



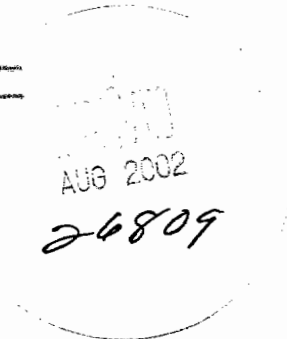
Domtar

August 12, 2002

Domtar Industries Inc.
Ashdown Mill
285 Highway 71 South
Ashdown, AR 71822
Tel: (870) 898-2711

Scanned and Entered

SWD # 18080
TO: STD 7 T 6 2 7 6
REC'D AUG 27 2002
Print # 0185-S
CSN 41-00002



Arkansas Department of Environmental Quality
Solid Waste Division
P. O. Box 8913
8001 National Drive
Little Rock, AR 72219-8913

RE: Submittal of the First Half of 2002 Semi-Annual Groundwater Monitoring Report
Permit No. 185-S, 211-S3N-R2, 244-S, and 296-S3N

Attention: Ms. Dave Ann Pennington, Geologist

Dear Ms. Pennington:

Enclosed are four (4) original copies of the above reference report. Please feel free to contact me if you have any questions or comments.

Sincerely,

Jay Shellogg, P.E.

JS/bc

Enclosures (4)

cc: Bill Bertrand
Stacie Whitmer, GEC

CERTIFIED MAIL: 7001 0320 0005 4648 4981

FIRST HALF 2002 SEMI-ANNUAL GROUNDWATER MONITORING REPORT

SWD # 18080
TO: G-LB-TG-7-7-6
REC'D AUG 20 2002
Pmt # 0185-S
CSN 41-00002



26809

DOMTAR A.W. CORP. CLASS 3N LANDFILLS

ASHDOWN, ARKANSAS

PREPARED BY:

GEC

GENESIS ENVIRONMENTAL CONSULTING, INC.

11400 West Baseline Road Little Rock, Arkansas 72209
Phone: (501) 455-2199 Fax: (501) 455-4547

AUGUST 2002

FIRST HALF 2002 SEMI-ANNUAL GROUNDWATER MONITORING REPORT

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CLASS 3N LANDFILLS**

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AUGUST 2002

**First Half 2002 Groundwater Monitoring Report
Domtar A. W. Corp.-Ashdown Class 3N Landfills
Ashdown, Arkansas**

Prepared for

**Domtar A. W. Corp.-Ashdown Class 3N Landfills
Ashdown, Arkansas**


For Submittal to

**Arkansas Department of Environmental Quality
Solid Waste Division**

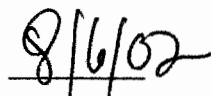
Certification

I certify that I am a qualified groundwater scientist who has received a baccalaureate or postgraduate degree in the natural sciences. I have sufficient training and experience in groundwater hydrology and related fields, as demonstrated by state registration and completion of accredited university courses, which enable me to make sound professional judgements regarding groundwater monitoring and contaminant fate and transport.

The statistics herein are based upon the statistical program *SANITAS for Groundwater*TM that is guided by the relevant EPA Guidance, ASTM Standards, and in accordance with Arkansas Department of Environmental Quality Solid Waste Regulation 22. I further certify that this report was prepared by myself or by a subordinate working under my direction.



Dan McCullough, P. G.
Senior Hydrogeologist



Date

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1.0 INTRODUCTION

Domtar A. W. Corp. (DI) operates four active Class 3N solid waste Landfills at their Ashdown, Arkansas facility. The active solid waste permits are as follows:

Landfill Name	Permit Number	Date Permit Issued/Date of Last Modification
Mill Trash Landfill	— 0244-S —	September 11, 1987/September 25, 1991
Paper Sludge Landfill	0211-S3N-R2	September 23, 1983/June 9, 1998
New Lime Waste Landfill	296-S3N	February 9, 2000/None
Old Lime Waste Landfill	185-S	July 24, 1981/September 1999

All of the DI-Ashdown Facility Class 3N Solid Waste Landfills are monitored under the same groundwater monitoring system and *Sampling and Analysis Plan*. The solid waste permits for the Paper Sludge Landfill (Permit # 0211-S3N-R2) and the New Lime Waste Landfill (296-S3N) contain detailed permit conditions regarding the sampling and analysis of groundwater at the site.

The DI-Ashdown Facility solid waste landfill groundwater monitoring system consists of five wells. Completion of four rounds of background samples from the five groundwater monitoring wells surrounding the Landfills occurred on May 18, 1999. This report covers the sixth semi-annual detection sampling event conducted on May 23-24, 2002 and was prepared by Genesis Environmental Consulting, Inc. (GEC) in cooperation with the DI.

1.1 SITE LOCATION

The DI-Ashdown Class 3N Landfills are located in the Southeast $\frac{1}{4}$ of Section 8 and Northeast $\frac{1}{4}$ of Section 17, Township 3 South, Range 29 West, in Little River County, Arkansas (FIGURE 1). DI-Ashdown currently operates a paper mill at this facility, and as part of the manufacturing process, various waste streams are generated including general mill trash (Permit No. 244-S), primary sludge (Permit No. 211-S3N-R2), and lime waste (Permit No. 185-S). The primary sludge landfill is approximately 46 acres, the mill trash landfill is 11.5 acres, and the existing lime waste landfill is 13 acres in size. The initial lime waste landfill is in the process of being closed, therefore, a second lime waste landfill has been constructed and is

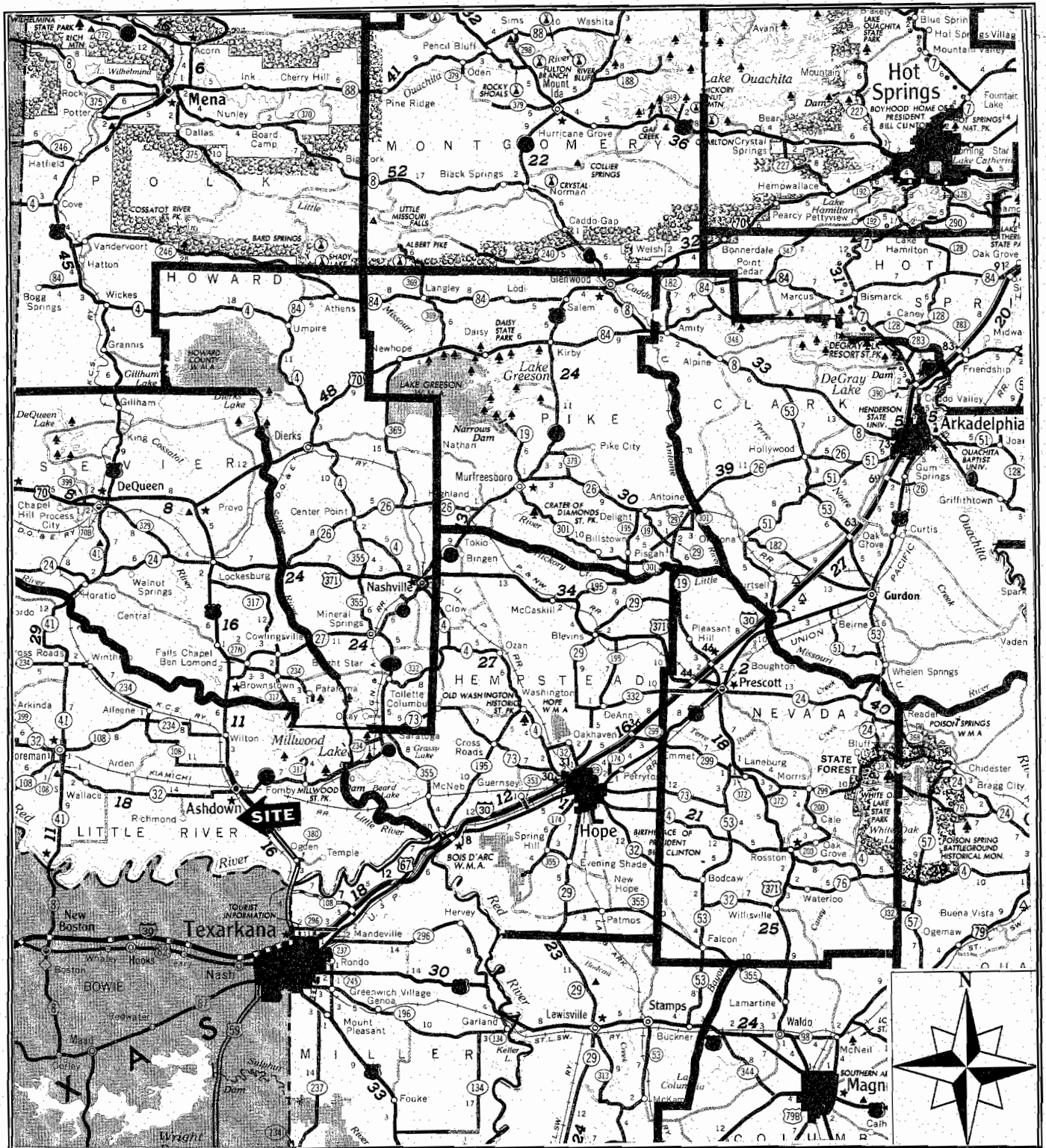


FIGURE 1
SITE LOCATION MAP
Domtar Industries, Inc. - Ashdown

ref: Arkansas State Highway Map

scale: as shown

currently in use. The second lime waste landfill is located within the area currently monitored by the groundwater monitoring system.

1.2 SITE GROUNDWATER MONITORING SYSTEM

There are currently five monitoring wells, MW-2, MW-3, MW-4, MW-5, and MW-6, surrounding Domtar's Class 3N Landfills (FIGURE 2). The first groundwater monitoring well MW-2 was installed in November 1996. In July 1998, Anderson Engineering Consultants, Inc. under the direction of GEC installed four additional monitoring wells, MW-3, MW-4, MW-5, and MW-6 at the site. Three leak detection wells, designated as LD-2, LD-3, and LD-4, are also included in the groundwater monitoring system. It should be noted that although an attempt is made to sample the leak detection wells semi-annually, the wells have been consistently dry. This report covers the tenth sampling event conducted overall from the five monitoring wells and the sixth semi-annual detection monitoring event.

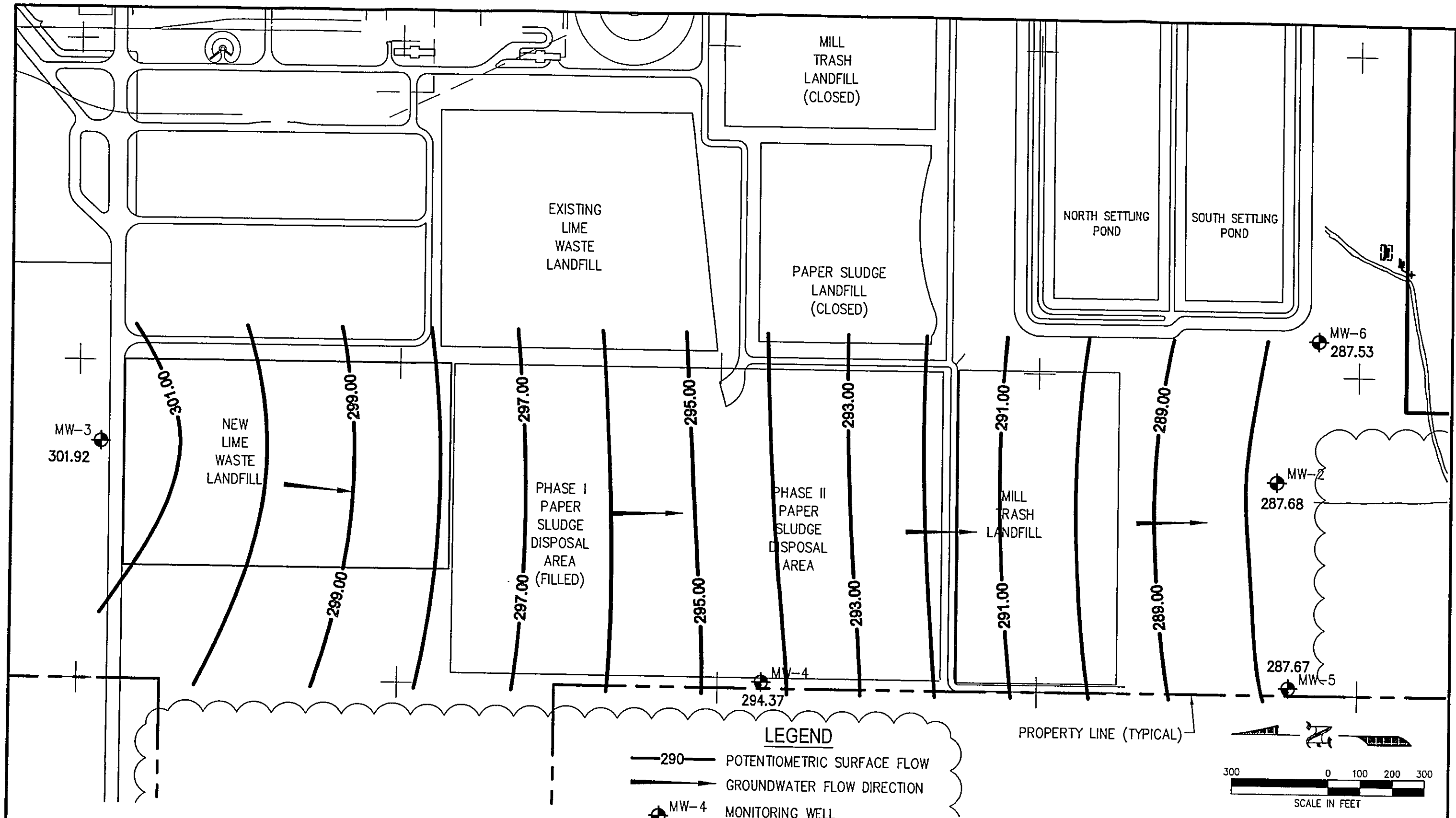


FIGURE 2

SITE LAYOUT AND POTENTIOMETRIC SURFACE MAP

DOMTAR INDUSTRIES, INC.
ASHDOWN FACILITY

ARKANSAS

REV.	DATE	BY	DESCRIPTION

ASHDOWN	
DESIGNED BY:	PG
CHECKED BY:	DM
DRAWN BY:	ABS
MONTH/YEAR	JUNE 2002

GEC GENESIS ENVIRONMENTAL CONSULTING, INC.
11400 West Baseline Road
Little Rock, AR 72209
(501) 455-2199

PROJECT NO.:	031-003-20081
DATE:	6/10/02
SCALE:	1" = 300'
ACAD NO.:	005

2.0 GROUNDWATER SAMPLING

The sixth semi-annual sampling event was conducted at the Landfills on May 23-24, 2002. GEC representatives collected samples from the five monitoring wells, MW-2, MW-3, MW-4, MW-5, and MW-6. The leak detection wells, LD-2, LD-3, and LD-4, contained an insufficient amount of water to collect samples. The procedures for obtaining groundwater samples, parameters analyzed, and sample preservation and handling are discussed in the following sections.

2.1 WATER LEVEL DETERMINATION

Prior to evacuating each well for sampling, the depth to standing water was measured using an electronic water level probe. The measurements were taken to the nearest 0.01 foot from the top of the well casing and this information was utilized to calculate the volume of water in the well. Since non-dedicated equipment was used to obtain water levels, procedures were instituted to insure the samples were not contaminated. The electronic water level probe is constructed of inert materials and was decontaminated with distilled water prior to use at each well.

2.2 WELL EVACUATION

The water in a well prior to purging may not be representative of in-situ groundwater quality. Therefore, the GEC field representatives purged a minimum of three casing volumes from the well at a rate that did not excessively agitate the recharge water. This procedure insured that all well water was replaced by fresh formation water upon completion of the process. A Grundfos Redi-Flo 2 submersible pump was used to evacuate each well. Since the pumping equipment used was non-dedicated, procedures were instituted to protect the samples from contamination. The pump and tubing are constructed of inert materials and were rinsed and flushed with distilled water prior to use at each well. New pairs of clean latex gloves were worn by the sampling personnel at each well. Measures were also taken to prevent surface soils from coming in contact with the purging equipment and lines, which could introduce contaminants to the well. If the well

was pumped dry during purging, the well was allowed to recover prior to sampling.

In order to document that formation waters are entering the well representative samples of the discharge water were periodically collected and tested for field water quality parameters. The parameters measured were pH, specific conductance, temperature, and turbidity. Water quality parameters (with the exception of turbidity) were considered stable if three successive readings did not vary more than 10 percent. Measures were taken to obtain turbidity readings as low as possible prior to sampling.

2.3 EQUIPMENT DECONTAMINATION PROCEDURES

All equipment that was used in the monitoring wells and had contact with the samples was thoroughly cleaned before use. Equipment utilized included a water level probe, disposable bailer and twine, and a submersible pump. All bailers and bailer twine are individually wrapped and sealed by the manufacturer. The bailers are purified and rinsed with distilled water prior to packaging. The supplier independently tests the bailers at regular intervals to insure they are contaminant free.

The water level probe was washed with potable water and phosphate-free laboratory detergent. Next, the probe was rinsed with potable water and, finally, rinsed with distilled water. The water level probe was then placed in a plastic bag to reduce contact with air and transported into the field. After a water level was measured a paper towel was soaked with distilled water and as the probe was reeled up the tape and probe were wiped clean.

Prior to use at the facility, the submersible pump was flushed with potable water and phosphate-free detergent. Then the pump was flushed with potable water and distilled water in a portable decontamination tube. The outside of the pump was then rinsed with distilled water prior to use in each well. The pump and tubing were transported in a clean sealed tub to minimize contact with the air prior to use.

2.4 SAMPLE EXTRACTION

The technique used to withdraw each groundwater sample from the wells was selected based on consideration of the parameters analyzed in the sample. To insure the groundwater sample is representative of the formation it is important to minimize physically altering or chemically contaminating the sample during the withdrawal process. In order to minimize the possibility of sample contamination the GEC field representative:

- * *Made sure clean sampling equipment was not placed directly on the ground or other contaminated surfaces prior to insertion into the well.*
- * *Gently lowered and retrieved sampling equipment in order to prevent undue disturbance of the water column.*
- * *Transferred samples to the appropriate containers in a manner that minimized agitation and aeration.*

Samples were collected and containerized in the order of volatilization sensitivity of the parameters. The list of required parameters analyzed is presented in TABLE 1. The collection order for the common groundwater parameters was as follows:

- * *Volatile Organic Compounds (VOCs)*
- * *Total Metals*
- * *Chloride, Sulfate, and Total Dissolved Solids (TDS)*
- * *Chemical Oxygen Demand (COD)*

Historical analytical results compiled since monitoring began are provided in APPENDIX A.

2.5 FIELD TESTING

Some of the parameters evaluated are physically or chemically unstable and were tested immediately after collection using a field test kit. Examples of unstable elements or properties include pH and temperature. Although turbidity and specific conductivity (inverse of electrical resistance) of a substance are relatively stable, these parameters were also measured in the field. This information was

TABLE 1
CONSTITUENTS FOR DETECTION MONITORING
DOMTAR A. W. CORP. - ASHDOWN CLASS 3 LANDFILL
CLASS 3 LANDFILL PERMIT #296-S3N

REQUIRED CONSTITUENTS

BARIUM
CHLORIDE
COD
FLUORIDE
IRON
LEAD
MANGANESE
NITRATE (AS N)
SELENIUM
SULFATE
SULFIDE
TDS
TOC
TURBIDITY (field)
CONDUCTANCE (field)
TEMPERATURE (field)
pH (field)

recorded on standard GEC *Groundwater Monitoring Sampling Records* included in APPENDIX B. A summary of the field measurements for the First Half 2002 sampling event is presented in TABLE 2.

2.6 FIELD QA/QC PROCEDURES

For QA/QC purposes, a field blank, labeled FB-6, was collected and submitted to American Interplex Laboratory. The GEC field representatives prepared the field blank for all of the required monitoring parameters. The field blank consisted of distilled water poured into a sample container under field conditions and returned for laboratory analysis. The field blank was used to verify that ambient conditions and the handling process did not affect the quality of the samples.

A duplicate sample, labeled DUPE-4, was collected from monitoring well MW-4. Procedures utilized for collecting the duplicate sample were identical to the sampling protocol detailed in Section 2.4 and collected at the same time as the MW-4 sample. The duplicate sample was collected to verify the consistency and precision of the sampling and testing procedures.

An equipment blank, labeled EB-4, was also used for QA/QC purposes. The equipment blank was prepared by pouring distilled water over the gloves and water level probe into sample containers to analyze for volatile contamination. These samples were utilized to insure that the non-dedicated equipment was adequately decontaminated.

2.7 HANDLING/TRANSPORT/CUSTODY

Samples were accompanied by a Chain-of-Custody record that includes the name of the facility, collector's signatures, monitoring point identification, date, time, type of sample, number of containers, and analyses required. Samples collected from the Landfill site were placed in sample containers provided by the Laboratory. Containers are certified clean by the supplier.

Attached to the sample container at the time of collection is the sample label. The following information is recorded on the sample label:

TABLE 2
FIELD MEASUREMENTS
DOMTAR A. W. CORP. - ASHDOWN CLASS 3 LANDFILL
FIRST HALF 2002 SAMPLING EVENT

WELL	DATE	SAMPLE TIME	DAILY ELEV. (Obs)	DEPTH TO WATER (ft)	WATER SURF. ELEV. (ft)	TEMP. (°C)	pH (SU)	SPECIFIC CONDUCTANCE (µS/cm)	TURBIDITY (NTU)
MW-2	5/23/02	1640	323.15	35.47	287.68	20.2, 20.0, 19.8	7.53, 7.50, 7.46	1036, 1048, 1039	17.7, 8.64, 3.73
MW-3	5/24/02	1105	325.39	23.47	301.92	22.0, 20.6, 20.5	8.04, 7.94, 7.92	477, 462, 464	9.02, 12.3, 9.83
MW-4	5/23/02	1605	325.33	30.96	294.37	19.7, 19.6, 19.6	7.16, 7.15, 7.14	1611, 1613, 1610	8.42, 6.59, 4.65
MW-5	5/23/02	1500	320.43	32.76	287.67	19.4, 19.9, 19.2	6.84, 6.98, 7.05	947, 938, 954	17.9, 14.7, 4.77
MW-6	5/24/02	1020	325.53	38.00	287.53	21.6, 21.0, 20.9	7.22, 7.17, 7.17	1773, 1802, 1811	18.7, 16.3, 4.16

- * *project or facility name,*
- * *sample type,*
- * *sample location number (well number),*
- * *preservative type,*
- * *sampling date and time,*
- * *and sample collector's name or initials.*

Documentation for the sample collection process and other important information was recorded on the contract laboratory Chain-of-Custody form. The standard format includes the date, time, type of sample collected, code for sample analysis, unique sample number, sampling location, and field measurements. The entries were signed by the sample collector.

2.8 SAMPLE PRESERVATION

The samples were then placed in an ice chest for preservation in accordance with the GEC Standard Operating Procedures and cooled to 4 degrees Celsius. Custody was retained by GEC representatives from the time of collection until delivery to American Interplex Laboratory. Laboratory analytical results and a copy of the American Interplex Laboratory Chain-of-Custody form are included in APPENDIX C.

3.0 FIRST HALF 2002 SEMI-ANNUAL EVENT

The sampling results described in this report are for the sixth semi-annual detection monitoring event. The results of this sampling event, conducted on May 23-24, 2002, are summarized in the following sections, tables, and appendices. In addition, all historical groundwater data was evaluated statistically to determine if significant differences exist between compliance and background constituent concentrations.

3.1 GROUNDWATER ELEVATION, FLOW DIRECTION & RATE

There are currently five monitoring wells located around the Landfill area. The water level data for the First Half 2002 sampling event indicates a groundwater flow direction to the south. This flow relationship is consistent with the flow direction indicated by previous water level measurements. FIGURE 2 presents a potentiometric surface map for the First Half 2002 sampling event. As this figure indicates, MW-5 is a downgradient well and MW-3 is the upgradient monitoring point.

Based on the principles of Darcian flow, the average linear velocity (groundwater flow rate) during the First Half 2002 event was calculated utilizing the following equation:

$$V_x = (K * i) / n_e$$

where,

V_x is the average linear velocity (length/time),

K is the hydraulic conductivity (length/time),

i is the hydraulic gradient (length/length),

and n_e is the effective porosity (unitless).

Hydraulic gradient was calculated for the First Half 2002 sampling event by comparing upgradient well MW-3 to downgradient well MW-2. The change in head of 14.24 feet between the two wells over a distance of 3,677 feet produces a hydraulic gradient of 0.0040 (ft/ft). Based on the results of slug tests performed in

MW-3 and in a temporary piezometer near the site, (G-P Ashdown Class 3N Landfill *Sampling and Analysis Plan*, prepared by GEC, September 1999) the hydraulic conductivity varies across the site from 1.703×10^{-4} cm/sec to 0.021 cm/sec and averages 0.011 cm/sec for the uppermost aquifer. This hydraulic conductivity was used to aid in the flow rate calculations. An effective porosity of 0.40 was estimated for the type of material that comprises the uppermost aquifer (clean sand to clayey sand). The porosity was derived from the "Effective Porosity of Common Soils" table on page 5-57 of *Standard Handbook for Solid & Hazardous Waste Facility Assessments* by Martin N. Sara, published in 1994. Utilizing these values, the calculated linear velocity (groundwater flow rate) is 1.70×10^{-6} cm/sec.

$$\text{Linear velocity: } V_x = [(1.703 \times 10^{-4} \text{ cm/sec})(0.0040)] / (0.40) = 1.70 \times 10^{-6} \text{ cm/sec}$$

3.2 GROUNDWATER QUALITY

The data presented in APPENDIX A represents the historical groundwater analytical results compiled since the monitoring system was first sampled at the Landfill on August 4, 1998. The analytical results for the First Half 2002 sampling event are presented in APPENDIX C. The statistical program *SANITAS™ for Groundwater* was used to analyze the data for increasing trends and to determine if statistically significant differences exist between background and compliance parameter concentrations for each of the wells. The results of the statistical analyses are included in APPENDIX D.

3.2.1 Outlier Determination

After entering the analytical groundwater data into the EPA approved groundwater database, *SANITAS™ for Groundwater* evaluates the data for the presence of anomalies or outliers. An outlier as defined in the *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities - Interim Final Guidance April 1989*, is "A ground-water constituent concentration value that is much different from most other values in a data set for the same ground-water constituent concentration."

Values identified as outliers may be either legitimate outliers or observational errors. An outlier, as generally defined, is a valid sample value that has little chance of being observed. Thus, while the value is a legitimate member of the population sampled its presence in a sample set distorts estimates of population characteristics that can be inferred from the sample set. Statistical analysis of such a sample set is more informative when outliers are identified and discounted. An observation error may appear to have the same properties as an outlier, but the observation error is not a valid measurement. Observation errors may be introduced by poor sampling, sample handling techniques, improper analytical techniques, and laboratory errors. As a result, observation errors may also distort estimates of population characteristics.

Iron concentrations at MW-2, MW-3, and MW-5 were low statistical outlier values associated with the First Half 2002 sampling event. An outlier analysis summary table is included in APPENDIX D.

3.2.2 Statistical Evaluation

The methods used to evaluate the groundwater data for statistically significant increases (SSIs) were based on statistical procedures outlined in the *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities (interim final guidance document, USEPA, February 1989)*, the July 1992 addendum to this document, and ASTM D6312-98 *Standard Guide for Developing Appropriate Statistical Approaches for Groundwater Detection Monitoring Programs (1998)*. The *SANITAS™ for Groundwater* program was utilized to compile and statistically evaluate the data for the First Half 2002 sampling event.

The motive for performing statistical analysis on groundwater quality data is to distinguish if a facility has negatively impacted groundwater quality. Since the only information available is groundwater sample results statistical evaluations are employed in order to estimate typical (normal) behavior of groundwater data. Despite sample fluctuations due to random variation statistical analysis helps to determine if compliance concentrations are significantly higher, on average, than background groundwater concentrations.

When selecting a valid statistical method for the DI-Ashdown Landfill, several considerations were taken into account. Inter-well comparisons, which compare a background pool of data to a downgradient compliance pool of data, were invalid since the uppermost aquifer groundwater quality has shown spatial variability in the background data. From this information the following procedures were created:

Shewhart-CUSUM Control Charts

Control charts are the likely alternative to interval tests for performing either intra-well comparisons or comparisons to historically monitored background sampling points during detection monitoring. A main advantage of control charts is the data from a sampling point can be viewed graphically over time. Trends and changes in concentration levels are easily seen since sample data is consecutively plotted as it is collected. Another positive aspect of control charts is that intra-well comparisons eliminate the concern of spatial variability between sampling points. Since intra-well comparisons involve a single monitoring point significant changes in parameter concentrations cannot be attributed to spatial water quality differences between wells.

As with other statistical methods, control charts have their assumptions and limitations. Baseline data must be uncontaminated to provide an accurate view of trends. It is assumed the data utilized for control charts is normally and independently distributed from a statistical standpoint.

Control chart analyses are performed as follows; initial sample data is collected in order to establish a baseline level for the chart, specifically, estimates of the sampling point mean and variance. As future samples are collected the baseline level is used to standardize the data. At each sampling period a standardized mean is computed from the baseline mean concentration and standard deviation. Once the data have been standardized and plotted the chart is reviewed to determine if it is "out of control." An out of control situation is indicated on the control chart when either the standardized means or CUSUMs cross one of two pre-determined threshold values. These thresholds are based on the rationale that if the sampling point remains uncontaminated (does not vary significantly from the background sample events) new standardized sample values should not deviate substantially

from the baseline level. It should be noted that a statistically significant increase in constituent concentration is only valid if verified by the next consecutive sampling event.

GEC performed control chart intra-well analysis on each of the constituents detected in each of the wells. Control chart plots are available in APPENDIX D. However, under the following three scenarios control charts are not the appropriate method of statistical comparison. Scenario 1: the data set could not be normalized during the transformation process that occurs during control chart analysis. Scenario 2: non-detect values make up more than 50 percent of the data set. Scenario 3: the data is transformed successfully, but due to greater than 15 percent non-detect values the Cohen's Adjustment cannot be performed. In each of these three cases the more appropriate statistical test is an intra-well prediction interval.

Intra-Well Prediction Intervals

The prediction interval is a statistical interval used to compare a single observation to a group of observations. In groundwater monitoring a prediction interval approach may be used to make comparisons between background and compliance well data. The interval is constructed to contain all future observations with stated confidence. If any future observation exceeds this interval, this is statistically significant evidence that the observation is not representative of the background group.

Parametric prediction intervals are the first choice when performing prediction interval statistics. The parametric alternative is constructed assuming the background data have a normal or transformed-normal distribution. During parametric prediction interval analysis the mean and the standard deviation are calculated for the raw or transformed background data. The number of comparison observations, K , is included in the interval. Once the interval has been determined at each sampling period the mean of the compliance well observations is calculated and compared to the interval. If less than 15 percent of the background observations are non-detects the values are replaced with one half of the PQL prior to running the analysis (EPA, April 1989). If more than 15 percent but less than 50 percent of the background data are less than the PQL the data's

sample mean and standard deviation are adjusted according to the Cohen or Atchinson Adjustment method.

However, when the background data are not transformed-normal or contain between 50 and 90 percent observations below the detection limit a non-parametric prediction interval is performed. During non-parametric analysis the highest value from the background data is used to set the upper limit of the prediction interval.

If more than 90 percent of the background data are less than the PQL a Poisson distribution-based prediction interval is computed. The Poisson distribution is a probability distribution modeled for rare events. The Poisson probability of a detectable observation is rare unless there is an impact. The sum of the Poisson counts across background samples is computed by adding the number of parts per billion (ppb) across all observations for the background well. Prior to any calculation, non-detects are set to one-half the PQL and all trace values are evaluated as an average of the PQL. To test the upper prediction limit the Poisson count of the sum of the next k observations from the well is compared to the 99 percent upper Poisson prediction limit. If this sum exceeds the prediction limit there is significant evidence of an impact.

Sen's Slope/Mann-Kendall

When used in conjunction with one another the Mann-Kendall test for temporal trend and the Sen's slope estimate are two types of Evaluation Monitoring Statistics useful in determining the significance of an apparent trend and to estimate the magnitude of that trend. Following the completion of applicable intra-well control chart or prediction interval analyses the Sen's Slope/Mann-Kendall was performed on each constituent from each well that flagged a potential statistically significant increase.

The Mann-Kendall test is non-parametric, meaning that it does not depend on an assumption of a particular underlying distribution. The test uses only the relative magnitude of data rather than actual values. Values reported by the lab as below the PQL are assigned values equal to one half the PQL.

For wells having less than 41 data points, an “exact test” is performed. This version of the Mann-Kendall assigns a positive or negative score based on the differences between the data points. The Mann-Kendall Statistic is then computed, which is the number of positive differences minus the number of negative differences.

If the absolute value of the Mann-Kendall Statistic exceeds the absolute value of the Critical Value then a trend is significant at a 95 percent Confidence Level (two tailed). Positive and negative values of Mann-Kendall Statistics and Critical Values respectively relate to increasing and decreasing trends. Sen’s Slope/Mann-Kendall analysis plots are included in APPENDIX D. The plots contain the slope in units per year, a plot of the slope and concentrations over time, the Mann-Kendall Statistic, the Critical Value, and the indication of if the trend is or is not significant at the 95 percent confidence level for a two-tailed test.

3.2.3 Results of the Statistical Evaluation

Based on statistical calculations performed with *SANITAS™ for Groundwater* utilizing intra-well methods it was determined that statistically significant increases (SSIs) occurred for sulfate at MW-2, manganese and TDS at MW-4, and chloride at MW-5. It should be noted that manganese at MW-4 does not show a significant upward trend according to Sen’s Slope/ Mann-Kendall analyses. Manganese concentrations at upgradient monitoring well MW-3 have also been historically higher than the downgradient monitoring points. This event represents the first statistical exceedances for these parameters (with the exception of manganese at MW-4) and according to EPA guidance they should not be considered valid SSIs unless verified by the results of the next consecutive sampling event.

The initial SSIs reported for manganese at MW-3 and iron at MW-4 during the previous event were not verified by the results of the First Half 2002 sampling event. The statistical evaluation results for the First Half 2002 sampling event are included in APPENDIX D.

3.2.3 Comparison to Established Water Quality Standards

TABLE 3 compares concentrations from the First Half 2002 sampling event to the applicable Primary Drinking Water Standard-Maximum Contaminant Levels (MCLs) and Secondary Drinking Water Standards (SDWS). As indicated on TABLE 3, SDWS were exceeded for iron at MW-4, manganese at upgradient MW-3, chloride at MW-6, and TDS at MW-2, MW-4, MW-5, and MW-6. It should be noted that the concentrations for these parameters are consistent with background levels and were not calculated to be SSIs with the exception of TDS at MW-4. The SDWS are not health-based and are set for aesthetic reasons. Constituents covered by the SDWS regulations are those, which may adversely affect the aesthetic qualities of drinking water such as taste, odor, color, and appearance and are not federally enforced. No constituent concentrations were reported to exceed applicable Primary Drinking Water Standard-MCLs.

3.2.5 Quality Assurance/Quality Control Results

A comparison of the First Half 2002 analytical results for MW-4 and the duplicate sample (DUPE-4) is presented on TABLE 4. There appears to be little variability in the duplicate groundwater quality analysis indicating consistent sampling and testing procedures. The inorganic results for the field blank are consistent with distilled water. The equipment blank (EB-4) was reported as non-detect for all parameters.

TABLE 3
GROUNDWATER QUALITY RESULTS
DOMTAR A. W. CORP. - ASHDOWN CLASS 3 LANDFILL
FIRST HALF 2002 SAMPLING EVENT

PARAMETER	MW 2	MW 3	MW 4	MW 5	MW 6	EPA STANDARD
Barium	0.52	0.45	0.75	0.49	0.39	2
Chloride	110	14	110	60	290	250
Fluoride	0.31	0.23	0.22	0.28	0.28	4
Iron	0.037	0.073	1.1	0.025	0.037	0.3
Lead	<0.001	<0.001	<0.001	<0.001	<0.001	0.015
Manganese	0.0023	0.13	0.044	0.015	<0.002	0.05
Nitrate as N	0.18	0.050	<0.05	<0.05	<0.05	10
Selenium	0.0051	<0.005	<0.005	<0.005	<0.005	0.05
Sulfate	33	1.0	30	23	68	250
COD	<10	<10	27	<10	<10	—
Sulfide	<1	<1	<1	<1	<1	—
TDS	570	240	920	530	980	500
TOC	<1	<1	10	2.6	1.2	—
pH (SU)	7.49	7.96	7.15	6.95	7.18	6.5-8.5

Bold Red indicates EPA Primary Drinking Water Standard (MCL) exceeded.

Bold Green indicates EPA Secondary Drinking Water Standard exceeded.

