WATER QUALITY MONITORING

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FOR

SALEM RIVER DREDGING OPERATIONS

Prepared for

U.S. Army Corps of Engineers
Philadelphia District
Wanamaker Building
100 Penn Square East
Philadelphia, PA 19107-3390

Prepared by

E. Rzemien
W.H. Burton

Versar, Inc.
9200 Rumsey Road
Columbia, Maryland 21045

Prepared under the Supervision of

Stephen B. Weisberg, Ph.D.

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EXECUTIVE SUMMARY

In June 1995, the U.S. Army Corps of Engineers (USACOE) conducted dredging in the Salem River to widen and deepen the Salem River channel. In conjunction with those activities, sediment contaminant concentrations in the channel were quantified and effluent from the upland disposal site was monitored for total suspended solids. The environmental monitoring program had three primary objectives: (1) to determine if dredged sediments contained contaminants at levels of concern, (2) to evaluate if the upland disposal techniques effectively removed suspended materials during dewatering procedures, and (3) to determine if effluent from the weir adversely affected water quality in the river.

Sediment contaminant concentrations were measured at four sites in the project area prior to dredging activity and compared to Long et al.'s (1995) screening levels, and New Jersey's soil clean-up criteria. No trace metal concentrations were above New Jersey's criteria. No concentrations were above Long et al.'s (1995) effects range medium (ER-M) values. Concentrations above Long et al's (1995) effects range low (ER-L) values were detected in individual samples for four metals, but only for chromium was the average concentration (116.8 mg/kg) across all samples greater than the ER-L screening level (81 mg/kg).

To evaluate if upland disposal effectively removed suspended material from weir effluent, weekly, 24-hour monitoring of total suspended solids (TSS) and turbidity was conducted during the period of dredging operations. Results were compared with ambient levels in the river, the Delaware River Basin Commission's regulations, and Delaware's surface water quality standards. Effluent TSS and turbidity levels from the weir exceeded DRBC's regulations and state water quality criteria during 3 of the 18 weeks of sampling. However, the dewatering techniques used during the project generally were effective in removing suspended solids from the effluent as TSS and turbidity in the weir effluent were typically less than ambient conditions in the river.

To assess whether the weir discharge lead to changes in the water quality in the Delaware River, data was collected from monthly monitoring at three in-river sites near the disposal site discharge pipes. Water column concentrations of metals, nutrients, and suspended solids were similar before, during, and after dredging. No water quality differences were apparent between stations within and downstream of the discharge plume. All physical water quality parameters met Delaware's standards. In-river turbidity levels did not exceed DRBC's regulatory maximum of 150 NTUs at any time during the monitoring program. Of the eight metals monitored, only zinc was observed at levels exceeding detection limits. Monitoring results suggest that effluent from the disposal area caused no adverse changes in river water quality.

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1.0 INTRODUCTION

1.1 BACKGROUND

In June 1995, the U.S. Army Corps of Engineers (USACOE) implemented dredging operations to widen and deepen the Salem River navigation channel. The Salem River is located in western Salem County, New Jersey and drains approximately 294.2 square kilometers, discharging into the Delaware River at river kilometer 96. The Salem River Federal Navigation Project provides navigation access between the City of Salem and the Delaware River Federal Navigation Project. The authorized channel is approximately 8 kilometers long, stretching from the Route 49 Bridge in Salem to Elsinboro Point at Salem Cove in the Delaware River. Prior to 1995 dredging operations, channel width was 45.7 meters by 3.7 meters deep at Salem Cove, narrowing to 30.5 meters wide at Sinnicksons Landing. The majority of the access channel lies in Delaware territorial waters. The USACOE dredging program produced a one-way channel in the Salem River that varies in width from 45.7 meters to 76.2 meters with a depth of 4.87 meters MLW.

The dredging and excavation from the project removed approximately 416,900 cubic meters of material from the Salem River. This material was deposited at the dredge disposal site located at Reedy Point, south of the C&D Canal in Delaware (Fig. 1-1). A 3.7 meter, U-shaped weir structure controlled the discharge of water from the disposal site into the Delaware River. Wooden timbers placed in the super structure of the weir controlled the height and residence time of the water within the disposal site.

1.2 STATEMENT OF PROBLEM

The improvement plan for the Salem River channel included the use of hydraulic pipeline dredging techniques and the upland disposal of dredged material. Although hydraulic dredging techniques can remove the majority of bottom sediments from the river bottom without exposing them to the water column, water quality may be temporarily affected around the dredge. The upland method of dredging material disposal has been used successfully along the Delaware River to reduce impact to aquatic resources. However, the weir-decanted effluent which drains into the river, if not properly controlled, may cause increased turbidity, increased biochemical oxygen demand with corresponding reduction in dissolved oxygen, nutrient enrichment and release of chemical contaminants.

1.3 PURPOSE OF MONITORING PROGRAM

In conjunction with the channel improvement activities, the USACOE implemented a monitoring program to collect and analyze sediments and water quality samples to assess impact to aquatic resources. The results from the monitoring program will be used to determine effects of dredging activities on environmental conditions relative to background

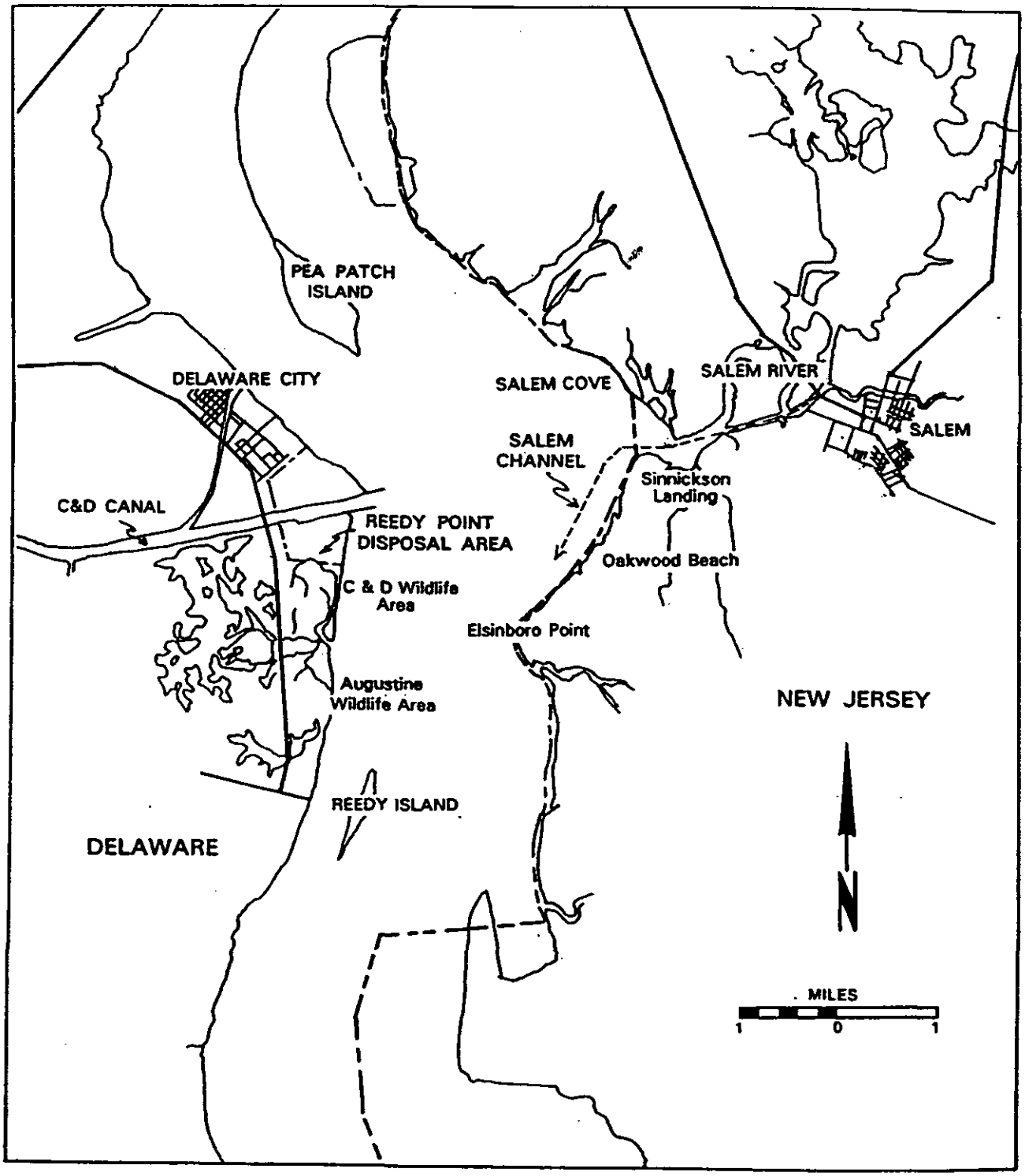


Figure 1-1. Salem River channel and the Reedy Point disposal area on the Delaware River

data and determine if state and federal water quality conditions were maintained during the operation. This report summarizes the results of the environmental testing and monitoring completed in November 1995.

The monitoring program included sampling elements to address three issues:

- Pre-dredge sediment sampling to determine if dredged sediments contained contaminants at levels of concern.
- Weir discharge monitoring of total suspended solids and turbidity to evaluate whether the upland disposal techniques employed during the dredging operation effectively removed suspended material during the dewatering of hydraulically dredged sediments.
- Delaware River water quality sampling to determine if effluent from the upland disposal site adversely affected water quality.

This report includes six chapters and four appendices. Chapter 2.0 presents, for each element of the monitoring program, the sampling design, methods of sample collection and processing and data analysis. Chapter 3.0 describes the sampling results and compares them to state regulatory criteria and established screening guidelines. Chapter 4.0 presents conclusions. Recommendations concerning the Salem dredge monitoring program requested by the USACOE are listed and discussed in Chapter 5.0. Chapter 6.0 presents cited references. Appendix A contains the pre-dredge sediment coring logs for each station. Appendix B displays the water level indicator hydrographs recorded during the weir sampling events. Appendix C contains the bulk sediment and water quality analysis results laboratory certificates. Appendix D contains the USACOE scope of work for the project.

2.0 METHODS

2.1 SEDIMENT SAMPLING

2.1.1 Field and Laboratory Methods

Sediment sampling was conducted at four evenly-spaced stations in the Salem River channel (Fig. 2-1). Specific sampling locations were recorded using a Trimble NT200D Differential Global Positioning System (DGPS), which has an accuracy of better that ± 15 meters. Sediment samples were collected using a 7.6 cm diameter vibracore (a hydraulically activated boring device) containing a removable plexiglass liner. The plexiglass liner allowed the core to be removed from the device intact for sectioning. Cores were at least 1.2 meters except for Station 4, where only a 0.9 meter core was obtained. After retrieving the core, the plastic liners were cut longitudinally, and the sediment was examined for any distinct strata (Appendix A). Strata over 15.2 centimeters were processed as separate samples. A sediment core that showed no discernable stratification, or had layers less than 15.2 centimeters, was processed as a whole unit. Sediments from the interior portion of the entire core were removed with stainless steel spoons; homogenized in a large, stainless steel container; transferred into appropriately sized sampling jars, and frozen for storage until analysis. Between sampling sites, all sampling equipment that came into contact with the sediment was cleaned with a nonphosphate detergent and rinsed with tap water, deionized water, acetone, and finally with deionized water.

Sediment samples were analyzed for nutrients, metals and total organic carbon using the methods outlined in Table 2-1. Sample-specific detection limits, corrected for matrix interferences and the conversion from wet weight to dry weight, are provided in Appendix C.

2.1.2 Sediment Data Analysis

To assess whether the dredged sediments contain contaminants at levels of concern, the measured concentrations of trace metals were compared with New Jersey's soil clean-up criteria and Long et al.'s (1995) screening levels for estuarine sediments. The New Jersey Department of Environmental Protection and Energy's February 3, 1992, proposed rule entitled *Cleanup Standards for Contamination Sites* N. J. A C. 7:26 D (nonresidential) was used to address human health concerns surrounding upland disposal of the river sediments; Long et al.'s (1995) screening levels were used to assess the relative toxicity of the sediments to aquatic biota.

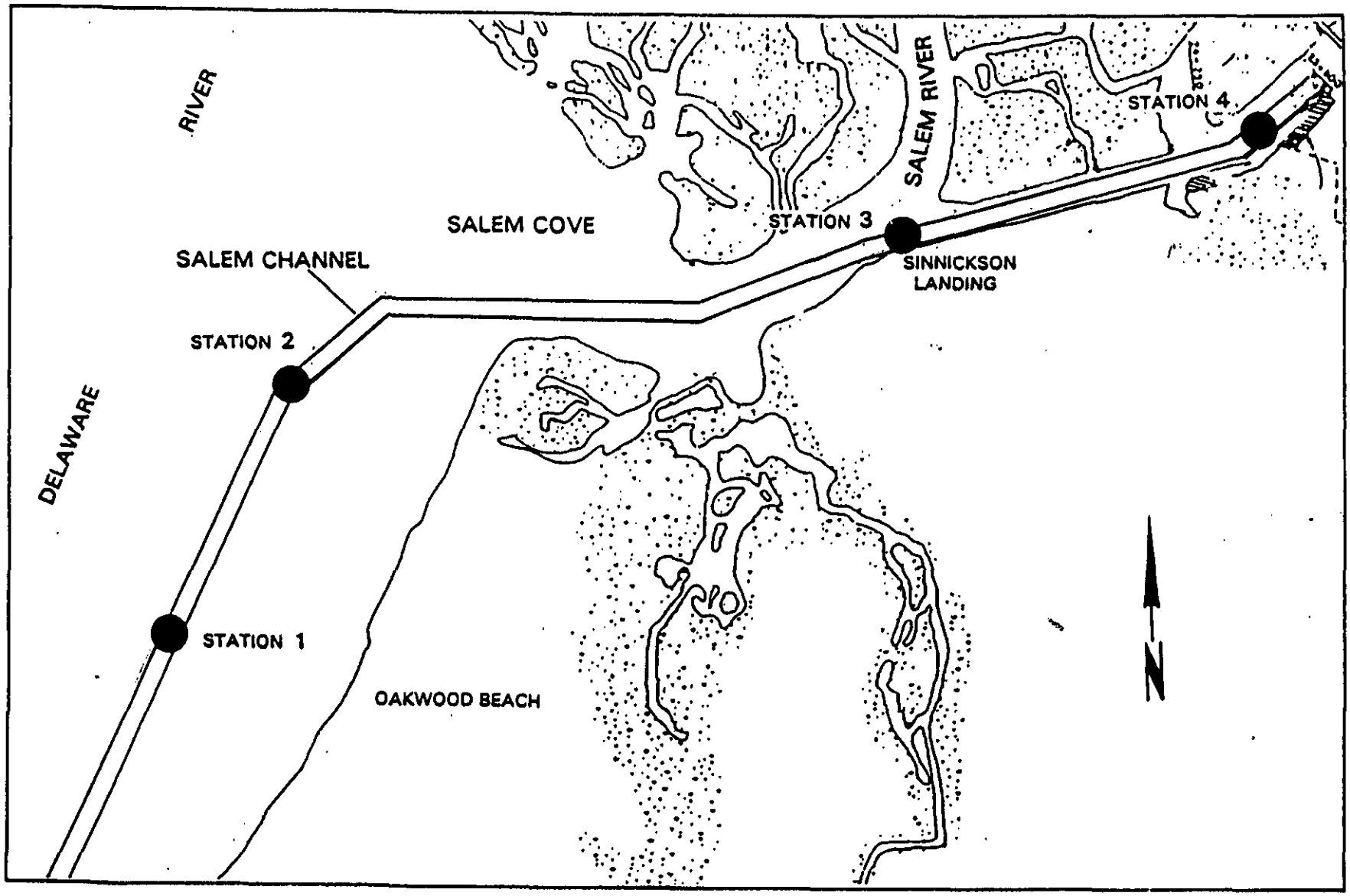


Figure 2-1. Sampling stations for sediment contaminants during dredge monitoring program conducted in the Salem River channel, 1995

Table 2-1. Analytical methods, method detection limits, New Jersey's soil cleanup standards, and Long et al.'s (1995) screening levels for the parameters measured in sediments collected in the Salem channel.

