384	-0.327	-0.048
Periphyton biomass	-0.101	0.123	0.176	0.456

Figure 22. Plot of the benthic indices in 1995 and 1996 against their strongest water quality correlates. Note that, although the overall correlation is « significant » in each case, it can be partly attributed to differences among rivers.



Discussion

Water quality gradients within the Jock, Rideau and Ottawa rivers were observed but these are poorly correlated to benthic invertebrate structure making it impossible to predict one from the other. Not unexpectedly, significant correlations between some water quality parameters and measures of the benthic assemblage can be partially attributed to the differences among the three rivers. Winget and Mangum (1979) have also reported low correlation coefficients when relating macroinvertebrate taxa measurements to individual physical and chemical data. They examined the relationship between the number of macroinvertebrate taxa and mean macroinvertebrate density versus individual measurements of physical/chemical quality from several streams in Utah, U.S.A. Other more recent studies have reported similar results where measures of the macroinvertebrate community have produced weak relationships with measures of water quality (Lenat 1999, Stepenuck and Crunkilton 1999). However, other studies have demonstrated strong relationships between measurements of individual water quality parameters and measures of the invertebrate community and advocate the use of these measures as good predictors of specific water quality parameters (Gowns et al., 1995, Reynoldson and Zarull 1989, Metcalfe-Smith 1994). In fact, in a local study of 13 streams, Lalonde and Morin (1999) found that chloride and ammonia were the best predictors of invertebrate abundance. Certainly, historically speaking there have been numerous studies conducted and biotic indices developed linking measures of the benthic macroinvertebrate community to specific water quality conditions (Forbes and Richardson 1913, Richardson 1928, Hynes 1960, Beak, 1964, Hilsenhoff 1982, Washington 1984).

Interestingly enough in contrast to the benthic invertebrate communities, algal communities at the same sites on these 3 rivers do show strong relationships with the nutrient and conductivity gradients, even at the coarse taxonomic resolution of phylum (Chetelat et al. 1999). Thus, it would seem that algal communities might be a more sensitive measure of the water quality gradients present in these 3 rivers. Future efforts might be better spent in examining this possibility on rivers with similar water quality gradients.

One would presume that the response in the invertebrate assemblage would be greatest at locations where water quality parameters are unusually high or low particularly compared to water quality guidelines. There are sites like this on the Jock and Rideau Rivers that can be described as

unusually different from other sites but the benthic macroinvertebrate response at these stations was inconsistent. For instance, in the Jock River, station 04 often exhibits higher concentrations of TSS, Cl, Na, SO₄ and Cu. Although, in the Jock at station 04, there was higher abundance and numbers of taxa, this is not further substantiated by other metrics or other measures of the invertebrate community (i.e. % tolerant taxa, % sensitive taxa, density of most sensitive taxa). In fact, most supposedly sensitive taxa either show no response at station 04 or tend to increase (i.e. Leptohyphidae, Leptoceridae and Philopotamidae) at station 04, something unexpected if water quality has presumably deteriorated at this station. However, there is one sensitive taxon (Heptageniidae) that shows a decline in density at station 04 and three other tolerant taxa (Chironominae, Tanypodinae, and Oligochaeta (May-June samples only)) that increase in density at station 04. As well, the % sensitive taxa show a slight downstream decrease at stations 03 and 04 but this is evident only in the July-August samples and this pattern is quickly halted with % sensitive taxa increasing further downstream at stations 02 and 01. In the Rideau River, increases in water quality concentrations seem to be occurring between stations 08 and 07 and at station 04 (particularly for NOX, Ca, Cl, Na, SO₄, ECOLI and SRP at station 04 and for NOX, NH₃, SRP and ECOLI at station 07). But measures of the macroinvertebrate assemblage at stations 07 and 04 have not produced a consistent response. However, one exception might be at stations 07, 04 and 05 where the % sensitive taxa and % EPT tend to decrease. This apparent trend however, is not corroborated by an increase in % tolerant taxa at these stations. In general, most of the sensitive taxa do well in the downstream Rideau stations particularly at station 02 where Leptoceridae and Heptageniidae densities increase. There are some macroinvertebrate patterns at specific sampling stations that make sense with respect to water quality patterns but these are limited and not consistent with all the measures of the benthic community and certainly not with the overall upstream-downstream water quality patterns that are observed in our rivers.

The benthic macroinvertebrate variation between sites and sampling dates is larger than the error due to the sampling of the invertebrates (i.e. the benthic macroinvertebrate variation between sites and dates is higher relative to the standard errors among replicate benthic macroinvertebrate samples at each site). So the lack of any strong correlations and macroinvertebrate gradient downstream is “real” and not because of a low signal or noise from the within site sampling. But water quality differed between rivers (mostly separating the Rideau/Jock from the Ottawa along the TP, TKN and Ion gradient) and there were upstream-downstream gradients in water quality that

were strongly influenced by downstream increases in conductivity and NOX, particularly on the Jock and Rideau Rivers. However, these observed differences among sites and rivers, although significant, may not provide a large enough water quality gradient to observe a strong signal with the invertebrate data. Many past indices have been developed on small wadeable creeks and streams (David et al. 1998; Stanfield, et al. 1999, Griffiths 1993, 1995, Pafkin et al. 1989, EPA 1996) where water quality gradients can typically be much more pronounced than on larger river systems. Moreover, indices that have been developed on river systems have often had much larger gradients in chemical water quality compared with those observed on our Eastern Ontario rivers (Table 6). The larger gradient is particularly evident with total and soluble phosphorus and fecal coliform which are often an order of magnitude greater than Eastern Ontario Rivers. Often it is these types of water quality parameters that are associated with the organic types of pollutants (i.e. urban stormwater, sewage treatment plant discharges), to which invertebrate communities have been shown to be sensitive (Chandler 1970, Chutter 1972). Thus, given the much larger gradients and ranges present in these other studies relative to ours, it is possible that this might be an explanation for our lack of signal.

Table 6. Water quality parameters used in the examination of other Macroinvertebrate Indices: Observed River Water Quality Gradients in Eastern Ontario, New South Wales in Australia¹ (Gowns et al., 1995), and the United Kingdom² (Armitage et al., 1983). Minimum and maximum values, range of means and the 10th and 90th percentiles are displayed.

Parameter	Eastern Ontario Rivers			Australian (NSW) Rivers		U.K. Rivers	
	Min-Max	Range of Means	10 th -90 th	Min-Max	Range of Means	Range of Means	10 th -90 th
Alkalinity mg/l as CaCO ₃	14.0-300	29.3-187	99.4-210	N/A	N/A	35.9-212	11-257
Conductivity us/cm	63-3600	93.6-487	250-530	20-5110	200-608	N/A	N/A
Chloride mg/l	0.1-171	2.9-26.5	9-37	N/A	N/A	10.9-92.1	5-202
Fecal Coliforms cfu/100ml	0-8000	147-619	10-608	<2-37000	75-1011	N/A	N/A
E. Coli cfu/100ml	0-8000	60-260	6-200	N/A	N/A	N/A	N/A
NOX mg/l	0.003-21.1	0.13-0.318	0.005-0.637	<0.01-32.5	0.4-4.1	0.40-6.62	0.1-9.4
pH	6.61-8.95	7.6-8.4	7.8-8.5	4.2-9.1	6.7-7.6	7.2-7.9	6.6-8.2
Soluble Reactive Phosphorus mg/l	0.001-0.31	0.003-0.021	0.003-0.04	N/A	N/A	0.03-0.95	0.01-3.62
Total Kjeldahl Nitrogen mg/l	0.24-1.37	0.324-0.897	0.56-0.99	0.05-17.0	0.4-0.9	N/A	N/A
Total Phosphorus mg/l	0.008-0.26	0.013-0.062	0.024-0.076	<0.002-12.4	0.02-1.1	N/A	N/A
Total Suspended Solids mg/l	0.282-176	2.1-7.3	0.8-8.5	<1-100	3.6-3.8	N/A	N/A
Dissolved Oxygen mg O ₂ /l	5.08-10.69	7.9-8.3	6.8-9.3	0.9-15.6	8.4-10.1	9.25-11.39	7.3-12.6

Another factor that may have contributed to the weak signal could have been the variation in the water quality sampling effort at each site. Both the timing and frequency varied among our sites in 1995 and 1996 (Table2) and the set of analyses varied among water samples. Although water

quality gradients were present among river sites, less variation in sampling effort may have produced better estimates of average water quality at each site.

There are problems with some of the indices that tend to create biases in the calculated data presented. Some of the problems or biases particularly associated with the % metrics (i.e. % EPT, % tolerant and % sensitive) include the impact of high numbers of individual taxa. High peak numbers of individual taxa at a site will tend to have an effect on the % metric often causing the metric to be lower relative to other sites. An example of this can be observed with the high numbers of Platyhelminthes (flatworms) at station 5 on the Rideau River, leading ultimately to an overall lowering of the % metrics at this station. According to our correlation analysis another problem with the % tolerance metric is that it varies with the current velocity. That is, the change in % tolerance between seasons may be partly associated with a change in current velocity suggesting that some additional biases may be affecting the % tolerant variability. Certainly differences in stream velocity have explained much of the variance in macroinvertebrate community structure in past studies (Porter et al. 1999, Tolley 1999). The correlation between the % tolerant metric and the current velocity is somewhat undesirable. This would suggest the need for a “tolerance index” independent of current velocity.

Another problem associated with both the % sensitive and % tolerant metrics is the debate on the use of them with only the family level of taxonomic identification complete. Certain family-level taxa such as Ephemeroellidae (considered a sensitive taxa at the family level) have some taxa at the genus-level that are considered tolerant and others that are considered sensitive (Hilsenhoff 1982). The tolerant and sensitive taxa at the species level, of course, would not be considered with only a family level of taxonomic identification. This could lead to the misclassification of a site as either tolerant or sensitive, once again potentially biasing the results depending on the taxa present. In fact, the majority of the published articles on this issue of taxonomic level of identification favour the genus-species level (or lowest taxonomic level possible) as the best approach in assessing community or population response to anthropogenic impairment (Resh 1999). But many of the rapid bioassessment techniques recommend taxonomic identification to only the order level or higher in order to save time/costs and so that people with little or no expertise in aquatic ecology are capable of using them (David et al. 1998). Bournaud et al. (1996) found that observed changes in the invertebrate community structure at the family level were similar to those observed at the species

level along the Rhone River in France. Another study that analysed several years of published data sets at varying taxonomic resolutions found that genus-level identification did not usually provide a different description of community patterns than higher levels (e.g. family, order) of taxonomic identification (Bowman and Bailey 1997). Nevertheless, the chosen level of identification should be dependent on the question being asked and the subsequent resolution required to best support the answer to the question. Although we admit that some degree of information is lost with the family-level of identification it was for practical reasons (i.e. time and cost savings) that we chose to obtain the coarse order-family level of taxonomic identification.

Other possible variables which we could not control or account for in this work and which may have definite effects on invertebrate variability among the sites include: water-level controls, predation, food availability (although we did not find any strong correlation with periphyton biomass), competition from invading species. It would seem plausible that any one or a combination of these factors could account for the unexplained variability observed in our macroinvertebrate community. Water levels are controlled on all three of our rivers and this has been shown to affect the invertebrate composition in studies on other rivers (Bournaud et al. 1996).

Conclusion

The principal component analysis results on the invertebrate densities revealed that invertebrate variability was greater seasonally than yearly on all 3 rivers. The May-June samples tended to have higher variability than July-August samples. This supports the fixed or standardized approach to the sampling time period from year to year. It also indicates the need to maintain the sampling period preferably in a less variable time of the year such as late summer or early fall. In fact, early fall may be the most appropriate time of the year to sample because the invertebrate community is more stable, water quality impacts from the current year should be reflected in the fall community and typically flows and water levels are still relatively low for ease of access.

The variability of the 1995 and 1996 water quality sampling effort and its potential effect on the results of this study, emphasizes the need for a standardized water quality dataset over the long-term.

The coarse taxonomic identification (Order and Family level) completed in this study would seem appropriate for use as a reference condition in a long-term monitoring approach or as a preliminary screening-level approach in an environmental assessment. However, more detailed environmental assessments and diagnostic monitoring will often require a finer level of identification (genus/species) in order to obtain a more valuable and defensible dataset. In either case, an early warning system is provided that will assist in detecting trends in the aquatic environment that may affect more socially valued organisms (i.e. fish).

The taxa richness metric is not all that desirable a metric to use because it is strongly influenced by the number of invertebrate individuals counted in a sample and is therefore very dependent on the effort afforded each sample. So, a relative taxa richness index that corrects for the bias in effort would be a better metric as long as the taxonomic level is fixed. Likewise, it would seem that we need to have a “tolerance index” that is independent of current velocity in order to properly assess impacted sites.

In general, we have found no evidence of strong impacts of water quality on the benthos structure of the 3 rivers. So, it would seem that macroinvertebrates do not provide a reliable prediction of water quality in the range in which Ottawa area rivers vary. In fact, in examining other water quality gradients from studies that have detected stronger correlations, it is apparent that

much larger gradients and ranges exist in these other studies compared with the water quality gradients in this study. Interestingly enough, at certain locations where water quality parameters were unusually high particularly compared to the guideline, we observed an increase in invertebrate abundance. This study does provide a reference point for each of our large rivers, from which we can compare to future monitoring work.

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Appendix I - Log Transformed Mean Water Quality Values at Each Station

(Water Quality Parameter Units are in mg/l except PH (pH units), COND (microsiemens/cm) and
ECOLI/FCOLI (colony forming units/100ml)- See Table 1 for details)

Station ID	Year	Week	#AL	ALK	CA	CD	CE	CO	COND	CR	CU	DOC	ECOL	ECOL	FEET	KG	MM	MO	NA	NFS	NI	NOX	PB	PH	PHENOL	SI	SO4	SRF	STN	TBR	TSS	VA	VZN
JOC01	1995	21		2.30			1.42		2.68				1.70	2.40						-1.25	-1.02		8.47	-3.30		1.13	-1.85	-0.16	-1.33	0.84			
JOC01	1995	22		2.20			1.47		2.71				2.80	3.90						-0.99	0.80		8.45	-3.30		1.34	-1.15	0.10	-0.85	1.51			
JOC01	1995	24	-1.31	2.29	1.75	-4.00	1.42	-3.40	2.68	-3.22	-2.85		2.30	3.00						-1.62	-3.15	-0.80	8.49			0.18	1.16	-1.70	-0.09	-1.32	0.59	-2.96	-4.00
JOC01	1995	25	-1.10	2.27	1.76	-4.00	1.48	-3.40	2.69	-3.22	-2.96	1.13	2.00	2.00						-2.92	-2.92	-1.66	8.69	-3.30		0.33	1.20	-1.85	-0.11	-1.38	0.10	-2.92	-3.05
JOC01	1995	27	-1.36	2.28	1.74	-4.00	1.58	-3.40	2.70	-3.22	-3.10		2.20	2.59						-2.22	-3.10	-1.49	8.54	-3.30		0.44	1.28	-1.39	-0.17	-1.22	0.26	-2.72	-4.00
JOC01	1995	28	-1.14	2.26	1.74	-4.00	1.59	-3.16	2.72	-3.18	-2.83		1.79	2.18						-3.00	-1.49	-2.70	8.40	-3.30		0.51	1.28	-1.37	-0.15	-1.20	0.32	-2.78	-3.61
JOC01	1995	29	-1.01	2.25	1.74	-4.00	1.55	-3.40	2.72	-3.16	-2.76		1.62	2.10						-2.39	-2.97	-1.49	8.52	-3.30		0.50	1.43	-1.52	-0.16	-1.26	0.55	-2.60	-2.82
JOC01	1995	30	-1.13	2.25	1.75	-4.00	1.63	-3.40	2.73	-3.22	-2.68		1.44	2.48						-2.22	-3.05	-1.39	8.58			0.23	1.46	-3.00	-0.04	-1.33	0.64	-2.62	-2.49
JOC01	1995	31	0.01	2.06	1.63	-4.00	1.16	-3.40	2.92	-2.73	-2.49									-1.49	-2.90	0.25	8.08	-3.30		0.77	1.13	-1.05	0.02	-0.82	1.44	-2.49	-2.28
JOC01	1995	32	-1.05	2.32	1.85	-4.00	1.43	-3.40	2.73	-3.01	-3.05		1.67	1.84						-1.86	-3.21	-0.03	8.38	-3.30		0.62	1.39	-1.45	-0.08	-1.22	0.41	-2.87	-2.71
JOC01	1995	33	-1.06	2.32	1.86	-3.70	1.60	-3.40	2.76	-3.22	-2.66		0.30	1.54						-2.52	-3.00	-0.79	8.49	-3.30		0.41	1.64	-2.15	-0.15	-1.52	0.39	-2.82	-2.72
JOC01	1995	34	-0.88	2.34	1.88	-3.90	1.63	-3.30	2.78	-3.20	-2.80		1.97	2.45						-2.20	-3.16	-0.85	8.54	-3.30		0.33	1.54	-2.02	-0.09	-1.48	0.41	-2.87	-2.48
JOC01	1995	35	-1.44	2.33	1.83	-3.68	1.73	-3.40	2.76	-3.18	-2.90		2.33	2.34						-2.40	-3.22	-1.84	8.46	-2.70		0.09	1.66	-2.27	-0.17	-1.62	0.11	-2.81	-1.86
JOC01	1995	38	-1.36	2.32	1.81	-4.00	1.64	-3.30	2.74	-3.22	-2.77		0.70	1.22						-2.52	-3.22	-2.30	8.66			-0.29	1.54	-2.40	-0.28	-1.77	-0.40	-3.15	-2.70
JOC01	1995	41		2.29			1.46		2.70				1.36	2.14						-2.05	-0.10		8.34				1.49	-1.60	-0.05	-1.64	0.78		
JOC01	1995	44	-0.88	2.29	1.80	-4.00	1.36	-3.40	2.65	-2.72	-3.30		1.75	2.11						-3.00	-3.22	-0.24	8.35	-3.00		0.33	1.36	-2.22	-0.25	-1.82	0.20	-3.22	-1.89
JOC01	1996	65	-0.92	2.14	1.65	-4.00	1.15	-3.40	2.52	-3.22	-3.30		0.30							-1.85	-3.22	-0.55	7.89			0.22	0.99	-2.22	-0.39	-1.66	0.90	-3.30	-2.77
JOC01	1996	76	-1.20	2.30	1.77	-4.00	1.46	-3.40	2.71	-3.22	-3.30		1.81							-1.89	-3.22	-0.70	8.44			0.25	1.12	-2.15	-0.13	-1.41	0.46	-3.22	-2.96
JOC01	1996	78	-1.06	2.30	1.77	-3.70	1.54	-3.40	2.72	-3.22	-3.30		1.53							-1.89	-3.10	-1.22	8.43			0.36	1.28	-1.77	-0.16	-1.35	0.43	-2.82	-4.00
JOC01	1996	79	-0.58	2.30	1.54	-4.00	1.56	-3.40	2.72	-2.72	-2.64		1.41							-1.96	-3.05	-1.70	8.65			0.09	1.28	-1.84	-0.14	-1.25	0.28	-2.74	-4.00
JOC01	1996	80	-1.18	2.28	1.71	-4.00	1.59	-3.40	2.72	-3.22	-3.30		1.91							-2.15	-3.22	-1.70	8.59			0.26	1.32	-1.57	-0.19	-1.30	0.40	-3.30	-2.36
JOC01	1996	82	-0.43	2.24	1.78	-4.00	1.59	-3.40	2.71	-3.22	-2.47		2.32							-3.10		-2.70	7.76			0.55	1.48				0.70	-2.74	-4.00
JOC01	1996	85	-1.25	2.28	1.78	-4.00	1.49	-3.40	2.72	-2.60	-3.30		1.70							-1.72	-3.22	-1.22	8.48			0.12	1.34	-1.77	-0.14	-1.38	0.41	-3.30	-2.62
JOC02	1995	21		2.29			1.44		2.69				1.70	2.07						-1.43	-1.08		8.45	-3.30			1.13	-2.05	-0.15	-1.40	0.72		
JOC02	1995	22		2.21			1.47		2.72				2.90	3.90						-1.02	0.80		8.43				1.33	-1.14	0.05	-0.80	1.41		
JOC02	1995	24	-1.47	2.28	1.75	-4.00	1.39	-3.40	2.67	-3.22	-2.82		2.00	3.18						-1.64	-3.05	-0.85	8.45			0.10	1.16	-1.80	-0.08	-1.36	0.34	-2.92	-2.65
JOC02	1995	25	-1.23	2.28	1.77	-4.00	1.49	-3.40	2.71	-3.22	-2.92		2.00	2.00						-1.85	-2.82	-1.40	8.45			0.26	1.27	-1.80	-0.12	-1.35	0.31	-2.85	-2.03
JOC02	1995	27	-1.49	2.26	1.74	-4.00	1.57	-3.40	2.71	-3.22	-3.10		1.53	2.23						-2.00	-3.22	-1.26	8.34			0.37	1.28	-1.41	-0.15	-1.22	0.10	-2.74	-4.00
JOC02	1995	28	-1.36	2.26	1.74	-4.00	1.54	-3.35	2.71	-3.19	-2.84		1.79	1.93						-1.93	-3.07	-1.37	8.18			0.42	1.31	-1.27	-0.14	-1.13	0.18	-2.78	-2.58
JOC02	1995	29	-1.07	2.24	1.74	-4.00	1.53	-3.40	2.71	-3.22	-3.04		2.14	1.86						-1.92	-3.16	-1.17	8.44			0.53	1.46	-1.47	-0.17	-1.21	0.35	-2.83	-3.90
JOC02	1995	30	-1.25	2.27	1.78	-4.00	1.22	-3.40	2.76	-3.22	-2.70		1.00	2.00						-1.39	-3.05	-0.64	8.28			0.37	1.11	-3.00	-0.10	-1.38	0.57	-2.68	-4.00
JOC02	1995	31	-0.05	2.06	1.63	-4.00	1.07	-3.40	2.52	-2.77	-2.43									-1.45	-2.85	0.24	8.06			0.75	1.19	-1.08	0.02	-0.87	1.36	-2.45	-1.78
JOC02	1995	32	-1.09	2.33	1.85	-4.00	1.44	-3.40	2.74	-3.20	-2.88		1.37	2.16						-1.75	-3.20	-0.05	8.30			0.61	1.38	-1.51	-0.08	-1.26	0.39	-2.82	-2.51
JOC02	1995	33	-1.28	2.34	1.86	-4.00	1.57	-3.40	2.78	-3.22	-2.77		0.30	1.00						-1.66	-3.15	-0.89	8.37			0.42	1.51	-2.30	-0.18	-1.57	0.26	-2.68	-4.00
JOC02	1995	34	-1.26	2.34	1.86	-4.00	1.25	-3.40	2.76	-3.00	-3.01		0.84	2.06						-1.90	-3.07	-0.70	8.43			0.38	1.19	-1.78	-0.09	-1.38	0.35	-2.71	-2.46
JOC02	1995	35	-1.22	2.33	1.84	-3.85	1.30	-3.40	2.76	-3.22	-2.77		0.52	1.86						-2.11	-3.22	-1.11	8.20			0.24	1.19	-1.82	-0.15	-1.41	0.48	-2.85	-2.19
JOC02	1995	38	-1.33	2.30	1.83	-4.00	1.67	-3.40	2.76	-3.15	-3.00		0.22	0.52						-2.40	-3.22	-1.27	8.47			-0.03	1.63	-2.22	-0.25	-1.66	-0.05	-2.85	-2.59
JOC02	1995	41		2.30			1.45		2.70				1.91	2.02						-1.59	-0.09		8.27				1.49	-1.57	-0.06	-1.26	0.83		
JOC02	1995	44	-0.91	2.28	1.77	-4.00	1.34	-3.40	2.65	-3.22	-3.30		1.87	1.98						-2.70	-3.15	-0.24	8.19	-3.00		0.32	1.35	-2.15	-0.26	-1.77	0.32	-3.05	-2.52

Station	ID	Year	Week	FAV	ALK	CA	EC	IC	CO	COND	TCR	TCU	DOC	ECOL	FE	TK	MG	EMN	IMO	MA	INP	AN	NOX	PE	PHI	PHEND	PSI	SO	SPR	ITN	ETP	ITS	VA	VZA
JOC02	1996	65	-0.89	2.13	1.64	-4.00	1.11	-3.35	2.51	-3.09	-3.11		0.30		-0.70	-0.46	1.05	-1.60	-3.30	0.89	-1.73	-3.22	-0.58	-2.70	7.79		0.21	0.95	-2.22	-0.41	-1.66	0.63	-3.26	-2.73
JOC02	1996	76	-1.30	2.30	1.76	-3.70	1.48	-3.40	2.70	-3.22	-3.05		1.43		-1.07	0.15	1.25	-1.23	-3.30	1.19	-1.43	-3.22	-0.92	-2.70	8.42		0.19	1.06	-2.16	-0.11	-1.41	0.26	-3.30	-3.05
JOC02	1996	76	-1.14	2.28	1.76	-4.00	1.51	-3.40	2.70	-3.22	-3.30		1.53		-0.98	0.18	1.26	-1.10	-3.30	1.25	-1.51	-3.22	-1.05	-2.70	8.24		0.34	1.28	-1.54	-0.11	-1.24	0.34	-2.89	-4.00
JOC02	1996	79	-1.08	2.29	1.63	-4.00	1.53	-3.40	2.72	-2.96	-3.00		1.60		-1.11	0.00	1.15	-1.23	-3.30	0.95	-1.66	-3.15	-1.10	-2.70	8.44		0.09	1.29	-1.52	-0.12	-1.25	0.20	-2.82	-4.00
JOC02	1996	80	-1.26	2.29	1.71	-4.00	1.56	-3.40	2.72	-3.22	-3.00		2.04		-1.15	0.26	1.29	-1.26	-3.30	1.24	-1.82	-3.22	-1.22	-2.70	8.41		0.31	1.32	-1.42	-0.19	-1.21	0.15	-2.96	-2.74
JOC02	1996	82	-0.11	2.23	1.73	-4.00	1.56	-3.40	2.70	-2.82	-2.48		3.16		-0.14	0.53	1.13	-0.63	-3.30	1.32	-2.96		-2.70	7.50		0.64	1.46				0.70	-2.47	-2.40	
JOC02	1996	85	-1.39	2.28	1.76	-3.70	1.43	-3.40	2.71	-3.15	-3.30		1.00		-1.21	0.18	1.20	-1.09	-3.30	1.17	-1.59	-3.00	-1.15	-2.70	8.38		0.11	1.34	-1.57	-0.12	-1.26	0.30	-3.30	-2.72
JOC04	1995	21		2.28			1.37		2.67				1.70	2.40							-1.66	-0.96	8.46			-3.30		1.08	-2.05	-0.08	-1.25	0.75		
JOC04	1995	22		2.24			1.43		2.72				2.90	3.73							-1.24	0.77	8.46			-3.30		1.25	-1.28	0.10	-0.95	1.43		
JOC04	1995	24	-1.41	2.27	1.73	-4.00	1.33	-3.40	2.65	-2.82	-2.59		2.00	3.18	-0.79	-0.05	1.18	-1.19	-3.30	1.09	-1.52	-2.92	-0.89	-2.70	8.32		0.21	1.06	-1.54	-0.05	-1.17	0.71	-3.22	-3.22
JOC04	1995	25	-1.16	2.28	1.75	-3.61	1.37	-3.40	2.65	-3.22	-2.48	1.19	2.00	2.00	-0.82	0.10	1.22	-1.08	-3.30	1.16	-2.46	-2.94	-1.86	-2.70	8.45		0.41	1.09	-1.63	-0.06	-1.16	0.81	-3.08	-2.76
JOC04	1995	27	-1.31	2.29	1.81	-4.00	1.60	-3.40	2.74	-3.05	-2.40		0.45	1.18	-0.90	0.26	1.30	-0.79	-3.28	1.32	-1.27	-3.16	-1.63	-2.70	8.25		0.59	1.38	-1.37	-0.06	-1.07	0.72	-2.69	-3.24
JOC04	1995	28	-1.18	2.28	1.80	-3.97	1.63	-3.34	2.75	-3.20	-1.91		1.16	1.26	-0.93	0.29	1.29	-1.02	-3.30	1.34	-2.03	-3.09	-1.66	-2.70	8.33		0.61	1.42	-1.73	-0.05	-1.14	0.67	-2.83	-3.48
JOC04	1995	29	-0.78	2.23	1.73	-3.97	1.54	-3.32	2.71	-3.14	-2.10	</																						

Station ID	Year	Week	FA	ALK	CA	CD	CH	CO	COND	CR	CU	DOC	ECOL	FER	KK	MG	MM	MO	MA	IN	IN3	NI	NOX	PH	PHENOL	US	SO4	SPR	RTN	HTP	ITSS	AVR	AVR2N	
JOC07	1985	21		2.22			1.13		2.57				2.65	2.67							-2.00	-2.22	8.52	-3.30		0.66	-1.80	-0.11	-1.41	0.42				
JOC07	1985	22		2.19			1.14		2.58				2.90	3.23							-2.15	-0.07	8.48	-3.30		1.00	-1.54	0.00	-1.15	1.25				
JOC07	1985	24	-0.80	2.19	1.70	-4.00	0.94	-3.40	2.52	-2.82	-2.59		3.00	2.78	-0.30	-0.22	1.03	-0.99	-3.30	0.75	-1.89	-3.22	-1.80	-2.70	8.52		0.36	-1.47	0.05	-1.14	0.83	-3.10	-3.30	
JOC07	1985	25	-0.82	2.21	1.72	-4.00	0.91	-3.15	2.54	-2.80	-3.05	1.36	2.30	2.48	-0.35	-0.05	1.08	-0.79	-3.30	0.75	-2.15	-2.85	-2.10	-2.70	8.54	-3.00	0.54	0.41	-1.54	0.07	-1.12	0.68	-2.72	-2.92
JOC07	1985	27	-1.08	2.23	1.71	-4.00	0.95	-3.40	2.56	-3.22	-2.92		1.89	2.32	-0.67	0.00	1.09	-1.24	-3.30	0.78	-2.40	-3.22	-2.30	-2.70	8.60	-3.30	0.52	0.57	-1.92	0.04	-1.34	0.32	-2.98	-3.70
JOC07	1985	28	-1.10	2.20	1.70	-4.00	0.99	-3.40	2.55	-3.22	-2.65		2.44	2.64	-0.66	0.19	1.10	-1.22	-3.30	0.81	-2.40	-3.18	-2.30	-2.70	8.46	-3.20	0.58	0.68	-1.78	0.04	-1.31	0.25	-3.02	-3.52
JOC07	1985	29	-0.85	2.21	1.76	-4.00	1.17	-3.40	2.63	-3.18	-2.83		2.41	2.71	-0.52	0.35	1.07	-1.08	-3.30	1.01	-2.12	-3.22	-1.80	-2.70	8.59	-3.30	0.62	1.32	-1.40	-0.01	-1.20	0.67	-3.08	-3.01
JOC07	1985	30	-0.98	2.32	1.86	-4.00	1.15	-3.40	2.68	-3.22	-2.85		1.74	2.00	-0.64	0.34	1.06	-1.29	-3.30	0.98	-2.20	-3.22	-2.30	-2.70	8.50		0.46	1.32	-2.22	-0.06	-1.44	0.62	-3.10	-3.52
JOC07	1985	31	-0.66	2.13	1.70	-4.00	0.88	-3.40	2.51	-3.18	-2.77		2.56	2.69	-0.45	0.20	0.86	-1.52	-3.30	0.79	-2.27	-3.18	-0.58	-2.70	8.29		0.54	0.99	-1.58	-0.07	-1.22	0.66	-3.30	-2.34
JOC07	1985	32	-1.01	2.28	1.80	-4.00	1.11	-3.40	2.61	-3.09	-2.95		1.77	2.36	-0.55	0.16	1.03	-1.36	-3.30	0.88	-2.19	-3.22	-1.76	-2.70	8.88	-3.30	0.36	0.87	-1.97	-0.02	-1.46	0.59	-3.15	-3.48
JOC07	1985	33	-0.92	2.32	1.82	-3.70	1.14	-3.40	2.63	-2.74	-2.82		0.30	1.00	-0.42	0.20	1.07	-1.35	-3.30	0.92	-2.30	-3.05	-2.30	-2.70	8.54	-3.30	0.52	0.73	-1.96	-0.01	-1.44	0.64	-2.89	-2.52
JOC07	1985	34	-0.89	2.31	1.81	-4.00	1.14	-3.40	2.62	-3.22	-3.07		2.13	2.49	-0.67	0.22	1.13	-1.29	-3.30	0.94	-2.20	-3.14	-2.19	-2.70	8.65	-3.70	0.56	0.80	-2.08	0.07	-1.39	0.55	-3.01	-2.72
JOC07	1985	35	-0.92	2.31	1.80	-4.00	0.96	-3.40	2.61	-3.22	-2.97		1.95	2.43	-0.60	0.19	1.17	-1.33	-3.30	0.76	-2.25	-3.22	-2.10	-2.70	8.50	-3.30	0.61	0.89	-2.06	0.02	-1.37	0.57	-3.20	-2.40
JOC07	1985	38		2.32			1.17		2.63				1.60	2.15							-2.52	-2.30		8.30		1.00	-2.30	-0.04	-1.60	0.68				
JOC07	1985	41		2.24			1.26		2.61				2.11	2.52							-2.52	-0.69		0.03		1.11	-2.00	-0.04	-1.52	0.37				
JOC07	1985	44	-1.28	1.23	1.74	-4.00	0.80	-3.40	2.55	-3.22	-3.30		1.70	1.75	-0.87	0.18	1.07	-1.85	-3.30	0.94	-2.52	-3.22	-0.60	-2.70	8.17	-3.00	0.18	0.85	-2.52	-0.21	-1.92	0.10	-3.22	-2.86
JOC07	1986	65	-0.78	2.11	1.64	-4.00	1.09	-3.22	2.49	-2.77	-3.30		0.30		-0.35	-0.52	0.97	-1.35	-3.30	0.93	-1.48	-3.22	-1.04	-2.70	7.78		0.24	0.73	-2.05	-0.30	-1.32	1.05	-3.30	-2.74
JOC07	1986	76	-1.19	2.23	1.72	-4.00	1.15	-3.40	2.57	-3.22	-2.80		1.96		-0.46	-0.05	1.07	-1.33	-3.30	0.88	-2.22	-3.22	-2.22	-2.70	8.54		-0.05	0.27	-1.41	-0.03	-1.13	0.34	-3.30	-3.22
JOC07	1986	78	-0.90	2.20	1.70	-4.00	0.98	-3.40	2.53	-2.96	-3.30		1.88		-0.32	-0.10	1.05	-1.13	-3.30	0.82	-2.10	-3.22	-2.05	-2.70	8.48		0.58	0.48	-1.27	0.00	-1.04	0.81	-3.30	-4.00
JOC07	1986	79	-0.89	2.21	1.53	-4.00	1.01	-3.40	2.53	-2.92	-3.30		2.20		-0.43	0.00	1.14	-1.10	-3.30	0.90	-1.72	-3.22	-2.22	-2.70	8.75		0.03	0.56	-1.37	0.05	-1.08	0.36	-3.10	-4.00
JOC07	1986	80	-1.11	2.19	1.65	-4.00	1.00	-3.40	2.57	-3.22	-2.92		2.19		-0.63	0.20	1.10	-1.29	-3.30	0.76	-2.15	-3.22	-2.22	-2.70	8.88		0.50	0.88	-1.47	0.00	-1.15	0.30	-3.05	-3.15
JOC07	1986	82	-0.49	2.17	1.75	-4.00	1.15	-3.40	2.53	-2.96	-3.30		3.14		-0.43	0.20	0.91	-1.51	-3.30	0.88		-3.22		-2.70	7.71		0.54	1.36				1.04	-3.10	-2.85
JOC07	1986	85	-0.85	2.21	1.67	-4.00	0.86	-2.85	2.54	-3.22	-2.70		1.48		-0.46	-0.22	1.02	-1.15	-3.30	0.68	-2.40	-3.22	-2.22	-2.70	8.41		0.46	0.45	-1.60	0.03	-1.21	0.71	-3.30	-2.39
JOC07	1986	85	-0.85	2.21	1.67	-4.00	0.86	-2.85	2.54	-3.22	-2.70		1.48		-0.46	-0.22	1.02	-1.15	-3.30	0.68	-2.40	-3.22	-2.22	-2.70	8.41		0.22	0.88	-3.00	-0.59	-2.05	0.26	-3.30	-2.96
OTT01	1985	33	-1.24	1.40	0.98	-4.00	0.51	-3.40	1.85	-3.22	-2.54		1.91	2.13	-1.10	-0.10	0.32	-2.09	-3.22	0.49	-1.96	-2.92	-0.88	-2.70	7.18		0.20	0.92	-2.70	-0.52	-1.92	0.30	-3.10	-2.64
OTT01	1985	41	-0.84	1.46	0.99	-4.00	0.52	-3.40	2.03	-3.05	-3.30				-0.78	-0.05	0.41	-1.90	-3.30	0.51	-2.05	-2.96	-0.73	-2.70	7.48		0.37	0.94	-2.70	-0.55	-1.89	0.11	-3.22	-4.00
OTT01	1986	73	-0.69	1.20	0.81	-4.00	0.28	-3.40	1.81	-2.57	-2.74		1.08		-0.66	-0.22	0.21	-1.82	-3.30	0.32	-1.77	-3.15	-0.88	-2.70	7.30		0.32	0.84	-2.70	-0.53	-1.89	0.14	-3.23	-2.58
OTT01	1986	78	-0.83	1.29	0.88	-3.65	0.33	-3.22	1.85	-3.19	-2.61		2.02		-0.71	-0.13	0.21	-1.90	-3.30	0.29	-1.73	-2.98	-0.93	-2.70	7.39		0.30	0.83	-2.70	-0.62	-1.96	-0.10	-2.82	-2.80
OTT01	1986	80	-0.78	1.23	0.86	-3.70	0.30	-3.40	1.83	-3.22	-2.82		1.78		-0.79	-0.15	0.34	-1.95	-3.30	0.38	-1.85	-2.85	-0.90	-2.70	7.49		0.27	0.85	-2.70	-0.55	-2.00	0.30	-2.85	-2.57
OTT01	1986	84	-0.89	1.30	0.90	-4.00	0.41	-3.40	1.89	-2.82	-2.44		2.11		-0.83	-0.15	0.24	-2.00	-3.30	0.39	-1.92	-3.10	-0.85	-2.70	7.57		0.26	0.83	-2.70	-0.54	-2.00	-0.15	-3.30	-2.85
OTT01	1986	86	-1.05	1.30	0.92	-4.00	0.34	-3.22	1.87	-3.22	-2.43		2.34		-0.99	-0.15	0.32	-2.12	-3.30	0.38	-1.85	-3.22	-0.87	-2.70	7.47		0.42	0.91	-2.15	-0.54	-1.70	0.62	-3.05	-2.03
OTT02	1986	65	-0.39	1.49	1.08	-4.00	0.62	-3.40	2.03	-2.80	-2.92		0.78		-0.43	-0.70	0.39	-1.88	-3.30	0.56	-1.54	-2.92	-0.66	-2.70	7.50		0.33	0.84	-2.70	-0.54	-1.92	-0.10	-3.15	-4.00
OTT02	1986	78	-0.79	1.28	0.88	-4.00	0.30	-3.40	1.85	-2.80	-3.30		0.30		-0.71	-0.15	0.13	-1.84	-3.30	0.25	-1.68	-3.10	-0.88	-2.70	7.38		0.32	0.84	-2.70	-0.55	-1.92	0.04	-3.30	-4.00
OTT02	1986	79	-0.71	1.26	0.84	-4.00	0.26	-3.40	1.83	-2.92	-3.30		0.60		-0.80	-0.15	0.26	-1.92	-3.30	0.34	-1.60	-3.22	-0.95	-2.70	7.43		0.31	0.82	-2.70	-0.51	-1.89	0.23	-3.30	-2.72
OTT02	1986	81	-1.66	2.40	1.94	-3.70	1.34	-3.40	2.74	-3.22	-3.00		2.06		-0.78	-0.15	0.30	-1.90	-3.30	0.36	-1.92	-3.05	-0.94	-2.70	7.50		0.51	0.86	-2.30	-0.05	-1.47	0.32	-3.30	-4.00
OTT02	1986	84	-0.97	1.30	0.94	-4.00	0.30	-3.40	1.87	-3.22	-2.89		1.45		-0.84	0.20	0.88	-1.02	-3.30	1.20	-2.05	-3.22	-1.70	-2.70	8.47		0.28	0.83	-2.70	-0.54	-2.05	0.23	-3.10	-2.85
OTT03	1985	21		1.15			0.18		1.80				0.60	1.05							-1.73	-0.82		7.48		0.63	-2.30	-0.54	-2.02					
OTT03	1985	33	-1.23	1.40	0.94	-4.00	0.40	-3.22	1.94	-3.22	-2.55		1.08		-1.06	-0.22	0.33	-1.96	-3.30	0.43	-2.30	-3.22	-1.03	-2.70	7.80		0.21	0.88	-3.00	-0.52	-1.98	0.00	-3.30	-2.38