All values are milligrams per liter (mg/L).

TABLE 4
QUALITY ASSURANCE / QUALITY CONTROL
DOMTAR A. W. CORP. - ASHDOWN CLASS 3 LANDFILL
FIRST HALF 2002 SAMPLING EVENT

PARAMETER	MW-4	DUPE-4	FB-6
Barium	0.75	0.73	<0.05
Chloride	110	110	<0.2
Fluoride	0.22	0.23	<0.1
Iron	1.1	1.1	<0.007
Lead	<0.001	<0.001	<0.001
Manganese	0.044	0.043	<0.002
Nitrate as N	<0.05	<0.05	<0.05
Selenium	<0.005	<0.005	<0.005
Sulfate	30	30	<0.02
COD	27	27	<10
Sulfide	<1	<1	<1
TDS	920	930	<10
TOC	10	10	<1

*Values are micrograms per liter (ug/L).

All other values are milligrams per liter (mg/L).

FB-6 is a field blank.

DUPE-4 is a duplicate sample of MW-4.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the First Half 2002 groundwater sampling and analysis the following conclusions were made:

Groundwater Flow:

- *FIGURE 2 represents a potentiometric surface map constructed from water level measurements taken during the First Half 2002 sampling event. As indicated, groundwater within the uppermost aquifer flows to the south. This flow relationship is consistent with the flow direction indicated by previous water level measurements. The average linear velocity (groundwater flow rate) for the First Half 2002 event is 1.70×10^{-6} cm/sec.*

Analytical Results:

- *EPA Secondary Drinking Water Standards (SDWS) were exceeded for iron at MW-4, manganese at upgradient MW-3, chloride at MW-6, and TDS at MW-2, MW-4, MW-5, and MW-6. It should be noted that the concentrations for these parameters are consistent with background levels and were not calculated to be SSIs with the exception of TDS at MW-4. As mentioned previously, the SDWS are set primarily for the aesthetic qualities of drinking water and are generally not considered health-based criteria.*
- *No constituents were reported to exceed their applicable Primary Drinking Water Standard-Maximum Contaminant Level (MCL).*
- *The quality control analytical results for the MW-4 duplicate sample (DUPE-4) show good correlation with the MW-4 results indicating consistent sampling and testing procedures. The field blank (FB-5) results are consistent with distilled water characteristics. The equipment blank (EB-4) was reported as non-detect for all parameters.*

Statistical Evaluation:

- *Iron concentrations at MW-2, MW-3, and MW-5 were low statistical outlier values associated with the First Half 2002 sampling event.*
- *Based on statistical calculations performed with SANITAS™ for Groundwater utilizing intra-well methods it was determined that statistically significant increases (SSIs) occurred for sulfate at MW-2, manganese and TDS at MW-4, and chloride at MW-5. It should be noted that manganese at MW-4 does not show a significant upward trend according to Sen's Slope/ Mann-Kendall analyses. Manganese concentrations at upgradient monitoring well MW-3 have also been historically higher than the downgradient monitoring points. This event represents the first statistical exceedances for these parameters (with the exception of manganese at MW-4) and according to EPA guidance they should not be considered valid SSIs unless verified by the results of the next consecutive sampling event.*
- *The initial SSIs reported for manganese at MW-3 and iron at MW-4 during the previous event were not verified by the results of the First Half 2002 sampling event.*
- *Based on the un-verified SSIs and the historically higher concentration of manganese at upgradient MW-3 than at the downgradient wells, GEC recommends no further action at this time. These parameters will be closely monitored during future events for potential trends. The next semi-annual detection monitoring event is tentatively scheduled for November 2002.*

APPENDIX A
KEY TO PARAMETER ABBREVIATIONS
HISTORICAL GROUNDWATER DATA

Key to Parameter Abbreviations

<u>PARAMETER</u>	<u>NAME</u>
As	Arsenic
Ba	Barium
Cd	Cadmium
Chld	Chloride
Cr	Chromium
Fl	Fluoride
Fe	Iron
Pb	Lead
Mn	Manganese
Hg	Mercury
NO3	Nitrate
Se	Selenium
Ag	Silver
SO4	Sulfate
COD	Chemical Oxygen Demand
TDS	Total Dissolved Solids
TOC	Total Organic Carbon
1,1,1-Tri	1,1,1-Trichloroethane
1,1-DCEE	1,1-Dichloroethylene
1,2-DCE	1,2-Dichloroethane
CCl4	Carbon Tetrachloride
1,4-DCB	1,4-Dichlorobenzene
TCE	Trichloroethylene
VC	Vinyl Chloride

DI-Ashdown Class 3N Landfills

Statistical Database

		As (mg/l)	Ba (mg/l)	Cd (mg/l)	Chld (mg/l)	Cr (mg/l)	Fl (mg/l)	Fe (mg/l)	Pb (mg/l)	Mn (mg/l)	Hg (mg/l)	NO3 (mg/l)	Se (mg/l)
MW-2	d												
	8/4/98	<0.04	0.45	0.0046	110	<0.01	0.34	0.16	<0.001	0.0068	<0.0002	0.2	<0.005
	11/12/98	<0.04	0.45	<0.004	110	<0.01	0.41	0.24	<0.001	0.0024	<0.0002	0.25	<0.005
	1/26/99	<0.04	0.5	<0.004	110	<0.01	0.35	0.29	<0.001	0.0051	<0.0002	0.21	0.0064
	5/18/99	<0.04	0.49	<0.004	120	<0.01	0.34	0.12	<0.001	0.0023	<0.0002	0.21	0.0062
	11/4/99	<0.04	0.56	<0.004	130	<0.01	0.37	0.19	<0.001	0.0026	<0.0002	0.2	<0.005
	5/23/00	<0.04	0.5	<0.004	100	<0.01	0.35	0.41	<0.001	0.006	<0.0002	0.2	0.0072
	11/20/00	n/a	0.52	n/a	110	n/a	0.32	0.57	<0.001	0.0063	n/a	0.17	0.0066
	5/22/01	n/a	0.5	n/a	110	n/a	0.33	0.41	<0.001	0.0038	n/a	0.19	0.0099
	11/5/01	n/a	0.54	n/a	110	n/a	0.33	0.24	<0.001	0.0023	n/a	0.17	0.0058
	5/23/02	n/a	0.52	n/a	110	n/a	0.31	0.037	<0.001	0.0023	n/a	0.18	0.0051
MW-3	d												
	8/4/98	<0.04	0.45	<0.004	13	<0.01	0.18	1.4	0.0017	0.24	<0.0002	<0.05	<0.005
	11/12/98	<0.04	0.48	<0.004	16	<0.01	0.18	0.61	<0.001	0.22	<0.0002	<0.05	<0.005
	1/26/99	<0.04	0.49	<0.004	16	<0.01	0.19	0.6	<0.001	0.21	<0.0002	<0.05	<0.005
	5/18/99	<0.04	0.47	<0.004	17	<0.01	0.23	0.62	0.0013	0.19	<0.0002	<0.05	<0.005
	11/4/99	<0.04	0.54	<0.004	14	<0.01	0.35	0.23	<0.001	0.11	<0.0002	0.051	<0.005
	5/23/00	<0.04	0.52	<0.004	16	<0.01	0.23	0.34	<0.001	0.21	<0.0002	<0.05	<0.005
	11/20/00	n/a	0.44	n/a	13	n/a	0.22	0.48	<0.001	0.19	n/a	0.054	<0.002
	5/22/01	n/a	0.49	n/a	14	n/a	0.2	0.35	<0.001	0.16	n/a	0.066	<0.005
	11/5/01	n/a	0.4	n/a	14	n/a	0.18	1.1	<0.001	0.37	n/a	<0.05	0.0044
	5/23/02	n/a	0.45	n/a	14	n/a	0.23	0.073	<0.001	0.13	n/a	0.050	<0.005
MW-4	u												
	8/4/98	<0.04	0.71	<0.004	52	<0.01	0.23	0.65	0.0013	0.13	<0.0002	0.12	<0.005
	11/12/98	<0.04	0.66	<0.004	140	<0.01	0.21	1.1	<0.001	0.041	<0.0002	<0.05	<0.005
	1/26/99	<0.04	0.69	<0.004	120	<0.01	0.26	1.1	<0.001	0.037	<0.0002	<0.05	<0.005
	5/18/99	<0.04	0.69	<0.004	120	<0.01	0.26	0.91	<0.001	0.035	<0.0002	<0.05	<0.005
	11/4/99	<0.04	0.78	<0.004	110	<0.01	0.29	1.3	<0.001	0.043	<0.0002	<0.05	<0.005
	5/23/00	<0.04	0.72	<0.004	110	<0.01	0.31	1	<0.001	0.034	<0.0002	<0.05	<0.005
	11/20/00	n/a	0.74	n/a	100	n/a	0.23	1.5	<0.001	0.032	n/a	<0.05	<0.002
	5/22/01	n/a	0.72	n/a	120	n/a	0.22	1.5	<0.001	0.036	n/a	<0.05	0.0057
	11/5/01	n/a	0.80	n/a	110	n/a	0.18	3	0.0014	0.057	n/a	<0.05	<0.002
	5/23/02	n/a	0.75	n/a	110	n/a	0.22	1.1	<0.001	0.044	n/a	<0.05	<0.005

DI-Ashdown Class 3N Landfills

Statistical Database

		Ag (mg/l)	SO4 (mg/l)	Lindane (ug/l)	COD (mg/l)	Sulfide (mg/l)	TDS (mg/l)	TOC (mg/l)	1,1,1Tri (ug/l)	1,1-DCEE (ug/l)	1,2DCE (ug/l)	1,4-DCB (ug/l)	Benzene (ug/l)	CCl4 (ug/l)
MW-2	d													
	8/4/98	<0.007	27	<0.04	18	n/a	550	<1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/12/98	<0.007	28	<0.04	12	<1	550	1.1	<5	<5	<5	<5	<5	<5
	1/26/99	<0.007	30	<0.04	<10	<1	250	1.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	5/18/99	<0.007	29	<0.04	<10	<1	550	<1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/4/99	<0.007	30	<0.04	<10	<1	560	<1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	5/23/00	<0.007	31	<0.04	<10	<1	580	<1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/20/00	n/a	32	n/a	<10	<1	580	<1	n/a	n/a	n/a	n/a	n/a	n/a
	5/22/01	n/a	32	n/a	14	<1	560	<1	n/a	n/a	n/a	n/a	n/a	n/a
	11/5/01	n/a	34	n/a	16	<1	550	<1	n/a	n/a	n/a	n/a	n/a	n/a
	5/23/02	n/a	33	n/a	<10	<1	570	<1	n/a	n/a	n/a	n/a	n/a	n/a
MW-3	d													
	8/4/98	<0.007	7.6	<0.04	49	n/a	270	13	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/12/98	<0.007	0.58	<0.04	49	<1	320	16	<5	<5	<5	<5	<5	<5
	1/26/99	<0.007	2.8	<0.04	<10	<1	540	2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	5/18/99	<0.007	3.4	<0.04	<10	<1	270	<1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/4/99	<0.007	0.51	<0.04	<10	<1	270	1.6	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	5/23/00	<0.007	1.5	<0.04	<10	<1	280	<1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/20/00	n/a	0.3	n/a	<10	<1	270	1.4	n/a	n/a	n/a	n/a	n/a	n/a
	5/22/01	n/a	0.91	n/a	16	<1	250	2.2	n/a	n/a	n/a	n/a	n/a	n/a
	11/5/01	n/a	0.5	n/a	27	<1	230	2.6	n/a	n/a	n/a	n/a	n/a	n/a
	5/23/02	n/a	1.0	n/a	<10	<1	240	<1	n/a	n/a	n/a	n/a	n/a	n/a
MW-4	u													
	8/4/98	<0.007	20	<0.04	22	n/a	320	7.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/12/98	<0.007	46	<0.04	26	<1	900	9.3	<5	<5	<5	<5	<5	<5
	1/26/99	<0.007	40	<0.04	19	<1	840	8.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	5/18/99	<0.007	41	<0.04	15	<1	860	6.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/4/99	<0.007	33	<0.04	28	<1	570	8.7	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	5/23/00	<0.007	36	<0.04	20	<1	880	8.7	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/20/00	n/a	34	n/a	23	<1	860	8.1	n/a	n/a	n/a	n/a	n/a	n/a
	5/22/01	n/a	39	n/a	34	<1	900	7.8	n/a	n/a	n/a	n/a	n/a	n/a
	11/5/01	n/a	39	n/a	37	<1	890	8.7	n/a	n/a	n/a	n/a	n/a	n/a
	5/23/02	n/a	30	n/a	27	<1	920	10	n/a	n/a	n/a	n/a	n/a	n/a

		TCE (ug/l)	VC (ug/l)	pH (S.U.)	Chlorofm (ug/l)	2,3,7,8- TCDD (ppt)	2,3,7,8- TCDF (ppt)
MW-2	d						
	8/4/98	<0.50	<0.50	6.91	n/a	<0.01	<0.01
	11/12/98	<5	<5	6.54	n/a	<0.01	<0.01
	1/26/99	<0.50	<0.50	6.75	n/a	<0.01	<0.01
	5/18/99	<0.50	<0.50	7.12	n/a	<0.01	<0.01
	11/4/99	<0.50	<0.50	6.6	n/a	<0.01	<0.01
	5/23/00	<0.50	<0.50	7.46	n/a	<0.01	<0.01
	11/20/00	n/a	n/a	7.02	n/a	n/a	n/a
	5/22/01	n/a	n/a	6.78	n/a	n/a	n/a
	11/5/01	n/a	n/a	7.17	n/a	n/a	n/a
	5/23/02	n/a	n/a	7.49	n/a	n/a	n/a
MW-3	d						
	8/4/98	<0.50	<0.50	7.21	<0.50	<0.01	<0.01
	11/12/98	<5	<5	7.12	n/a	<0.01	<0.01
	1/26/99	<0.50	<0.50	7.01	n/a	<0.01	<0.01
	5/18/99	<0.50	<0.50	7.59	n/a	<0.01	<0.01
	11/4/99	<0.50	<0.50	7.3	n/a	<0.01	<0.01
	5/23/00	<0.50	<0.50	7.16	n/a	<0.01	<0.01
	11/20/00	n/a	n/a	7.49	n/a	n/a	n/a
	5/22/01	n/a	n/a	7.44	n/a	n/a	n/a
	11/5/01	n/a	n/a	7.46	n/a	n/a	n/a
	5/23/02	n/a	n/a	7.96	n/a	n/a	n/a
MW-4	u						
	8/4/98	<0.50	<0.50	6.7	<0.50	<0.01	<0.01
	11/12/98	<5	<5	6.38	n/a	<0.01	<0.01
	1/26/99	<0.50	<0.50	6.47	n/a	<0.01	<0.01
	5/18/99	<0.50	<0.50	6.86	n/a	<0.01	<0.01
	11/4/99	<0.50	<0.50	6.69	n/a	<0.01	<0.01
	5/23/00	<0.50	<0.50	6.9	n/a	<0.01	<0.01
	11/20/00	n/a	n/a	6.88	n/a	n/a	n/a
	5/22/01	n/a	n/a	6.65	n/a	n/a	n/a
	11/5/01	n/a	n/a	6.88	n/a	n/a	n/a
	5/23/02	n/a	n/a	7.15	n/a	n/a	n/a

DI-Ashdown Class 3N Landfills

Statistical Database

		As (mg/l)	Ba (mg/l)	Cd (mg/l)	Chld (mg/l)	Cr (mg/l)	Fl (mg/l)	Fe (mg/l)	Pb (mg/l)	Mn (mg/l)	Hg (mg/l)	NO3 (mg/l)	Se (mg/l)
MW-5	d												
	8/4/98	<0.04	0.37	<0.004	48	<0.01	0.29	0.32	<0.001	0.21	<0.0002	<0.05	<0.005
	11/12/98	<0.04	0.38	<0.004	44	<0.01	0.34	1	<0.001	0.12	<0.0002	<0.05	<0.005
	1/26/99	<0.04	0.49	<0.004	46	<0.01	0.36	2.1	<0.001	0.35	<0.0002	<0.05	<0.005
	5/18/99	<0.04	0.58	<0.004	51	<0.01	0.23	3.6	0.0034	0.62	<0.0002	<0.05	<0.005
	11/4/99	<0.04	0.49	<0.004	49	<0.01	0.42	0.71	<0.001	0.089	<0.0002	<0.05	<0.005
	5/23/00	<0.04	0.46	<0.004	49	<0.01	0.33	0.32	<0.001	0.04	<0.0002	<0.05	<0.005
	11/20/00	n/a	0.43	n/a	49	n/a	0.3	0.51	<0.001	0.049	n/a	<0.05	<0.002
	5/22/01	n/a	0.44	n/a	50	n/a	0.28	0.38	<0.001	0.013	n/a	<0.05	<0.005
	11/5/01	n/a	0.51	n/a	56	n/a	0.24	0.66	0.0012	0.16	n/a	<0.05	<0.002
	5/23/02	n/a	0.49	n/a	60	n/a	0.28	0.025	<0.001	0.015	n/a	<0.05	<0.005
MW-6	u												
	8/4/98	<0.04	0.62	<0.004	230	<0.01	0.26	0.046	0.0011	0.018	<0.0002	<0.05	<0.005
	11/12/98	<0.04	0.54	<0.004	260	<0.01	0.22	0.26	<0.001	0.013	<0.0002	<0.05	<0.005
	1/26/99	<0.04	0.58	<0.004	260	<0.01	0.28	0.31	0.0019	0.0073	<0.0002	0.072	<0.005
	5/18/99	<0.04	0.52	<0.004	290	<0.01	0.27	0.069	0.0011	0.0024	<0.0002	<0.05	<0.005
	11/4/99	<0.04	0.56	<0.004	290	<0.01	0.27	0.073	<0.001	0.0022	<0.0002	<0.05	<0.005
	5/23/00	<0.04	0.5	<0.004	330	<0.01	0.31	0.15	<0.001	0.0027	<0.0002	<0.05	<0.005
	11/20/00	n/a	0.5	n/a	320	n/a	0.24	0.77	<0.001	0.0052	n/a	<0.05	0.0066
	5/22/01	n/a	0.45	n/a	310	n/a	0.34	0.65	<0.001	0.0029	n/a	<0.05	0.018
	11/5/01	n/a	0.45	n/a	320	n/a	0.19	0.18	<0.001	0.0023	n/a	<0.05	<0.002
	5/23/02	n/a	0.39	n/a	290	n/a	0.28	0.037	<0.001	<0.002	n/a	<0.05	<0.005
LD-1	u												
	8/4/98	<0.04	0.17	<0.004	150	<0.01	0.37	0.56	0.0012	0.034	<0.0002	0.23	0.03

DI-Ashdown Class 3N Landfills

Statistical Database

		Ag (mg/l)	SO4 (mg/l)	Lindane (ug/l)	COD (mg/l)	Sulfide (mg/l)	TDS (mg/l)	TOC (mg/l)	1,1,1Tri (ug/l)	1,1-DCEE (ug/l)	1,2DCE (ug/l)	1,4-DCB (ug/l)	Benzene (ug/l)	CCI4 (ug/l)
MW-5	d													
		8/4/98 <0.007	20	<0.04	38	n/a	470	7.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
		11/12/98 <0.007	19	<0.04	15	<1	440	2.4	<5	<5	<5	<5	<5	<5
		1/26/99 <0.007	19	<0.04	<10	<1	410	2.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
		5/18/99 <0.007	20	<0.04	<10	<1	480	1.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
		11/4/99 <0.007	20	<0.04	<10	<1	470	1.9	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
		5/23/00 <0.007	21	<0.04	<10	<1	480	1.8	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
		11/20/00 n/a	21	n/a	<10	<1	480	1.4	n/a	n/a	n/a	n/a	n/a	n/a
		5/22/01 n/a	22	n/a	11	<1	490	1.8	n/a	n/a	n/a	n/a	n/a	n/a
		11/5/01 n/a	24	n/a	18	<1	490	2.1	n/a	n/a	n/a	n/a	n/a	n/a
		5/23/02 n/a	23	n/a	<10	<1	530	2.6	n/a	n/a	n/a	n/a	n/a	n/a
MW-6	u													
		8/4/98 <0.007	56	<0.04	11	n/a	960	1.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
		11/12/98 <0.007	58	<0.04	19	<1	960	4.1	<5	<5	<5	<5	<5	<5
		1/26/99 <0.007	60	<0.04	<10	<1	960	1.8	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
		5/18/99 <0.007	63	<0.04	<10	<1	1100	<1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
		11/4/99 <0.007	64	<0.04	18	<1	530	1.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
		5/23/00 <0.007	63	<0.04	<10	<1	1200	1.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
		11/20/00 n/a	62	n/a	<10	<1	1100	1.4	n/a	n/a	n/a	n/a	n/a	n/a
		5/22/01 n/a	64	n/a	27	<1	1300	1.3	n/a	n/a	n/a	n/a	n/a	n/a
		11/5/01 n/a	64	n/a	23	<1	980	1.3	n/a	n/a	n/a	n/a	n/a	n/a
		5/23/02 n/a	68	n/a	<10	<1	980	1.2	n/a	n/a	n/a	n/a	n/a	n/a
LD-1	u													
		8/4/98 <0.007	130	<0.04	11	n/a	1200	3.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

		TCE (ug/l)	VC (ug/l)	pH (S.U.)	Chlorofm (ug/l)	2,3,7,8- TCDD (ppt)	2,3,7,8- TCDF (ppt)
MW-5	d						
	8/4/98	<0.50	<0.50	6.92	n/a	<0.01	<0.01
	11/12/98	<5	<5	6.76	n/a	<0.01	<0.01
	1/26/99	<0.50	<0.50	7.04	n/a	<0.01	<0.01
	5/18/99	<0.50	<0.50	7.28	n/a	<0.01	<0.01
	11/4/99	<0.50	<0.50	6.8	n/a	<0.01	<0.01
	5/23/00	<0.50	<0.50	7.6	n/a	<0.01	<0.01
	11/20/00	n/a	n/a	7.1	n/a	n/a	n/a
	5/22/01	n/a	n/a	6.6	n/a	n/a	n/a
	11/5/01	n/a	n/a	6.97	n/a	n/a	n/a
	5/23/02	n/a	n/a	6.95	n/a	n/a	n/a
MW-6	u						
	8/4/98	<0.50	<0.50	6.68	<0.50	<0.01	<0.01
	11/12/98	<5	<5	6.5	n/a	<0.01	<0.01
	1/26/99	<0.50	<0.50	6.59	n/a	<0.01	<0.01
	5/18/99	<0.50	<0.50	6.86	n/a	<0.01	<0.01
	11/4/99	<0.50	<0.50	6.6	n/a	<0.01	<0.01
	5/23/00	<0.50	<0.50	6.91	n/a	<0.01	<0.01
	11/20/00	n/a	n/a	6.82	n/a	n/a	n/a
	5/22/01	n/a	n/a	6.7	n/a	n/a	n/a
	11/5/01	n/a	n/a	6.95	n/a	n/a	n/a
	5/23/02	n/a	n/a	7.18	n/a	n/a	n/a
LD-1	u						
	8/4/98	<0.50	<0.50	6.66	<0.50	n/a	n/a

APPENDIX B
GROUNDWATER SAMPLING RECORDS
& pH METER CALIBRATION RECORD

GROUNDWATER MONITORING SAMPLING RECORD

PROJECT: Domtar A. W. Corp.-Ashdown PROJECT NUMBER: 20081-1

SAMPLING LOCATION: MW-2

WEATHER CONDITIONS: Sunny, 80°F

MONITORING WELL CONDITION:

WELL LOCKED? Yes WELL NUMBER LABELED? Yes

CASING CONDITION: Ok

DATUM FOR WATER DEPTH MEASUREMENT: T.O.C.

GENERAL WELL EXTERIOR/INTERIOR CONDITIONS: Ok

DECON FIELD EQUIPMENT: DI water

WATER DEPTH (WD): 35.47 feet TOTAL DEPTH OF WELL (TD): 57.75 feet

GROUNDWATER ELEVATION: 286.72 fmsl

VOLUME OF WATER IN WELL:

V = 0.0408 x [TD-WD(feet)] x [Well Diameter (inches)]^2 = 3.6 Gallons

WATER CONDITION BEFORE WELL PURGING:

APPEARANCE: Cloudy ODOR: None

WELL PURGING DATE: 5/23/02 PURGING METHOD: Grundfos pump

TIME START PURGING: 1620 TIME END PURGING: 1640

VOLUME PURGED (Try for 3 Volumes): 14.0 Gallons

APPEARANCE: Clear ODOR: None

WELL PURGED DRY? No

SAMPLING DATE: 5/23/02 SAMPLING METHOD: Grundfos pump

TIME START SAMPLING: 1640 TIME END SAMPLING: 1645

FIELD MEASUREMENTS: (Need at least 3 consecutive readings w/in 10% for stabilization)

Table with 7 columns: TIME, RATE, GALLONS, TEMP, pH, CONDUCTANCE, TURBIDITY. Rows include data for times 1625, 1630, 1635, 1638, 1640.

FIELD SAMPLE PRESERVATION: Ice

CONTAINER HANDLING: GEC

SENIOR SAMPLER(S) SIGNATURE: J Mosley by SW

COMMENTS:

GROUNDWATER MONITORING SAMPLING RECORD

PROJECT: Domtar A. W. Corp.-Ashdown PROJECT NUMBER: 20081-1

SAMPLING LOCATION: MW-3

WEATHER CONDITIONS: Sunny, 80°F

MONITORING WELL CONDITION:

WELL LOCKED? Yes WELL NUMBER LABELED? Yes

CASING CONDITION: Ok

DATUM FOR WATER DEPTH MEASUREMENT: T.O.C.

GENERAL WELL EXTERIOR/INTERIOR CONDITIONS: Ok

DECON FIELD EQUIPMENT: DI water

WATER DEPTH (WD): 23.47 feet TOTAL DEPTH OF WELL (TD): 68.16 feet

GROUNDWATER ELEVATION: 301.00 fmsl

VOLUME OF WATER IN WELL:

V = 0.0408 x [TD-WD(feet)] x [Well Diameter (inches)]^2 = 7.3 Gallons

WATER CONDITION BEFORE WELL PURGING:

APPEARANCE: Tan, cloudy ODOR: None

WELL PURGING DATE: 5/23/02 PURGING METHOD: Grundfos pump

TIME START PURGING: 1405 TIME END PURGING: 1413

VOLUME PURGED (Try for 3 Volumes): 10.0 Gallons

APPEARANCE: Clear ODOR: None

WELL PURGED DRY? Yes

SAMPLING DATE: 5/24/02 SAMPLING METHOD: Disposable bailer

TIME START SAMPLING: 1105 TIME END SAMPLING: 1110

FIELD MEASUREMENTS: (Need at least 3 consecutive readings w/in 10% for stabilization)

Table with 7 columns: TIME, RATE, GALLONS, TEMP, pH, CONDUCTANCE, TURBIDITY. Contains 3 rows of data for 1055, 1100, and 1105.

FIELD SAMPLE PRESERVATION: Ice

CONTAINER HANDLING: GEC

SENIOR SAMPLER(S) SIGNATURE: J Mosley by SW

COMMENTS:

GROUNDWATER MONITORING SAMPLING RECORD

PROJECT: Domtar A. W. Corp.-Ashdown PROJECT NUMBER: 20081-1

SAMPLING LOCATION: MW-5

WEATHER CONDITIONS: Sunny, 80°F

MONITORING WELL CONDITION:

WELL LOCKED? Yes WELL NUMBER LABELED? Yes

CASING CONDITION: Ok

DATUM FOR WATER DEPTH MEASUREMENT: T.O.C.

GENERAL WELL EXTERIOR/INTERIOR CONDITIONS: Ok

DECON FIELD EQUIPMENT: DI water

WATER DEPTH (WD): 32.76 feet TOTAL DEPTH OF WELL (TD): 61.67 feet

GROUNDWATER ELEVATION: 286.76 fmsl

VOLUME OF WATER IN WELL:

V = 0.0408 x [TD-WD(feet)] x [Well Diameter (inches)]^2 = 4.7 Gallons

WATER CONDITION BEFORE WELL PURGING:

APPEARANCE: Cloudy ODOR: None

WELL PURGING DATE: 5/23/02 PURGING METHOD: Grundfos pump

TIME START PURGING: 1435 TIME END PURGING: 1500

VOLUME PURGED (Try for 3 Volumes): 17.0 Gallons

APPEARANCE: Clear ODOR: None

WELL PURGED DRY? No

SAMPLING DATE: 5/23/02 SAMPLING METHOD: Grundfos pump

TIME START SAMPLING: 1500 TIME END SAMPLING: 1505

FIELD MEASUREMENTS: (Need at least 3 consecutive readings w/in 10% for stabilization)

Table with 7 columns: TIME, RATE, GALLONS, TEMP, pH, CONDUCTANCE, TURBIDITY. Contains 5 rows of data and 10 empty rows.

FIELD SAMPLE PRESERVATION: Ice

CONTAINER HANDLING: GEC

SENIOR SAMPLER(S) SIGNATURE: J Mosley JMS

COMMENTS:

GROUNDWATER MONITORING SAMPLING RECORD

PROJECT: Domtar A. W. Corp.-Ashdown PROJECT NUMBER: 20081-1

SAMPLING LOCATION: LD-2 (5/23/02)

WEATHER CONDITIONS: Sunny, 80°F

MONITORING WELL CONDITION:

WELL LOCKED? Yes WELL NUMBER LABELED? Yes

CASING CONDITION: Ok

DATUM FOR WATER DEPTH MEASUREMENT: T.O.C.

GENERAL WELL EXTERIOR/INTERIOR CONDITIONS: Ok

DECON FIELD EQUIPMENT: DI water

WATER DEPTH (WD): 35.17 feet TOTAL DEPTH OF WELL (TD): N/A

VOLUME OF WATER IN WELL:

V = 0.0408 x [TD-WD(feet)] x [Well Diameter (inches)]^2 = N/A Gallons

WATER CONDITION BEFORE WELL PURGING:

APPEARANCE: N/A ODOR: N/A

WELL PURGING DATE: N/A PURGING METHOD: N/A

TIME START PURGING: N/A TIME END PURGING: N/A

VOLUME PURGED (Try for 3 Volumes): N/A

APPEARANCE: N/A ODOR: N/A

WELL PURGED DRY? N/A

SAMPLING DATE: N/A SAMPLING METHOD: N/A

TIME START SAMPLING: N/A TIME END SAMPLING: N/A

FIELD MEASUREMENTS: (Need at least 3 consecutive readings w/in 10% for stabilization)

Table with 7 columns: TIME, RATE, GALLONS, TEMP, pH, CONDUCTANCE, TURBIDITY. The table is currently empty.

FIELD SAMPLE PRESERVATION: N/A

CONTAINER HANDLING: N/A

SENIOR SAMPLER(S) SIGNATURE: J. Mosley by SW

COMMENTS: Insufficient amount of water in well to collect sample.

GROUNDWATER MONITORING SAMPLING RECORD

PROJECT: Domtar A. W. Corp.-Ashdown PROJECT NUMBER: 20081-1

SAMPLING LOCATION: LD-3 (5/23/02)

WEATHER CONDITIONS: Sunny, 80°F

MONITORING WELL CONDITION:

WELL LOCKED? Yes WELL NUMBER LABELED? Yes

CASING CONDITION: Ok

DATUM FOR WATER DEPTH MEASUREMENT: T.O.C.

GENERAL WELL EXTERIOR/INTERIOR CONDITIONS: Ok

DECON FIELD EQUIPMENT: DI water

WATER DEPTH (WD): N/A TOTAL DEPTH OF WELL (TD): N/A

VOLUME OF WATER IN WELL:

V = 0.0408 x [TD-WD(feet)] x [Well Diameter (inches)]^2 = N/A Gallons

WATER CONDITION BEFORE WELL PURGING:

APPEARANCE: N/A ODOR: N/A

WELL PURGING DATE: N/A PURGING METHOD: N/A

TIME START PURGING: N/A TIME END PURGING: N/A

VOLUME PURGED (Try for 3 Volumes): N/A

APPEARANCE: N/A ODOR: N/A

WELL PURGED DRY? N/A

SAMPLING DATE: N/A SAMPLING METHOD: N/A

TIME START SAMPLING: N/A TIME END SAMPLING: N/A

FIELD MEASUREMENTS: (Need at least 3 consecutive readings w/in 10% for stabilization)

Table with 7 columns: TIME, RATE, GALLONS, TEMP, pH, CONDUCTANCE, TURBIDITY. The table is currently empty.

FIELD SAMPLE PRESERVATION: N/A

CONTAINER HANDLING: N/A

SENIOR SAMPLER(S) SIGNATURE: J. Mosley by SW

COMMENTS: Insufficient amount of water in well to collect sample.

GROUNDWATER MONITORING SAMPLING RECORD

PROJECT: Domtar A. W. Corp.-Ashdown PROJECT NUMBER: 20081-1

SAMPLING LOCATION: LD-4 (5/23/02)

WEATHER CONDITIONS: Sunny, 80°F

MONITORING WELL CONDITION:

WELL LOCKED? Yes WELL NUMBER LABELED? Yes
CASING CONDITION: Ok
DATUM FOR WATER DEPTH MEASUREMENT: T.O.C.
GENERAL WELL EXTERIOR/INTERIOR CONDITIONS: Ok

DECON FIELD EQUIPMENT: DI water

WATER DEPTH (WD): 31.19 feet TOTAL DEPTH OF WELL (TD): N/A

VOLUME OF WATER IN WELL:

V = 0.0408 x [TD-WD(feet)] x [Well Diameter (inches)]^2 = N/A Gallons

WATER CONDITION BEFORE WELL PURGING:

APPEARANCE: N/A ODOR: N/A

WELL PURGING DATE: N/A PURGING METHOD: N/A

TIME START PURGING: N/A TIME END PURGING: N/A

VOLUME PURGED (Try for 3 Volumes): N/A

APPEARANCE: N/A ODOR: N/A

WELL PURGED DRY? N/A

SAMPLING DATE: N/A SAMPLING METHOD: N/A

TIME START SAMPLING: N/A TIME END SAMPLING: N/A

FIELD MEASUREMENTS: (Need at least 3 consecutive readings w/in 10% for stabilization)

Table with 7 columns: TIME, RATE, GALLONS, TEMP, pH, CONDUCTANCE, TURBIDITY. The table is currently empty.

FIELD SAMPLE PRESERVATION: N/A

CONTAINER HANDLING: N/A

SENIOR SAMPLER(S) SIGNATURE: J. Mosley by SW

COMMENTS: Insufficient amount of water in well to collect sample.

pH METER CALIBRATION RECORD
DOMTAR A. W. CORP. - ASHDOWN CLASS 3 LANDFILL
FIRST HALF 2002 SAMPLING EVENT

DATE CALIBRATED	NAME	TIME CALIBRATED	pH BUFFER 10.01 RESULT	pH BUFFER 7.00 RESULT	pH BUFFER 4.01 RESULT	COMMENTS
8/4/98	CBM	1600	NA	7.00	4.01	92.4 SLOPE
8/5/98	SW	0800	NA	7.00	4.01	92.5 SLOPE
11/12/98	CBM	1045	NA	7.00	4.01	92.2 SLOPE
1/26/99	CBM	0900	NA	7.01	4.00	92.5 SLOPE
5/18/99	PG	1005	NA	7.00	4.01	92.0 SLOPE
11/3/99	PG	1106	NA	7.11	4.21	92.0 SLOPE
5/23/00	PG	1200	NA	7.12	5.88	88.4 SLOPE
11/20/00	PG	1130	NA	7.02	4.07	N/A
5/22/01	PG	1300	NA	6.76	3.94	N/A
11/5/01	JM	1430	NA	7.00	4.01	N/A
5/23/02	JM	1425	NA	7.00	4.00	-57.6 SLOPE

APPENDIX C

ANALYTICAL LABORATORY RESULTS



C O N F I D E N T I A L
R E P O R T

8600 Kanis Road
Little Rock, AR 72204-2322
(501) 224-5060
FAX (501) 224-5072

Domtar Industries, Inc.
ATTN: Mr. Jay Shellogg
285 Highway 71 South
Ashdown, AR 71822

May 30, 2002
Control No. 66030
Page 1 of 6

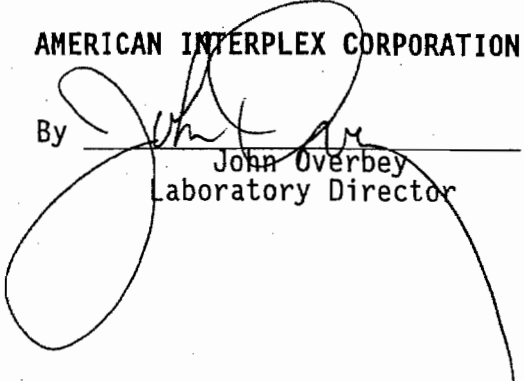
Project Description: Eight (8) water sample(s) received on May 24, 2002
Permit No. 211-S3N-R2 CSN 41-0002
G20081-1
P.O. No. 65055

Dear Mr. Jay Shellogg:

Please find enclosed analytical results for the sample(s) submitted to American Interplex Corporation (AIC) on May 24, 2002. The following results are applicable only to samples identified by the control number designated above. Accurate assessment of the data requires access to the entire document. Each section of the report has been reviewed and approved by the appropriate laboratory director or a qualified designee.