	EPA Method	Method Detection Limit (mg/kg)	Screening Levels from Long et al. (1995) (mg/kg)		New Jersey Soil Cleanup Standards (Non Residential) (mg/kg)
			ER-L	ER-M	
Nitrogen/Nitrate	300M	0.1	None	None	None
Nitrogen, Total Kjeldahl (TKN)	351.3	50	None	None	None
Chloride	325.2	8	None	None	None
Ammonia	350.1	5	None	None	None
Total Phosphorus	365.2	2.5	None	None	None
Total Organic Carbon-Soil (TOC)	MOD 5310B	200	None	None	None
Arsenic	6010A	5	8.2	70	20
Cadmium	6010A	1	1.2	9.6	100
Chromium	6010A	0.5	81	370	None
Copper	6010A	1	34	270	600
Mercury	7471A	0.25	0.15	0.071	270
Nickel	6010A	2	20.9	51.6	2400
Lead	6010A	5	46.7	110	600
Zinc	6010A	0.5	150	410	1500

2.2 DISPOSAL SITE DISCHARGE SAMPLING

2.2.1 Field and Laboratory Methods

Water quality monitoring was conducted weekly during dredging at the weir and at an upstream control site located at the jetty on the southern side of the Chesapeake and Delaware (C&D) Canal. One 24-hour composite water sample consisting of grabs taken every 6 hours was collected at the weir using an ice-packed ISCO automated sampler. Water samples were composited into a 25 liter carboy and dispensed into pre-labeled sample bottles. A grab sample was collected at the control site. Samples were stored at 4 °C until analysis. No samples were collected during October. After dredging was completed, one sample was collected in December and one in January at the weir.

Water height within the weir was measured throughout the 24-hour sampling period with a Stevens water level indicator (WLI; Appendix B). To calibrate the WLI, water height in the weir was measured at the beginning and end of the 24-hour period and recorded on field data sheets. The height of water flowing over the weir and staff gauge readings of the water level in the retention pond were recorded similarly.

Twenty-four hour composite samples from the weir and the grab sample from the jetty near the C&D Canal were analyzed for TSS and turbidity. TSS was analyzed using EPA Method 160.2 with a method detection limit of 5.0 mg/l. Turbidity was measured with a Orbeco-Hellige nephelometer, and values were expressed in nephelometric turbidity units (NTU).

2.2.2 Data Analysis

The effectiveness of the upland disposal methods for removing solids from the discharge was evaluated by comparing TSS and turbidity at the weir with ambient levels in the river, with the Delaware River Basin Commission's Regulations (1983), and with Delaware surface water quality standards (as amended February 26, 1993).

Flow rate from the weir during the 24-hour sampling period was determined using the formula:

$$Q = 4.65\ LH$$

where:

Q = flow rate in cfs,
L = length of weir in feet
H = height of water flowing over weir in feet.

On a few occasions flow rates could not be determined when weir height was altered by the managers of the disposal site during the 24-hour sampling period. Because the weir outflow pipes were below mean high tide (allowing tidal influx into the weir), a mean value of the height of water flowing over the weir measured at the beginning and end of each 24-hour sampling period was used to calculate flow rate.

2.3 DELAWARE RIVER WATER QUALITY MONITORING

2.3.1 Field and Laboratory Methods

Water column samples for chemical analysis were taken monthly at three locations in the Delaware River near the disposal site discharge pipes. Station A was directly adjacent to

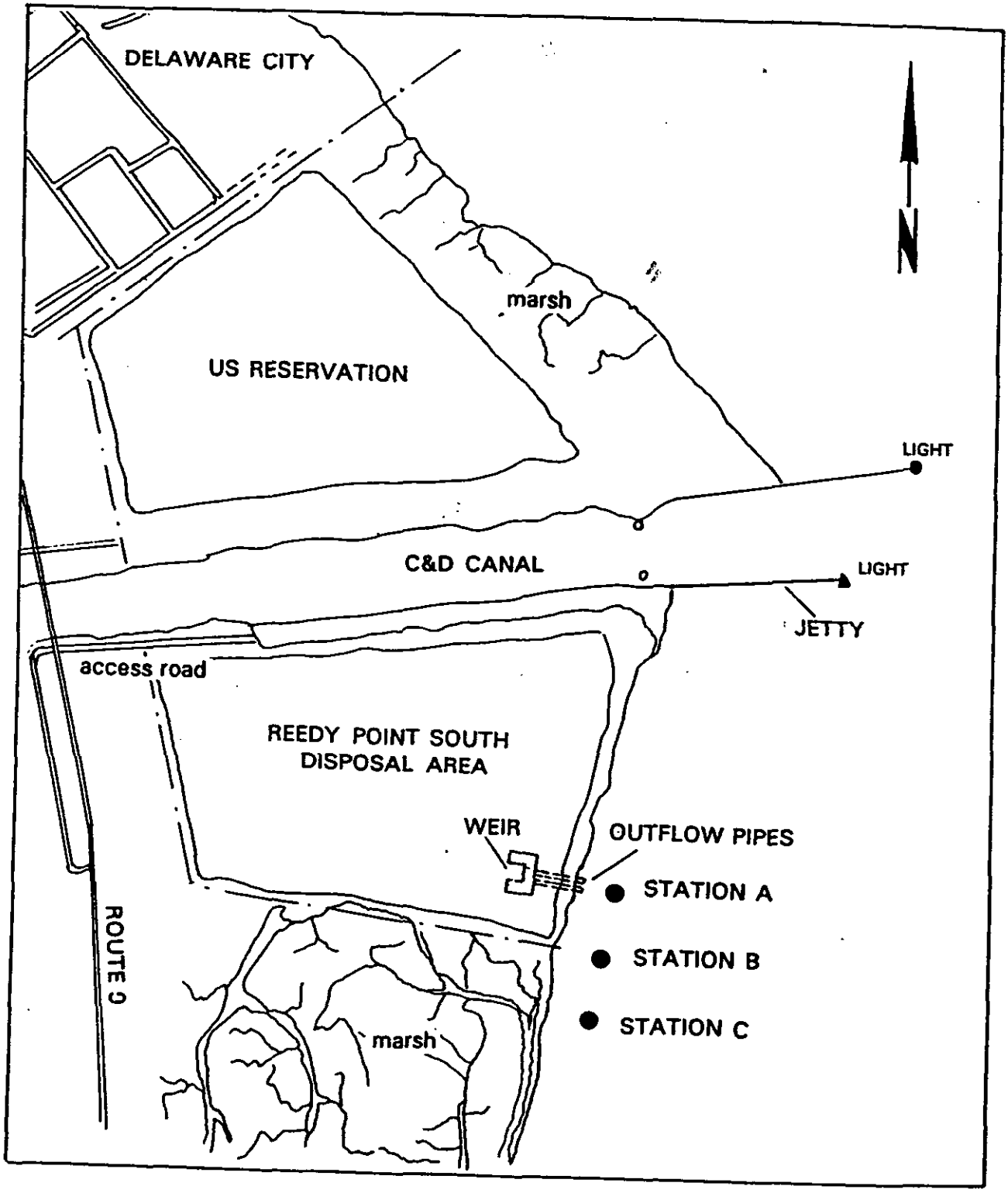


Figure 2-2. Disposal site and weir area showing proximity of the three in-river water quality sampling sites

the outflow pipes; Stations B and C were approximately 45 and 95 meters downstream (Fig. 2-2). All river samples were collected on the ebb tide.

At each station, a calibrated Hydrolab Surveyor II unit was used to measure physical/chemical parameters including temperature, pH, dissolved oxygen (DO), and salinity. At each station, composite samples were created from three individual grab samples, collected with a Van Dorn water bottle from 20%, 50%, and 80% of total water column depth. The depth-integrated samples were dispensed into pre-labeled sampling bottles and stored at 4 °C until laboratory analysis. Water quality samples from the three plume stations in the Delaware River were analyzed for nutrients, metals and total organic carbon using the methods outlined in Table 2-2.

2.3.2 Delaware River Water Quality Data Analysis

The potential for water quality changes in the Delaware River from the weir discharge were assessed by comparing average water column contamination levels before, during, and after dredging, and by evaluating differences among conditions at the three plume sampling stations monitored during the dredging operation. Water quality results were compared with the Delaware River Basin Commission's regulations and Delaware state water quality standards.

Table 2-2. Salem River water quality parameter test methods, method detection limits, and Delaware state water quality criteria (mg/l, unless noted)

Parameter	EPA Method	Detection Limit	Delaware Surface Water Quality Criteria Marine	
Dissolved Oxygen	*	N/A	6.0	
pH (units)	*	N/A	6.5 - 8.5	
Chloride	325.2	100	None	
Temperature (°C)	*	N/A	4°C above natural conditions	
Hardness	130.2	25.0 ($CaCO_3$)	None	
Nitrogen, Ammonia	350.1	0.1	Temperature and pH dependent	
Nitrogen, Nitrate	353.2	0.1	10	
Nitrogen, Total Kjeldahl	351.2	0.1	None	
Total Phosphorus	365.4	0.1	None	
Total Organic Carbon	415.1	1.0	None	
Turbidity (NTU's)	**	N/A	10 NTU above natural conditions[a]	
Total Suspended Solids	160.2	5.0	(b)	
			Acute	Chronic
Arsenic	200.7	0.1	0.069	0.036
Cadmium	200.7	0.01	0.043	0.0093
Chromium	200.7	0.02	1.10	0.050
Copper	200.7	0.02	0.0029	–
Lead	200.7	0.1	0.140	0.0056
Mercury	245.1	0.0002	0.0021	0.000025
Nickel	200.1	0.040	0.075	0.0083
Zinc	200.1	0.01	0.095	0.086

N/A = Not applicable.
* Monitored in the field with a Hydrolab Surveyor II.
** Turbidity measured using an Orbeco-Hellige Turbidimeter (nephelometer).
(a) Delaware River Basin Commission's stream quality objectives for Zone 5 include 30-day average turbidity, 40 NTU, or a one-time 150 NTU maximum. Delaware state surface water quality standards for marine water state that turbidity shall not exceed natural levels by more than 10 NTU.
(b) Delaware River Basin Commission's (1983) effluent quality requirements for all waters state that suspended solids should not exceed 30 mg/l as 30-day average and 45 mg/l as a 7-day average.

3.0 RESULTS AND DISCUSSION

3.1 SEDIMENT SAMPLING

Concentrations of metals in the sediments dredged from the Salem River were low relative to regulatory criteria and screening guidelines. All observed concentrations were well below New Jersey's cleanup guidelines for nonresidential soils. None of the sediment metals concentrations exceeded Long et al.'s (1995) effects range median (ER-M) concentrations. Four metals exceeded Long et al.'s effects range low guidelines (ER-L) concentration levels in individual samples (Table 3-1). Only for chromium, however, did the average concentration among cores exceed the ER-L concentration. Mercury was not detected in any of the samples, but detection limits in our analyses were higher than the ER-L screening levels.

Table 3-1. Trace metal concentrations (mg/kg dry) in core samples from the Salem channel, 1995. Shaded values exceed Long et al.'s (1995) ER-L guidelines.

	Station				Long et al. (1995) Guidelines		NJ Soil Criteria
	1	2	3	4	ER-L	ER-M	
Arsenic	10	< 6.2	< 6.1	11	8.2	70	20
Cadmium	< 0.98	<0.62	< 0.61	< 0.71	1.1	9.6	100
Chromium	41	6.2	160	260	81	370	None
Copper	24	2.5	3.7	4.3	34	270	600
Mercury	< 0.49	< 0.31	< 0.30	< 0.36	0.15	0.71	270
Nickel	24	3.7	17	26	20.9	51.6	2400
Lead	29	< 6.2	< 6.1	< 7.1	46.7	218	600
Zinc	190	20	65	110	150	410	1500

3.2 DISPOSAL SITE DISCHARGE SAMPLING

3.2.1 Comparison of Discharge and Ambient Conditions

Suspended sediment concentrations in discharge water from the disposal site were less than ambient concentrations in the river for fourteen of the eighteen weekly collections during the period of dredging operations (Table 3-2). Highest sediment loads were observed on November 10, when a TSS level of 34,000 mg/l was measured at the weir. This level was almost 100 times higher than background levels in the river. Field records on this date indicate that water flowing over the weir was extremely forceful and black with sediment. TSS levels in the discharge decreased over the next two weeks, falling below background

levels on November 21 (Fig 3-1). Turbidity (NTU) generally mirrored the results of the TSS measurements (Fig.3-2).

Volumetric flow rates calculated for the weir discharge increased as the dredging progressed (Table 3-3), but there was no correlation between flow rate and sediment discharge levels of TSS ($r = 0.09$, $p = 0.30$). The highest recorded volumetric flow rate occurred on September 21-22 (309.02 cfs), but weir discharge values for TSS and turbidity on that date were among the lowest measured during dredging (20 mg/l and 8.6 NTU, respectively).

3.2.2 Evaluation of Regulatory Compliance

Three regulatory values for controlling concentrations of suspended sediments in the water column in the Delaware River were identified and compared to the suspended sediments and turbidity data collected during the operation of the upland disposal site. These include 1) the Delaware River Basin Commission's (DRBC) requirement that suspended solids in effluents should not exceed 30 mg/l as a 30-day average and 45 mg/L as a 7-day average, 2) the DRBC's zone 5 stream water quality objectives of a maximum 30-day average of 40 NTU or 150 NTU maximum one-time observation, and 3) Delaware state water quality standard that turbidity in marine water shall not exceed natural levels by more than 10 NTU. Below we evaluate the TSS and turbidity results at the Salem River disposal site based on these guidelines.