StationID	Year	Week	WALS	WALK	WCA	WCD	WCU	WCO	COND	TCR	FCU	DOC	ECO1	ECO2	FEES	WYS	MG	MMN	WNO	WNA	WNS	NIS	NOX	PPH	PPH	PHENOL	USI	SO4	SPH	TKN	TPH	TSS	WVAL	WVAL
OTT03	1995	37	-1.17	1.32	0.90	-4.00	0.32	-3.40	1.88	-3.22	-2.72		1.64	1.70	-0.95	-0.15	0.31	-1.71	-3.30	0.42	-2.30	-3.22	-0.88	-2.70	7.57		0.21	0.90	-3.00	-0.55	-1.96	-0.30	-3.30	-2.47
OTT03	1995	41	-0.72	1.20	0.97	-4.00	0.45	-3.30	1.95	-3.22	-3.30		1.76	2.18	-0.60	-0.10	0.39	-1.85	-3.30	0.50	-2.05	-3.10	-0.76	-2.70	6.61		0.25	0.91	-2.52	-0.48	-1.82	0.52	-3.15	-4.00
OTT03	1996	73	-0.78	1.23	0.93	-4.00	0.36	-3.40	1.85	-2.54	-2.89		0.30		-0.80	-0.15	0.18	-1.95	-3.30	0.31	-2.05	-3.05	-0.88	-2.70	7.45		0.32	0.85	-2.70	-0.49	-1.96	0.00	-3.15	-4.00
OTT03	1996	78	-0.81	1.26	0.94	-4.00	0.28	-3.40	1.84	-3.22	-3.30		1.15		-0.80	-0.15	0.23	-1.95	-3.22	0.31	-2.22	-3.10	-0.99	-2.70	7.55		0.30	0.83	-2.70	-0.51	-1.82	0.04	-3.30	-4.00
OTT03	1996	80	-0.89	1.23	0.79	-4.00	0.20	-3.40	1.81	-2.88	-2.64		0.78		-0.80	-0.15	0.23	-1.94	-3.30	0.31	-2.22	-3.15	-0.89	-2.70	7.49		0.28	0.81	-2.70	-0.55	-1.92	0.04	-3.30	-2.20
OTT03	1996	85	-0.99	1.28	0.86	-4.00	0.23	-3.40	1.86	-3.10	-2.77		1.15		-0.92	-0.15	0.26	-1.97	-3.30	0.31	-2.52	-3.15	-0.89	-2.70	7.59		0.25	0.83	-2.70	-0.54	-2.10	0.00	-2.77	-2.21
RID01	1996	67	-0.41	2.12	1.61	-4.00	1.31	-3.40	2.54	-3.02	-2.80		1.12		-0.37	-0.07	1.08	-1.52	-3.22	1.04	-2.22	-3.03	-0.46	-2.70	8.12		0.08	1.12	-2.15	-0.19	-1.37	1.10	-3.26	-2.35
RID01	1996	76	-1.42	2.12	1.57	-4.00	1.35	-3.18	2.55	-2.97	-3.02		1.57		-1.16	0.04	1.05	-1.84	-3.30	1.03	-1.85	-3.22	-1.52	-2.70	8.22		-0.11	1.02	-1.84	-0.25	-1.49	0.03	-2.78	-2.08
RID01	1996	79	-1.54	2.11	1.55	-3.85	1.42	-3.40	2.55	-3.03	-2.94		1.82		-1.24	0.04	1.16	-1.63	-3.30	1.08	-2.02	-3.22	-1.46	-2.70	8.31		0.00	1.07	-1.70	-0.23	-1.43	0.08	-2.97	-2.38
RID01	1996	82	0.26	2.07	1.51	-4.00	1.43	-3.40	2.55	-3.16	-2.85		2.08		0.30	0.04	1.12	-1.58	-3.30	1.11	-1.41	-3.19	-1.03	-2.70	8.14		0.00	1.10	-1.49	-0.24	-1.28	-0.05	-3.17	-1.13
RID01	1996	83	-1.24	2.10	1.59	-4.00	1.44	-3.22	2.57	-2.59	-2.10		1.94		-1.15	0.16	1.14	-1.74	-3.20	1.16	-1.93	-2.59	-0.55	-2.70	8.38		0.04	1.13	-1.48	-0.24	-1.29	0.10	-3.13	-1.48
RID01	1996	85	-1.57	2.08	1.57	-3.85	1.44	-3.40	2.57	-3.22	-2.41		1.99		-1.28	0.13	1.05	-1.85	-3.13	1.15	-2.26	-3.22	-1.20	-2.70	8.35		-0.12	1.17	-1.86	-0.23	-1.46	0.04	-2.80	-2.58
RID02	1995	24	-1.38	2.23	1.67	-4.00	1.48	-3.11	2.66	-2.98	-2.66		2.00		-1.19	0.10	1.21	-1.43	-3.17	1.17	-1.31	-3.16	-0.54	-2.70	8.39		0.14	1.17	-2.00	-0.19	-1.38	0.40	-2.81	-3.16
RID02	1995	29	-1.26	2.12	1.57	-4.00	1.57	-3.40	2.63	-3.10	-2.85		1.00		-1.00	-0.11	1.04	-1.44	-2.97	1.18	-1.84	-3.22	-1.20	-2.70	8.30		0.53	1.18	-1.35	-0.09	-1.19	0.40	-3.00	-2.64
RID02	1995	32	-1.03	2.14	1.67	-4.00	1.26	-3.40	2.60	-3.11	-2.61		0.56		-0.76	0.41	1.04	-1.28	-3.16	1.13	-1.43	-3.13	0.00	-2.70	8.34		-0.02	1.37	-1.96	-0.13	-1.51	0.27	-2.89	-2.26
RID02	1995	34	-1.40	2.15	1.64	-3.90	1.58	-3.31	2.62	-3.18	-3.19		1.82		-1.04	0.34	1.17	-1.45	-2.94	1.31	-1.80	-3.09	-0.78	-2.70	8.23		-0.27	1.26	-1.82	-0.16	-1.44	0.38	-3.10	-2.73
RID02	1995	36	-1.37	2.08	1.53	-4.00	1.53	-3.40	2.56	-3.22	-2.65		2.20		-1.08	0.22	1.21	-1.46	-3.30	1.31	-2.21	-3.22	-1.19	-2.70	7.97		0.26	1.32	-1.64	-0.13	-1.40	0.21	-3.25	-2.56
RID02	1995	41	-1.08	2.11	1.63	-4.00	1.39	-3.40	2.54	-3.22	-3.30		1.75		-0.88	0.28	1.11	-1.55	-3.30	1.11	-1.35	-3.18	-0.25	-2.70	8.11		0.54	1.60	-1.82	-0.38	-1.42	0.57	-2.77	-2.11
RID02	1996	65	-0.62	2.19	1.82	-4.00	2.23	-3.40	2.99	-2.92	-2.51		0.30		-0.68	0.41	1.11	-1.54	-2.72	1.90	-1.42	-3.00	0.58	-2.70	8.34		0.08	1.12	-2.12	-0.19	-1.38	1.08	-3.30	-2.30
RID02	1996	67	-0.45	2.11	1.61	-4.00	1.30	-3.40	2.54	-2.96	-2.82		1.13		-0.42	-0.10	1.09	-1.56	-3.30	1.03	-2.00	-3.16	-0.45	-2.70	8.12		-0.04	1.00	-1.74	-0.26	-1.47	-0.08	-2.83	-2.78
RID02	1996	76	-1.35	2.12	1.57	-4.00	1.32	-3.27	2.54	-3.02	-3.27		1.55		-1.16	0.05	1.08	-1.60	-3.30	0.98	-1.48	-3.18	-1.44	-2.70	8.19		0.11	1.05	-1.52	-0.23	-1.34	-0.03	-2.92	-2.59
RID02	1996	78	-1.58	2.10	1.54	-3.84	1.39	-3.34	2.54	-2.86	-3.12		1.40		-1.16	0.04	1.15	-1.54	-3.30	1.04	-1.54	-3.22	-1.13	-2.70	8.34		1.04	-1.53	-0.23	-1.32	0.08			
RID02	1996	80		2.06			1.34		2.51				1.99								-1.39		-1.14		8.10			1.08	-1.31	-0.23	-1.22	0.26		
RID02	1996	81		2.05			1.37		2.51				1.86								-1.51		-0.82		8.16			1.13	-1.42	-0.21	-1.19	0.36	-2.81	-1.46
RID02	1996	82	-0.08	2.05	1.51	-4.00	1.39	-3.37	2.52	-3.15	-2.82		2.06		-0.07	0.04	1.12	-1.54	-3.27	1.10	-1.39	-3.13	-0.89	-2.70	8.00		0.11	1.22	-1.41	-0.23	-1.24	0.25	-3.11	-1.69
RID02	1996	83	-1.28	2.08	1.58	-4.00	1.43	-3.13	2.56	-3.10	-2.53		2.25		-1.26	0.18	1.13	-1.70	-3.30	1.14	-1.62	-3.13	-0.50	-2.70	8.07			1.22	-1.51	-0.22	-1.38	-0.08		
RID02	1996	84		2.11			1.45		2.56				1.73								-1.55		-0.51		8.19			1.23	-1.52	-0.23	-1.32	0.00		
RID02	1996	85	-1.46	2.08	1.58	-4.00	1.40	-3.40	2.55	-3.02	-2.82		1.84		-1.30	0.11	1.06	-1.73	-3.30	1.08	-1.76	-3.14	-1.04	-2.70	8.25		-0.04	1.14	-1.64	-0.22	-1.36	-0.20	-3.22	-2.42
RID02	1996	86		2.09			1.59		2.62				1.88								-1.59		-1.02		8.17			1.23	-1.52	-0.23	-1.32	0.00		
RID03	1995	24	-1.42	2.22	1.69	-4.00	1.42	-3.40	2.64	-3.07	-2.17		2.00		-1.20	0.11	1.22	-1.26	-3.17	1.17	-1.19	-2.63	-0.61	-2.70	8.46		-0.30	1.19	-1.98	-0.12	-1.50	0.05	-3.22	-2.63
RID03	1995	29	-1.62	2.11	1.55	-4.00	1.41	-3.40	2.57	-3.22	-2.57		1.52		-1.38	-0.02	1.17	-1.52	-3.05	1.12	-1.67	-3.16	-1.24	-2.70	8.33		0.07	1.08	-2.40	-0.20	-1.42	0.40	-2.80	-3.07
RID03	1995	32	-1.25	2.15	1.66	-4.00	1.30	-3.40	2.59	-3.22	-2.67		0.60		-0.86	0.37	1.05	-1.49	-3.23	1.08	-1.60	-3.16	-0.02	-2.70	8.39		0.51	1.26	-1.40	-0.12	-1.26	0.10	-2.78	-2.76
RID03	1995	34	-1.52	2.12	1.59	-4.00	1.46	-3.20	2.57	-2.85	-3.30		2.06		-1.19	0.28	1.15	-1.52	-3.19	1.20	-2.15	-3.13	-0.81	-2.70	8.31		-0.18	1.29	-2.15	-0.12	-1.49	0.19	-2.85	-2.38
RID03	1995	36	-1.39	2.06	1.49	-4.00	1.44	-3.40	2.52	-3.22	-2.65		1.96		-1.12	0.22	1.18	-1.41	-3.15	1.22	-2.40	-3.22	-1.25	-2.70	8.02		-0.40	1.18	-1.85	-0.15	-1.44	0.29	-3.26	-2.79
RID03	1995	41	-1.09	2.11	1.62	-4.00	1.36	-3.40	2.54	-3.22	-3.30		1.49		-0.88	0.24	1.10	-1.52	-3.30	1.07	-1.35	-3.22	-0.24	-2.70	8.21		0.25	1.30	-1.63	-0.14	-1.36	0.27	-3.15	-2.93
RID03	1996	67	-0.53	2.11	1.61	-4.00	1.27	-3.40	2.53	-2.79	-2.90		1.10		-0.48	-0.10	1.08	-1.61	-3.30	1.00	-2.13	-3.16	-0.44	-2.70	8.17		0.09	1.10	-2.13	-0.20	-1.36	1.03	-3.30	-2.30
RID03	1996	76	-1.36	2.11	1.55	-4.00	1.24	-3.28	2.52	-2.86	-2.93		1.25		-1.26	0.02	1.11	-1.59	-3.26	0.92	-1.44	-3.19	-1.37	-2.70	8.16		-0.03	0.92	-1.69	-0.26	-1.46	-0.22	-2.75	-3.70
RID03	1996	79	-1.67	2.09	1.51	-3.76	1.30	-3.22	2.51	-2.83	-2.87		1.89		-1.34	0.02	1.15	-1.58	-3.26	0.99	-1.81	-3.16	-1.59	-2.55	8.45		0.05	0.97	-1.67	-0.21	-1.40	-0.10	-2.79	-2.46

Station ID	Year	Week	ALK	ALK	ALK	CO2	COND	TCU	DOC	ECOL	FEEL	WKS	MG	MIN	MO	NA	IN3	IN2	NOX	PR	PH	PHENOL	USE	SO4	SR2	TKN	ETP	ITSS	AVAT	ZNI		
RID03	1996	80		2.06		1.28	2.49			1.76							-1.49	-1.49	-1.28	8.19				0.97	-1.52	-0.22	-1.32	0.11				
RID03	1996	81		2.08		1.29	2.54			1.60							-1.49	-1.49	-0.87	8.23				0.99	-1.29	-0.22	-1.24	0.03				
RID03	1996	82	-1.29	2.05	1.48	-4.00	1.31	-3.40	2.49	-3.22	-2.70	-1.12	-0.02	1.10	-1.67	-3.20	0.86	-1.41	-2.96	-1.18	-2.70	8.10		-0.01	1.01	-1.46	-0.23	-1.29	0.06	-3.11	-1.88	
RID03	1996	83	-1.56	2.10	1.58	-4.00	1.35	-3.40	2.54	-3.13	-2.40	-1.32	0.19	1.13	-1.75	-3.30	1.10	-1.55	-3.22	-0.33	-2.70	8.15		0.11	1.13	-1.44	-0.23	-1.27	0.01	-3.08	-2.17	
RID03	1996	84		2.09		1.35	2.53			1.68							-1.63	-1.63	-0.63	8.28				1.11	-1.52	-0.22	-1.37	-0.07				
RID03	1996	85	-1.54	2.07	1.52	-4.00	1.31	-3.35	2.51	-3.22	-2.61	-1.46	0.08	1.02	-1.77	-3.30	0.96	-1.77	-3.19	-1.14	-2.70	8.33		-0.05	1.07	-1.60	-0.22	-1.35	-0.26	-3.30	-2.31	
RID03	1996	86		2.06		1.31	2.51			1.94							-1.68	-1.68	-1.23	8.40				1.05	-1.49	-0.19	-1.23	0.02				
RID04	1995	24	-1.21	2.22	1.69	-4.00	1.39	-3.40	2.63	-2.96	-2.70	2.48	0.11	1.21	-1.51	-3.15	1.13	-1.46	-3.00	-0.66	-2.70	8.59		-0.41	1.18	-2.70	-0.10	-1.52	0.62	-3.05	-4.00	
RID04	1995	29	-1.54	2.11	1.54	-4.00	1.36	-3.40	2.56	-3.22	-3.00	1.86	0.04	1.16	-1.63	-3.15	1.10	-2.30	-3.22	-1.24	-2.70	8.48		0.11	1.08	-1.85	-0.21	-1.43	2.20	-2.82	-4.00	
RID04	1995	32	-1.43	2.15	1.67	-4.00	1.19	-3.40	2.59	-3.15	-3.05	2.43	0.34	1.05	-1.78	-3.30	1.06	-1.80	-3.22	-0.05	-2.70	8.51		0.50	1.16	-1.43	-0.09	-1.25	0.00	-2.77	-3.10	
RID04	1995	34	-1.74	2.12	1.58	-4.00	1.43	-3.22	2.58	-3.22	-3.30	2.90	0.28	1.14	-1.65	-3.30	1.17	-1.98	-3.22	-1.04	-2.70	8.45		-0.28	1.28	-2.30	-0.15	-1.60	0.19	-2.82	-2.85	
RID04	1995	36	-1.40	2.06	1.48	-4.00	1.43	-3.40	2.52	-3.22	-2.74	2.20	0.15	1.13	-1.45	-3.30	1.13	-2.40	-3.22	-1.33	-2.70	8.13		-0.49	1.18	-1.82	-0.17	-1.46	0.20	-3.30	-2.35	
RID04	1995	41	-0.95	2.11	1.61	-4.00	1.34	-3.40	2.53	-3.22	-3.30	1.68	0.20	1.10	-1.52	-3.30	1.05	-1.36	-3.22	-0.29	-2.70	8.19		0.23	1.29	-1.68	-0.15	-1.42	0.48	-3.30	-3.40	
RID04	1996	67	-0.54	2.12	1.61	-4.00	1.26	-3.40	2.53	-3.10	-3.22	-0.46	-0.10	1.08	-1.58	-3.30	0.99	-2.22	-3.10	-0.43	-2.70	8.18		0.08	1.10	-2.10	-0.21	-1.39	1.05	-3.30	-2.52	
RID04	1996	76	-1.52	2.11	1.55	-4.00	1.25	-3.40	2.52	-2.64	-3.05	-1.31	0.04	1.09	-1.64	-3.30	0.95	-1.35	-3.22	-1.52	-2.70	8.24		-0.06	0.92	-1.72	-0.21	-1.43	-0.15	-3.30	-4.00	
RID04	1996	79	-1.55	2.08	1.51	-4.00	1.29	-3.40	2.51	-3.10	-3.30	-1.32	0.04	1.16	-1.47	-3.30	1.01	-1.36	-3.22	-1.54	-2.70	8.27		0.05	0.95	-1.60	-0.18	-1.39	0.00	-3.30	-2.82	
RID04	1996	82	-1.24	2.06	1.47	-4.00	1.27	-3.40	2.49	-3.22	-2.82	-1.13	-0.05	1.10	-1.84	-3.30	0.93	-1.19	-3.22	-1.14	-2.70	8.28		-0.04	0.87	-1.43	-0.21	-1.27	-0.30	-3.00	-1.97	
RID04	1996	83	-1.51	2.10	1.58	-4.00	1.32	-3.40	2.54	-3.05	-2.70	-1.49	0.23	1.13	-1.89	-3.30	1.08	-1.82	-3.22	-0.29	-2.70	8.49		0.10	1.07	-1.51	-0.24	-1.34	-0.30	-2.74	-3.05	
RID04	1996	85	-1.72	2.06	1.54	-4.00	1.32	-3.40	2.52	-2.86	-2.37	-1.69	0.04	1.04	-1.85	-3.30	0.97	-1.52	-3.15	-1.04	-2.70	8.39		-0.04	1.06	-1.51	-0.20	-1.33	-0.30	-3.30	-2.74	
RID05	1995	24		2.17		1.29	2.57			2.00							-2.10	-2.10	-1.26	8.74				1.07	-2.70	-0.11	-1.55	1.21				
RID05	1995	25								0.30	1.13																					
RID05	1995	26								0.30	1.09																					
RID05	1995	27								0.30	0.64																					
RID05	1995	28								1.00	0.98																					
RID05	1995	29	-1.19	2.03	1.44	-4.00	1.22	-3.40	2.46	-3.22	-2.43	-1.07	-0.15	1.10	-1.45	-3.30	0.94	-1.68	-3.10	-1.92	-2.70	8.25		-0.02	0.92	-2.15	-0.11	-1.40	0.54	-2.82	-2.39	
RID05	1995	30								1.00	1.15																					
RID05	1995	31								0.73	0.87																					
RID05	1995	32	-1.41	2.03	1.45	-4.00	1.27	-3.30	2.48	-3.05	-2.92	-1.29	0.04	1.08	-1.61	-3.30	0.99	-2.52	-3.22	-2.30	-2.70	8.57		-0.04	0.98	-2.70	-0.06	-1.37	0.71	-2.96	-4.00	
RID05	1995	33								0.40	1.16																					
RID05	1995	34	-1.10	2.01	1.42	-3.70	1.28	-3.15	2.45	-3.10	-3.30	1.10	-0.96	0.04	1.08	-1.42	-3.30	0.99	-2.22	-3.15	-2.30	8.49		-0.62	0.97	-2.40	-0.09	-1.37	0.78	-2.92	-2.38	
RID05	1995	36	-1.30	2.03	1.43	-4.00	1.27	-3.40	2.45	-3.22	-2.80	1.82	-1.12	-0.05	1.08	-1.53	-3.30	0.97	-2.40	-3.22	-2.30	7.92		-0.72	0.97	-2.52	-0.10	-1.49	0.38	-3.22	-1.74	
RID05	1995	41	-0.85	2.00	1.47	-4.00	1.19	-3.40	2.43	-3.22	-3.30	0.48	-0.73	0.04	1.01	-1.51	-3.30	0.90	-1.37	-3.22	-0.85	-2.70	8.09		-0.22	1.08	-2.30	-0.13	-1.38	0.75	-3.10	-2.77
RID05	1996	67	-0.85	2.08	1.56	-4.00	1.15	-3.40	2.48	-3.15	-3.00		-0.73	-0.15	1.05	-1.71	-3.30	0.88	-2.52	-3.22	-0.68	-2.70	8.28		-0.15	1.01	-2.40	-0.20	-1.44	0.83	-3.30	-2.77
RID05	1996	73	-1.09	2.10	1.50	-4.00	1.06	-3.25	2.47	-2.22	-2.76		-0.95	0.08	1.04	-1.28	-3.17	0.78	-1.10	-2.65	-1.48	-2.70	7.85		-0.37	0.86	-1.94	-0.23	-1.55	0.31	-3.00	-4.00
RID05	1996	74	-0.90	2.11	1.52	-3.70	1.05	-3.40	2.48	-2.85	-3.30		-0.90	0.04	1.04	-1.13	-3.30	0.75	-1.37	-3.15	-1.68	-2.70	8.08		-0.21	0.83	-2.00	-0.23	-1.44	0.48	-2.82	-3.40
RID05	1996	75	-1.21	2.10	1.54	-4.00	1.06	-3.40	2.48	-3.10	-3.30		-1.10	0.04	1.09	-1.38	-3.30	0.74	-1.68	-3.22	-1.49	-2.70	8.15		-0.20	0.85	-2.22	-0.17	-1.39	0.40	-3.00	-2.52
RID05	1996	76	-1.08	2.08	1.52	-4.00	1.06	-3.40	2.46	-2.51	-2.82	-1.04	-0.05	1.07	-1.55	-3.30	0.78	-1.64	-3.22	-2.52	-2.70	8.31		-0.15	0.83	-1.96	-0.21	-1.33	0.48	-2.92	-4.00	
RID05	1996	77	-1.17	2.08	1.50	-4.00	1.09	-3.40	2.45	-3.11	-3.26	-1.07	-0.02	1.06	-1.27	-3.30	0.78	-1.60	-3.22	-2.06	-2.70	7.94		-0.01	0.85	-1.78	-0.20	-1.35	0.34	-2.96	-3.55	

SeasonID	Year	Week	FAIR	ALK	CA	CD	CO2	COND	TCR	TCU	DOC	ECOL	FOOL	EFER	WKS	IMG	MMN	MO	NAT	IN6	NI	NOX	FPB	PH	PHENOL	KST	SO4	ISRE	TKN	ETPR	ITSS	SWA	SWZ
RID05	1996	76	-1.16	2.04	1.47	-4.00	1.08	-3.40	2.44	-3.22	-2.67	0.30		-1.09	-0.13	1.08	-1.68	-3.30	0.80	-2.02	-3.05	-2.37	-2.70	8.30		-0.13	0.84	-2.37	-0.19	-1.46	0.40	-3.09	-4.00
RID05	1996	79	-1.01	2.07	1.77	-4.00	1.12	-3.40	2.46	-3.00	-2.95	0.30		-0.99	0.26	1.31	-1.28	-3.30	1.38	-1.52	-3.22	-1.62	-2.70	8.07		0.35	0.84	-1.68	-0.19	-1.33	0.40	-3.01	-4.00
RID05	1996	80	-1.08	2.04	1.47	-3.94	1.13	-3.40	2.44	-3.15	-2.96	0.12		-1.08	-0.06	1.10	-1.51	-3.22	0.88	-1.42	-3.22	-2.31	-2.70	8.30		-0.23	0.85	-1.93	-0.17	-1.32	0.38	-2.98	-3.16
RID05	1996	81	-0.84	2.04	1.46	-3.57	1.14	-3.40	2.45	-3.20	-3.09	0.30		-0.80	-0.03	1.08	-1.23	-3.30	0.84	-1.48	-3.05	-1.60	-2.70	8.17		-0.17	0.84	-1.64	-0.15	-1.22	0.48	-3.05	-2.49
RID05	1996	82	-1.15	2.02	1.43	-3.81	1.14	-3.28	2.42	-2.89	-2.92	0.31		-1.04	-0.06	1.06	-1.40	-3.30	0.81	-1.70	-3.13	-2.52	-2.70	7.94		-0.25	0.84	-1.87	-0.13	-1.32	0.41	-3.12	-2.72
RID05	1996	83	-1.39	2.01	1.44	-3.84	1.12	-3.19	2.40	-3.00	-2.91	0.65		-1.30	-0.07	1.02	-1.74	-3.30	0.81	-1.87	-3.22	-2.52	-2.70	8.01		-0.21	0.87	-1.94	-0.21	-1.38	0.32	-3.11	-3.32
RID05	1996	84	-1.59	2.00	1.43	-4.00	1.13	-3.40	2.42	-2.52	-2.65	0.63		-1.25	-0.13	1.01	-1.42	-3.30	0.81	-1.23	-3.22	-1.34	-2.70	8.07		-0.17	0.89	-1.32	-0.16	-1.31	0.24	-3.30	-3.28
RID05	1996	85	-1.31	2.00	1.41	-3.70	1.11	-3.07	2.42	-3.22	-2.61	0.69		-1.25	-0.19	1.01	-1.70	-3.15	0.81	-2.10	-2.94	-2.52	-2.70	8.40		-0.55	0.88	-1.86	-0.21	-1.40	0.00	-2.97	-2.20
RID06	1995	25									1.44	2.09																					
RID06	1995	26									1.67	2.08																					
RID06	1995	27									1.25	1.46																					
RID06	1995	28									1.99	2.32																					
RID06	1995	29	-1.28	2.06	1.49	-4.00	1.38	-3.40	2.52	-3.22	-2.77	2.07	2.35	-1.08	0.04	1.15	-1.49	-3.10	1.07	-1.43	-3.22	-1.14	-2.70	8.40		0.01	1.06	-1.69	-0.14	-1.46	0.32	-2.82	-4.00
RID06	1995	30									1.30	1.63																					
RID06	1995	31									1.19	1.55																					
RID06	1995	32	-1.23	2.11	1.58	-4.00	1.40	-3.40	2.58	-3.10	-2.52	1.72	1.89	-1.12	0.26	1.17	-1.49	-3.15	1.11	-1.82	-3.22	-0.68	-2.70	8.55		0.16	1.38	-1.85	-0.11	-1.39	0.26	-2.89	-3.00
RID06	1995	33									1.43	1.65																					
RID06	1995	34	-1.23	2.05	1.48	-4.00	1.32	-3.40	2.49	-3.22	-3.30	1.66	2.37	-1.05	0.08	1.10	-1.41	-3.30	1.02	-1.85	-3.05	-1.60	-2.70	8.34		-0.20	1.04	-2.00	-0.11	-1.44	0.39	-2.82	-2.28
RID06	1995	36	-1.03	2.04	1.46	-4.00	1.36	-3.40	2.48	-2.96	-2.96	2.02	2.20	-0.92	0.04	1.08	-1.44	-3.30	1.03	-2.05	-3.22	-1.11	-2.70	8.01		-0.42	1.04	-2.00	-0.12	-1.42	0.45	-2.82	-3.05
RID06	1995	41	-1.04	2.14	1.65	-4.00	1.51	-3.40	2.62	-3.22	-3.30	1.60	1.78	-0.84	0.26	1.20	-1.44	-3.05	1.17	-1.77	-3.22	-0.35	-2.70	8.15		0.22	1.49	-1.89	-0.15	-1.42	0.49	-3.30	-4.00
RID06	1996	67	-0.82	2.12	1.62	-4.00	1.26	-3.40	2.54	-3.22	-2.82	1.34		-0.72	-0.05	1.12	-1.79	-3.30	0.97	-2.22	-3.10	-0.37	-2.70	8.31		0.07	1.17	-2.22	-0.20	-1.49	0.81	-3.30	-2.40
RID06	1996	73	-0.89	2.12	1.52	-4.00	1.13	-3.40	2.50	-2.70	-3.02	0.65		-0.81	0.08	1.07	-1.43	-3.30	0.84	-1.19	-3.22	-1.23	-2.44	7.95		-0.32	0.92	-1.98	-0.22	-1.52	0.62	-2.85	-3.19
RID06	1996	74	-0.82	2.11	1.53	-4.00	1.10	-3.40	2.49	-2.57	-2.74	0.60		-0.88	0.00	1.05	-1.46	-3.30	0.79	-1.27	-3.10	-1.44	-2.70	8.15		-0.24	0.87	-1.92	-0.22	-1.44	0.53	-3.30	-1.38
RID06	1996	75	-1.00	2.11	1.55	-4.00	1.09	-3.40	2.49	-3.00	-3.15	1.45		-0.91	0.00	1.10	-1.49	-3.30	0.75	-1.10	-3.22	-1.27	-2.70	8.11		-0.12	0.88	-1.72	-0.15	-1.33	0.51	-2.77	-3.05
RID06	1996	76	-0.98	2.09	1.53	-4.00	1.10	-3.40	2.48	-3.22	-2.92	1.62		-1.04	-0.05	1.08	-1.57	-3.30	0.79	-1.52	-3.22	-1.64	-2.70	8.17		-0.08	0.86	-2.10	-0.22	-1.49	0.36	-2.82	-2.52
RID06	1996	77	-1.16	2.09	1.51	-3.85	1.11	-3.40	2.46	-3.05	-3.30	1.41		-1.15	0.00	1.08	-1.48	-3.30	0.81	-1.21	-3.22	-1.21	-2.70	8.09		0.01	0.86	-1.78	-0.21	-1.46	0.11	-3.20	-4.00
RID06	1996	78	-1.25	2.03	1.47	-4.00	1.11	-3.35	2.44	-3.13	-3.09	1.73		-1.10	-0.08	1.08	-1.54	-3.23	0.83	-1.21	-3.04	-1.35	-2.70	8.17		-0.09	0.86	-1.64	-0.18	-1.37	0.22	-3.01	-4.00
RID06	1996	79	-1.12	2.06	1.78	-4.00	1.12	-3.40	2.46	-2.92	-3.10	0.84		-1.10	0.26	1.29	-1.38	-3.30	1.36	-1.15	-3.22	-1.44	-2.70	8.10		0.35	0.84	-1.58	-0.17	-1.34	0.22	-3.15	-4.00
RID06	1996	80	-1.09	2.02	1.46	-3.94	1.14	-3.35	2.43	-3.12	-2.98	1.49		-1.08	-0.04	1.08	-1.58	-3.30	0.87	-1.31	-3.21	-1.26	-2.70	8.22		-0.32	0.87	-1.67	-0.21	-1.41	0.30	-3.00	-2.32
RID06	1996	81	-1.20	2.03	1.46	-3.85	1.12	-3.31	2.45	-3.16	-3.30	1.02		-1.16	-0.02	1.06	-1.51	-3.30	0.85	-1.32	-3.19	-1.23	-2.70	8.18		-0.23	0.85	-1.60	-0.22	-1.38	0.22	-3.15	-2.20
RID06	1996	82	-1.17	2.01	1.43	-3.71	1.15	-3.32	2.42	-3.02	-2.65	1.30		-1.11	-0.05	1.04	-1.61	-3.30	0.81	-1.27	-3.22	-1.29	-2.70	8.03		-0.18	0.91	-1.65	-0.20	-1.40	0.27	-3.18	-2.72
RID06	1996	83	-1.40	2.02	1.46	-3.94	1.14	-3.27	2.42	-2.84	-2.78	1.21		-1.29	-0.09	1.00	-1.71	-3.30	0.81	-1.57	-3.22	-1.41	-2.70	7.93		-0.20	0.91	-1.60	-0.32	-1.56	0.12	-3.11	-3.61
RID06	1996	84	-1.29	2.01	1.45	-4.00	1.15	-3.40	2.42	-2.62	-2.94	1.07		-1.22	-0.13	1.00	-1.73	-3.20	0.83	-1.35	-3.22	-1.26	-2.70	8.13		-0.17	0.93	-1.40	-0.16	-1.18	0.30	-3.30	-3.11
RID06	1996	85	-1.28	2.00	1.42	-4.00	1.10	-3.14	2.42	-3.22	-3.30	0.81		-1.31	-0.22	0.99	-1.67	-3.30	0.79	-1.57	-3.19	-1.28	-2.70	8.21		-0.22	0.89	-1.70	-0.21	-1.42	-0.17	-3.04	-3.22
RID07	1995	25									1.07	1.77																					
RID07	1995	26									1.09	1.58																					
RID07	1995	27									1.15	1.66																					

StationID	Year	Week	WAL	ALK	CA	CO	ICU	GO	COND	CR	CU	DOC	ECOL	FOOL	FEF	KIK	MG	MMV	MO	NA	NBS	ENE	INOX	PR	PH	PHENOL	SW	SO4	SRP	RTN	BTP	PTSS	VA	ZNI
RID07	1995	28										1.56	2.06																					
RID07	1995	29										1.87	2.21																					
RID07	1995	30										1.26	1.76																					
RID07	1995	31										0.95	1.39																					
RID07	1995	32										1.51	2.01																					
RID07	1995	33										1.33	1.88																					
RID07	1995	34										1.57	1.79																					
RID07	1996	73	-1.10	2.11	1.54	-4.00	1.06	-3.40	2.48	-2.57	-2.98		0.57		-0.99	0.07	1.06	-1.49	-3.25	0.79	-1.20	-3.07	-1.51	-2.70	8.05		-0.29	0.86	-2.09	-0.24	-1.61	0.47	-3.05	-4.00
RID07	1996	74	-1.09	2.10	1.48	-3.85	1.05	-3.40	2.47	-2.82	-3.13		0.69		-1.01	-0.05	1.02	-1.46	-3.30	0.71	-1.21	-3.22	-1.72	-2.70	8.15		-0.33	0.83	-2.00	-0.23	-1.54	0.36	-3.26	-2.89
RID07	1996	75	-1.18	2.10	1.54	-3.85	1.04	-3.40	2.47	-2.88	-3.17		0.75		-1.13	-0.02	1.08	-1.53	-3.30	0.71	-1.14	-3.19	-1.48	-2.70	8.14		-0.19	0.83	-1.88	-0.18	-1.38	0.23	-3.30	-3.13
RID07	1996	76	-1.11	2.09	1.52	-4.00	1.07	-3.35	2.47	-2.52	-2.87		0.54		-1.03	-0.05	1.06	-1.56	-3.17	0.80	-1.64	-3.22	-2.52	-2.70	8.28		-0.10	0.84	-2.46	-0.22	-1.55	0.30	-3.23	-2.63
RID07	1996	77	-1.21	2.08	1.50	-4.00	1.08	-3.40	2.46	-3.22	-3.30		1.13		-1.21	-0.05	1.05	-1.35	-3.30	0.81	-1.21	-3.22	-1.31	-2.70	8.04		-0.01	0.83	-1.85	-0.20	-1.49	0.04	-3.15	-3.61
RID07	1996	78	-1.42	2.03	1.47	-4.00	1.08	-3.28	2.43	-3.09	-3.04		1.48		-1.29	-0.08	1.08	-1.58	-3.24	0.81	-1.18	-3.22	-1.49	-2.65	8.20		-0.17	0.84	-1.72	-0.19	-1.43	-0.10	-3.07	-3.56
RID07	1996	79	-1.25	2.06	1.49	-4.00	1.08	-3.40	2.45	-3.19	-3.30		0.30		-1.26	-0.05	1.07	-1.45	-3.30	0.83	-1.06	-3.22	-1.40	-2.70	8.05		-0.31	0.82	-1.68	-0.18	-1.43	0.05	-3.15	-4.00
RID07	1996	80	-1.24	2.02	1.44	-3.84	1.10	-3.40	2.43	-3.01	-2.80		0.99		-1.16	-0.02	1.10	-1.50	-3.28	0.83	-1.12	-3.21	-1.29	-2.70	8.18		-0.38	0.85	-1.69	-0.18	-1.41	0.40	-3.02	-2.18
RID07	1996	81	-1.25	2.02	1.45	-4.00	1.09	-3.40	2.43	-2.88	-3.18		0.82		-1.24	-0.02	1.05	-1.40	-3.30	0.82	-1.08	-3.22	-1.34	-2.50	8.12		-0.26	0.82	-1.56	-0.17	-1.35	0.04	-3.18	-3.10
RID07	1996	82	-1.30	2.00	1.42	-4.00	1.10	-3.37	2.40	-3.05	-2.70		1.03		-1.20	-0.08	1.01	-1.47	-3.30	0.78	-1.08	-3.22		-2.70	7.85		-0.23	0.85	-1.64	-0.16	-1.39	0.30	-3.11	-2.93
RID07	1996	83	-1.65	2.01	1.44	-3.96	1.23	-3.26	2.40	-2.86	-2.83		0.68		-1.42	-0.11	1.02	-1.64	-3.28	0.79	-1.54	-3.22	-1.55	-2.70	7.88		-0.24	0.88	-1.88	-0.39	-1.66	0.24	-3.13	-3.57
RID07	1996	84	-1.87	1.95	1.43	-4.00	1.11	-3.40	2.40	-2.76	-2.61		1.06		-1.45	-0.13	1.02	-1.60	-3.26	0.79	-1.12	-3.21	-1.31	-2.70	7.79		-0.18	0.90	-1.37	-0.16	-1.42	0.30	-3.17	-3.34
RID07	1996	85	-1.77	1.99	1.41	-3.76	1.06	-3.40	2.41	-3.22	-3.08		0.60		-1.53	-0.22	0.97	-1.39	-3.30	0.78	-1.31	-3.16	-1.39	-2.70	8.27		-0.28	0.87	-1.70	-0.20	-1.41	-0.13	-3.30	-4.00
RID08	1995	29	-1.23	1.91	1.36	-4.00	1.03	-3.30	2.36	-3.22	-2.74		1.00	0.96	-1.13	-0.30	0.98	-1.50	-3.30	0.81	-2.15	-3.22	-1.74	-2.70	8.44		-0.28	0.89	-2.52	-0.18	-1.57	0.51	-3.10	-4.00
RID08	1995	32	-1.22	1.92	1.37	-4.00	1.03	-3.40	2.36	-3.05	-2.89		0.30	0.52	-1.14	-0.40	0.91	-1.44	-3.30	0.78	-2.52	-3.22	-2.30	-2.70	8.55		-0.32	0.90	-2.70	-0.21	-1.64	0.23	-3.22	-2.49
RID08	1995	34	-1.29	1.90	1.36	-4.00	1.04	-3.05	2.32	-3.10	-3.30		0.78	2.90	-1.23	-0.70	0.92	-1.46	-3.30	0.76	-2.52	-3.22	-2.30	-2.70	8.67		-0.46	0.81	-2.52	-0.21	-1.66	0.23	-3.30	-2.57
RID08	1995	36	-1.28	1.92	1.37	-4.00	1.03	-3.40	2.34	-3.22	-3.30		0.78	1.72	-1.23	-0.52	0.92	-1.59	-3.30	0.76	-2.52	-3.22	-2.30	-2.70	8.16		-0.72	0.85	-3.00	-0.19	-1.70	0.20	-3.22	-2.82
RID08	1995	41	2.01				0.99		2.40				0.48	1.18							-3.00		-2.30		8.30		0.98	-3.00	-0.31	-1.72	0.36			
RID08	1996	67	-1.09	2.00	1.53	-4.00	0.97	-3.40	2.40	-2.85	-3.10		0.30		-0.99	-0.30	0.98	-1.88	-3.30	0.70	-2.52	-3.10	-1.57	-2.70	8.22		-0.46	0.81	-2.70	-0.33	-1.66	0.80	-3.22	-2.70
RID08	1996	77	-1.02	2.02	1.46	-4.00	0.98	-3.40	2.40	-2.89	-3.30		1.08		-0.94	0.00	0.97	-1.30	-3.30	0.70	-1.85	-3.15	-1.48	-2.70	8.37		-0.24	0.83	-2.10	-0.25	-1.46	0.43	-3.00	-4.00
RID08	1996	79	-1.20	1.98	1.77	-4.00	0.97	-3.40	2.38	-2.86	-3.30		0.30		-1.01	0.40	1.21	-1.53	-2.24	1.64	-2.40	-3.22	-2.52	-2.70	8.51		0.18	0.84	-2.70	-0.22	-1.57	0.46	-2.89	-4.00
RID08	1996	80	-1.04	1.89	1.36	-4.00	0.91	-3.40	2.30	-3.22	-2.92		1.08		-1.03	-0.22	0.85	-1.51	-3.30	0.75	-2.52	-3.05	-2.22	-2.70	8.55		-0.47	0.82	-2.52	-0.23	-1.52	0.59	-3.10	-4.00
RID08	1996	82	-1.21	1.92	1.38	-4.00	0.84	-3.30	2.32	-3.22	-3.30		0.90		-1.23	-0.40	0.89	-1.48	-3.30	0.60	-1.57	-3.22	-1.85	-2.70	8.30		-0.29	0.85	-2.22	-0.23	-1.52	0.41	-3.30	-2.47
RID08	1996	83	-1.22	1.94	1.42	-3.52	0.92	-3.40	2.34	-3.22	-3.30		0.78		-1.22	-0.52	0.92	-1.58	-3.30	0.56	-2.40	-3.22	-2.52	-2.70	8.56		-0.26	0.84	-2.70	-0.27	-1.62	0.15	-3.05	-3.40
RID08	1996	85	-1.23	1.89	1.35	-4.00	0.93	-3.40	2.30	-3.15	-2.41		1.00		-1.27	-0.70	0.87	-1.57	-3.30	0.63	-1.88	-3.22	-2.52	-2.70	8.44		-0.30	0.86	-2.40	-0.26	-1.62	0.00	-3.30	-1.94