If you have any questions, please reference Control No. 66030.

AMERICAN INTERPLEX CORPORATION

By 
John Overbey
Laboratory Director

TK/lms

Enclosure(s): Chain of Custody

cc: Arkansas Department of Environmental Quality
ATTN: Solid Waste Division
Post Office Box 8913
Little Rock, AR 72219-8913

Genesis Environmental Consulting, Inc.
ATTN: Ms. Stacy Whitmer
11400 West Baseline Road
Little Rock, AR 72209

Domtar Industries, Inc.
285 Highway 71 South
Ashdown, AR 71822

May 30, 2002
Control No. 66030
Page 2 of 6

ATTN: Mr. Jay Shellogg

Project Description: Eight (8) water sample(s) received on May 24, 2002
Permit No. 211-S3N-R2 CSN 41-0002
G20081-1
P.O. No. 65055

Sample Identification: MW-2 5/23/02 1640
AIC No. 66030-1

Parameter	Method	Result	Batch	Time Analyzed By
Barium	EPA 3010A, 6020	0.52 mg/l	S8160	28MAY02 0825 117
Chloride	EPA 9056	110 mg/l	S8159	24MAY02 1611 235/201
Fluoride	EPA 9056	0.31 mg/l	S8159	24MAY02 1611 235/201
Iron	EPA 3010A, 6020	0.037 mg/l	S8160	28MAY02 0825 117
Lead	EPA 3010A, 6020	<0.001 mg/l	S8160	28MAY02 0825 117
Manganese	EPA 3010A, 6020	0.0023 mg/l	S8160	28MAY02 0825 117
Nitrate as N	EPA 9056	0.18 mg/l	S8159	24MAY02 1611 235/201
Selenium	EPA 3010A, 6020	0.0051 mg/l	S8160	28MAY02 0825 117
Sulfate	EPA 9056	33 mg/l	S8159	24MAY02 1611 235/201
COD	HACH 8000	<10 mg/l	W7650	28MAY02 1413 223
Sulfide	EPA 9030A	<1 mg/l	W7646	28MAY02 0928 221
Total Dissolved Solids	EPA 160.1	570 mg/l	W7652	28MAY02 1627 223
Total Organic Carbon	EPA 9060	<1 mg/l	W7645	24MAY02 1604 93

Sample Identification: MW-3 5/24/02 1105
AIC No. 66030-2

Parameter	Method	Result	Batch	Time Analyzed By
Barium	EPA 3010A, 6020	0.45 mg/l	S8160	28MAY02 0825 117
Chloride	EPA 9056	14 mg/l	S8159	24MAY02 1611 235/201
Fluoride	EPA 9056	0.23 mg/l	S8159	24MAY02 1611 235/201
Iron	EPA 3010A, 6020	0.073 mg/l	S8160	28MAY02 0825 117
Lead	EPA 3010A, 6020	<0.001 mg/l	S8160	28MAY02 0825 117
Manganese	EPA 3010A, 6020	0.13 mg/l	S8160	28MAY02 0825 117
Nitrate as N	EPA 9056	0.050 mg/l	S8159	24MAY02 1611 235/201
Selenium	EPA 3010A, 6020	<0.005 mg/l	S8160	28MAY02 0825 117
Sulfate	EPA 9056	1.0 mg/l	S8159	24MAY02 1611 235/201
COD	HACH 8000	<10 mg/l	W7650	28MAY02 1413 223
Sulfide	EPA 9030A	<1 mg/l	W7646	28MAY02 0928 221
Total Dissolved Solids	EPA 160.1	240 mg/l	W7652	28MAY02 1627 223
Total Organic Carbon	EPA 9060	<1 mg/l	W7645	24MAY02 1604 93

Sample Identification: MW-4 5/23/02 1605
AIC No. 66030-3

Parameter	Method	Result	Batch	Time Analyzed By
Barium	EPA 3010A, 6020	0.75 mg/l	S8160	28MAY02 0825 117
Chloride	EPA 9056	110 mg/l	S8159	24MAY02 1611 235/201

Domtar Industries, Inc.
285 Highway 71 South
Ashdown, AR 71822

May 30, 2002
Control No. 66030
Page 3 of 6

Project Description: Eight (8) water sample(s) received on May 24, 2002
Permit No. 211-S3N-R2 CSN 41-0002
G20081-1
P.O. No. 65055

Sample Identification: MW-4 5/23/02 1605 (Continued)
AIC No. 66030-3

Parameter	Method	Result	Batch	Time Analyzed By
Fluoride	EPA 9056	0.22 mg/l	S8159	24MAY02 1611 235/201
Iron	EPA 3010A, 6020	1.1 mg/l	S8160	28MAY02 0825 117
Lead	EPA 3010A, 6020	<0.001 mg/l	S8160	28MAY02 0825 117
Manganese	EPA 3010A, 6020	0.044 mg/l	S8160	28MAY02 0825 117
Nitrate as N	EPA 9056	<0.05 mg/l	S8159	24MAY02 1611 235/201
Selenium	EPA 3010A, 6020	<0.005 mg/l	S8160	28MAY02 0825 117
Sulfate	EPA 9056	30 mg/l	S8159	24MAY02 1611 235/201
COD	HACH 8000	27 mg/l	W7650	28MAY02 1413 223
Sulfide	EPA 9030A	<1 mg/l	W7646	28MAY02 0928 221
Total Dissolved Solids	EPA 160.1	920 mg/l	W7652	28MAY02 1627 223
Total Organic Carbon	EPA 9060	10 mg/l	W7645	24MAY02 1604 93

Sample Identification: MW-5 5/23/02 1500
AIC No. 66030-4

Parameter	Method	Result	Batch	Time Analyzed By
Barium	EPA 3010A, 6020	0.49 mg/l	S8160	28MAY02 0825 117
Chloride	EPA 9056	60 mg/l	S8159	24MAY02 1611 235/201
Fluoride	EPA 9056	0.28 mg/l	S8159	24MAY02 1611 235/201
Iron	EPA 3010A, 6020	0.025 mg/l	S8160	28MAY02 0825 117
Lead	EPA 3010A, 6020	<0.001 mg/l	S8160	28MAY02 0825 117
Manganese	EPA 3010A, 6020	0.015 mg/l	S8160	28MAY02 0825 117
Nitrate as N	EPA 9056	<0.05 mg/l	S8159	24MAY02 1611 235/201
Selenium	EPA 3010A, 6020	<0.005 mg/l	S8160	28MAY02 0825 117
Sulfate	EPA 9056	23 mg/l	S8159	24MAY02 1611 235/201
COD	HACH 8000	<10 mg/l	W7650	28MAY02 1413 223
Sulfide	EPA 9030A	<1 mg/l	W7646	28MAY02 0928 221
Total Dissolved Solids	EPA 160.1	530 mg/l	W7652	28MAY02 1627 223
Total Organic Carbon	EPA 9060	2.6 mg/l	W7645	24MAY02 1604 93

Sample Identification: MW-6 5/24/02 1020
AIC No. 66030-5

Parameter	Method	Result	Batch	Time Analyzed By
Barium	EPA 3010A, 6020	0.39 mg/l	S8160	28MAY02 0825 117
Chloride	EPA 9056	290 mg/l	S8159	24MAY02 1611 235/201
Fluoride	EPA 9056	0.28 mg/l	S8159	24MAY02 1611 235/201
Iron	EPA 3010A, 6020	0.037 mg/l	S8160	28MAY02 0825 117
Lead	EPA 3010A, 6020	<0.001 mg/l	S8160	28MAY02 0825 117
Manganese	EPA 3010A, 6020	<0.002 mg/l	S8160	28MAY02 0825 117

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May 30, 2002
Control No. 66030
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Project Description: Eight (8) water sample(s) received on May 24, 2002
Permit No. 211-S3N-R2 CSN 41-0002
G20081-1
P.O. No. 65055

Sample Identification: MW-6 5/24/02 1020 (Continued)
AIC No. 66030-5

Parameter	Method	Result	Batch	Time Analyzed By
Nitrate as N	EPA 9056	<0.05 mg/l	S8159	24MAY02 1611 235/201
Selenium	EPA 3010A, 6020	<0.005 mg/l	S8160	28MAY02 0825 117
Sulfate	EPA 9056	68 mg/l	S8159	24MAY02 1611 235/201
COD	HACH 8000	<10 mg/l	W7650	28MAY02 1413 223
Sulfide	EPA 9030A	<1 mg/l	W7646	28MAY02 0928 221
Total Dissolved Solids	EPA 160.1	980 mg/l	W7652	28MAY02 1627 223
Total Organic Carbon	EPA 9060	1.2 mg/l	W7645	24MAY02 1604 93

Sample Identification: DUPE-4 5/23/02 1610
AIC No. 66030-6

Parameter	Method	Result	Batch	Time Analyzed By
Barium	EPA 3010A, 6020	0.73 mg/l	S8160	28MAY02 0825 117
Chloride	EPA 9056	110 mg/l	S8159	24MAY02 1611 235/201
Fluoride	EPA 9056	0.23 mg/l	S8159	24MAY02 1611 235/201
Iron	EPA 3010A, 6020	1.1 mg/l	S8160	28MAY02 0825 117
Lead	EPA 3010A, 6020	<0.001 mg/l	S8160	28MAY02 0825 117
Manganese	EPA 3010A, 6020	0.043 mg/l	S8160	28MAY02 0825 117
Nitrate as N	EPA 9056	<0.05 mg/l	S8159	24MAY02 1611 235/201
Selenium	EPA 3010A, 6020	<0.005 mg/l	S8160	28MAY02 0825 117
Sulfate	EPA 9056	30 mg/l	S8159	24MAY02 1611 235/201
COD	HACH 8000	27 mg/l	W7650	28MAY02 1413 223
Sulfide	EPA 9030A	<1 mg/l	W7646	28MAY02 0928 221
Total Dissolved Solids	EPA 160.1	930 mg/l	W7652	28MAY02 1627 223
Total Organic Carbon	EPA 9060	10 mg/l	W7645	24MAY02 1604 93

Sample Identification: FB-6 5/24/02 1025
AIC No. 66030-7

Parameter	Method	Result	Batch	Time Analyzed By
Barium	EPA 3010A, 6020	<0.05 mg/l	S8160	28MAY02 0825 117
Chloride	EPA 9056	<0.2 mg/l	S8159	24MAY02 1611 235/201
Fluoride	EPA 9056	<0.1 mg/l	S8159	24MAY02 1611 235/201
Iron	EPA 3010A, 6020	<0.007 mg/l	S8160	28MAY02 0825 117
Lead	EPA 3010A, 6020	<0.001 mg/l	S8160	28MAY02 0825 117
Manganese	EPA 3010A, 6020	<0.002 mg/l	S8160	28MAY02 0825 117
Nitrate as N	EPA 9056	<0.05 mg/l	S8159	24MAY02 1611 235/201
Selenium	EPA 3010A, 6020	<0.005 mg/l	S8160	28MAY02 0825 117
Sulfate	EPA 9056	<0.2 mg/l	S8159	24MAY02 1611 235/201
COD	HACH 8000	<10 mg/l	W7650	28MAY02 1413 223

Domtar Industries, Inc.
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May 30, 2002
Control No. 66030
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Project Description: Eight (8) water sample(s) received on May 24, 2002
Permit No. 211-S3N-R2 CSN 41-0002
G20081-1
P.O. No. 65055

Sample Identification: FB-6 5/24/02 1025 (Continued)
AIC No. 66030-7

Parameter	Method	Result	Batch	Time Analyzed By
Sulfide	EPA 9030A	<1 mg/l	W7646	28MAY02 0928 221
Total Dissolved Solids	EPA 160.1	<10 mg/l	W7652	28MAY02 1627 223
Total Organic Carbon	EPA 9060	<1 mg/l	W7645	24MAY02 1604 93

Sample Identification: EB-4 5/23/02 1615
AIC No. 66030-8

Parameter	Method	Result	Batch	Time Analyzed By
Barium	EPA 3010A, 6020	<0.05 mg/l	S8160	28MAY02 0825 117
Chloride	EPA 9056	<0.2 mg/l	S8159	24MAY02 1611 235/201
Fluoride	EPA 9056	<0.1 mg/l	S8159	24MAY02 1611 235/201
Iron	EPA 3010A, 6020	<0.007 mg/l	S8160	28MAY02 0825 117
Lead	EPA 3010A, 6020	<0.001 mg/l	S8160	28MAY02 0825 117
Manganese	EPA 3010A, 6020	<0.002 mg/l	S8160	28MAY02 0825 117
Nitrate as N	EPA 9056	<0.05 mg/l	S8159	24MAY02 1611 235/201
Selenium	EPA 3010A, 6020	<0.005 mg/l	S8160	28MAY02 0825 117
Sulfate	EPA 9056	<0.2 mg/l	S8159	24MAY02 1611 235/201
COD	HACH 8000	<10 mg/l	W7650	28MAY02 1413 223
Sulfide	EPA 9030A	<1 mg/l	W7646	28MAY02 0928 221
Total Dissolved Solids	EPA 160.1	<10 mg/l	W7652	28MAY02 1627 223
Total Organic Carbon	EPA 9060	<1 mg/l	W7645	24MAY02 1604 93

Domtar Industries, Inc.
285 Highway 71 South
Ashdown, AR 71822

May 30, 2002
Control No. 66030
Page 6 of 6

Parameter	%	Relative %	Method	Laboratory	Units	Batch
	Recovery	Difference	Limit	Blank		
Barium	105	5.07	0.05	<0.05	mg/l	S8160
Chloride	96.4	2.04	0.2	<0.2	mg/l	S8159
Fluoride	98.6	2.12	0.1	<0.1	mg/l	S8159
Iron	96.5	0.608	0.007	<0.007	mg/l	S8160
Lead	102	1.07	0.001	<0.001	mg/l	S8160
Manganese	98.7	0.474	0.002	<0.002	mg/l	S8160
Nitrate as N	100	0.789	0.05	<0.05	mg/l	S8159
Selenium	105	0.782	0.005	<0.005	mg/l	S8160
Sulfate	98.7	0.0163	0.2	<0.2	mg/l	S8159
COD	98.8	2.61	10	<10	mg/l	W7650
Sulfide	102	1.78	1	<1	mg/l	W7646
Total Dissolved Solids	99.8	3.26	10	<10	mg/l	W7652
Total Organic Carbon	99.0	4.52	1	<1	mg/l	W7645

Data has been validated using standard quality control measures (blank, laboratory control, spike and spike duplicate) performed on at least 10% of samples analyzed. Quality Assurance, instrumentation maintenance and calibration were performed in accordance with guidelines established by the USEPA.
SM method = Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.

TK/lms

CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

Client: GP-ASHDOWN			PO No.		NO OF BOTTLES	ANALYSES REQUESTED					AIC CONTROL NO:	
Project Reference: G20081-1			SAMPLE MATRIX			TDS, Cl, SO ₄ , F, NO ₃ N	SULFIDE	TOC, COD	Fe, Mn, Ba, Pb, Cd, Se, b, f			
Project Manager: DAN M'COLLOUGH			G R A B	C O M P	W A T E R	S O I L	4	1	1	1	1	AIC PROPOSAL NO:
Sampled By: S. MOSLEY, S. WHITE												Carrier:
AIC No.	Sample Identification	Date/Time Collected										Received on Ice (4°C)?
1	MW-2	5/23/02/1640	✓	✓	4	1	1	1	1	1	1	YES
2	MW-3	5/24/02/1105	✓	✓	4	1	1	1	1	1	1	NO
3	MW-4	5/23/02/1605	✓	✓	4	1	1	1	1	1	1	
4	MW-5	5/23/02/1500	✓	✓	4	1	1	1	1	1	1	
5	MW-6	5/24/02/1020	✓	✓	4	1	1	1	1	1	1	
6	DUPE-4	5/23/02/1610	✓	✓	4	1	1	1	1	1	1	
7	FB-6	5/24/02/1025	✓	✓	4	1	1	1	1	1	1	
8	EB-4	5/23/02/1615	✓	✓	4	1	1	1	1	1	1	
Container Type												Remarks
Preservative												

G = Glass P = Plastic V = VOA vials H = HCl to pH2 T = Sodium Thiosulfate
 NO = none S = Sulfuric acid pH2 N = Nitric acid pH2 B = NaOH to pH12 Z = Zinc acetate

Turnaround Time Requested: (Please circle) NORMAL or EXPEDITED IN _____ DAYS	Relinquished By:	Date/Time	Received By:	Date/Time
Expedited results requested by: <u>STACIE WHITMER</u>				
Who should AIC contact with questions: <u>STACIE WHITMER</u>	Relinquished By: <u>[Signature]</u>	Date/Time: <u>5-24-02/1535</u>	Received in Lab By: <u>DANNY BROWN</u>	Date/Time: <u>5-24-02/1535</u>
Phone: <u>(501) 455-2199</u> Fax: <u>(501) 455-4547</u>	Comments:			
Report Attention to: <u>G.E.C.</u>				
Report Address to: <u>11400 W. BASELINE RD LITTLE ROCK, AR. 72209</u>				

APPENDIX D
STATISTICAL EVALUATION

Outlier Analysis Summary

Date: 7/5/02, 10:54 AM

Facility: Georgia Pacific

Data File: GPASHD~1

Client: GEC

<u>Constituent</u>	<u>Well</u>	<u>Outlier</u>	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>Tn</u>	<u>Value</u>	<u>Distribution</u>	<u>Normality Test</u>
Ba (mg/l)	MW-2	No	10	-0.689	0.07	2.176	n/a	normal	Shapiro Wilk
Chld (mg/l)	MW-2	Yes	10	4.716	0.068	2.176	130	unknown	Shapiro Wilk
Fl (mg/l)	MW-2	Yes	10	-1.067	0.079	2.176	0.41	normal	Shapiro Wilk
Fe (mg/l)	MW-2	Yes	10	-1.535	0.777	2.176	0.037	normal	Shapiro Wilk
Mn (mg/l)	MW-2	No	10	-5.623	0.468	2.176	n/a	unknown	Shapiro Wilk
NO3 (mg/l)	MW-2	No	10	-1.626	0.115	2.176	n/a	normal	Shapiro Wilk
Se (mg/l)	MW-2	Yes	10	-5.103	0.217	2.176	0.0099	normal	Shapiro Wilk
SO4 (mg/l)	MW-2	No	10	3.419	0.073	2.176	n/a	normal	Shapiro Wilk
TDS (mg/l)	MW-2	Yes	10	6.249	0.256	2.176	250	unknown	Shapiro Wilk
pH (S.U.)	MW-2	No	10	1.943	0.047	2.176	n/a	normal	Shapiro Wilk
Ba (mg/l)	MW-3	No	10	-0.752	0.087	2.176	n/a	normal	Shapiro Wilk
Chld (mg/l)	MW-3	No	10	2.684	0.096	2.176	n/a	normal	Shapiro Wilk
Fl (mg/l)	MW-3	Yes	10	-1.539	0.202	2.176	0.35	unknown	Shapiro Wilk
Fe (mg/l)	MW-3	Yes	10	-0.8	0.835	2.176	0.073	normal	Shapiro Wilk
Mn (mg/l)	MW-3	No	10	-1.646	0.335	2.176	n/a	normal	Shapiro Wilk
NO3 (mg/l)	MW-3	Yes	10	-2.958	0.088	2.176	0.066	unknown	Shapiro Wilk
SO4 (mg/l)	MW-3	No	10	0.148	1.017	2.176	n/a	log-normal	Shapiro Wilk
TDS (mg/l)	MW-3	Yes	10	5.653	0.242	2.176	540	normal	Shapiro Wilk
pH (S.U.)	MW-3	No	10	1.997	0.037	2.176	n/a	normal	Shapiro Wilk
Ba (mg/l)	MW-4	No	10	-0.322	0.059	2.176	n/a	normal	Shapiro Wilk
Chld (mg/l)	MW-4	Yes	10	4.666	0.267	2.176	52	normal	Shapiro Wilk
Fl (mg/l)	MW-4	No	10	-1.435	0.161	2.176	n/a	normal	Shapiro Wilk
Fe (mg/l)	MW-4	Yes	10	0.193	0.402	2.176	3	normal	Shapiro Wilk
Mn (mg/l)	MW-4	Yes	10	-3.117	0.413	2.176	0.13	normal	Shapiro Wilk
SO4 (mg/l)	MW-4	Yes	10	3.556	0.232	2.176	20	normal	Shapiro Wilk
COD (mg/l)	MW-4	No	10	3.19	0.273	2.176	n/a	normal	Shapiro Wilk
TDS (mg/l)	MW-4	Yes	10	6.636	0.335	2.176	320	unknown	Shapiro Wilk
TOC (mg/l)	MW-4	No	10	2.111	0.132	2.176	n/a	normal	Shapiro Wilk
pH (S.U.)	MW-4	No	10	1.91	0.034	2.176	n/a	normal	Shapiro Wilk
Ba (mg/l)	MW-5	No	10	-0.776	0.136	2.176	n/a	normal	Shapiro Wilk
Chld (mg/l)	MW-5	No	10	3.912	0.09	2.176	n/a	normal	Shapiro Wilk
Fl (mg/l)	MW-5	No	10	-1.196	0.183	2.176	n/a	normal	Shapiro Wilk
Fe (mg/l)	MW-5	Yes	10	-0.634	1.335	2.176	0.025	log-normal	Shapiro Wilk
Mn (mg/l)	MW-5	No	10	-2.424	1.277	2.176	n/a	log-normal	Shapiro Wilk
SO4 (mg/l)	MW-5	No	10	3.037	0.078	2.176	n/a	normal	Shapiro Wilk
TDS (mg/l)	MW-5	No	10	6.159	0.068	2.176	n/a	normal	Shapiro Wilk

Outlier Analysis Summary

Date: 7/5/02, 10:54 AM

Facility: Georgia Pacific

Data File: GPASHD~1

Client: GEC

<u>Constituent</u>	<u>Well</u>	<u>Outlier</u>	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>Tn</u>	<u>Value</u>	<u>Distribution</u>	<u>Normality Test</u>
TOC (mg/l)	MW-5	Yes	10	0.791	0.467	2.176	7.2	normal	Shapiro Wilk
pH (S.U.)	MW-5	No	10	1.945	0.04	2.176	n/a	normal	Shapiro Wilk
Ba (mg/l)	MW-6	No	10	-0.68	0.138	2.176	n/a	normal	Shapiro Wilk
Chld (mg/l)	MW-6	No	10	5.664	0.114	2.176	n/a	normal	Shapiro Wilk
Fl (mg/l)	MW-6	No	10	-1.336	0.166	2.176	n/a	normal	Shapiro Wilk
Fe (mg/l)	MW-6	No	10	-1.849	1.062	2.176	n/a	log-normal	Shapiro Wilk
SO4 (mg/l)	MW-6	No	10	4.129	0.056	2.176	n/a	normal	Shapiro Wilk
TDS (mg/l)	MW-6	Yes	10	6.892	0.242	2.176	530	unknown	Shapiro Wilk
TOC (mg/l)	MW-6	Yes	10	0.412	0.382	2.176	4.1	normal	Shapiro Wilk
pH (S.U.)	MW-6	No	10	1.913	0.03	2.176	n/a	normal	Shapiro Wilk

Intrawell ASTM Summary

Date: 7/5/02, 11:04 AM

Facility: Georgia Pacific

Data File: GPASHD~1

Client: GEC

Constituent	Well	Signif.	h	SCL	Bg N	Bg Mean	Std. Dev.	Transform	Method
Ba (mg/l)	MW-2	No	0.6575	0.6575	8	0.4963	0.03583	non-	Parametric
Chld (mg/l)	MW-2	No	152.4	152.4	8	112.5	8.864	non-	Parametric
Fl (mg/l)	MW-2	No	0.415	0.415	7	0.3429	0.01604	non-	Parametric
Fe (mg/l)	MW-2	No	0.9894	0.9894	8	0.2988	0.1535	non-	Parametric
Mn (mg/l)	MW-2	No	0.0128	0.0128	8	0.004413	0.001868	non-	Parametric
NO3 (mg/l)	MW-2	No	0.3056	0.3056	8	0.2038	0.02264	non-	Parametric
Se (mg/l)	MW-2	No	0.0222	0.0222	8	0.004538	0.00393	non-	Parametric
SO4 (mg/l)	MW-2	Yes	35.79	35.79	6	29.17	1.472	non-	Parametric
TDS (mg/l)	MW-2	No	n/a	n/a	7	n/a	n/a	n/a	Poisson(normality)
Ba (mg/l)	MW-3	No	0.6352	0.6352	8	0.485	0.03338	non-	Parametric
Chld (mg/l)	MW-3	No	21.86	21.86	8	14.88	1.553	non-	Parametric
Fl (mg/l)	MW-3	No	0.3044	0.3044	7	0.2043	0.02225	non-	Parametric
Fe (mg/l)	MW-3	No	5.788	5.788	8	-0.6849	0.5424	log	Parametric
Mn (mg/l)	MW-3	Yes	0.3182	0.3182	7	0.2029	0.02563	non-	Parametric
SO4 (mg/l)	MW-3	No	184.4	184.4	8	0.2713	1.099	log	Parametric
TDS (mg/l)	MW-3	No	385.4	385.4	7	5.617	0.07497	log	Parametric
Ba (mg/l)	MW-4	No	0.8768	0.8768	8	0.7138	0.03623	non-	Parametric
Chld (mg/l)	MW-4	No	173.6	173.6	7	117.1	12.54	non-	Parametric
Fl (mg/l)	MW-4	No	0.4098	0.4098	8	0.2513	0.03523	non-	Parametric
Fe (mg/l)	MW-4	Yes	2.45	2.45	8	1.133	0.2928	non-	Parametric
Mn (mg/l)	MW-4	Yes	0.0543	0.0543	7	0.03686	0.003891	non-	Parametric
SO4 (mg/l)	MW-4	No	58.7	58.7	7	38.43	4.504	non-	Parametric
COD (mg/l)	MW-4	No	49.94	49.94	8	23.38	5.902	non-	Parametric
TDS (mg/l)	MW-4	Yes	n/a	n/a	7	n/a	n/a	n/a	Poisson(normality)
TOC (mg/l)	MW-4	No	11.18	11.18	7	8.329	0.6343	non-	Parametric
Ba (mg/l)	MW-5	No	0.7583	0.7583	8	0.455	0.0674	non-	Parametric
Chld (mg/l)	MW-5	Yes	58.38	58.38	8	48.25	2.252	non-	Parametric
Fl (mg/l)	MW-5	No	0.5772	0.5772	8	0.3188	0.05743	non-	Parametric
Fe (mg/l)	MW-5	No	43.35	43.35	8	-0.2799	0.8998	log	Parametric
Mn (mg/l)	MW-5	No	1.117	1.117	8	0.1864	0.2069	non-	Parametric
SO4 (mg/l)	MW-5	No	24.91	24.91	8	20.25	1.035	non-	Parametric
TDS (mg/l)	MW-5	No	545	545	7	472.9	16.04	non-	Parametric
TOC (mg/l)	MW-5	No	3.722	3.722	7	1.871	0.4112	non-	Parametric
Ba (mg/l)	MW-6	No	0.745	0.745	7	0.5457	0.04429	non-	Parametric
Chld (mg/l)	MW-6	No	440.2	440.2	8	286.3	34.2	non-	Parametric
Fl (mg/l)	MW-6	No	0.4437	0.4437	8	0.2738	0.03777	non-	Parametric
Fe (mg/l)	MW-6	No	1.537	1.537	8	0.291	0.2768	non-	Parametric

Intrawell ASIM Summary

Date: 7/5/02, 11:04 AM

Facility: Georgia Pacific

Data File: GPASHD-1

Client: GEC

<u>Constituent</u>	<u>Well</u>	<u>Signif.</u>	<u>h</u>	<u>SCL</u>	<u>Bq. N</u>	<u>Bq. Mean</u>	<u>Std. Dev.</u>	<u>Transform</u>	<u>Method</u>
SO4 (mg/l)	MW-6	No	74.59	74.59	8	61.25	2.964	non-	Parametric
TDS (mg/l)	MW-6	No	1683	1683	7	1083	133.4	non-	Parametric
TOC (mg/l)	MW-6	No	3.853	3.853	7	1.257	0.5769	non-	Parametric

Intrawell AS1M Summary

Date: 7/5/02, 11:07 AM

Facility: Georgia Pacific

Data File: GPASHD~2

Client: GEC

<u>Constituent</u>	<u>Well</u>	<u>Signif.</u>	<u>h</u>	<u>SCL</u>	<u>Bg N</u>	<u>Bg Mean</u>	<u>Std. Dev.</u>	<u>Transform</u>	<u>Method</u>
NO3 (ug/l)	MW-3	No	n/a	n/a	7	n/a	n/a	n/a	Poisson(normality)

Control Chart Summary

Date: 7/5/02, 11:09 AM

Facility: Georgia Pacific

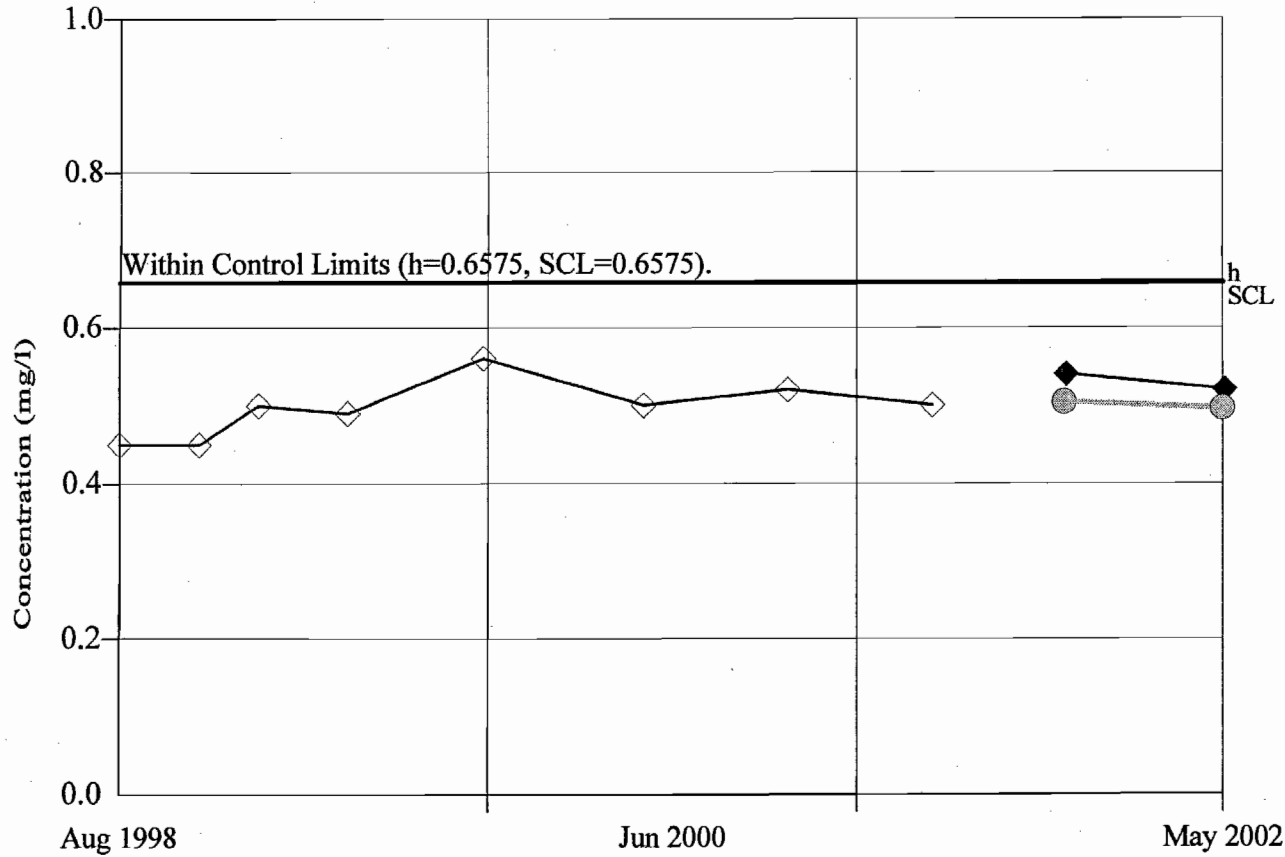
Data File: GPASHD-2

Client: GEC

<u>Constituent</u>	<u>Well</u>	<u>Signif.</u>	<u>h</u>	<u>SCL</u>	<u>Bg N</u>	<u>Bg Mean</u>	<u>Std. Dev.</u>	<u>Transform</u>	<u>Method</u>
pH (S.U.)	MW-2	No	8.4010	8.2506	8	6.898	0.3007	non-	Param,2-tail
pH (S.U.)	MW-3	No	8.2956	8.1951	8	7.29	0.2011	non-	Param,2-tail
pH (S.U.)	MW-4	No	7.6461	7.5506	8	6.691	0.191	non-	Param,2-tail
pH (S.U.)	MW-5	No	8.6079	8.4484	8	7.013	0.3191	non-	Param,2-tail
pH (S.U.)	MW-6	No	7.4299	7.3577	8	6.708	0.1445	non-	Param,2-tail

COMBINED SHEWHART-CUSUM CHART

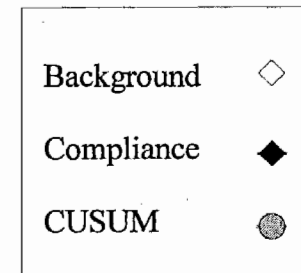
MW-2



The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.9105, W Quantile = 0.818

Dates ending 05/22/2001 used for control stats.



Background Data Summary: Mean=0.4963, Std. Dev.=0.03583, 8 obs.

Constituent: Ba (mg/l)

Date: 7/5/02, 10:54 AM

Facility: Georgia Pacific

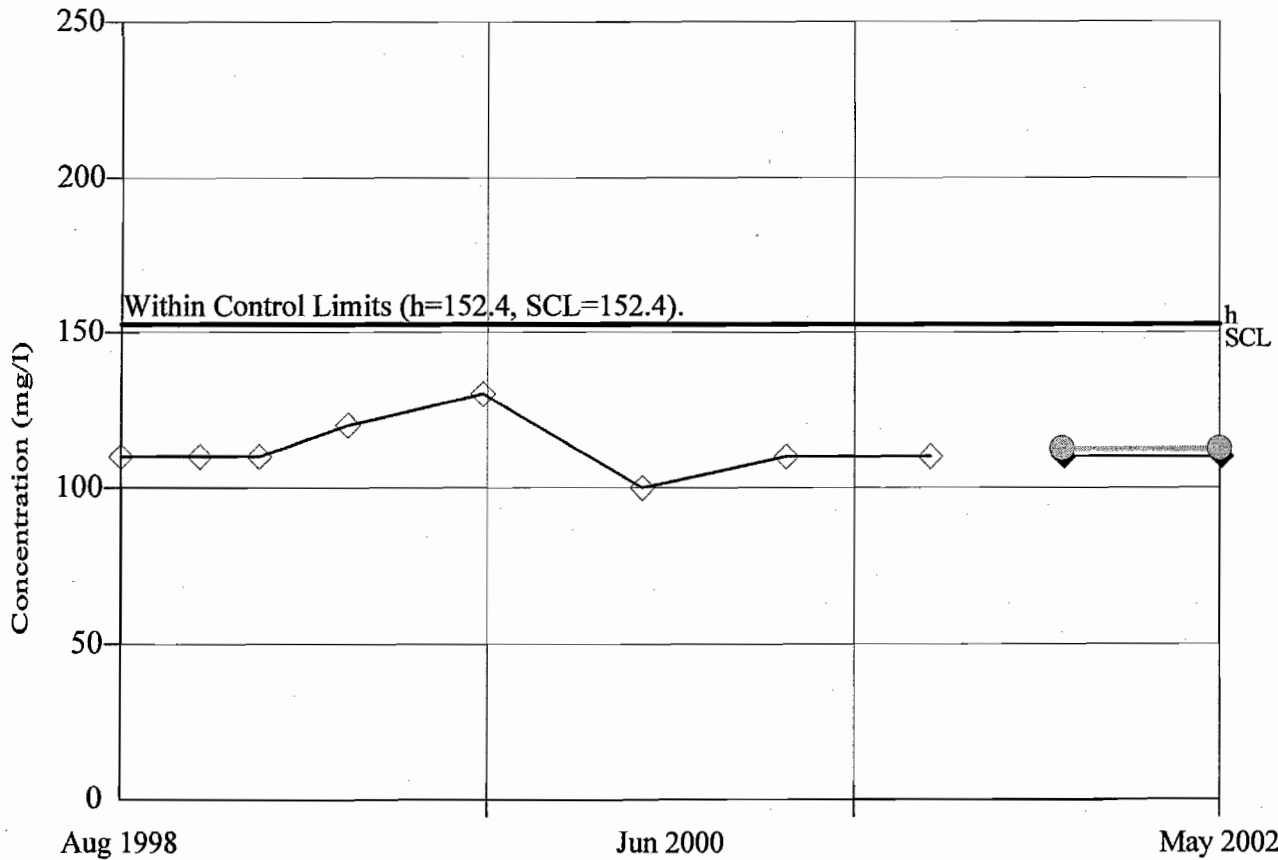
Client: GEC

Data File: gpashdown

View: DI-Ashdown

COMBINED SHEWHART-CUSUM CHART

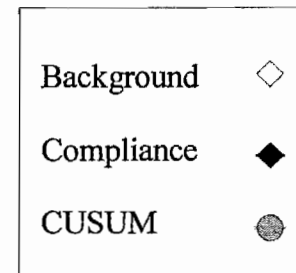
MW-2



The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.8264, W Quantile = 0.818

Dates ending 05/22/2001 used for control stats.