3.2.2.1 DRBC's Regulations

For three of the eighteen weeks of weir monitoring TSS exceeded DRBC's 7-day effluent criteria on (45 mg/l). Only for November did the suspended solids levels exceed DRBC's 30-day water quality criterion (30 mg/l) for Zone 5. During the operation of the upland disposal site, TSS levels in the effluent exceeded DRBC's instantaneous limit of 150 mg/l for Zone 5 once in 18 weeks of sampling (Table 3-2).

In-river monitoring at the upstream control site showed background levels of suspended solids close to or also exceeding DRBC's 30-day criteria eight times during the monitoring period. Only levels recorded on November 10 of 470 mg/l exceeded DRBC's instantaneous limit of 150 mg/l.

Table 3-2. Total suspended solids (mg/l) and turbidity (NTU), for each 24-hour sampling period during weir water quality monitoring, 1995. Shaded weekly values are higher than ambient conditions.

Date Collected	Total Suspended Solids		Turbidity	
	Weir	River Reference Site	Weir	River Reference Site
	Weekly Results		Weekly Results	
06/30	7	21	ND	ND
07/7	7	ND	1.6	37.2
07/14	7	ND	5.6	ND
07/21	6	130	5.0	87.5
07/28	12	83	9.7	53.4
08/04	17	16	7.1	17.2
08/11	8	59	10.0	21.0
08/22	12	25	12.7	10.6
08/25	26	34	19.2	39.8
09/01	94	12	31.9	13.1
09/08	6	36	2.3	26.5
09/15	5	36	3.0	19.1
09/22	20	240	8.6	89.0
09/27	< 5	95	3.6	56
11/03	44	120	34.9	102
11/10	34,000	470	> 999 (off scale)	230
11/17	140	48	282	179
11/21	8	94	24.5	73.2

3.2.2.2 DNREC's Turbidity Regulations

Turbidity in the effluent from the disposal site generally met Delaware State standards. Turbidity values of 10 NTU more than background (as measured by the grab sample at the jetty) were observed on September 1, November 10, and November 17 (Table 3-2). Turbidity at the weir in all other collections was either less than or within 10 NTU of ambient conditions in the river.

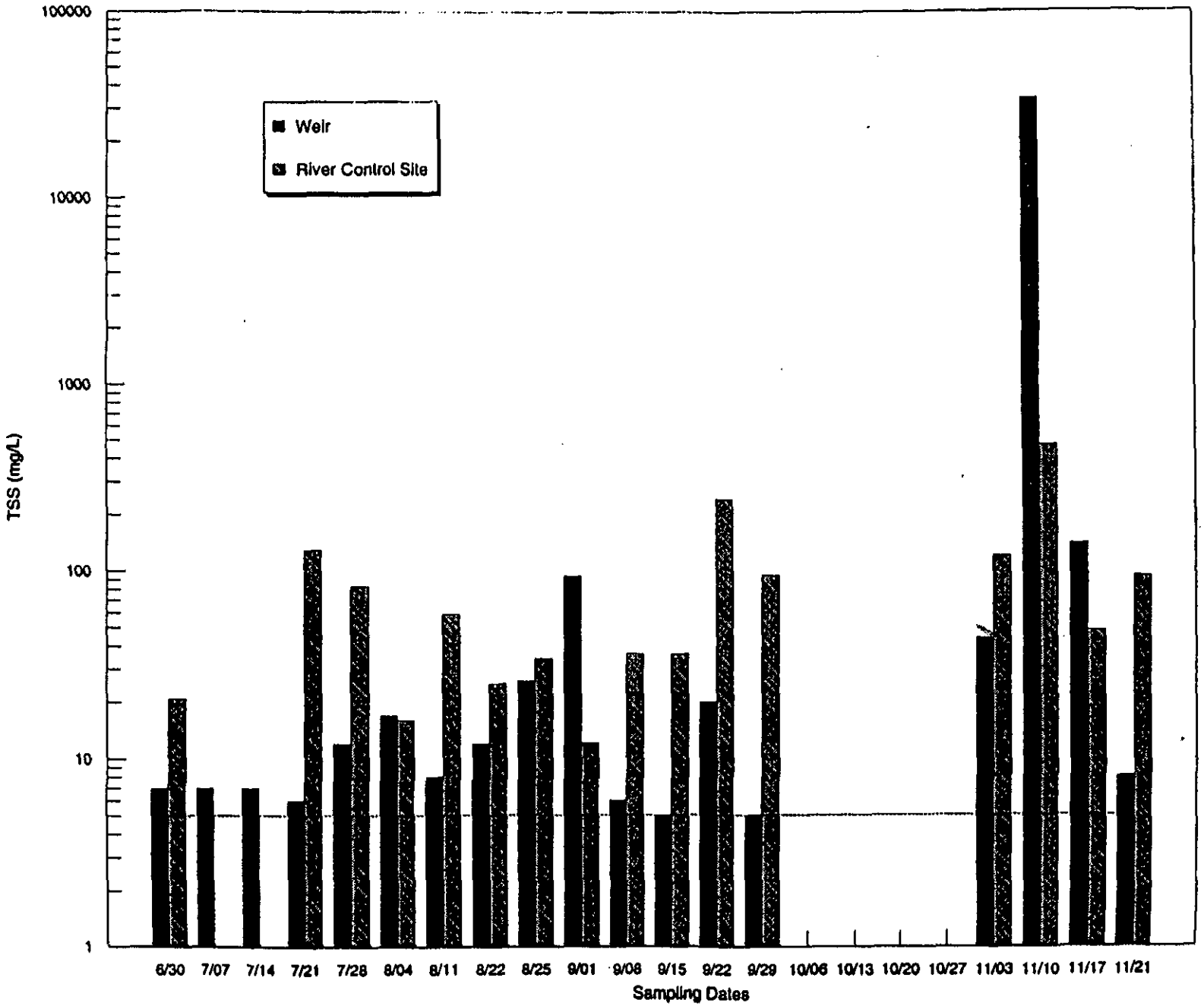


Figure 3-1. Total suspended solids at the weir and river reference site during the dredge monitoring program, method detection limit 5 mg/l. No sampling was conducted in October.

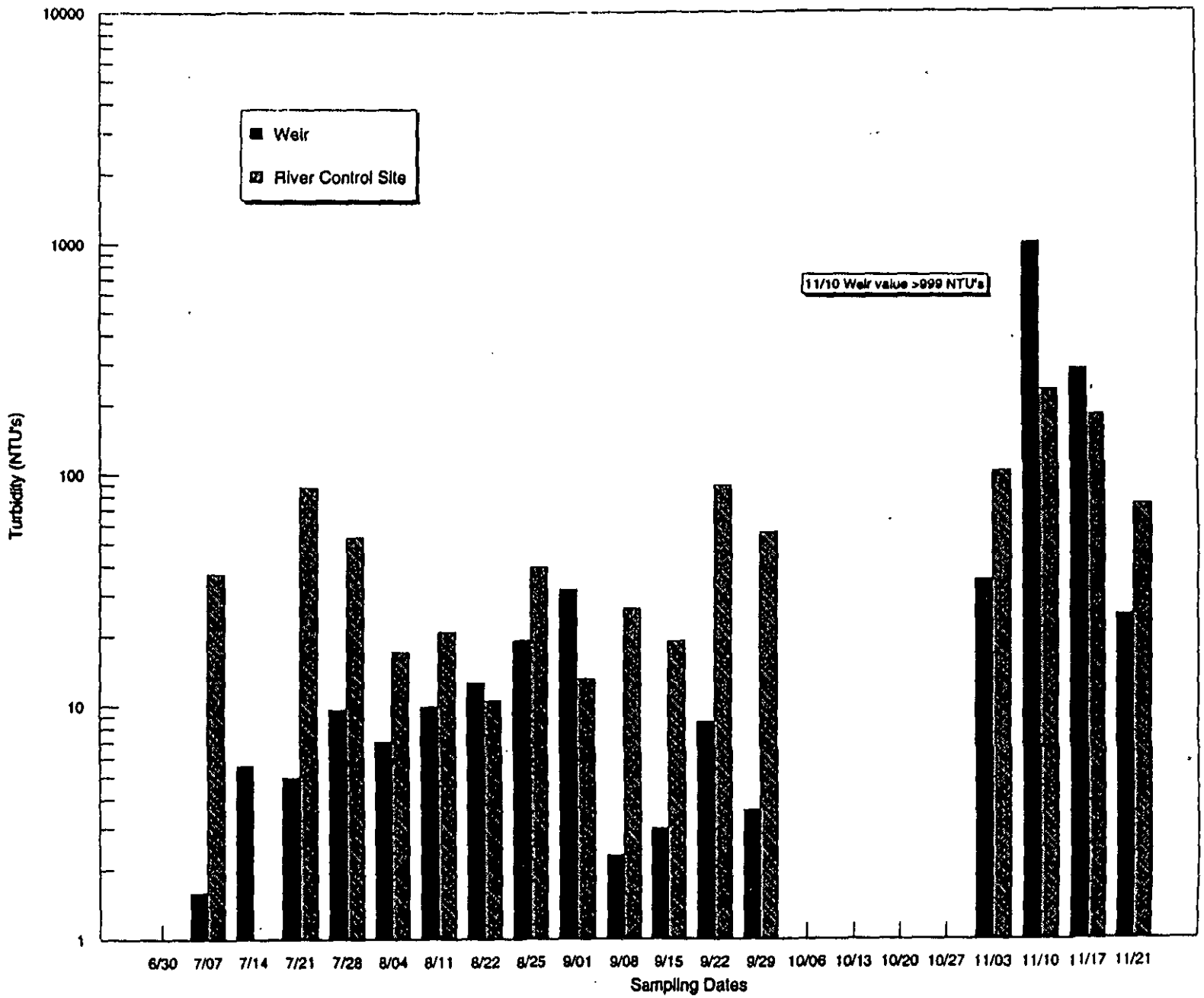


Figure 3-2. Turbidity at the weir and river reference sites during the dredge monitoring program. No sampling was conducted in October.

Table 3-3. Average weir water height (feet) and flow rate (cfs) during each 24-hour sampling period.

Sampling Date	Height (feet)	24-hr Weir Flow Rate (cfs)
6/29-30	0.0625	66.22
7/6-7	0.0833	88.29
7/13-14	0.0625	66.22
7/20-71	0.625	66.22
7/27-28	0.1042	110.36
8/3-4	*	*
8/10-11	0.2292	242.80
8/21-22	0.1667	176.58
8/24-25	0.2083	220.73
8/31-9/1	0.2292	242.80
9/7-8	0.1771	187.62
9/14-15	0.2083	220.73
9/21-22	0.2917	309.02
9/28-29	*	*
11/2-3	*	*
11/9-10	0.2392	253.40
11/16-17	0.0833	88.29
11/20-21	*	*

* No data available due to weir height changes during sampling periods.

3.3 DELAWARE RIVER WATER QUALITY MONITORING

3.3.1 Temporal and Spatial Differences

Water quality monitoring near the outfall suggested that conditions in the river were not affected by discharge from the upland disposal site; water column concentrations of metals, nutrients, and suspended solids were similar before, during, and after dredging (Table 3-6). In addition, there were no apparent differences in water quality between Station A (in the plume) and Stations B and C (downstream of the discharge), suggesting that the quality of the discharge water was not substantially different from ambient conditions.

Nutrient levels did not change notably during or after dredging. Nitrate levels increased approximately 1 mg/l at all stations between June and July, returning to pre-dredge levels in

August and remaining so for the duration of the monitoring. Ammonia and total phosphorous levels were at or below detection limits throughout the monitoring program. TKN concentrations ranged from 0.3 to 3.4 mg/l, not varying appreciably between dredging periods. Although total suspended solids and turbidity varied between sampling periods, no substantial increases were evident during dredging. During dredging, turbidity and TSS concentrations at Station A (within the plume) were not consistently higher than at downstream Stations B and C.

Among the eight metals monitored in the water column, only zinc was observed at levels above method detection limits (Table 3-6); however, zinc concentrations were no higher during dredging than before or after dredging. In addition, zinc concentrations at Station A (closest to the origin of plume) were similar to downstream Stations B and C.

Physical water quality parameters (e.g., DO, hardness, pH, and temperature) and concentrations of chloride and nutrients at all stations were consistent or seasonally predictable throughout the monitoring program. Temperatures recorded during the program reflected normal seasonal change, and DO concentrations in the river were between 6 and 8 mg/L during all months except December, when concentrations increased to between 11 and 12 mg/l. Hardness was consistent before and during dredging ranging from 1,700 to 1,100 mg/l, $CaCO_3$, but decreased to about 350 mg/l $CaCO_3$ in December. Values of pH varied little throughout the sampling period and ranged from 7 to 8.

3.3.2 Regulatory Compliance

All physical water quality parameters met Delaware state standards. DO measurements exceeded the Delaware state regulatory value of 5.0 mg/l at all times during the study, and pH remained within the required range of 6.5 to 8.5. No Delaware State criteria are defined for nutrients, TOC, and chloride in the tidal waters of the Delaware Bay. However, levels for nitrates were below EPA's drinking water standard of 10 mg/l. Turbidity in the river did not exceed DRBC's regulatory maximum of 150 NTU any time during the monitoring program.

Cadmium, chromium, and copper concentrations were below Delaware Surface Water Quality acute and chronic criteria. Concentrations of lead, mercury, and nickel were also below Delaware's acute criteria but detection limits were not sensitive enough to determine compliance with Delaware's chronic water quality criteria (Table 3-4). Although, small concentrations of zinc were detected, they were well below Delaware's acute and chronic criteria, except the in the August sample at Station C, where a concentration of 0.16 mg/l was observed. Detection limits for arsenic were higher than the acute and chronic criteria.

4.0 CONCLUSIONS

Sediment testing and water quality monitoring conducted in conjunction with dredging in the Salem River suggest that the project had minimal adverse effects on the environment. Bulk sediment tests for trace concentrations of metals revealed that concentrations were low and well below New Jersey Soil Clean-up criteria for estuarine sediments, although three of the trace metals were above Long et al's (1995) ER-L screening levels. Monitoring of sediment loads discharged from the upland disposal site during dewatering of hydraulically dredged material indicated that disposal methods worked effectively, as measured levels of suspended solid were typically below ambient conditions in the river. On the occasions when effluent turbidity values exceeded background conditions, levels returned to normal conditions within several days. Excessive releases of suspended material were detected in November 1995 during extreme flooding suggesting that the weir did not function properly during this period. Silt accumulations around the weir and insufficient height of the weir may have hindered the decanting process, thus contributing to the extreme turbidity and TSS levels observed in the effluent discharge.

Monitoring results suggest that effluent from the disposal site caused no adverse changes in river water quality. River water quality results revealed no trends between sampling sites near the discharge and downstream stations, nor were there substantial differences during or after dredging.

5.0 RECOMMENDATIONS

The design of the study presented here was based on a scope of work provided by the U.S. Army Corps of Engineers (Appendix D). As part of the scope, the USACOE has requested recommendations for ways to improve weir monitoring in the future. This section provides those recommendations.