Appendix II - Invertebrate Densities (individuals/m²), Periphyton Biomass (mg chlor_a/m²), Benthic Indices, Rock Area (cm²), Water Depth (cm) and Current Velocity (m/s) Per Rock

ROC#	ID#	Series ID#	Sample ID#	ROCK AREA	DEPTH	AVG VEL	CHLOR F	DEPTH	DEPTH	DEPTH	DEPTH	DEPTH	DEPTH	DEPTH	DEPTH
JOC030301	JOC03	JOC0303	262.30	31.00	1.90	48.08	190.62	0.00	610.00	38.12	3240.62	2135.00	76.25		
JOC030302	JOC03	JOC0303	122.95	22.00	0.90	66.01	162.67	0.00	976.00	0.00	4392.00	1220.00	325.33		
JOC030303	JOC03	JOC0303	109.84	16.00	1.00	86.93	819.40	0.00	2549.25	0.00	12928.35	13656.71	1274.63		
JOC030304	JOC03	JOC0303	157.38	15.00	1.60	70.08	2160.42	0.00	12072.92	127.08	17219.80	7561.46	1334.38		
JOC030305	JOC03	JOC0303	139.34	21.00	1.10	91.66	430.59	0.00	3660.00	0.00	11697.64	6889.41	1148.23		
JOC030306	JOC03	JOC0303	162.30	27.00	0.70	94.52	1971.72	0.00	4066.67	0.00	13555.55	10166.67	616.16		
JOC030307	JOC03	JOC0303	208.20	26.00	0.90	51.85	960.63	0.00	4274.80	96.06	12776.38	3025.98	1440.95		
JOC030308	JOC03	JOC0303	101.64	24.00	1.40	68.68	1574.19	0.00	2262.90	98.39	5116.13	4033.87	1082.26		
JOC030401	JOC03	JOC0304	132.79	15.00	1.00	81.42	9639.51	0.00	15137.04	0.00	17772.84	6551.85	1355.56		
JOC030402	JOC03	JOC0304	149.18	12.00	1.20	45.83	5295.61	0.00	9049.45	67.03	13607.69	3351.65	871.43		
JOC030403	JOC03	JOC0304	126.23	20.00	1.20	63.30	4119.48	0.00	8635.07	237.66	6258.44	2297.40	237.66		
JOC030404	JOC03	JOC0304	149.18	18.00	1.20	112.89	4290.11	0.00	5563.74	0.00	11127.47	4893.41	469.23		
JOC030405	JOC03	JOC0304	103.28	18.00	1.00	152.03	1549.21	0.00	6971.43	0.00	11425.40	7842.86	387.30		
JOC030406	JOC03	JOC0304	113.11	15.00	0.70	86.92	2917.39	0.00	9282.60	0.00	6895.65	4420.29	972.46		
JOC030407	JOC03	JOC0304	77.05	10.00	1.00	167.50	7138.30	0.00	9344.68	0.00	16223.40	6100.00	1168.09		
JOC030408	JOC03	JOC0304	93.44	16.00	0.90	131.22	4601.75	0.00	9738.60	107.02	9631.58	6849.12	1498.25		
JOC040101	JOC04	JOC0401	132.99	15.00	2.00	194.32	1127.88	0.00	18722.76	0.00	15865.47	34663.43	902.30		
JOC040103	JOC04	JOC0401	183.49	25.00	2.10	209.05	2397.90	0.00	14714.41	217.99	5449.78	8556.16	1089.96		
JOC040105	JOC04	JOC0401	277.62	19.00	1.20	65.59	432.25	0.00	3566.03	504.29	3457.96	1296.74	396.23		
JOC040107	JOC04	JOC0401	101.53	29.00	1.70	236.13	2560.83	98.49	11917.71	196.99	13592.10	18418.27	2166.86		
JOC040109	JOC04	JOC0401	133.26	29.00	1.80	148.21	750.43	150.09	6078.45	225.13	5628.20	7879.48	975.55		
JOC040111	JOC04	JOC0401	116.07	29.00	2.50	103.69	86.15	0.00	172.31	0.00	258.46	1378.46	0.00		
JOC040113	JOC04	JOC0401	219.98	15.00	2.90	158.80	590.96	0.00	954.63	0.00	2363.84	9046.24	90.92		
JOC040115	JOC04	JOC0401	228.18	16.00	1.70	121.34	569.73	0.00	3549.87	87.65	5171.42	4338.73	394.43		
JOC040201	JOC04	JOC0402	93.28	19.00	1.10	90.11	1393.65	0.00	5681.80	0.00	5145.78	214.41	1072.04		
JOC040203	JOC04	JOC0402	130.16	18.00	1.10	103.13	1613.35	0.00	11523.91	76.83	12292.18	153.65	998.74		
JOC040205	JOC04	JOC0402	168.58	21.00	1.80	128.89	4033.66	0.00	22066.49	1482.96	10677.33	177.96	2906.61		
JOC040207	JOC04	JOC0402	149.47	25.00	1.30	71.03	2542.40	0.00	10504.11	66.91	6155.27	0.00	267.62		
JOC040209	JOC04	JOC0402	148.67	22.00	1.20	116.45	2623.22	0.00	10694.68	739.88	4170.25	67.26	2892.27		
JOC040211	JOC04	JOC0402	142.78	21.00	1.80	110.59	840.48	0.00	3011.71	70.04	1260.72	70.04	70.04		
JOC040213	JOC04	JOC0402	144.23	22.00	1.40	71.11	1733.34	0.00	7557.36	554.67	3050.68	416.00	346.67		
JOC040215	JOC04	JOC0402	116.97	21.00	1.30	112.35	1538.85	0.00	18722.65	683.93	9062.11	170.98	4189.09		
JOC040301	JOC04	JOC0403	198.36	19.00	1.20	56.92	5394.21	0.00	6553.72	604.96	15275.20	6402.48	2419.83		
JOC040302	JOC04	JOC0403	113.11	21.00	1.40	93.54	972.46	0.00	2298.55	88.41	19714.48	3536.23	1591.30		
JOC040303	JOC04	JOC0403	134.43	22.00	1.10	75.04	14134.15	297.56	37492.69	446.34	32731.71	9373.17	6843.90		
JOC040304	JOC04	JOC0403	145.90	21.00	1.00	39.61	5277.53	0.00	16312.36	68.54	31939.33	9184.27	2810.11		
JOC040305	JOC04	JOC0403	252.46	30.00	1.30	30.58	2218.18	0.00	3802.60	792.21	6971.43	1346.75	396.10		
JOC040306	JOC04	JOC0403	159.02	24.00	0.50	108.63	7546.39	1006.19	64521.65	0.00	41882.47	20752.58	3018.56		
JOC040307	JOC04	JOC0403	175.41	23.00	1.10	96.13	3819.63	0.00	13910.28	342.06	18585.05	6442.06	1197.20		
JOC040308	JOC04	JOC0403	133.00	28.00	1.30	21.85	6616.54	0.00	39398.50	751.88	52481.20	20300.75	9323.31		
JOC040401	JOC04	JOC0404	93.44	12.00	0.60	75.33	3424.56	0.00	6956.14	107.02	8240.35	107.02	1284.21		
JOC040402	JOC04	JOC0404	49.18	13.00	0.60	81.30	2033.33	0.00	15453.33	0.00	11793.33	406.67	406.67		
JOC040403	JOC04	JOC0404	142.62	14.00	0.80	126.30	4627.58	0.00	44032.17	420.69	24399.99	280.46	841.38		
JOC040404	JOC04	JOC0404	122.95	15.00	0.60	122.18	5774.67	0.00	16429.34	1301.33	9678.67	244.00	1220.00		
JOC040405	JOC04	JOC0404	149.18	14.00	0.50	261.08	10993.41	0.00	44174.73	871.43	9987.91	67.03	2279.12		
JOC040406	JOC04	JOC0404	67.21	11.00	0.60	61.56	6546.34	0.00	7885.37	892.68	4463.41	148.78	1041.46		
JOC040407	JOC04	JOC0404	114.75	12.00	2.10	86.24	2265.71	0.00	14901.43	0.00	6448.57	348.57	261.43		
JOC040408	JOC04	JOC0404	78.69	12.00	2.00	143.18	508.33	0.00	44479.17	0.00	8768.75	127.08	254.17		
JOC050101	JOC05	JOC0501	225.00	25.00	0.80	15.26	444.44	0.00	88.89	0.00	177.77	622.21	88.89		
JOC050103	JOC05	JOC0501	193.54	18.00	0.80	59.94	723.36	0.00	4030.16	0.00	1188.38	1291.72	155.01		
JOC050105	JOC05	JOC0501	231.09	22.00	1.40	28.51	259.64	0.00	1514.59	43.27	778.93	2769.54	259.64		
JOC050107	JOC05	JOC0501	160.23	21.00	2.40	77.72	1248.23	0.00	2621.29	187.24	1622.70	312.06	873.76		
JOC050109	JOC05	JOC0501	184.55	20.00	2.30	70.43	921.15	0.00	2655.09	0.00	3196.94	4930.88	379.30		
JOC050111	JOC05	JOC0501	157.32	20.00	3.00	57.09	444.96	0.00	1080.61	0.00	1589.14	3941.06	63.57		
JOC050113	JOC05	JOC0501	204.38	14.00	1.20	37.01	391.43	0.00	440.35	48.93	1369.99	2691.05	97.86		
JOC050115	JOC05	JOC0501	232.94	10.00	2.10	36.03	901.53	0.00	1159.11	0.00	257.58	472.23	128.79		
JOC050201	JOC05	JOC0502	159.40	20.00	0.80	83.87	1191.97	0.00	125.47	62.74	1568.38	188.21	501.88		
JOC050203	JOC05	JOC0502	208.51	14.00	0.40	56.72	863.29	0.00	431.64	47.96	1726.57	143.88	959.21		
JOC050205	JOC05	JOC0502	103.78	25.00	2.00	134.40	2409.01	0.00	4432.58	289.08	1156.33	385.44	289.08		
JOC050207	JOC05	JOC0502	104.25	30.00	2.00	48.33	287.76	0.00	0.00	0.00	959.21	95.92	0.00		
JOC050209	JOC05	JOC0502	131.59	18.00	2.70	49.89	2051.80	0.00	4939.51	75.99	4407.57	151.99	227.98		
JOC050211	JOC05	JOC0502	216.91	15.00	2.20	67.73	1613.54	0.00	1567.44	276.61	2120.66	184.41	92.20		
JOC050213	JOC05	JOC0502	219.93	19.00	1.70	13.96	591.10	0.00	181.88	136.41	818.45	45.47	45.47		
JOC050215	JOC05	JOC0502	151.77	23.00	0.30	53.37	263.56	0.00	65.89	0.00	593.02	0.00	0.00		
JOC050301	JOC05	JOC0503	113.11	15.00	2.10	43.69	2475.36	0.00	618.84	0.00	9282.60	7779.71	265.22		
JOC050302	JOC05	JOC0503	149.18	33.00	1.40	23.99	2882.42	0.00	670.33	0.00	12200.00	3485.71	1474.73		
JOC050303	JOC05	JOC0503	136.07	24.00	0.90	23.79	1102.41	0.00	293.98	73.49	6173.49	4115.66	367.47		
JOC050304	JOC05	JOC0503	124.59	17.00	1.80	23.48	963.16	0.00	0.00	160.53	4575.00	4494.74	240.79		
JOC050305	JOC05	JOC0503	180.33	19.00	1.90	72.69	4769.09	0.00	4769.09	166.36	20019.09	9482.73	1663.64		
JOC050306	JOC05	JOC0503	177.05	22.00	2.10	10.47	790.74	0.00	1468.52	0.00	9037.04	6664.81	282.41		
JOC050307	JOC05	JOC0503	163.93	30.00	1.60	41.39	3111.00	0.00	732.00	0.00	6222.00	6649.00	610.00		
JOC050308	JOC05	JOC0503	155.74	18.00	2.50	38.57	2440.00	0.00	5008.42	0.00	12328.42	6742.11	963.16		
JOC050401	JOC05	JOC0504	114.75	13.00	0.30	47.23	1830.00	0.00	348.57	87.14	697.14	87.14	348.57		
JOC050402	JOC05	JOC0504	157.38	15.00	1.20	54.15	826.04	0.00	0.00	127.08	127.08	826.04	63.54		
JOC050403	JOC05	JOC0504	98.36	20.00	0.50	130.88	8845.00	0.00	5998.33	101.67	508.33	203.33	711.67		
JOC050404	JOC05	JOC0504	185.25	14.00	0.90	63.38	1943.36	0.00	215.93	0.00	161.95	107.96	0.00		

#ROCK#	#SITE#	#STATION#	#ROCK#	#DEPTH#	#AVG#	#CHLOR#	#DEPTH#	#DEPTH#	#DEPTH#	#DEPTH#	#DEPTH#	#DEPTH#	#DEPTH#	#DEPTH#
JOC060101	JOC06	JOC0601	231.88	21.00	1.10	30.08	991.90	0.00	1207.53	172.50	646.89	3018.82	345.01	
JOC060103	JOC06	JOC0601	240.08	15.00	2.00	77.80	2707.48	0.00	4415.28	166.61	1457.88	4790.17	291.58	
JOC060105	JOC06	JOC0601	127.18	13.00	1.20	164.26	3145.24	0.00	4796.49	235.89	6840.89	3223.87	707.68	
JOC060107	JOC06	JOC0601	170.80	18.00	1.70	7.35	761.11	58.55	878.21	0.00	526.92	5269.25	117.09	
JOC060109	JOC06	JOC0601	188.52	29.00	1.10	11.85	530.46	0.00	265.23	0.00	371.32	2811.41	0.00	
JOC060111	JOC06	JOC0601	123.74	31.00	0.70	11.98	161.63	0.00	242.45	0.00	484.89	1454.67	0.00	
JOC060113	JOC06	JOC0601	188.78	17.00	1.00	93.71	953.48	0.00	2436.68	0.00	635.66	7257.06	0.00	
JOC060115	JOC06	JOC0601	130.61	24.00	2.50	47.83	612.49	0.00	995.30	0.00	306.25	14699.85	153.12	
JOC060201	JOC06	JOC0602	176.46	29.00	0.90	46.85	1360.08	0.00	226.68	113.34	1303.41	113.34	510.03	
JOC060203	JOC06	JOC0602	131.99	23.00	1.00	51.63	1363.76	0.00	1060.70	151.53	833.41	151.53	606.11	
JOC060205	JOC06	JOC0602	149.76	13.00	0.40	25.40	2136.81	0.00	0.00	267.10	801.30	0.00	133.55	
JOC060207	JOC06	JOC0602	133.39	18.00	1.00	70.13	2848.79	0.00	974.59	149.94	4048.29	299.87	824.65	
JOC060209	JOC06	JOC0602	123.47	22.00	1.00	27.89	1052.85	0.00	242.96	0.00	404.94	161.98	242.96	
JOC060211	JOC06	JOC0602	102.08	22.00	0.80	56.07	3624.44	0.00	2155.07	0.00	0.00	0.00	293.87	
JOC060213	JOC06	JOC0602	186.56	15.00	0.80	24.41	589.62	0.00	1983.27	1661.66	214.41	0.00	268.01	
JOC060215	JOC06	JOC0602	180.74	14.00	1.10	108.80	15768.18	0.00	6694.56	663.92	553.27	221.31	663.92	
JOC060301	JOC06	JOC0603	101.64	15.00	2.00	81.03	2951.61	0.00	11019.36	98.39	6591.94	5116.13	590.32	
JOC060302	JOC06	JOC0603	126.23	16.00	1.70	35.03	1029.87	0.00	5783.12	0.00	5466.23	1346.75	237.66	
JOC060303	JOC06	JOC0603	155.74	20.00	1.50	14.54	642.11	0.00	2440.00	128.42	3082.11	1862.11	385.26	
JOC060304	JOC06	JOC0603	250.82	17.00	1.10	47.69	2671.24	0.00	8611.76	318.95	10684.97	2750.98	877.12	
JOC060305	JOC06	JOC0603	172.13	24.00	1.40	26.25	2788.57	0.00	2556.19	464.76	4821.91	4705.72	1103.81	
JOC060306	JOC06	JOC0603	116.39	27.00	1.00	49.06	2405.63	0.00	7904.23	515.49	10052.12	1890.14	945.07	
JOC060307	JOC06	JOC0603	111.48	34.00	1.40	37.87	1255.88	0.00	3139.71	897.06	7714.71	1076.47	1345.59	
JOC060308	JOC06	JOC0603	139.34	28.00	1.00	10.53	502.35	0.00	2655.29	215.29	3660.00	789.41	358.82	
JOC060401	JOC06	JOC0604	67.21	12.00	0.40	51.13	8778.05	0.00	3570.73	0.00	1487.80	892.68	446.34	
JOC060402	JOC06	JOC0604	139.34	29.00	0.60	39.57	2798.82	0.00	1937.65	215.29	1220.00	1148.23	1435.29	
JOC060403	JOC06	JOC0604	121.31	22.00	0.90	29.14	247.30	0.00	824.32	0.00	906.76	329.73	0.00	
JOC060404	JOC06	JOC0604	103.28	15.00	1.30	102.43	9876.19	0.00	12684.13	387.30	4163.49	484.13	484.13	
JOC060405	JOC06	JOC0604	183.61	11.00	1.10	131.48	19607.14	0.00	28757.14	1198.21	8060.71	762.50	1742.86	
JOC060406	JOC06	JOC0604	96.72	12.00	1.30	134.62	22022.03	0.00	5789.83	413.56	1447.46	206.78	827.12	
JOC060407	JOC06	JOC0604	108.20	13.00	0.90	157.28	22366.67	0.00	7856.06	924.24	3974.24	369.70	1663.64	
JOC060408	JOC06	JOC0604	177.05	14.00	0.60	87.54	17396.29	0.00	4405.56	1581.48	960.19	5422.22	1299.07	
JOC070101	JOC07	JOC0701	323.63	25.00	1.00	57.05	741.60	0.00	2101.19	61.80	1421.40	4109.69	30.90	
JOC070103	JOC07	JOC0701	191.16	27.00	2.20	21.96	470.81	0.00	470.81	0.00	261.56	5388.12	104.62	
JOC070105	JOC07	JOC0701	275.50	12.00	3.10	143.20	1125.21	0.00	4246.75	1234.10	2577.09	7694.97	508.16	
JOC070107	JOC07	JOC0701	127.71	24.00	1.50	20.59	1487.80	0.00	1174.58	0.00	156.61	3288.82	1017.97	
JOC070109	JOC07	JOC0701	214.43	17.00	1.20	20.42	606.26	0.00	839.44	93.27	46.64	373.08	139.91	
JOC070111	JOC07	JOC0701	336.05	14.00	0.90	8.47	357.09	0.00	297.57	0.00	0.00	1725.92	0.00	
JOC070113	JOC07	JOC0701	175.83	10.00	3.00	8.03	1421.86	56.87	796.24	0.00	341.25	1763.11	0.00	
JOC070115	JOC07	JOC0701	321.51	20.00	2.70	59.33	2954.80	0.00	3421.35	31.10	933.10	7713.59	186.62	
JOC070201	JOC07	JOC0702	133.42	26.00	0.40	56.54	674.58	0.00	1124.30	449.72	4722.07	524.67	1648.98	
JOC070203	JOC07	JOC0702	116.28	26.00	1.00	40.58	515.98	0.00	859.97	0.00	4471.85	515.98	86.00	
JOC070205	JOC07	JOC0702	152.00	25.00	1.60	47.10	1381.55	0.00	2368.36	131.58	4868.31	1052.61	328.94	
JOC070207	JOC07	JOC0702	111.87	24.00	0.00	24.11	357.57	0.00	446.96	0.00	2145.39	268.17	536.35	
JOC070209	JOC07	JOC0702	203.40	20.00	2.90	40.93	1278.25	0.00	2851.48	0.00	7669.51	393.31	0.00	
JOC070211	JOC07	JOC0702	153.30	19.00	2.00	46.87	1956.96	0.00	2413.58	1369.87	8284.46	326.16	130.46	
JOC070213	JOC07	JOC0702	135.11	16.00	1.10	13.19	296.06	0.00	888.18	0.00	2368.47	74.01	0.00	
JOC070215	JOC07	JOC0702	218.66	17.00	0.80	24.24	1189.07	0.00	4298.94	0.00	6356.94	320.13	548.80	
JOC070301	JOC07	JOC0703	237.70	38.00	0.20	19.17	2524.14	0.00	5300.69	168.28	19015.17	7067.59	5048.28	
JOC070302	JOC07	JOC0703	129.51	35.00	0.90	22.56	463.29	0.00	2702.53	0.00	7258.23	2548.10	617.72	
JOC070303	JOC07	JOC0703	206.56	26.00	1.10	41.01	2614.29	0.00	9150.00	242.06	13894.44	3776.19	1161.90	
JOC070304	JOC07	JOC0703	144.26	29.00	1.10	23.88	1802.27	0.00	2980.68	346.59	4367.05	2426.14	485.23	
JOC070305	JOC07	JOC0703	113.11	28.00	1.20	18.38	2917.39	0.00	5834.78	88.41	5746.37	5746.37	1414.49	
JOC070306	JOC07	JOC0703	160.66	30.00	1.70	33.12	1680.61	0.00	4855.10	435.71	4543.88	2054.08	622.45	
JOC070307	JOC07	JOC0703	195.08	29.00	0.90	41.09	1537.81	0.00	5074.79	153.78	6356.30	2101.68	768.91	
JOC070308	JOC07	JOC0703	147.54	28.00	1.80	45.40	677.78	0.00	2372.22	0.00	6167.78	2236.67	203.33	
JOC070401	JOC07	JOC0704	81.97	20.00	0.90	35.04	1220.00	0.00	3172.00	244.00	1830.00	610.00	244.00	
JOC070402	JOC07	JOC0704	104.92	15.00	1.20	151.08	857.81	0.00	1715.63	95.31	1334.38	571.88	667.19	
JOC070403	JOC07	JOC0704	108.20	20.00	1.50	34.48	646.97	0.00	3512.12	92.42	1478.79	462.12	277.27	
JOC070404	JOC07	JOC0704	70.49	18.00	1.00	26.69	1560.47	0.00	3262.79	141.86	1134.88	709.30	567.44	
JOC070405	JOC07	JOC0704	73.77	15.00	1.20	44.66	2982.22	0.00	7862.22	0.00	3524.44	677.78	542.22	
JOC070406	JOC07	JOC0704	126.23	12.00	1.80	119.24	10377.92	0.00	16477.92	0.00	5703.90	4277.92	316.88	
JOC070407	JOC07	JOC0704	86.89	11.00	1.20	46.65	2647.17	0.00	7596.23	0.00	1035.85	1841.51	460.38	
JOC070408	JOC07	JOC0704	129.51	12.00	1.30	99.26	5636.71	0.00	5791.14	2162.03	1003.80	1698.73	1467.09	
OTT010101	OTT01	OTT0101	144.10	40.00	1.00	5.68	0.00	0.00	0.00	0.00	0.00	208.19	0.00	
OTT010103	OTT01	OTT0101	241.13	16.00	0.60	4.60	0.00	0.00	0.00	0.00	0.00	124.41	0.00	
OTT010105	OTT01	OTT0101	200.94	21.00	0.50	11.56	49.77	0.00	0.00	0.00	0.00	99.53	0.00	
OTT010107	OTT01	OTT0101	142.25	45.00	2.50	1.98	140.60	0.00	0.00	70.30	0.00	210.90	0.00	
OTT010109	OTT01	OTT0101	181.38	17.00	0.20	8.31	110.27	0.00	0.00	0.00	0.00	771.87	0.00	
OTT010111	OTT01	OTT0101	143.83	20.00	0.80	4.44	0.00	0.00	0.00	0.00	0.00	347.62	0.00	
OTT010113	OTT01	OTT0101	231.09	40.00	1.50	6.34	129.82	0.00	0.00	0.00	0.00	173.10	0.00	
OTT010115	OTT01	OTT0101	167.89	35.00	0.90	5.93	0.00	0.00	0.00	59.56	0.00	297.81	0.00	
OTT010201	OTT01	OTT0102	108.25	17.00	0.00	7.11	0.00	92.38	0.00	0.00	0.00	0.00	0.00	
OTT010203	OTT01	OTT0102	67.82	24.00	0.00	4.89	147.45	0.00	0.00	0.00	0.00	884.71	147.45	
OTT010205	OTT01	OTT0102	126.04	33.00	0.00	34.74	396.70	0.00	0.00	0.00	0.00	79.34	79.34	
OTT010207	OTT01	OTT0102	111.87	26.00	0.00	16.91	89.39	0.00	0.00	0.00	0.00	0.00	0.00	
OTT010209	OTT01	OTT0102	120.88	24.00	0.00	41.53	82.72	0.00	0.00	165.45	0.00	82.72	0.00	
OTT010211	OTT01	OTT0102	109.17	30.00	0.50	56.92	366.40	0.00	91.60	91.60	91.60	183.20	0.00	
OTT010213	OTT01	OTT0102	211.12	19.00	0.80	67.41	236.83	0.00	0.00	47.37	0.00	0.00	0.00	
OTT010215	OTT01	OTT0102	137.22	21.00	0.30	70.09	364.37	0.00	72.87	72.87	0.00	801.61	0.00	

#PROG.ID#	#SITE.ID#	#SAMPLE.ID#	#PROG.AREA#	#DEPTH#	#AVG.VEL#	#CHLOR#	#RED.FIN#	#DTEG#	#DRICH#	#DCOE#	#DCHLOR#	#DOTHO#	#DTAN#
OTT010301	OTT01	OTT0103	162.30	39.00	0.80	3.06	61.62	123.23	801.01	61.62	0.00	1047.47	61.62
OTT010302	OTT01	OTT0103	116.39	42.00	0.80	8.89	171.83	0.00	0.00	0.00	0.00	945.07	0.00
OTT010303	OTT01	OTT0103	226.23	41.00	1.60	21.47	0.00	0.00	0.00	353.62	0.00	1105.07	0.00
OTT010304	OTT01	OTT0103	118.03	42.00	1.60	28.23	84.72	0.00	0.00	338.89	593.06	593.06	0.00
OTT010305	OTT01	OTT0103	104.92	54.00	1.60	16.46	190.63	95.31	0.00	95.31	0.00	2764.06	0.00
OTT010306	OTT01	OTT0103	152.46	48.00	1.80	25.87	327.96	131.18	0.00	131.18	0.00	787.10	0.00
OTT010307	OTT01	OTT0103	139.34	50.00	1.50	19.66	287.06	0.00	0.00	71.76	0.00	1148.23	0.00
OTT010308	OTT01	OTT0103	303.28	55.00	1.40	12.98	329.73	0.00	131.89	329.73	0.00	758.38	32.97
OTT010401	OTT01	OTT0104	113.11	38.00	0.40	31.35	530.43	0.00	0.00	0.00	0.00	530.43	0.00
OTT010402	OTT01	OTT0104	121.31	40.00	0.40	21.08	329.73	0.00	247.30	0.00	0.00	164.86	0.00
OTT010403	OTT01	OTT0104	147.54	39.00	0.50	33.55	338.89	0.00	0.00	0.00	0.00	203.33	0.00
OTT010404	OTT01	OTT0104	137.70	40.00	0.30	53.24	217.86	72.62	145.24	0.00	0.00	0.00	0.00
OTT010405	OTT01	OTT0104	139.34	37.00	0.30	48.44	574.12	0.00	215.29	0.00	143.53	71.76	0.00
OTT010406	OTT01	OTT0104	122.95	43.00	0.10	95.24	406.67	0.00	0.00	81.33	0.00	81.33	0.00
OTT010407	OTT01	OTT0104	91.80	30.00	0.70	40.40	544.64	0.00	0.00	108.93	108.93	217.86	0.00
OTT010408	OTT01	OTT0104	121.31	34.00	1.30	65.39	1731.08	0.00	247.30	0.00	82.43	1648.65	0.00
OTT020101	OTT02	OTT0201	222.36	39.00	2.00	4.64	629.61	44.97	0.00	0.00	0.00	224.86	0.00
OTT020103	OTT02	OTT0201	122.42	45.00	2.50	5.84	816.88	0.00	0.00	0.00	0.00	2042.20	0.00
OTT020105	OTT02	OTT0201	159.70	45.00	2.50	2.53	688.80	0.00	0.00	0.00	0.00	500.95	0.00
OTT020107	OTT02	OTT0201	227.65	36.00	2.20	13.45	263.56	0.00	0.00	0.00	0.00	395.35	0.00
OTT020109	OTT02	OTT0201	123.47	25.00	2.30	5.72	161.98	0.00	0.00	0.00	0.00	404.94	0.00
OTT020111	OTT02	OTT0201	219.98	33.00	2.00	2.99	500.04	0.00	45.46	0.00	0.00	681.88	0.00
OTT020113	OTT02	OTT0201	115.54	30.00	1.40	1.61	259.64	0.00	0.00	0.00	0.00	692.38	0.00
OTT020115	OTT02	OTT0201	233.73	44.00	1.70	3.11	299.49	0.00	42.78	0.00	0.00	1026.83	0.00
OTT020201	OTT02	OTT0202	219.16	22.00	0.30	60.59	0.00	0.00	182.51	45.63	182.51	1551.37	0.00
OTT020203	OTT02	OTT0202	120.41	24.00	0.80	60.45	0.00	0.00	0.00	0.00	83.05	249.15	0.00
OTT020205	OTT02	OTT0202	118.69	17.00	1.70	58.77	674.03	0.00	0.00	0.00	337.01	8678.13	0.00
OTT020207	OTT02	OTT0202	114.41	23.00	1.50	52.71	699.26	0.00	1398.53	0.00	524.45	7429.69	262.22
OTT020209	OTT02	OTT0202	243.33	29.00	1.20	40.87	410.97	0.00	657.55	0.00	452.07	2301.43	164.39
OTT020211	OTT02	OTT0202	114.70	24.00	1.20	41.84	87.19	0.00	261.56	0.00	174.37	6015.87	0.00
OTT020213	OTT02	OTT0202	166.25	29.00	1.10	30.59	180.45	0.00	721.78	0.00	721.78	5774.27	240.59
OTT020215	OTT02	OTT0202	127.92	33.00	0.90	29.25	390.88	0.00	156.35	0.00	469.06	2110.75	78.18
OTT020301	OTT02	OTT0203	127.87	47.00	1.40	17.37	312.82	0.00	391.03	0.00	547.44	1173.08	78.21
OTT020302	OTT02	OTT0203	124.59	49.00	1.20	12.58	80.26	0.00	80.26	0.00	240.79	481.58	0.00
OTT020303	OTT02	OTT0203	93.44	50.00	2.40	3.01	107.02	0.00	0.00	0.00	0.00	0.00	0.00
OTT020304	OTT02	OTT0203	214.75	47.00	2.50	13.16	139.69	139.69	419.08	0.00	279.39	1070.99	0.00
OTT020305	OTT02	OTT0203	172.13	42.00	2.10	17.76	464.76	0.00	58.10	0.00	0.00	1452.38	0.00
OTT020306	OTT02	OTT0203	134.43	48.00	2.30	11.24	148.78	0.00	148.78	0.00	74.39	1785.37	0.00
OTT020307	OTT02	OTT0203	109.84	49.00	2.30	22.34	364.18	0.00	182.09	0.00	0.00	3368.66	0.00
OTT020308	OTT02	OTT0203	163.93	43.00	1.90	5.99	61.00	0.00	305.00	0.00	122.00	3721.00	0.00
OTT020401	OTT02	OTT0204	91.80	35.00	1.80	17.36	1307.14	0.00	544.64	0.00	0.00	653.57	0.00
OTT020402	OTT02	OTT0204	81.97	42.00	2.00	7.28	610.00	0.00	732.00	0.00	244.00	1342.00	0.00
OTT020403	OTT02	OTT0204	137.70	36.00	1.50	6.33	2904.76	0.00	1234.52	0.00	72.62	508.33	0.00
OTT020404	OTT02	OTT0204	127.87	53.00	2.00	9.15	2346.15	0.00	2424.36	0.00	469.23	1407.69	156.41
OTT020405	OTT02	OTT0204	95.08	44.00	1.60	4.51	525.86	0.00	105.17	0.00	0.00	315.52	105.17
OTT020406	OTT02	OTT0204	113.11	53.00	1.80	11.64	1237.68	0.00	2740.58	0.00	353.62	1768.12	0.00
OTT020407	OTT02	OTT0204	80.33	44.00	1.80	7.79	2365.31	0.00	622.45	0.00	0.00	248.98	0.00
OTT020408	OTT02	OTT0204	80.33	41.00	1.90	20.52	1244.90	0.00	497.96	0.00	0.00	124.49	0.00
OTT030101	OTT03	OTT0301	124.53	34.00	2.70	0.38	0.00	0.00	0.00	0.00	0.00	321.20	0.00
OTT030103	OTT03	OTT0301	163.93	30.00	2.70	1.30	61.00	0.00	0.00	0.00	61.00	1037.04	0.00
OTT030105	OTT03	OTT0301	163.40	33.00	2.00	3.65	1713.59	0.00	0.00	0.00	1468.80	68727.39	244.80
OTT030107	OTT03	OTT0301	140.66	27.00	4.20	0.56	0.00	0.00	0.00	0.00	0.00	284.37	0.00
OTT030109	OTT03	OTT0301	200.15	36.00	2.60	7.36	0.00	0.00	0.00	0.00	0.00	1948.53	0.00
OTT030111	OTT03	OTT0301	229.50	43.00	2.60	2.56	0.00	0.00	0.00	0.00	0.00	87.15	0.00
OTT030113	OTT03	OTT0301	136.17	30.00	1.00	6.41	0.00	0.00	0.00	0.00	0.00	2203.19	0.00
OTT030115	OTT03	OTT0301	210.20	45.00	2.50	4.44	0.00	0.00	0.00	0.00	0.00	2140.84	0.00
OTT030201	OTT03	OTT0302	200.07	24.00	1.70	46.80	49.98	49.98	49.98	49.98	149.95	149.95	0.00
OTT030203	OTT03	OTT0302	87.75	27.00	1.10	35.98	113.95	0.00	0.00	0.00	227.91	0.00	0.00
OTT030205	OTT03	OTT0302	116.18	29.00	1.10	31.60	86.08	0.00	86.08	172.15	86.08	172.15	0.00
OTT030207	OTT03	OTT0302	238.62	25.00	1.50	66.52	251.44	0.00	419.07	0.00	586.70	41.91	0.00
OTT030209	OTT03	OTT0302	203.09	24.00	0.70	68.72	640.12	0.00	246.20	0.00	2658.98	344.68	0.00
OTT030211	OTT03	OTT0302	177.62	15.00	2.20	24.44	957.08	0.00	450.39	0.00	562.99	1407.47	0.00
OTT030213	OTT03	OTT0302	245.92	18.00	1.60	26.22	3049.79	0.00	609.96	81.33	813.28	1545.23	0.00
OTT030215	OTT03	OTT0302	164.99	19.00	1.00	36.15	1697.12	0.00	242.45	0.00	181.83	969.78	0.00
OTT030301	OTT03	OTT0303	196.72	42.00	2.80	3.27	0.00	0.00	915.00	0.00	0.00	305.00	0.00
OTT030302	OTT03	OTT0303	186.89	47.00	1.60	1.64	214.04	107.02	374.56	0.00	0.00	909.65	0.00
OTT030303	OTT03	OTT0303	193.44	41.00	3.80	5.70	0.00	0.00	930.51	51.69	51.69	672.03	0.00
OTT030304	OTT03	OTT0303	140.98	42.00	3.00	5.16	70.93	0.00	496.51	0.00	0.00	1134.88	0.00
OTT030305	OTT03	OTT0303	68.85	46.00	3.10	4.71	145.24	871.43	1161.90	290.48	3195.24	726.19	145.24
OTT030306	OTT03	OTT0303	162.30	39.00	1.60	2.94	0.00	0.00	61.62	0.00	369.70	985.86	0.00
OTT030307	OTT03	OTT0303	127.87	38.00	2.40	2.64	312.82	0.00	860.26	0.00	78.21	312.82	78.21
OTT030308	OTT03	OTT0303	160.66	33.00	2.70	1.96	62.24	0.00	435.71	0.00	0.00	1182.65	0.00
OTT030401	OTT03	OTT0304	91.80	27.00	1.80	7.33	871.43	108.93	871.43	0.00	217.86	217.86	0.00
OTT030402	OTT03	OTT0304	98.36	43.00	1.70	5.84	406.67	0.00	406.67	0.00	0.00	203.33	0.00
OTT030403	OTT03	OTT0304	139.34	39.00	2.60	6.31	358.82	71.76	1650.59	0.00	358.82	358.82	0.00
OTT030404	OTT03	OTT0304	124.59	14.00	1.40	6.88	642.11	0.00	722.37	0.00	80.26	0.00	80.26
OTT030405	OTT03	OTT0304	122.95	43.00	2.20	11.16	1057.33	0.00	1464.00	0.00	488.00	244.00	0.00
OTT030406	OTT03	OTT0304	55.74	28.00	1.80	2.23	358.82	0.00	179.41	0.00	179.41	0.00	0.00
OTT030407	OTT03	OTT0304	78.69	29.00	1.50	6.22	1906.25	0.00	1016.67	0.00	381.25	635.42	0.00
OTT030408	OTT03	OTT0304	106.56	38.00	1.30	7.05	2064.61	0.00	4035.38	187.69	281.54	844.62	93.85