Background Data Summary: Mean=112.5, Std. Dev.=8.864, 8 obs.

Constituent: Chld (mg/l)

Date: 7/5/02, 10:55 AM

Facility: Georgia Pacific

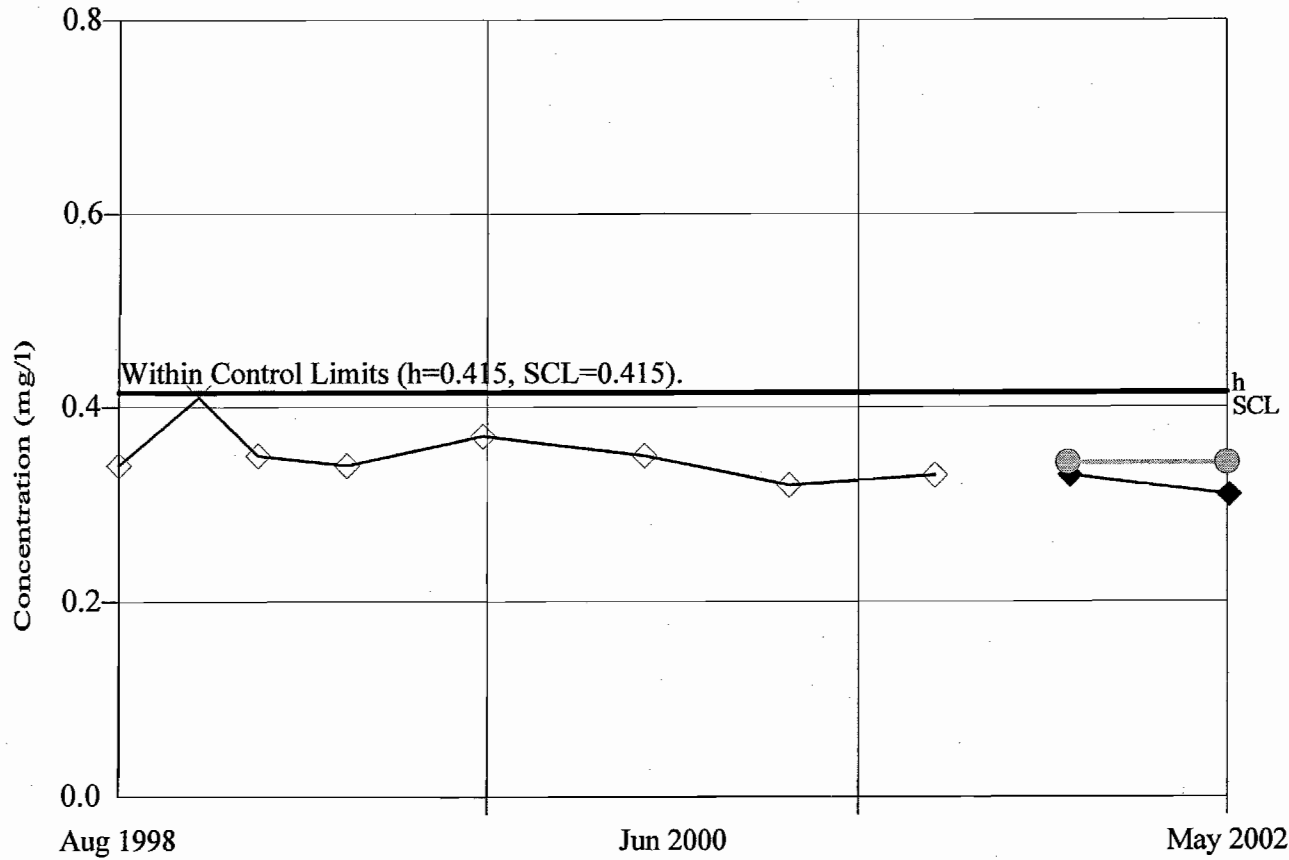
Client: GEC

Data File: gpushdown

View: DI-Ashdown

COMBINED SHEWHART-CUSUM CHART

MW-2

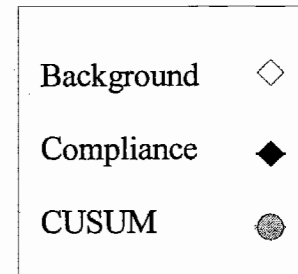


The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.9671, W Quantile = 0.803

Dates ending 05/22/2001 used for control stats.

Background outliers marked with x symbol, and excluded from computations.



Background Data Summary: Mean=0.3429, Std. Dev.=0.01604, 7 obs.

Constituent: Fl (mg/l)

Date: 7/5/02, 10:55 AM

Facility: Georgia Pacific

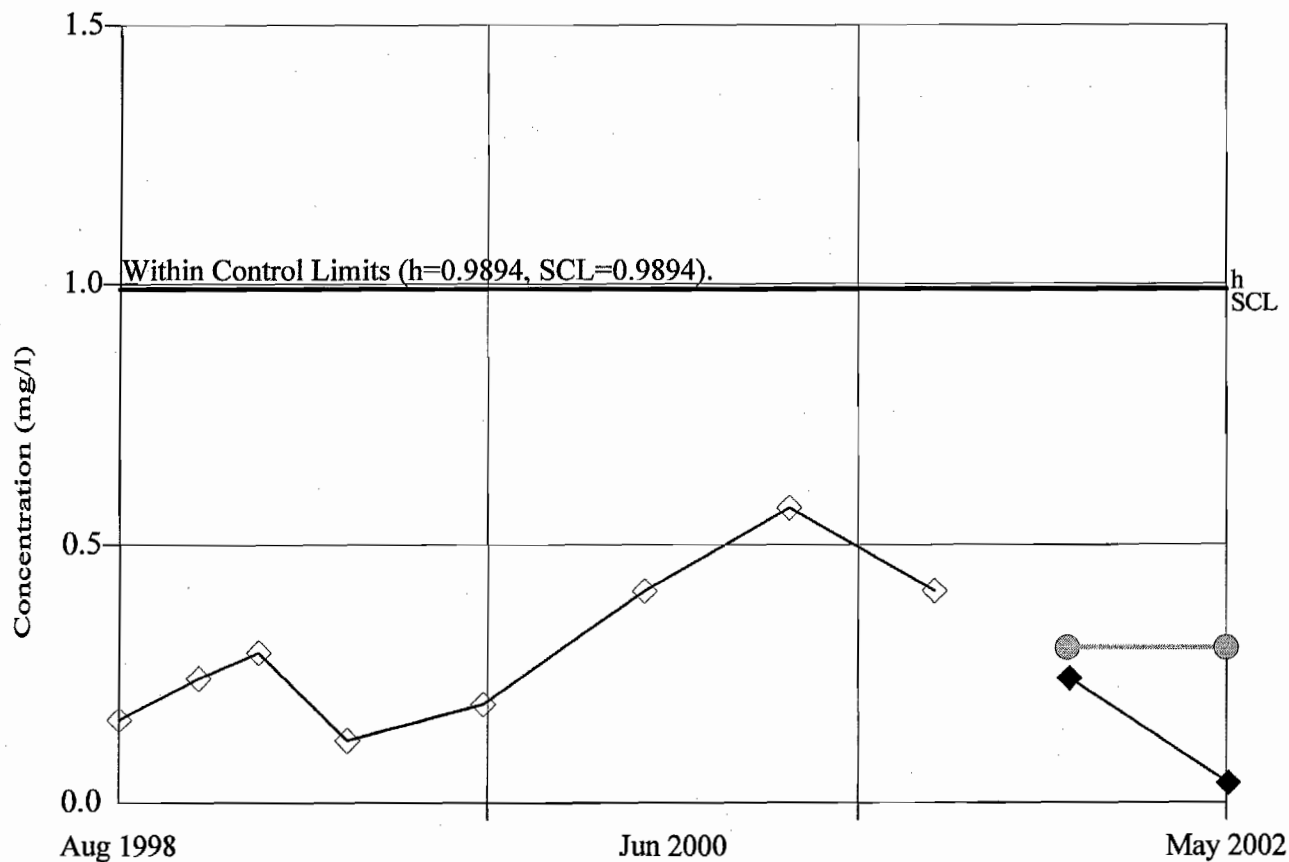
Client: GEC

Data File: gpushdown

View: DI-Ashdown

COMBINED SHEWHART-CUSUM CHART

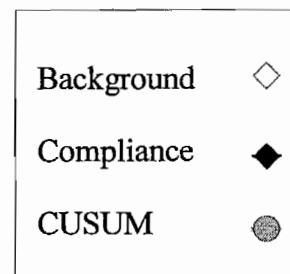
MW-2



The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.9347, W Quantile = 0.818

Dates ending 05/22/2001 used for control stats.



Background Data Summary: Mean=0.2988, Std. Dev.=0.1535, 8 obs.

Constituent: Fe (mg/l)

Date: 7/5/02, 10:55 AM

Facility: Georgia Pacific

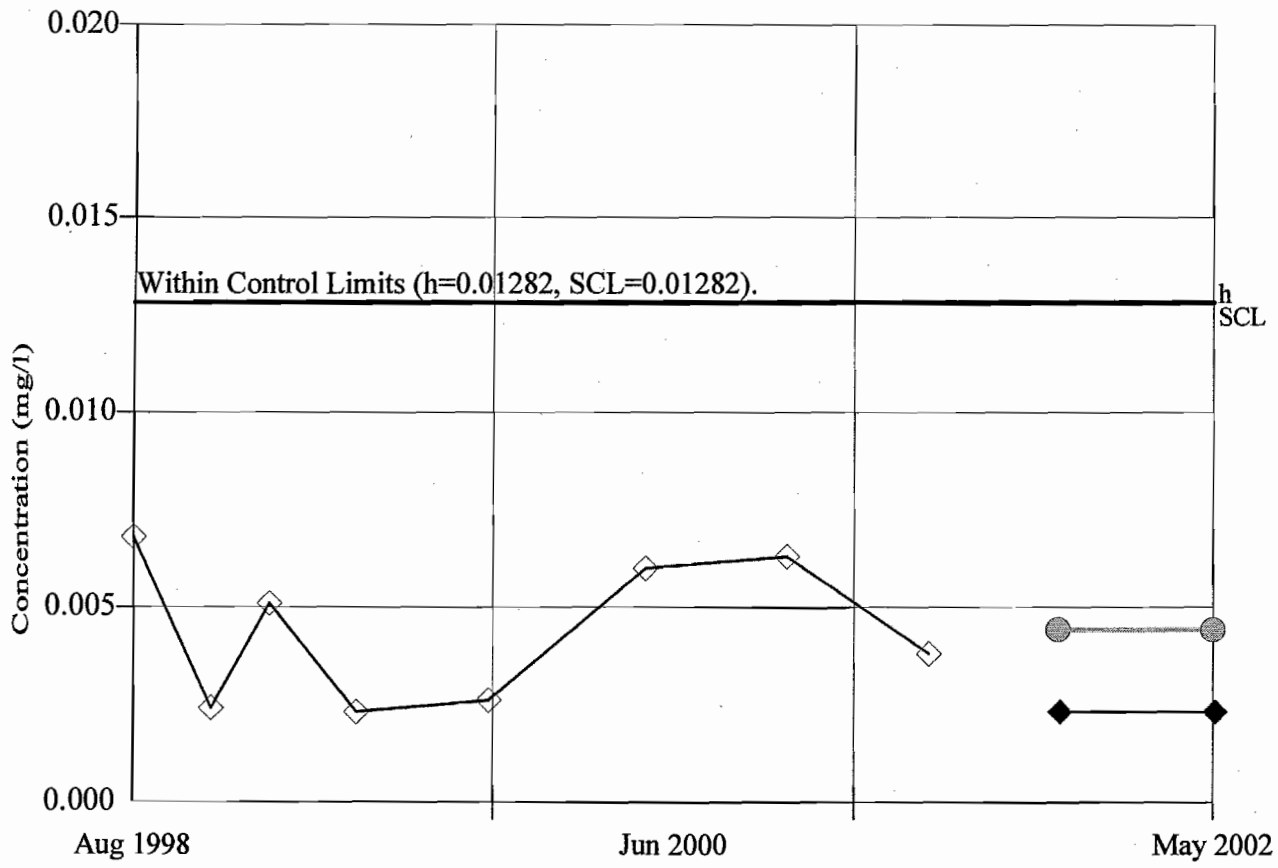
Client: GEC

Data File: gpushdown

View: DI-Ashdown

COMBINED SHEWHART-CUSUM CHART

MW-2



The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.8748, W Quantile = 0.818

Dates ending 05/22/2001 used for control stats.

Background	◇
Compliance	◆
CUSUM	●

Background Data Summary: Mean=0.004413, Std. Dev.=0.001868, 8 obs.

Constituent: Mn (mg/l)

Facility: Georgia Pacific

Data File: gashdown

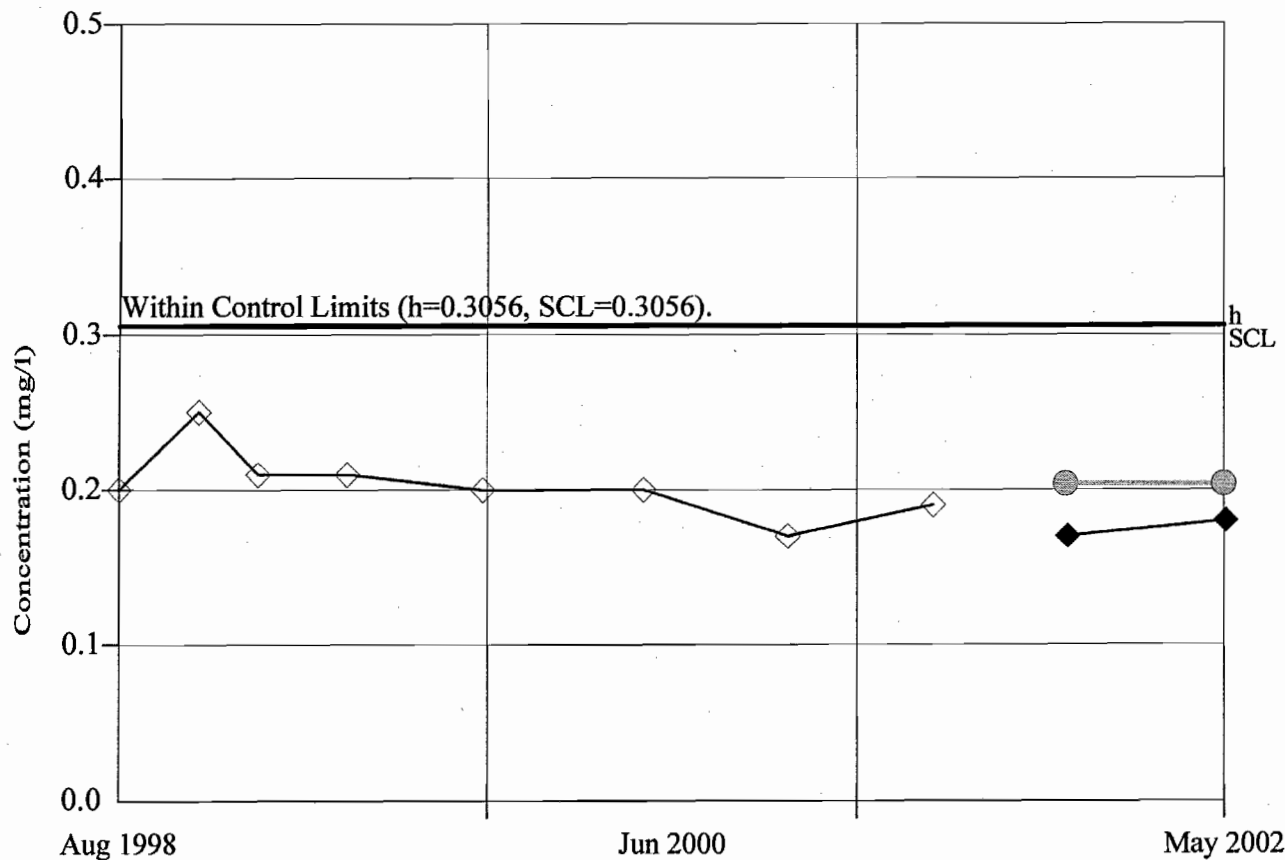
Date: 7/5/02, 10:55 AM

Client: GEC

View: DI-Ashdown

COMBINED SHEWHART-CUSUM CHART

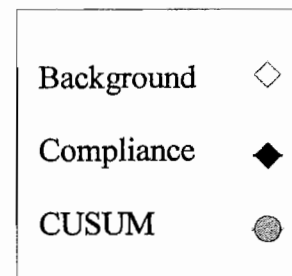
MW-2



The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.8894, W Quantile = 0.818

Dates ending 05/22/2001 used for control stats.



Background Data Summary: Mean=0.2038, Std. Dev.=0.02264, 8 obs.

Constituent: NO3 (mg/l)

Facility: Georgia Pacific

Data File: gpushdown

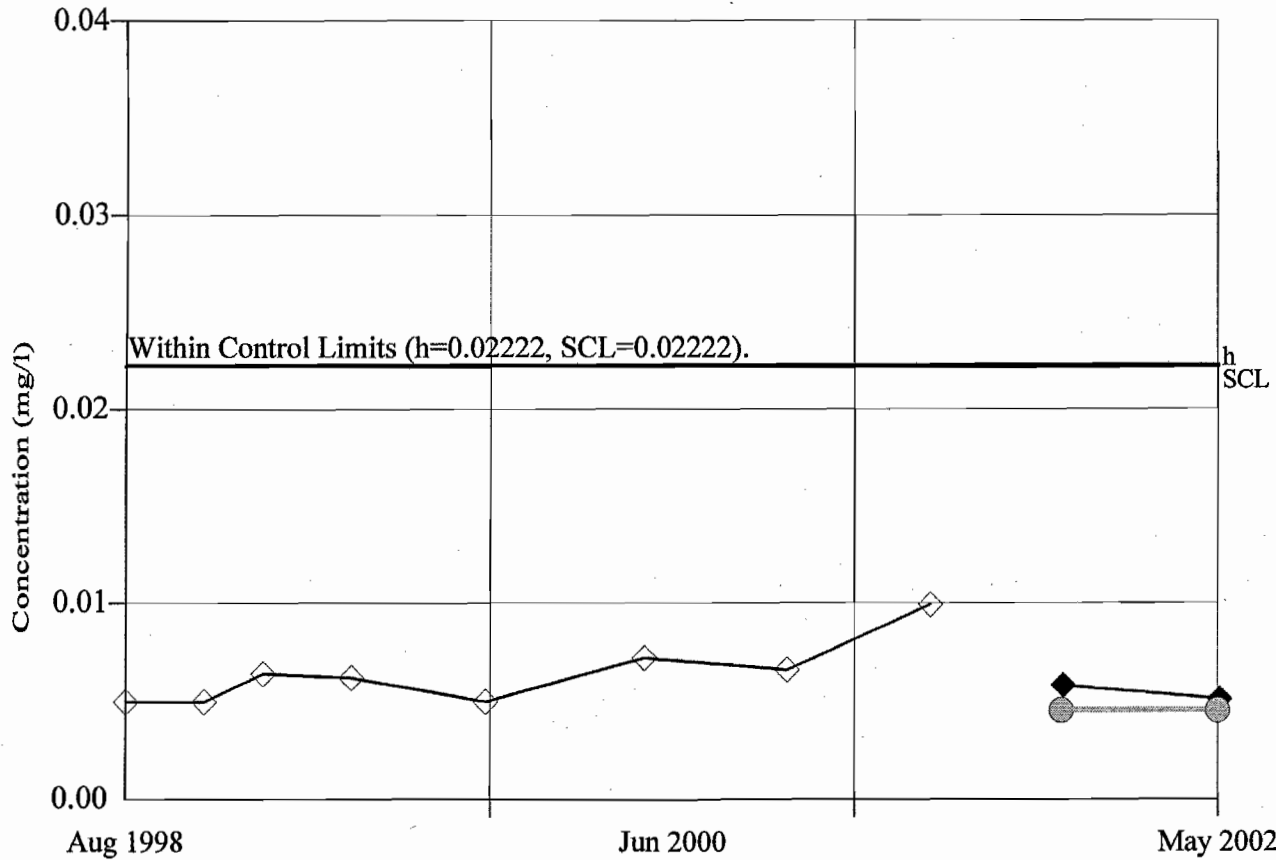
Date: 7/5/02, 10:55 AM

Client: GEC

View: DI-Ashdown

COMBINED SHEWHART-CUSUM CHART

MW-2

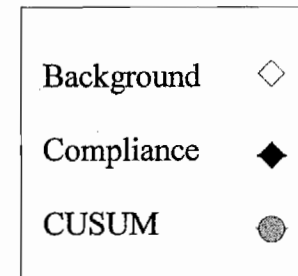


The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.8285, W Quantile = 0.818

Dates ending 05/22/2001 used for control stats.

Aitchison's Adjustment used to estimate mean (0.004538) and Std. Dev. (0.00393).



Background Data Summary: (after Aitchison's adjustment) Mean=0.004538, Std. Dev.=0.00393, 8 obs.

Constituent: Se (mg/l)

Facility: Georgia Pacific

Data File: gpushdown

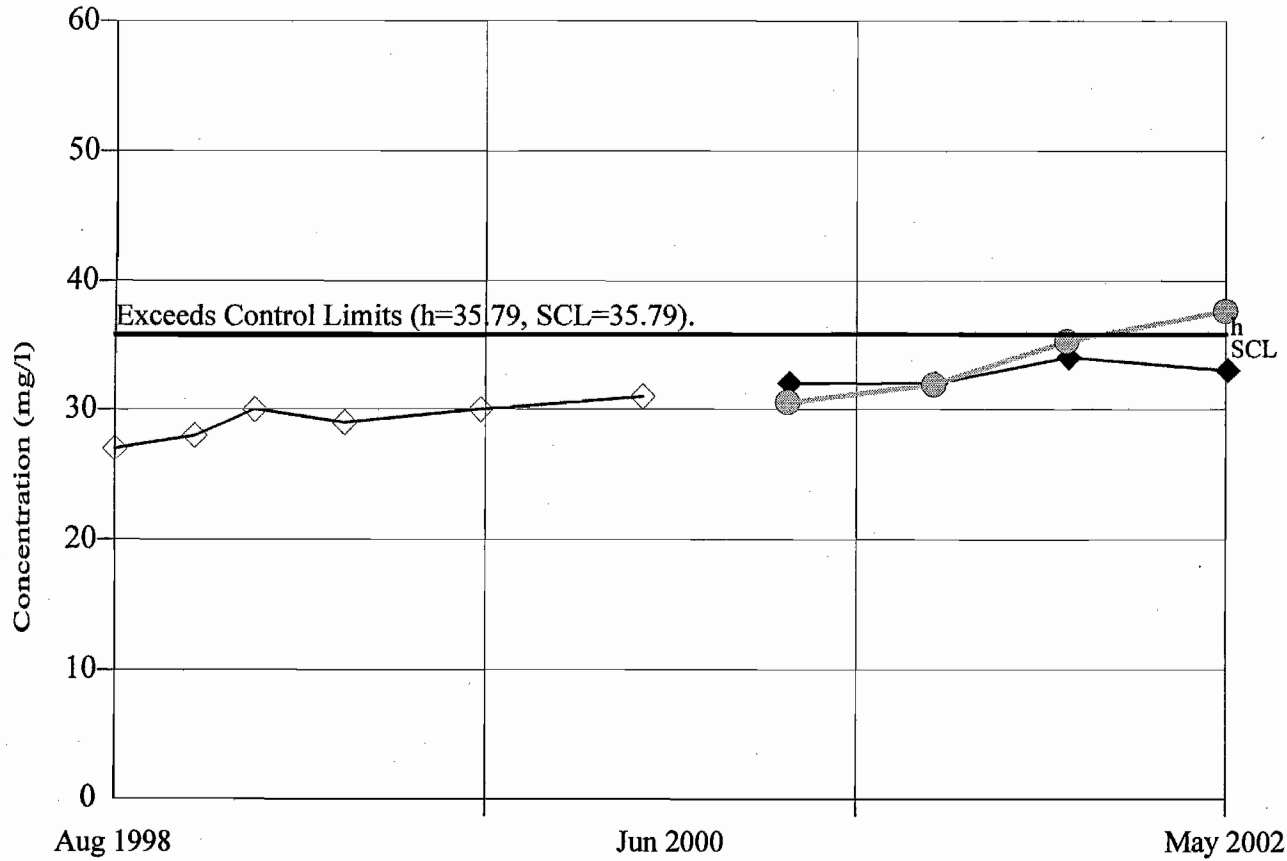
Date: 7/5/02, 10:56 AM

Client: GEC

View: DI-Ashdown

COMBINED SHEWHART-CUSUM CHART

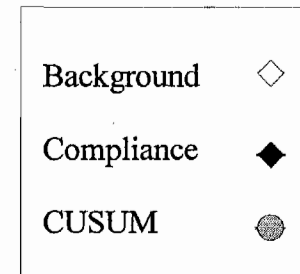
MW-2



The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.9577, W Quantile = 0.788

Dates ending 05/23/2000 used for control stats.



Background Data Summary: Mean=29.17, Std. Dev.=1.472, 6 obs.

Constituent: SO4 (mg/l)

Facility: Georgia Pacific

Data File: gpushdown

Date: 7/5/02, 10:56 AM

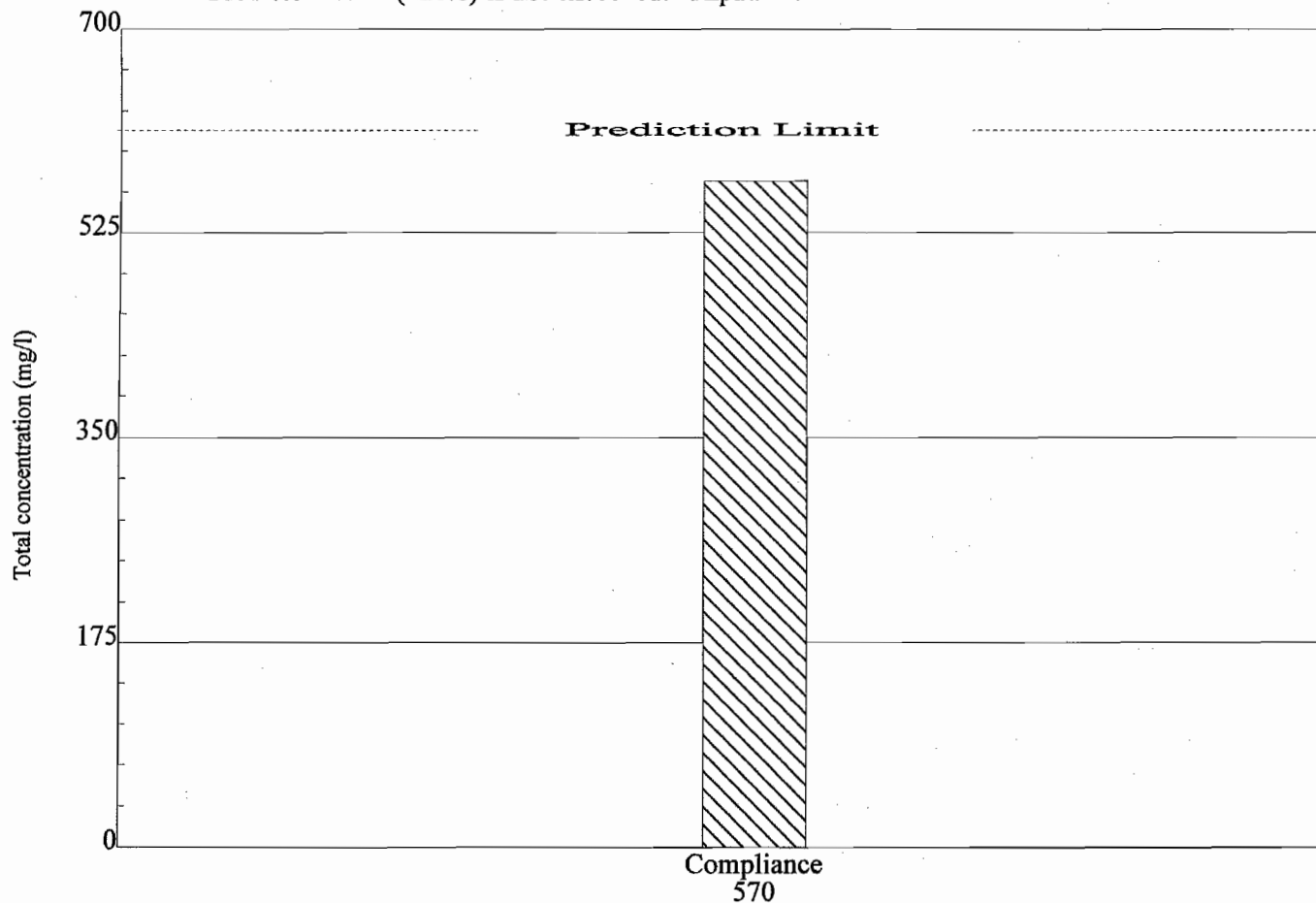
Client: GEC

View: DI-Ashdown

INTRA-WELL POISSON PREDICTION LIMIT

MW-2

Predicted Limit (620.8) is not exceeded. Alpha = 0.01.



LEGEND
■ Limit Exceeded
▨ Limit Not Exceeded

Poisson test used in lieu of Control Chart because transformed data failed normality test and sample size insufficient for non-parametric Prediction Interval.

Constituent: TDS (mg/l)

Facility: Georgia Pacific

Data File: gpushdown

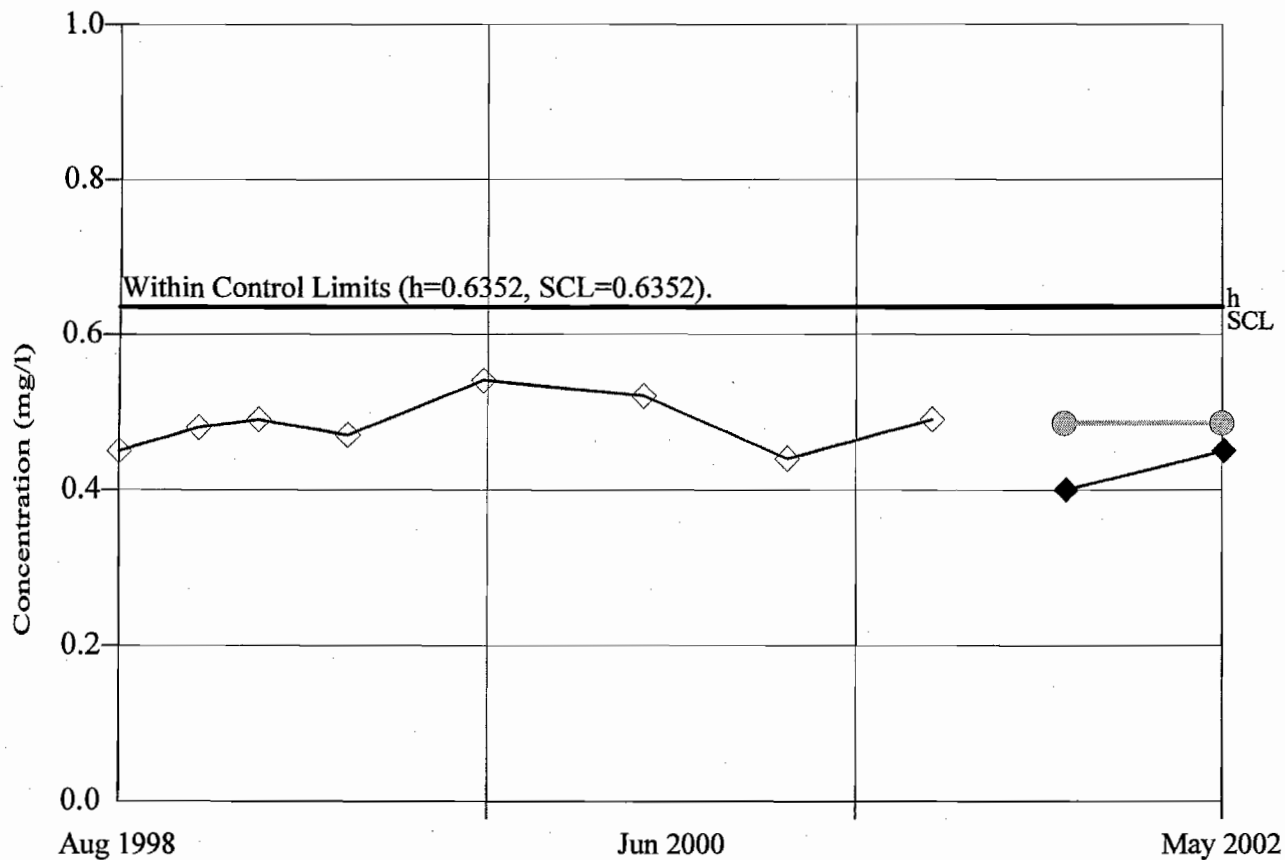
Date: 7/5/02, 10:56 AM

Client: GEC

View: DI-Ashdown

COMBINED SHEWHART-CUSUM CHART

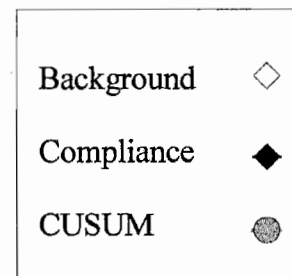
MW-3



The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.964, W Quantile = 0.818

Dates ending 05/22/2001 used for control stats.



Background Data Summary: Mean=0.485, Std. Dev.=0.03338, 8 obs.

Constituent: Ba (mg/l)

Facility: Georgia Pacific

Data File: gpushdown

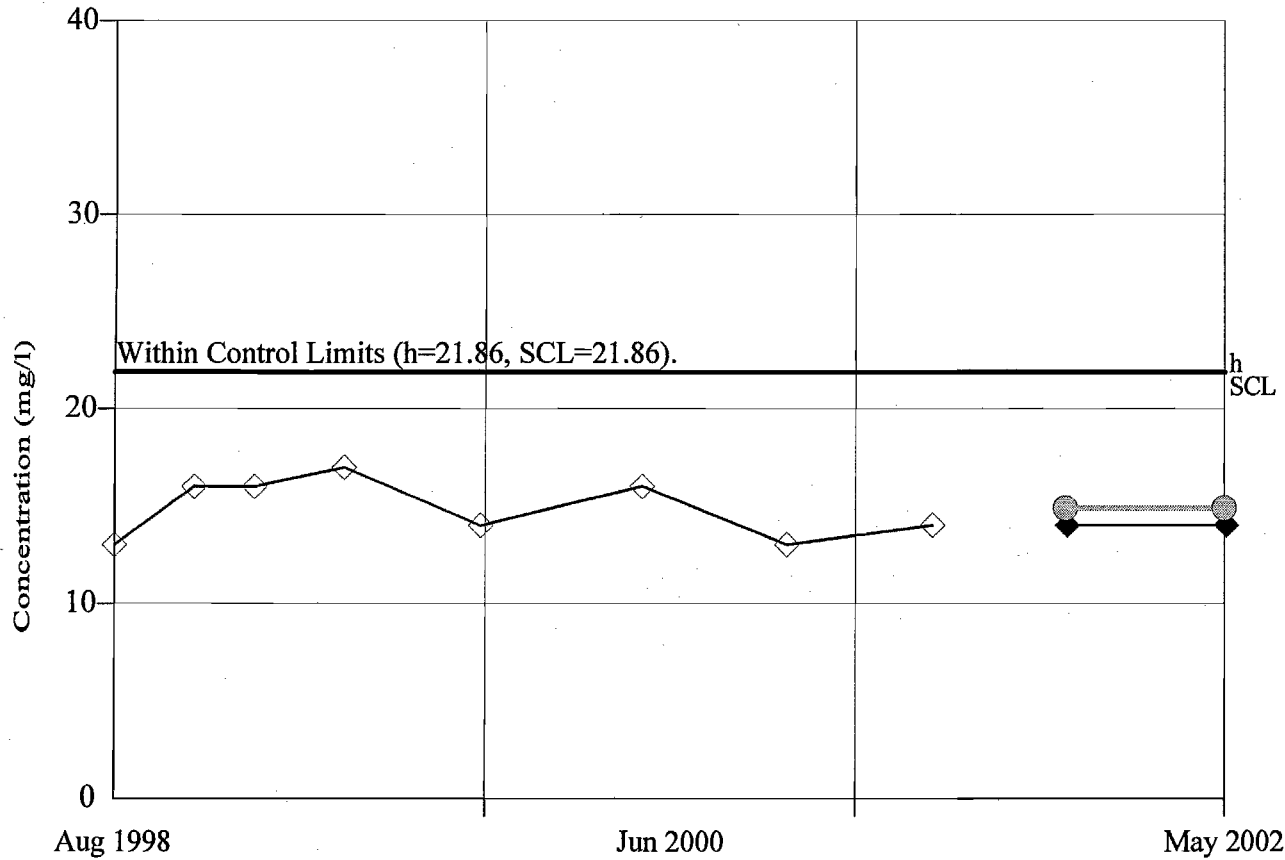
Date: 7/5/02, 10:57 AM

Client: GEC

View: DI-Ashdown

COMBINED SHEWHART-CUSUM CHART

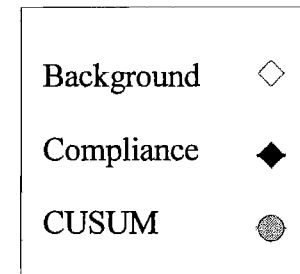
MW-3



The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.8696, W Quantile = 0.818

Dates ending 05/22/2001 used for control stats.