1. **Future projects should include a short period (2 to 3 weeks) of daily sampling, to measure daily variations in TSS and turbidity.**

   In order to address the regulatory questions of the report we assumed that weekly monitoring of weir discharge TSS and turbidity was sufficient to describe both monthly and weekly averages. Some of the regulations for suspended solids and turbidity define compliance values in terms of 30-day and 7-day averages; however, the daily sampling and analysis for TSS implied in those standards would be costly and probably is not necessary for this kind of project. Nevertheless, short-term alterations in project operations could have caused variations in TSS and turbidity that we were not able to detect. To test the validity of using once-a-week sampling we recommend this short test period of turbidity and TSS sampling to help determine if weekly sampling is adequate to meet the Corps's environmental protection goals and state water quality criteria.

2. **Future monitoring programs should include concurrent monthly analysis of nutrients and metals at the weir as well as at plume stations in the river.**

   Our evaluation of the project's effects on water column concentrations of nutrients and metals was based on comparisons of conditions at the plume stations before, during, and after dredging. Because the laboratory analysis of the 24-hour composite samples from the weir did not include similar measurements, no direct comparison between in-river concentrations and discharge concentrations could be made. Although plume sampling at Station A (nearest the discharge) did not show elevated concentrations, some dilution with ambient water probably occurred (the discharge pipe ended at the shoreline and water depths were such that collections could not be taken closer than about 30 meters from the outlet). The addition of monthly analysis at the weir of nutrients and metals would allow direct comparison of parameters and enhance our evaluation of weir discharge effects in the river

3. **Future monitoring should also include 24-hour composite sampling at the reference site within the river.**

   To address comparison of weir discharge to ambient river conditions we assumed that the grab sample taken from the reference site (taken off the stone jetty at the mouth of the C & D canal) provided an accurate measure of the conditions in the river during the 24-hour composite sampling at the weir; however, natural background levels of

6.0 REFERENCES

Delaware Department of Natural Resources and Environmental Control. 1993. Surface Water Quality Standards (as amended, February 26, 1993).

Delaware River Basin Commission. 1983. Administrative Manual - Part III Basin Regulations - Water Quality.

Long, E.R., D.D. MacDonald, S.L. Smith, and F.D. Calder. 1995. Incidence of adverse biological effects within ranges of chemical concentrations in marine and estuarine sediments. *Environmental Management* 19(1): 81-97.

U.S. Army Corps of Engineers (USACOE), Philadelphia District. 1991. Delaware River, Comprehensive Navigation Study, Interim Feasibility Report for Salem River, New Jersey.

APPENDIX A

SEDIMENT CORING LOGS

VIBRACORER SAMPLE FIELD LOG

EXMAR 6001 Miller Store Rd., Norfolk, Virginia 23502 phone:(804)855-9582

Client: Versar, Inc. Location: Salem R. N.J.

Description	Depth	Time for Penetration: Elapsed	Time for Penetration: Per Foot
GRAY SILT	0–4		
BROWN SANDY CLAY	4–8		
	0		
	1		
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
	11		
	12		
	13		
	14		
	15		
	16		
	17		
	18		
	19		
	20		

Bit Sample & Condition:

Support Vessel: EXMAR non-self Load

Positioning Method:

Positioning Data: by Versar

Depth Water: 20' Tide: Elevation:

Wind: Sea: Current:

Barrel Length: 10' Core Diam: 3.0"

Depth of Penetration: 8.0' Recovery: 8.0'

Remarks: rapid penetration to 6' slower to 8 ft.

Operator: M. Clarke Client Rep: W. Burton

Length Retained: 5.0'

Shipped To:

Date: 27 June '95 Time: 1105

SITE # SR-1 CORE # SR-1

VIBRACORER SAMPLE FIELD LOG

EXMAR 6001 Miller Store Rd., Norfolk, Virginia 23502 phone:(804)855-9582

Client: Versar, Inc. Location: Salem River

Description	Depth	Time for Penetration: Elapsed	Time for Penetration: Per Foot
GRAY SAND	0		
	1		
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
	11		
	12		
	13		
	14		
	15		
	16		
	17		
	18		
	19		
	20		

Support Vessel: EXMAR roll-off boat

Positioning Method: DGPS

Positioning Data: by Versar, Inc.

Depth Water: Tide: Elevation:

Wind: Sea: Current:

Barrel Length: 10' Core Diam: 3.0"

Depth of Penetration: 9.0' Recovery: 7.0'

Remarks: rapid penetration to 6', slow to 7', faster to refusal at 9'

Operator: M. Clarke Client Rep: W. Burton

Length Retained: 5.0'

Shipped To: Versar, Inc.

Date: 27 JUNE '95 Time: 1140

SITE # SR-2 CORE # SR-2

t Sample Condition:

VIBRACORER SAMPLE FIELD LOG

EXMAR 6001 Miller Store Rd., Norfolk, Virginia 23502 phone:(804)855-9582

Client: Varsar, Inc. Location: Salem River

Description	Depth	Time for Penetration: Elapsed	Time for Penetration: Per Foot
DARK GRAVEL	0		
RED SANDY CLAY	1		
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
	11		
	12		
	13		
	14		
	15		
	16		
	17		
	18		
	19		
	20		

Bit Sample & Condition:

Support Vessel: EXMAR roll-off Lost

Positioning Method:

Positioning Data: by Varsar, Inc.

Depth Water: Tide: Elevation:

Wind: Sea: Current:

Barrel Length: 10' Core Diam: 3.0"

Depth of Penetration: 1.5' Recovery: 1.5'

Remarks: short penetration probably due binding due high current

1st attempt

Operator: M. Clarke Client Rep: W. Burton

Length Retained: Ø

Shipped To: —

Date: 27 June 95 Time: 1225

SITE # SD-3 CORE # —

VIBRACORER SAMPLE FIELD LOG

EXMAR 6001 Miller Store Rd., Norfolk, Virginia 23502 phone:(804)855-9582

Client: Versar, Inc. Location:

Description	Depth	Time for Penetration: Elapsed	Time for Penetration: Per Foot
DARK GRAVEL RED SANDY CLAY	0		
	1		
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
	11		
	12		
	13		
	14		
	15		
	16		
	17		
	18		
	19		
	20		

Support Vessel: EXMAR roll-off boat

Positioning Method:

Positioning Data: by Versar

Depth Water: Tide: Elevation:

Wind: Sea: Current:

Barrel Length: 12' Core Diam: 2.5"

Depth of Penetration: 11.0' Recovery: 1.8'

Remarks: 3rd attempt with same recovery sandy clay may be "stalling" through softer material below

Operator: M. Clarke Client Rep: W. Burton

Length Retained: 1.8'

Shipped To: Versar, Inc.

Date: 27 Jun 95 Time: 1905

SITE # SR-3 CORE # SR-3

lit Sample Condition:

VIBRACORER SAMPLE FIELD LOG

EXMAR 6001 Miller Store Rd., Norfolk, Virginia 23502 phone:(804)855-9582

Client: Versar Inc. Location: Salem River, N.J.

Description	Depth	Time for Penetration: Elapsed	Time for Penetration: Per Foot
DARK GRAVEL	0		
	1		
RED SANDY CLAY	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
	11		
	12		
	13		
	14		
	15		
	16		
	17		
	18		
	19		
	20		

Bit Sample & Condition:

Support Vessel: EXMAR roll-o H boat

Positioning Method:

Positioning Data: by Versar

Depth Water: Tide: Elevation:

Wind: Sea: Current:

Barrel Length: 10' Core Diam: 3.0"

Depth of Penetration: 9.0' Recovery: 1.8'

Remarks: high current, short penetration may be due to binding due fast current

Operator: M. Clarke Client Rep: W. Burton

Length Retained: 1.8'

Shipped To: Versar Inc.

Date: 27 June 95 Time: 1330

SITE # SR-4 CORE # SR-4

VIBRACORER SAMPLE FIELD LOG

EXMAR 6001 Miller Store Rd., Norfolk, Virginia 23502 phone:(804)855-9582

Client: Versar - Inc. Location: Salem River

Description	Depth	Time for Penetration Elapsed	Per Foot
DARK GRAVEL	0		
RED SANDY CLAY	1		
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
	11		
	12		
	13		
	14		
	15		
	16		
	17		
	18		
	19		
	20		

Support Vessel: EXMAR roll-off boat

Positioning Method:

Positioning Data: by Versar

Depth Water: Tide: Elevation:

Wind: Sea: Current:

Barrel Length: 12' Core Diam: 2.5"

Depth of Penetration: 11'? Recovery: 1.2'

Remarks: high current

3rd attempt with similar recovery except short recovery due sandy clay "staking" through softer lower layer as on site #3

Operator: M. Clarke Client Rep: W. Burton

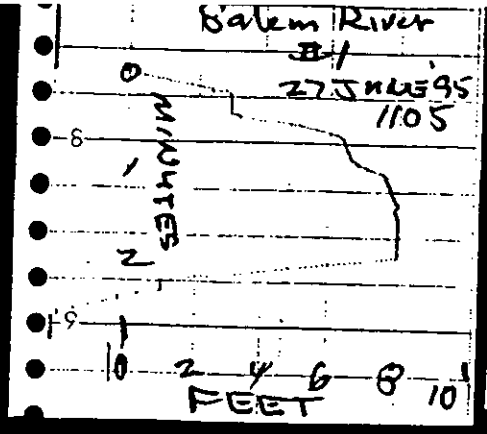
Length Retained: Ø

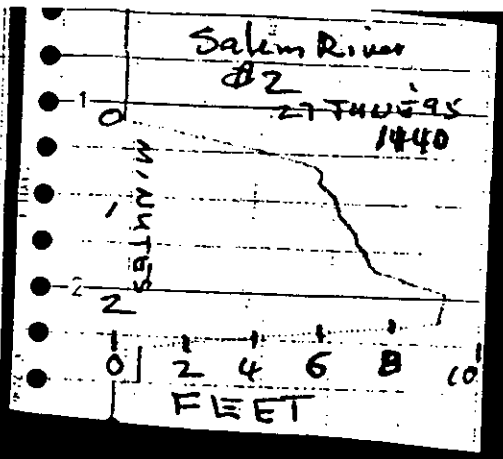
Shipped To: Versar, Inc.

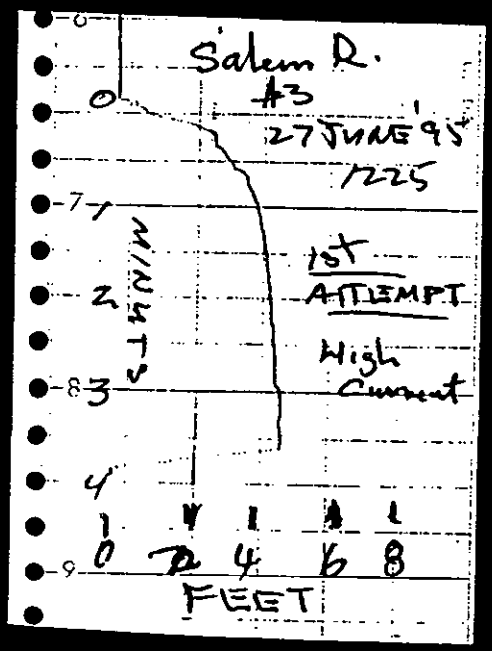
Date: 27 June '95 Time: 2005

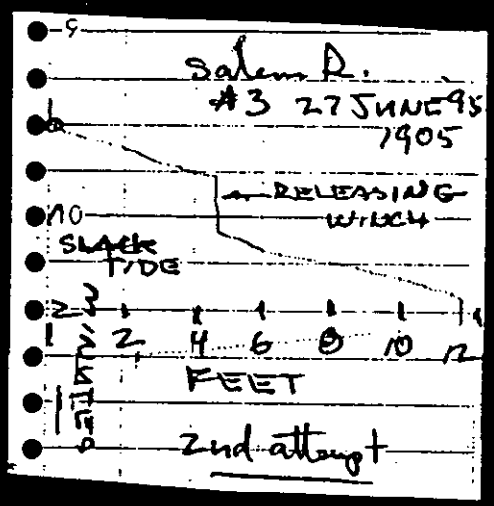
SITE # SR-4 CORE # —

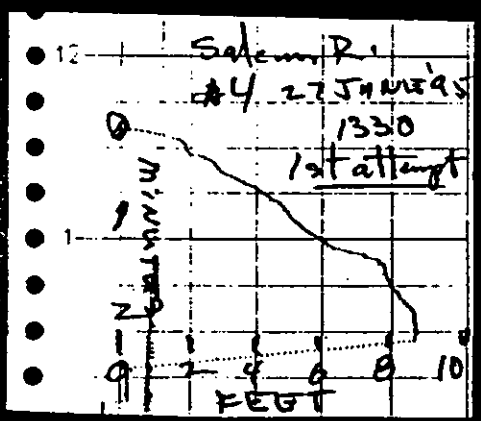
it Sample Condition: — — — —

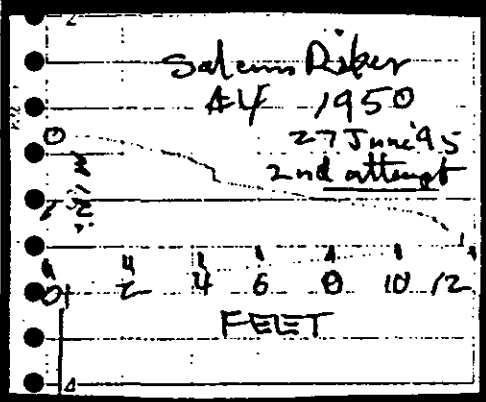

Salem River
#1
27 JUNE 95
1105
MINUTES
FEET

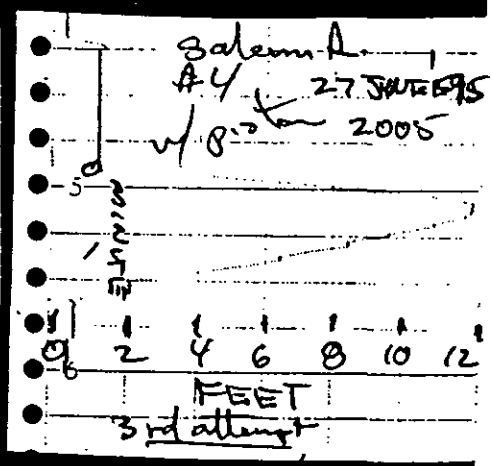

Salem River
#2
27 JUNE 95
1440
MINUTES
FEET


Salem R.
#3
27 JUNE 95
1225
1st
ATTEMPT
High
Current
MINUTES
FEET


Salem R.
#3 27 JUNE 95
1905
RELEASING
WINCH
SLACK
TIDE
FEET
2nd attempt


Salem R.
#4 27 JUNE 95
1330
1st attempt
MINUTES
FEET


Salem River
#4 1950
27 June 95
2nd attempt
FEET


Salem R.
#4 27 JUNE 95
2005
FEET
3rd attempt

LAPSAN INC.