ROCK ID#	S&S ID#	Sample ID#	FLOCK AREA	DEPTH	AVGVEL	CHLORT	DEPTH	DEPTH	DEPTH	DEPTH	DEPTH	DEPTH	DEPTH	DEPTH
RID010101	RID01	RID0101	180.32	21.00	1.80	56.99	998.22	0.00	1830.07	0.00	1885.53	14363.29	831.85	
RID010103	RID01	RID0101	200.15	28.00	2.40	39.02	1448.91	0.00	1648.76	0.00	1448.91	12440.62	99.92	
RID010105	RID01	RID0101	188.52	25.00	2.70	61.37	1909.64	0.00	3023.60	0.00	1538.32	14269.26	636.55	
RID010107	RID01	RID0101	196.98	22.00	3.30	65.84	5888.98	0.00	4162.90	50.77	3147.56	17920.78	2741.42	
RID010109	RID01	RID0101	255.94	25.00	2.70	51.94	898.65	0.00	1445.66	0.00	2774.10	14769.13	429.79	
RID010111	RID01	RID0101	211.52	31.00	3.40	53.69	1229.20	0.00	1607.41	0.00	2032.90	6571.48	330.94	
RID010113	RID01	RID0101	259.91	32.00	1.00	22.14	807.99	0.00	461.71	0.00	1692.92	5540.48	115.43	
RID010115	RID01	RID0101	218.13	31.00	3.00	44.70	1054.42	0.00	2200.52	45.84	2292.21	10314.95	458.44	
RID010201	RID01	RID0102	249.91	18.00	1.40	42.57	960.34	0.00	2000.71	40.01	1680.60	160.06	760.27	
RID010203	RID01	RID0102	144.68	18.00	2.90	121.47	2695.61	0.00	4008.86	138.24	6013.28	1036.77	967.65	
RID010205	RID01	RID0102	241.03	21.00	0.80	84.07	2115.95	0.00	4397.85	165.96	4688.27	1369.14	1037.23	
RID010207	RID01	RID0102	263.37	14.00	1.60	23.08	417.67	0.00	1101.12	113.91	2847.72	113.91	797.36	
RID010209	RID01	RID0102	263.00	25.00	1.50	95.52	3878.35	0.00	1787.08	266.16	342.21	190.12	266.16	
RID010211	RID01	RID0102	188.78	24.00	1.00	75.49	1218.34	0.00	1324.28	211.89	3655.02	52.97	582.68	
RID010213	RID01	RID0102	264.74	11.00	1.10	103.52	339.95	0.00	113.32	37.77	377.72	188.86	302.18	
RID010215	RID01	RID0102	244.01	15.00	2.80	46.87	450.79	0.00	778.64	0.00	901.58	40.98	409.81	
RID010301	RID01	RID0103	252.46	37.00	1.40	62.70	118.83	0.00	752.60	0.00	5188.96	7050.65	118.83	
RID010302	RID01	RID0103	134.43	32.00	1.70	25.63	297.56	0.00	520.73	74.39	4909.76	13167.08	0.00	
RID010303	RID01	RID0103	216.39	22.00	2.00	61.89	2125.76	0.00	7671.21	1109.09	23290.91	34936.37	739.39	
RID010304	RID01	RID0103	301.64	22.00	2.00	21.02	1259.78	0.00	1723.91	0.00	4011.41	7326.63	33.15	
RID010305	RID01	RID0103	218.02	26.00	0.90	12.73	458.67	45.87	1651.23	366.94	13393.29	5687.56	0.00	
RID010306	RID01	RID0103	250.82	25.00	1.30	51.29	1196.08	0.00	15947.71	0.00	39709.80	120564.69	1116.34	
RID010307	RID01	RID0103	159.02	25.00	2.50	13.86	314.43	0.00	817.53	0.00	6477.32	5659.79	0.00	
RID010308	RID01	RID0103	195.08	26.00	2.10	28.38	3075.63	0.00	5023.53	0.00	18146.22	37830.25	0.00	
RID010401	RID01	RID0104	109.84	22.00	1.20	56.11	5098.51	0.00	2094.03	0.00	455.22	273.13	364.18	
RID010402	RID01	RID0104	144.26	21.00	2.30	64.67	13378.41	0.00	7832.95	0.00	1525.00	1594.32	623.86	
RID010403	RID01	RID0104	155.74	19.00	1.80	53.12	11236.84	0.00	6035.79	0.00	321.05	1027.37	513.68	
RID010404	RID01	RID0104	154.10	20.00	1.80	48.14	3828.72	0.00	2530.85	259.57	1232.98	454.26	454.26	
RID010405	RID01	RID0104	262.30	14.00	1.80	50.74	6862.50	0.00	2630.62	76.25	381.25	495.62	724.37	
RID010406	RID01	RID0104	245.90	19.00	1.50	40.19	8092.67	0.00	3212.67	0.00	447.33	1057.33	447.33	
RID010407	RID01	RID0104	109.84	11.00	1.60	40.72	8376.12	0.00	2913.43	0.00	364.18	1356.67	91.04	
RID010408	RID01	RID0104	242.62	24.00	1.10	81.63	7130.40	0.00	4533.78	41.22	906.76	865.54	783.11	
RID020101	RID02	RID0201	226.06	28.00	1.40	79.23	2698.37	0.00	2123.31	44.24	5352.51	5440.99	619.30	
RID020103	RID02	RID0201	171.33	41.00	0.80	73.46	1867.73	0.00	1167.33	933.86	3151.79	1750.99	2451.39	
RID020105	RID02	RID0201	283.44	33.00	1.00	26.28	105.84	0.00	599.78	70.56	1517.09	2293.28	70.56	
RID020107	RID02	RID0201	194.86	33.00	1.80	23.45	410.55	0.00	461.86	0.00	3027.77	5234.45	0.00	
RID020109	RID02	RID0201	238.49	31.00	2.20	76.57	1677.23	0.00	3102.87	0.00	4822.03	8176.48	670.89	
RID020111	RID02	RID0201	287.93	31.00	1.00	39.82	833.53	0.00	1250.30	0.00	4410.77	4167.66	243.11	
RID020113	RID02	RID0201	345.31	26.00	1.00	37.92	2056.14	0.00	5531.32	86.88	10859.92	12887.11	723.99	
RID020115	RID02	RID0201	290.84	35.00	1.10	51.93	859.58	0.00	2956.95	309.45	10590.02	3954.06	1409.71	
RID020201	RID02	RID0202	182.22	12.00	1.70	125.37	2359.73	0.00	4554.82	878.04	8835.26	1152.42	2085.34	
RID020203	RID02	RID0202	109.38	23.00	1.80	133.46	1554.18	0.00	3656.90	2011.29	9233.67	822.80	2376.98	
RID020205	RID02	RID0202	91.72	30.00	1.20	98.74	1090.27	0.00	1635.41	0.00	3379.84	436.11	763.19	
RID020207	RID02	RID0202	54.31	32.00	1.20	130.24	2025.49	0.00	7181.29	1104.81	4235.12	736.54	1104.81	
RID020209	RID02	RID0202	140.58	27.00	1.40	141.42	2205.13	0.00	7184.44	284.53	3556.66	142.27	1849.46	
RID020211	RID02	RID0202	216.54	26.00	1.50	136.82	2401.36	0.00	3879.13	323.26	3925.31	461.80	1708.66	
RID020213	RID02	RID0202	261.57	27.00	2.00	62.36	1796.84	0.00	2599.68	76.46	1452.76	76.46	1223.38	
RID020215	RID02	RID0202	168.98	30.00	2.30	124.94	2248.81	0.00	6687.26	177.54	6450.54	118.36	1361.12	
RID020301	RID02	RID0203	75.41	43.00	1.30	32.36	15117.39	0.00	5702.17	795.65	7823.91	5834.78	1060.87	
RID020302	RID02	RID0203	231.15	37.00	1.80	21.74	1903.55	0.00	1773.76	0.00	5364.54	3158.16	173.05	
RID020303	RID02	RID0203	160.00	55.00	0.90	69.05	6375.00	0.00	8750.00	250.00	10000.00	14000.00	1750.00	
RID020304	RID02	RID0203	219.67	51.00	0.20	30.85	2412.69	0.00	3050.00	45.52	7829.85	6191.05	500.75	
RID020305	RID02	RID0203	193.44	55.00	0.50	16.11	413.56	0.00	10235.59	206.78	3050.00	6255.09	1085.59	
RID020306	RID02	RID0203	227.87	58.00	1.90	41.79	526.62	0.00	526.62	87.77	11980.57	8030.93	87.77	
RID020307	RID02	RID0203	203.28	43.00	1.20	41.43	541.13	0.00	1623.39	0.00	7477.42	2558.06	49.19	
RID020308	RID02	RID0203	260.66	46.00	1.20	66.66	3759.75	0.00	7749.69	997.48	28006.29	13657.86	767.30	
RID020401	RID02	RID0204	168.85	11.00	1.60	41.75	8468.93	0.00	7343.69	236.89	888.35	888.35	296.12	
RID020402	RID02	RID0204	139.34	15.00	1.30	19.25	7032.94	0.00	717.65	71.76	215.29	71.76	215.29	
RID020403	RID02	RID0204	139.34	24.00	1.10	40.93	9185.88	0.00	16721.17	71.76	1004.71	9257.64	574.12	
RID020404	RID02	RID0204	155.74	24.00	1.10	50.90	6485.26	0.00	4430.53	385.26	1027.37	577.89	1027.37	
RID020405	RID02	RID0204	83.61	37.00	1.40	179.11	1554.90	0.00	3468.63	0.00	239.22	1076.47	478.43	
RID020406	RID02	RID0204	155.74	14.00	1.50	79.55	2953.68	0.00	3595.79	128.42	1027.37	1027.37	321.05	
RID020407	RID02	RID0204	101.64	31.00	2.00	55.78	491.94	0.00	295.16	0.00	688.71	393.55	491.94	
RID020408	RID02	RID0204	91.80	33.00	0.90	43.23	1416.07	0.00	2178.57	326.79	326.79	435.71	108.93	
RID030101	RID03	RID0301	255.94	28.00	1.70	63.70	117.22	0.00	586.08	117.22	31609.07	6251.48	78.14	
RID030103	RID03	RID0301	284.76	23.00	2.00	62.44	386.29	0.00	1193.99	175.59	8954.95	8147.25	0.00	
RID030105	RID03	RID0301	206.23	24.00	2.40	58.00	242.45	0.00	678.85	48.49	6158.11	12607.16	0.00	
RID030107	RID03	RID0301	220.25	30.00	2.50	41.29	499.44	0.00	1407.52	181.62	11986.64	10624.52	90.81	
RID030109	RID03	RID0301	159.96	39.00	1.80	86.87	750.18	0.00	1375.33	125.03	17254.10	13065.60	500.12	
RID030111	RID03	RID0301	181.64	39.00	1.90	71.59	825.80	0.00	715.69	55.05	4239.09	4459.30	0.00	
RID030113	RID03	RID0301	241.93	40.00	1.60	59.34	2149.42	0.00	2852.11	826.70	7150.95	9631.04	413.35	
RID030115	RID03	RID0301	255.67	26.00	1.90	41.11	156.45	0.00	1016.92	430.23	13728.38	8878.47	78.22	
RID030201	RID03	RID0302	120.06	32.00	1.00	52.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
RID030203	RID03	RID0302	114.27	27.00	0.80	80.28	87.51	0.00	700.07	2187.73	175.02	0.00	175.02	
RID030205	RID03	RID0302	100.21	30.00	0.80	83.18	798.34	0.00	898.14	2295.24	399.17	0.00	99.79	
RID030207	RID03	RID0302	183.26	33.00	0.00	51.68	381.98	0.00	763.96	1255.08	381.98	54.57	218.27	
RID030209	RID03	RID0302	176.65	35.00	0.00	79.22	792.55	0.00	735.94	1245.43	169.83	56.61	56.61	
RID030211	RID03	RID0302	148.75	47.00	0.90	66.02	403.36	0.00	2689.05	672.26	537.81	134.45	0.00	
RID030213	RID03	RID0302	121.44	48.00	1.00	88.42	658.77	0.00	2552.72	247.04	5681.87	247.04	247.04	
RID030215	RID03	RID0302	112.21	35.00	1.40	124.62	1782.35	0.00	712.94	0.00	267.35	0.00	0.00	

ROCK ID	Station ID	Sampling ID	ROCK AREA	DEPTH	AVG VELOCITY	CHLORIDE	% DEPTH	DEPTH	DEPTH	DEPTH	DEPTH	DEPTH	DEPTH	DEPTH
RID030301	RID03	RID0303	180.33	56.00	0.70	26.37	221.82	0.00	110.91	0.00	7985.45	5101.82	0.00	
RID030302	RID03	RID0303	121.31	53.00	1.80	33.43	741.89	0.00	1731.08	164.86	5935.13	3956.76	577.03	
RID030303	RID03	RID0303	104.92	69.00	0.40	19.49	285.94	0.00	95.31	0.00	1525.00	476.56	0.00	
RID030304	RID03	RID0303	186.89	88.00	0.60	38.91	374.56	0.00	0.00	0.00	3906.14	1337.72	0.00	
RID030305	RID03	RID0303	142.62	83.00	2.00	62.54	701.15	0.00	771.26	140.23	7852.87	4277.01	0.00	
RID030306	RID03	RID0303	159.02	72.00	2.20	59.45	314.43	0.00	440.21	188.66	8804.12	3647.42	188.66	
RID030307	RID03	RID0303	154.10	80.00	1.80	16.38	324.47	0.00	259.57	0.00	3309.57	2790.42	64.89	
RID030308	RID03	RID0303	157.38	54.00	1.60	28.05	254.17	0.00	127.08	0.00	5845.84	4320.83	0.00	
RID030401	RID03	RID0304	103.28	26.00	0.30	100.95	871.43	0.00	2807.94	0.00	3001.59	7552.38	0.00	
RID030402	RID03	RID0304	124.59	24.00	0.40	89.13	1123.68	0.00	2006.58	0.00	2247.37	2889.47	240.79	
RID030403	RID03	RID0304	122.95	32.00	0.80	104.07	2114.67	0.00	3660.00	1382.67	2928.00	2196.00	488.00	
RID030404	RID03	RID0304	173.77	33.00	1.00	46.22	5697.17	0.00	4085.85	805.66	1266.04	690.57	230.19	
RID030405	RID03	RID0304	86.89	38.00	0.90	75.59	3913.21	0.00	1841.51	0.00	1150.94	1726.42	0.00	
RID030406	RID03	RID0304	122.95	53.00	1.10	73.38	2196.00	0.00	3741.33	81.33	1708.00	2358.67	81.33	
RID030407	RID03	RID0304	147.54	67.00	1.30	30.85	2846.67	0.00	1084.44	67.78	271.11	1016.67	67.78	
RID030408	RID03	RID0304	126.23	76.00	1.20	10.89	1346.75	0.00	633.77	158.44	79.22	396.10	0.00	
RID040101	RID04	RID0401	288.20	27.00	2.00	31.56	1769.63	0.00	624.57	138.79	7009.12	8084.78	0.00	
RID040103	RID04	RID0401	249.86	31.00	1.80	24.67	1600.91	0.00	320.18	80.05	19290.96	9165.21	0.00	
RID040105	RID04	RID0401	139.87	29.00	1.50	36.59	2001.89	0.00	428.98	0.00	12940.81	5648.20	71.50	
RID040107	RID04	RID0401	276.03	22.00	1.30	34.31	1050.60	0.00	253.59	217.36	5832.62	9926.33	0.00	
RID040109	RID04	RID0401	230.56	25.00	1.10	45.43	2689.14	0.00	86.75	0.00	20255.31	15484.25	0.00	
RID040111	RID04	RID0401	185.08	24.00	2.00	26.52	1296.74	0.00	1350.77	162.09	6267.56	9887.62	0.00	
RID040113	RID04	RID0401	310.14	19.00	2.50	19.97	999.54	0.00	290.19	0.00	8254.30	7706.17	0.00	
RID040115	RID04	RID0401	266.78	26.00	2.20	41.34	2249.05	0.00	374.84	37.48	3635.96	15818.30	0.00	
RID040201	RID04	RID0402	274.61	40.00	0.90	80.45	327.74	0.00	218.50	218.50	1857.21	109.25	218.50	
RID040203	RID04	RID0402	136.93	29.00	1.60	25.66	292.11	0.00	73.03	146.06	146.06	73.03	0.00	
RID040205	RID04	RID0402	156.68	44.00	1.00	108.88	127.65	0.00	127.65	127.65	5105.84	255.29	702.05	
RID040207	RID04	RID0402	204.09	45.00	1.00	30.75	244.99	0.00	538.98	1714.93	2057.91	49.00	49.00	
RID040209	RID04	RID0402	154.38	34.00	1.80	18.11	842.06	0.00	0.00	0.00	1101.16	129.55	129.55	
RID040211	RID04	RID0402	151.50	44.00	1.40	127.88	8052.74	0.00	462.04	1650.15	4818.44	330.03	462.04	
RID040213	RID04	RID0402	148.04	32.00	2.10	14.06	135.10	0.00	0.00	0.00	135.10	0.00	0.00	
RID040215	RID04	RID0402	202.35	40.00	2.30	110.84	1284.93	0.00	642.47	988.41	1532.03	49.42	247.10	
RID040301	RID04	RID0403	119.67	36.00	1.10	6.99	0.00	0.00	83.56	0.00	584.93	668.49	0.00	
RID040302	RID04	RID0403	152.46	38.00	2.50	10.09	327.96	0.00	262.37	0.00	590.32	524.73	0.00	
RID040303	RID04	RID0403	208.20	30.00	3.00	20.88	288.19	0.00	3842.52	0.00	624.41	1200.79	0.00	
RID040304	RID04	RID0403	198.36	43.00	0.80	38.51	100.83	0.00	50.41	0.00	756.20	1966.12	151.24	
RID040305	RID04	RID0403	167.21	55.00	1.40	55.20	59.80	0.00	119.61	0.00	1315.69	3468.63	0.00	
RID040306	RID04	RID0403	132.79	33.00	0.80	27.65	0.00	0.00	75.31	0.00	602.47	828.39	0.00	
RID040307	RID04	RID0403	242.62	56.00	0.70	13.79	0.00	0.00	288.51	0.00	659.46	412.16	82.43	
RID040308	RID04	RID0403	181.97	50.00	0.70	58.28	109.91	0.00	0.00	0.00	1154.05	1703.60	0.00	
RID040401	RID04	RID0404	172.13	19.00	1.40	13.53	3195.24	0.00	1626.67	0.00	232.38	522.86	0.00	
RID040402	RID04	RID0404	142.62	22.00	1.00	4.69	3435.63	0.00	2524.14	70.11	981.61	631.03	0.00	
RID040403	RID04	RID0404	154.10	21.00	1.20	11.81	5126.59	0.00	389.36	908.51	1297.87	0.00	0.00	
RID040404	RID04	RID0404	267.21	26.00	1.20	6.93	4490.80	0.00	636.20	336.81	299.39	374.23	0.00	
RID040405	RID04	RID0404	144.26	28.00	1.30	11.55	3050.00	0.00	346.59	69.32	277.27	138.64	69.32	
RID040406	RID04	RID0404	196.72	14.00	0.80	11.38	5642.50	0.00	559.17	50.83	406.67	711.67	0.00	
RID040407	RID04	RID0404	134.43	24.00	1.20	14.85	5356.10	0.00	669.51	818.29	818.29	371.95	0.00	
RID040408	RID04	RID0404	191.80	39.00	1.30	25.91	6673.50	0.00	1720.51	364.96	729.91	834.19	0.00	
RID050101	RID05	RID0501	199.89	39.00	0.60	19.58	50.03	0.00	50.03	0.00	600.34	1450.82	50.03	
RID050103	RID05	RID0501	159.96	37.00	1.20	33.43	62.51	0.00	62.51	0.00	1875.45	5688.85	0.00	
RID050105	RID05	RID0501	113.96	34.00	1.10	17.30	0.00	0.00	0.00	0.00	965.28	6405.96	0.00	
RID050107	RID05	RID0501	240.08	24.00	1.20	21.51	874.73	0.00	83.31	0.00	791.42	2999.06	41.65	
RID050109	RID05	RID0501	148.33	31.00	2.80	19.28	809.02	0.00	134.84	0.00	539.34	3640.57	0.00	
RID050111	RID05	RID0501	232.14	18.00	1.90	6.98	387.69	0.00	129.23	43.08	1249.23	2369.23	43.08	
RID050113	RID05	RID0501	228.18	28.00	1.20	15.17	0.00	0.00	43.83	0.00	394.43	1709.20	0.00	
RID050115	RID05	RID0501	212.31	29.00	1.50	17.91	141.30	0.00	94.20	0.00	753.60	1836.91	0.00	
RID050201	RID05	RID0502	150.00			47.92	66.67	0.00	266.67	200.00	2066.67	1066.67	66.67	
RID050203	RID05	RID0502	150.00			49.75	200.00	0.00	200.00	266.67	2533.33	400.00	0.00	
RID050205	RID05	RID0502	150.00			42.03	4333.33	0.00	4200.00	0.00	5000.00	1266.67	133.33	
RID050207	RID05	RID0502	150.00			16.36	4133.33	0.00	4000.00	600.00	5933.33	1666.67	66.67	
RID050209	RID05	RID0502	150.00			27.45	5600.00	0.00	7066.67	133.33	4600.00	200.00	0.00	
RID050211	RID05	RID0502	150.00			20.43	1266.67	0.00	400.00	0.00	2200.00	466.67	66.67	
RID050213	RID05	RID0502	150.00			58.05	1666.67	0.00	5933.33	200.00	13333.33	800.00	200.00	
RID050215	RID05	RID0502	150.00			32.71	1600.00	0.00	2400.00	66.67	15866.67	1333.33	200.00	
RID050301	RID05	RID0503	195.08	36.00	2.10	29.69	0.00	0.00	153.78	102.52	512.60	51.26	0.00	
RID050302	RID05	RID0503	216.39	47.00	1.90	110.30	46.21	0.00	46.21	46.21	554.55	2033.33	0.00	
RID050303	RID05	RID0503	85.25	51.00	1.40	26.48	0.00	0.00	0.00	0.00	117.31	234.62	0.00	
RID050304	RID05	RID0503	119.67	57.00	1.40	51.19	417.81	0.00	167.12	83.56	167.12	417.81	0.00	
RID050305	RID05	RID0503	137.70	36.00	1.30	73.87	0.00	0.00	72.62	0.00	2541.67	1161.90	0.00	
RID050306	RID05	RID0503	154.10	36.00	1.60	69.93	0.00	0.00	324.47	0.00	584.04	194.68	0.00	
RID050307	RID05	RID0503	177.05	25.00	1.50	24.98	112.96	0.00	1186.11	112.96	1129.63	1186.11	0.00	
RID050308	RID05	RID0503	118.03	30.00	0.80	31.63	0.00	0.00	338.89	0.00	338.89	847.22	0.00	
RID050401	RID05	RID0504	78.69	35.00	0.10	45.16	508.33	0.00	3050.00	381.25	6354.17	2795.83	0.00	
RID050402	RID05	RID0504	119.67	25.00	0.00	23.84	167.12	0.00	334.25	334.25	1336.99	501.37	1336.99	
RID050403	RID05	RID0504	116.39	24.00	1.00	23.69	4123.95	0.00	3780.28	0.00	2233.80	1546.48	0.00	
RID050404	RID05	RID0504	185.25	18.00	2.60	24.37	9284.96	0.00	1997.35	0.00	701.77	1079.65	107.96	
RID050405	RID05	RID0504	113.11	25.00	1.60	21.92	3713.04	0.00	795.65	972.46	353.62	88.41	176.81	
RID050406	RID05	RID0504	145.90	24.00	1.00	46.79	4455.06	0.00	2604.50	68.54	274.16	137.08	0.00	
RID050407	RID05	RID0504	209.84	20.00	1.20	21.08	10007.81	0.00	3240.62	285.94	571.87	1143.75	0.00	
RID050408	RID05	RID0504	206.56	18.00	2.00	19.76	3582.54	0.00	1839.68	96.83	823.02	290.48	96.83	

ROCKID#	Sample ID#	Sample ID#	ROCKAREA	DEPTH	AVGAVEH	CHLOR#	DEPTH	DEPTH	DEPTH	DEPTH	DEPTH	DEPTH	DEPTH	DEPTH
RID060101	RID06	RID0601	197.77	32.00	1.40	64.97	4601.28	0.00	2831.55	0.00	3943.95	8949.74	151.69	
RID060103	RID06	RID0601	223.95	35.00	1.90	47.01	3304.36	0.00	3527.62	89.31	4822.57	6430.10	223.27	
RID060105	RID06	RID0601	157.58	36.00	2.10	60.93	2411.44	0.00	3109.48	190.38	3363.32	10026.50	380.75	
RID060107	RID06	RID0601	277.88	41.00	2.40	56.07	7485.13	0.00	7844.99	143.94	5433.91	16229.77	503.81	
RID060109	RID06	RID0601	120.04	42.00	1.90	63.56	1499.53	0.00	1916.07	416.54	6331.35	8247.42	666.46	
RID060111	RID06	RID0601	157.85	50.00	1.60	96.87	3167.63	0.00	8742.65	886.94	10643.23	10769.94	1267.05	
RID060113	RID06	RID0601	72.71	46.00	1.70	49.69	3025.72	0.00	4263.51	825.20	7426.76	6188.97	1237.79	
RID060115	RID06	RID0601	263.08	49.00	2.00	88.90	1216.37	0.00	1786.54	114.03	3154.96	5777.75	418.13	
RID060201	RID06	RID0602	150.00			98.05	1200.00	0.00	2200.00	533.33	3000.00	2000.00	733.33	
RID060203	RID06	RID0602	150.00			96.60	3933.33	0.00	3666.67	400.00	1800.00	600.00	533.33	
RID060205	RID06	RID0602	150.00			51.21	533.33	0.00	1866.67	800.00	4000.00	1866.67	1466.67	
RID060207	RID06	RID0602	150.00			91.80	4866.67	0.00	4466.67	533.33	9133.33	3533.33	466.67	
RID060209	RID06	RID0602	150.00			36.62	600.00	0.00	266.67	600.00	2400.00	533.33	733.33	
RID060211	RID06	RID0602	150.00			70.65	1400.00	0.00	1466.67	600.00	3800.00	1200.00	733.33	
RID060213	RID06	RID0602	150.00			101.16	6000.00	0.00	9800.00	1600.00	4000.00	2666.67	0.00	
RID060215	RID06	RID0602	150.00			50.01	4600.00	0.00	3600.00	1400.00	4066.67	933.33	66.67	
RID060301	RID06	RID0603	206.56	35.00	1.80	14.78	96.83	0.00	145.24	0.00	2807.94	1452.38	96.83	
RID060302	RID06	RID0603	113.11	38.00	1.20	19.86	618.84	0.00	3624.64	88.41	2652.17	1414.49	0.00	
RID060303	RID06	RID0603	160.66	42.00	2.40	45.18	124.49	124.49	1867.35	248.98	13569.39	5353.06	124.49	
RID060304	RID06	RID0603	150.82	52.00	2.00	59.73	994.57	0.00	3779.35	66.30	13260.87	3845.65	464.13	
RID060305	RID06	RID0603	200.00	52.00	2.10	75.26	550.00	0.00	4050.00	350.00	7550.00	4400.00	200.00	
RID060306	RID06	RID0603	172.13	51.00	2.80	45.72	929.52	0.00	1278.10	639.05	987.62	232.38	348.57	
RID060307	RID06	RID0603	237.70	29.00	1.60	38.33	336.55	0.00	4459.31	841.38	9970.35	4501.38	252.41	
RID060308	RID06	RID0603	147.54	44.00	2.10	99.31	1084.44	0.00	3456.67	203.33	11657.78	11047.78	474.44	
RID060401	RID06	RID0604	67.21	25.00	1.80	93.79	17704.88	0.00	4314.63	148.78	892.68	297.56	446.34	
RID060402	RID06	RID0604	181.97	27.00	1.90	114.55	5715.32	0.00	1868.47	109.91	659.46	219.82	384.68	
RID060403	RID06	RID0604	93.44	32.00	1.60	59.95	5564.91	0.00	1712.28	107.02	535.09	321.05	107.02	
RID060404	RID06	RID0604	116.39	34.00	1.70	45.09	3866.20	0.00	1546.48	343.66	2577.47	773.24	429.58	
RID060405	RID06	RID0604	150.00			84.71	4400.00	0.00	3066.67	800.00	1066.67	1466.67	466.67	
RID060406	RID06	RID0604	108.20	37.00	1.60	15.20	4528.79	0.00	1386.36	0.00	277.27	369.70	184.85	
RID060407	RID06	RID0604	106.56	46.00	1.90	20.56	3378.46	0.00	1689.23	469.23	3660.00	750.77	375.38	
RID060408	RID06	RID0604	173.77	43.00	1.70	137.78	2762.26	0.00	1956.60	1266.04	2244.34	1323.58	517.92	
RID070101	RID07	RID0701	173.98	12.00	1.50	18.89	0.00	0.00	114.96	0.00	2988.93	6265.26	0.00	
RID070103	RID07	RID0701	90.69	20.00	0.80	11.26	0.00	0.00	0.00	0.00	1543.73	2536.13	0.00	
RID070105	RID07	RID0701	137.49	10.00	1.00	22.24	0.00	0.00	0.00	0.00	2327.48	2545.68	0.00	
RID070107	RID07	RID0701	278.41	10.00	0.70	11.32	107.75	0.00	0.00	0.00	2586.08	4848.91	0.00	
RID070109	RID07	RID0701	241.40	23.00	1.00	9.11	41.43	0.00	82.85	0.00	2651.23	3769.72	0.00	
RID070111	RID07	RID0701	101.27	25.00	1.10	7.68	0.00	0.00	0.00	0.00	1876.26	1876.26	98.75	
RID070113	RID07	RID0701	250.12	16.00	1.20	7.40	0.00	39.98	0.00	199.90	1399.31	1559.24	159.92	
RID070115	RID07	RID0701	283.44	15.00	1.60	17.39	35.28	0.00	141.12	0.00	3387.00	4198.47	35.28	
RID070201	RID07	RID0702	150.00			56.65	333.33	0.00	1933.33	0.00	14866.67	2933.33	66.67	
RID070203	RID07	RID0702	150.00			75.35	400.00	0.00	5200.00	0.00	25466.67	4133.33	66.67	
RID070205	RID07	RID0702	150.00			83.95	66.67	0.00	1733.33	66.67	10733.33	8066.67	133.33	
RID070207	RID07	RID0702	150.00			34.08	466.67	0.00	4333.33	0.00	4533.33	3333.33	66.67	
RID070209	RID07	RID0702	150.00			36.75	200.00	0.00	3000.00	0.00	5800.00	2066.67	0.00	
RID070211	RID07	RID0702	150.00			57.92	66.67	0.00	1866.67	0.00	8133.33	1066.67	0.00	
RID070213	RID07	RID0702	150.00			40.95	1600.00	0.00	5866.67	0.00	11266.67	5666.67	200.00	
RID070215	RID07	RID0702	150.00			74.54	66.67	0.00	1200.00	0.00	7866.67	866.67	0.00	
RID070301	RID07	RID0703	75.41	18.00	1.70	51.64	0.00	0.00	132.61	0.00	2254.35	5702.17	0.00	
RID070302	RID07	RID0703	168.85	18.00	1.10	44.94	0.00	0.00	710.68	0.00	2961.16	5685.44	0.00	
RID070303	RID07	RID0703	163.93	24.00	1.20	44.21	0.00	0.00	2135.00	0.00	1098.00	13969.00	0.00	
RID070304	RID07	RID0703	152.46	27.00	2.90	51.96	0.00	0.00	6887.10	0.00	1639.79	7870.97	0.00	
RID070305	RID07	RID0703	178.69	31.00	1.20	13.05	0.00	0.00	1007.34	0.00	5540.37	11696.33	0.00	
RID070306	RID07	RID0703	154.10	33.00	0.90	44.55	64.89	0.00	324.47	0.00	5191.49	4737.23	64.89	
RID070307	RID07	RID0703	159.02	23.00	1.10	36.18	0.00	0.00	4339.18	0.00	3521.65	10439.17	62.89	
RID070308	RID07	RID0703	173.77	31.00	1.30	38.03	0.00	0.00	2589.62	0.00	3855.66	10013.21	0.00	
RID070401	RID07	RID0704	88.52	15.00	1.00	25.70	4405.56	0.00	3840.74	0.00	0.00	2711.11	0.00	
RID070402	RID07	RID0704	145.90	26.00	0.50	15.67	4249.44	0.00	4934.83	0.00	2947.19	2261.80	68.54	
RID070403	RID07	RID0704	208.20	23.00	1.70	7.91	2641.73	0.00	2881.89	0.00	960.63	240.16	96.06	
RID070404	RID07	RID0704	127.87	18.00	1.50	20.92	3988.46	0.00	4144.87	0.00	1329.49	3597.43	0.00	
RID070405	RID07	RID0704	113.11	20.00	1.40	48.55	6718.84	0.00	6542.03	0.00	6365.21	3801.45	0.00	
RID070406	RID07	RID0704	122.95	25.00	1.20	22.45	1545.33	0.00	1952.00	0.00	1464.00	569.33	81.33	
RID070407	RID07	RID0704	100.00	23.00	1.00	25.08	10000.00	100.00	4500.00	0.00	4400.00	3100.00	0.00	
RID070408	RID07	RID0704	119.67	38.00	2.70	21.19	3676.71	0.00	2256.16	0.00	835.62	2089.04	0.00	
RID080101	RID08	RID0801	251.44	28.00	0.60	87.06	0.00	0.00	636.32	0.00	20760.06	3420.24	79.54	
RID080103	RID08	RID0801	212.84	28.00	1.00	44.64	46.98	46.98	657.76	0.00	29787.35	5919.88	93.97	
RID080105	RID08	RID0801	298.51	21.00	0.90	73.40	100.50	0.00	1340.00	0.00	2010.00	2144.00	201.00	
RID080107	RID08	RID0801	230.56	24.00	0.40	29.90	86.75	0.00	433.73	0.00	5985.51	2342.16	260.24	
RID080109	RID08	RID0801	207.29	27.00	0.80	61.07	144.73	0.00	2508.57	48.24	3521.64	1881.43	385.93	
RID080111	RID08	RID0801	230.82	20.00	0.40	58.82	0.00	0.00	433.24	0.00	8838.01	3725.83	86.65	
RID080113	RID08	RID0801	246.95	24.00	0.70	45.88	161.98	0.00	769.39	0.00	566.92	1214.82	202.47	
RID080115	RID08	RID0801	168.69	24.00	0.80	60.73	59.28	0.00	711.38	0.00	6876.63	2549.10	59.28	
RID080201	RID08	RID0802	150.00			67.28	400.00	0.00	1333.33	0.00	200.00	333.33	266.67	
RID080203	RID08	RID0802	150.00			26.85	600.00	0.00	2800.00	0.00	600.00	200.00	600.00	
RID080205	RID08	RID0802	150.00			63.87	600.00	0.00	866.67	0.00	1133.33	533.33	266.67	
RID080207	RID08	RID0802	150.00			42.68	2466.67	0.00	1200.00	0.00	533.33	1200.00	1000.00	
RID080209	RID08	RID0802	150.00			83.40	4066.67	0.00	4666.67	0.00	1000.00	133.33	600.00	
RID080211	RID08	RID0802	150.00			46.67	1066.67	0.00	3333.33	0.00	66.67	400.00	333.33	
RID080213	RID08	RID0802	150.00			70.33	733.33	0.00	1200.00	0.00	666.67	266.67	333.33	
RID080215	RID08	RID0802	150.00			51.26	1866.67	0.00	1133.33	66.67	800.00	333.33	1200.00	

ROCK ID#	SS SITE ID#	SS NAME ID#	ROCK AREA	DEPTH	AVG VEL	CHLOR A	SS DEPR	DEPTH	SDRICH	DOOFEO	DCIRO	SDOTHO	DTANY
RID080301	RID08	RID0803	277.05	32.00	2.00	3.46	72.19	0.00	5197.63	0.00	2995.86	3465.09	36.09
RID080302	RID08	RID0803	178.69	42.00	0.90	10.88	335.78	0.00	3805.51	55.96	2686.24	6323.85	167.89
RID080303	RID08	RID0803	250.82	33.00	1.10	1.77	358.82	0.00	4744.44	0.00	4305.88	5302.61	279.08
RID080304	RID08	RID0803	162.30	43.00	1.10	6.98	308.08	0.00	1417.17	0.00	2895.96	2772.73	123.23
RID080305	RID08	RID0803	121.31	42.00	0.70	5.71	247.30	0.00	3627.03	0.00	3050.00	2390.54	82.43
RID080306	RID08	RID0803	168.85	44.00	1.60	4.42	414.56	59.22	4264.09	0.00	2368.94	2428.16	0.00
RID080307	RID08	RID0803	265.57	43.00	1.30	3.40	263.58	0.00	3087.65	0.00	5120.99	4405.55	0.00
RID080308	RID08	RID0803	206.56	41.00	2.00	5.12	338.89	48.41	3630.95	48.41	4453.97	5422.22	629.37
RID080401	RID08	RID0804	183.61	36.00	0.60	34.69	490.18	0.00	2941.07	0.00	544.64	1034.82	653.57
RID080402	RID08	RID0804	142.62	36.00	0.70	19.63	420.69	0.00	1402.30	0.00	1682.76	210.34	210.34
RID080403	RID08	RID0804	201.64	35.00	0.70	9.65	347.15	0.00	2380.49	0.00	1041.46	446.34	347.15
RID080404	RID08	RID0804	149.18	32.00	0.80	57.19	871.43	0.00	3820.88	0.00	1005.49	938.46	603.30
RID080405	RID08	RID0804	163.93	40.00	0.80	16.96	549.00	0.00	1464.00	0.00	427.00	976.00	488.00
RID080406	RID08	RID0804	195.08	37.00	0.60	27.04	615.13	0.00	1845.38	0.00	871.43	563.87	615.13
RID080407	RID08	RID0804	114.75	31.00	0.40	36.31	610.00	0.00	3660.00	0.00	2352.86	2265.71	522.86
RID080408	RID08	RID0804	121.31	34.00	0.40	22.52	577.03	0.00	1895.95	0.00	741.89	577.03	494.59

#CROCID#	#DSIMUT#	#DDIPT#	#DGAST#	#DZEBRA#	#DBVAL#	#DAMP#	#DISOP#	#ADNEM#	#DOEIG#	#DPTAF#	#DRHYD#	#DOTHE#	#DESCE#	#DETRIC#
JOC010101	0.00	200.11	0.00	0.00	0.00	0.00	0.00	0.00	133.41	667.05	0.00	0.00	0.00	0.00
JOC010103	763.56	712.65	0.00	0.00	0.00	0.00	0.00	0.00	916.27	2137.96	0.00	50.90	0.00	0.00
JOC010105	147.93	197.24	0.00	0.00	0.00	0.00	0.00	0.00	887.60	98.62	0.00	98.62	0.00	0.00
JOC010107	0.00	213.68	0.00	0.00	0.00	0.00	0.00	0.00	1602.61	0.00	0.00	0.00	0.00	0.00
JOC010109	0.00	80.22	0.00	0.00	0.00	0.00	40.11	0.00	40.11	0.00	0.00	40.11	0.00	0.00
JOC010111	91.25	136.87	0.00	0.00	0.00	0.00	91.25	0.00	0.00	182.49	0.00	0.00	0.00	0.00
JOC010113	0.00	251.47	0.00	0.00	0.00	0.00	0.00	0.00	100.59	402.36	0.00	0.00	0.00	0.00
JOC010115	0.00	206.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	620.02	0.00	0.00	68.89	0.00
JOC010201	0.00	34.71	0.00	0.00	0.00	0.00	0.00	0.00	34.71	104.13	0.00	34.71	0.00	0.00
JOC010203	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	340.02	0.00	0.00	0.00	0.00
JOC010205	0.00	0.00	0.00	0.00	0.00	170.42	0.00	0.00	0.00	340.84	0.00	0.00	0.00	56.81
JOC010207	0.00	329.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1869.90	0.00	55.00	0.00	0.00
JOC010209	0.00	308.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	308.43	0.00	0.00	0.00	0.00
JOC010211	0.00	384.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	153.81	0.00	0.00	0.00	0.00
JOC010213	0.00	124.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	165.87	0.00	0.00	0.00	0.00
JOC010215	0.00	159.61	0.00	0.00	0.00	53.20	106.40	0.00	0.00	319.21	0.00	0.00	0.00	0.00
JOC010301	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	57.55	230.19	0.00	0.00	0.00	0.00
JOC010302	0.00	74.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	74.39	0.00	0.00
JOC010303	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00
JOC010304	0.00	61.00	0.00	0.00	0.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00	0.00	0.00
JOC010305	0.00	32.28	0.00	0.00	161.38	0.00	0.00	0.00	32.28	0.00	0.00	0.00	0.00	0.00
JOC010306	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	67.78	0.00	0.00
JOC010307	0.00	53.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	107.02	0.00	0.00	0.00	0.00
JOC010308	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	410.58	0.00	0.00	0.00	0.00
JOC010401	0.00	1071.62	0.00	0.00	0.00	82.43	0.00	0.00	0.00	1318.92	0.00	0.00	0.00	0.00
JOC010402	0.00	553.57	72.62	0.00	72.62	0.00	0.00	0.00	508.33	1161.90	944.05	0.00	0.00	72.62
JOC010403	0.00	206.78	103.39	0.00	0.00	0.00	0.00	0.00	0.00	620.34	0.00	103.39	0.00	0.00
JOC010404	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	295.16	0.00	0.00	0.00	0.00
JOC010405	0.00	338.89	48.41	0.00	0.00	0.00	0.00	0.00	290.48	1355.56	96.83	0.00	0.00	48.41
JOC010406	0.00	55.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	776.36	0.00	110.91	0.00	55.45
JOC010407	0.00	776.36	0.00	0.00	0.00	0.00	0.00	0.00	55.45	610.00	0.00	55.45	0.00	0.00
JOC010408	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	71.76	0.00	0.00	0.00	0.00
JOC020101	285.29	774.36	0.00	0.00	0.00	0.00	0.00	0.00	407.56	692.85	0.00	81.51	0.00	0.00
JOC020103	83.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	83.68	0.00	0.00
JOC020105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JOC020107	0.00	67.90	0.00	0.00	0.00	0.00	339.51	0.00	0.00	882.73	0.00	271.61	0.00	0.00
JOC020109	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JOC020111	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JOC020113	0.00	64.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JOC020115	69.52	139.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	208.57	0.00	0.00	0.00	0.00
JOC020201	0.00	193.60	0.00	0.00	0.00	0.00	116.16	0.00	0.00	2129.59	0.00	116.16	0.00	77.44
JOC020203	47.95	0.00	0.00	0.00	0.00	0.00	335.68	0.00	0.00	479.54	0.00	47.95	0.00	47.95
JOC020205	90.24	180.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1173.18	0.00	541.47	0.00	0.00
JOC020207	0.00	601.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3683.67	0.00	300.71	0.00	225.53
JOC020209	0.00	225.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1920.45	0.00	112.97	0.00	1299.13
JOC020211	0.00	109.41	0.00	0.00	0.00	0.00	328.22	0.00	0.00	547.03	0.00	328.22	0.00	0.00
JOC020213	382.20	218.40	273.00	0.00	0.00	0.00	0.00	0.00	0.00	327.60	0.00	1583.40	0.00	0.00
JOC020215	50.60	202.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4655.57	0.00	455.44	0.00	50.60
JOC020301	265.22	66.30	0.00	0.00	0.00	464.13	66.30	0.00	0.00	132.61	0.00	66.30	0.00	663.04
JOC020302	0.00	0.00	0.00	0.00	0.00	338.89	169.44	0.00	169.44	84.72	0.00	84.72	0.00	338.89
JOC020303	70.11	0.00	0.00	0.00	0.00	210.34	70.11	0.00	70.11	420.69	0.00	70.11	0.00	911.49
JOC020304	48.03	48.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	480.32	0.00	48.03	0.00	0.00
JOC020305	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	440.21	0.00	62.89	0.00	0.00
JOC020306	44.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	133.58	0.00	0.00	0.00	44.53
JOC020307	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	175.96	0.00	0.00	0.00	58.65
JOC020308	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00	122.00
JOC020401	281.54	187.69	93.85	0.00	0.00	0.00	656.92	0.00	0.00	281.54	0.00	187.69	0.00	375.38
JOC020402	71.76	1578.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3588.23	0.00	645.88	0.00	143.53
JOC020403	580.95	1742.86	0.00	290.48	96.83	0.00	0.00	0.00	0.00	484.13	0.00	1549.21	0.00	1161.90
JOC020404	0.00	460.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	115.09	0.00	115.09	0.00	115.09
JOC020405	93.85	93.85	0.00	0.00	1032.31	93.85	844.62	0.00	0.00	844.62	0.00	93.85	93.85	2721.54
JOC020406	110.91	1109.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	110.91	0.00	110.91	0.00	2107.27
JOC020407	0.00	230.19	0.00	0.00	230.19	0.00	0.00	0.00	0.00	5409.43	0.00	230.19	0.00	115.09
JOC020408	0.00	265.22	0.00	0.00	0.00	0.00	132.61	0.00	0.00	1193.48	0.00	265.22	0.00	132.61
JOC030101	5453.18	892.92	0.00	0.00	0.00	31.89	255.12	0.00	382.68	6218.54	0.00	63.78	0.00	0.00
JOC030103	0.00	95.75	0.00	0.00	0.00	95.75	287.25	0.00	287.25	2010.76	0.00	191.50	0.00	0.00
JOC030105	0.00	327.74	0.00	0.00	131.10	65.55	1179.87	0.00	0.00	131.10	0.00	327.74	0.00	0.00
JOC030107	3672.45	190.78	0.00	0.00	0.00	0.00	476.94	0.00	238.47	810.80	0.00	333.86	0.00	0.00
JOC030109	498.47	62.31	0.00	0.00	0.00	62.31	249.24	0.00	124.62	1682.34	0.00	0.00	0.00	0.00
JOC030111	1926.75	285.45	285.45	0.00	142.72	214.08	6779.32	0.00	0.00	642.25	0.00	0.00	0.00	0.00
JOC030113	623.43	332.50	0.00	0.00	207.81	374.06	1496.23	0.00	41.56	748.12	0.00	124.69	0.00	0.00
JOC030115	955.09	286.53	573.05	0.00	0.00	0.00	286.53	0.00	191.02	191.02	0.00	191.02	0.00	0.00
JOC030201	0.00	53.05	318.27	0.00	0.00	2705.32	1007.87	0.00	0.00	689.59	0.00	0.00	265.23	53.05
JOC030203	0.00	0.00	614.48	0.00	0.00	102.41	0.00	0.00	0.00	716.90	0.00	102.41	0.00	0.00
JOC030205	0.00	0.00	1682.62	0.00	0.00	467.39	560.87	0.00	0.00	2617.40	0.00	0.00	0.00	0.00
JOC030207	0.00	98.42	885.75	0.00	344.46	541.29	0.00	147.62	0.00	4428.75	0.00	49.21	196.83	196.83
JOC030209	0.00	80.22	481.29	0.00	0.00	1604.30	0.00	0.00	0.00	6176.57	240.65	0.00	80.22	0.00
JOC030211	0.00	0.00	107.20	0.00	0.00	107.20	107.20	0.00	0.00	107.20	0.00	0.00	0.00	107.20
JOC030213	0.00	69.45	486.14	0.00	0.00	208.34	416.69	0.00	0.00	347.24	69.45	0.00	138.90	0.00
JOC030215	0.00	215.08	537.70	0.00	107.54	1720.62	0.00	0.00	107.54	1720.62	107.54	645.23	0.00	0.00