Background Data Summary: Mean=14.88, Std. Dev.=1.553, 8 obs.

Constituent: Chld (mg/l)

Facility: Georgia Pacific

Data File: gpushdown

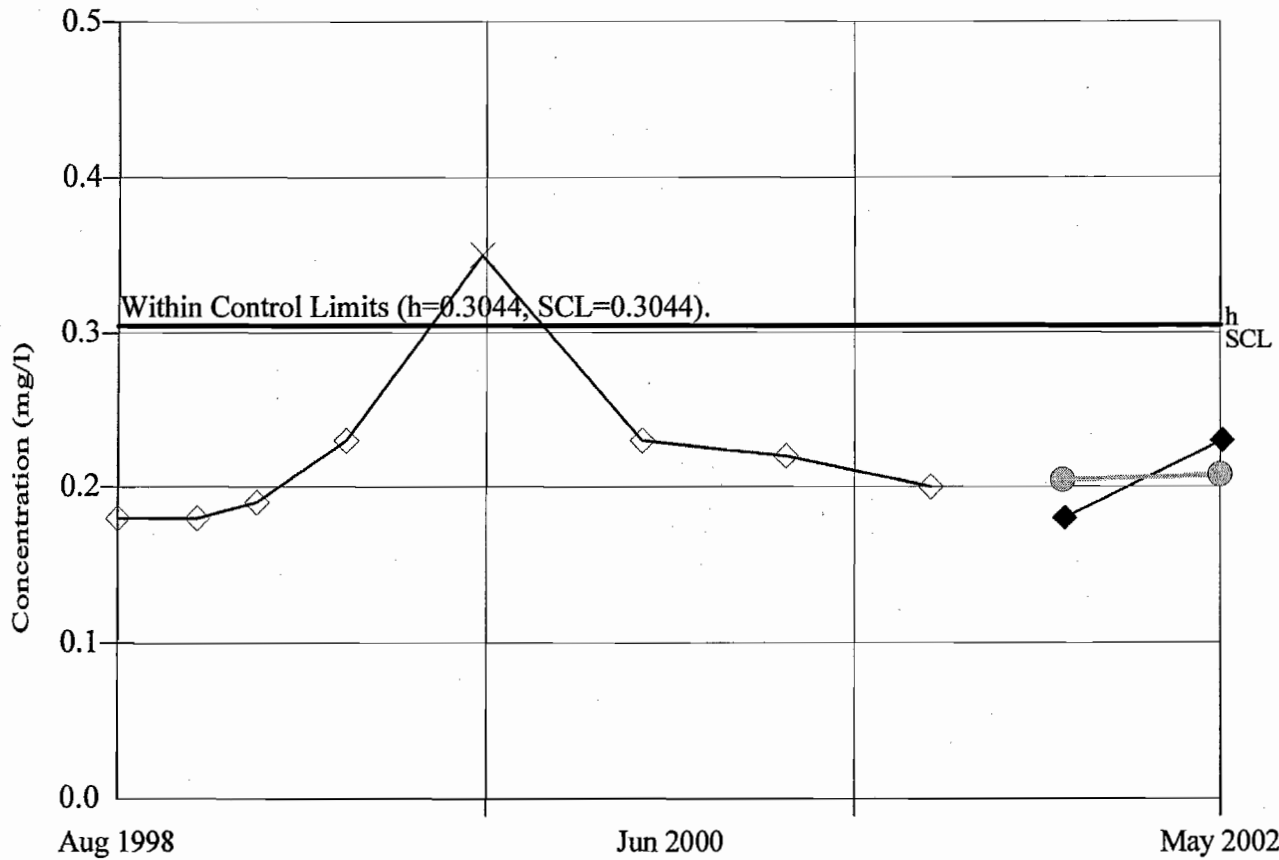
Date: 7/5/02, 10:57 AM

Client: GEC

View: DI-Ashtdown

COMBINED SHEWHART-CUSUM CHART

MW-3

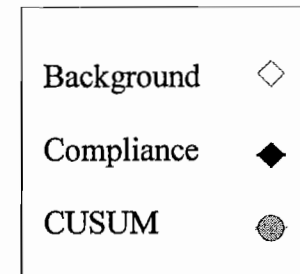


The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.859, W Quantile = 0.803

Dates ending 05/22/2001 used for control stats.

Background outliers marked with x symbol, and excluded from computations.



Background Data Summary: Mean=0.2043, Std. Dev.=0.02225, 7 obs.

Constituent: Fl (mg/l)

Facility: Georgia Pacific

Data File: gpashdown

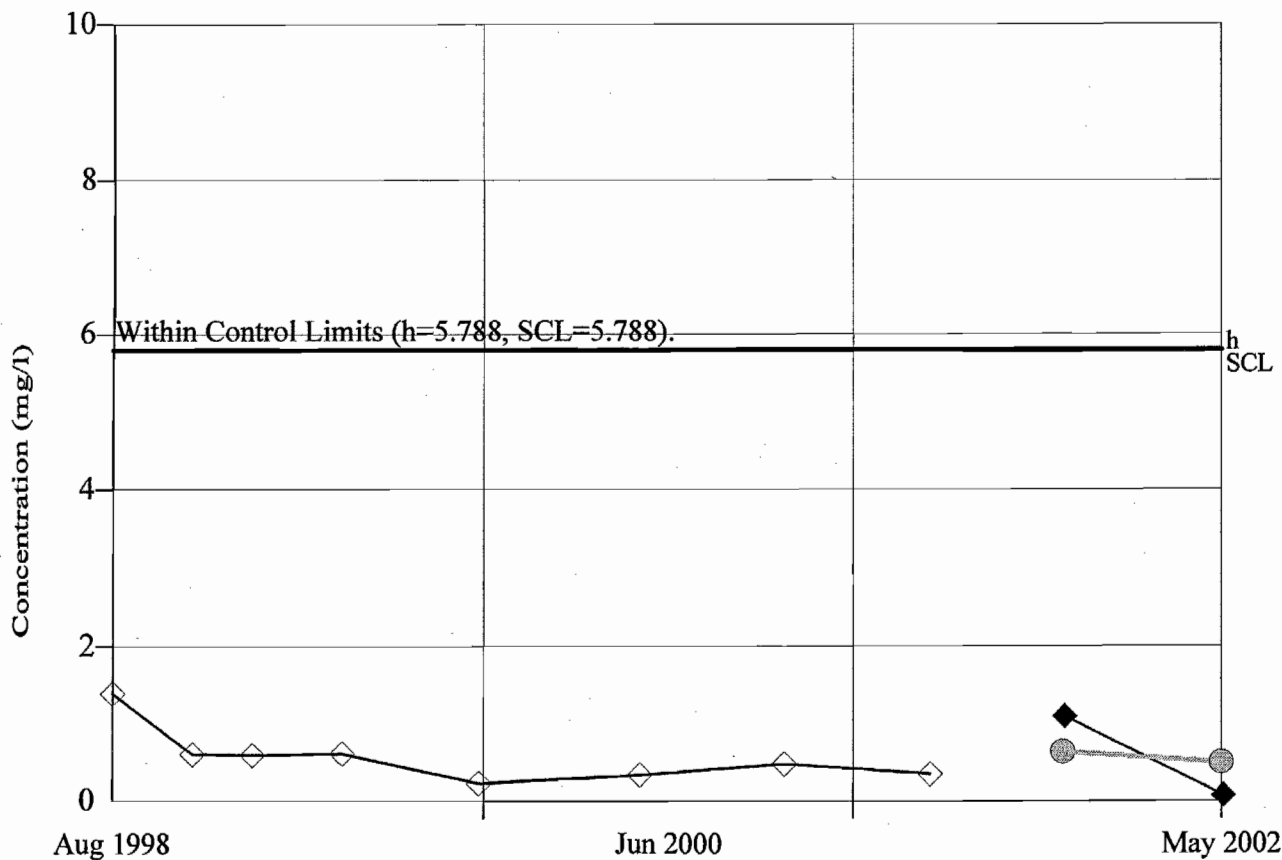
Date: 7/5/02, 10:57 AM

Client: GEC

View: DI-Ashtdown

COMBINED SHEWHART-CUSUM CHART

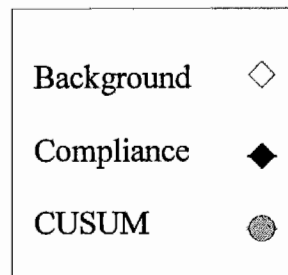
MW-3



The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Data were log transformed.
 Normality test used: Shapiro Wilk. W Statistic = 0.9417,
 W Quantile = 0.818

Dates ending 05/22/2001 used for control stats.



Background Data Summary: (based on log transformed data) Mean=-0.6849, Std. Dev.=0.5424, 8 obs.

Constituent: Fe (mg/l)

Facility: Georgia Pacific

Data File: gpushdown

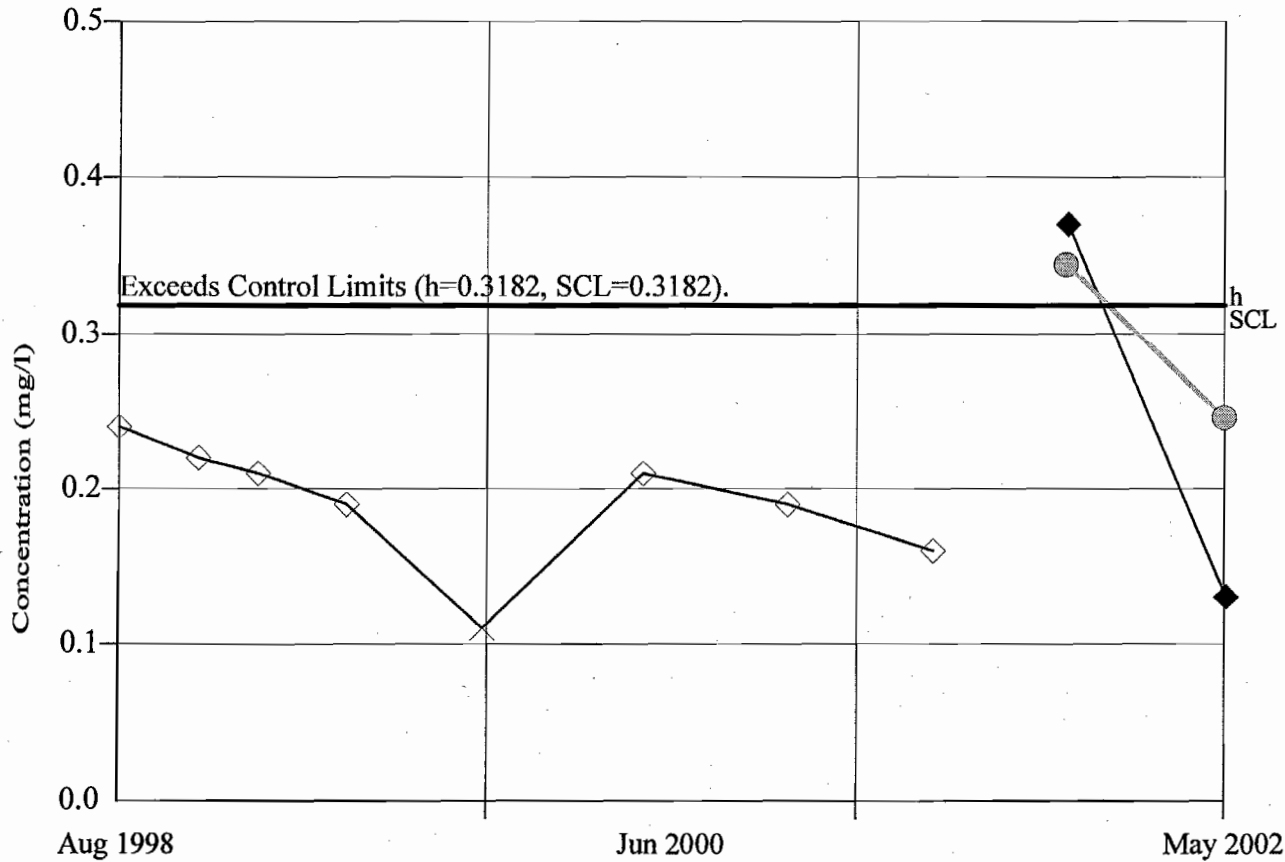
Date: 7/5/02, 10:57 AM

Client: GEC

View: DI-Ashdown

COMBINED SHEWHART-CUSUM CHART

MW-3

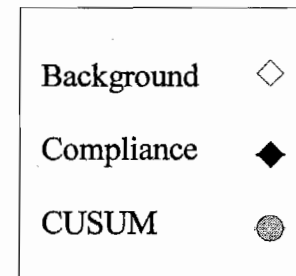


The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.9674, W Quantile = 0.803

Dates ending 05/22/2001 used for control stats.

Background outliers marked with x symbol, and excluded from computations.



Background Data Summary: Mean=0.2029, Std. Dev.=0.02563, 7 obs.

Constituent: Mn (mg/l)

Date: 7/5/02, 10:58 AM

Facility: Georgia Pacific

Client: GEC

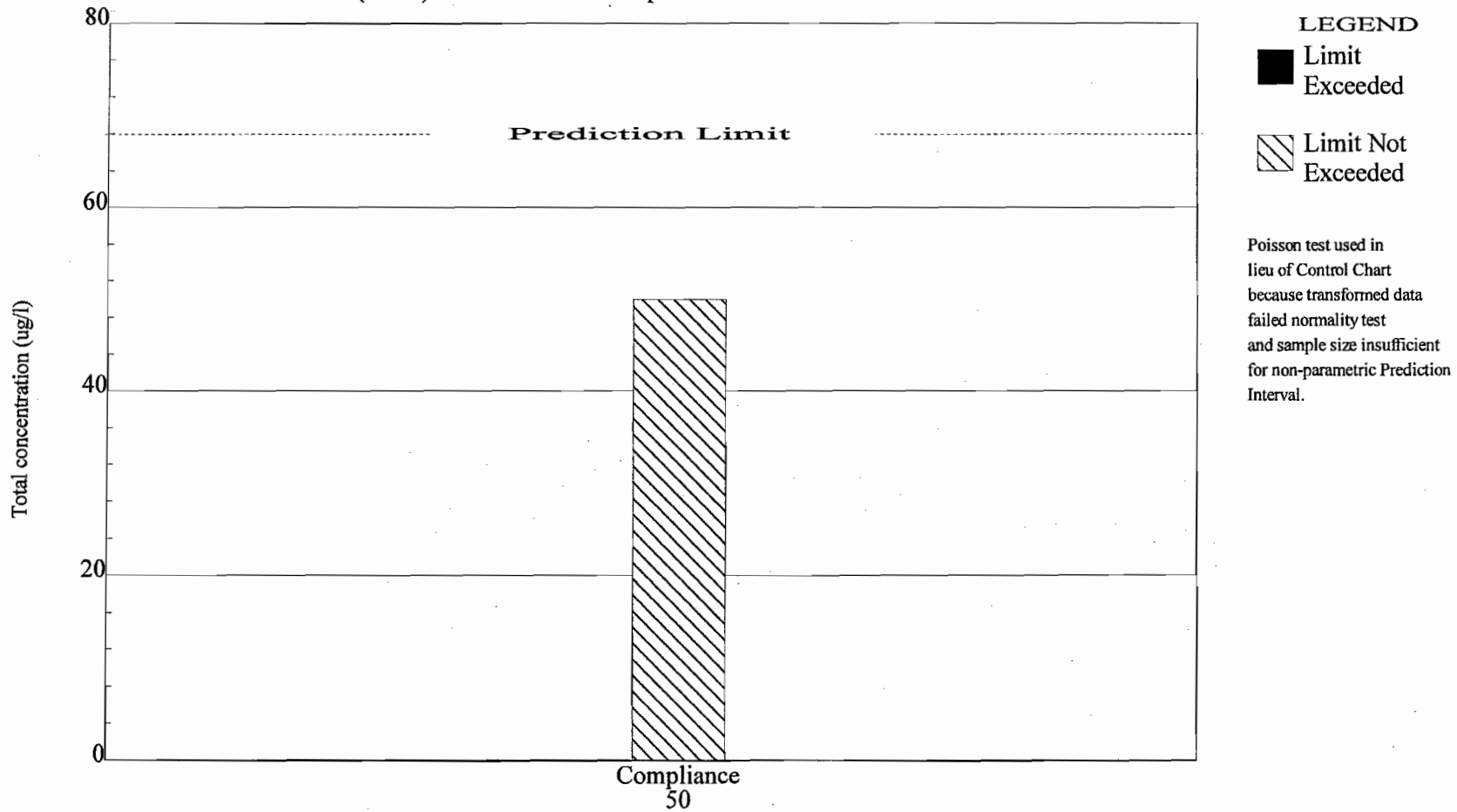
Data File: gpushdown

View: DI-Ashdown

INTRA-WELL POISSON PREDICTION LIMIT

MW-3

Predicted Limit (68.85) is not exceeded. Alpha = 0.01.



Poisson test used in lieu of Control Chart because transformed data failed normality test and sample size insufficient for non-parametric Prediction Interval.

Constituent: NO3 (ug/l)

Facility: Georgia Pacific

Data File: gpushdownchangedunit

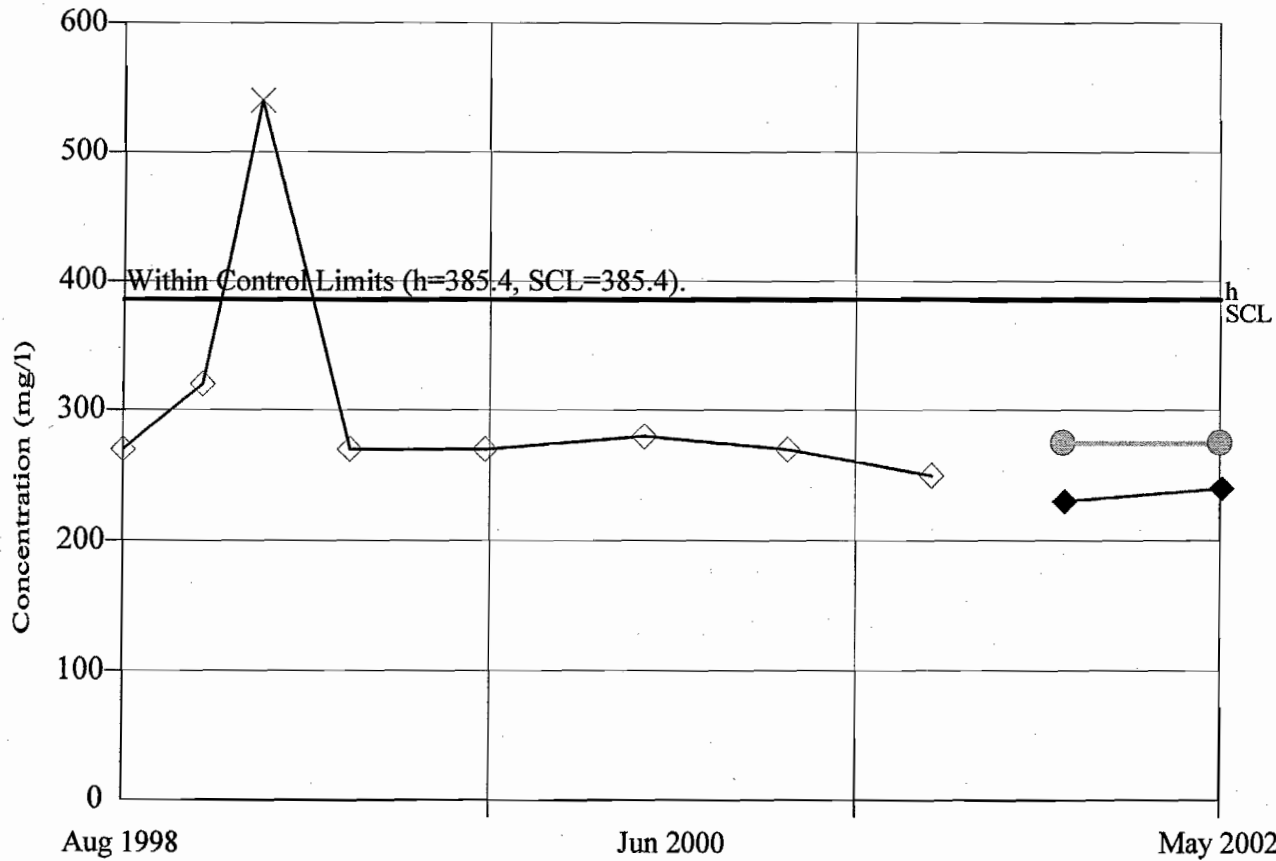
Date: 7/5/02, 11:07 AM

Client: GEC

View: ash

COMBINED SHEWHART-CUSUM CHART

MW-3



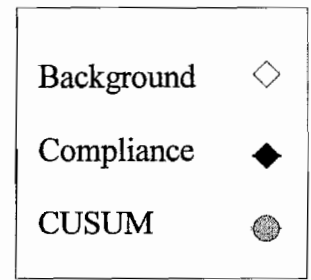
The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Data were log transformed.

Normality test used: Shapiro Wilk. W Statistic = 0.8063, W Quantile = 0.803

Dates ending 05/22/2001 used for control stats.

Background outliers marked with x symbol, and excluded from computations.



Background Data Summary: (based on log transformed data) Mean=5.617, Std. Dev.=0.07497, 7 obs.

Constituent: TDS (mg/l)

Date: 7/5/02, 10:58 AM

Facility: Georgia Pacific

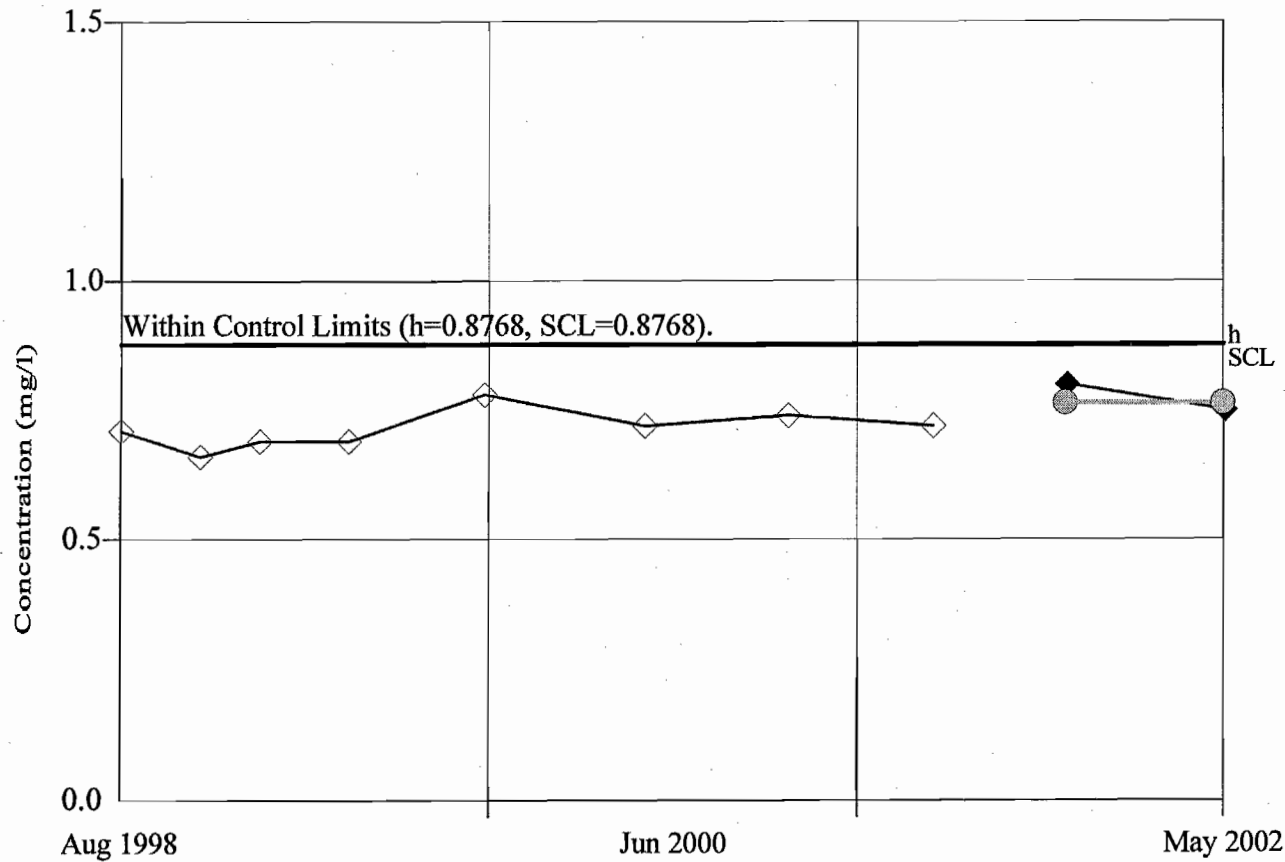
Client: GEC

Data File: gpashdown

View: DI-Ashdown

COMBINED SHEWHART-CUSUM CHART

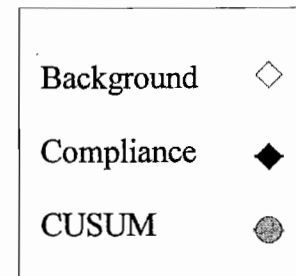
MW-4



The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.9665, W Quantile = 0.818

Dates ending 05/22/2001 used for control stats.



Background Data Summary: Mean=0.7138, Std. Dev.=0.03623, 8 obs.

Constituent: Ba (mg/l)

Date: 7/5/02, 10:59 AM

Facility: Georgia Pacific

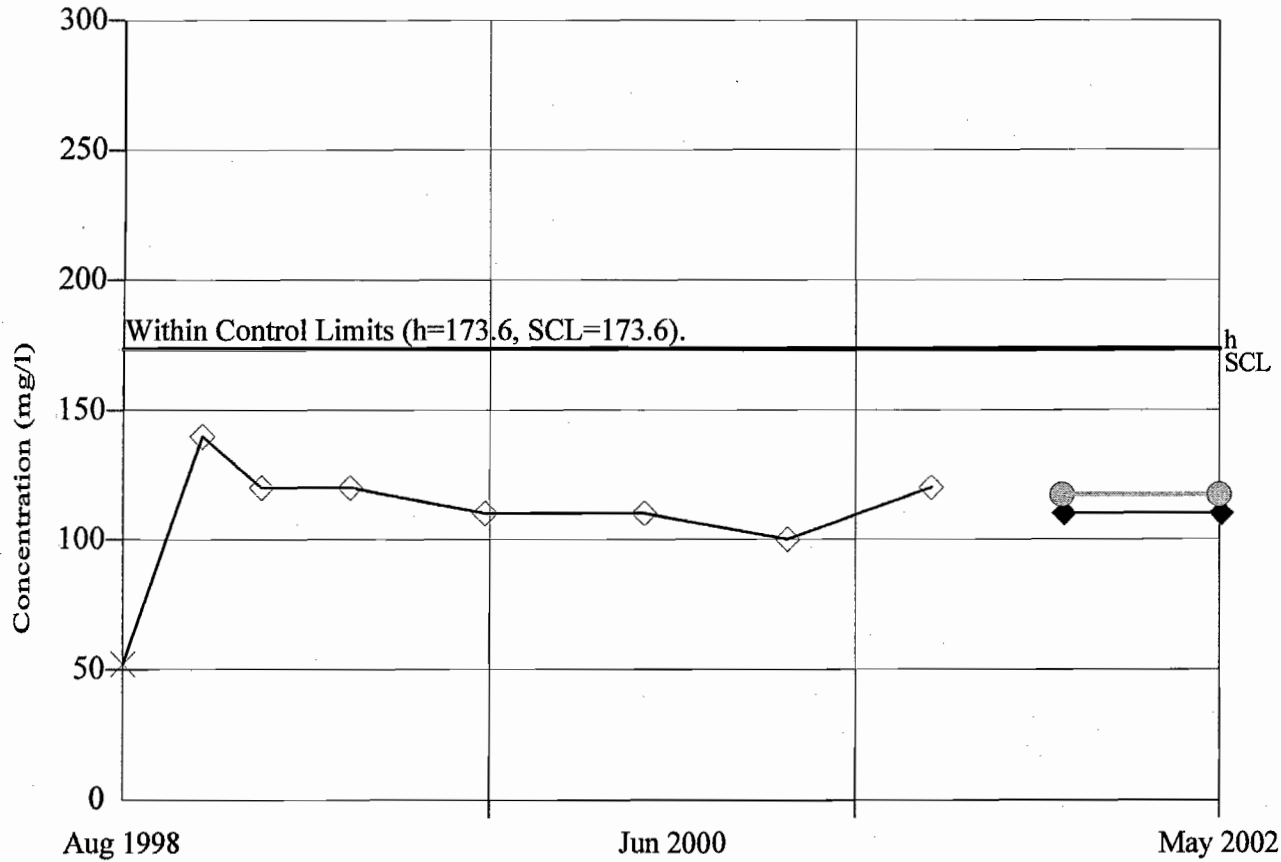
Client: GEC

Data File: gashdown

View: DI-Ashdown

COMBINED SHEWHART-CUSUM CHART

MW-4

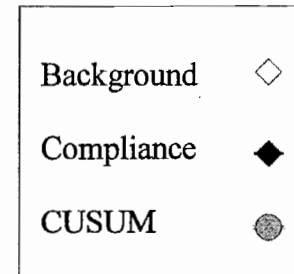


The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.9145, W Quantile = 0.803

Dates ending 05/22/2001 used for control stats.

Background outliers marked with x symbol, and excluded from computations.



Background Data Summary: Mean=117.1, Std. Dev.=12.54, 7 obs.

Constituent: Chld (mg/l)

Date: 7/5/02, 10:59 AM

Facility: Georgia Pacific

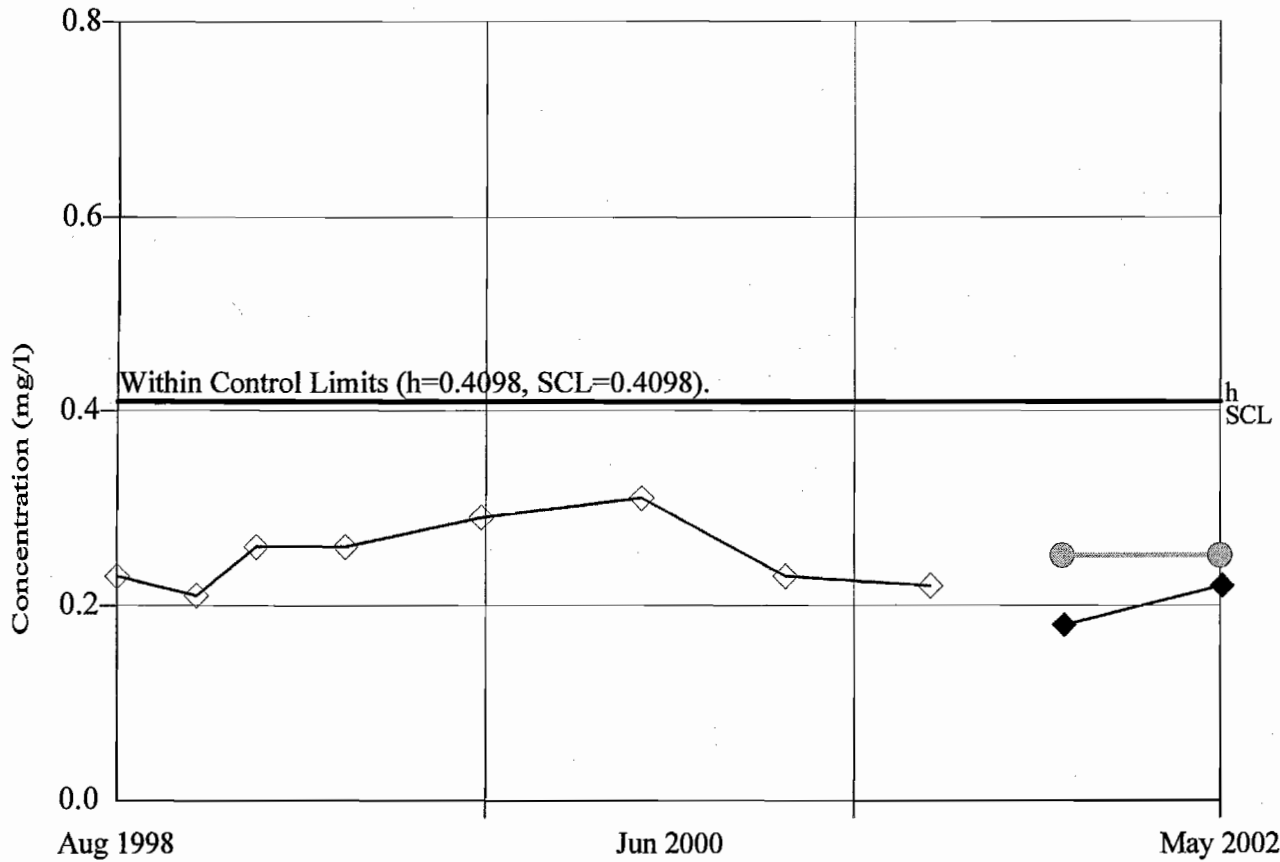
Client: GEC

Data File: gpushdown

View: DI-Ashdown

COMBINED SHEWHART-CUSUM CHART

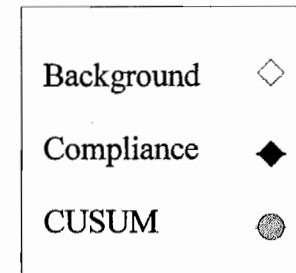
MW-4



The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.9237, W Quantile = 0.818

Dates ending 05/22/2001 used for control stats.



Background Data Summary: Mean=0.2513, Std. Dev.=0.03523, 8 obs.