CORPS DREDGE MONITORING
PRE-DREDGE SEDIMENT SAMPLING

STATION 1

PROJECT: SALEM RIVER DATE MO 06 DAY 27 YR 95 TIME HH 11 MM 05 TIDE High (Flood)

LOCATION DESCRIPTION:

LATITUDE/LONGITUDE: 39° 39.409' N / 75° 1.579' W

SEDIMENT DATA

TOTAL CORE DEPTH 8 feet STRATA PRESENT N y,n PERCENT RECOVERY 99 % TOTAL STATION DEPTH 11.3 feet

	DESCRIPTION	DEPTH (in) TOP	DEPTH (in) BOTTOM	Project	Site	Type	Depth (in.)
TOP CORE:				SALEM			
BOTTOM CORE:				SALEM			
LAYER 1:				SALEM			
LAYER 2:				SALEM			
LAYER 3:				SALEM			
LAYER 4:				SALEM			
LAYER 5:				SALEM			
LAYER 6:				SALEM			
LAYER 7:				SALEM			
LAYER 8:				SALEM			
LAYER 9:				SALEM			
LAYER 10:				SALEM			
				SALEM			
Entire	mud for most of core a little detritus intermixed	0	48	SALEM	1	C	0.0

COMMENTS:

Jars to fill:
1. NO_3/TKN
2. METALS/AS/TOC
3. NH_3/CHLORIDE/TP

REVIEWED: DATE:

CORPS DREDGE MONITORING
PRE-DREDGE SEDIMENT SAMPLING

STATION 2

PROJECT: SALEM RIVER DATE MO 04 DAY 25 YR 95 TIME HH 1 MM 35 TIDE High (Flood)

LOCATION DESCRIPTION:

LATITUDE/LONGITUDE: N / 75° 31.247'

SEDIMENT DATA

TOTAL CORE DEPTH 9.5 feet STRATA PRESENT N y,n PERCENT RECOVERY 99 % TOTAL STATION DEPTH 21.1 feet

	DESCRIPTION	DEPTH (in) TOP	DEPTH (in) BOTTOM	Project	Site	Type	Depth (in.)
TOP CORE:				SALEM			.
BOTTOM CORE:				SALEM			.
LAYER 1:				SALEM			.
LAYER 2:				SALEM			.
LAYER 3:				SALEM			.
LAYER 4:				SALEM			.
LAYER 5:				SALEM			.
LAYER 6:				SALEM			.
LAYER 7:				SALEM			.
LAYER 8:				SALEM			.
LAYER 9:				SALEM			.
LAYER 10:				SALEM			.
				SALEM			.
Entire	sand fine grain some coarse not mixt	0	48	SALEM	2	C	0.0

COMMENTS:

Jars to fill:
1. NO_3/TKN
2. METALS/AS/TOC
3. NH_3/CHLORIDE/TP

REVIEWED:

DATE:

ecsi inc.

CORPS DREDGE MONITORING
PRE-DREDGE SEDIMENT SAMPLING

STATION 3

PROJECT: SALEM RIVER DATE MO 06 DAY 1 YR 95 TIME HH 12 MM 30 TIDE Low slack

LOCATION DESCRIPTION:

LATITUDE/LONGITUDE: 39° 34' 32.8" N 75° 29' 6.41" W

SEDIMENT DATA Penetration: 11.5 ft

TOTAL CORE DEPTH 22.0 feet STRATA PRESENT Y Y,n PERCENT RECOVERY 15 % TOTAL STATION DEPTH 15.2 feet

	DESCRIPTION	DEPTH (in) TOP	DEPTH (in) BOTTOM	Project	Site	Type	Depth (in.)
TOP CORE:	Coarse sand / Pebble	0.0	5.00	SALEM	3		
BOTTOM CORE:	Sand clay - red	5.0	10.5	SALEM			
LAYER 1:	Coarse sand - gravel / stone	10.5	22.0	SALEM			
LAYER 2:				SALEM			
LAYER 3:				SALEM			
LAYER 4:				SALEM			
LAYER 5:				SALEM			
LAYER 6:				SALEM			
LAYER 7:				SALEM			
LAYER 8:				SALEM			
LAYER 9:				SALEM			
LAYER 10:				SALEM			
Entire		0.0	22.0	SALEM	3	C	0

COMMENTS: Exclude large rock from surface 2.5" diameter

Jars to fill:
1. NO_3/TKN
2. METALS/AS/TOC
3. NH_3/CHLORIDE/TP

REVIEWED: DATE:

CORPS DREDGE MONITORING
PRE-DREDGE SEDIMENT SAMPLING

STATION 4

PROJECT: SALEM RIVER DATE (MO DAY YR) 06 27 95 TIME (H H M M) 1930 TIDE Low Slack

LOCATION DESCRIPTION:

LATITUDE/LONGITUDE: 39° 34.582 N 75° 22.706 W

SEDIMENT DATA 9 foot penetrator

TOTAL CORE DEPTH 2.0 feet STRATA PRESENT Y y,n PERCENT RECOVERY 23 % TOTAL STATION DEPTH 18.7 feet

	DESCRIPTION	DEPTH (in) TOP	DEPTH (in) BOTTOM	Project	Site	Type	Depth (in.)
TOP CORE:	Gravel / Pebble	0.0	5.75	SALEM	4		
BOTTOM CORE:	Sandy-clay	5.75	15.00	SALEM			
LAYER 1:				SALEM			
LAYER 2:				SALEM			
LAYER 3:				SALEM			
LAYER 4:				SALEM			
LAYER 5:				SALEM			
LAYER 6:				SALEM			
LAYER 7:				SALEM			
LAYER 8:				SALEM			
LAYER 9:				SALEM			
LAYER 10:				SALEM			
Entire				SALEM			
		0.0	20.75	SALEM	4	C	0.0

COMMENTS:

Jars to fill:
1. NO_3/TKN
2. METALS/AS/TOC
3. NH_3/CHLORIDE/TP

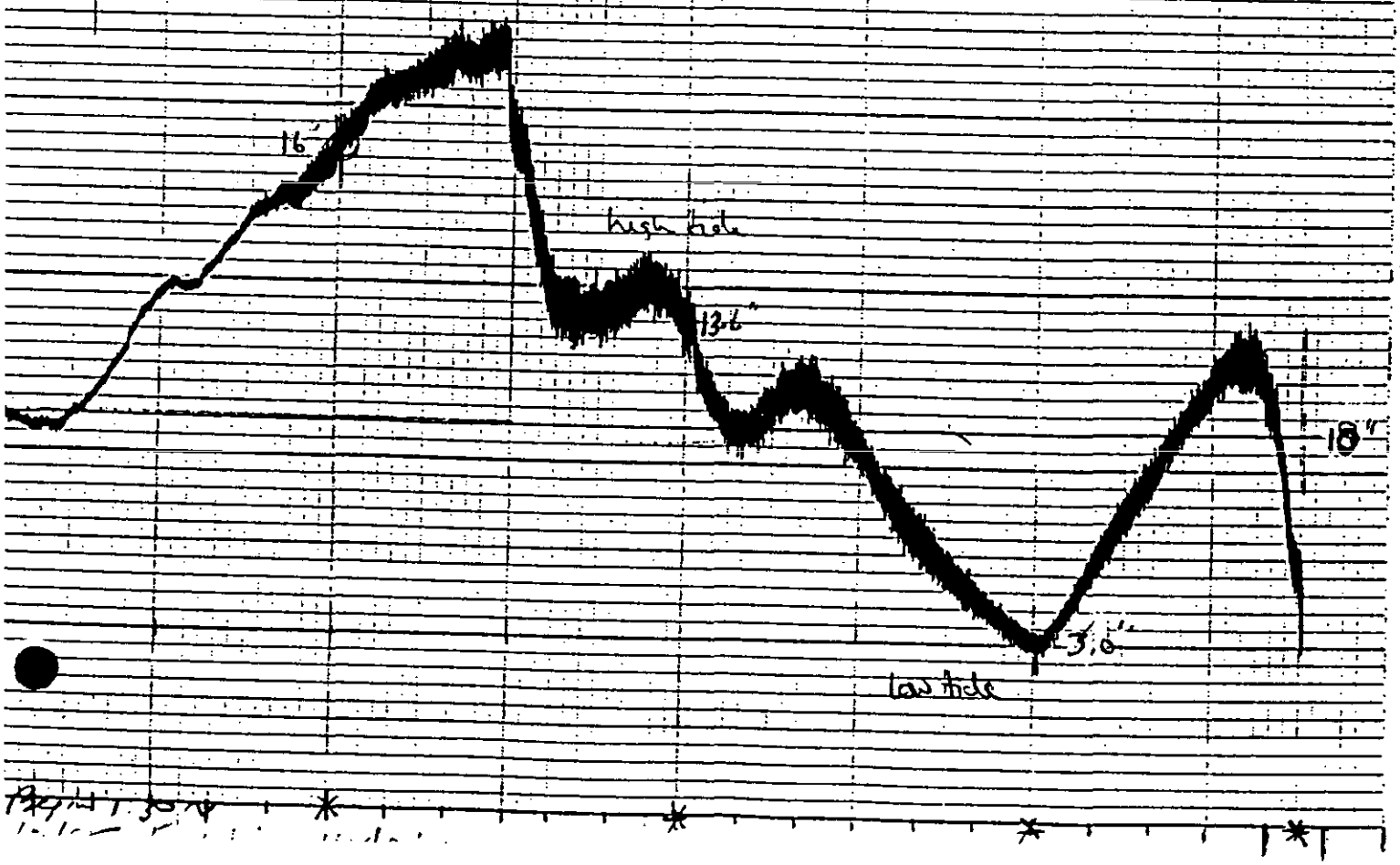
REVIEWED:

DATE:

APPENDIX B

WEIR WATER LEVEL MONITORING HYDROGRAPHCS

SALEM WEIR - 24 hour
INTERNAL WATER HEIGHT
6/29 - 6/30/55



SALEM WEIR

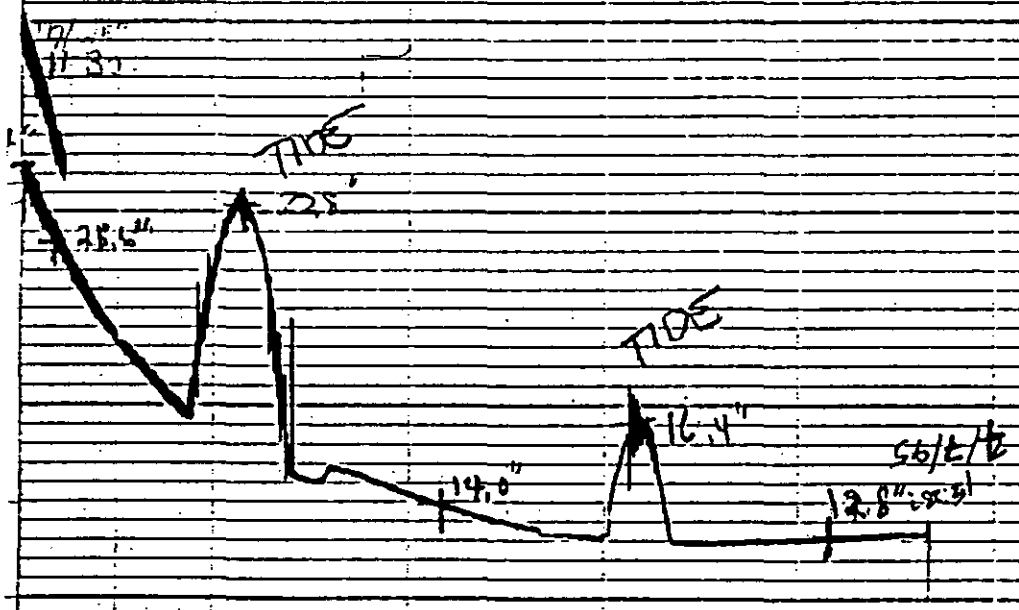
INTAKE WELL WATER LEVELS

7/6 - 7/7/95

* 2 day scale used

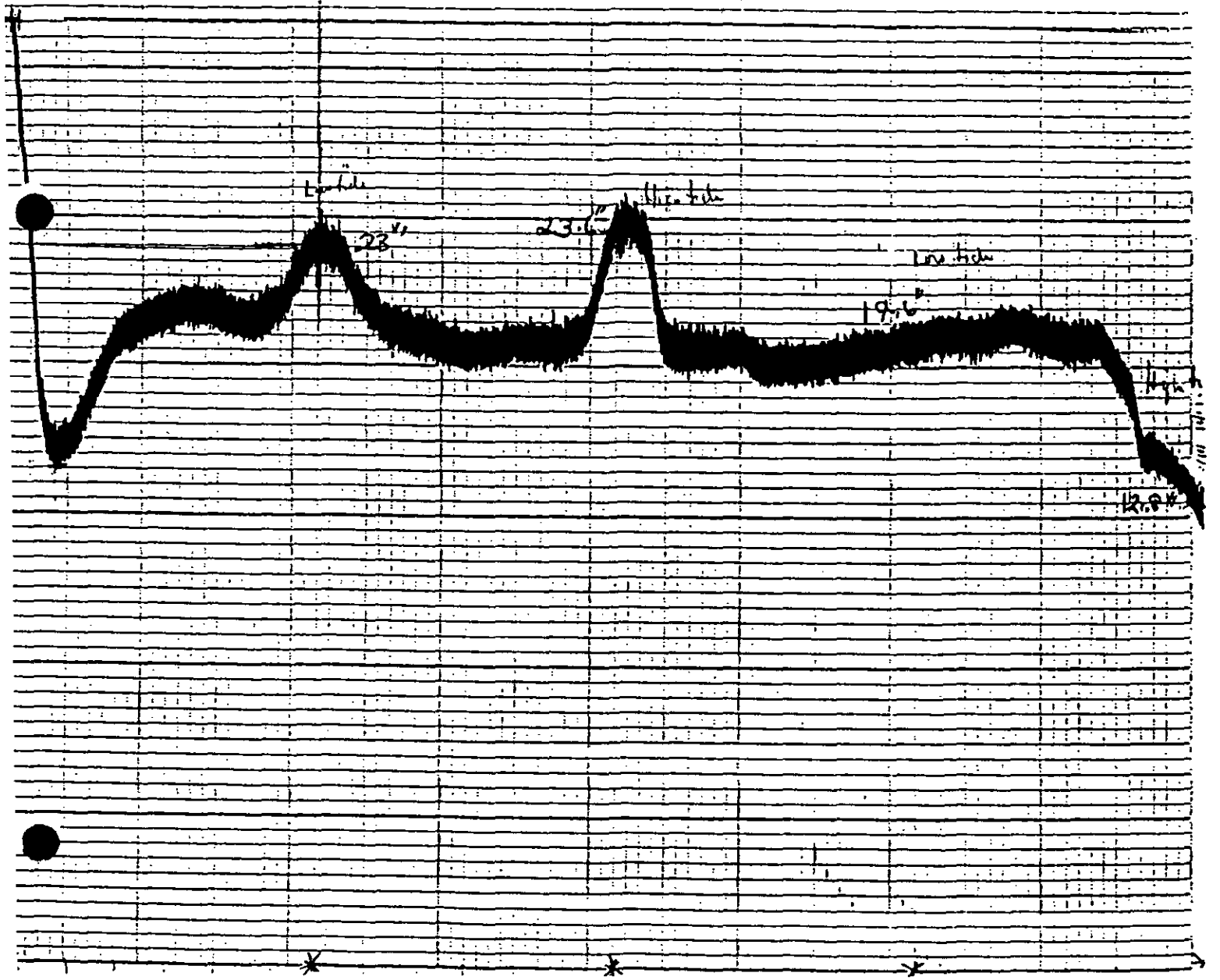
21.0" start height 11:30 am

9.8" end height 15:30 pm



SALEM WEST WATER LEVEL

7/13 – 7/14/91



SALEM WBK

Internal water level

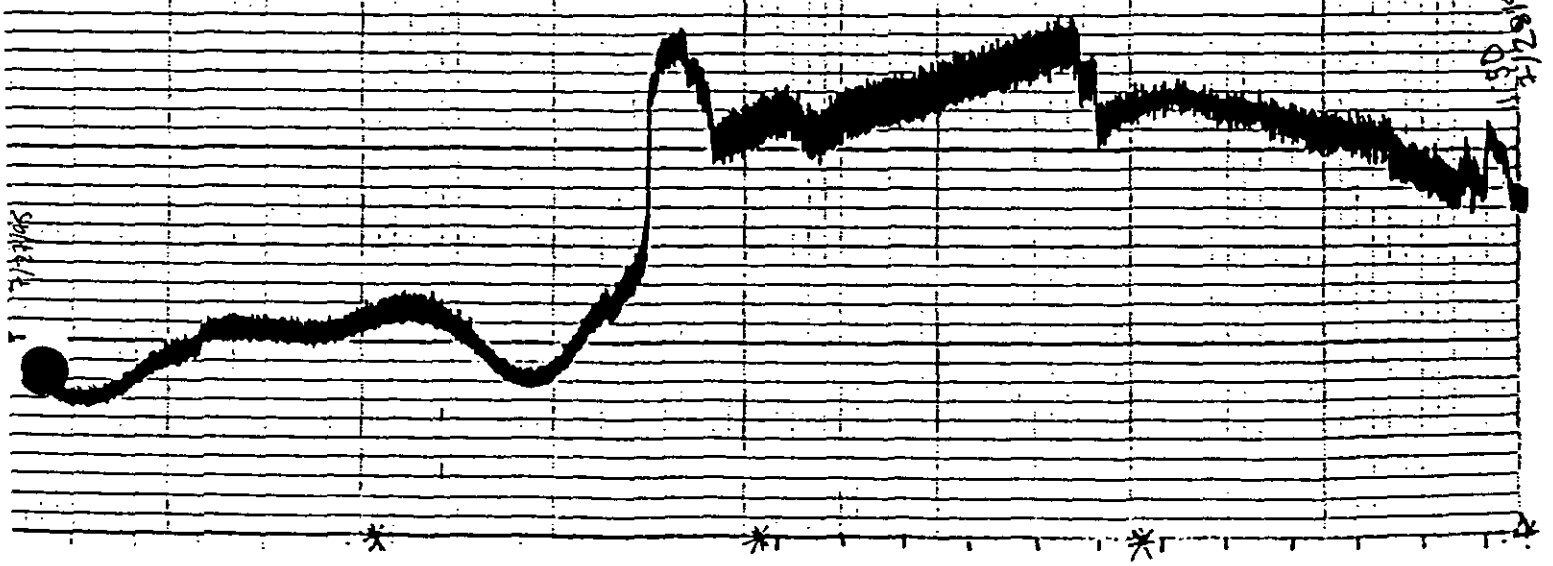
1/Dec 7/12/95

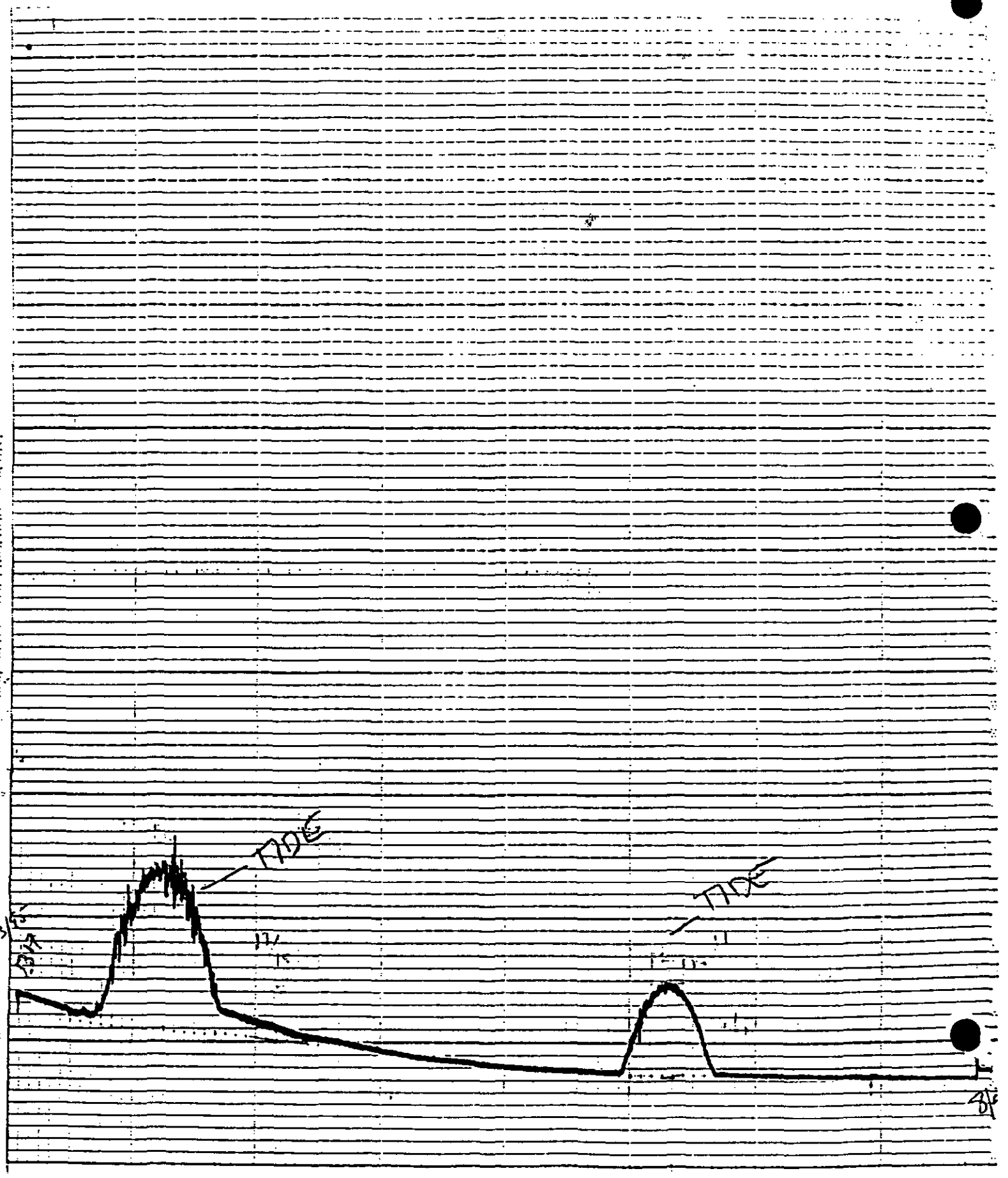
(Float / Height reversed — Reading opposite)