ROCKID	DSIMUL	DDITE	DGAST	DZEBRA	DBVAL	DAMPH	DISOP	DNEMA	DOEIG	DDTAL	SDHYKA	SDOTER	DEICAH	DDTRICO
JOC030301	0.00	0.00	76.25	0.00	0.00	0.00	38.12	0.00	38.12	533.75	266.87	38.12	0.00	76.25
JOC030302	0.00	0.00	81.33	0.00	0.00	0.00	0.00	0.00	81.33	406.67	81.33	0.00	0.00	0.00
JOC030303	273.13	0.00	0.00	0.00	0.00	1638.81	273.13	0.00	182.09	2276.12	0.00	910.45	0.00	91.04
JOC030304	571.88	63.54	63.54	0.00	190.63	698.96	2478.13	0.00	1525.00	4638.54	0.00	698.96	0.00	63.54
JOC030305	0.00	71.76	71.76	0.00	0.00	215.29	71.76	0.00	502.35	2583.53	0.00	1076.47	0.00	143.53
JOC030306	123.23	61.62	184.85	0.00	0.00	308.08	61.62	0.00	184.85	1971.72	0.00	246.46	0.00	1417.17
JOC030307	96.06	0.00	144.09	0.00	384.25	48.03	240.16	0.00	96.06	1104.72	0.00	288.19	48.03	672.44
JOC030308	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	295.16	0.00	0.00	0.00	688.71
JOC030401	0.00	979.01	451.85	0.00	150.62	150.62	0.00	0.00	0.00	2711.11	0.00	1054.32	0.00	451.85
JOC030402	0.00	1340.66	201.10	0.00	268.13	0.00	0.00	0.00	0.00	1340.66	0.00	737.36	0.00	67.03
JOC030403	158.44	712.99	0.00	0.00	1425.97	0.00	0.00	0.00	0.00	1742.86	0.00	237.66	0.00	0.00
JOC030404	0.00	871.43	201.10	0.00	469.23	67.03	134.07	0.00	0.00	1139.56	0.00	536.26	0.00	0.00
JOC030405	0.00	2517.46	290.48	0.00	96.83	0.00	0.00	0.00	0.00	1065.08	0.00	1258.73	0.00	96.83
JOC030406	0.00	795.65	88.41	0.00	972.46	618.84	0.00	0.00	0.00	1237.68	88.41	707.25	0.00	0.00
JOC030407	129.79	778.72	129.79	0.00	0.00	908.51	129.79	0.00	0.00	15704.26	0.00	389.36	0.00	389.36
JOC030408	107.02	1391.23	1177.19	107.02	214.04	0.00	0.00	0.00	0.00	6528.07	214.04	1498.25	0.00	214.04
JOC040101	6616.88	2255.75	75.19	0.00	0.00	150.38	1503.84	0.00	5037.85	451.15	0.00	0.00	0.00	0.00
JOC040103	109.00	1253.45	490.48	0.00	54.50	4904.80	9646.11	0.00	7684.19	817.47	54.50	54.50	0.00	109.00
JOC040105	0.00	684.39	252.14	0.00	36.02	108.06	432.25	0.00	972.55	648.37	0.00	36.02	0.00	36.02
JOC040107	196.99	1674.39	492.47	0.00	98.49	1083.43	393.97	0.00	53087.97	2560.83	0.00	787.95	0.00	0.00
JOC040109	150.09	300.17	1050.60	0.00	225.13	300.17	75.04	0.00	450.26	1275.72	0.00	75.04	0.00	0.00
JOC040111	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	86.15	0.00	0.00
JOC040113	363.67	0.00	0.00	0.00	0.00	0.00	181.83	0.00	3182.10	0.00	0.00	500.04	0.00	0.00
JOC040115	745.03	87.65	0.00	0.00	87.65	131.48	5171.42	0.00	4689.34	262.95	0.00	43.83	0.00	0.00
JOC040201	0.00	214.41	428.81	0.00	321.61	750.43	214.41	0.00	0.00	1715.26	0.00	0.00	0.00	107.20
JOC040203	0.00	460.96	537.78	153.65	1229.22	537.78	0.00	0.00	0.00	3534.00	1382.87	230.48	0.00	307.30
JOC040205	0.00	415.23	533.87	0.00	652.50	5160.71	296.59	0.00	0.00	10618.02	45378.67	296.59	0.00	3025.24
JOC040207	0.00	66.91	267.62	0.00	468.34	2341.68	0.00	0.00	0.00	4215.03	7961.71	0.00	0.00	1405.01
JOC040209	0.00	134.52	1008.93	0.00	1143.46	2959.53	201.79	0.00	0.00	4372.04	14192.31	0.00	0.00	1950.60
JOC040211	0.00	0.00	280.16	0.00	0.00	1120.64	70.04	0.00	0.00	210.12	490.28	0.00	0.00	560.32
JOC040213	0.00	69.33	901.34	0.00	1386.67	1802.67	208.00	0.00	0.00	2565.34	4160.02	277.33	0.00	1664.01
JOC040215	0.00	1282.37	1538.85	0.00	1709.83	3419.66	256.47	0.00	0.00	9917.02	2051.80	0.00	0.00	854.92
JOC040301	0.00	0.00	403.31	0.00	3932.23	403.31	100.83	0.00	2117.35	2117.35	0.00	252.07	0.00	5041.32
JOC040302	0.00	0.00	0.00	0.00	353.62	0.00	0.00	0.00	707.25	1060.87	0.00	88.41	0.00	176.81
JOC040303	0.00	595.12	7736.59	0.00	12200.00	1934.15	0.00	0.00	3273.17	6695.12	0.00	0.00	0.00	10860.98
JOC040304	137.08	0.00	274.16	0.00	10897.76	137.08	0.00	0.00	1165.17	1370.79	0.00	137.08	0.00	4043.82
JOC040305	158.44	0.00	158.44	0.00	158.44	79.22	0.00	0.00	1663.64	237.66	79.22	79.22	0.00	1980.52
JOC040306	503.09	0.00	503.09	0.00	503.09	2012.37	0.00	0.00	1635.05	3144.33	0.00	251.55	0.00	1886.60
JOC040307	0.00	0.00	57.01	0.00	57.01	0.00	0.00	0.00	570.09	456.07	0.00	0.00	0.00	2622.43
JOC040308	0.00	601.50	2857.14	0.00	3909.77	751.88	1203.01	0.00	4360.90	10375.94	0.00	0.00	0.00	3458.65
JOC040401	0.00	0.00	428.07	0.00	856.14	0.00	0.00	0.00	0.00	3210.53	0.00	107.02	0.00	1177.19
JOC040402	406.67	0.00	610.00	0.00	3660.00	203.33	0.00	0.00	0.00	2236.67	0.00	0.00	0.00	406.67
JOC040403	420.69	981.61	981.61	0.00	1262.07	0.00	0.00	0.00	140.23	6310.34	0.00	420.69	0.00	0.00
JOC040404	81.33	406.67	976.00	0.00	2440.00	162.67	0.00	0.00	81.33	5449.33	162.67	0.00	0.00	3904.00
JOC040405	67.03	0.00	3150.55	0.00	2815.39	3284.62	0.00	0.00	0.00	7842.86	67.03	268.13	0.00	4021.98
JOC040406	297.56	0.00	148.78	0.00	1636.59	595.12	0.00	0.00	0.00	3719.51	0.00	0.00	148.78	446.34
JOC040407	522.86	0.00	435.71	0.00	435.71	0.00	0.00	0.00	0.00	1655.71	0.00	261.43	0.00	87.14
JOC040408	0.00	0.00	2287.50	0.00	127.08	0.00	0.00	0.00	0.00	3304.17	0.00	0.00	0.00	0.00
JOC050101	44.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JOC050103	0.00	0.00	0.00	0.00	0.00	258.34	0.00	0.00	155.01	51.67	0.00	0.00	0.00	0.00
JOC050105	43.27	216.37	0.00	0.00	0.00	129.82	0.00	0.00	0.00	302.92	0.00	86.55	0.00	0.00
JOC050107	0.00	312.06	0.00	0.00	0.00	249.65	0.00	0.00	124.82	1248.23	0.00	0.00	0.00	0.00
JOC050109	0.00	108.37	0.00	0.00	0.00	162.56	0.00	0.00	216.74	541.86	0.00	54.19	0.00	0.00
JOC050111	381.39	0.00	0.00	0.00	0.00	127.13	0.00	0.00	127.13	1462.01	0.00	0.00	0.00	0.00
JOC050113	244.64	48.93	0.00	0.00	0.00	48.93	0.00	0.00	97.86	342.50	0.00	0.00	0.00	0.00
JOC050115	901.53	0.00	0.00	0.00	0.00	42.93	0.00	0.00	0.00	42.93	0.00	0.00	0.00	0.00
JOC050201	0.00	62.74	0.00	0.00	0.00	690.09	0.00	0.00	0.00	1129.23	0.00	62.74	0.00	62.74
JOC050203	0.00	47.96	0.00	0.00	0.00	239.80	0.00	0.00	0.00	575.52	95.92	0.00	47.96	95.92
JOC050205	0.00	0.00	0.00	0.00	0.00	963.60	0.00	0.00	0.00	289.08	0.00	0.00	0.00	0.00
JOC050207	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	191.84	0.00	0.00	0.00	0.00
JOC050209	75.99	75.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1671.84	0.00	0.00	0.00	0.00
JOC050211	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	92.20	0.00	0.00	0.00	0.00
JOC050213	0.00	0.00	0.00	0.00	0.00	45.47	0.00	0.00	0.00	136.41	0.00	0.00	0.00	45.47
JOC050215	0.00	65.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	988.37	0.00	0.00	0.00	0.00
JOC050301	0.00	0.00	0.00	0.00	0.00	530.43	0.00	0.00	353.62	176.81	0.00	88.41	0.00	265.22
JOC050302	0.00	0.00	0.00	0.00	0.00	670.33	0.00	0.00	1206.59	0.00	0.00	67.03	0.00	1273.63
JOC050303	0.00	0.00	0.00	0.00	0.00	73.49	0.00	0.00	73.49	881.93	0.00	0.00	0.00	73.49
JOC050304	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	160.53	0.00	0.00	0.00	0.00	0.00
JOC050305	110.91	0.00	0.00	0.00	0.00	720.91	0.00	0.00	2440.00	610.00	0.00	277.27	0.00	166.36
JOC050306	112.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.48	0.00	0.00	0.00	0.00
JOC050307	0.00	0.00	0.00	0.00	0.00	671.00	0.00	0.00	122.00	0.00	0.00	61.00	0.00	549.00
JOC050308	0.00	0.00	0.00	0.00	0.00	64.21	128.42	0.00	128.42	1220.00	0.00	256.84	0.00	256.84
JOC050401	87.14	174.29	87.14	0.00	0.00	0.00	0.00	0.00	0.00	784.29	0.00	0.00	87.14	0.00
JOC050402	0.00	63.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.54	0.00	63.54	0.00	0.00
JOC050403	0.00	101.67	0.00	0.00	0.00	2948.33	0.00	0.00	0.00	711.67	0.00	203.33	0.00	2338.33
JOC050404	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	161.95	0.00	0.00	0.00	0.00
JOC050405	0.00	217.86	108.93	0.00	108.93	0.00	0.00	0.00	0.00	435.71	0.00	0.00	0.00	108.93
JOC050406	0.00	70.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70.11	0.00	0.00	0.00	0.00
JOC050407	0.00	138.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	277.27				

ROCID	DSMUE	DDIET	EDGAST	EDZBRAS	EDVALR	EDAMPH	EDISOF	EDNEMA	EDOLGO	EDFEAT	EDHYDR	EDOTHR	EDFCAB	EDBTICO
JOC060101	0.00	43.13	86.25	0.00	86.25	0.00	0.00	0.00	0.00	301.88	0.00	0.00	0.00	0.00
JOC060103	416.54	166.61	0.00	0.00	41.65	0.00	0.00	0.00	249.92	0.00	0.00	0.00	0.00	0.00
JOC060105	314.52	235.89	0.00	0.00	0.00	0.00	0.00	0.00	4167.44	0.00	0.00	0.00	0.00	0.00
JOC060107	234.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JOC060109	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.05	0.00	0.00	0.00	0.00	0.00
JOC060111	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JOC060113	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.97	0.00	0.00	0.00	0.00	0.00
JOC060115	76.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	229.69	0.00	0.00	0.00	0.00	0.00
JOC060201	0.00	0.00	0.00	0.00	0.00	226.68	0.00	0.00	0.00	283.35	0.00	0.00	226.68	340.02
JOC060203	0.00	0.00	0.00	0.00	0.00	1136.46	0.00	0.00	0.00	75.76	0.00	75.76	378.82	303.06
JOC060205	66.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	66.78
JOC060207	0.00	0.00	74.97	0.00	0.00	599.75	0.00	0.00	0.00	524.78	0.00	0.00	0.00	674.71
JOC060209	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	404.94
JOC060211	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	489.79
JOC060213	0.00	0.00	0.00	0.00	0.00	53.60	0.00	0.00	0.00	160.81	0.00	0.00	0.00	375.21
JOC060215	0.00	0.00	55.33	0.00	0.00	719.25	0.00	0.00	0.00	387.29	0.00	0.00	0.00	719.25
JOC060301	196.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.39	0.00	0.00	0.00	0.00
JOC060302	79.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	158.44	316.88	0.00	0.00	0.00	79.22
JOC060303	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.21	64.21	0.00	0.00	0.00	0.00
JOC060304	79.74	0.00	39.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	159.48
JOC060305	0.00	0.00	58.10	0.00	0.00	0.00	0.00	0.00	290.48	116.19	0.00	0.00	0.00	987.62
JOC060306	85.92	171.83	0.00	0.00	0.00	85.92	0.00	0.00	257.75	0.00	85.92	0.00	0.00	171.83
JOC060307	0.00	0.00	89.71	0.00	0.00	89.71	0.00	0.00	717.65	358.82	0.00	89.71	0.00	448.53
JOC060308	0.00	71.76	71.76	0.00	0.00	0.00	0.00	0.00	0.00	71.76	0.00	0.00	0.00	0.00
JOC060401	0.00	148.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	595.12	0.00	0.00	0.00	297.56
JOC060402	0.00	215.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	143.53	0.00	143.53	0.00	143.53
JOC060403	82.43	164.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JOC060404	0.00	290.48	0.00	0.00	0.00	968.25	0.00	0.00	0.00	774.60	0.00	0.00	0.00	0.00
JOC060405	544.64	653.57	0.00	0.00	217.86	762.50	0.00	0.00	0.00	3376.78	0.00	108.93	0.00	326.79
JOC060406	0.00	0.00	0.00	0.00	0.00	3101.69	0.00	0.00	0.00	1447.46	0.00	0.00	206.78	0.00
JOC060407	0.00	462.12	184.85	0.00	0.00	2680.30	0.00	0.00	0.00	2587.88	0.00	0.00	0.00	92.42
JOC060408	0.00	0.00	0.00	0.00	56.48	621.30	0.00	0.00	0.00	451.85	0.00	112.96	338.89	621.30
JOC070101	61.80	525.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	339.90	0.00	30.90	0.00	0.00
JOC070103	52.31	209.25	0.00	0.00	0.00	0.00	0.00	0.00	52.31	0.00	0.00	0.00	0.00	0.00
JOC070105	544.46	508.16	0.00	0.00	0.00	0.00	72.59	0.00	362.97	399.27	0.00	0.00	0.00	0.00
JOC070107	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	313.22	0.00	0.00	0.00	0.00
JOC070109	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00	0.00	186.54	0.00	0.00	0.00	0.00
JOC070111	892.72	0.00	0.00	0.00	29.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JOC070113	682.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.87	56.87	0.00	0.00	0.00	0.00
JOC070115	62.21	124.41	0.00	0.00	93.31	0.00	0.00	0.00	62.21	186.62	0.00	0.00	0.00	0.00
JOC070201	74.95	0.00	74.95	0.00	0.00	0.00	0.00	0.00	0.00	149.91	0.00	0.00	0.00	224.86
JOC070203	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	171.99	0.00	0.00	0.00	86.00
JOC070205	0.00	65.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	131.58	0.00	0.00	0.00	723.67
JOC070207	0.00	89.39	89.39	0.00	0.00	0.00	0.00	0.00	0.00	89.39	89.39	0.00	0.00	178.78
JOC070209	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.33	0.00	0.00	0.00	98.33
JOC070211	0.00	130.46	0.00	0.00	0.00	65.23	0.00	0.00	0.00	1043.71	0.00	0.00	0.00	326.16
JOC070213	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	74.01
JOC070215	0.00	0.00	0.00	0.00	0.00	45.73	0.00	0.00	45.73	1737.87	0.00	0.00	0.00	228.67
JOC070301	0.00	336.55	673.10	0.00	0.00	0.00	0.00	0.00	588.97	0.00	0.00	84.14	0.00	757.24
JOC070302	0.00	77.22	154.43	0.00	0.00	0.00	0.00	0.00	77.22	77.22	0.00	0.00	0.00	0.00
JOC070303	96.83	48.41	48.41	0.00	48.41	0.00	48.41	0.00	290.48	145.24	0.00	48.41	0.00	48.41
JOC070304	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	69.32	0.00	0.00	0.00	69.32
JOC070305	88.41	0.00	442.03	0.00	0.00	0.00	0.00	0.00	265.22	88.41	0.00	0.00	0.00	530.43
JOC070306	0.00	0.00	124.49	0.00	0.00	62.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	124.49
JOC070307	0.00	51.26	358.82	0.00	0.00	51.26	0.00	0.00	51.26	205.04	0.00	0.00	0.00	102.52
JOC070308	0.00	67.78	67.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JOC070401	122.00	488.00	0.00	0.00	0.00	244.00	0.00	0.00	0.00	366.00	0.00	0.00	0.00	732.00
JOC070402	0.00	476.56	0.00	0.00	0.00	95.31	0.00	0.00	0.00	381.25	0.00	0.00	0.00	95.31
JOC070403	0.00	1478.79	0.00	0.00	0.00	92.42	0.00	0.00	0.00	92.42	0.00	0.00	0.00	462.12
JOC070404	0.00	1418.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	567.44	0.00	0.00	0.00	0.00
JOC070405	0.00	813.33	0.00	0.00	0.00	271.11	0.00	0.00	0.00	0.00	0.00	135.56	0.00	0.00
JOC070406	237.66	950.65	0.00	79.22	0.00	396.10	0.00	0.00	0.00	79.22	0.00	0.00	0.00	0.00
JOC070407	0.00	575.47	0.00	0.00	0.00	230.19	0.00	0.00	115.09	1150.94	0.00	0.00	0.00	115.09
JOC070408	0.00	154.43	77.22	0.00	77.22	1698.73	0.00	0.00	0.00	1312.66	77.22	77.22	0.00	231.65
OTT010101	0.00	69.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT010103	0.00	41.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT010105	0.00	0.00	49.77	0.00	0.00	0.00	0.00	0.00	49.77	0.00	0.00	0.00	0.00	0.00
OTT010107	0.00	70.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT010109	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT010111	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT010113	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT010115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT010201	0.00	0.00	92.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT010203	0.00	0.00	589.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT010205	0.00	0.00	238.02	0.00	0.00	0.00	0.00	0.00	0.00	317.36	0.00	0.00	0.00	238.02
OTT010207	0.00	0.00	178.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT010209	0.00	0.00	165.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT010211	0.00	0.00	274.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	274.80
OTT010213	0.00	0.00	189.46	0.00	0.00	0.00	0.00	0.00	0.00	47.37	0.00	189.46	0.00	47.37
OTT010215	0.00	0.00	364.37	0.00	0.00	0.00	0.00	0.00	0.00	72.87	0.00	0.00	0.00	218.62

#ROCKID#	#DSIMUL#	#DDPTS#	#DGAST#	#DZBR4#	#DBVAL#	#DAMP#	#DSOR#	#DNEM#	#DOZIG#	#DPEAT#	#DBHYD#	#DOTHER#	#DECAE#	#DETRIC#
OTT010301	0.00	0.00	123.23	0.00	0.00	0.00	0.00	0.00	61.62	0.00	0.00	0.00	0.00	0.00
OTT010302	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85.92	85.92	0.00	0.00	0.00	0.00
OTT010303	0.00	0.00	0.00	0.00	0.00	44.20	0.00	0.00	88.41	0.00	0.00	0.00	0.00	0.00
OTT010304	0.00	0.00	0.00	0.00	0.00	84.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	84.72
OTT010305	0.00	0.00	190.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT010306	0.00	0.00	131.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65.59	0.00	0.00	0.00
OTT010307	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT010308	0.00	0.00	32.97	0.00	0.00	0.00	0.00	0.00	98.92	0.00	0.00	0.00	0.00	0.00
OTT010401	0.00	0.00	1149.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT010402	0.00	0.00	82.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	82.43	0.00	0.00	0.00
OTT010403	0.00	0.00	203.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT010404	0.00	0.00	217.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT010405	0.00	0.00	789.41	0.00	0.00	0.00	0.00	0.00	0.00	71.76	0.00	0.00	0.00	0.00
OTT010406	0.00	0.00	81.33	0.00	0.00	0.00	0.00	0.00	81.33	0.00	0.00	0.00	0.00	0.00
OTT010407	0.00	0.00	217.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT010408	0.00	0.00	412.16	0.00	0.00	0.00	0.00	0.00	0.00	82.43	82.43	0.00	0.00	0.00
OTT020101	0.00	44.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.97	0.00	674.58	0.00	0.00
OTT020103	0.00	81.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT020105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.62	0.00	0.00
OTT020107	43.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT020109	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT020111	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT020113	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT020115	42.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT020201	0.00	228.14	136.89	0.00	0.00	0.00	0.00	0.00	0.00	456.29	0.00	0.00	0.00	0.00
OTT020203	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	83.05	0.00	0.00	0.00	0.00
OTT020205	4212.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT020207	0.00	0.00	87.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT020209	0.00	0.00	41.10	0.00	0.00	41.10	0.00	0.00	369.87	41.10	0.00	0.00	41.10	0.00
OTT020211	2702.78	0.00	0.00	0.00	0.00	261.56	0.00	0.00	87.19	174.37	0.00	0.00	0.00	0.00
OTT020213	421.04	0.00	0.00	60.15	0.00	0.00	0.00	0.00	0.00	120.30	0.00	0.00	0.00	0.00
OTT020215	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	78.18	0.00	0.00	0.00	0.00
OTT020301	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT020302	80.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT020303	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	107.02	0.00	107.02	0.00	0.00	0.00
OTT020304	0.00	0.00	93.13	0.00	0.00	0.00	0.00	0.00	46.56	0.00	0.00	0.00	0.00	0.00
OTT020305	116.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	58.10	0.00	0.00	0.00	0.00	0.00
OTT020306	74.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	223.17	74.39	148.78	0.00	0.00	0.00
OTT020307	0.00	91.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT020308	0.00	0.00	0.00	0.00	0.00	61.00	0.00	0.00	183.00	61.00	0.00	0.00	0.00	0.00
OTT020401	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	544.64	217.86	0.00	0.00
OTT020402	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	244.00	122.00	0.00	0.00	0.00
OTT020403	0.00	72.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	72.62	0.00	0.00	0.00
OTT020404	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	156.41	0.00	0.00	0.00
OTT020405	105.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	105.17	0.00	0.00	0.00	0.00
OTT020406	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	265.22	0.00	0.00	0.00	0.00
OTT020407	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	124.49	0.00	0.00	0.00	0.00
OTT020408	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	248.98	0.00	0.00	0.00	0.00
OTT030101	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT030103	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT030105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT030107	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT030109	49.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT030111	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT030113	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT030115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT030201	0.00	0.00	99.96	0.00	0.00	0.00	0.00	0.00	0.00	849.70	249.91	0.00	0.00	49.98
OTT030203	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3076.77	0.00	0.00	0.00	0.00
OTT030205	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1721.51	172.15	0.00	0.00	0.00
OTT030207	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2137.28	209.54	0.00	0.00	0.00
OTT030209	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1477.21	98.48	0.00	0.00	0.00
OTT030211	1125.97	56.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4841.69	56.30	0.00	0.00	0.00
OTT030213	569.29	121.99	0.00	0.00	0.00	40.66	0.00	0.00	0.00	1870.54	0.00	40.66	0.00	0.00
OTT030215	0.00	0.00	363.67	0.00	0.00	0.00	0.00	0.00	0.00	3333.62	0.00	0.00	0.00	0.00
OTT030301	610.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.83	0.00	0.00	0.00	0.00	0.00
OTT030302	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.51	0.00	0.00	0.00
OTT030303	775.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.69	103.39	0.00	0.00	0.00	0.00
OTT030304	780.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT030305	1016.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	145.24	0.00	0.00	0.00	0.00
OTT030306	61.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTT030307	312.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	78.21	0.00	0.00	0.00
OTT030308	311.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	186.73	0.00	0.00	0.00
OTT030401	326.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	108.93	0.00	0.00	0.00	0.00
OTT030402	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	101.67	0.00	0.00	0.00	0.00
OTT030403	287.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	287.06	143.53	0.00	0.00	0.00
OTT030404	160.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	160.53	0.00	0.00	0.00	0.00
OTT030405	1789.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1138.67	244.00	0.00	0.00	0.00
OTT030406	358.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	358.82	0.00	0.00	0.00	0.00
OTT030407	889.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	635.42	127.08	0.00	0.00	0.00
OTT030408	1220.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	469.23	93.85	0.00	0.00	0.00

ROCKID	SIMUL	DDPT	DGAS	DZERR	DBVAL	DAMPH	DISOP	DNEMA	DOGIG	DDPAT	DDHYD	DDOTER	DDCAP	DDTRIC
RID010101	1885.53	887.31	0.00	0.00	55.46	0.00	0.00	554.57	0.00	1220.05	0.00	55.46	0.00	0.00
RID010103	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2048.46	0.00	349.74	0.00	0.00
RID010105	1697.46	212.18	53.05	0.00	0.00	0.00	0.00	0.00	0.00	1220.05	0.00	0.00	0.00	0.00
RID010107	1624.55	0.00	0.00	0.00	0.00	0.00	0.00	558.44	0.00	3401.40	101.53	456.90	0.00	0.00
RID010109	1680.09	39.07	0.00	0.00	39.07	0.00	0.00	0.00	78.14	1953.59	0.00	234.43	0.00	0.00
RID010111	2694.78	94.55	47.28	0.00	47.28	0.00	0.00	0.00	47.28	2505.67	0.00	614.60	0.00	0.00
RID010113	2231.58	0.00	38.48	0.00	0.00	0.00	0.00	0.00	38.48	1692.92	0.00	0.00	0.00	0.00
RID010115	3254.94	91.69	183.38	0.00	45.84	0.00	0.00	0.00	229.22	5317.93	0.00	458.44	0.00	0.00
RID010201	0.00	40.01	1400.50	80.03	1280.46	360.13	880.31	0.00	40.01	3641.30	0.00	120.04	40.01	800.29
RID010203	0.00	345.59	2695.61	138.24	483.83	967.65	69.12	0.00	0.00	22809.00	69.12	414.71	0.00	1589.72
RID010205	0.00	248.93	5186.14	705.32	3609.55	5310.61	0.00	0.00	0.00	14106.30	373.40	207.45	165.96	1452.12
RID010207	0.00	227.82	227.82	303.76	75.94	151.88	189.85	0.00	0.00	10327.72	0.00	75.94	0.00	151.88
RID010209	722.44	380.23	646.39	0.00	266.16	380.23	38.02	0.00	0.00	4866.94	0.00	38.02	0.00	152.09
RID010211	264.86	211.89	635.66	0.00	0.00	635.66	105.94	52.97	0.00	10223.45	105.94	0.00	0.00	52.97
RID010213	37.77	0.00	566.59	0.00	0.00	339.95	0.00	0.00	75.54	4154.96	0.00	37.77	0.00	226.63
RID010215	40.98	122.94	368.83	0.00	163.92	81.96	0.00	0.00	0.00	4303.02	0.00	0.00	0.00	81.96
RID010301	39.61	0.00	0.00	0.00	0.00	0.00	39.61	0.00	0.00	237.66	0.00	0.00	0.00	0.00
RID010302	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	223.17	74.39	0.00	0.00	0.00
RID010303	831.82	0.00	92.42	0.00	0.00	12477.28	92.42	0.00	1848.49	3419.70	184.85	1293.94	0.00	184.85
RID010304	132.61	33.15	66.30	0.00	0.00	0.00	0.00	298.37	497.28	66.30	99.46	0.00	0.00	66.30
RID010305	45.87	366.94	183.47	0.00	0.00	0.00	0.00	0.00	550.41	2247.50	321.07	0.00	0.00	45.87
RID010306	2870.59	0.00	0.00	0.00	0.00	558.17	0.00	0.00	8452.29	0.00	79.74	1116.34	0.00	0.00
RID010307	188.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	125.77	754.64	0.00	0.00	0.00	0.00
RID010308	205.04	0.00	922.69	0.00	0.00	1589.08	615.13	0.00	4203.36	256.30	256.30	0.00	0.00	205.04
RID010401	0.00	364.18	5644.77	182.09	0.00	1638.81	91.04	0.00	0.00	3914.92	0.00	0.00	0.00	546.27
RID010402	623.86	623.86	138.64	69.32	0.00	554.55	0.00	0.00	0.00	3881.82	0.00	0.00	0.00	485.23
RID010403	128.42	192.63	449.47	64.21	0.00	770.53	0.00	0.00	0.00	1284.21	0.00	0.00	0.00	1284.21
RID010404	0.00	194.68	259.57	64.89	129.79	259.57	0.00	0.00	0.00	584.04	0.00	0.00	0.00	259.57
RID010405	0.00	266.87	838.75	495.62	0.00	228.75	114.37	0.00	0.00	953.12	0.00	0.00	0.00	457.50
RID010406	0.00	162.67	162.67	40.67	0.00	0.00	0.00	0.00	0.00	3822.67	0.00	81.33	0.00	122.00
RID010407	182.09	364.18	728.36	0.00	0.00	91.04	0.00	0.00	0.00	455.22	0.00	0.00	0.00	0.00
RID010408	82.43	123.65	1277.70	123.65	0.00	700.68	164.86	0.00	0.00	6347.30	0.00	0.00	0.00	494.59
RID020101	44.24	442.36	176.94	0.00	0.00	44.24	752.01	0.00	44.24	575.06	44.24	0.00	0.00	0.00
RID020103	0.00	0.00	58.37	0.00	0.00	0.00	58.37	0.00	58.37	58.37	0.00	291.83	0.00	0.00
RID020105	0.00	0.00	105.84	0.00	0.00	35.28	35.28	0.00	0.00	35.28	4304.31	35.28	0.00	0.00
RID020107	51.32	51.32	153.95	0.00	102.64	0.00	0.00	0.00	51.32	359.23	51.32	51.32	0.00	0.00
RID020109	41.93	419.31	545.10	0.00	125.79	83.86	125.79	83.86	1215.99	335.45	0.00	167.72	41.93	0.00
RID020111	0.00	138.92	69.46	0.00	173.65	0.00	451.50	0.00	0.00	2813.17	69.46	0.00	0.00	0.00
RID020113	1071.51	666.08	289.60	0.00	347.52	86.88	260.64	0.00	1274.23	2056.14	115.84	231.68	0.00	0.00
RID020115	68.77	275.07	240.68	0.00	378.21	1409.71	1306.56	0.00	2613.12	1031.49	0.00	0.00	0.00	0.00
RID020201	0.00	164.63	164.63	109.75	1207.30	1426.81	109.75	0.00	0.00	20853.40	0.00	493.90	0.00	1371.93
RID020203	0.00	365.69	91.42	0.00	91.42	914.22	0.00	0.00	0.00	16456.04	0.00	91.42	0.00	639.96
RID020205	0.00	109.03	1526.38	0.00	0.00	3706.92	109.03	0.00	0.00	545.14	0.00	0.00	0.00	763.19
RID020207	0.00	0.00	1104.81	0.00	2762.04	6260.62	184.14	0.00	0.00	4235.12	0.00	0.00	0.00	1473.09
RID020209	0.00	0.00	284.53	0.00	142.27	4623.65	142.27	0.00	0.00	4765.92	0.00	0.00	0.00	924.73
RID020211	46.18	92.36	277.08	0.00	600.34	692.70	92.36	0.00	0.00	11083.22	0.00	46.18	0.00	1108.32
RID020213	0.00	191.15	373.46	0.00	305.84	764.61	382.31	0.00	0.00	3555.44	0.00	0.00	0.00	1452.76
RID020215	59.18	473.43	473.43	236.72	236.72	2012.10	0.00	0.00	118.36	10060.48	0.00	0.00	0.00	59.18
RID020301	0.00	0.00	795.65	1723.91	132.61	3315.22	530.43	0.00	663.04	795.65	663.04	0.00	132.61	14984.78
RID020302	0.00	0.00	562.41	1038.30	0.00	778.72	216.31	0.00	173.05	86.52	43.26	0.00	0.00	1600.71
RID020303	0.00	0.00	250.00	14250.00	0.00	1000.00	0.00	0.00	125.00	3000.00	250.00	0.00	0.00	3000.00
RID020304	0.00	91.04	1183.58	1729.85	0.00	91.04	136.57	0.00	455.22	819.40	136.57	0.00	0.00	2503.73
RID020305	0.00	0.00	1809.32	10649.15	258.47	1344.07	2946.61	0.00	1395.76	2998.31	0.00	0.00	0.00	103.39
RID020306	0.00	0.00	131.65	965.47	43.88	43.88	746.04	0.00	87.77	526.62	263.31	0.00	43.88	0.00
RID020307	0.00	0.00	196.77	737.90	98.39	49.19	639.52	0.00	147.58	442.74	147.58	0.00	0.00	0.00
RID020308	0.00	153.46	460.38	13964.78	0.00	153.46	230.19	0.00	997.48	844.03	1227.67	0.00	0.00	153.46
RID020401	829.13	355.34	296.12	888.35	0.00	2428.15	0.00	0.00	0.00	7402.91	0.00	0.00	0.00	59.22
RID020402	143.53	0.00	0.00	2296.47	0.00	215.29	0.00	0.00	0.00	574.12	0.00	0.00	0.00	143.53
RID020403	430.59	430.59	430.59	3229.41	0.00	789.41	143.53	0.00	0.00	1148.23	0.00	143.53	0.00	1004.71
RID020404	0.00	64.21	577.89	4173.68	0.00	1027.37	321.05	0.00	0.00	770.53	0.00	64.21	0.00	770.53
RID020405	0.00	0.00	1076.47	119.61	0.00	17701.96	0.00	0.00	0.00	1554.90	0.00	119.61	0.00	358.82
RID020406	128.42	192.63	513.68	2375.79	0.00	1541.05	577.89	0.00	0.00	192.63	0.00	0.00	64.21	0.00
RID020407	0.00	98.39	1180.65	787.10	0.00	98.39	0.00	0.00	0.00	590.32	0.00	98.39	0.00	0.00
RID020408	0.00	0.00	326.79	2505.36	0.00	762.50	653.57	0.00	0.00	1416.07	0.00	0.00	0.00	217.86
RID030101	39.07	351.65	390.72	0.00	117.22	78.14	78.14	0.00	78.14	3321.10	0.00	0.00	0.00	0.00
RID030103	1685.64	597.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.12	0.00	105.35	0.00	0.00
RID030105	630.36	678.85	96.98	0.00	0.00	0.00	1551.65	0.00	145.47	96.98	0.00	0.00	0.00	0.00
RID030107	90.81	590.25	635.66	0.00	45.40	0.00	0.00	590.25	817.27	181.62	0.00	0.00	0.00	0.00
RID030109	0.00	187.54	125.03	0.00	62.51	812.69	62.51	0.00	125.03	1937.96	0.00	0.00	0.00	0.00
RID030111	0.00	330.32	275.27	0.00	55.05	0.00	55.05	0.00	0.00	495.48	0.00	165.16	0.00	0.00
RID030113	289.34	289.34	82.67	0.00	372.01	0.00	0.00	0.00	330.68	2686.77	0.00	0.00	0.00	0.00
RID030115	899.58	1212.48	39.11	0.00	0.00	0.00	78.22	0.00	0.00	78.22	0.00	78.22	0.00	0.00
RID030201	0.00	0.00	166.58	0.00	166.58	0.00	0.00	0.00	166.58	166.58	0.00	0.00	0.00	0.00
RID030203	0.00	175.02	3500.37	0.00	262.53	2537.77	350.04	0.00	262.53	1312.64	0.00	262.53	0.00	87.51
RID030205	0.00	498.96	8482.39	0.00	299.38	3692.33	199.59	0.00	898.14	598.76	0.00	1197.51	0.00	698.55
RID030207	0.00	218.27	6984.78	0.00	927.67	5675.13	1909.90	0.00	327.41	491.12	0.00	1691.63	0.00	327.41
RID030209	0.00	113.22	6000.72	56.61	1471.87	2887.14	1585.09	0.00	169.83	339.66	0.00	113.22	0.00	452.88
RID030211	0.00	67.23	2352.92	0.00	873.94	873.94								