Constituent: Fl (mg/l)

Date: 7/5/02, 10:59 AM

Facility: Georgia Pacific

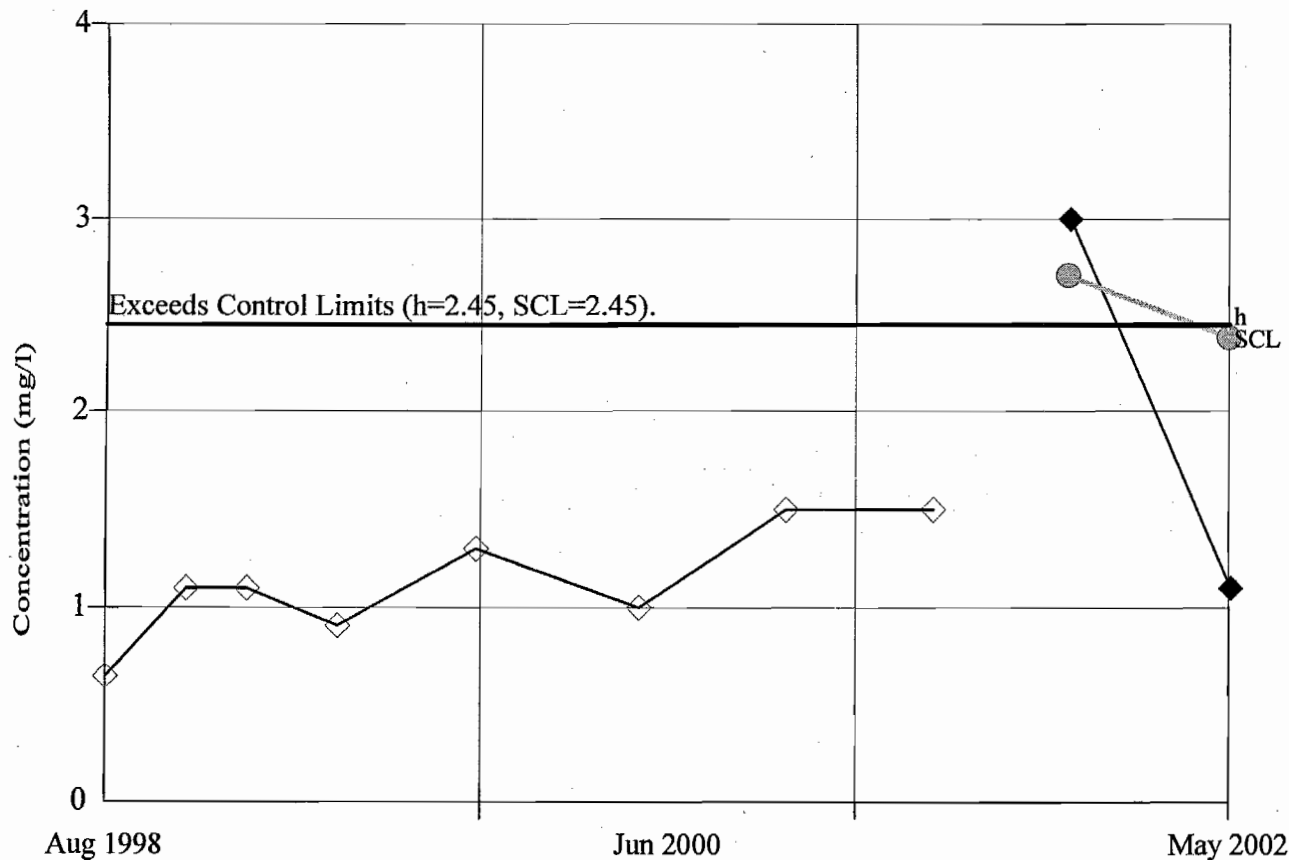
Client: GEC

Data File: gpassdown

View: DI-Ashdown

COMBINED SHEWHART-CUSUM CHART

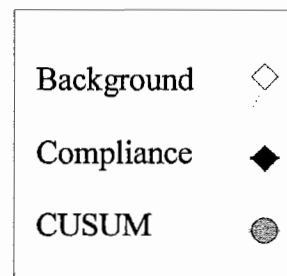
MW-4



The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.9457, W Quantile = 0.818

Dates ending 05/22/2001 used for control stats.



Background Data Summary: Mean=1.133, Std. Dev.=0.2928, 8 obs.

Constituent: Fe (mg/l)

Date: 7/5/02, 10:59 AM

Facility: Georgia Pacific

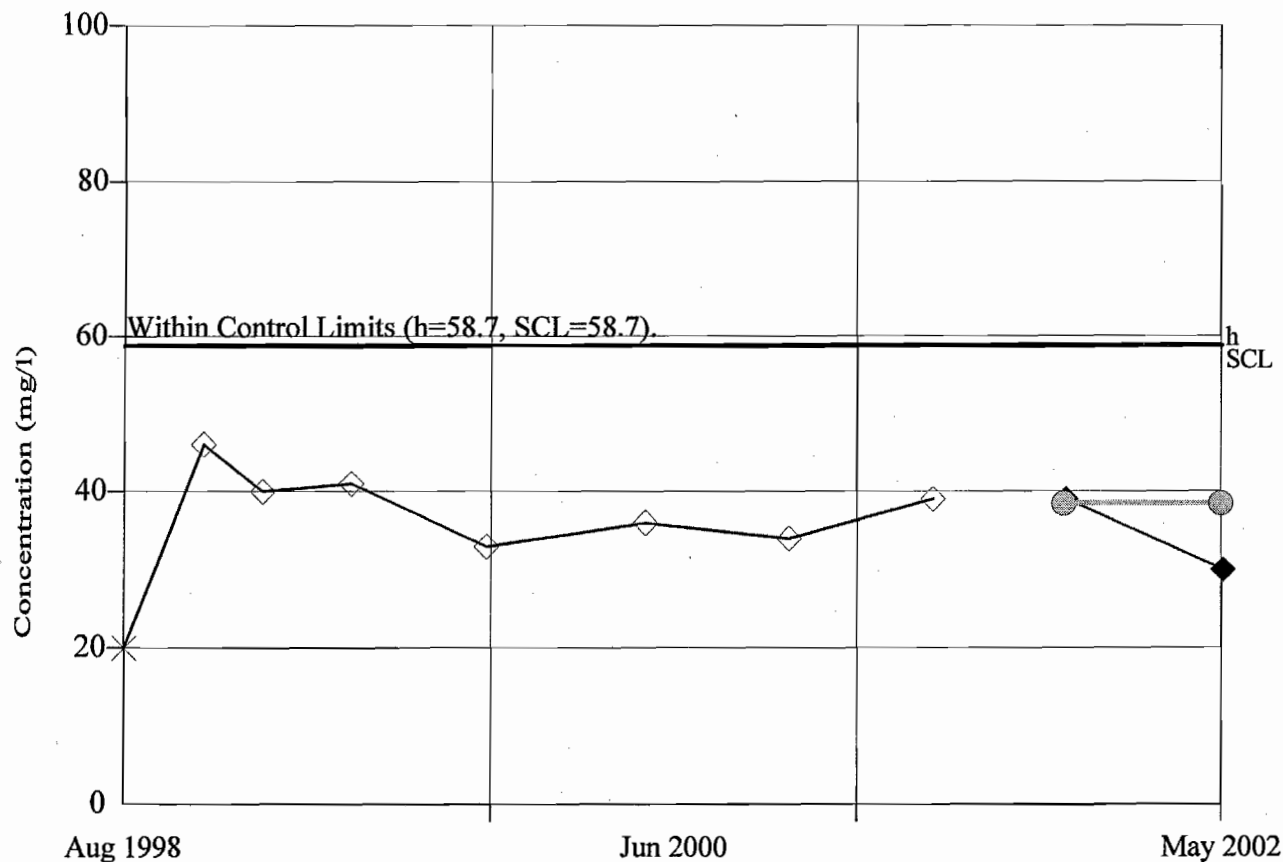
Client: GEC

Data File: gpushdown

View: DI-Ashdown

COMBINED SHEWHART-CUSUM CHART

MW-4

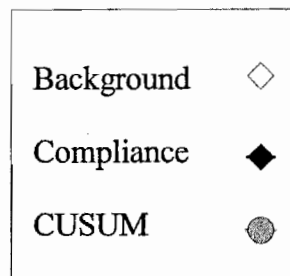


The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.9557, W Quantile = 0.803

Dates ending 05/22/2001 used for control stats.

Background outliers marked with x symbol, and excluded from computations.



Background Data Summary: Mean=38.43, Std. Dev.=4.504, 7 obs.

Constituent: SO4 (mg/l)

Facility: Georgia Pacific

Data File: gashdown

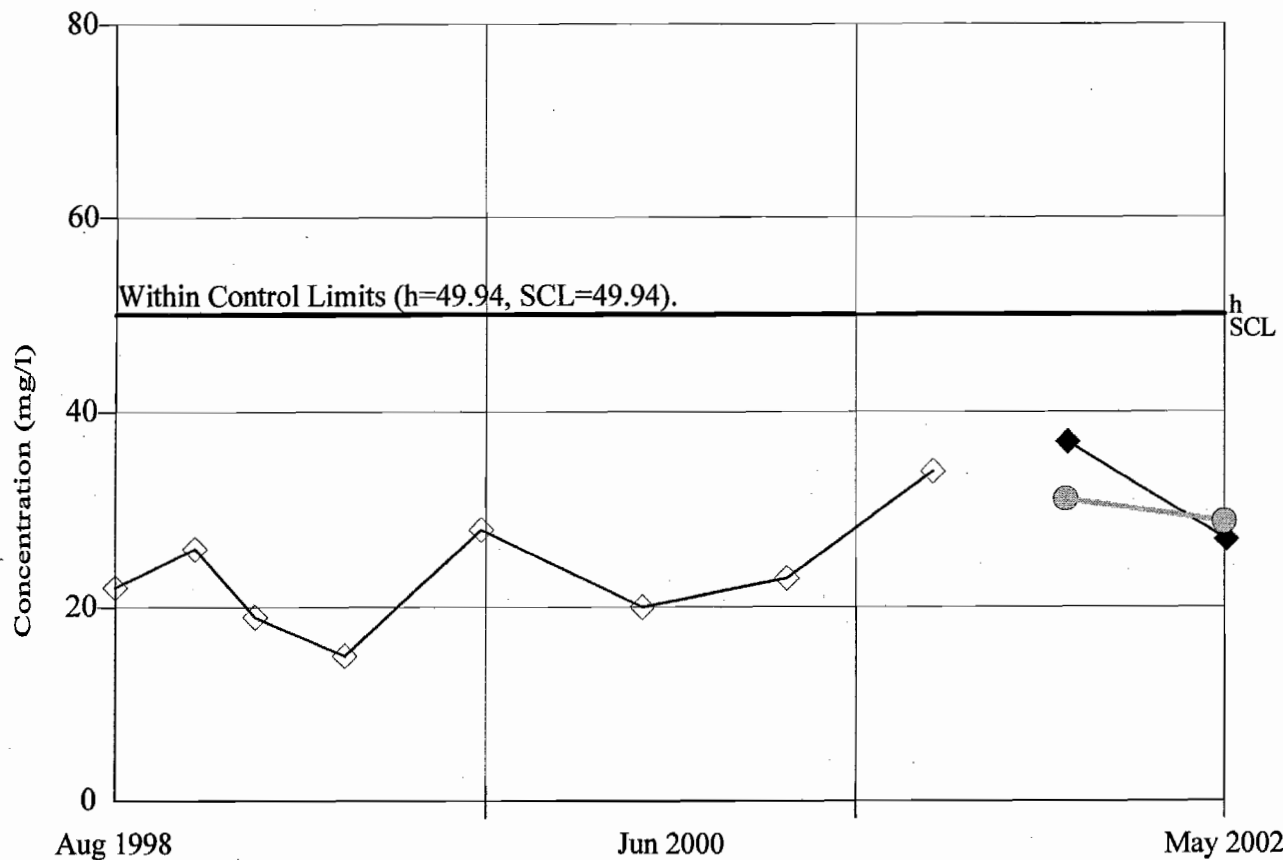
Date: 7/5/02, 11:00 AM

Client: GEC

View: DI-Ashdown

COMBINED SHEWHART-CUSUM CHART

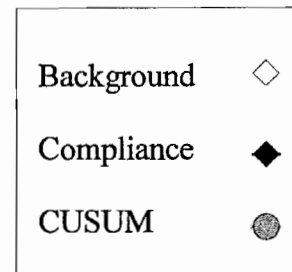
MW-4



The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.9786, W Quantile = 0.818

Dates ending 05/22/2001 used for control stats.



Background Data Summary: Mean=23.38, Std. Dev.=5.902, 8 obs.

Constituent: COD (mg/l)

Facility: Georgia Pacific

Data File: gpushdown

Date: 7/5/02, 11:00 AM

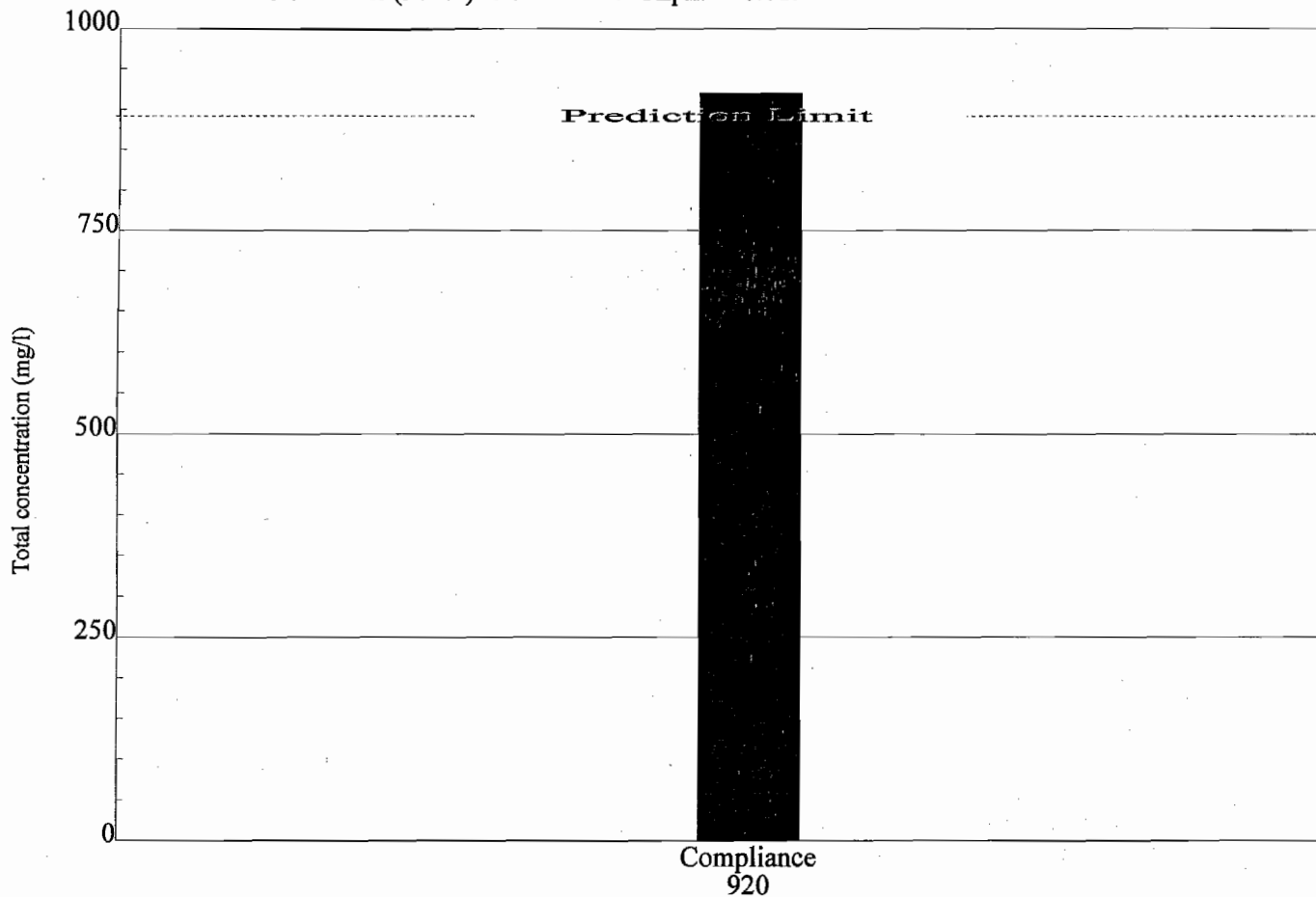
Client: GEC

View: DI-Ashdown

INTRA-WELL POISSON PREDICTION LIMIT

MW-4

Predicted Limit (902.2) is exceeded. Alpha = 0.01.



LEGEND
■ Limit Exceeded
▨ Limit Not Exceeded

Poisson test used in lieu of Control Chart because transformed data failed normality test and sample size insufficient for non-parametric Prediction Interval.

Constituent: TDS (mg/l)

Facility: Georgia Pacific

Data File: gpashdown

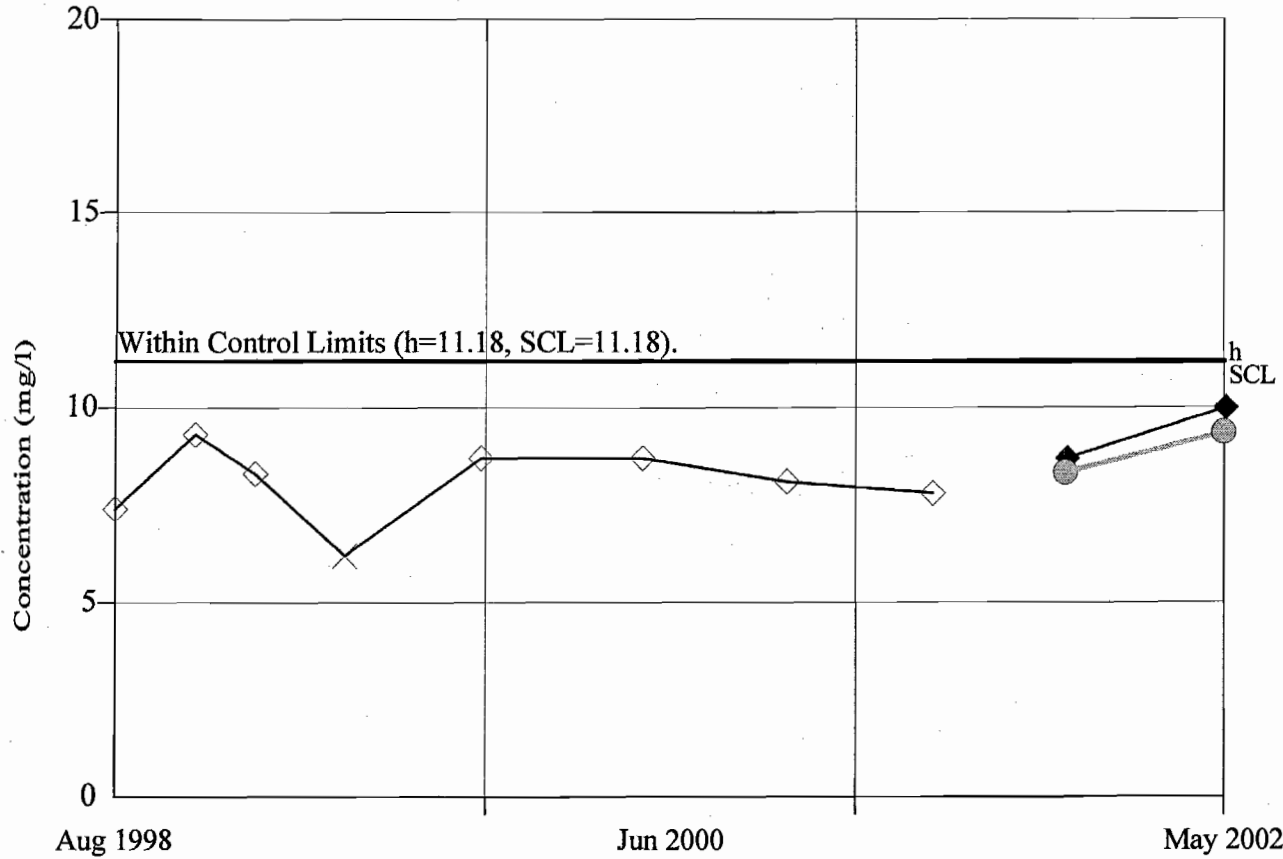
Date: 7/5/02, 11:00 AM

Client: GEC

View: DI-Ashdown

COMBINED SHEWHART-CUSUM CHART

MW-4

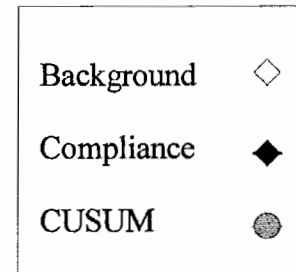


The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.9837, W Quantile = 0.803

Dates ending 05/22/2001 used for control stats.

Background outliers marked with x symbol, and excluded from computations.



Background Data Summary: Mean=8.329, Std. Dev.=0.6343, 7 obs.

Constituent: TOC (mg/l)

Date: 7/5/02, 11:01 AM

Facility: Georgia Pacific

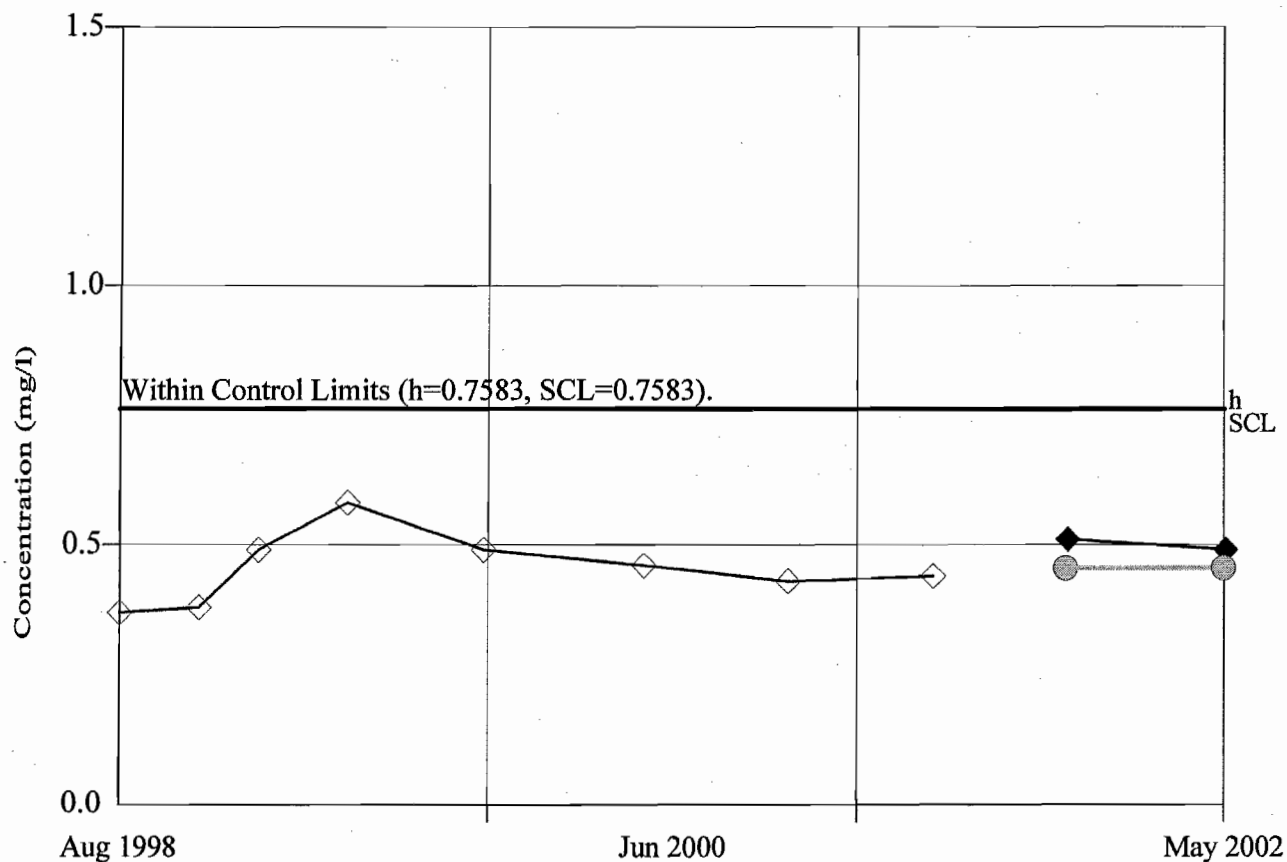
Client: GEC

Data File: gashdown

View: DI-Ashdown

COMBINED SHEWHART-CUSUM CHART

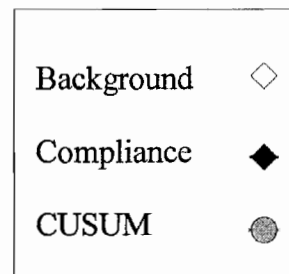
MW-5



The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.9464, W Quantile = 0.818

Dates ending 05/22/2001 used for control stats.



Background Data Summary: Mean=0.455, Std. Dev.=0.0674, 8 obs.

Constituent: Ba (mg/l)

Facility: Georgia Pacific

Data File: gpushdown

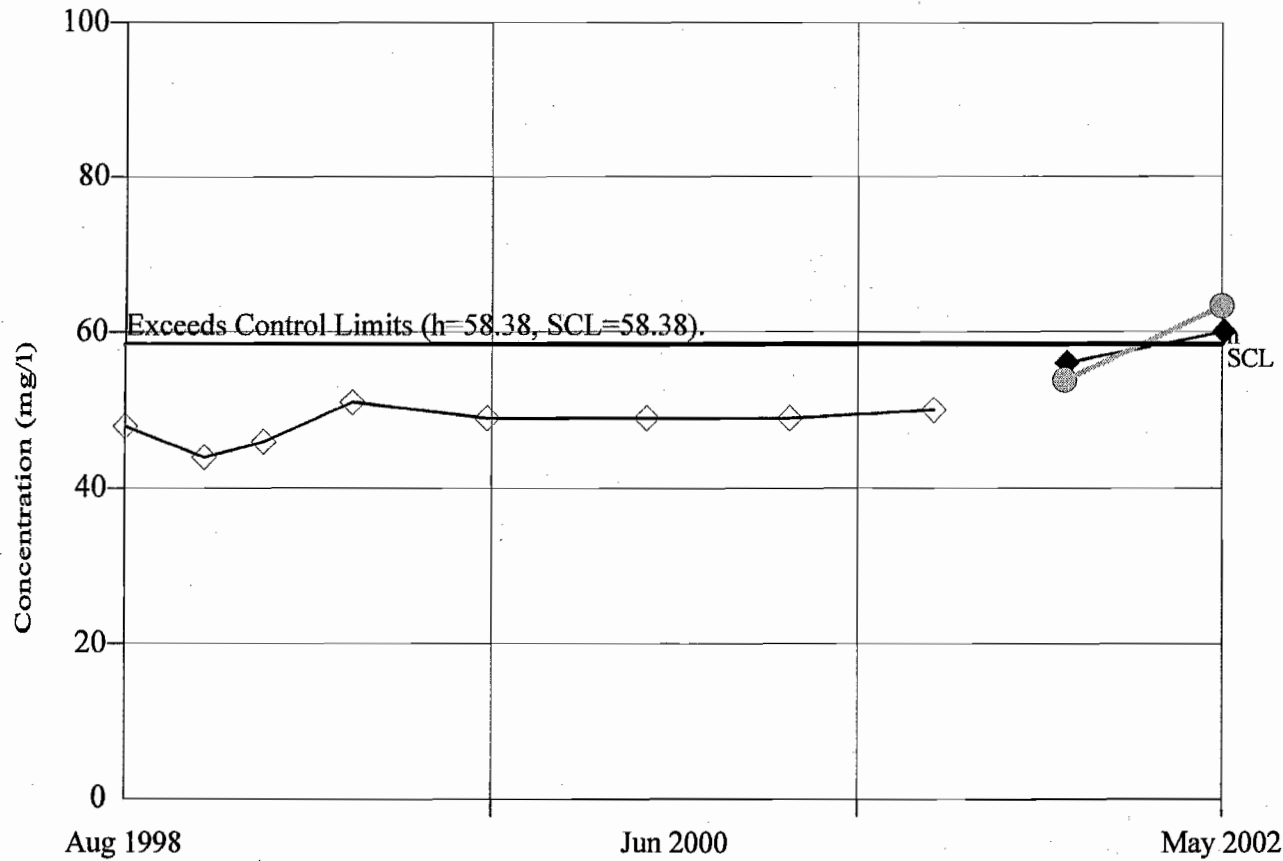
Date: 7/5/02, 11:01 AM

Client: GEC

View: DI-Ashdown

COMBINED SHEWHART-CUSUM CHART

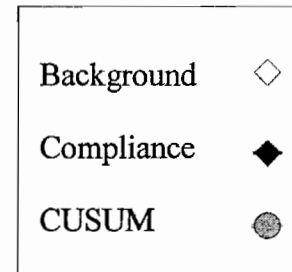
MW-5



The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.9076, W Quantile = 0.818

Dates ending 05/22/2001 used for control stats.



Background Data Summary: Mean=48.25, Std. Dev.=2.252, 8 obs.

Constituent: Chld (mg/l)

Facility: Georgia Pacific

Data File: gpushdown

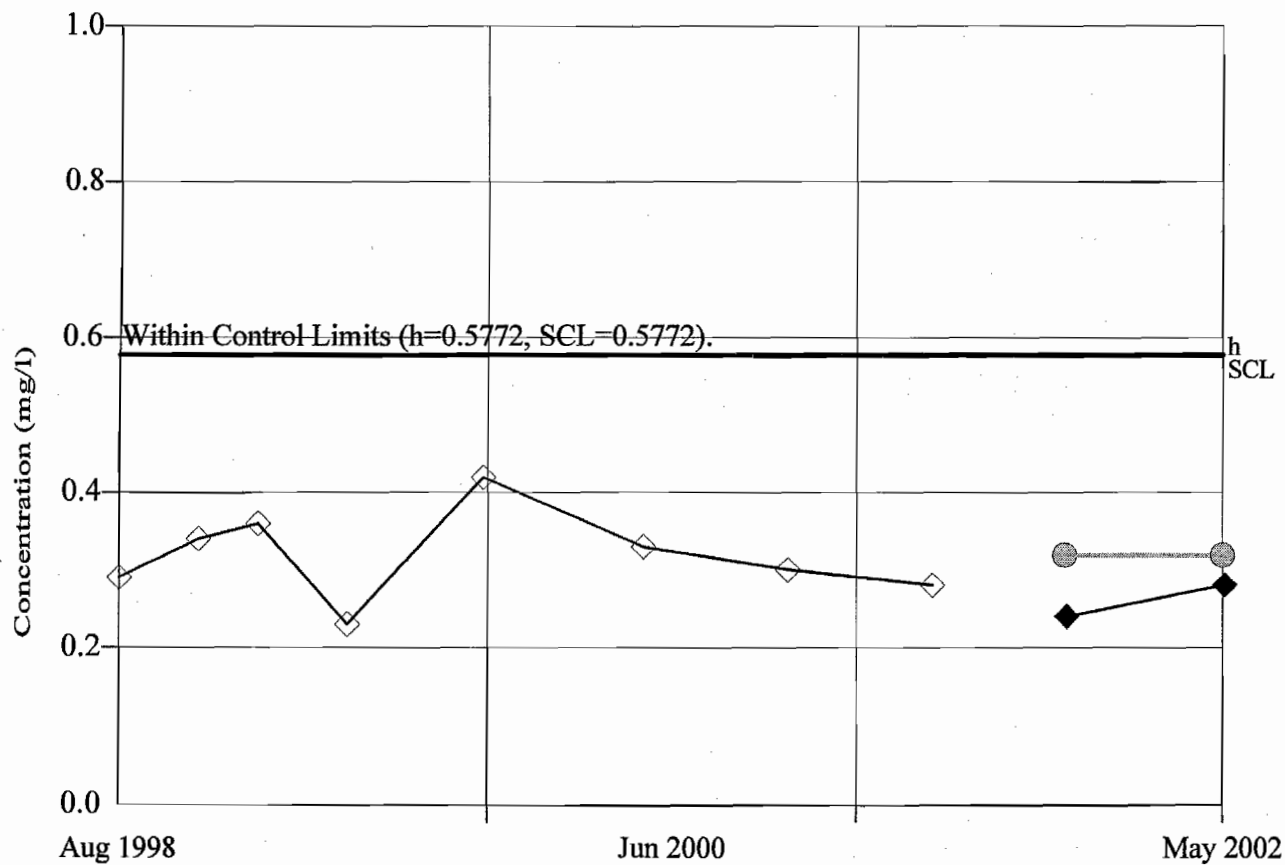
Date: 7/5/02, 11:01 AM

Client: GEC

View: DI-Ashdown

COMBINED SHEWHART-CUSUM CHART

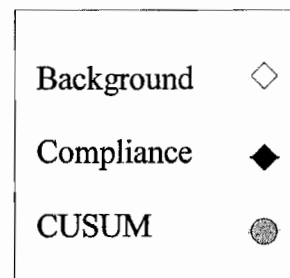
MW-5



The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.9836, W Quantile = 0.818

Dates ending 05/22/2001 used for control stats.



Background Data Summary: Mean=0.3188, Std. Dev.=0.05743, 8 obs.

Constituent: Fl (mg/l)

Facility: Georgia Pacific

Data File: gpashdown

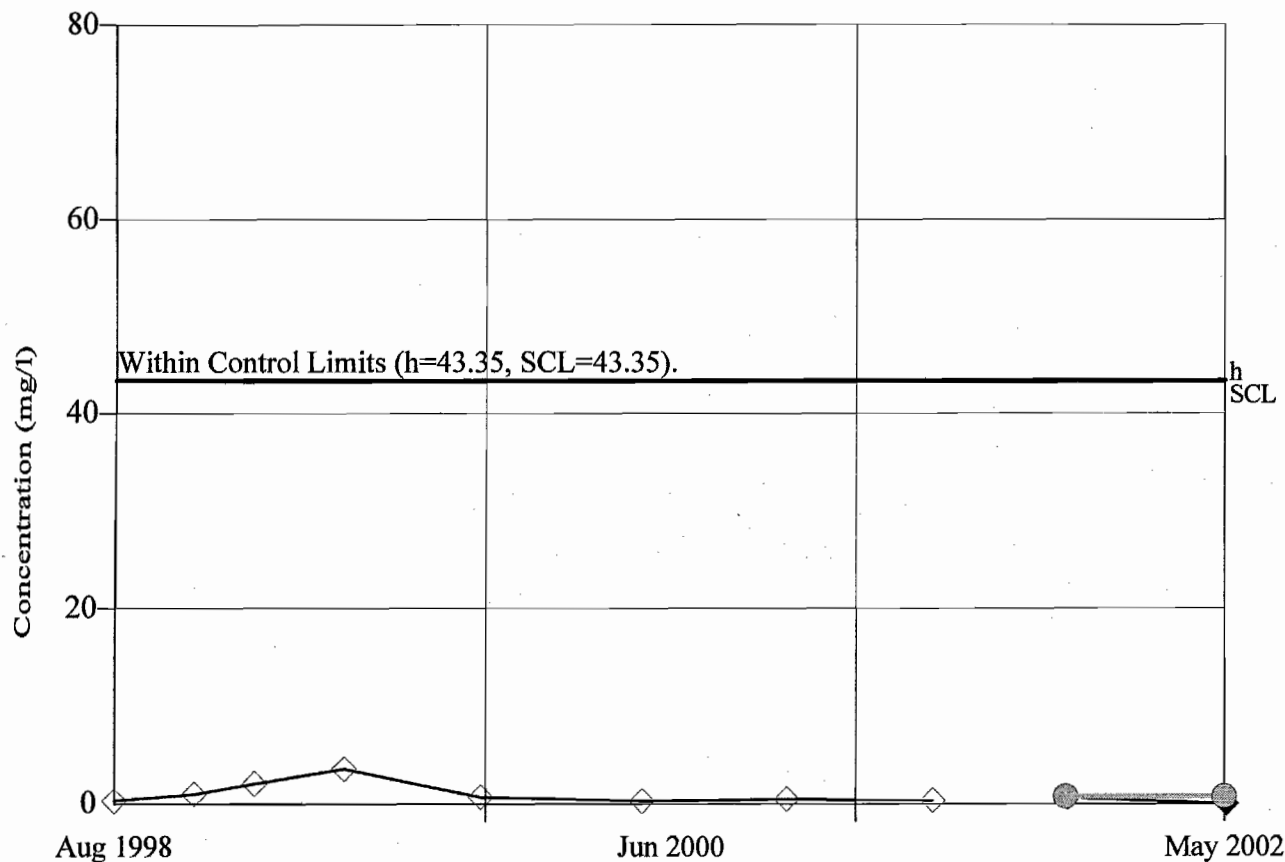
Date: 7/5/02, 11:01 AM

Client: GEC

View: DI-Ashdown

COMBINED SHEWHART-CUSUM CHART

MW-5

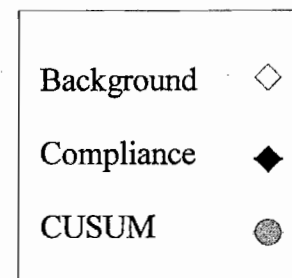


The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Data were log transformed.

Normality test used: Shapiro Wilk. W Statistic = 0.891, W Quantile = 0.818

Dates ending 05/22/2001 used for control stats.



Background Data Summary: (based on log transformed data) Mean=-0.2799, Std. Dev.=0.8998, 8 obs.