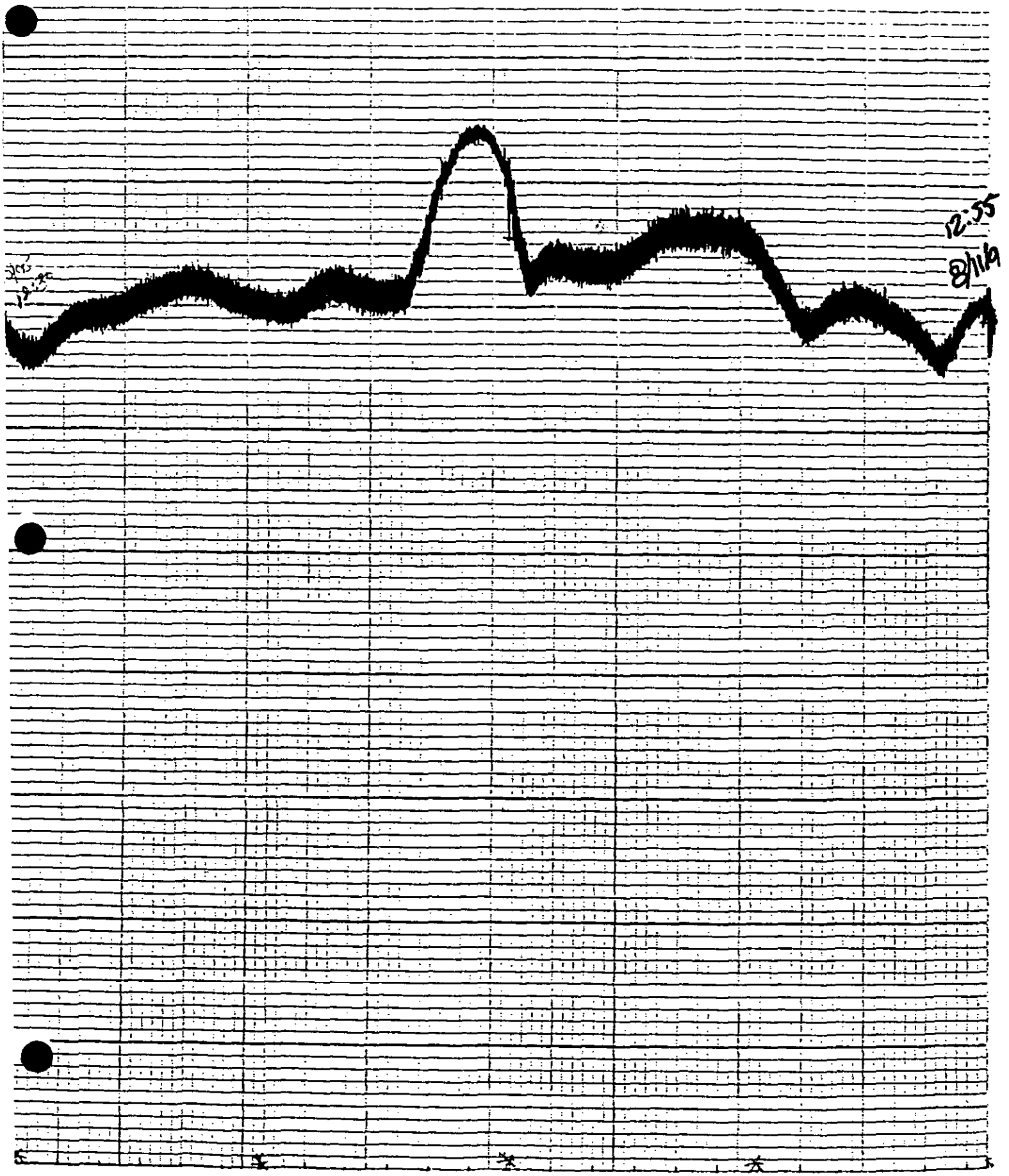
SACEM WEIR

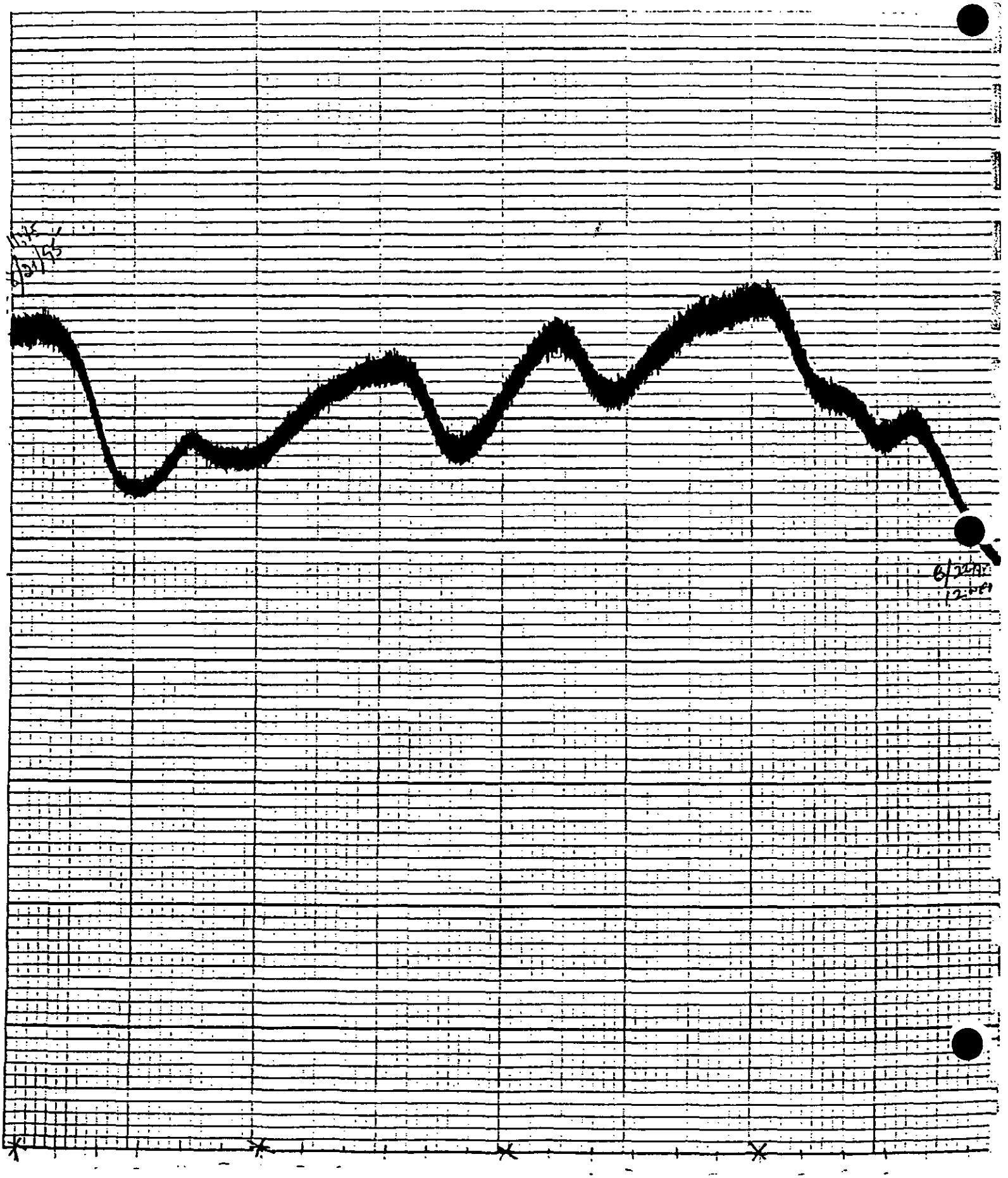
Internal Monitoring

7/27 - 7/28/95



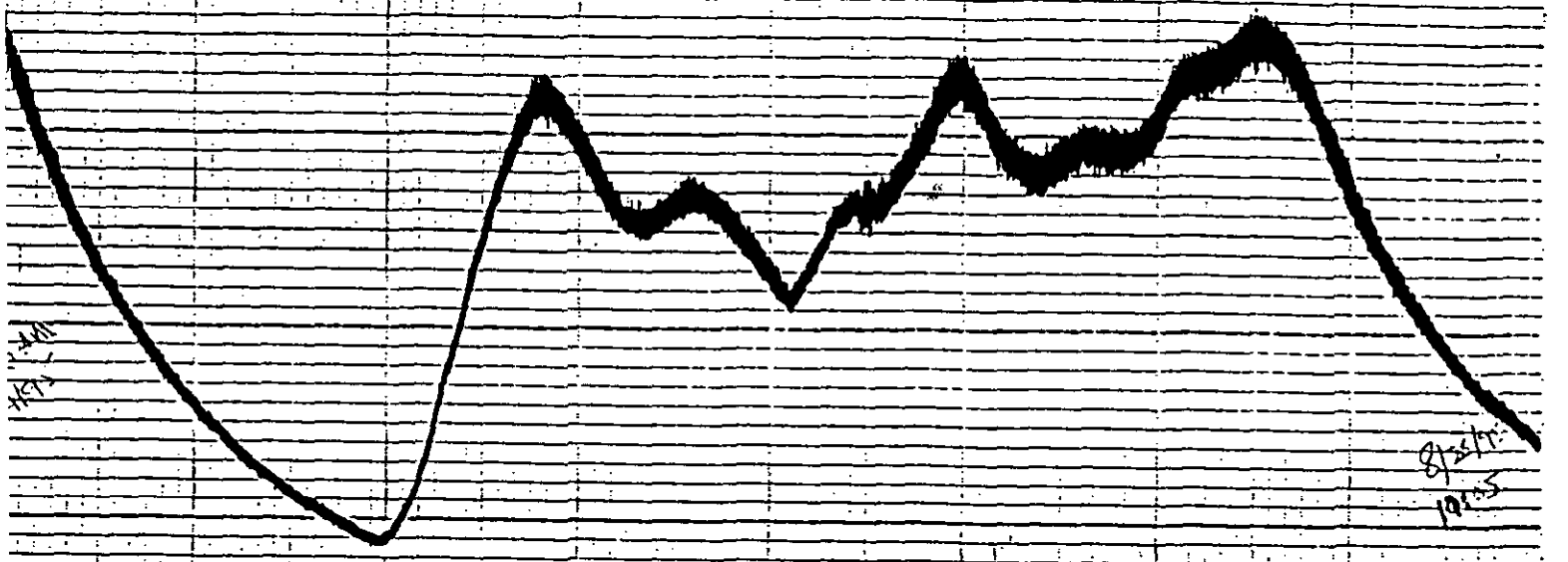

TDE
TDE

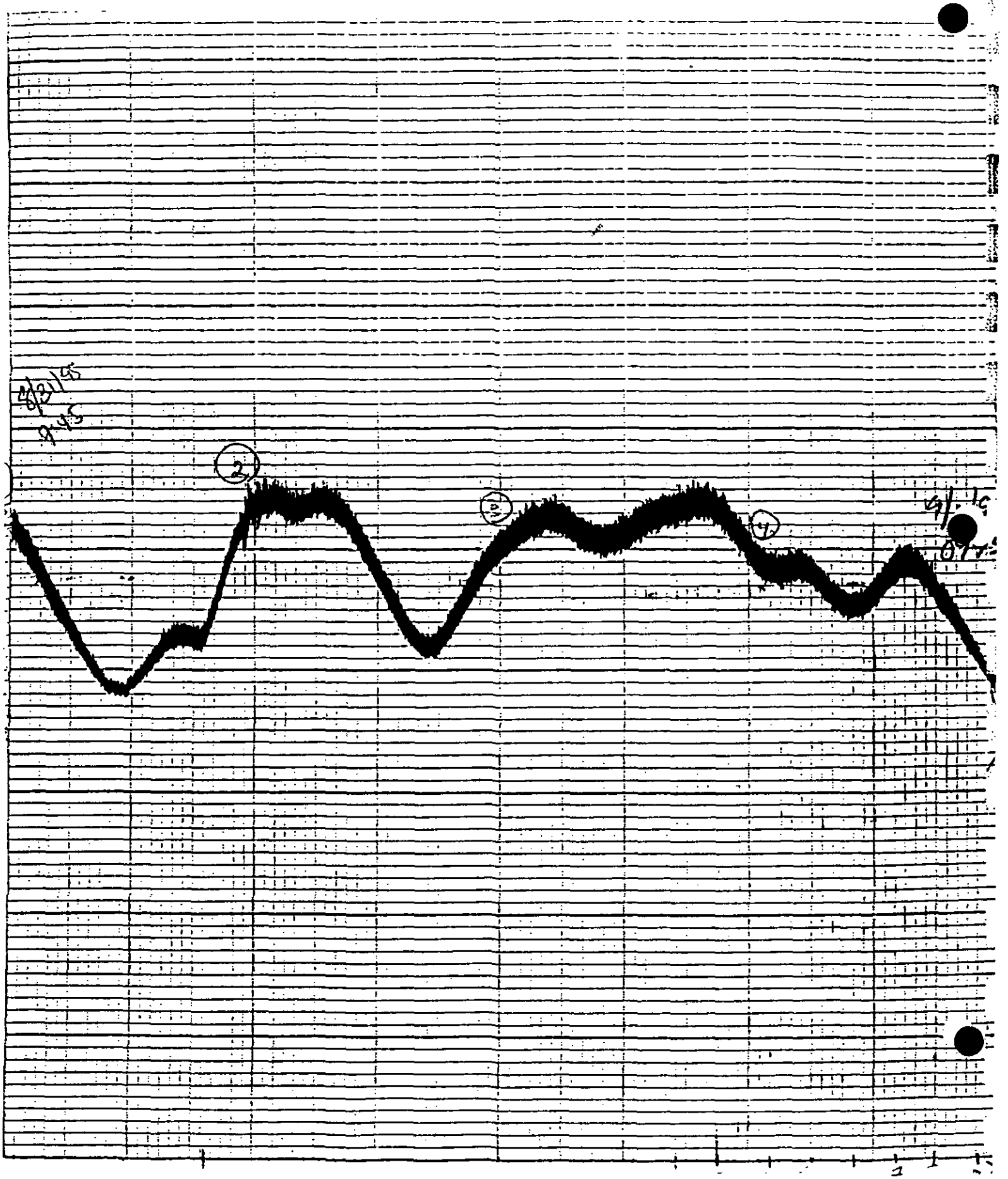

12:55
8/1/19

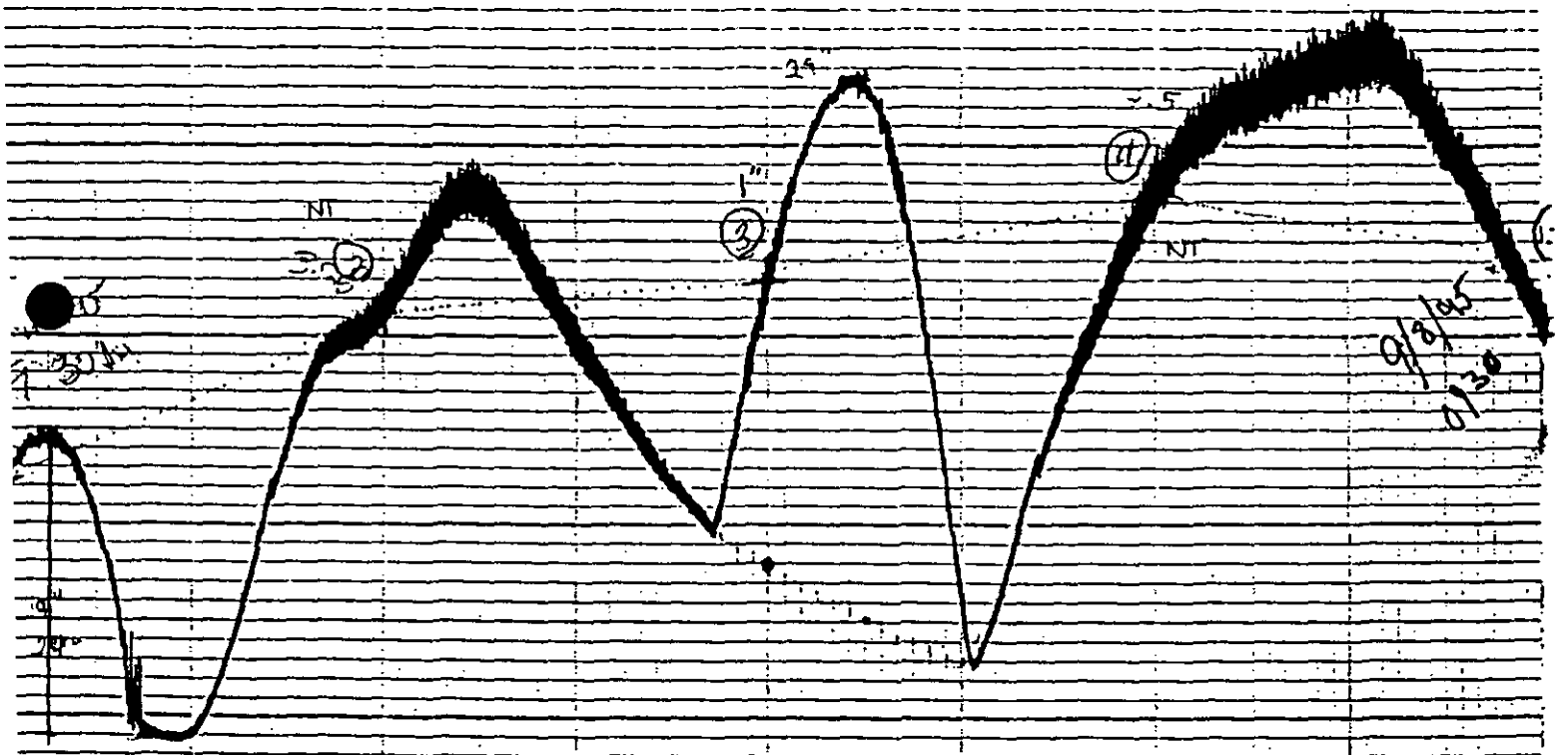

11:45
6/21/55
6/22/55
12:00

Internal Wear Level

8/24 - 8/25/15




6/23/95
9:45
2
3
4
4/16
097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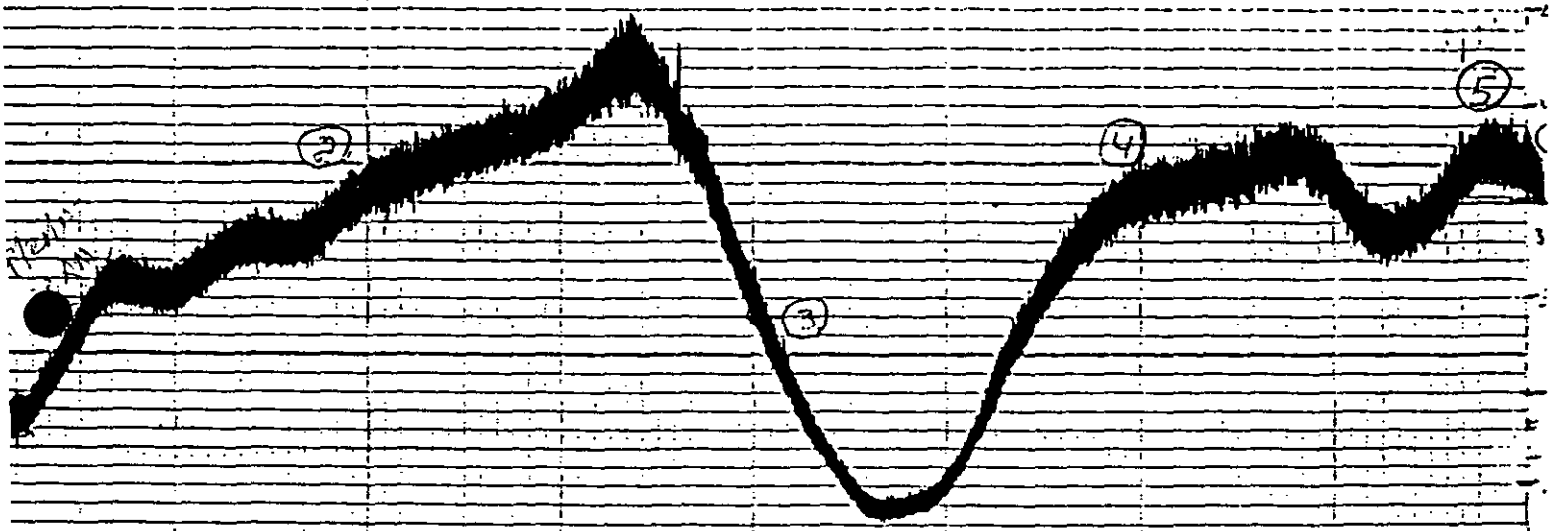