ROCK ID	DSIMUL	DDIFT	DGAST	DZEBRA	DBVAL	SDAMPH	DISORO	SDNEMA	SDOLGO	SDPLAT	SDHYDR	SDOTER	SDBCAS	SDSTRIC
RID030301	0.00	0.00	110.91	0.00	0.00	0.00	0.00	0.00	0.00	55.45	0.00	55.45	0.00	0.00
RID030302	0.00	82.43	577.03	1813.51	164.86	659.46	0.00	0.00	412.16	329.73	247.30	82.43	0.00	412.16
RID030303	0.00	0.00	95.31	0.00	0.00	0.00	0.00	0.00	0.00	285.94	285.94	0.00	0.00	0.00
RID030304	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	160.53	0.00	0.00	0.00	0.00
RID030305	0.00	0.00	280.46	140.23	70.11	0.00	0.00	0.00	210.34	560.92	140.23	0.00	0.00	0.00
RID030306	0.00	62.89	62.89	691.75	0.00	0.00	0.00	0.00	0.00	1257.73	0.00	0.00	0.00	62.89
RID030307	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	194.68	0.00	0.00	64.89
RID030308	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.54	63.54	0.00	0.00	0.00
RID030401	0.00	0.00	968.25	774.60	580.95	484.13	0.00	0.00	580.95	580.95	0.00	0.00	0.00	484.13
RID030402	0.00	240.79	481.58	0.00	0.00	160.53	0.00	0.00	1203.95	642.11	0.00	160.53	0.00	401.32
RID030403	0.00	406.67	813.33	2846.67	162.67	325.33	81.33	0.00	244.00	1220.00	0.00	244.00	0.00	162.67
RID030404	0.00	172.64	287.74	1381.13	0.00	0.00	57.55	0.00	0.00	920.75	0.00	172.64	0.00	0.00
RID030405	0.00	345.28	1266.04	115.09	0.00	0.00	0.00	0.00	345.28	805.66	0.00	230.19	0.00	115.09
RID030406	0.00	162.67	894.67	569.33	0.00	0.00	81.33	0.00	81.33	1220.00	0.00	0.00	0.00	325.33
RID030407	0.00	135.56	406.67	610.00	0.00	0.00	0.00	0.00	0.00	474.44	0.00	67.78	0.00	67.78
RID030408	0.00	79.22	554.55	396.10	79.22	0.00	0.00	0.00	0.00	871.43	0.00	79.22	0.00	79.22
RID040101	138.79	34.70	69.40	0.00	0.00	0.00	346.99	0.00	173.49	832.77	1526.74	0.00	0.00	0.00
RID040103	120.07	160.09	40.02	0.00	0.00	80.05	0.00	0.00	320.18	120.07	1841.05	0.00	0.00	0.00
RID040105	1358.43	500.47	0.00	0.00	0.00	0.00	71.50	0.00	428.98	357.48	357.48	0.00	71.50	0.00
RID040107	253.59	72.45	144.91	36.23	36.23	36.23	0.00	0.00	253.59	181.14	108.68	0.00	0.00	0.00
RID040109	1561.44	0.00	86.75	0.00	0.00	0.00	0.00	0.00	520.48	303.61	520.48	86.75	0.00	0.00
RID040111	0.00	216.12	1134.64	0.00	0.00	0.00	162.09	0.00	594.34	0.00	1296.74	0.00	0.00	0.00
RID040113	0.00	161.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.24	0.00	0.00	0.00	0.00
RID040115	487.29	374.84	0.00	0.00	0.00	0.00	0.00	0.00	1386.91	37.48	10420.59	187.42	0.00	0.00
RID040201	0.00	72.83	1820.79	145.66	291.33	72.83	72.83	0.00	109.25	691.90	0.00	254.91	0.00	0.00
RID040203	0.00	0.00	949.37	0.00	0.00	0.00	0.00	0.00	0.00	365.14	0.00	0.00	0.00	0.00
RID040205	0.00	191.47	829.70	0.00	829.70	382.94	191.47	0.00	702.05	1531.75	0.00	319.11	0.00	0.00
RID040207	0.00	98.00	2106.91	146.99	293.99	49.00	98.00	0.00	0.00	2302.90	0.00	146.99	0.00	49.00
RID040209	0.00	259.10	64.77	0.00	0.00	0.00	0.00	0.00	129.55	259.10	0.00	0.00	0.00	0.00
RID040211	0.00	0.00	2574.24	66.01	66.01	132.01	0.00	0.00	858.08	4092.38	0.00	330.03	0.00	66.01
RID040213	0.00	0.00	405.30	0.00	0.00	0.00	0.00	0.00	0.00	67.55	0.00	0.00	0.00	0.00
RID040215	0.00	247.10	3410.01	49.42	197.68	247.10	197.68	0.00	1630.88	12503.38	0.00	0.00	0.00	0.00
RID040301	0.00	0.00	0.00	417.81	0.00	0.00	0.00	0.00	250.68	83.56	501.37	0.00	0.00	0.00
RID040302	0.00	0.00	0.00	131.18	0.00	0.00	0.00	0.00	65.59	65.59	983.87	0.00	0.00	0.00
RID040303	48.03	0.00	0.00	384.25	0.00	0.00	0.00	0.00	528.35	0.00	624.41	0.00	0.00	0.00
RID040304	0.00	0.00	50.41	201.65	0.00	0.00	0.00	0.00	3276.86	50.41	1109.09	0.00	0.00	0.00
RID040305	0.00	0.00	0.00	1136.27	0.00	299.02	0.00	0.00	4365.69	59.80	1076.47	358.82	0.00	0.00
RID040306	0.00	0.00	0.00	451.85	75.31	75.31	0.00	0.00	1204.94	150.62	828.39	0.00	0.00	0.00
RID040307	0.00	0.00	0.00	247.30	0.00	0.00	0.00	0.00	164.86	41.22	329.73	0.00	0.00	0.00
RID040308	0.00	0.00	0.00	1978.38	0.00	54.95	0.00	0.00	2637.84	164.86	1758.56	0.00	0.00	0.00
RID040401	0.00	174.29	406.67	2265.71	0.00	0.00	0.00	0.00	0.00	755.24	0.00	0.00	0.00	0.00
RID040402	0.00	140.23	350.57	1893.10	0.00	70.11	0.00	0.00	0.00	490.80	0.00	0.00	0.00	0.00
RID040403	0.00	0.00	129.79	20311.70	0.00	129.79	259.57	0.00	129.79	2855.32	0.00	0.00	0.00	0.00
RID040404	0.00	112.27	261.96	748.47	0.00	0.00	0.00	0.00	0.00	261.96	0.00	37.42	0.00	0.00
RID040405	0.00	138.64	485.23	6238.64	0.00	0.00	0.00	0.00	0.00	2287.50	0.00	0.00	0.00	0.00
RID040406	101.67	50.83	203.33	5337.50	0.00	101.67	0.00	0.00	0.00	1270.83	0.00	50.83	0.00	0.00
RID040407	148.78	0.00	148.78	11084.15	0.00	74.39	0.00	0.00	0.00	3570.73	0.00	0.00	0.00	0.00
RID040408	0.00	208.55	156.41	3701.71	0.00	52.14	0.00	0.00	52.14	2971.79	0.00	104.27	0.00	0.00
RID050101	0.00	0.00	50.03	50.03	0.00	0.00	50.03	0.00	1450.82	650.37	900.51	0.00	0.00	0.00
RID050103	0.00	62.51	0.00	0.00	0.00	0.00	0.00	0.00	4251.01	250.06	62.51	125.03	0.00	0.00
RID050105	0.00	87.75	0.00	0.00	0.00	0.00	0.00	0.00	4650.90	351.01	0.00	0.00	0.00	0.00
RID050107	0.00	83.31	41.65	0.00	0.00	0.00	41.65	0.00	1374.57	1207.95	1457.88	0.00	0.00	0.00
RID050109	0.00	67.42	0.00	0.00	0.00	0.00	0.00	0.00	1752.87	134.84	0.00	0.00	0.00	0.00
RID050111	258.46	0.00	0.00	0.00	0.00	0.00	43.08	0.00	1163.08	1033.84	0.00	0.00	0.00	0.00
RID050113	131.48	0.00	0.00	43.83	0.00	0.00	0.00	0.00	131.48	43.83	0.00	0.00	0.00	0.00
RID050115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3061.51	47.10	47.10	0.00	0.00	0.00
RID050201	0.00	0.00	266.67	600.00	1600.00	66.67	0.00	0.00	466.67	16666.67	0.00	133.33	0.00	0.00
RID050203	0.00	0.00	466.67	1200.00	933.33	266.67	200.00	0.00	2133.33	15866.67	200.00	400.00	0.00	0.00
RID050205	0.00	733.33	266.67	333.33	866.67	133.33	0.00	0.00	466.67	27000.00	200.00	266.67	0.00	0.00
RID050207	0.00	1200.00	266.67	600.00	866.67	0.00	0.00	0.00	0.00	38133.33	200.00	466.67	0.00	133.33
RID050209	0.00	1200.00	0.00	200.00	200.00	0.00	0.00	0.00	66.67	24466.67	266.67	66.67	0.00	0.00
RID050211	0.00	66.67	66.67	3466.67	200.00	0.00	0.00	0.00	333.33	4800.00	400.00	0.00	66.67	733.33
RID050213	0.00	3200.00	200.00	7133.33	133.33	0.00	0.00	0.00	1066.67	23200.00	533.33	1733.33	0.00	200.00
RID050215	133.33	466.67	200.00	6266.67	0.00	266.67	0.00	0.00	2200.00	14266.67	800.00	400.00	0.00	133.33
RID050301	0.00	0.00	0.00	14250.42	0.00	102.52	922.69	0.00	4459.66	2357.98	4664.71	51.26	0.00	0.00
RID050302	92.42	0.00	46.21	17190.91	92.42	277.27	0.00	0.00	600.76	4020.46	11414.40	46.21	0.00	0.00
RID050303	0.00	0.00	0.00	469.23	0.00	117.31	0.00	0.00	351.92	2228.85	3753.85	0.00	0.00	0.00
RID050304	0.00	0.00	0.00	2172.60	83.56	0.00	0.00	0.00	0.00	584.93	2506.85	0.00	0.00	0.00
RID050305	0.00	0.00	72.62	15758.34	72.62	290.48	145.24	0.00	2469.05	4066.67	3558.33	0.00	0.00	0.00
RID050306	0.00	0.00	194.68	19597.87	64.89	64.89	584.04	0.00	1687.23	3439.36	6489.36	0.00	0.00	0.00
RID050307	0.00	0.00	0.00	8867.59	0.00	0.00	0.00	0.00	790.74	1525.00	8415.74	0.00	56.48	0.00
RID050308	0.00	0.00	84.72	16351.39	84.72	254.17	2880.56	0.00	3304.17	1779.17	13131.94	0.00	0.00	0.00
RID050401	0.00	889.58	4193.75	4956.25	0.00	127.08	0.00	0.00	12708.33	22366.67	1906.25	0.00	0.00	254.17
RID050402	0.00	83.56	2924.66	20723.29	167.12	1671.23	1169.86	0.00	1420.55	7687.67	83.56	334.25	0.00	0.00
RID050403	0.00	343.66	171.83	10138.03	0.00	0.00	0.00	0.00	2577.47	28695.79	8247.89	0.00	0.00	0.00
RID050404	161.95	215.93	431.86	6423.89	0.00	161.95	0.00	0.00	269.91	15384.96	4426.55	107.96	0.00	0.00
RID050405	0.00	0.00	1149.27	26433.32	88.41	1502.90	88.41	0.00	4243.48	21217.38	12200.00	88.41	0.00	0.00
RID050406	0.00	205.62	1507.87	3289.89	0.00	1165.17	0.00	0.00	12268.54	13022.48	5071.91	548.31	0.00	0.00
RID050407	476.56	571.87	667.											

ROCK ID	DSMUL	DDIF	DGAST	DZERRA	DVALE	DAMPH	DISOFO	DNEMA	DOPGOE	ADPLATV	DHYDKA	DOOTHER	DECAE	DETRICO
RID060101	1162.96	707.89	0.00	0.00	0.00	0.00	0.00	0.00	1567.47	1213.52	303.38	252.82	0.00	0.00
RID060103	893.07	1384.26	0.00	0.00	0.00	0.00	0.00	0.00	1786.14	848.42	535.84	178.61	0.00	0.00
RID060105	2094.14	888.42	0.00	0.00	0.00	0.00	0.00	0.00	380.75	1269.18	1649.93	444.21	0.00	0.00
RID060107	14214.54	1511.42	0.00	0.00	0.00	0.00	0.00	0.00	899.65	5325.96	1331.49	323.88	0.00	0.00
RID060109	1082.99	499.84	0.00	0.00	83.31	0.00	416.54	0.00	583.15	2332.60	999.69	0.00	0.00	0.00
RID060111	506.82	1013.64	0.00	0.00	0.00	126.71	0.00	0.00	380.12	5955.14	3421.04	633.53	0.00	0.00
RID060113	137.53	550.13	0.00	0.00	275.07	0.00	0.00	0.00	275.07	4263.51	137.53	0.00	0.00	0.00
RID060115	1520.46	532.16	114.03	0.00	0.00	0.00	0.00	0.00	38.01	5853.78	38.01	38.01	0.00	0.00
RID060201	0.00	1133.33	0.00	0.00	266.67	0.00	0.00	200.00	0.00	13200.00	0.00	133.33	0.00	0.00
RID060203	200.00	266.67	0.00	66.67	266.67	0.00	0.00	400.00	133.33	7266.67	0.00	666.67	0.00	0.00
RID060205	0.00	466.67	0.00	0.00	66.67	0.00	0.00	66.67	0.00	15266.67	0.00	200.00	0.00	133.33
RID060207	0.00	466.67	66.67	0.00	0.00	0.00	0.00	1800.00	333.33	11333.33	0.00	1733.33	0.00	0.00
RID060209	0.00	266.67	0.00	0.00	66.67	0.00	0.00	0.00	66.67	733.33	0.00	133.33	0.00	66.67
RID060211	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	66.67	5733.33	0.00	200.00	0.00	333.33
RID060213	1000.00	1000.00	66.67	0.00	266.67	0.00	0.00	0.00	0.00	14400.00	0.00	200.00	0.00	0.00
RID060215	266.67	800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	30200.00	0.00	600.00	0.00	0.00
RID060301	0.00	0.00	0.00	0.00	0.00	48.41	0.00	0.00	96.83	0.00	193.65	96.83	0.00	0.00
RID060302	176.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	88.41	265.22	795.65	88.41	0.00	0.00
RID060303	124.49	0.00	0.00	0.00	62.24	373.47	0.00	0.00	124.49	248.98	497.96	0.00	0.00	0.00
RID060304	0.00	0.00	198.91	0.00	132.61	198.91	0.00	0.00	198.91	530.43	861.96	265.22	0.00	530.43
RID060305	0.00	0.00	50.00	0.00	0.00	50.00	0.00	0.00	0.00	3350.00	3300.00	200.00	0.00	100.00
RID060306	0.00	58.10	58.10	0.00	0.00	0.00	0.00	0.00	0.00	1975.24	174.29	58.10	0.00	116.19
RID060307	0.00	42.07	42.07	84.14	84.14	0.00	0.00	0.00	84.14	3197.24	420.69	0.00	0.00	84.14
RID060308	0.00	67.78	67.78	0.00	0.00	474.44	0.00	0.00	338.89	1694.44	338.89	135.56	67.78	474.44
RID060401	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2975.61	0.00	148.78	0.00	743.90
RID060402	0.00	439.64	109.91	0.00	0.00	54.95	0.00	0.00	0.00	1703.60	0.00	219.82	0.00	384.68
RID060403	0.00	321.05	107.02	0.00	0.00	0.00	0.00	0.00	0.00	1605.26	0.00	0.00	0.00	107.02
RID060404	0.00	257.75	171.83	0.00	0.00	0.00	0.00	0.00	0.00	3952.11	0.00	0.00	0.00	601.41
RID060405	0.00	466.67	0.00	0.00	0.00	0.00	0.00	0.00	400.00	2733.33	0.00	0.00	0.00	666.67
RID060406	0.00	0.00	369.70	0.00	0.00	0.00	0.00	0.00	0.00	646.97	0.00	92.42	0.00	184.85
RID060407	0.00	187.69	93.85	0.00	93.85	0.00	0.00	0.00	375.38	4692.31	93.85	93.85	0.00	656.92
RID060408	57.55	345.28	0.00	57.55	0.00	0.00	0.00	0.00	0.00	3970.75	0.00	172.64	0.00	460.38
RID070101	8794.36	57.48	0.00	0.00	0.00	0.00	0.00	0.00	459.84	1551.95	804.71	57.48	0.00	0.00
RID070103	220.53	551.33	0.00	0.00	0.00	0.00	0.00	0.00	3197.73	882.13	441.07	0.00	0.00	0.00
RID070105	2182.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	72.73	2327.48	0.00	0.00	0.00	0.00
RID070107	6501.13	0.00	0.00	0.00	0.00	35.92	0.00	0.00	35.92	897.95	35.92	0.00	0.00	0.00
RID070109	1988.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.43	0.00	0.00	124.28	0.00	0.00
RID070111	790.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.75	296.25	0.00	0.00	0.00	0.00
RID070113	319.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.98	39.98	39.98	39.98	0.00	0.00
RID070115	2928.34	35.28	0.00	0.00	0.00	35.28	0.00	0.00	70.56	4692.40	317.53	0.00	0.00	35.28
RID070201	0.00	933.33	0.00	0.00	0.00	0.00	0.00	0.00	400.00	24333.33	0.00	2266.67	0.00	0.00
RID070203	0.00	1066.67	0.00	400.00	400.00	133.33	0.00	0.00	1400.00	20333.33	0.00	1066.67	0.00	0.00
RID070205	0.00	466.67	0.00	66.67	133.33	66.67	0.00	0.00	466.67	24733.33	0.00	266.67	0.00	0.00
RID070207	66.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	133.33	9000.00	0.00	466.67	0.00	0.00
RID070209	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9533.33	0.00	533.33	0.00	0.00
RID070211	0.00	66.67	0.00	133.33	266.67	0.00	333.33	0.00	866.67	12000.00	0.00	66.67	66.67	0.00
RID070213	0.00	800.00	0.00	0.00	400.00	0.00	0.00	0.00	400.00	11466.67	0.00	1200.00	133.33	0.00
RID070215	0.00	66.67	66.67	266.67	0.00	0.00	0.00	0.00	1133.33	22400.00	0.00	400.00	66.67	0.00
RID070301	0.00	0.00	0.00	663.04	0.00	0.00	0.00	0.00	1326.09	265.22	12995.65	0.00	0.00	0.00
RID070302	0.00	0.00	0.00	118.45	177.67	59.22	0.00	0.00	651.46	414.56	769.90	0.00	0.00	0.00
RID070303	0.00	0.00	61.00	854.00	183.00	0.00	427.00	0.00	61.00	305.00	3965.00	0.00	0.00	0.00
RID070304	0.00	0.00	0.00	0.00	65.59	131.18	196.77	0.00	524.73	2754.84	0.00	65.59	0.00	0.00
RID070305	0.00	0.00	0.00	447.71	0.00	0.00	0.00	0.00	727.52	783.49	14662.39	0.00	0.00	0.00
RID070306	0.00	33.33	64.89	194.68	0.00	129.79	0.00	0.00	5451.06	584.04	9214.89	64.89	64.89	0.00
RID070307	62.89	0.00	0.00	62.89	0.00	0.00	0.00	0.00	1257.73	565.98	9558.76	62.89	0.00	0.00
RID070308	0.00	0.00	0.00	633.02	0.00	0.00	172.64	0.00	115.09	460.38	15537.74	0.00	0.00	0.00
RID070401	0.00	112.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	790.74	0.00	0.00	0.00	0.00
RID070402	0.00	479.78	0.00	68.54	0.00	68.54	0.00	0.00	137.08	9869.67	411.24	68.54	0.00	0.00
RID070403	0.00	192.13	144.09	768.50	96.06	0.00	48.03	0.00	48.03	7637.01	48.03	288.19	0.00	0.00
RID070404	78.21	391.03	78.21	156.41	0.00	0.00	0.00	0.00	78.21	6803.84	78.21	156.41	0.00	0.00
RID070405	0.00	265.22	176.81	353.62	0.00	0.00	0.00	0.00	1149.27	6984.06	707.25	353.62	0.00	0.00
RID070406	0.00	488.00	0.00	162.67	0.00	0.00	0.00	0.00	162.67	11305.34	488.00	0.00	0.00	0.00
RID070407	0.00	300.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	7800.00	2600.00	0.00	0.00	0.00
RID070408	0.00	167.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1086.30	0.00	417.81	0.00	0.00
RID080101	159.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	318.16	159.08	0.00	0.00
RID080103	46.98	234.92	140.95	0.00	0.00	187.93	0.00	0.00	2302.18	563.80	1550.45	281.90	0.00	0.00
RID080105	0.00	234.50	100.50	0.00	0.00	134.00	33.50	0.00	33.50	569.50	10117.00	33.50	0.00	0.00
RID080107	0.00	0.00	43.37	0.00	86.75	0.00	43.37	0.00	0.00	43.37	130.12	0.00	0.00	0.00
RID080109	0.00	48.24	144.73	0.00	144.73	289.45	96.48	0.00	48.24	1591.98	241.21	482.42	0.00	0.00
RID080111	433.24	173.29	86.65	0.00	0.00	43.32	0.00	0.00	0.00	43.32	10744.25	433.24	0.00	0.00
RID080113	40.49	0.00	242.96	0.00	0.00	40.49	40.49	0.00	0.00	283.46	445.44	0.00	0.00	0.00
RID080115	0.00	0.00	118.56	0.00	0.00	59.28	118.56	0.00	59.28	355.69	59.28	177.84	0.00	0.00
RID080201	0.00	66.67	7400.00	66.67	66.67	133.33	200.00	0.00	400.00	6666.67	0.00	200.00	266.67	266.67
RID080203	0.00	666.67	3133.33	466.67	333.33	133.33	0.00	0.00	866.67	4733.33	133.33	66.67	66.67	466.67
RID080205	0.00	333.33	666.67	0.00	200.00	200.00	0.00	0.00	400.00	5400.00	0.00	200.00	133.33	333.33
RID080207	0.00	133.33	1400.00	0.00	266.67	66.67	66.67	0.00	0.00	2600.00	0.00	266.67	1533.33	666.67
RID080209	0.00	466.67	3333.33	133.33	133.33	266.67	0.00	0.00	266.67	8400.00	0.00	0.00	1666.67	1533.33
RID080211	0.00	333.33	1800.00	0.00	133.33	66.67	0.00	0.00	66.67	1600.00	0.00	66.67	533.33	400.00
RID080213	0.00	133.33	1400.00	266.67	266.67	0.00	0.00	0.00						

RID080301	1046.75	36.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	252.66	0.00	0.00	0.00
RID080302	447.71	0.00	55.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	223.85	55.96	0.00	0.00
RID080303	0.00	0.00	239.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	518.30	438.56	0.00	0.00	0.00
RID080304	0.00	0.00	61.62	0.00	0.00	0.00	0.00	0.00	0.00	61.62	184.85	123.23	0.00	0.00	0.00
RID080305	82.43	0.00	82.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	164.86	164.86	0.00	0.00	0.00
RID080306	0.00	0.00	59.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	177.67	0.00	0.00	0.00	296.12
RID080307	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	150.62	0.00	188.27	0.00	0.00	37.65
RID080308	48.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.41	0.00	484.13	0.00	0.00	48.41
RID080401	0.00	599.11	163.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1525.00	108.93	272.32	0.00	217.86
RID080402	0.00	350.57	0.00	70.11	0.00	0.00	0.00	0.00	0.00	280.46	1752.87	0.00	140.23	0.00	140.23
RID080403	0.00	99.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3570.73	0.00	99.19	0.00	198.37
RID080404	0.00	402.20	201.10	0.00	0.00	0.00	0.00	0.00	0.00	67.03	804.40	0.00	469.23	0.00	670.33
RID080405	0.00	122.00	244.00	0.00	0.00	0.00	0.00	0.00	0.00	122.00	488.00	0.00	0.00	0.00	305.00
RID080406	0.00	205.04	1178.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1076.47	0.00	0.00	0.00	512.60
RID080407	0.00	87.14	174.29	0.00	0.00	0.00	0.00	0.00	0.00	87.14	1742.86	87.14	0.00	0.00	174.29
RID080408	0.00	247.30	247.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1318.92	0.00	0.00	0.00	412.16

ROCK ID	DE-HEPT	DE-BAE	DE-EPHE	DE-LEPTO	DT-HPSV	DT-PHIF	DT-POLY	DT-HPTR	DT-GLOSS	DT-PHYA	DT-LIME	DT-LEPTO	DT-HEPT
JOC010101	1200.68	0.00	0.00	0.00	200.11	0.00	0.00	200.11	0.00	0.00	0.00	0.00	0.00
JOC010103	712.65	1476.21	407.23	0.00	967.17	254.52	0.00	559.94	0.00	0.00	50.90	0.00	0.00
JOC010105	295.87	542.42	49.31	0.00	493.11	0.00	0.00	1183.46	0.00	0.00	0.00	98.62	0.00
JOC010107	427.36	1335.50	694.46	0.00	427.36	0.00	0.00	587.62	0.00	0.00	0.00	53.42	0.00
JOC010109	601.61	762.04	0.00	0.00	40.11	0.00	40.11	80.22	0.00	0.00	0.00	0.00	0.00
JOC010111	638.72	501.85	45.62	0.00	91.25	0.00	0.00	45.62	0.00	0.00	0.00	0.00	0.00
JOC010113	502.95	201.18	0.00	0.00	100.59	0.00	0.00	653.83	0.00	0.00	0.00	0.00	0.00
JOC010115	551.13	413.35	0.00	0.00	68.89	0.00	0.00	0.00	0.00	0.00	0.00	137.78	0.00
JOC010201	520.67	0.00	0.00	0.00	0.00	34.71	0.00	173.56	0.00	0.00	34.71	138.85	0.00
JOC010203	736.71	0.00	56.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JOC010205	568.06	170.42	0.00	0.00	0.00	0.00	0.00	965.70	0.00	0.00	0.00	795.29	0.00
JOC010207	1264.93	769.96	549.97	0.00	604.97	55.00	0.00	824.96	0.00	0.00	0.00	55.00	55.00
JOC010209	385.54	462.65	77.11	0.00	462.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JOC010211	769.04	230.71	0.00	0.00	845.95	0.00	0.00	76.90	0.00	0.00	0.00	0.00	0.00
JOC010213	248.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JOC010215	266.01	53.20	0.00	0.00	0.00	0.00	53.20	372.42	0.00	0.00	0.00	0.00	0.00
JOC010301	57.55	172.64	0.00	0.00	172.64	0.00	0.00	633.02	0.00	0.00	0.00	57.55	0.00
JOC010302	223.17	74.39	74.39	0.00	223.17	0.00	0.00	148.78	0.00	0.00	0.00	0.00	0.00
JOC010303	400.00	100.00	0.00	0.00	100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00
JOC010304	244.00	183.00	0.00	0.00	183.00	0.00	0.00	305.00	0.00	0.00	0.00	244.00	0.00
JOC010305	64.55	96.83	0.00	0.00	96.83	0.00	0.00	677.78	0.00	0.00	0.00	96.83	0.00
JOC010306	542.22	271.11	0.00	0.00	203.33	0.00	0.00	0.00	0.00	0.00	0.00	67.78	0.00
JOC010307	107.02	53.51	0.00	0.00	160.53	0.00	0.00	535.09	0.00	0.00	53.51	53.51	53.51
JOC010308	0.00	58.65	0.00	0.00	0.00	0.00	0.00	175.96	0.00	0.00	0.00	58.65	0.00
JOC010401	82.43	494.59	82.43	0.00	577.03	0.00	0.00	82.43	0.00	0.00	0.00	412.16	0.00
JOC010402	363.10	726.19	145.24	0.00	290.48	0.00	0.00	72.62	0.00	0.00	72.62	363.10	0.00
JOC010403	413.56	1137.29	0.00	0.00	723.73	0.00	0.00	0.00	0.00	0.00	0.00	206.78	0.00
JOC010404	1082.26	1377.42	98.39	0.00	1967.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.39
JOC010405	435.71	580.95	145.24	0.00	96.83	0.00	0.00	145.24	0.00	0.00	0.00	96.83	48.41
JOC010406	277.27	1053.64	166.36	0.00	720.91	110.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JOC010407	554.55	388.18	221.82	0.00	1275.45	166.36	0.00	332.73	0.00	0.00	0.00	55.45	0.00
JOC010408	574.12	143.53	502.35	0.00	430.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JOC020101	40.76	1344.94	1304.19	0.00	326.05	163.02	0.00	2445.35	0.00	0.00	0.00	0.00	0.00
JOC020103	669.41	83.68	251.03	0.00	0.00	0.00	0.00	418.38	0.00	0.00	0.00	0.00	0.00
JOC020105	700.40	544.75	0.00	0.00	0.00	0.00	0.00	1089.51	0.00	0.00	0.00	0.00	0.00
JOC020107	271.61	475.31	407.41	0.00	135.80	0.00	0.00	1765.46	0.00	0.00	0.00	0.00	67.90
JOC020109	64.54	451.79	64.54	0.00	64.54	0.00	0.00	64.54	0.00	0.00	0.00	0.00	0.00
JOC020111	66.47	531.76	0.00	0.00	0.00	0.00	0.00	398.82	0.00	0.00	0.00	0.00	0.00
JOC020113	64.87	518.99	0.00	0.00	0.00	0.00	0.00	778.49	0.00	0.00	0.00	0.00	0.00
JOC020115	0.00	625.72	69.52	0.00	0.00	0.00	0.00	695.25	0.00	0.00	0.00	0.00	0.00
JOC020201	154.88	2749.10	3794.54	0.00	890.56	193.60	0.00	1045.43	0.00	0.00	0.00	77.44	0.00
JOC020203	383.63	2349.76	575.45	0.00	47.95	0.00	0.00	623.40	0.00	0.00	0.00	95.91	0.00
JOC020205	180.49	5053.70	2256.11	0.00	3790.27	0.00	0.00	3339.05	0.00	0.00	0.00	0.00	0.00
JOC020207	902.12	2330.48	1278.01	0.00	1954.60	0.00	0.00	2029.78	0.00	0.00	0.00	150.35	0.00
JOC020209	338.90	3897.38	2711.22	0.00	2146.38	112.97	0.00	734.29	0.00	0.00	0.00	2711.22	0.00
JOC020211	328.22	711.14	54.70	0.00	109.41	0.00	0.00	54.70	0.00	0.00	0.00	54.70	0.00
JOC020213	54.60	3330.61	764.40	0.00	546.00	0.00	0.00	709.80	0.00	0.00	0.00	54.60	0.00
JOC020215	0.00	4098.93	607.25	0.00	506.04	0.00	0.00	354.23	0.00	0.00	0.00	354.23	0.00
JOC020301	331.52	1591.30	66.30	0.00	331.52	0.00	0.00	1326.09	0.00	0.00	0.00	132.61	0.00
JOC020302	677.78	508.33	0.00	0.00	1440.28	0.00	0.00	1694.44	0.00	0.00	0.00	423.61	0.00
JOC020303	280.46	1262.07	0.00	0.00	1051.72	0.00	0.00	1963.22	0.00	0.00	0.00	70.11	0.00
JOC020304	192.13	672.44	0.00	0.00	672.44	0.00	0.00	720.47	0.00	0.00	0.00	96.06	0.00
JOC020305	188.66	754.64	62.89	0.00	1257.73	0.00	0.00	1069.07	0.00	0.00	0.00	125.77	0.00
JOC020306	356.20	400.73	222.63	0.00	1647.44	0.00	0.00	89.05	0.00	44.53	0.00	44.53	0.00
JOC020307	645.19	469.23	0.00	0.00	351.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JOC020308	122.00	305.00	0.00	0.00	427.00	61.00	0.00	183.00	0.00	0.00	0.00	0.00	0.00
JOC020401	375.38	4880.00	656.92	0.00	375.38	0.00	0.00	1220.00	0.00	0.00	0.00	469.23	0.00
JOC020402	215.29	7822.35	2440.00	0.00	4377.65	1220.00	0.00	1507.06	0.00	0.00	0.00	0.00	0.00
JOC020403	871.43	3098.41	193.65	0.00	387.30	0.00	0.00	1065.08	0.00	0.00	0.00	96.83	0.00
JOC020404	345.28	2186.79	690.57	0.00	920.75	0.00	0.00	805.66	0.00	0.00	0.00	230.19	0.00
JOC020405	563.08	5536.92	1689.23	0.00	375.38	0.00	0.00	1313.85	0.00	0.00	0.00	1783.08	0.00
JOC020406	0.00	1774.55	221.82	0.00	332.73	0.00	0.00	1552.73	0.00	0.00	0.00	1552.73	0.00
JOC020407	230.19	3567.92	3452.83	0.00	2762.26	690.57	0.00	115.09	0.00	0.00	0.00	0.00	0.00
JOC020408	132.61	1326.09	397.83	0.00	530.43	0.00	0.00	132.61	0.00	0.00	0.00	0.00	0.00
JOC030101	191.34	446.46	1020.48	0.00	414.57	350.79	0.00	2040.96	0.00	0.00	0.00	318.90	0.00
JOC030103	95.75	383.00	191.50	0.00	287.25	0.00	95.75	95.75	0.00	0.00	0.00	766.00	0.00
JOC030105	262.19	0.00	0.00	0.00	458.84	196.65	65.55	1114.32	0.00	0.00	0.00	131.10	327.74
JOC030107	1287.74	333.86	190.78	0.00	620.02	333.86	0.00	2480.10	0.00	0.00	0.00	143.08	143.08
JOC030109	373.85	311.54	62.31	0.00	373.85	0.00	0.00	1183.87	0.00	0.00	0.00	498.47	62.31
JOC030111	285.45	1284.50	71.36	0.00	428.17	285.45	0.00	642.25	0.00	0.00	0.00	1784.03	0.00
JOC030113	290.93	332.50	0.00	0.00	166.25	41.56	0.00	83.12	0.00	0.00	0.00	1163.74	0.00
JOC030115	0.00	1146.11	286.53	0.00	764.07	0.00	0.00	955.09	0.00	0.00	0.00	668.56	0.00
JOC030201	0.00	106.09	0.00	0.00	0.00	0.00	0.00	53.05	0.00	0.00	0.00	159.14	53.05
JOC030203	0.00	0.00	0.00	0.00	0.00	0.00	0.00	204.83	0.00	0.00	0.00	0.00	0.00
JOC030205	0.00	467.39	0.00	0.00	0.00	280.44	0.00	1028.27	0.00	0.00	0.00	280.44	0.00
JOC030207	541.29	196.83	49.21	0.00	1131.79	196.83	98.42	246.04	0.00	49.21	0.00	0.00	49.21
JOC030209	240.65	160.43	80.22	0.00	0.00	0.00	0.00	160.43	0.00	0.00	0.00	160.43	0.00
JOC030211	107.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	107.20	0.00
JOC030213	277.79	208.34	0.00	0.00	0.00	0.00	69.45	277.79	0.00	0.00	0.00	138.90	0.00
JOC030215	0.00	537.70	0.00	0.00	215.08	107.54	0.00	1828.16	0.00	0.00	0.00	537.70	0.00

JOC030301	DE HEFT	DE BAPT	DE EPHE	DE LEROI	DE HPSV	DE PHIL	DE POLY	DE PHIL	DE GROSS	DE RYAN	DE LEM	DE LEROI	DE HEFT
JOC030301	38.12	76.25	0.00	0.00	571.87	0.00	0.00	0.00	0.00	0.00	0.00	38.12	0.00
JOC030302	0.00	162.67	0.00	0.00	976.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JOC030303	0.00	728.36	0.00	0.00	1456.72	0.00	0.00	91.04	0.00	0.00	0.00	819.40	0.00
JOC030304	63.54	1652.08	317.71	0.00	10865.63	127.08	0.00	635.42	0.00	0.00	0.00	508.33	0.00
JOC030305	71.76	143.53	71.76	0.00	2440.00	0.00	0.00	861.18	0.00	0.00	0.00	215.29	0.00
JOC030306	0.00	431.31	123.23	0.00	3204.04	0.00	0.00	739.39	0.00	0.00	0.00	184.85	0.00
JOC030307	0.00	192.13	48.03	0.00	3314.17	48.03	0.00	432.28	0.00	0.00	0.00	96.06	0.00
JOC030308	0.00	787.10	98.39	0.00	2066.13	0.00	0.00	196.77	0.00	0.00	0.00	98.39	0.00
JOC030401	1430.86	6401.23	602.47	0.00	8133.33	1054.32	0.00	3614.81	0.00	0.00	0.00	828.39	0.00
JOC030402	201.10	4089.01	1139.56	0.00	6100.00	0.00	0.00	938.46	0.00	0.00	0.00	469.23	0.00
JOC030403	475.32	2851.95	475.32	0.00	7922.08	237.66	0.00	316.88	0.00	0.00	0.00	0.00	0.00
JOC030404	1139.56	2614.29	268.13	0.00	4089.01	201.10	0.00	938.46	0.00	0.00	0.00	536.26	67.03
JOC030405	193.65	1258.73	96.83	0.00	2807.94	0.00	0.00	3001.59	0.00	0.00	0.00	96.83	0.00
JOC030406	88.41	2210.14	353.62	0.00	4773.91	0.00	0.00	3005.80	0.00	0.00	0.00	265.22	0.00
JOC030407	259.57	4802.13	908.51	0.00	4931.91	0.00	0.00	2465.96	0.00	0.00	0.00	519.15	129.79
JOC030408	321.05	3424.56	214.04	0.00	2461.40	214.04	0.00	2782.46	0.00	0.00	0.00	963.16	0.00
JOC040101	0.00	1203.07	0.00	0.00	300.77	0.00	0.00	17519.69	0.00	0.00	0.00	827.11	0.00
JOC040103	0.00	2234.41	0.00	0.00	217.99	54.50	0.00	9646.11	0.00	0.00	0.00	4850.31	0.00
JOC040105	216.12	144.08	0.00	0.00	1620.92	792.45	36.02	648.37	0.00	0.00	0.00	360.20	0.00
JOC040107	0.00	2954.80	98.49	0.00	492.47	0.00	0.00	10440.31	0.00	0.00	0.00	984.93	0.00
JOC040109	0.00	150.09	0.00	0.00	1050.60	150.09	0.00	2626.49	0.00	0.00	0.00	1500.85	0.00
JOC040111	0.00	86.15	0.00	0.00	0.00	172.31	0.00	86.15	0.00	0.00	0.00	0.00	0.00
JOC040113	0.00	545.50	0.00	0.00	0.00	0.00	0.00	681.88	0.00	0.00	0.00	181.83	0.00
JOC040115	0.00	219.13	0.00	0.00	219.13	701.21	43.83	2191.28	0.00	0.00	0.00	262.95	0.00
JOC040201	750.43	214.41	0.00	107.20	857.63	536.02	0.00	2680.09	0.00	0.00	0.00	1500.85	0.00
JOC040203	0.00	537.78	691.43	0.00	5377.83	3610.83	0.00	1229.22	0.00	0.00	0.00	1613.35	0.00
JOC040205	0.00	949.10	0.00	0.00	10143.47	4686.16	0.00	1423.64	0.00	0.00	0.00	5042.07	0.00
JOC040207	735.96	535.24	0.00	0.00	7426.47	401.43	0.00	2007.15	0.00	0.00	0.00	1003.58	0.00
JOC040209	0.00	605.36	0.00	0.00	5044.66	1210.72	134.52	605.36	0.00	0.00	0.00	3699.42	0.00
JOC040211	70.04	210.12	0.00	0.00	2171.23	0.00	0.00	840.48	0.00	0.00	0.00	70.04	0.00
JOC040213	0.00	69.33	0.00	0.00	2981.35	1941.34	138.67	277.33	0.00	0.00	0.00	2288.01	0.00
JOC040215	85.49	341.97	85.49	0.00	12139.80	85.49	0.00	0.00	0.00	0.00	0.00	3847.12	0.00
JOC040301	0.00	504.13	0.00	0.00	4839.67	0.00	0.00	907.44	0.00	0.00	0.00	453.72	0.00
JOC040302	88.41	795.65	0.00	0.00	2033.33	0.00	0.00	0.00	0.00	0.00	0.00	265.22	0.00
JOC040303	297.56	3421.95	0.00	0.00	33475.62	297.56	0.00	892.68	0.00	0.00	0.00	1934.15	0.00
JOC040304	205.62	1028.09	411.24	0.00	12337.08	1507.87	0.00	2330.34	0.00	0.00	0.00	205.62	0.00
JOC040305	0.00	316.88	0.00	0.00	3723.38	0.00	0.00	396.10	0.00	0.00	0.00	0.00	0.00
JOC040306	0.00	5408.25	251.55	0.00	58484.53	0.00	0.00	2515.46	0.00	0.00	0.00	2767.01	0.00
JOC040307	0.00	1026.17	57.01	0.00	12884.11	57.01	0.00	285.05	0.00	0.00	0.00	741.12	0.00
JOC040308	0.00	2857.14	601.50	0.00	30676.69	3308.27	0.00	1353.38	0.00	0.00	0.00	2706.77	0.00
JOC040401	321.05	963.16	428.07	321.05	5029.82	428.07	0.00	321.05	0.00	0.00	0.00	107.02	0.00
JOC040402	0.00	1830.00	0.00	0.00	14030.00	813.33	0.00	406.67	0.00	0.00	0.00	203.33	0.00
JOC040403	0.00	2524.14	0.00	0.00	27765.51	280.46	0.00	560.92	0.00	0.00	0.00	841.38	0.00
JOC040404	244.00	1220.00	81.33	0.00	14558.67	81.33	0.00	81.33	0.00	0.00	0.00	406.67	0.00
JOC040405	0.00	2614.29	3083.52	0.00	39080.23	335.16	0.00	1742.86	0.00	0.00	0.00	1139.56	0.00
JOC040406	595.12	4909.76	446.34	0.00	6100.00	297.56	0.00	892.68	0.00	0.00	0.00	446.34	0.00
JOC040407	0.00	2004.29	87.14	0.00	14465.71	261.43	0.00	261.43	0.00	0.00	0.00	87.14	0.00
JOC040408	0.00	508.33	0.00	0.00	42700.00	254.17	0.00	254.17	0.00	0.00	0.00	254.17	0.00
JOC050101	444.44	0.00	0.00	0.00	0.00	0.00	88.89	0.00	0.00	0.00	0.00	0.00	0.00
JOC050103	413.35	413.35	0.00	0.00	0.00	0.00	0.00	4081.83	0.00	0.00	0.00	0.00	0.00
JOC050105	216.37	43.27	0.00	0.00	0.00	0.00	0.00	1254.95	0.00	0.00	0.00	259.64	0.00
JOC050107	249.65	1061.00	0.00	0.00	436.88	0.00	0.00	2122.00	0.00	0.00	0.00	436.88	0.00
JOC050109	325.11	650.23	0.00	0.00	216.74	0.00	0.00	2384.16	0.00	0.00	0.00	54.19	0.00
JOC050111	63.57	317.83	0.00	0.00	508.52	0.00	0.00	381.39	0.00	0.00	0.00	127.13	0.00
JOC050113	342.50	48.93	0.00	0.00	48.93	0.00	0.00	244.64	0.00	0.00	0.00	48.93	0.00
JOC050115	558.09	343.44	0.00	0.00	0.00	0.00	0.00	1116.18	0.00	0.00	0.00	42.93	0.00
JOC050201	501.88	501.88	125.47	0.00	0.00	0.00	0.00	62.74	0.00	0.00	0.00	62.74	0.00
JOC050203	383.68	239.80	0.00	0.00	0.00	0.00	0.00	47.96	0.00	0.00	0.00	0.00	0.00
JOC050205	674.52	1734.49	0.00	0.00	96.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JOC050207	95.92	191.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JOC050209	0.00	1975.81	0.00	0.00	2583.75	1671.84	0.00	75.99	0.00	0.00	0.00	0.00	0.00
JOC050211	184.41	1383.04	0.00	0.00	92.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JOC050213	90.94	409.23	0.00	90.94	90.94	45.47	0.00	0.00	0.00	0.00	0.00	45.47	0.00
JOC050215	0.00	65.89	0.00	197.67	65.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JOC050301	176.81	2033.33	0.00	0.00	265.22	0.00	0.00	88.41	0.00	0.00	0.00	176.81	0.00
JOC050302	67.03	1541.76	0.00	0.00	201.10	0.00	0.00	268.13	0.00	0.00	0.00	201.10	0.00
JOC050303	367.47	661.45	0.00	0.00	146.99	0.00	0.00	146.99	0.00	0.00	0.00	0.00	0.00
JOC050304	80.26	882.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JOC050305	55.45	4325.45	0.00	55.45	3937.27	388.18	0.00	221.82	0.00	0.00	0.00	55.45	0.00
JOC050306	169.44	734.26	0.00	0.00	1299.07	0.00	0.00	0.00	0.00	0.00	0.00	56.48	0.00
JOC050307	244.00	2989.00	0.00	0.00	244.00	0.00	0.00	183.00	0.00	0.00	0.00	0.00	0.00
JOC050308	385.26	1926.32	0.00	0.00	4944.21	0.00	0.00	64.21	0.00	0.00	0.00	0.00	0.00
JOC050401	348.57	1307.14	87.14	0.00	261.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JOC050402	254.17	571.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JOC050403	1321.67	4880.00	0.00	0.00	0.00	0.00	0.00	305.00	0.00	0.00	0.00	203.33	0.00
JOC050404	593.81	863.72	53.98	0.00	107.96	53.98	0.00	53.98	0.00	0.00	0.00	0.00	0.00
JOC050405	326.79	4248.21	0.00	0.00	1198.21	108.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JOC050406	350.57	1051.72	0.00	0.00	210.34	0.00	0.00	0.00	0.00	0.00	0.00	70.11	0.00
JOC050407	693.18	2079.55	0.00	0.00	346.59	138.64	0.00	69.32	0.00	0.00	0.00	69.32	0.00
JOC050408	1016.67	3519.23	78.21	0.00	234.62	0.00	0.00	156.41	0.00	0.00	0.00	156.41	0.00