Constituent: Fe (mg/l)

Facility: Georgia Pacific

Data File: gpushdown

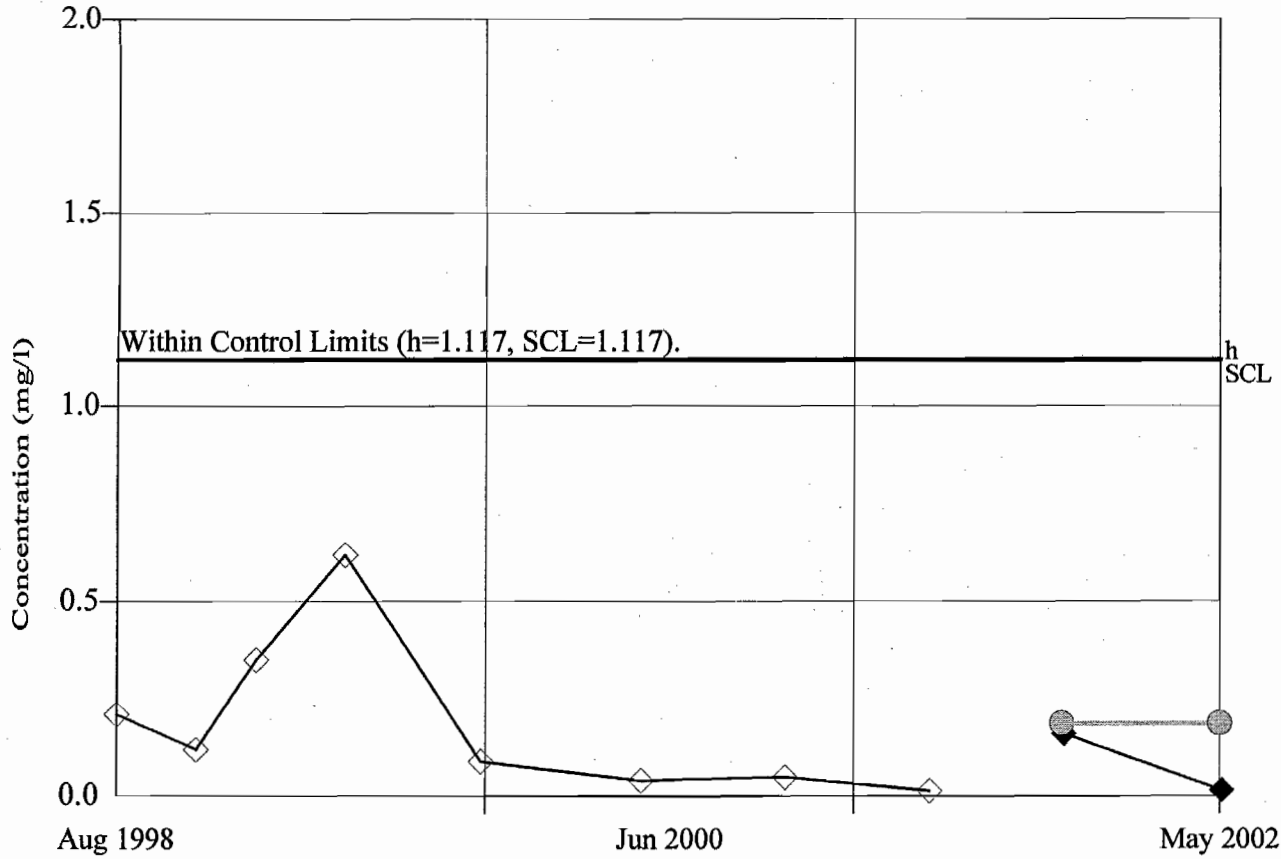
Date: 7/5/02, 11:01 AM

Client: GEC

View: DI-Ashdown

COMBINED SHEWHART-CUSUM CHART

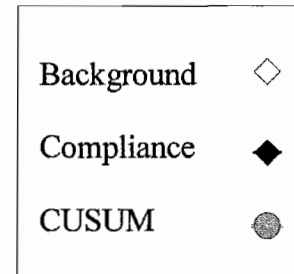
MW-5



The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.8186, W Quantile = 0.818

Dates ending 05/22/2001 used for control stats.



Background Data Summary: Mean=0.1864, Std. Dev.=0.2069, 8 obs.

Constituent: Mn (mg/l)

Date: 7/5/02, 11:02 AM

Facility: Georgia Pacific

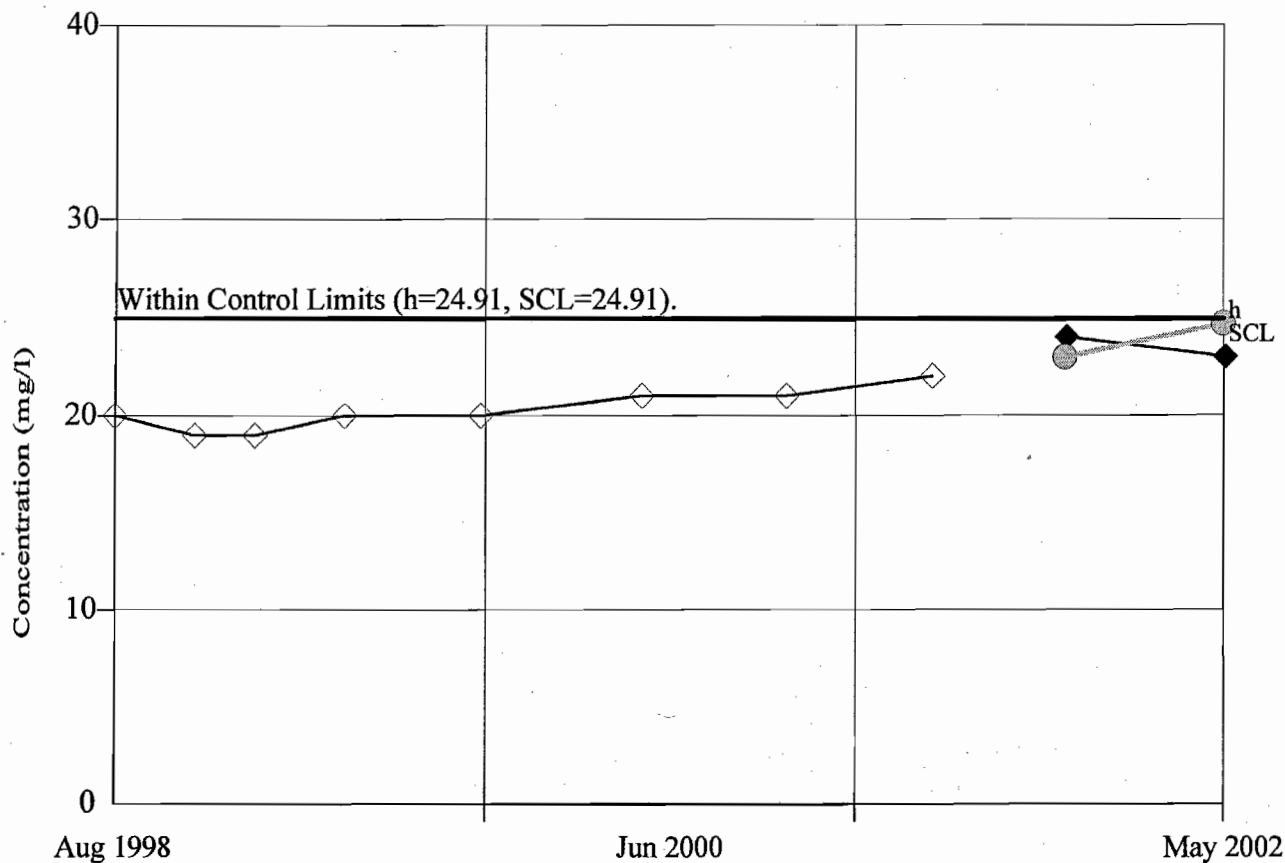
Client: GEC

Data File: gpushdown

View: DI-Ashdown

COMBINED SHEWHART-CUSUM CHART

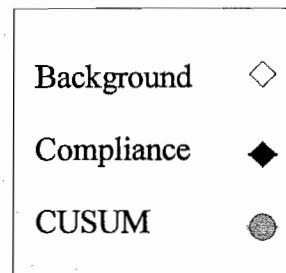
MW-5



The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.9171, W Quantile = 0.818

Dates ending 05/22/2001 used for control stats.



Background Data Summary: Mean=20.25, Std. Dev.=1.035, 8 obs.

Constituent: SO4 (mg/l)

Facility: Georgia Pacific

Data File: gpushdown

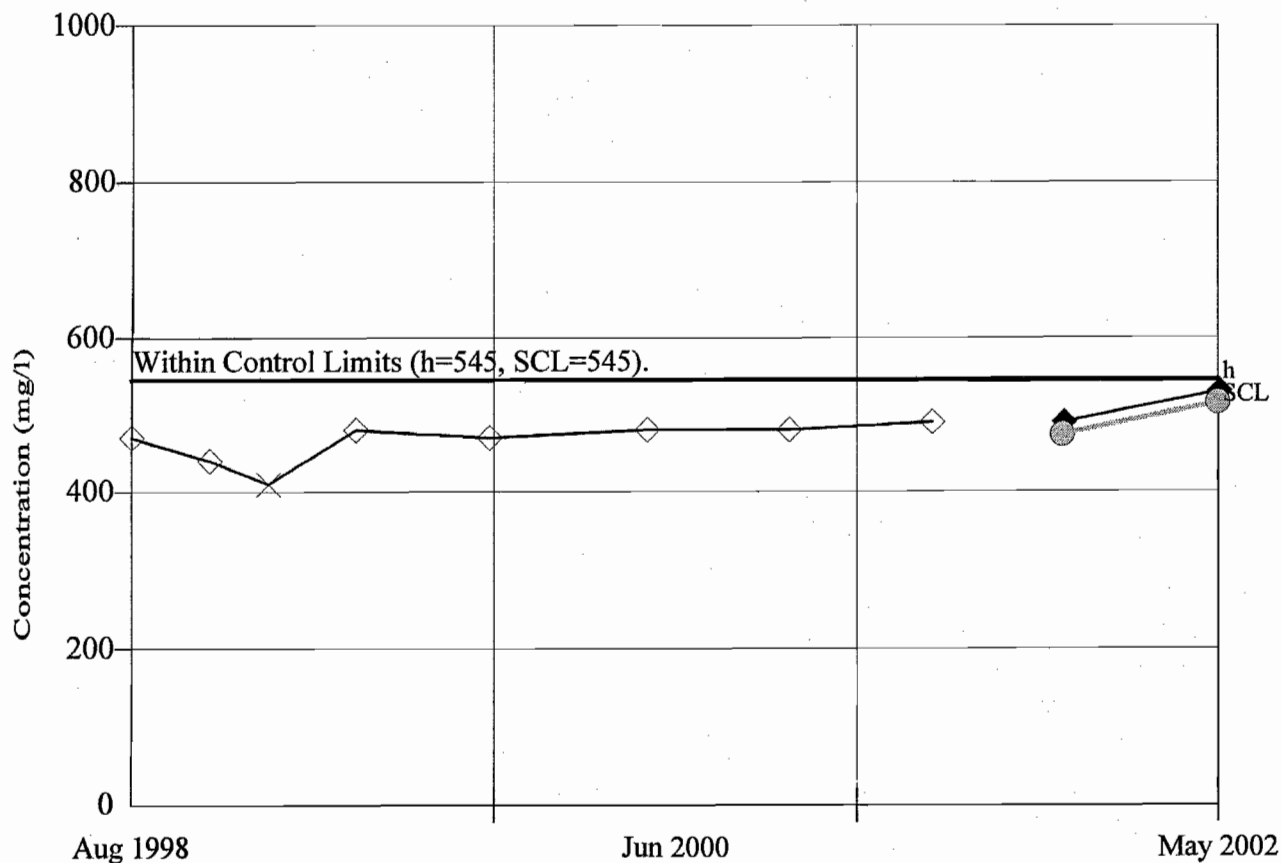
Date: 7/5/02, 11:02 AM

Client: GEC

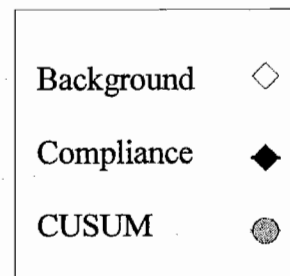
View: DI-Ashdown

COMBINED SHEWHART-CUSUM CHART

MW-5



The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.
 Normality test used: Shapiro Wilk. W Statistic = 0.8213, W Quantile = 0.803
 Dates ending 05/22/2001 used for control stats.
 Background outliers marked with x symbol, and excluded from computations.



Background Data Summary: Mean=472.9, Std. Dev.=16.04, 7 obs.

Constituent: TDS (mg/l)

Facility: Georgia Pacific

Data File: gpushdown

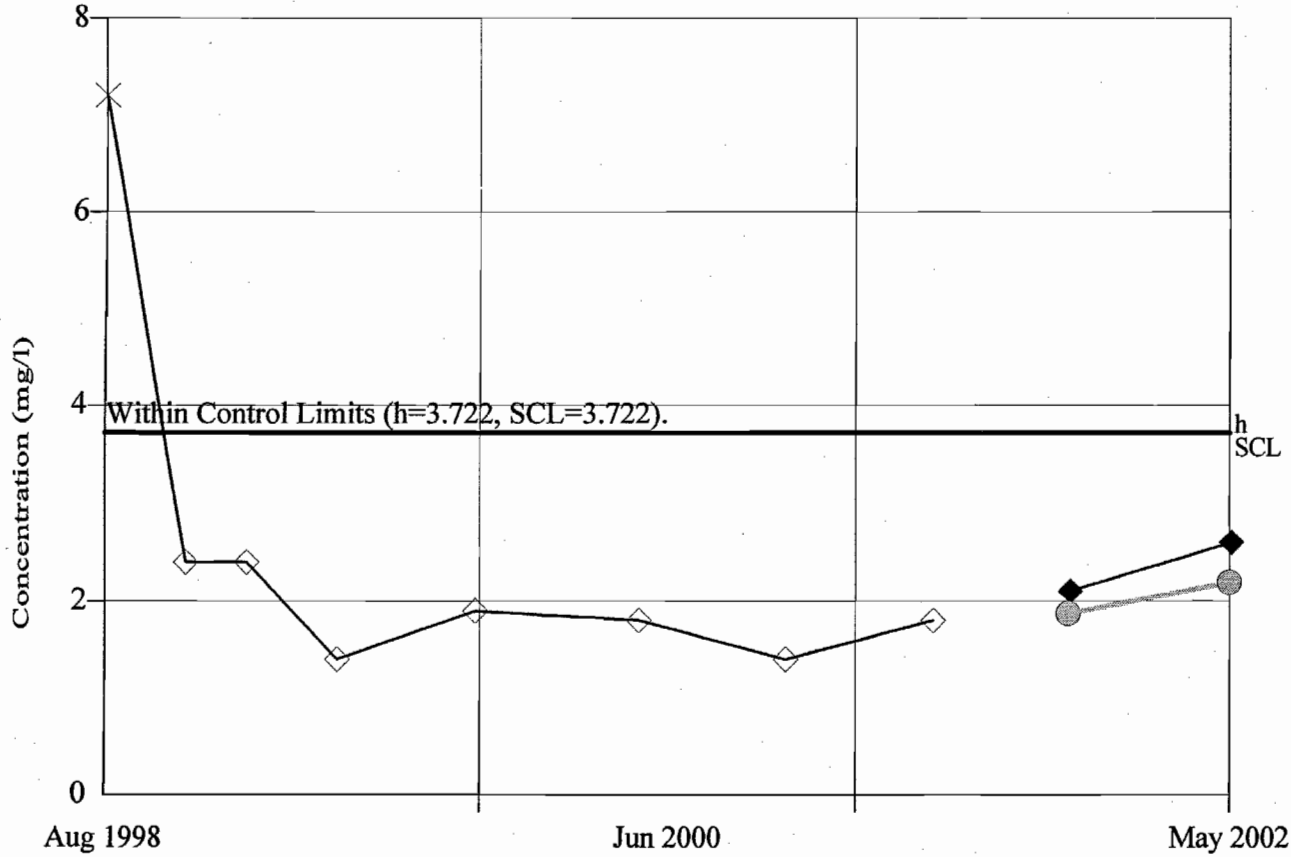
Date: 7/5/02, 11:02 AM

Client: GEC

View: DI-Ashdown

COMBINED SHEWHART-CUSUM CHART

MW-5

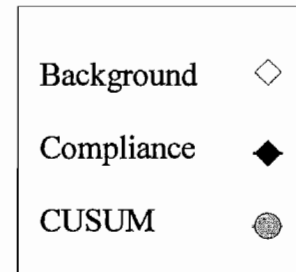


The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.8719, W Quantile = 0.803

Dates ending 05/22/2001 used for control stats.

Background outliers marked with x symbol, and excluded from computations.



Background Data Summary: Mean=1.871, Std. Dev.=0.4112, 7 obs.

Constituent: TOC (mg/l)

Facility: Georgia Pacific

Data File: gashdown

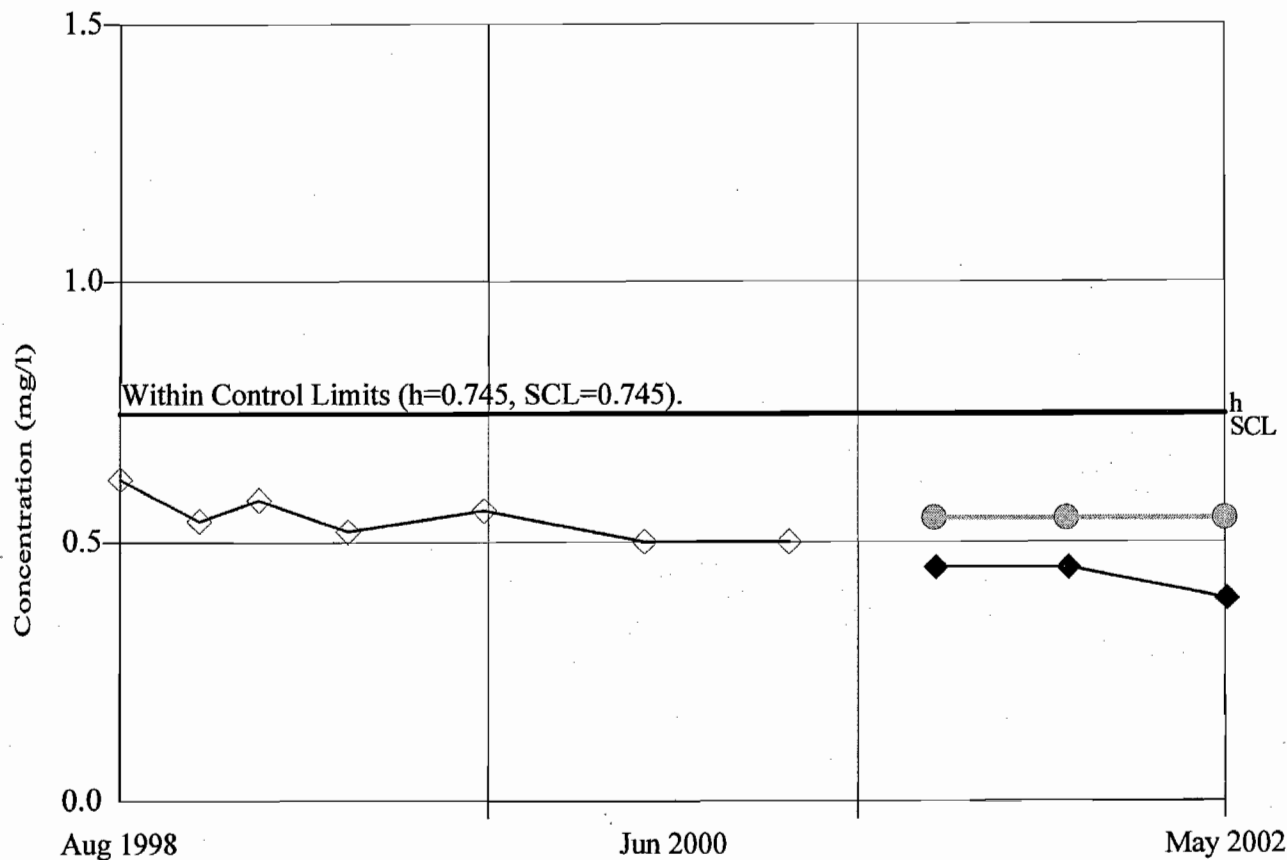
Date: 7/5/02, 11:02 AM

Client: GEC

View: DI-Ashdown

COMBINED SHEWHART-CUSUM CHART

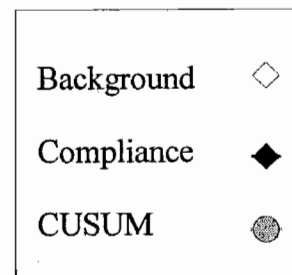
MW-6



The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.9303, W Quantile = 0.803

Dates ending 11/20/2000 used for control stats.



Background Data Summary: Mean=0.5457, Std. Dev.=0.04429, 7 obs.

Constituent: Ba (mg/l)

Date: 7/5/02, 11:03 AM

Facility: Georgia Pacific

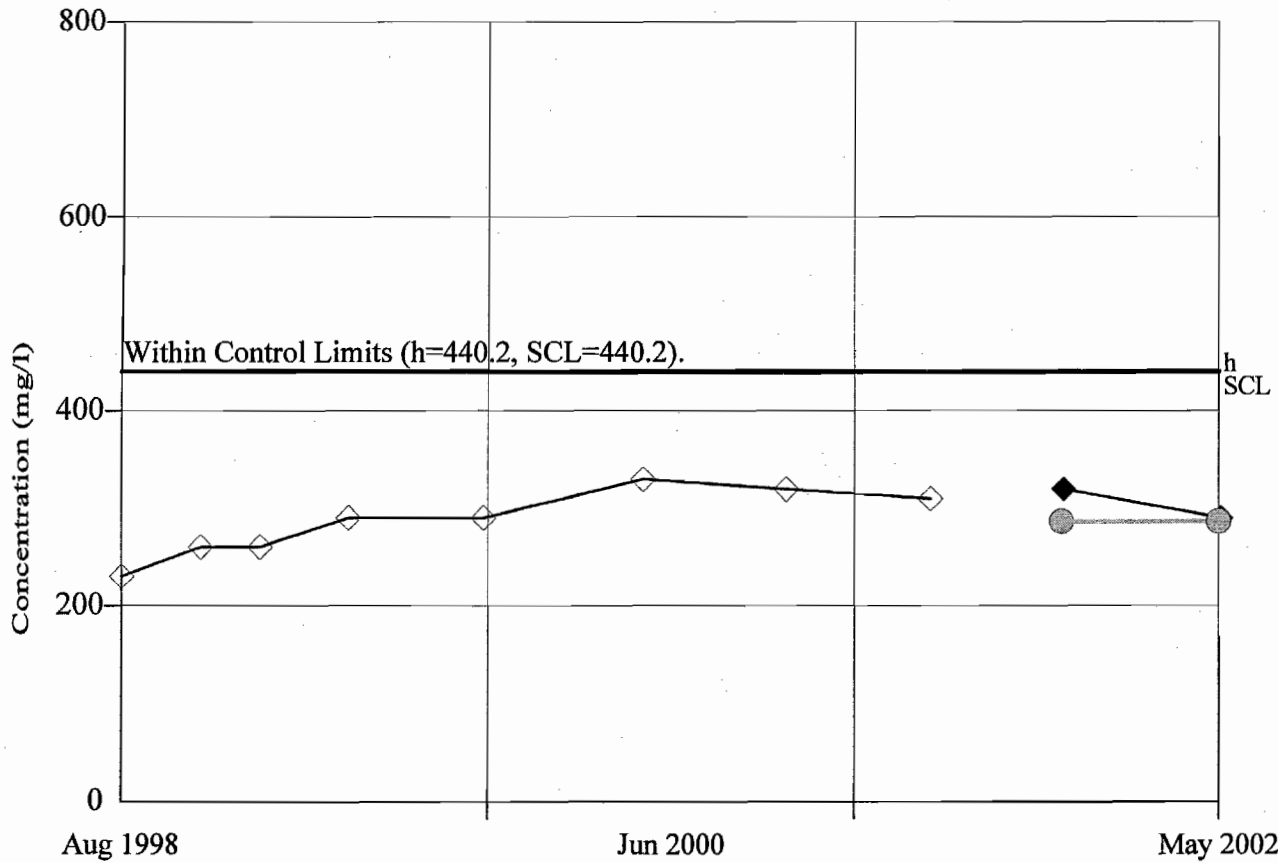
Client: GEC

Data File: gpushdown

View: DI-Ashdown

COMBINED SHEWHART-CUSUM CHART

MW-6



The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.9505, W Quantile = 0.818

Dates ending 05/22/2001 used for control stats.

Background	◇
Compliance	◆
CUSUM	●

Background Data Summary: Mean=286.3, Std. Dev.=34.2, 8 obs.

Constituent: Chld (mg/l)

Date: 7/5/02, 11:03 AM

Facility: Georgia Pacific

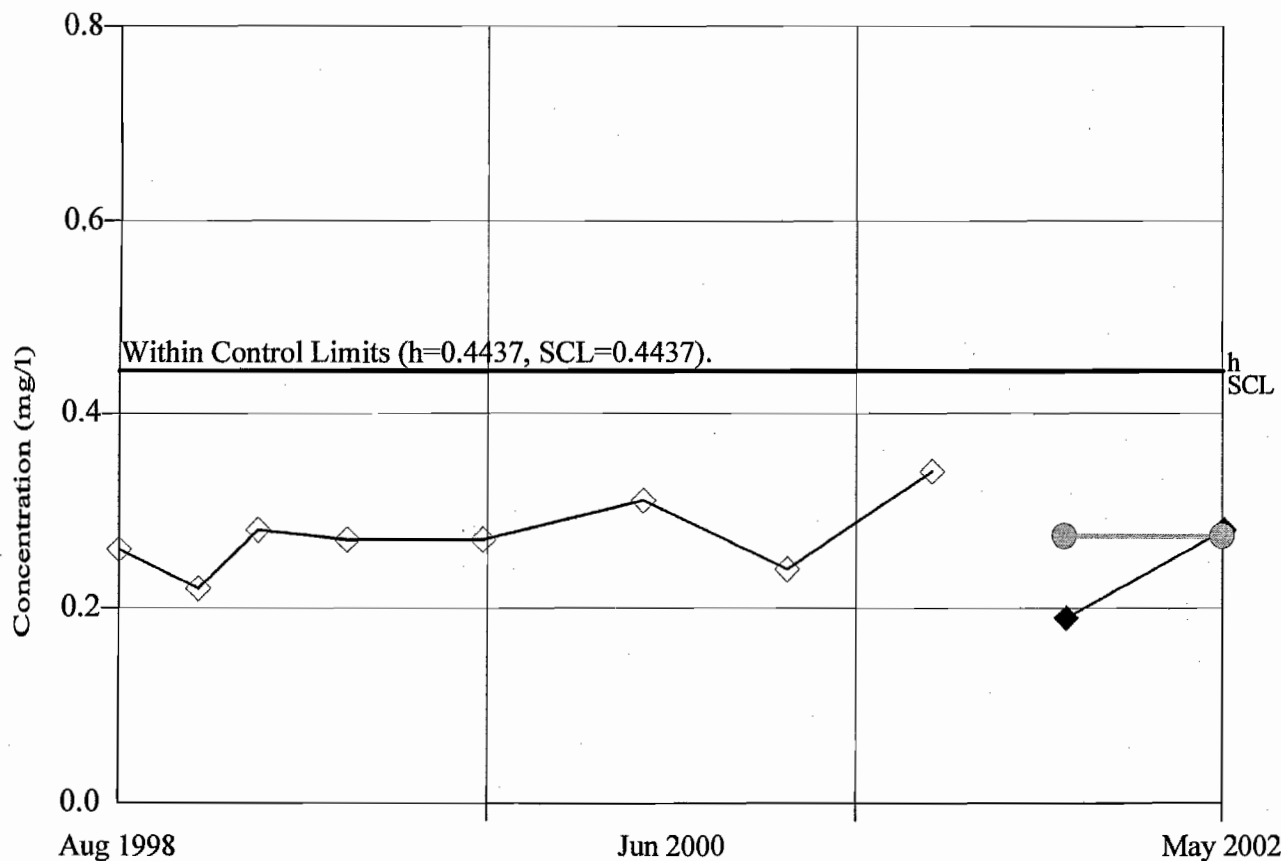
Client: GEC

Data File: gpushdown

View: DI-Ashdown

COMBINED SHEWHART-CUSUM CHART

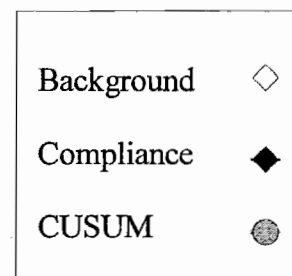
MW-6



The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.9667, W Quantile = 0.818

Dates ending 05/22/2001 used for control stats.



Background Data Summary: Mean=0.2738, Std. Dev.=0.03777, 8 obs.

Constituent: Fl (mg/l)

Date: 7/5/02, 11:03 AM

Facility: Georgia Pacific

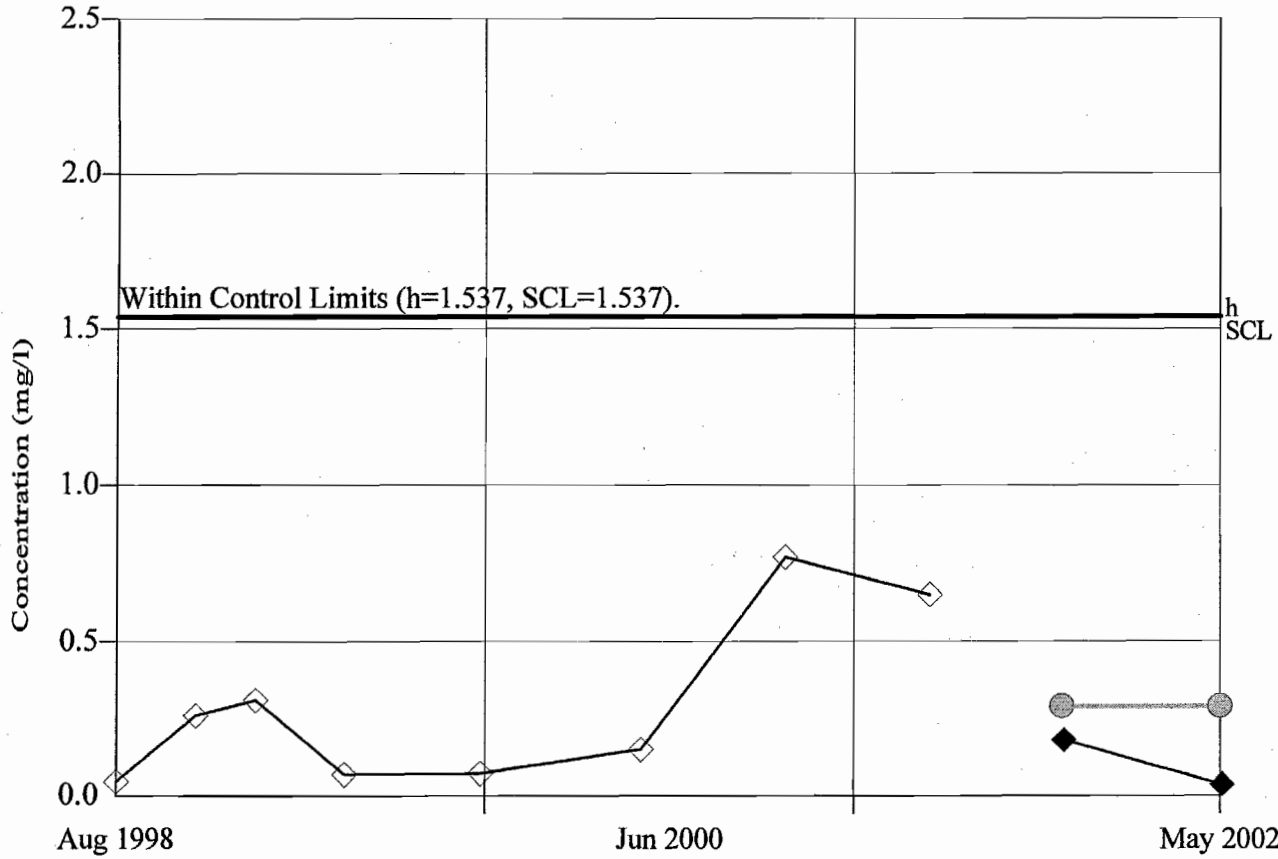
Client: GEC

Data File: gpashdown

View: DI-Ashdown

COMBINED SHEWHART-CUSUM CHART

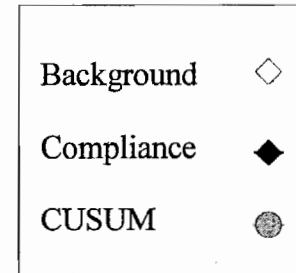
MW-6



The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.8356, W Quantile = 0.818

Dates ending 05/22/2001 used for control stats.



Background Data Summary: Mean=0.291, Std. Dev.=0.2768, 8 obs.

Constituent: Fe (mg/l)

Date: 7/5/02, 11:03 AM

Facility: Georgia Pacific

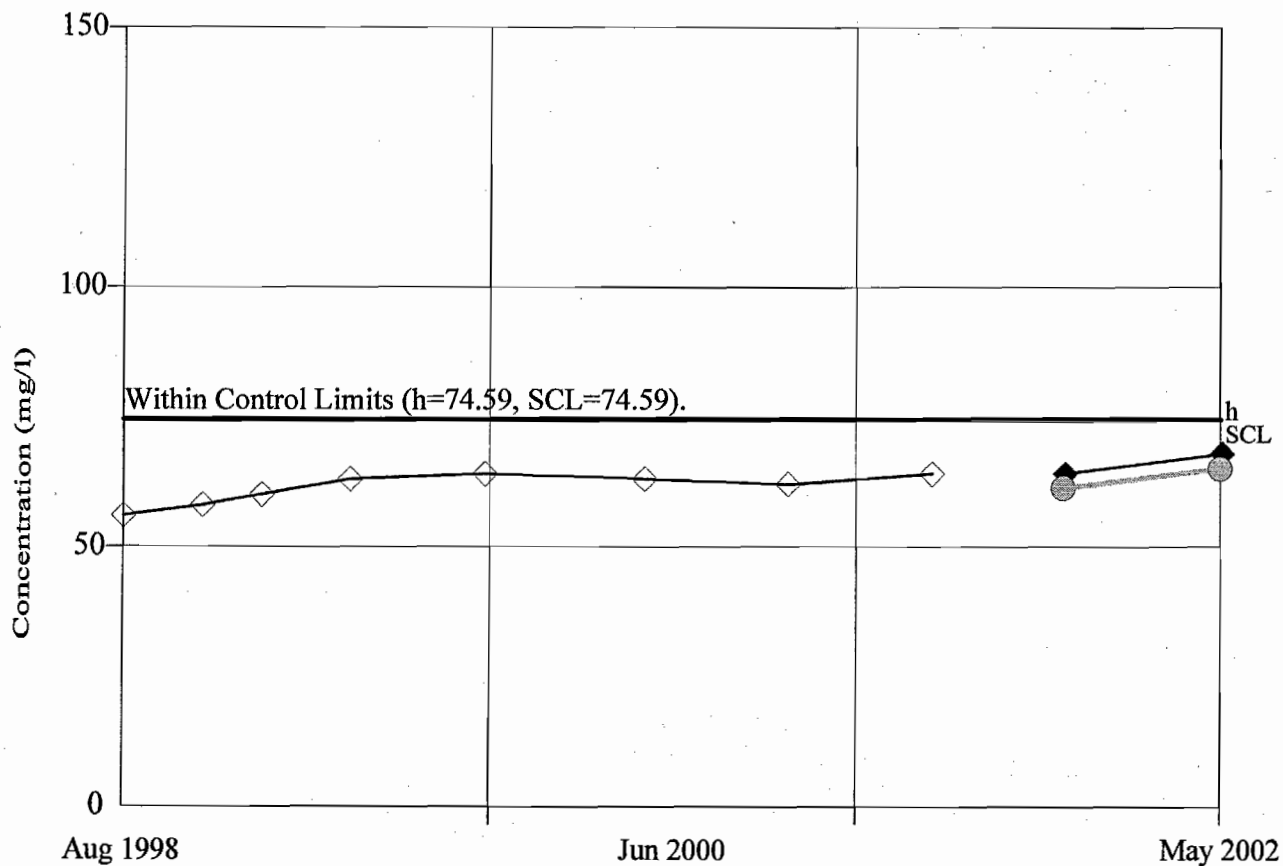
Client: GEC

Data File: gpushdown

View: DI-Ashdown

COMBINED SHEWHART-CUSUM CHART

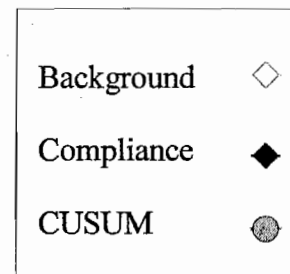
MW-6



The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.871, W Quantile = 0.818

Dates ending 05/22/2001 used for control stats.



Background Data Summary: Mean=61.25, Std. Dev.=2.964, 8 obs.