ROCK ID	DE-HEPT	DE-BAE	DE-EPHE	DE-LEPTO	DE-HPSY	DE-FHIS	DE-POLY	DE-HEPT	DE-GLOSS	DE-RRYR	DE-FMNG	DE-LEPTO	DE-HEPT
JOC060101	215.63	776.27	0.00	0.00	301.88	258.76	0.00	215.63	0.00	0.00	0.00	301.88	86.25
JOC060103	124.96	2165.99	0.00	0.00	291.58	0.00	0.00	3582.21	0.00	0.00	0.00	541.50	124.96
JOC060105	78.63	3145.24	0.00	0.00	707.68	0.00	0.00	2987.98	0.00	0.00	0.00	786.31	78.63
JOC060107	117.09	644.02	0.00	0.00	58.55	0.00	0.00	761.11	0.00	0.00	0.00	0.00	0.00
JOC060109	106.09	424.36	0.00	0.00	53.05	0.00	0.00	265.23	0.00	0.00	0.00	0.00	0.00
JOC060111	0.00	161.63	0.00	0.00	0.00	0.00	0.00	242.45	0.00	0.00	0.00	242.45	0.00
JOC060113	0.00	953.48	0.00	0.00	423.77	0.00	0.00	1748.05	0.00	0.00	0.00	0.00	0.00
JOC060115	153.12	459.37	0.00	0.00	229.69	0.00	0.00	459.37	0.00	0.00	0.00	0.00	0.00
JOC060201	340.02	340.02	113.34	0.00	0.00	0.00	0.00	56.67	0.00	0.00	0.00	56.67	0.00
JOC060203	227.29	303.06	0.00	151.53	0.00	0.00	0.00	833.41	0.00	0.00	0.00	75.76	0.00
JOC060205	1669.38	133.55	0.00	267.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JOC060207	1349.43	524.78	149.94	224.90	0.00	0.00	0.00	299.87	0.00	0.00	0.00	599.75	0.00
JOC060209	161.98	161.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	161.98	0.00
JOC060211	1077.54	1665.28	97.96	0.00	0.00	97.96	0.00	391.83	0.00	0.00	0.00	685.70	195.92
JOC060213	0.00	321.61	0.00	0.00	53.60	0.00	0.00	696.82	0.00	0.00	0.00	428.82	160.81
JOC060215	553.27	13887.06	110.65	0.00	663.92	0.00	0.00	2268.40	0.00	0.00	0.00	3153.64	55.33
JOC060301	0.00	3148.39	0.00	0.00	9937.10	0.00	0.00	491.94	0.00	0.00	0.00	491.94	0.00
JOC060302	237.66	712.99	0.00	0.00	5387.01	0.00	0.00	79.22	0.00	0.00	0.00	475.32	0.00
JOC060303	192.63	313.68	0.00	0.00	2440.00	0.00	0.00	128.42	0.00	0.00	0.00	0.00	0.00
JOC060304	39.87	2631.37	0.00	0.00	8053.59	0.00	0.00	119.61	0.00	0.00	0.00	558.17	0.00
JOC060305	0.00	1742.86	0.00	0.00	1626.67	0.00	0.00	174.29	0.00	0.00	0.00	464.76	0.00
JOC060306	0.00	2147.89	0.00	0.00	6443.66	0.00	0.00	171.83	0.00	0.00	0.00	171.83	0.00
JOC060307	269.12	448.53	0.00	89.71	2691.18	0.00	0.00	89.71	0.00	0.00	0.00	358.82	0.00
JOC060308	71.76	430.59	0.00	0.00	2727.06	0.00	0.00	0.00	0.00	0.00	0.00	71.76	0.00
JOC060401	1041.46	7290.24	0.00	0.00	1785.37	0.00	0.00	1487.80	0.00	0.00	0.00	148.78	0.00
JOC060402	1363.53	932.94	0.00	358.82	1076.47	0.00	0.00	574.12	0.00	0.00	0.00	71.76	143.53
JOC060403	82.43	164.86	0.00	0.00	247.30	0.00	0.00	329.73	0.00	0.00	0.00	0.00	164.86
JOC060404	968.25	9004.76	0.00	0.00	8811.11	193.65	0.00	1355.56	0.00	96.83	0.00	290.48	290.48
JOC060405	217.86	19062.50	0.00	0.00	17646.42	2505.36	0.00	4575.00	0.00	0.00	653.57	1416.07	0.00
JOC060406	3515.25	36393.22	0.00	206.78	2791.53	0.00	0.00	2791.53	0.00	0.00	0.00	2274.58	0.00
JOC060407	1663.64	12846.97	0.00	92.42	3696.97	0.00	0.00	1386.36	0.00	184.85	0.00	277.27	0.00
JOC060408	960.19	15362.96	0.00	169.44	2089.81	0.00	0.00	1299.07	0.00	0.00	0.00	621.30	0.00
JOC070101	154.50	556.20	0.00	0.00	618.00	30.90	30.90	494.40	0.00	0.00	30.90	556.20	370.80
JOC070103	0.00	470.81	0.00	0.00	261.56	0.00	0.00	156.94	0.00	0.00	0.00	104.62	0.00
JOC070105	0.00	1125.21	0.00	0.00	1088.91	0.00	0.00	1016.32	0.00	0.00	290.38	1270.40	435.56
JOC070107	391.53	1096.27	0.00	0.00	469.83	0.00	0.00	234.92	0.00	0.00	0.00	391.53	78.31
JOC070109	0.00	559.63	0.00	0.00	512.99	0.00	0.00	93.27	0.00	0.00	0.00	186.54	0.00
JOC070111	0.00	357.09	0.00	0.00	148.79	0.00	0.00	89.27	0.00	0.00	0.00	0.00	0.00
JOC070113	56.87	1364.99	0.00	0.00	511.87	0.00	0.00	227.50	0.00	0.00	0.00	0.00	0.00
JOC070115	31.10	3048.11	0.00	0.00	1959.50	0.00	0.00	870.89	0.00	31.10	0.00	342.14	0.00
JOC070201	224.86	224.86	0.00	0.00	74.95	0.00	0.00	374.77	0.00	0.00	0.00	149.91	299.81
JOC070203	86.00	343.99	0.00	0.00	86.00	0.00	0.00	601.98	0.00	0.00	0.00	86.00	0.00
JOC070205	65.79	657.88	0.00	0.00	592.09	0.00	65.79	592.09	0.00	0.00	0.00	526.30	197.36
JOC070207	0.00	89.39	0.00	0.00	0.00	0.00	0.00	178.78	0.00	0.00	0.00	89.39	268.17
JOC070209	491.64	639.13	0.00	49.16	1524.07	245.82	0.00	344.14	0.00	0.00	0.00	442.47	98.33
JOC070211	260.93	848.02	0.00	391.39	326.16	260.93	587.09	1043.71	0.00	0.00	0.00	391.39	260.93
JOC070213	74.01	0.00	0.00	148.03	222.04	0.00	0.00	0.00	0.00	0.00	0.00	148.03	296.06
JOC070215	411.60	274.40	0.00	274.40	228.67	365.87	0.00	777.47	0.00	0.00	91.47	686.00	960.40
JOC070301	1009.66	925.52	0.00	0.00	2355.86	0.00	168.28	84.14	0.00	0.00	0.00	1346.21	1682.76
JOC070302	154.43	308.86	0.00	0.00	2162.03	0.00	0.00	0.00	0.00	0.00	0.00	231.65	154.43
JOC070303	387.30	1984.92	0.00	290.48	8375.40	0.00	0.00	0.00	0.00	0.00	0.00	484.13	290.48
JOC070304	346.59	1109.09	0.00	138.64	2634.09	0.00	0.00	0.00	0.00	0.00	0.00	138.64	69.32
JOC070305	176.81	2210.14	0.00	0.00	4773.91	0.00	0.00	0.00	0.00	0.00	0.00	176.81	442.03
JOC070306	0.00	1493.88	0.00	124.49	4481.63	0.00	0.00	0.00	0.00	124.49	0.00	248.98	62.24
JOC070307	256.30	1230.25	0.00	0.00	4562.18	0.00	0.00	0.00	0.00	0.00	0.00	205.04	0.00
JOC070308	135.56	610.00	0.00	0.00	2304.44	0.00	0.00	0.00	0.00	0.00	0.00	135.56	0.00
JOC070401	0.00	488.00	0.00	488.00	244.00	0.00	122.00	488.00	0.00	0.00	0.00	122.00	976.00
JOC070402	285.94	476.56	0.00	0.00	667.19	0.00	0.00	285.94	0.00	95.31	0.00	381.25	190.63
JOC070403	92.42	0.00	92.42	0.00	92.42	0.00	0.00	646.97	0.00	646.97	0.00	92.42	554.55
JOC070404	283.72	425.58	0.00	709.30	851.16	0.00	0.00	425.58	0.00	283.72	0.00	425.58	851.16
JOC070405	813.33	2033.33	0.00	135.56	5828.89	0.00	0.00	1220.00	0.00	271.11	0.00	135.56	271.11
JOC070406	237.66	10853.25	0.00	0.00	7763.64	237.66	0.00	6100.00	0.00	79.22	0.00	950.65	79.22
JOC070407	805.66	1381.13	0.00	115.09	1726.42	115.09	0.00	575.47	0.00	0.00	0.00	460.38	1381.13
JOC070408	772.15	5173.42	0.00	308.86	463.29	0.00	0.00	1467.09	0.00	0.00	77.22	772.15	154.43
OTTO10101	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTTO10103	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTTO10105	49.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTTO10107	140.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTTO10109	110.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTTO10111	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTTO10113	129.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTTO10115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTTO10201	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTTO10203	0.00	147.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTTO10205	79.34	79.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTTO10207	89.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTTO10209	82.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTTO10211	0.00	0.00	91.60	0.00	0.00	0.00	91.60	0.00	0.00	0.00	0.00	0.00	0.00
OTTO10213	0.00	189.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTTO10215	72.87	0.00	72.87	0.00	0.00	0.00	0.00	72.87	0.00	0.00	0.00	0.00	0.00

ROCK ID	DE REPT	DE BAE	DE EPHE	DE LEPTO	DT HPSY	DT PHIC	DT POLY	DT PHETI	DT GLOSS	DT FRHYA	DT PIMN	DT APTO	DT PHLE
RID010101	0.00	499.11	443.65	0.00	1164.59	0.00	0.00	277.28	0.00	0.00	0.00	166.37	332.74
RID010103	299.77	999.25	249.81	0.00	1199.10	0.00	0.00	299.77	0.00	0.00	0.00	0.00	149.89
RID010105	0.00	530.46	1326.14	0.00	2970.55	0.00	0.00	53.05	0.00	0.00	0.00	0.00	0.00
RID010107	50.77	812.27	4569.04	0.00	2741.42	964.57	406.14	50.77	0.00	0.00	0.00	50.77	0.00
RID010109	0.00	507.93	390.72	0.00	1211.23	117.22	0.00	39.07	0.00	0.00	0.00	78.14	0.00
RID010111	0.00	567.32	520.05	0.00	1560.14	47.28	47.28	0.00	0.00	0.00	0.00	47.28	0.00
RID010113	38.48	654.08	76.95	0.00	307.80	0.00	0.00	0.00	0.00	0.00	0.00	192.38	0.00
RID010115	0.00	91.69	1146.11	0.00	1971.30	91.69	0.00	0.00	0.00	0.00	0.00	45.84	0.00
RID010201	120.04	80.03	80.03	0.00	240.09	40.01	80.03	1320.47	0.00	0.00	0.00	160.06	0.00
RID010203	0.00	691.18	483.83	0.00	829.42	1036.77	0.00	1727.95	0.00	0.00	0.00	622.06	0.00
RID010205	0.00	497.87	82.98	0.00	622.34	248.93	0.00	2115.95	0.00	0.00	0.00	912.76	41.49
RID010207	0.00	151.88	113.91	0.00	531.57	113.91	0.00	493.60	0.00	0.00	0.00	0.00	0.00
RID010209	114.07	3688.23	38.02	0.00	418.25	152.09	0.00	532.32	0.00	0.00	0.00	722.44	38.02
RID010211	0.00	1112.40	0.00	0.00	635.66	158.91	52.97	158.91	0.00	0.00	0.00	211.89	0.00
RID010213	0.00	75.54	37.77	0.00	0.00	0.00	0.00	37.77	0.00	0.00	0.00	37.77	0.00
RID010215	0.00	163.92	204.91	0.00	286.87	122.94	0.00	204.91	0.00	0.00	40.98	0.00	0.00
RID010301	0.00	118.83	0.00	0.00	752.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID010302	0.00	297.56	0.00	0.00	520.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID010303	0.00	1756.06	184.85	0.00	4990.91	0.00	0.00	2125.76	0.00	0.00	0.00	646.97	0.00
RID010304	0.00	1127.17	66.30	0.00	1425.54	0.00	33.15	33.15	0.00	0.00	0.00	99.46	0.00
RID010305	0.00	412.81	0.00	0.00	1284.29	0.00	0.00	183.47	0.00	0.00	0.00	183.47	0.00
RID010306	0.00	1036.60	0.00	0.00	14592.16	0.00	0.00	1435.29	0.00	0.00	0.00	0.00	0.00
RID010307	0.00	314.43	0.00	0.00	754.64	0.00	0.00	62.89	0.00	0.00	0.00	0.00	62.89
RID010308	0.00	2716.81	205.04	0.00	4767.23	0.00	0.00	51.26	0.00	0.00	0.00	51.26	0.00
RID010401	364.18	4552.24	91.04	0.00	546.27	0.00	91.04	819.40	0.00	0.00	0.00	0.00	91.04
RID010402	0.00	12130.68	277.27	0.00	3604.55	138.64	0.00	3673.86	0.00	0.00	0.00	207.95	69.32
RID010403	642.11	9246.32	64.21	0.00	1733.68	64.21	0.00	1669.47	0.00	0.00	0.00	1155.79	385.26
RID010404	194.68	3569.15	129.79	0.00	584.04	0.00	0.00	584.04	0.00	0.00	0.00	389.36	389.36
RID010405	1105.62	5032.50	228.75	0.00	571.87	38.12	38.12	915.00	0.00	0.00	0.00	838.75	76.25
RID010406	894.67	6872.67	488.00	0.00	2684.00	40.67	0.00	447.33	0.00	0.00	0.00	203.33	0.00
RID010407	91.04	8194.03	91.04	0.00	1365.67	0.00	91.04	1092.54	0.00	0.00	0.00	91.04	0.00
RID010408	41.22	5852.70	535.81	0.00	2102.03	288.51	0.00	1854.73	0.00	0.00	0.00	164.86	123.65
RID020101	442.36	1636.72	707.77	0.00	486.59	132.71	0.00	398.12	0.00	0.00	221.18	884.71	0.00
RID020103	1284.06	291.83	350.20	0.00	175.10	233.47	0.00	350.20	0.00	0.00	0.00	350.20	58.37
RID020105	35.28	70.56	0.00	0.00	35.28	0.00	70.56	35.28	0.00	0.00	0.00	176.41	282.25
RID020107	410.55	0.00	0.00	0.00	307.91	0.00	0.00	0.00	0.00	0.00	0.00	102.64	0.00
RID020109	0.00	838.61	0.00	0.00	209.65	0.00	41.93	209.65	0.00	0.00	251.58	503.17	167.72
RID020111	243.11	347.30	243.11	0.00	694.61	416.77	0.00	34.73	0.00	0.00	0.00	69.46	0.00
RID020113	57.92	752.95	1419.03	0.00	926.71	2664.30	0.00	723.99	0.00	0.00	57.92	608.16	289.60
RID020115	0.00	275.07	584.51	0.00	446.98	68.77	34.38	343.83	0.00	0.00	103.15	1994.22	0.00
RID020201	0.00	109.75	823.16	0.00	2195.09	1207.30	0.00	658.53	0.00	0.00	0.00	493.90	0.00
RID020203	91.42	0.00	731.38	91.42	1737.03	731.38	0.00	457.11	0.00	0.00	0.00	365.69	91.42
RID020205	109.03	109.03	109.03	0.00	0.00	0.00	218.05	327.08	0.00	0.00	0.00	218.05	0.00
RID020207	0.00	184.14	184.14	0.00	368.27	0.00	736.54	2762.04	0.00	0.00	0.00	2762.04	0.00
RID020209	924.73	0.00	355.67	0.00	2560.79	995.86	0.00	2062.86	0.00	0.00	0.00	1422.66	0.00
RID020211	0.00	554.16	692.70	0.00	877.42	1570.12	0.00	646.52	0.00	0.00	0.00	554.16	0.00
RID020213	0.00	114.69	191.15	0.00	497.00	305.84	0.00	649.92	0.00	0.00	38.23	497.00	152.92
RID020215	0.00	828.51	1420.30	0.00	4734.34	1124.41	0.00	355.08	0.00	0.00	59.18	414.26	0.00
RID020301	0.00	397.83	0.00	0.00	5171.74	0.00	0.00	397.83	0.00	0.00	0.00	265.22	0.00
RID020302	43.26	692.20	86.52	0.00	1124.82	0.00	43.26	43.26	0.00	0.00	43.26	346.10	0.00
RID020303	750.00	2500.00	0.00	0.00	2500.00	0.00	0.00	500.00	0.00	0.00	0.00	5000.00	500.00
RID020304	0.00	318.66	0.00	0.00	2503.73	45.52	0.00	0.00	0.00	0.00	0.00	364.18	182.09
RID020305	206.78	103.39	0.00	0.00	51.69	0.00	0.00	103.39	0.00	0.00	0.00	5324.58	4807.63
RID020306	0.00	482.73	0.00	0.00	570.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID020307	98.39	393.55	0.00	0.00	1377.42	0.00	0.00	0.00	0.00	0.00	0.00	196.77	49.19
RID020308	153.46	2838.99	306.92	0.00	5524.53	0.00	0.00	0.00	0.00	0.00	0.00	1841.51	0.00
RID020401	236.89	8646.60	118.45	0.00	829.13	0.00	0.00	3316.50	0.00	0.00	414.56	414.56	0.00
RID020402	717.65	5812.94	215.29	0.00	287.06	0.00	0.00	358.82	0.00	0.00	0.00	0.00	0.00
RID020403	574.12	10764.70	0.00	0.00	1220.00	71.76	0.00	3660.00	0.00	0.00	71.76	287.06	0.00
RID020404	1669.47	3660.00	128.42	0.00	963.16	0.00	64.21	642.11	0.00	0.00	0.00	192.63	128.42
RID020405	239.22	598.04	239.22	0.00	478.43	0.00	0.00	1913.73	0.00	0.00	0.00	239.22	239.22
RID020406	513.68	2504.21	0.00	0.00	321.05	0.00	0.00	1091.58	0.00	0.00	128.42	192.63	0.00
RID020407	196.77	295.16	0.00	0.00	98.39	0.00	98.39	0.00	0.00	0.00	0.00	0.00	0.00
RID020408	544.64	544.64	108.93	0.00	217.86	0.00	0.00	0.00	0.00	0.00	0.00	1198.21	108.93
RID030101	78.14	0.00	39.07	0.00	156.29	0.00	39.07	273.50	0.00	0.00	0.00	0.00	78.14
RID030103	0.00	386.29	0.00	0.00	70.23	0.00	0.00	948.17	0.00	0.00	0.00	35.12	35.12
RID030105	0.00	193.96	48.49	0.00	242.45	96.98	0.00	290.93	0.00	0.00	0.00	48.49	0.00
RID030107	0.00	590.25	0.00	0.00	181.62	0.00	0.00	908.08	0.00	0.00	0.00	45.40	90.81
RID030109	0.00	812.69	0.00	0.00	437.60	187.54	125.03	312.57	0.00	0.00	0.00	125.03	125.03
RID030111	0.00	825.80	0.00	0.00	55.05	55.05	0.00	550.53	0.00	0.00	0.00	0.00	0.00
RID030113	0.00	1860.07	206.67	0.00	950.70	248.01	124.00	372.01	0.00	0.00	82.67	206.67	950.70
RID030115	0.00	117.34	39.11	0.00	117.34	78.22	0.00	821.36	0.00	0.00	0.00	0.00	0.00
RID030201	0.00	0.00	0.00	0.00	0.00	0.00	83.29	83.29	0.00	0.00	0.00	0.00	0.00
RID030203	0.00	0.00	0.00	0.00	0.00	87.51	0.00	350.04	0.00	0.00	0.00	87.51	87.51
RID030205	0.00	99.79	0.00	0.00	0.00	0.00	0.00	399.17	0.00	0.00	0.00	0.00	299.38
RID030207	54.57	0.00	0.00	0.00	0.00	0.00	0.00	381.98	0.00	0.00	0.00	109.14	0.00
RID030209	283.05	0.00	0.00	0.00	0.00	0.00	0.00	169.83	0.00	0.00	56.61	113.22	113.22
RID030211	336.13	67.23	0.00	0.00	0.00	0.00	0.00	67.23	0.00	0.00	0.00	0.00	470.58
RID030213	576.42	82.35	0.00	82.35	82.35	0.00	82.35	329.38	0.00	82.35	0.00	82.35	0.00
RID030215	1604.12	178.24	0.00	0.00	0.00	0.00	267.35	267.35	0.00	0.00	0.00	0.00	0.00

ROCK ID	DE HFT	DE BAE	DE PHE	DE FTO	DT HPS	DT PHE	DT FTO	DT PHE	DT GLOSS	DT RHYA	DT FTO	DT PHE	DT FTO
RID030301	0.00	332.73	0.00	0.00	110.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID030302	0.00	329.73	0.00	0.00	0.00	0.00	82.43	0.00	0.00	0.00	989.19	164.86	82.43
RID030303	0.00	285.94	0.00	0.00	95.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID030304	0.00	374.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID030305	0.00	771.26	0.00	0.00	631.03	0.00	0.00	70.11	0.00	0.00	0.00	0.00	140.23
RID030306	125.77	125.77	0.00	0.00	251.55	0.00	0.00	125.77	0.00	0.00	0.00	0.00	125.77
RID030307	64.89	194.68	0.00	0.00	129.79	0.00	64.89	0.00	0.00	0.00	0.00	64.89	0.00
RID030308	0.00	254.17	0.00	0.00	127.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID030401	387.30	0.00	0.00	0.00	0.00	0.00	96.83	1258.73	0.00	0.00	0.00	0.00	0.00
RID030402	160.53	561.84	0.00	0.00	80.26	0.00	0.00	802.63	0.00	0.00	0.00	240.79	240.79
RID030403	1464.00	894.67	0.00	0.00	0.00	0.00	162.67	813.33	0.00	0.00	488.00	81.33	569.33
RID030404	460.38	5064.15	0.00	0.00	460.38	0.00	0.00	633.02	0.00	0.00	0.00	115.09	863.21
RID030405	115.09	3222.64	230.19	0.00	230.19	0.00	0.00	345.28	0.00	0.00	0.00	115.09	115.09
RID030406	325.33	1382.67	0.00	0.00	162.67	0.00	325.33	488.00	0.00	0.00	0.00	406.67	162.67
RID030407	474.44	2101.11	0.00	0.00	67.78	0.00	0.00	677.78	0.00	0.00	0.00	0.00	135.56
RID030408	396.10	871.43	0.00	0.00	79.22	0.00	0.00	316.88	0.00	0.00	0.00	0.00	237.66
RID040101	69.40	1700.23	0.00	0.00	451.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	69.40
RID040103	120.07	1520.86	0.00	0.00	120.07	40.02	0.00	0.00	0.00	0.00	0.00	120.07	0.00
RID040105	0.00	1930.40	142.99	0.00	71.50	0.00	0.00	0.00	0.00	0.00	0.00	214.49	142.99
RID040107	0.00	1086.82	0.00	0.00	0.00	0.00	0.00	144.91	0.00	0.00	0.00	108.68	0.00
RID040109	0.00	2559.02	0.00	0.00	86.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID040111	0.00	1134.64	0.00	0.00	270.15	810.46	0.00	0.00	0.00	0.00	0.00	108.06	0.00
RID040113	0.00	999.54	0.00	0.00	257.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID040115	0.00	2286.53	0.00	0.00	187.42	0.00	0.00	149.94	0.00	0.00	0.00	37.48	0.00
RID040201	0.00	327.74	0.00	0.00	72.83	0.00	0.00	0.00	0.00	0.00	0.00	72.83	72.83
RID040203	0.00	219.09	0.00	0.00	0.00	0.00	0.00	73.03	0.00	0.00	0.00	0.00	0.00
RID040205	0.00	127.65	0.00	0.00	63.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID040207	0.00	195.99	0.00	0.00	342.99	0.00	0.00	49.00	0.00	0.00	0.00	49.00	98.00
RID040209	0.00	842.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID040211	0.00	726.07	0.00	0.00	330.03	0.00	0.00	132.01	0.00	0.00	0.00	0.00	0.00
RID040213	0.00	135.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID040215	0.00	1235.51	0.00	0.00	296.52	0.00	0.00	98.84	0.00	0.00	0.00	197.68	0.00
RID040301	0.00	0.00	0.00	0.00	83.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID040302	0.00	327.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID040303	0.00	288.19	0.00	0.00	3554.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID040304	50.41	50.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID040305	0.00	59.80	0.00	0.00	119.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID040306	0.00	0.00	0.00	0.00	75.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID040307	0.00	0.00	0.00	0.00	288.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID040308	0.00	109.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID040401	290.48	2788.57	116.19	0.00	1278.10	0.00	0.00	58.10	0.00	0.00	0.00	58.10	232.38
RID040402	70.11	2454.02	911.49	0.00	2383.91	0.00	0.00	70.11	0.00	0.00	0.00	0.00	0.00
RID040403	908.51	3634.04	908.51	0.00	389.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID040404	149.69	4266.26	37.42	0.00	261.96	0.00	0.00	187.12	0.00	0.00	0.00	0.00	187.12
RID040405	207.95	2079.55	762.50	0.00	207.95	0.00	0.00	69.32	0.00	0.00	0.00	69.32	0.00
RID040406	559.17	3914.17	1169.17	0.00	305.00	0.00	50.83	203.33	0.00	0.00	0.00	0.00	0.00
RID040407	223.17	3942.68	1041.46	0.00	148.78	0.00	0.00	446.34	0.00	0.00	0.00	0.00	0.00
RID040408	208.55	5057.26	1407.69	0.00	729.91	0.00	0.00	573.50	0.00	0.00	0.00	52.14	0.00
RID050101	0.00	0.00	50.03	0.00	50.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID050103	0.00	62.51	0.00	0.00	0.00	0.00	0.00	62.51	0.00	0.00	0.00	0.00	0.00
RID050105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID050107	0.00	708.11	0.00	0.00	41.65	0.00	0.00	0.00	0.00	0.00	0.00	41.65	0.00
RID050109	0.00	809.02	0.00	0.00	67.42	0.00	0.00	67.42	0.00	0.00	0.00	0.00	0.00
RID050111	0.00	387.69	0.00	0.00	43.08	0.00	0.00	0.00	0.00	0.00	0.00	43.08	43.08
RID050113	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.83	0.00
RID050115	0.00	141.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.10	0.00
RID050201	0.00	66.67	0.00	0.00	0.00	0.00	0.00	266.67	0.00	0.00	0.00	0.00	0.00
RID050203	66.67	0.00	133.33	0.00	66.67	0.00	0.00	66.67	0.00	0.00	0.00	66.67	0.00
RID050205	0.00	3933.33	533.33	0.00	2800.00	133.33	0.00	1200.00	0.00	0.00	0.00	0.00	0.00
RID050207	0.00	3333.33	600.00	0.00	3933.33	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00
RID050209	0.00	4533.33	866.67	0.00	6333.33	0.00	0.00	266.67	0.00	0.00	0.00	66.67	0.00
RID050211	66.67	133.33	333.33	0.00	266.67	0.00	0.00	66.67	0.00	0.00	0.00	133.33	0.00
RID050213	0.00	466.67	1000.00	0.00	3800.00	0.00	0.00	933.33	0.00	0.00	0.00	866.67	0.00
RID050215	0.00	0.00	1666.67	0.00	1933.33	0.00	0.00	333.33	0.00	0.00	0.00	0.00	0.00
RID050301	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.26	0.00	0.00	0.00	51.26	0.00
RID050302	0.00	46.21	0.00	0.00	46.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID050303	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID050304	417.81	0.00	0.00	0.00	83.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID050305	0.00	0.00	0.00	0.00	72.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID050306	0.00	0.00	0.00	0.00	324.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID050307	0.00	56.48	0.00	0.00	1016.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID050308	0.00	0.00	0.00	0.00	84.72	0.00	0.00	84.72	0.00	0.00	0.00	169.44	0.00
RID050401	254.17	0.00	0.00	0.00	254.17	0.00	0.00	1016.67	0.00	0.00	0.00	0.00	0.00
RID050402	0.00	167.12	0.00	0.00	334.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID050403	0.00	2233.80	1890.14	0.00	3264.79	0.00	0.00	515.49	0.00	0.00	0.00	0.00	0.00
RID050404	107.96	5776.11	3400.88	0.00	1457.52	215.93	0.00	107.96	0.00	0.00	0.00	53.98	0.00
RID050405	0.00	265.22	3359.42	0.00	530.43	176.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID050406	0.00	411.24	3906.74	0.00	1439.33	685.39	0.00	205.62	0.00	0.00	0.00	0.00	0.00
RID050407	0.00	4384.37	5814.06	0.00	2192.19	571.87	0.00	285.94	0.00	0.00	0.00	0.00	0.00
RID050408	0.00	242.06	2807.94	0.00	823.02	0.00	0.00	677.78	0.00	0.00	0.00	0.00	0.00

ROCK ID	DE-HEPT	DE-BAL	DE-EPHE	DE-LEPTO	DE-HPSY	DE-PHIE	DE-POLE	DE-HEPTU	DE-GROSS	DE-RHYA	DE-EMN	DE-LEPTO	DE-HEPT
RID060101	859.58	4045.08	303.38	0.00	657.33	0.00	50.56	1365.21	0.00	50.56	0.00	303.38	303.38
RID060103	580.50	2589.90	89.31	0.00	1786.14	0.00	44.65	1027.03	0.00	0.00	0.00	357.23	0.00
RID060105	0.00	1903.77	571.13	0.00	1459.55	126.92	63.46	761.51	0.00	0.00	190.38	507.67	0.00
RID060107	71.97	3886.51	1871.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	359.86	0.00
RID060109	166.61	583.15	749.77	0.00	1499.53	0.00	0.00	83.31	0.00	0.00	0.00	333.23	0.00
RID060111	126.71	380.12	2534.10	0.00	5448.32	506.82	126.71	506.82	0.00	0.00	0.00	1773.87	0.00
RID060113	275.07	0.00	2750.65	0.00	2750.65	825.20	0.00	137.53	0.00	0.00	0.00	137.53	0.00
RID060115	0.00	608.18	38.01	0.00	1558.47	0.00	0.00	0.00	0.00	0.00	0.00	114.03	38.01
RID060201	0.00	866.67	466.67	0.00	733.33	0.00	0.00	0.00	0.00	0.00	0.00	1400.00	0.00
RID060203	400.00	2800.00	866.67	0.00	3333.33	0.00	0.00	0.00	0.00	0.00	66.67	133.33	0.00
RID060205	0.00	333.33	0.00	0.00	600.00	0.00	0.00	66.67	0.00	0.00	0.00	533.33	0.00
RID060207	533.33	1666.67	2600.00	0.00	3266.67	666.67	0.00	0.00	0.00	0.00	0.00	133.33	0.00
RID060209	400.00	66.67	0.00	0.00	133.33	0.00	0.00	0.00	0.00	0.00	0.00	66.67	0.00
RID060211	266.67	133.33	533.33	0.00	1200.00	0.00	0.00	133.33	0.00	0.00	0.00	266.67	0.00
RID060213	266.67	3000.00	2266.67	0.00	9133.33	66.67	0.00	66.67	0.00	0.00	0.00	66.67	0.00
RID060215	200.00	3066.67	1200.00	0.00	3400.00	0.00	0.00	0.00	0.00	0.00	0.00	133.33	0.00
RID060301	0.00	96.83	0.00	0.00	48.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID060302	0.00	618.84	0.00	0.00	3271.01	0.00	0.00	176.81	0.00	0.00	0.00	88.41	0.00
RID060303	62.24	0.00	62.24	0.00	1431.63	0.00	0.00	124.49	0.00	0.00	0.00	373.47	0.00
RID060304	0.00	397.83	0.00	0.00	3646.74	0.00	0.00	66.30	0.00	0.00	0.00	66.30	0.00
RID060305	0.00	150.00	250.00	0.00	3150.00	0.00	0.00	100.00	0.00	0.00	0.00	550.00	0.00
RID060306	232.38	232.38	348.57	0.00	929.52	0.00	0.00	0.00	0.00	0.00	58.10	232.38	0.00
RID060307	0.00	252.41	0.00	0.00	3660.00	0.00	0.00	0.00	0.00	0.00	0.00	504.83	0.00
RID060308	0.00	271.11	0.00	0.00	3253.33	0.00	0.00	135.56	0.00	0.00	0.00	338.89	0.00
RID060401	446.34	15621.95	892.68	0.00	2082.93	297.56	0.00	1190.24	0.00	0.00	0.00	595.12	0.00
RID060402	219.82	4890.99	109.91	0.00	274.77	0.00	0.00	164.86	0.00	0.00	0.00	329.73	54.95
RID060403	107.02	5564.91	0.00	0.00	856.14	0.00	0.00	321.05	0.00	0.00	0.00	214.04	0.00
RID060404	257.75	2921.13	0.00	0.00	601.41	0.00	0.00	85.92	0.00	0.00	0.00	257.75	85.92
RID060405	133.33	3333.33	66.67	0.00	1266.67	0.00	0.00	200.00	0.00	0.00	0.00	133.33	66.67
RID060406	92.42	4251.52	0.00	0.00	554.55	0.00	0.00	277.27	0.00	0.00	0.00	92.42	0.00
RID060407	0.00	2721.54	187.69	0.00	656.92	0.00	0.00	93.85	0.00	0.00	0.00	93.85	0.00
RID060408	575.47	863.21	978.30	0.00	1323.58	0.00	0.00	57.55	0.00	0.00	0.00	57.55	0.00
RID070101	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	114.96	0.00
RID070103	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID070105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID070107	0.00	107.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID070109	0.00	41.43	0.00	0.00	0.00	0.00	0.00	41.43	0.00	0.00	0.00	0.00	0.00
RID070111	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID070113	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.98	0.00	0.00	0.00	0.00	0.00
RID070115	0.00	0.00	0.00	0.00	105.84	0.00	0.00	0.00	0.00	0.00	0.00	35.28	0.00
RID070201	0.00	333.33	0.00	0.00	1800.00	0.00	0.00	133.33	0.00	0.00	0.00	0.00	0.00
RID070203	0.00	400.00	0.00	0.00	3800.00	0.00	0.00	1133.33	0.00	0.00	0.00	600.00	0.00
RID070205	0.00	66.67	0.00	0.00	1400.00	0.00	66.67	133.33	0.00	0.00	0.00	133.33	0.00
RID070207	0.00	466.67	0.00	0.00	4066.67	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00
RID070209	0.00	200.00	0.00	0.00	2733.33	0.00	0.00	0.00	0.00	0.00	0.00	66.67	0.00
RID070211	0.00	0.00	0.00	0.00	866.67	0.00	0.00	66.67	0.00	0.00	0.00	933.33	0.00
RID070213	66.67	1133.33	0.00	0.00	5000.00	0.00	0.00	266.67	0.00	0.00	0.00	0.00	0.00
RID070215	0.00	0.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	266.67	0.00
RID070301	0.00	0.00	0.00	0.00	132.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID070302	0.00	0.00	0.00	0.00	592.23	0.00	0.00	0.00	0.00	0.00	0.00	59.22	0.00
RID070303	0.00	0.00	0.00	0.00	2135.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID070304	0.00	0.00	0.00	0.00	7280.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID070305	0.00	55.96	0.00	0.00	895.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID070306	0.00	0.00	0.00	0.00	64.89	0.00	0.00	64.89	0.00	0.00	0.00	194.68	0.00
RID070307	0.00	0.00	0.00	0.00	4402.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID070308	0.00	0.00	0.00	0.00	2416.98	0.00	0.00	0.00	0.00	0.00	0.00	57.55	0.00
RID070401	0.00	4405.56	0.00	0.00	3501.85	0.00	0.00	225.93	0.00	0.00	0.00	0.00	0.00
RID070402	0.00	3838.20	205.62	0.00	5003.37	0.00	0.00	274.16	0.00	0.00	0.00	68.54	0.00
RID070403	48.03	2257.48	0.00	0.00	3074.02	0.00	0.00	192.13	0.00	0.00	0.00	0.00	0.00
RID070404	0.00	3910.25	0.00	0.00	3519.23	0.00	0.00	234.62	0.00	0.00	0.00	234.62	0.00
RID070405	0.00	6276.81	176.81	0.00	3624.64	0.00	0.00	2298.55	0.00	0.00	0.00	0.00	88.41
RID070406	0.00	1382.67	0.00	0.00	1952.00	0.00	0.00	81.33	0.00	0.00	0.00	0.00	81.33
RID070407	0.00	10000.00	0.00	0.00	3800.00	0.00	0.00	600.00	0.00	0.00	0.00	100.00	0.00
RID070408	83.56	3593.15	0.00	0.00	2005.48	0.00	0.00	167.12	0.00	0.00	0.00	0.00	0.00
RID080101	0.00	0.00	0.00	0.00	0.00	0.00	0.00	79.54	0.00	0.00	0.00	318.16	0.00
RID080103	0.00	46.98	0.00	0.00	187.93	0.00	93.97	187.93	0.00	0.00	0.00	187.93	0.00
RID080105	67.00	0.00	33.50	0.00	134.00	0.00	201.00	33.50	0.00	0.00	0.00	1072.00	0.00
RID080107	43.37	43.37	0.00	0.00	0.00	86.75	86.75	0.00	0.00	0.00	0.00	260.24	0.00
RID080109	48.24	0.00	48.24	0.00	916.59	144.73	0.00	144.73	0.00	0.00	0.00	1254.28	0.00
RID080111	0.00	0.00	0.00	0.00	173.29	0.00	0.00	43.32	0.00	0.00	0.00	216.62	0.00
RID080113	0.00	161.98	0.00	0.00	0.00	0.00	121.48	0.00	0.00	0.00	0.00	688.40	0.00
RID080115	0.00	59.28	0.00	0.00	237.13	0.00	0.00	0.00	0.00	0.00	0.00	533.53	0.00
RID080201	266.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2266.67	0.00
RID080203	0.00	0.00	0.00	0.00	0.00	0.00	66.67	0.00	0.00	0.00	0.00	2333.33	0.00
RID080205	66.67	0.00	0.00	66.67	66.67	0.00	200.00	0.00	0.00	0.00	0.00	533.33	0.00
RID080207	133.33	0.00	66.67	0.00	0.00	0.00	533.33	66.67	0.00	0.00	0.00	600.00	0.00
RID080209	733.33	0.00	0.00	0.00	0.00	0.00	333.33	66.67	0.00	0.00	0.00	2933.33	0.00
RID080211	133.33	0.00	0.00	0.00	66.67	66.67	266.67	133.33	0.00	0.00	0.00	2333.33	0.00
RID080213	66.67	0.00	0.00	0.00	0.00	0.00	66.67	133.33	0.00	0.00	0.00	1000.00	0.00
RID080215	66.67	0.00	0.00	0.00	0.00	0.00	66.67	0.00	0.00	0.00	66.67	266.67	0.00

ROCKIDS	DEFEET	DEBAE	DEPHB	DEPLETO	DEPHSY	DEPHB	DEPOLA	DEPHB	DEGLSS	DEBRYA	DEPHB	DEPLETO	DEPHB
RID080301	36.09	36.09	0.00	0.00	5269.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID080302	111.93	223.85	0.00	0.00	3749.54	0.00	0.00	0.00	0.00	0.00	0.00	55.96	0.00
RID080303	39.87	199.35	0.00	0.00	4704.57	0.00	0.00	0.00	0.00	0.00	0.00	199.35	0.00
RID080304	184.85	123.23	0.00	0.00	1417.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RID080305	82.43	164.86	0.00	0.00	3379.73	0.00	0.00	0.00	0.00	0.00	0.00	164.86	0.00
RID080306	118.45	0.00	0.00	0.00	4264.09	0.00	0.00	0.00	0.00	0.00	0.00	236.89	0.00
RID080307	188.27	37.65	0.00	0.00	3087.65	0.00	0.00	0.00	0.00	0.00	0.00	37.65	0.00
RID080308	145.24	145.24	0.00	0.00	3340.48	0.00	0.00	0.00	0.00	0.00	0.00	48.41	0.00
RID080401	217.86	54.46	0.00	0.00	653.57	0.00	272.32	54.46	0.00	0.00	0.00	1851.79	54.46
RID080402	70.11	140.23	0.00	0.00	981.61	0.00	70.11	70.11	0.00	0.00	0.00	210.34	0.00
RID080403	148.78	0.00	0.00	0.00	2182.11	0.00	0.00	0.00	0.00	0.00	0.00	99.19	0.00
RID080404	0.00	134.07	0.00	0.00	1675.82	0.00	201.10	335.16	0.00	0.00	0.00	1541.76	0.00
RID080405	0.00	244.00	0.00	0.00	671.00	0.00	61.00	61.00	0.00	0.00	0.00	732.00	0.00
RID080406	102.52	102.52	0.00	0.00	153.78	0.00	102.52	205.04	0.00	0.00	0.00	1230.25	0.00
RID080407	0.00	435.71	0.00	0.00	2178.57	0.00	87.14	610.00	0.00	0.00	0.00	610.00	0.00
RID080408	82.43	0.00	0.00	0.00	577.03	0.00	0.00	1318.92	0.00	0.00	0.00	0.00	0.00

ROCK ID	ADTSYS	ADTSLEPT	ADTSBRA	ADTS1	ADTS2	ADTSPECH	ADTS	ADTSPT	ADTS	ADTS	ADTS	ADTS	ADTS	ADTS	ADTS	ADTS
JOC030301	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7281.87	800.62	5604.37	0.11	0.77	0.14	152.50	0.02	
JOC030302	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7726.67	1138.67	6100.00	0.15	0.79	0.19	0.00	0.00	
JOC030303	0.00	0.00	91.04	0.00	0.00	0.00	0.00	36782.08	3368.66	28314.92	0.09	0.77	0.12	1001.49	0.03	
JOC030304	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51405.22	14233.34	30182.30	0.28	0.59	0.47	1080.21	0.02	
JOC030305	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28418.82	4090.59	20381.17	0.14	0.72	0.20	502.35	0.02	
JOC030306	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33519.19	6038.38	24769.69	0.18	0.74	0.24	1725.25	0.05	
JOC030307	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24976.38	5235.43	17723.62	0.21	0.71	0.30	864.57	0.03	
JOC030308	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14462.91	3837.10	10232.26	0.27	0.71	0.38	885.48	0.06	
JOC030401	0.00	0.00	1882.72	0.00	0.00	0.00	0.00	55954.31	24776.54	26132.10	0.44	0.47	0.95	6250.62	0.11	
JOC030402	0.00	0.00	1742.86	0.00	0.00	0.00	0.00	36130.78	14345.06	18031.87	0.40	0.50	0.80	3619.78	0.10	
JOC030403	0.00	0.00	237.66	0.00	0.00	0.00	0.00	26063.64	12754.55	8793.51	0.49	0.34	1.45	1425.97	0.05	
JOC030404	0.00	0.00	536.26	0.00	0.00	0.00	0.00	29762.64	9853.85	16825.28	0.33	0.57	0.59	2748.35	0.09	
JOC030405	0.00	0.00	968.25	0.00	0.00	0.00	0.00	33404.76	8520.63	19946.03	0.26	0.60	0.43	1452.38	0.04	
JOC030406	0.00	0.00	1326.09	0.00	0.00	0.00	0.00	28997.09	12200.00	12376.81	0.42	0.43	0.99	2033.33	0.07	
JOC030407	0.00	0.00	1557.45	0.00	0.00	0.00	0.00	58144.68	16482.98	23751.06	0.28	0.41	0.69	3763.83	0.06	
JOC030408	0.00	0.00	3852.63	0.00	0.00	0.00	0.00	43663.16	14340.35	19156.14	0.33	0.44	0.75	5778.95	0.13	
JOC040101	0.00	0.00	0.00	75.19	0.00	0.00	0.00	87372.89	19850.64	58048.08	0.23	0.66	0.34	827.11	0.01	
JOC040103	0.00	0.00	0.00	0.00	0.00	0.00	0.00	57495.19	17112.31	32916.68	0.30	0.57	0.52	5013.80	0.09	
JOC040105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12823.28	3998.27	6807.87	0.31	0.53	0.59	1404.80	0.11	
JOC040107	0.00	0.00	0.00	98.49	0.00	0.00	0.00	109327.72	14577.03	88151.63	0.13	0.81	0.17	1083.43	0.01	
JOC040109	0.00	0.00	0.00	75.04	0.00	0.00	0.00	25589.53	6978.96	16059.12	0.27	0.63	0.43	1650.94	0.06	
JOC040111	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1981.54	258.46	1636.92	0.13	0.83	0.16	172.31	0.09	
JOC040113	0.00	0.00	0.00	45.46	0.00	0.00	0.00	17274.23	1545.59	14864.93	0.09	0.86	0.10	181.83	0.01	
JOC040115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25331.19	4119.61	19765.34	0.16	0.78	0.21	964.16	0.04	
JOC040201	0.00	0.00	107.20	0.00	0.00	0.00	0.00	17152.60	7075.45	7075.45	0.41	0.41	1.00	3108.91	0.18	
JOC040203	0.00	0.00	153.65	0.00	0.00	0.00	0.00	34725.40	13137.26	13982.35	0.38	0.40	0.94	6376.57	0.18	
JOC040205	0.00	0.00	296.59	0.00	0.00	0.00	0.00	104697.20	26100.15	14592.36	0.25	0.14	1.79	13050.08	0.12	
JOC040207	0.00	0.00	66.91	0.00	0.00	0.00	0.00	34857.59	13046.51	6690.52	0.37	0.19	1.95	3612.88	0.10	
JOC040209	0.00	0.00	134.52	0.00	0.00	0.00	0.00	45200.14	13317.90	8340.50	0.29	0.18	1.60	6995.26	0.15	
JOC040211	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7494.26	3852.19	1750.99	0.51	0.23	2.20	700.40	0.09	
JOC040213	0.00	0.00	346.67	0.00	0.00	0.00	0.00	25029.43	9290.70	4922.69	0.37	0.20	1.89	6240.02	0.25	
JOC040215	0.00	0.00	170.98	0.00	0.00	0.00	0.00	54543.62	20261.50	15217.50	0.37	0.28	1.33	5129.49	0.09	
JOC040301	0.00	0.00	50.41	0.00	0.00	50.41	0.00	45976.85	11947.93	26719.00	0.26	0.58	0.45	5595.87	0.12	
JOC040302	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30411.58	3271.01	25549.26	0.11	0.84	0.13	530.43	0.02	
JOC040303	0.00	0.00	892.68	0.00	0.00	0.00	0.00	133753.69	51924.40	59958.55	0.39	0.45	0.87	14282.93	0.11	
JOC040304	0.00	0.00	0.00	0.00	0.00	0.00	0.00	79711.26	21589.89	45373.05	0.27	0.57	0.48	6374.16	0.08	
JOC040305	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18141.56	6020.78	10536.36	0.33	0.58	0.57	1980.52	0.11	
JOC040306	0.00	0.00	0.00	0.00	0.00	0.00	0.00	147280.41	73074.22	67791.75	0.50	0.46	1.08	4905.15	0.03	
JOC040307	0.00	0.00	57.01	0.00	0.00	0.00	0.00	45436.46	17729.91	26851.41	0.39	0.59	0.66	3534.58	0.08	
JOC040308	0.00	0.00	0.00	0.00	0.00	0.00	0.00	152932.33	46015.04	90526.32	0.30	0.59	0.51	10075.19	0.07	
JOC040401	0.00	0.00	107.02	0.00	0.00	0.00	0.00	24721.05	10380.70	10059.65	0.42	0.41	1.03	2889.47	0.12	
JOC040402	0.00	0.00	0.00	0.00	0.00	0.00	0.00	37210.00	17486.67	13216.67	0.47	0.36	1.32	1423.33	0.04	
JOC040403	0.00	0.00	560.92	0.00	0.00	0.00	0.00	85119.51	48659.75	26643.67	0.57	0.31	1.83	1682.76	0.02	
JOC040404	0.00	0.00	81.33	0.00	0.00	0.00	0.00	44408.01	22204.00	12200.00	0.50	0.27	1.82	4798.67	0.11	
JOC040405	0.00	0.00	268.13	0.00	0.00	0.00	0.00	85869.25	55168.14	15484.62	0.64	0.18	3.56	8848.35	0.10	
JOC040406	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27375.61	14431.71	5802.44	0.53	0.21	2.49	2231.71	0.08	
JOC040407	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27537.14	17167.14	7494.29	0.62	0.27	2.29	522.86	0.02	
JOC040408	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59856.25	44987.50	11437.50	0.75	0.19	3.93	508.33	0.01	
JOC050101	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1466.64	533.32	888.87	0.36	0.61	0.60	444.44	0.30	
JOC050103	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7853.64	4753.52	2790.11	0.61	0.36	1.70	413.35	0.05	
JOC050105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6404.55	1774.23	3808.11	0.28	0.59	0.47	476.01	0.07	
JOC050107	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8800.05	3869.52	2933.35	0.44	0.33	1.32	686.53	0.08	
JOC050109	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13167.08	3576.24	8723.87	0.27	0.66	0.41	379.30	0.03	
JOC050111	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9217.00	1525.57	5720.90	0.17	0.62	0.27	190.70	0.02	
JOC050113	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5822.45	831.78	4256.75	0.14	0.73	0.20	391.43	0.07	
JOC050115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3906.65	2060.65	858.60	0.53	0.22	2.40	601.02	0.15	
JOC050201	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5583.44	1317.44	2258.47	0.24	0.40	0.58	752.82	0.13	
JOC050203	0.00	0.00	383.68	0.00	0.00	0.00	0.00	5131.75	1294.93	2829.66	0.25	0.55	0.46	863.29	0.17	
JOC050205	0.00	0.00	4336.22	0.00	0.00	0.00	0.00	10214.21	6841.59	1830.85	0.67	0.18	3.74	5010.74	0.49	
JOC050207	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1534.73	287.76	1055.13	0.19	0.69	0.27	95.92	0.06	
JOC050209	0.00	0.00	531.95	0.00	0.00	0.00	0.00	13678.65	6991.31	4787.53	0.51	0.35	1.46	2203.78	0.16	
JOC050211	0.00	0.00	1521.34	0.00	0.00	0.00	0.00	5947.06	3180.99	2397.27	0.53	0.40	1.33	1705.75	0.29	
JOC050213	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2000.66	772.98	909.39	0.39	0.45	0.85	318.29	0.16	
JOC050215	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1976.73	329.46	593.02	0.17	0.30	0.56	197.67	0.10	
JOC050301	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21571.01	3094.20	17681.15	0.14	0.82	0.18	618.84	0.03	
JOC050302	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22657.15	3552.75	18367.04	0.16	0.81	0.19	1541.76	0.07	
JOC050303	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13155.42	1396.39	10730.12	0.11	0.82	0.13	440.96	0.03	
JOC050304	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10594.73	963.16	9471.05	0.09	0.89	0.10	80.26	0.01	
JOC050305	0.00	0.00	221.82	0.00	0.00	0.00	0.00	45029.08	9538.18	33605.45	0.21	0.75	0.28	942.73	0.02	
JOC050306	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18412.96	2259.26	15984.26	0.12	0.87	0.14	225.93	0.01	
JOC050307	0.00	0.00	305.00	0.00	0.00	0.00	0.00	18178.00	3843.00	13603.00	0.21	0.75	0.28	1098.00	0.06	
JOC050308	0.00	0.00	0.00	0.00	0.00	0.00	0.00	29280.00	7448.42	20290.53	0.25	0.69	0.37	642.11	0.02	
JOC050401	0.00	0.00	87.14	0.00	0.00	0.00	0.									

ROCK ID#	DTF SYC	DTF LEI	DTF BRK	DTF 1	DTF 2	DTF PER	DTF DOL	DTF EP	DTF M	DTF P	DTF S	DTF T	DTF U	DTF V	DTF W
RID030301	0.00	0.00	0.00	0.00	0.00	0.00	13641.82	332.73	13198.18	0.02	0.97	0.03	0.00	0.00	0.00
RID030302	0.00	0.00	0.00	0.00	0.00	0.00	17475.67	2472.97	11458.11	0.14	0.66	0.22	659.46	0.04	0.00
RID030303	0.00	0.00	0.00	0.00	0.00	0.00	3050.00	381.25	2096.88	0.13	0.69	0.18	0.00	0.00	0.00
RID030304	0.00	0.00	0.00	0.00	0.00	0.00	5778.95	374.56	5243.86	0.06	0.91	0.07	0.00	0.00	0.00
RID030305	0.00	0.00	0.00	0.00	0.00	0.00	15144.82	1472.41	12620.69	0.10	0.83	0.12	140.23	0.01	0.00
RID030306	0.00	0.00	0.00	0.00	0.00	0.00	15658.76	754.64	12703.09	0.05	0.81	0.06	314.43	0.02	0.00
RID030307	0.00	0.00	0.00	0.00	0.00	0.00	6943.62	584.04	6164.89	0.08	0.89	0.09	194.68	0.03	0.00
RID030308	0.00	0.00	0.00	0.00	0.00	0.00	10675.00	381.25	10166.67	0.04	0.95	0.04	0.00	0.00	0.00
RID030401	0.00	0.00	1549.21	0.00	0.00	0.00	18203.17	3679.36	12103.17	0.20	0.66	0.30	2420.63	0.13	0.00
RID030402	0.00	0.00	321.05	0.00	0.00	0.00	11397.37	3130.26	7063.16	0.27	0.62	0.44	1364.47	0.12	0.00
RID030403	0.00	0.00	1545.33	0.00	0.00	0.00	19113.34	5774.67	6750.67	0.30	0.35	0.86	3822.67	0.20	0.00
RID030404	0.00	0.00	2014.15	0.00	0.00	0.00	15767.92	9783.02	2532.08	0.62	0.16	3.86	3452.83	0.22	0.00
RID030405	0.00	0.00	1150.94	0.00	0.00	0.00	11739.62	554.72	4488.68	0.49	0.38	1.28	1841.51	0.16	0.00
RID030406	0.00	0.00	2196.00	0.00	0.00	0.00	13176.00	5937.33	5205.33	0.45	0.40	1.14	3416.00	0.26	0.00
RID030407	0.00	0.00	271.11	0.00	0.00	0.00	7048.89	3931.11	1762.22	0.56	0.25	2.23	948.89	0.13	0.00
RID030408	0.00	0.00	0.00	0.00	0.00	0.00	4674.03	1980.52	1029.87	0.42	0.22	1.92	712.99	0.15	0.00
RID040101	0.00	0.00	0.00	0.00	0.00	0.00	20749.77	2394.20	15683.77	0.12	0.76	0.15	138.79	0.01	0.00
RID040103	0.00	0.00	0.00	0.00	0.00	0.00	33138.82	1921.09	28816.37	0.06	0.87	0.07	280.16	0.01	0.00
RID040105	0.00	0.00	0.00	0.00	0.00	0.00	24165.71	2430.87	19160.98	0.10	0.79	0.13	500.47	0.02	0.00
RID040107	0.00	0.00	0.00	0.00	0.00	0.00	18403.56	1304.19	16157.45	0.07	0.88	0.08	108.68	0.01	0.00
RID040109	0.00	0.00	0.00	0.00	0.00	0.00	41594.96	2775.89	36346.79	0.07	0.87	0.08	0.00	0.00	0.00
RID040111	0.00	0.00	0.00	0.00	0.00	0.00	22368.71	2647.50	18046.25	0.12	0.81	0.15	918.52	0.04	0.00
RID040113	0.00	0.00	0.00	0.00	0.00	0.00	17443.67	1289.74	15960.47	0.07	0.91	0.08	0.00	0.00	0.00
RID040115	0.00	0.00	0.00	0.00	0.00	0.00	35010.17	2623.89	20841.17	0.07	0.60	0.13	37.48	0.00	0.00
RID040201	0.00	0.00	0.00	0.00	0.00	0.00	6482.02	546.24	4187.82	0.08	0.65	0.13	145.66	0.02	0.00
RID040203	0.00	0.00	0.00	0.00	0.00	0.00	2044.80	365.14	1168.46	0.18	0.57	0.31	0.00	0.00	0.00
RID040205	0.00	0.00	63.82	0.00	0.00	0.00	11424.31	255.29	7786.40	0.02	0.68	0.03	63.82	0.01	0.00
RID040207	0.00	0.00	0.00	0.00	0.00	0.00	9897.57	783.97	4360.81	0.08	0.44	0.18	195.99	0.02	0.00
RID040209	0.00	0.00	0.00	0.00	0.00	0.00	2914.82	842.06	1554.57	0.29	0.53	0.54	0.00	0.00	0.00
RID040211	0.00	0.00	0.00	0.00	0.00	0.00	23894.20	8514.78	9042.83	0.36	0.38	0.94	66.01	0.00	0.00
RID040213	0.00	0.00	0.00	0.00	0.00	0.00	743.05	135.10	540.40	0.18	0.73	0.25	0.00	0.00	0.00
RID040215	0.00	0.00	0.00	0.00	0.00	0.00	23227.62	1927.40	7067.13	0.08	0.30	0.27	197.68	0.01	0.00
RID040301	0.00	0.00	0.00	0.00	0.00	0.00	2590.41	83.56	1504.11	0.03	0.58	0.06	0.00	0.00	0.00
RID040302	0.00	0.00	0.00	0.00	0.00	0.00	2951.61	590.32	1180.65	0.20	0.40	0.50	0.00	0.00	0.00
RID040303	0.00	0.00	0.00	0.00	0.00	0.00	7540.95	4130.71	2353.54	0.55	0.31	1.76	0.00	0.00	0.00
RID040304	0.00	0.00	0.00	0.00	0.00	0.00	7713.22	151.24	6200.83	0.02	0.80	0.02	50.41	0.01	0.00
RID040305	0.00	0.00	0.00	0.00	0.00	0.00	12259.81	179.41	9150.00	0.01	0.75	0.02	0.00	0.00	0.00
RID040306	0.00	0.00	0.00	0.00	0.00	0.00	4292.59	75.31	2635.80	0.02	0.61	0.03	0.00	0.00	0.00
RID040307	0.00	0.00	0.00	0.00	0.00	0.00	2225.68	288.51	1318.92	0.13	0.59	0.22	0.00	0.00	0.00
RID040308	0.00	0.00	0.00	0.00	0.00	0.00	9562.16	109.91	5495.50	0.01	0.57	0.02	0.00	0.00	0.00
RID040401	0.00	0.00	0.00	0.00	0.00	0.00	9179.05	4821.91	1161.91	0.53	0.13	4.15	697.14	0.08	0.00
RID040402	0.00	0.00	0.00	0.00	0.00	0.00	10587.35	5959.77	1963.22	0.56	0.19	3.04	981.61	0.09	0.00
RID040403	0.00	0.00	0.00	0.00	0.00	0.00	31538.29	5515.96	1817.02	0.17	0.06	3.04	1817.02	0.06	0.00
RID040404	0.00	0.00	0.00	0.00	0.00	0.00	7559.51	5126.99	935.58	0.68	0.12	5.48	374.23	0.05	0.00
RID040405	0.00	0.00	0.00	0.00	0.00	0.00	13101.14	3396.59	970.45	0.26	0.07	3.50	1039.77	0.08	0.00
RID040406	0.00	0.00	0.00	0.00	0.00	0.00	14487.50	6201.67	1321.67	0.43	0.09	4.69	1728.33	0.12	0.00
RID040407	0.00	0.00	148.78	0.00	0.00	0.00	23060.98	6025.61	1339.02	0.26	0.06	4.50	1413.41	0.06	0.00
RID040408	0.00	0.00	312.82	0.00	0.00	0.00	17570.08	8394.02	1772.65	0.48	0.10	4.74	1981.20	0.11	0.00
RID050101	0.00	0.00	0.00	0.00	0.00	0.00	5353.04	100.06	3652.07	0.02	0.68	0.03	50.03	0.01	0.00
RID050103	0.00	0.00	0.00	0.00	0.00	0.00	12440.45	125.03	11815.31	0.01	0.95	0.01	0.00	0.00	0.00
RID050105	0.00	0.00	0.00	0.00	0.00	0.00	12460.91	0.00	12022.14	0.00	0.96	0.00	0.00	0.00	0.00
RID050107	0.00	0.00	0.00	0.00	0.00	0.00	8997.18	958.03	5290.01	0.11	0.59	0.18	41.65	0.00	0.00
RID050109	0.00	0.00	0.00	0.00	0.00	0.00	7078.89	943.85	5932.78	0.13	0.84	0.16	0.00	0.00	0.00
RID050111	0.00	0.00	0.00	0.00	0.00	0.00	6719.99	516.92	4867.69	0.08	0.72	0.11	86.15	0.01	0.00
RID050113	0.00	0.00	0.00	0.00	0.00	0.00	2498.06	43.83	2235.10	0.02	0.89	0.02	43.83	0.02	0.00
RID050115	0.00	0.00	0.00	0.00	0.00	0.00	5981.73	235.50	5652.03	0.04	0.94	0.04	47.10	0.01	0.00
RID050201	0.00	0.00	0.00	0.00	0.00	0.00	25333.33	333.33	3933.33	0.01	0.17	0.08	0.00	0.00	0.00
RID050203	0.00	0.00	0.00	0.00	0.00	0.00	25266.67	400.00	5733.33	0.02	0.23	0.07	266.67	0.01	0.00
RID050205	0.00	0.00	0.00	0.00	0.00	0.00	45200.00	8533.33	7133.33	0.19	0.16	1.20	666.67	0.01	0.00
RID050207	0.00	0.00	0.00	0.00	0.00	0.00	58133.33	8133.33	7933.33	0.14	0.14	1.03	733.33	0.01	0.00
RID050209	0.00	0.00	0.00	0.00	0.00	0.00	44066.67	12666.67	4866.67	0.29	0.11	2.60	933.33	0.02	0.00
RID050211	0.00	0.00	0.00	0.00	0.00	0.00	13733.33	1666.67	3133.33	0.12	0.23	0.53	1266.67	0.09	0.00
RID050213	0.00	0.00	266.67	0.00	0.00	0.00	59333.33	7600.00	15600.00	0.13	0.26	0.49	2333.33	0.04	0.00
RID050215	0.00	0.00	0.00	0.00	0.00	0.00	46466.67	4000.00	19800.00	0.09	0.43	0.20	1800.00	0.04	0.00
RID050301	0.00	0.00	0.00	0.00	0.00	0.00	27629.41	153.78	5946.22	0.01	0.22	0.03	51.26	0.00	0.00
RID050302	0.00	0.00	0.00	0.00	0.00	0.00	36507.58	92.42	3234.85	0.00	0.09	0.03	0.00	0.00	0.00
RID050303	0.00	0.00	0.00	0.00	0.00	0.00	7273.08	0.00	703.85	0.00	0.10	0.00	0.00	0.00	0.00
RID050304	0.00	0.00	0.00	0.00	0.00	0.00	6601.37	584.93	584.93	0.09	0.09	1.00	417.81	0.06	0.00
RID050305	0.00	0.00	0.00	0.00	0.00	0.00	30209.53	72.62	6390.48	0.00	0.21	0.01	0.00	0.00	0.00
RID050306	0.00	0.00	0.00	0.00	0.00	0.00	33225.52	324.47	3244.68	0.01	0.10	0.10	0.00	0.00	0.00
RID050307	0.00	0.00	0.00	0.00	0.00	0.00	23326.85	1299.07	3106.48	0.06	0.13	0.42	0.00	0.00	0.00
RID050308	0.00	0.00	0.00	0.00	0.00	0.00	39395.83	338.89	7455.55	0.01	0.19	0.05	169.44	0.00	0.00
RID050401	0.00	0.00	1016.67	0.00	0.00	0.00	60237.50	3558.33	26052.08	0.06	0.43	0.14	1525.00	0.03	0.00
RID050402	0.00	0.00	0.00	0.00	0.00	0.00	40276.72	501.37	8690.41	0.01	0.22	0.06	0.00	0.00	0.00
RID050403	0.00	0.00	0.00	0.00	0.00	0.00	61859.18	7904.23	6529.58	0.13	0.11				

#ROCKID#	#DPSYS#	#DTPF#	#DTPBRA#	#DPS1#	#DPS2#	#DPSPER#	#RDO#133#	#RDO#134#	#RDO#135#	#RDO#136#	#RDO#137#	#RDO#138#	#RDO#139#	#RDO#140#	#RDO#141#
RID060101	0.00	0.00	0.00	0.00	0.00	0.00	2586.25	7432.83	14612.85	0.29	0.57	0.51	1769.72	0.07	
RID060103	0.00	0.00	0.00	0.00	0.00	0.00	24023.56	6831.98	13262.08	0.28	0.55	0.52	1027.03	0.04	
RID060105	0.00	0.00	0.00	0.00	0.00	0.00	26208.51	5520.92	14151.33	0.21	0.54	0.39	1205.72	0.05	
RID060107	0.00	0.00	0.00	0.00	0.00	0.00	61248.49	15330.12	23067.15	0.25	0.38	0.66	2303.12	0.04	
RID060109	0.00	0.00	0.00	0.00	0.00	0.00	25075.48	3415.60	16244.91	0.14	0.65	0.21	1249.61	0.05	
RID060111	0.00	0.00	0.00	0.00	0.00	0.00	47514.43	11910.28	23060.33	0.25	0.49	0.52	4941.50	0.10	
RID060113	0.00	0.00	0.00	0.00	0.00	0.00	28606.79	7289.23	15128.59	0.25	0.53	0.48	3988.45	0.14	
RID060115	0.00	0.00	0.00	0.00	0.00	0.00	20602.25	3002.91	9502.89	0.15	0.46	0.32	190.06	0.01	
RID060201	0.00	0.00	266.67	0.00	0.00	0.00	24600.00	3400.00	5733.33	0.14	0.23	0.59	2133.33	0.09	
RID060203	0.00	0.00	0.00	0.00	0.00	0.00	20200.00	7600.00	3066.67	0.38	0.15	2.48	1400.00	0.07	
RID060205	0.00	0.00	666.67	0.00	0.00	0.00	26600.00	2400.00	7333.33	0.09	0.28	0.33	1333.33	0.05	
RID060207	0.00	0.00	0.00	0.00	0.00	0.00	38733.33	9333.33	13533.33	0.24	0.35	0.69	3933.33	0.10	
RID060209	0.00	0.00	66.67	0.00	0.00	0.00	6400.00	866.67	3733.33	0.14	0.58	0.23	600.00	0.09	
RID060211	0.00	0.00	0.00	0.00	0.00	0.00	15800.00	2866.67	5800.00	0.18	0.37	0.49	1400.00	0.09	
RID060213	0.00	0.00	0.00	0.00	0.00	0.00	41000.00	15800.00	6733.33	0.39	0.16	2.35	2666.67	0.07	
RID060215	0.00	0.00	0.00	0.00	0.00	0.00	47333.33	8200.00	5066.67	0.17	0.11	1.62	1533.33	0.03	
RID060301	0.00	0.00	0.00	0.00	0.00	0.00	5034.92	242.06	4453.97	0.05	0.88	0.05	0.00	0.00	
RID060302	0.00	0.00	0.00	0.00	0.00	0.00	9813.04	4243.48	4155.07	0.43	0.42	1.02	88.41	0.01	
RID060303	0.00	0.00	0.00	0.00	0.00	0.00	22843.88	2116.33	19171.43	0.09	0.84	0.11	497.96	0.02	
RID060304	0.00	0.00	0.00	0.00	0.00	0.00	24797.82	4773.91	17968.47	0.19	0.72	0.27	596.74	0.02	
RID060305	0.00	0.00	0.00	0.00	0.00	0.00	24050.00	4600.00	12200.00	0.19	0.51	0.38	900.00	0.04	
RID060306	0.00	0.00	0.00	0.00	0.00	0.00	6739.05	2207.62	1626.67	0.33	0.24	1.36	929.52	0.14	
RID060307	0.00	0.00	0.00	0.00	0.00	0.00	24315.86	4795.86	14850.35	0.20	0.61	0.32	588.97	0.02	
RID060308	0.00	0.00	0.00	0.00	0.00	0.00	31042.22	4541.11	23586.66	0.15	0.76	0.19	813.33	0.03	
RID060401	0.00	0.00	0.00	0.00	0.00	0.00	26929.27	22019.51	1636.59	0.82	0.06	13.45	2975.61	0.11	
RID060402	0.00	0.00	934.23	0.00	0.00	0.00	11485.59	7583.78	1373.87	0.66	0.12	5.52	2033.33	0.18	
RID060403	0.00	0.00	214.04	0.00	0.00	0.00	10380.70	7277.19	1070.18	0.70	0.10	6.80	642.11	0.06	
RID060404	0.00	0.00	429.58	0.00	0.00	0.00	13918.31	5412.68	3952.11	0.39	0.28	1.37	1632.39	0.12	
RID060405	0.00	0.00	1333.33	0.00	0.00	0.00	14866.67	7466.67	3400.00	0.50	0.23	2.20	2400.00	0.16	
RID060406	0.00	0.00	369.70	0.00	0.00	0.00	7856.06	5915.15	1201.52	0.75	0.15	4.92	739.39	0.09	
RID060407	0.00	0.00	563.08	0.00	0.00	0.00	15953.84	5067.69	5255.38	0.32	0.33	0.96	1501.54	0.09	
RID060408	0.00	0.00	863.21	0.00	0.00	0.00	14674.53	4718.87	4085.85	0.32	0.28	1.15	2934.91	0.20	
RID070101	0.00	0.00	0.00	0.00	0.00	0.00	21094.96	114.96	9714.03	0.01	0.46	0.01	114.96	0.01	
RID070103	0.00	0.00	0.00	0.00	0.00	0.00	9372.67	0.00	7277.60	0.00	0.78	0.00	0.00	0.00	
RID070105	0.00	0.00	0.00	0.00	0.00	0.00	9455.37	0.00	4945.89	0.00	0.52	0.00	0.00	0.00	
RID070107	0.00	0.00	0.00	0.00	0.00	0.00	15049.57	107.75	7470.91	0.01	0.50	0.01	0.00	0.00	
RID070109	0.00	0.00	0.00	0.00	0.00	0.00	8699.36	124.28	6462.38	0.01	0.74	0.02	0.00	0.00	
RID070111	0.00	0.00	0.00	0.00	0.00	0.00	5036.28	0.00	3950.02	0.00	0.78	0.00	0.00	0.00	
RID070113	0.00	0.00	0.00	0.00	0.00	0.00	3838.12	39.98	3158.45	0.01	0.82	0.01	0.00	0.00	
RID070115	0.00	0.00	0.00	0.00	0.00	0.00	15876.56	176.41	7691.31	0.01	0.48	0.02	70.56	0.00	
RID070201	0.00	0.00	0.00	0.00	0.00	0.00	48066.67	2266.67	18266.67	0.05	0.38	0.12	0.00	0.00	
RID070203	0.00	0.00	0.00	0.00	0.00	0.00	60066.67	5600.00	31066.67	0.09	0.52	0.18	600.00	0.01	
RID070205	0.00	0.00	0.00	0.00	0.00	0.00	47000.00	1800.00	19400.00	0.04	0.41	0.09	133.33	0.00	
RID070207	0.00	0.00	0.00	0.00	0.00	0.00	22400.00	4800.00	8066.67	0.21	0.36	0.60	0.00	0.00	
RID070209	0.00	0.00	0.00	0.00	0.00	0.00	21733.33	3200.00	7866.67	0.15	0.36	0.41	66.67	0.00	
RID070211	0.00	0.00	0.00	0.00	0.00	0.00	24866.67	1933.33	10400.00	0.08	0.42	0.19	933.33	0.04	
RID070213	0.00	0.00	0.00	0.00	0.00	0.00	38866.67	7466.67	17533.33	0.19	0.45	0.43	66.67	0.00	
RID070215	0.00	0.00	0.00	0.00	0.00	0.00	34333.33	1266.67	9933.33	0.04	0.29	0.13	266.67	0.01	
RID070301	0.00	0.00	0.00	0.00	0.00	0.00	23339.13	132.61	9282.61	0.01	0.40	0.01	0.00	0.00	
RID070302	0.00	0.00	0.00	0.00	0.00	0.00	11548.54	710.68	9298.06	0.06	0.81	0.08	59.22	0.01	
RID070303	0.00	0.00	0.00	0.00	0.00	0.00	23058.00	2135.00	15616.00	0.09	0.68	0.14	0.00	0.00	
RID070304	0.00	0.00	0.00	0.00	0.00	0.00	20136.56	6887.10	10232.26	0.34	0.51	0.67	0.00	0.00	
RID070305	0.00	0.00	0.00	0.00	0.00	0.00	34865.14	1007.34	17964.22	0.03	0.52	0.06	0.00	0.00	
RID070306	0.00	0.00	0.00	0.00	0.00	0.00	26087.23	389.36	15509.57	0.01	0.59	0.03	194.68	0.01	
RID070307	0.00	0.00	0.00	0.00	0.00	0.00	29934.02	4339.18	15281.44	0.14	0.51	0.28	0.00	0.00	
RID070308	0.00	0.00	0.00	0.00	0.00	0.00	33377.36	2589.62	14156.60	0.08	0.42	0.18	57.55	0.00	
RID070401	0.00	0.00	0.00	0.00	0.00	0.00	11861.11	8246.30	2711.11	0.70	0.23	3.04	0.00	0.00	
RID070402	0.00	0.00	0.00	0.00	0.00	0.00	25565.18	9184.27	5414.61	0.36	0.21	1.70	274.16	0.01	
RID070403	0.00	0.00	0.00	0.00	0.00	0.00	16090.55	5523.62	1537.01	0.34	0.10	3.59	48.03	0.00	
RID070404	0.00	0.00	0.00	78.21	0.00	0.00	20880.76	8133.33	5083.33	0.39	0.24	1.60	234.62	0.01	
RID070405	0.00	0.00	176.81	0.00	0.00	0.00	33417.38	13260.86	11492.75	0.40	0.34	1.15	442.03	0.01	
RID070406	0.00	0.00	0.00	0.00	0.00	0.00	18218.67	3497.33	2277.33	0.19	0.13	1.54	81.33	0.00	
RID070407	0.00	0.00	0.00	0.00	0.00	0.00	33000.00	14600.00	7500.00	0.44	0.23	1.95	100.00	0.00	
RID070408	0.00	0.00	0.00	0.00	0.00	0.00	10528.77	5932.88	2924.66	0.56	0.28	2.03	83.56	0.01	
RID080101	0.00	0.00	0.00	0.00	0.00	0.00	25532.48	636.32	24259.84	0.02	0.95	0.03	318.16	0.01	
RID080103	0.00	0.00	0.00	0.00	0.00	46.98	14862.04	751.73	38244.33	0.02	0.91	0.02	234.92	0.01	
RID080105	0.00	0.00	0.00	0.00	0.00	0.00	17051.49	1440.50	4522.50	0.08	0.27	0.32	1172.50	0.07	
RID080107	0.00	0.00	0.00	0.00	0.00	0.00	9455.37	520.48	8674.65	0.06	0.92	0.06	390.36	0.04	
RID080109	0.00	0.00	0.00	0.00	0.00	0.00	11578.00	2653.29	6078.45	0.23	0.53	0.44	1495.49	0.13	
RID080111	0.00	0.00	0.00	0.00	0.00	0.00	25041.03	433.24	12737.13	0.02	0.51	0.03	216.62	0.01	
RID080113	0.00	0.00	0.00	0.00	0.00	0.00	4008.92	931.36	2267.67	0.23	0.57	0.41	688.40	0.17	
RID080115	0.00	0.00	0.00	0.00	0.00	0.00	11204.17	770.66	9781.42	0.07	0.87	0.08	533.53	0.05	
RID080201	0.00	0.00	533.33	0.00	0.00	0.00	17733.33	1733.33	8800.00	0.10	0.50	0.20	3333.33	0.19	
RID080203	0.00	0.00	466.67	0.00	0.00	0.00	15333.33	3400.00	5400.00	0.22	0.35	0.63	3266.67	0.21	
RID080205	0.00	0.00	0.00	0.00	0.00	0.00	10800.00	1466.67	3000.00	0.14	0.28	0.49	1000.00	0.09	
RID080207	0.00	0.00	0.00	0.00	0.00	0.00	11200.00	3666.67	4200.00	0.33	0.38	0.87	1466.67	0.13	
RID080209	0.00	0.00	933.33	0.00	0.00	0.00	23466.67	8733.33	5333.33	0.37	0.23	1.64	6133.33	0.26	
RID080211	0.00	0.00	600.00	0.00	0.00	0.00	9266.67	4400.00	2666.67	0.47	0.29	1.65	3533.33	0.38	
RID080213	0.00	0.00	66.67</												

ROCK ID	DTSPSY	DTSEEP	DTSEBRAT	EDPSI	DE2E	DEPERE	DDO2E	DEET	DDO2E	DEET	DEET	DEET	DEET	DEET
RID080301	0.00	0.00	0.00	0.00	0.00	0.00	13102.37	5269.82	6497.04	0.40	0.50	0.81	36.09	0.00
RID080302	0.00	0.00	0.00	0.00	0.00	0.00	14158.72	4141.28	9233.95	0.29	0.65	0.45	167.89	0.01
RID080303	0.00	0.00	0.00	0.00	0.00	39.87	16186.93	5103.27	10126.80	0.32	0.63	0.50	279.08	0.02
RID080304	0.00	0.00	0.00	0.00	0.00	0.00	7948.48	1725.25	5915.15	0.22	0.74	0.29	184.85	0.02
RID080305	0.00	0.00	0.00	0.00	0.00	0.00	9891.89	3874.32	5605.40	0.39	0.57	0.69	247.30	0.03
RID080306	0.00	0.00	0.00	0.00	0.00	0.00	9771.87	4737.88	4856.32	0.48	0.50	0.98	651.46	0.07
RID080307	0.00	0.00	0.00	0.00	0.00	0.00	13216.66	3351.23	9677.16	0.25	0.73	0.35	263.58	0.02
RID080308	0.00	0.00	0.00	0.00	0.00	0.00	15153.17	4018.25	10553.97	0.27	0.70	0.38	242.06	0.02
RID080401	0.00	0.00	54.46	0.00	0.00	0.00	8333.03	3431.25	2396.43	0.41	0.29	1.43	2396.43	0.29
RID080402	0.00	0.00	0.00	0.00	0.00	0.00	6520.69	1822.99	2383.91	0.28	0.37	0.76	420.69	0.06
RID080403	0.00	0.00	0.00	0.00	0.00	0.00	8331.71	2727.64	1834.96	0.33	0.22	1.49	446.34	0.05
RID080404	0.00	0.00	0.00	0.00	0.00	0.00	9183.52	4692.31	2815.39	0.51	0.31	1.67	2212.09	0.24
RID080405	0.00	0.00	0.00	0.00	0.00	0.00	4880.00	2013.00	2257.00	0.41	0.46	0.89	1037.00	0.21
RID080406	0.00	0.00	0.00	0.00	0.00	0.00	6971.43	2460.50	3229.41	0.35	0.46	0.76	1845.38	0.26
RID080407	0.00	0.00	87.14	0.00	0.00	0.00	11590.00	4270.00	5402.86	0.37	0.47	0.79	871.43	0.08
RID080408	0.00	0.00	0.00	0.00	0.00	0.00	6100.00	2472.97	2060.81	0.41	0.34	1.20	494.59	0.08