Constituent: SO4 (mg/l)

Facility: Georgia Pacific

Data File: gpushdown

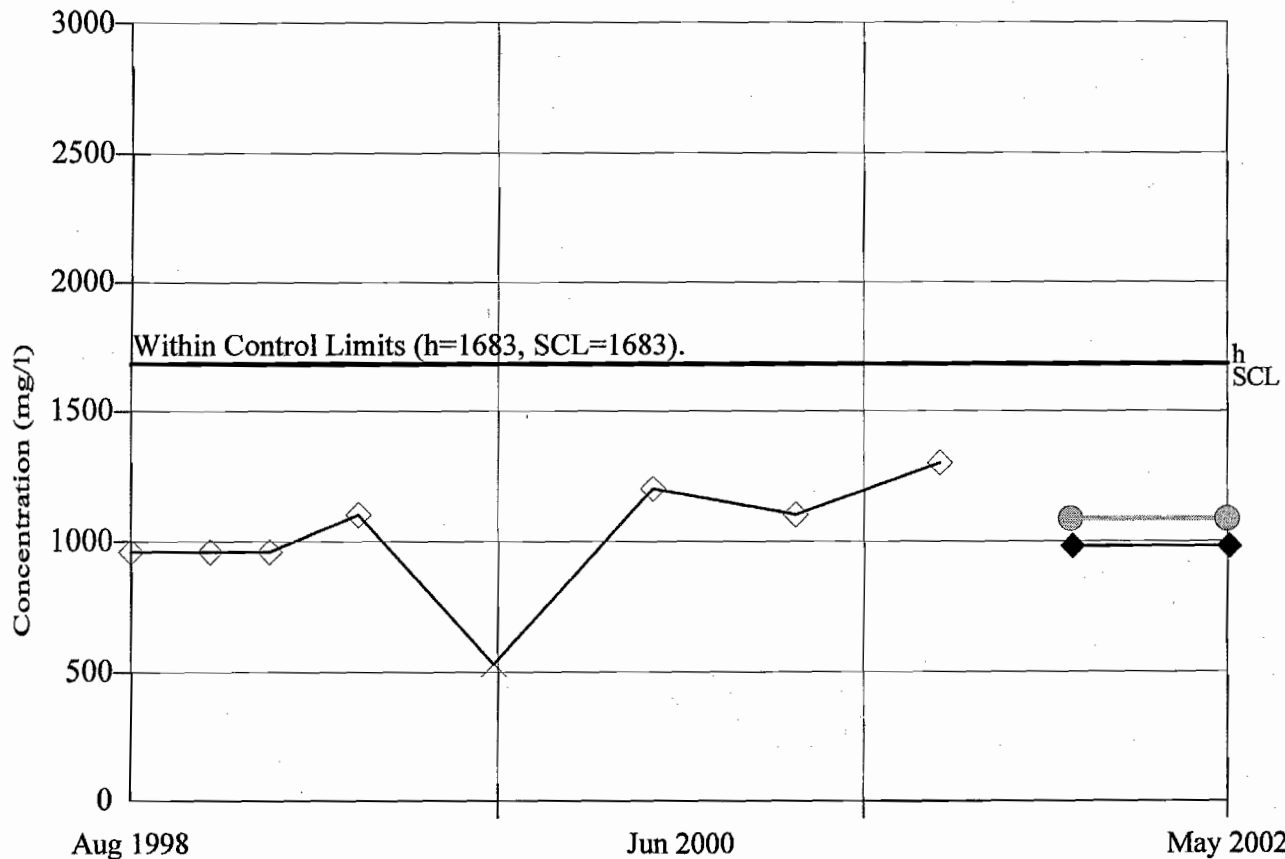
Date: 7/5/02, 11:04 AM

Client: GEC

View: DI-Ashdown

COMBINED SHEWHART-CUSUM CHART

MW-6

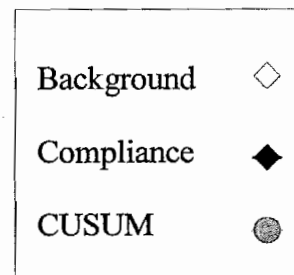


The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.8674, W Quantile = 0.803

Dates ending 05/22/2001 used for control stats.

Background outliers marked with x symbol, and excluded from computations.



Background Data Summary: Mean=1083, Std. Dev.=133.4, 7 obs.

Constituent: TDS (mg/l)

Facility: Georgia Pacific

Data File: gpashdown

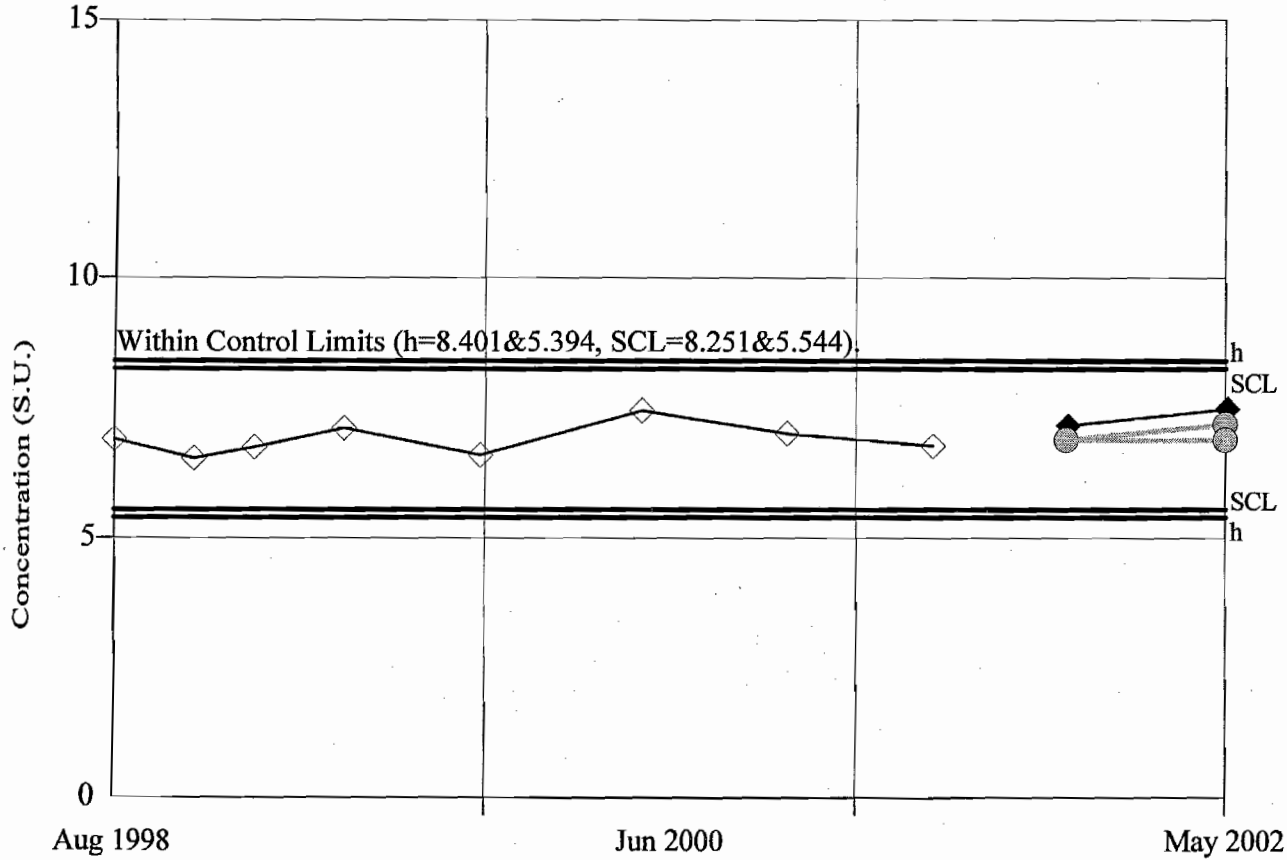
Date: 7/5/02, 11:04 AM

Client: GEC

View: DI-Ashdown

TWO-TAILED SHEWHART-CUSUM CHART

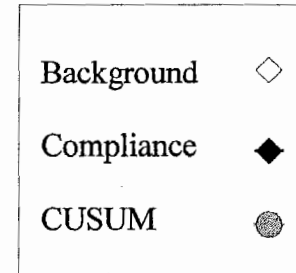
MW-2



The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.9453, W Quantile = 0.842

Dates ending 05/22/2001 used for control stats.



Background Data Summary: Mean=6.898, Std. Dev.=0.3007, 8 obs.

Constituent: pH (S.U.)

Facility: Georgia Pacific

Data File: gpushdownchangedunit

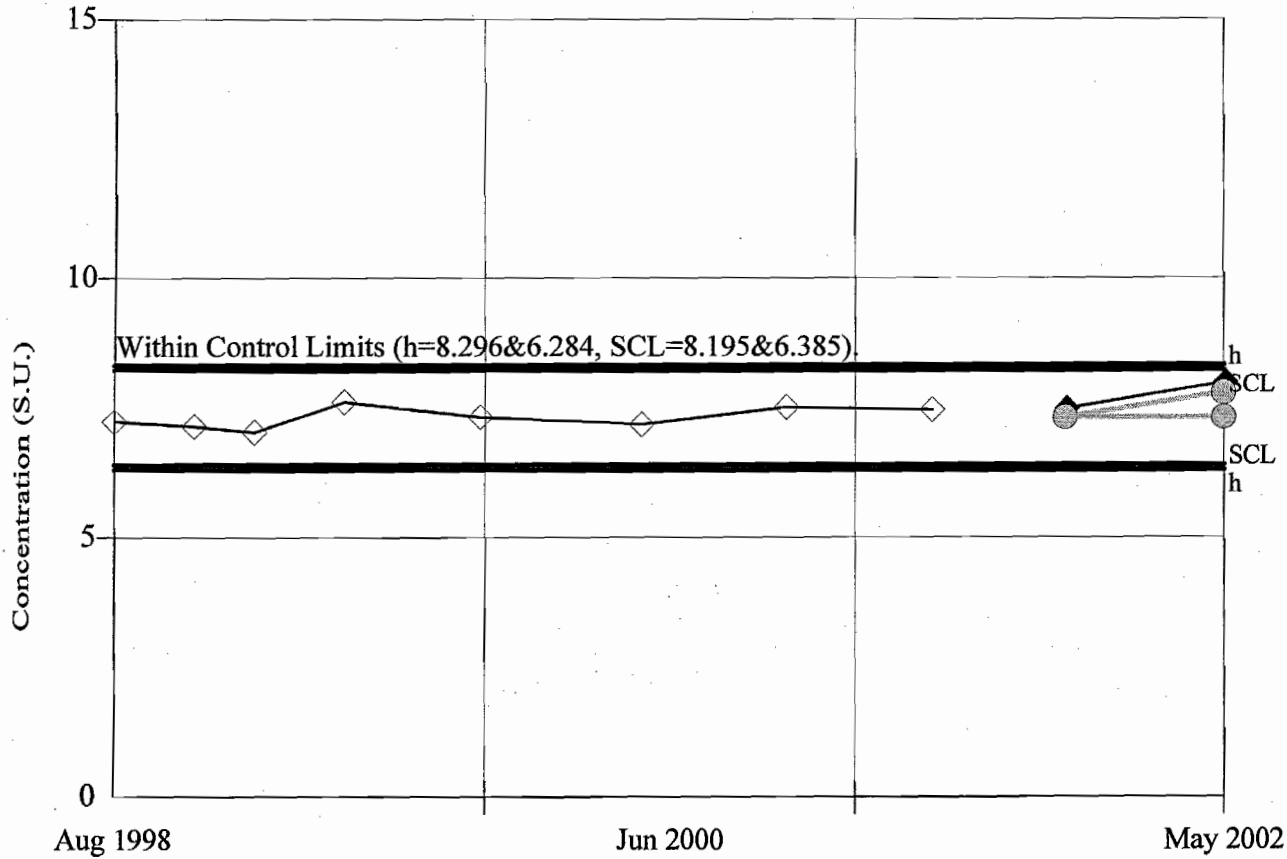
Date: 7/5/02, 11:07 AM

Client: GEC

View: ash

TWO-TAILED SHEWHART-CUSUM CHART

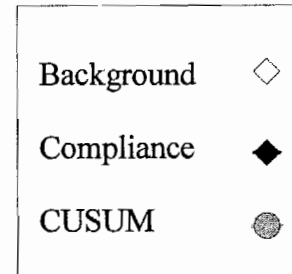
MW-3



The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.9426, W Quantile = 0.842

Dates ending 05/22/2001 used for control stats.



Background Data Summary: Mean=7.29, Std. Dev.=0.2011, 8 obs.

Constituent: pH (S.U.)

Facility: Georgia Pacific

Data File: gpashdownchangedunit

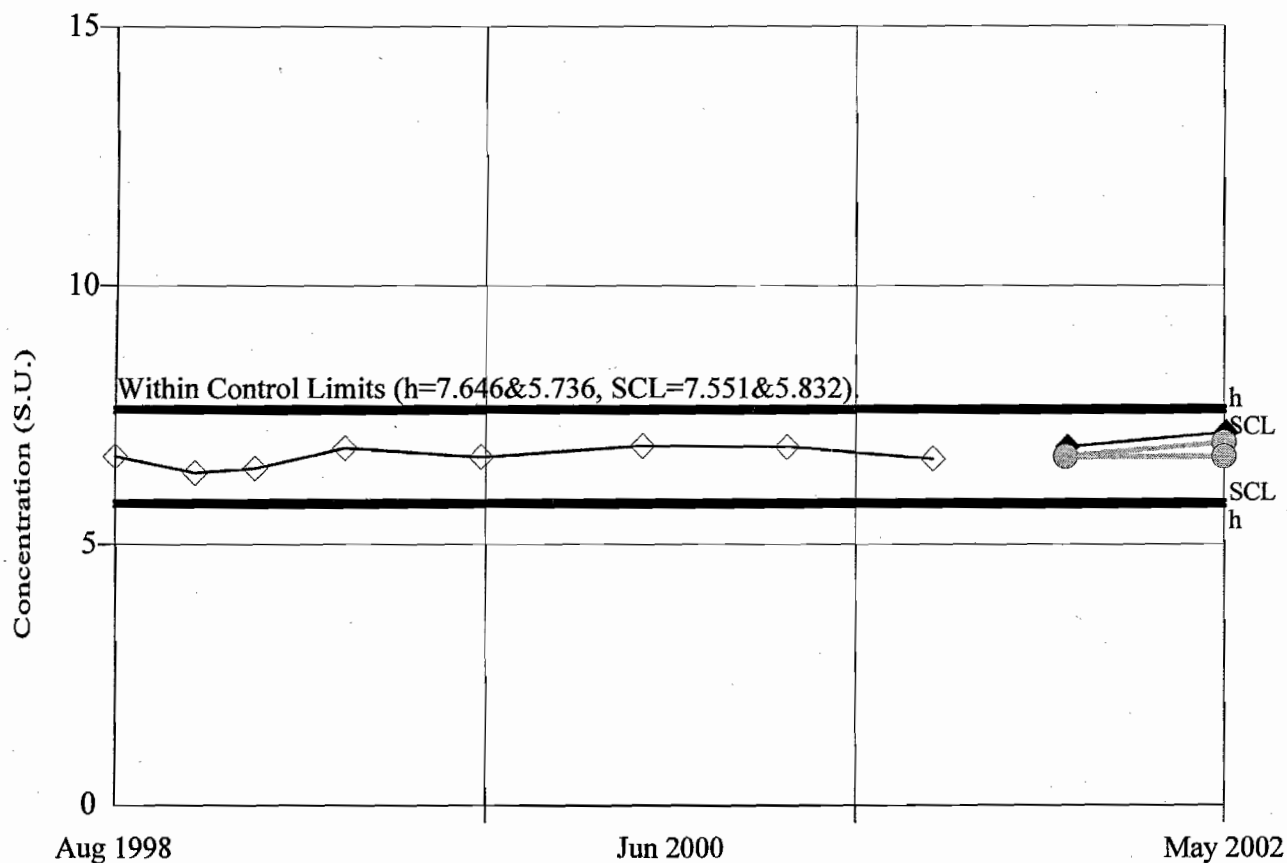
Date: 7/5/02, 11:08 AM

Client: GEC

View: ash

TWO-TAILED SHEWHART-CUSUM CHART

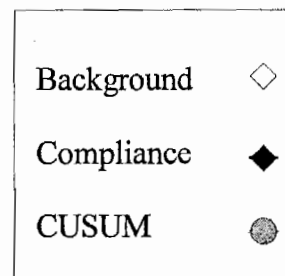
MW-4



The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.9547, W Quantile = 0.842

Dates ending 05/22/2001 used for control stats.



Background Data Summary: Mean=6.691, Std. Dev.=0.191, 8 obs.

Constituent: pH (S.U.)

Facility: Georgia Pacific

Data File: gashdownchangedunit

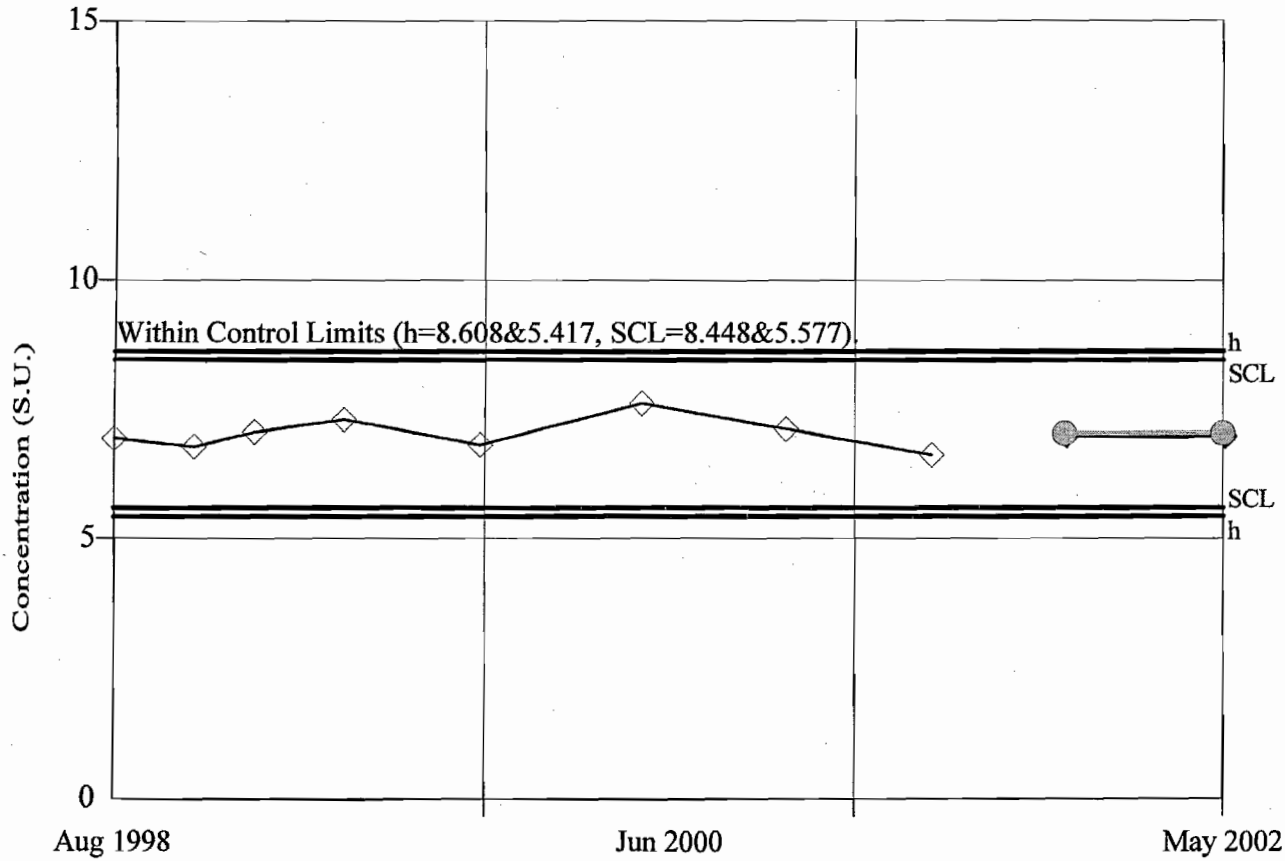
Date: 7/5/02, 11:08 AM

Client: GEC

View: ash

TWO-TAILED SHEWHART-CUSUM CHART

MW-5



The data set was of insufficient size to statistically evaluate the significance of seasonality or to deseasonalize.

Normality test used: Shapiro Wilk. W Statistic = 0.9482, W Quantile = 0.842

Dates ending 05/22/2001 used for control stats.

Background	◇
Compliance	◆
CUSUM	●

Background Data Summary: Mean=7.013, Std. Dev.=0.3191, 8 obs.

Constituent: pH (S.U.)

Facility: Georgia Pacific

Data File: gashdownchangedunit

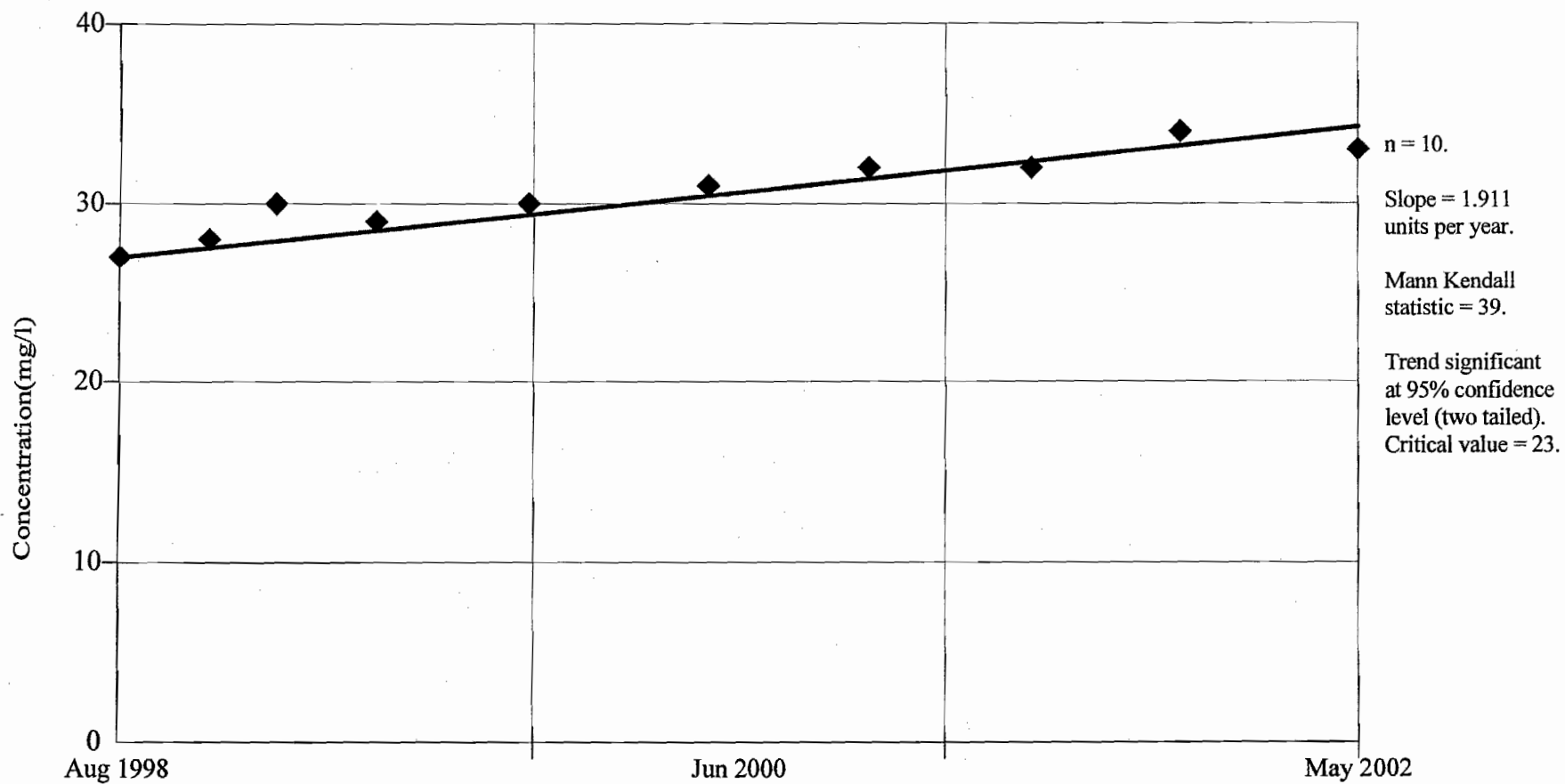
Date: 7/5/02, 11:08 AM

Client: GEC

View: ash

SEN'S SLOPE ESTIMATOR

MW-2



Constituent: SO4 (mg/l)

Facility: Georgia Pacific

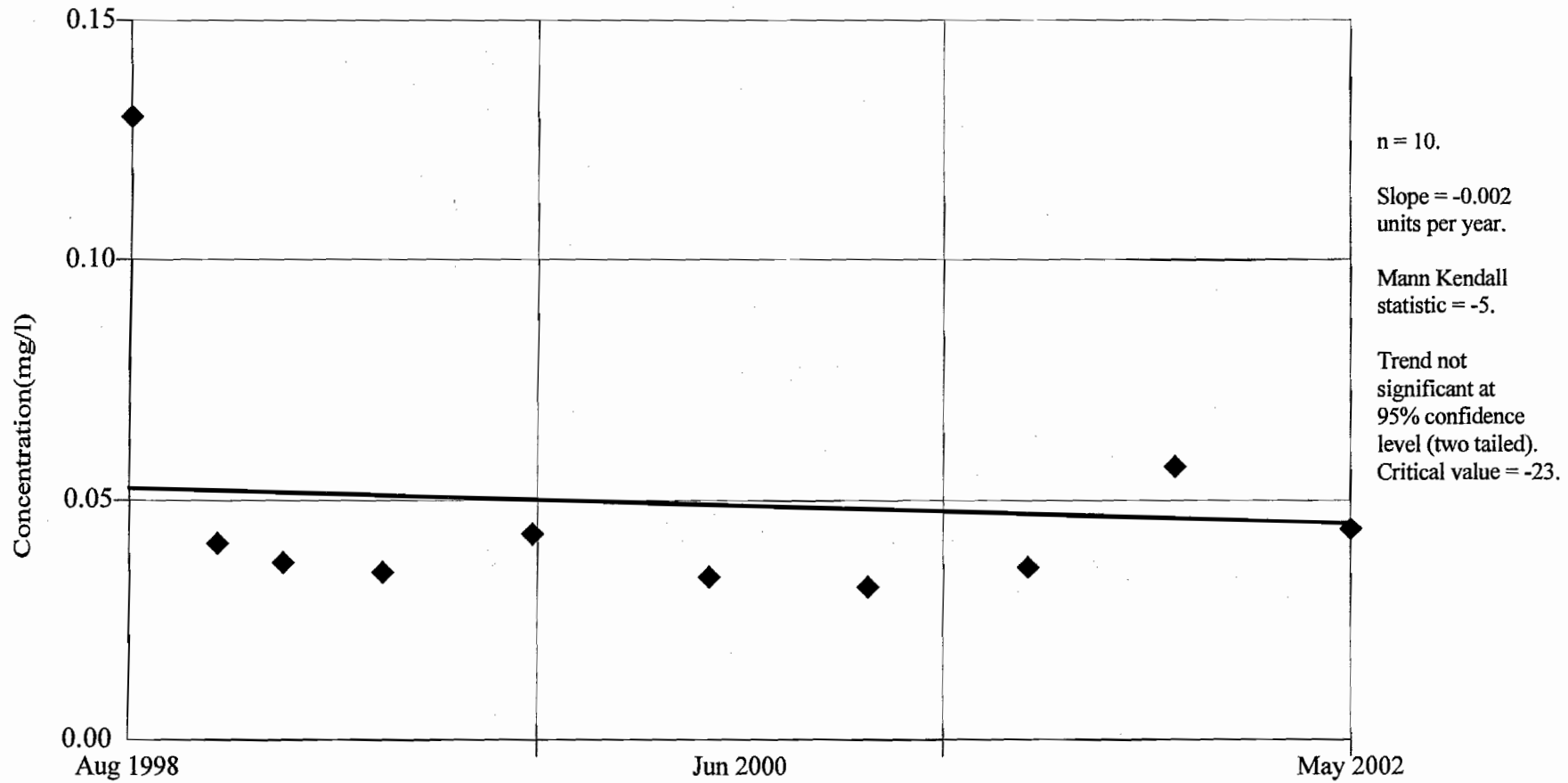
Data File: gpashdownchangedunit

Date: 7/5/02, 11:15 AM

Client: GEC

View: ash

SEN'S SLOPE ESTIMATOR MW-4



Constituent: Mn (mg/l)

Facility: Georgia Pacific

Data File: gpashdownchangedunit

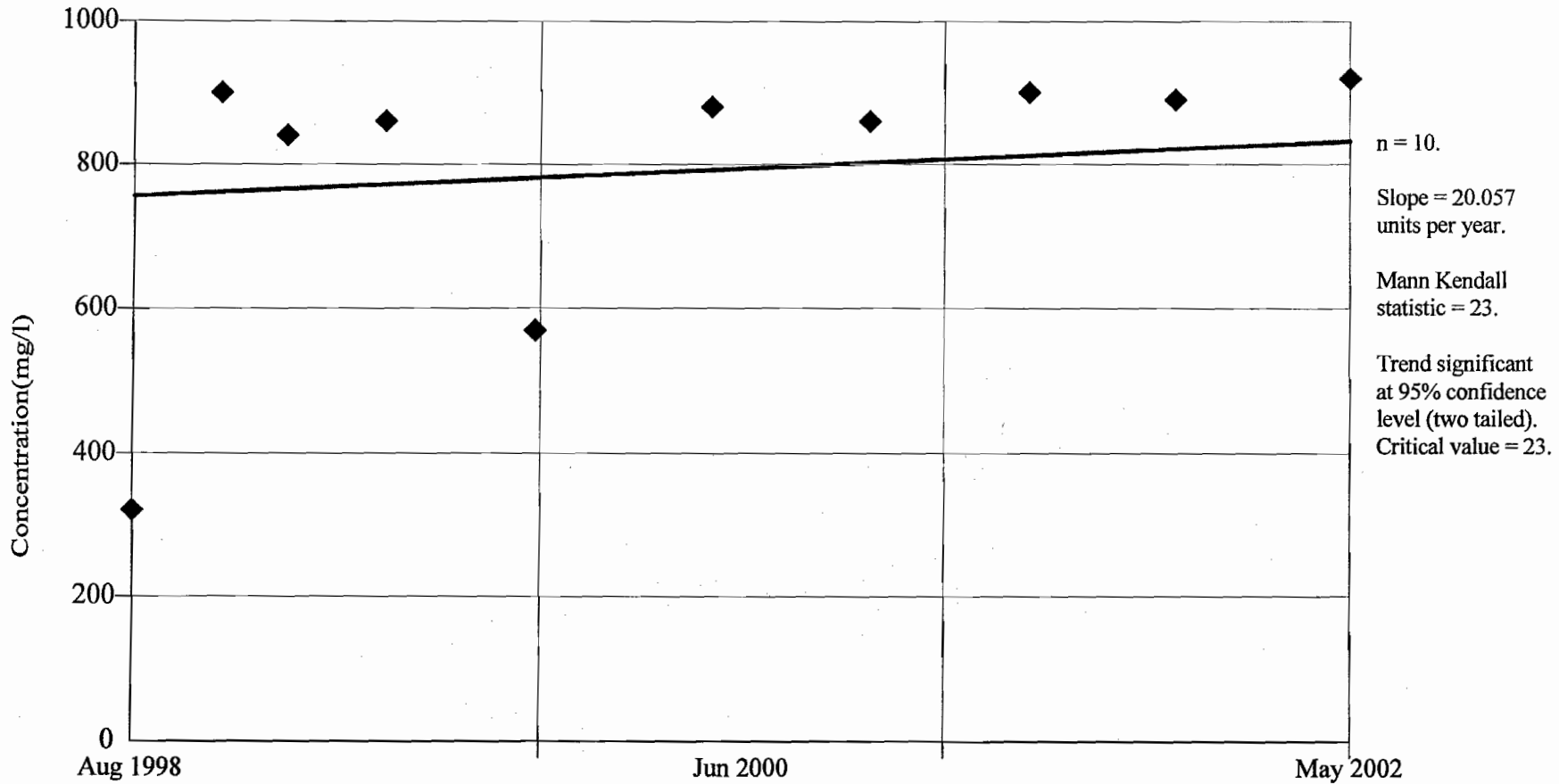
Date: 7/5/02, 11:15 AM

Client: GEC

View: ash

SEN'S SLOPE ESTIMATOR

MW-4



Constituent: TDS (mg/l)

Facility: Georgia Pacific

Data File: gpashdownchangedunit

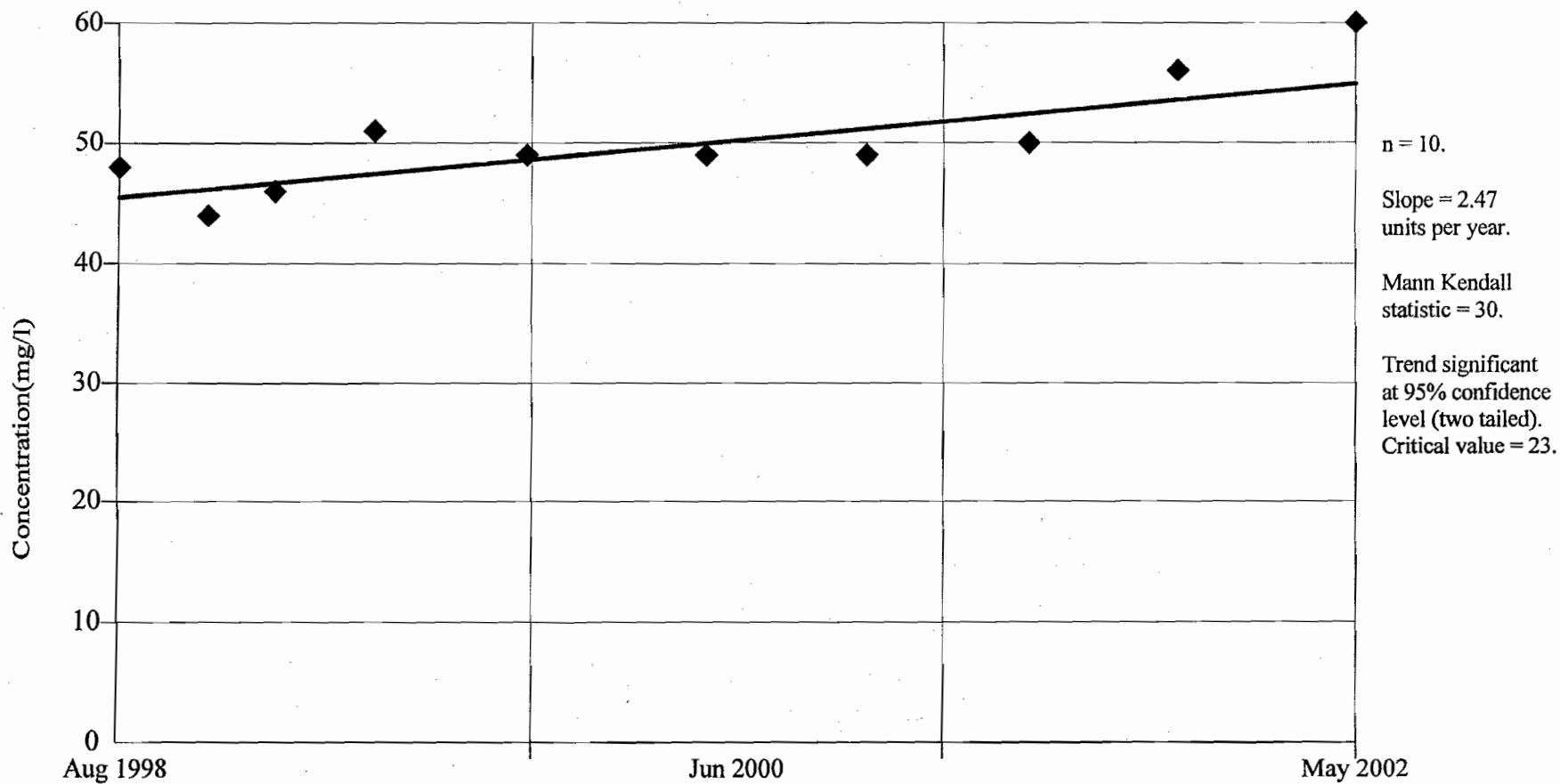
Date: 7/5/02, 11:16 AM

Client: GEC

View: ash

SEN'S SLOPE ESTIMATOR

MW-5



Constituent: Chld (mg/l)

Facility: Georgia Pacific

Data File: gpashdownchangedunit

Date: 7/5/02, 11:16 AM

Client: GEC

View: ash