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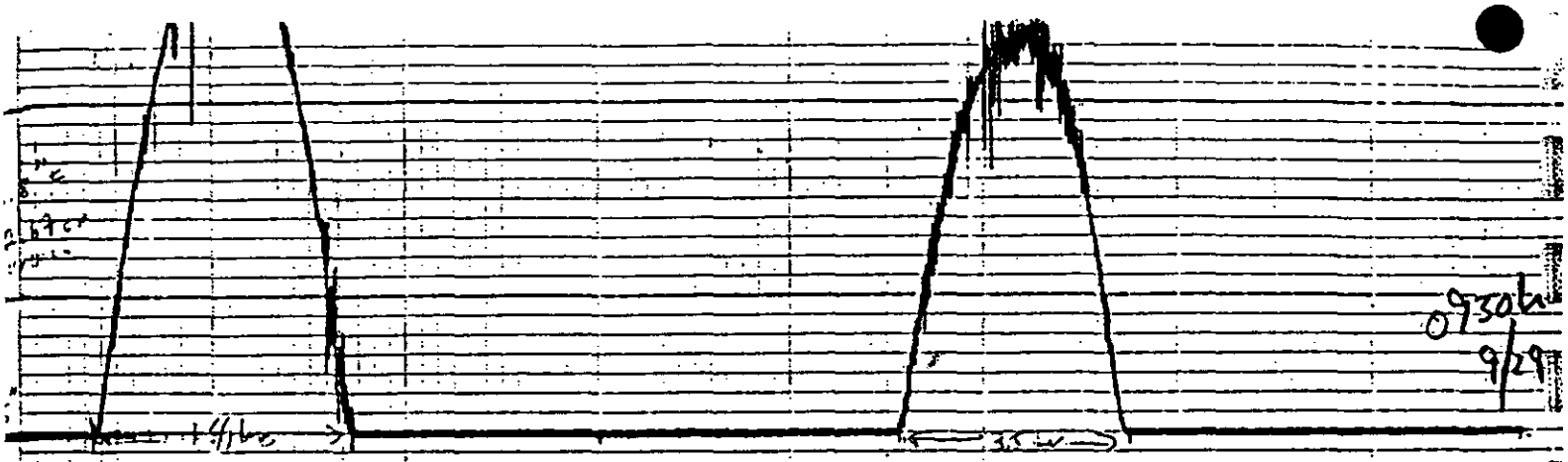
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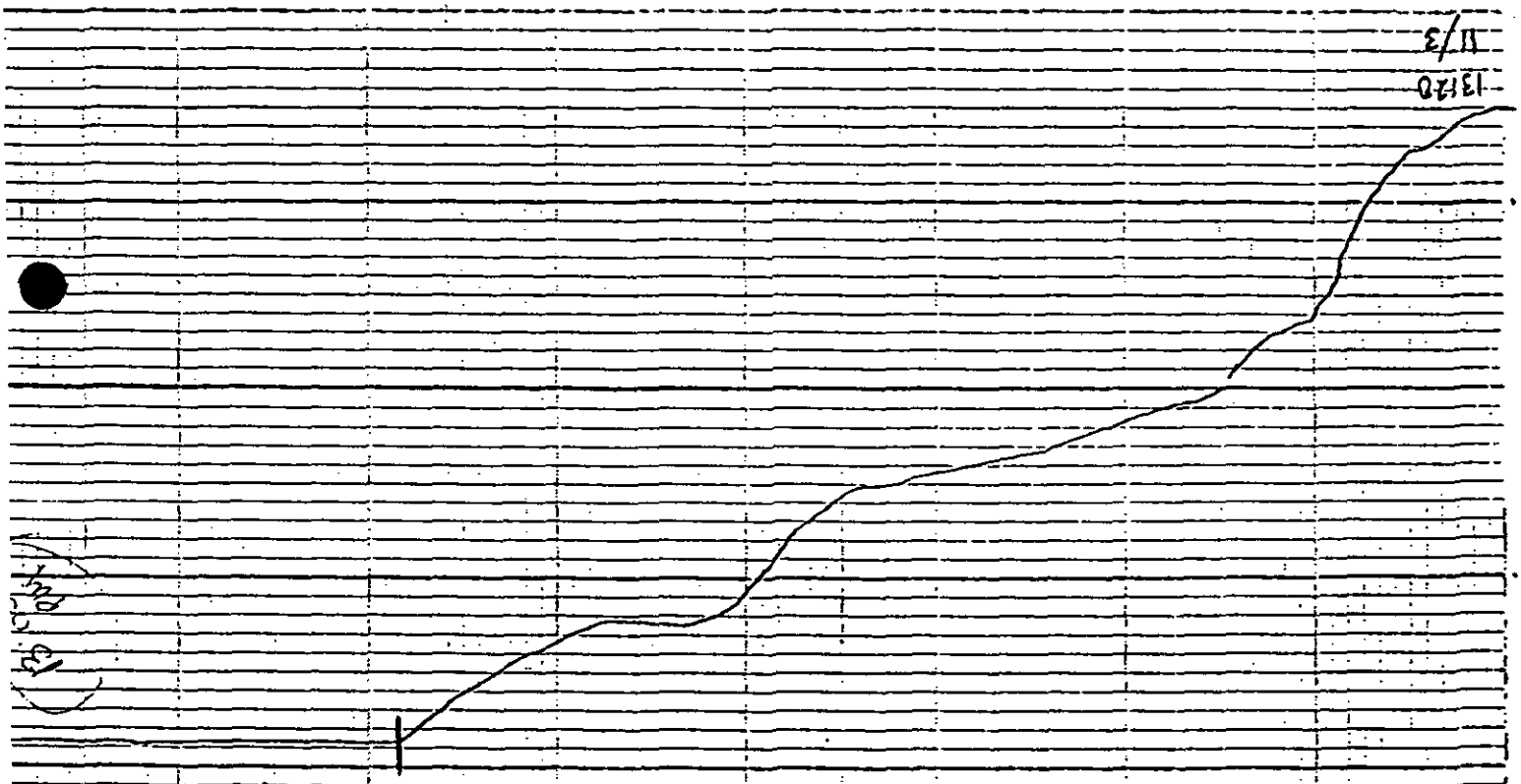
to avoid tidal influence



(?) 3 Board. added
by crew

RETURNED
WATERS LEVEL
11/2-3/95

END: 1200 8/10/93

2 3/4

11/9-10/95

1.75'

DD 1200, 11/21/95

1.75"

1.5

APPENDIX C

BULK SEDIMENT AND WATER QUALITY ANALYSIS RESULTS LABORATORY CERTIFICATES

KEMRON Environmental Services
109 Starlite Park
Marietta, Ohio 45750

Phone: (614) 373-4071

KEMRON ENVIRONMENTAL SERVICES

W/ correction 9/7/95

VERSAR, INC.
9200 Rumsey Road
Columbia, MD 21045-1934

Attn: William Burton

Order #: N5-06-532
Date: July 21, 1995 09:18
Work ID: 3062-002/ACOE Salem River
Date Received: 06/29/95
Date Completed: 07/21/95

Client Code: VERSAR_MD331

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	Salem 1 C 0.0	02	Salem 2 C 0.0
03	Salem 3 C 0.0	04	Salem 4 C 0.0

AS REQUESTED ALL TOTAL ANALYSES HAVE BEEN REPORTED ON A DRY WEIGHT BASIS WHERE APPLICABLE

This report shall not be reproduced, except in full, without the written approval of KEMRON.

Deanna Hesson

Certified by
Deanna Hesson

REPORT COMMENTS:

* (NITRATE,TOTAL KJELDAHL NITROGEN) - Analysis performed by Lancaster Laboratories, Inc.

KEMRON ENVIRONMENTAL SERVICES
RESULTS BY SAMPLE

This is to certify that the following samples were analyzed using good laboratory practices to show the following results.

SAMPLE ID: **01** **Salem 1 C 0.0** Collected: **06/27/95 11:05** Category: **SOIL**

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Ammonia, Nitrogen	150	16	mg/kg	07/06/95	JWR	350.1
Chloride, Leachable	880	16	mg/kg Cl	07/11/95	REB	325.2
Percent Solids	51	1	% wt.	06/29/95	PJH	Gravimetric
Phosphorus, Total	<4.9	4.9	mg/kg P	07/13/95	PJH	365.2
Total Organic Carbon-Soil	~~[illegible]~~ 32,000	390	mg/kg	07/07/95	RJS	415.1
Arsenic, Total	10	9.8	mg/kg As	07/14/95	TAS	200.7/6010
Cadmium, Total	<0.98	0.98	mg/kg Cd	07/14/95	TAS	200.7/6010
Chromium, Total	41	2.0	mg/kg Cr	07/14/95	TAS	200.7/6010
Copper, Total	24	2.0	mg/kg Cu	07/14/95	TAS	6010
Lead, Total	29	9.8	mg/kg Pb	07/14/95	TAS	6010
Mercury, Total	<0.49	0.49	mg/kg Hg	07/14/95	KRA	7471
Nickel, Total	24	3.9	mg/kg Ni	07/14/95	TAS	200.7/6010
Zinc, Total	190	0.98	mg/kg Zn	07/14/95	TAS	6010/7950
Nitrogen, Nitrate	<2.0*	2.0	mg/kg			300M
Nitrogen, Total Kjeldahl	200*	98	mg/kg N			351.3

SAMPLE ID: **02** **Salem 2 C 0.0** Collected: **06/27/95 11:35** Category: **SOIL**

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Ammonia, Nitrogen	<2.5	2.5	mg/kg	07/06/95	JWR	350.1
Chloride, Leachable	350	9.9	mg/kg Cl	07/11/95	REB	325.2
Percent Solids	81	1	% wt.	06/29/95	PJH	Gravimetric
Phosphorus, Total	<3.1	3.1	mg/kg P	07/13/95	PJH	365.2
Total Organic Carbon-Soil	~~310~~ 250	250	mg/kg	07/07/95	RJS	415.1
Arsenic, Total	<6.2	6.2	mg/kg As	07/14/95	TAS	200.7/6010
Cadmium, Total	<0.62	0.62	mg/kg Cd	07/14/95	TAS	200.7/6010
Chromium, Total	6.2	1.2	mg/kg Cr	07/14/95	TAS	200.7/6010
Copper, Total	2.5	1.2	mg/kg Cu	07/14/95	TAS	6010
Lead, Total	<6.2	6.2	mg/kg Pb	07/14/95	TAS	6010
Mercury, Total	<0.31	0.31	mg/kg Hg	07/14/95	KRA	7471
Nickel, Total	3.7	2.5	mg/kg Ni	07/14/95	TAS	200.7/6010
Zinc, Total	20	0.62	mg/kg Zn	07/14/95	TAS	6010/7950
Nitrogen, Nitrate	<1.2*	1.2	mg/kg			300M
Nitrogen, Total Kjeldahl	<49*	49	mg/kg N			351.3

SAMPLE ID: **03** **Salem 3 C 0.0** Collected: **06/27/95 12:30** Category: **SOIL**

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Ammonia, Nitrogen	<2.4	2.4	mg/kg	07/06/95	JWR	350.1
Chloride, Leachable	390	9.8	mg/kg Cl	07/11/95	REB	325.2
Percent Solids	82	1	% wt.	06/29/95	PJH	Gravimetric
Phosphorus, Total	<3.0	3.0	mg/kg P	07/13/95	PJH	365.2
Total Organic Carbon-Soil	~~900~~ 740	240	mg/kg	07/07/95	RJS	415.1
Arsenic, Total	<6.1	6.1	mg/kg As	07/14/95	TAS	200.7/6010
Cadmium, Total	<0.61	0.61	mg/kg Cd	07/14/95	TAS	200.7/6010
Chromium, Total	160	1.2	mg/kg Cr	07/14/95	TAS	200.7/6010
Copper, Total	3.7	1.2	mg/kg Cu	07/14/95	TAS	6010
Lead, Total	<6.1	6.1	mg/kg Pb	07/14/95	TAS	6010
Mercury, Total	<0.30	0.30	mg/kg Hg	07/14/95	KRA	7471
Nickel, Total	17	2.4	mg/kg Ni	07/14/95	TAS	200.7/6010
Zinc, Total	65	0.61	mg/kg Zn	07/14/95	TAS	6010/7950
Nitrogen, Nitrate	<1.2*	1.2	mg/kg			300M
Nitrogen, Total Kjeldahl	<61*	61	mg/kg N			351.3

KEMRON ENVIRONMENTAL SERVICES
RESULTS BY SAMPLE

SAMPLE ID: 04 Salem 4 C 0.0 Collected: 06/27/95 19:30 Category: SOIL

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Ammonia, Nitrogen	<2.9	2.9	mg/kg	07/06/95	JWR	350.1
Chloride, Leachable	290	11	mg/kg Cl	07/11/95	REB	325.2
Percent Solids	70	1	% wt.	06/29/95	PJH	Gravimetric
Phosphorus, Total	<3.6	3.6	mg/kg P	07/13/95	PJH	365.2
Total Organic Carbon-Soil	~~1900~~ 1300	290	mg/kg	07/07/95	RJS	415.1
Arsenic, Total	11	7.1	mg/kg As	07/17/95	TAS	200.7/6010
Cadmium, Total	<0.71	0.71	mg/kg Cd	07/17/95	TAS	200.7/6010
Chromium, Total	260	1.4	mg/kg Cr	07/17/95	TAS	200.7/6010
Copper, Total	4.3	1.4	mg/kg Cu	07/17/95	TAS	6010
Lead, Total	<7.1	7.1	mg/kg Pb	07/17/95	TAS	6010
Mercury, Total	<0.36	0.36	mg/kg Hg	07/14/95	KRA	7471
Nickel, Total	26	2.9	mg/kg Ni	07/17/95	TAS	200.7/6010
Zinc, Total	110	0.71	mg/kg Zn	07/17/95	TAS	6010/7950
Nitrogen, Nitrate	<1.4*	1.4	mg/kg			300M
Nitrogen, Total Kjeldahl	<71*	71	mg/kg N			351.3

Corrected by Lab 9/7/95

See attached explanation

KEMRON ANALYST LIST

Ohio Valley Laboratory

07/17/95

AJS - - Ashlee J. Scott
ALC - - Ann L. Clark
BAR - - Beth A. Raper
CEB - - Chad E. Barnes
DIH - - Deanna I. Hesson
DJP - - Douglas J. Poling
DLP - - Dorothy L. Payne
DST - - Dennis S. Tepe
ECL - - Eric C. Lawson
EDG - - Eric D. Gerkin
FEH - - Fay E. Harmon
FRM - - Fred R. Montgomery
GWH - - George W. Hutchison
HV - - Hema Vilasagar
JEC - - Jesse E. Chapman
JYH - - Ji Y. Hu
JKM - - June K. Morris
JLM - - Joy L. Mullins
JLH - - Janice L. Holland
JLL - - Janice L. Landshof
JMM - - Jim M. Monk
JWR - - John W. Richards
KHA - - Kim H. Archer
KMM - - Kevin M. McDonald
KPO - - Kevin P. Overstreet
KRA - - Kathy R. Albertson
LMW - - Lisa M. Wagner
MBJ - - Matthew B. Jarrell
MDA - - Mike D. Albertson
MDC - - Michael D. Cochran
MLS - - Michael L. Schimmel
MZL - - Melanie Z. Lewis
PJH - - Pamela J. Holtz
PST - - Pam S. Tornes
REB - - Russell E. Burton
REK - - Robert E. Kyer
RJS - - Rick J. Santos
RWC - - Rodney W. Campbell
SCM - - Susan C. Moellendick
SCW - - Stephen C. West
SLM - - Stephanie L. Mossburg
SPL - - Steve P. Learn
SSS - - Susan S. Snodgrass
TAS - - Tamela A. Sams
TKT - - Tonya K. Troutner
TLD - - Teresa L. Davis
TNO - - Tunde N. Oladunni
VC - - Vicki Collier
WCD - - Wade C. Dawson
WDL - - William D. Landshof

SW-846 METHOD SW6010 - Arsenic

SW-846 METHOD SW6010 - Cadmium

Chloride in Soil
Leaching procedure: one part soil to four parts D.I. water
Analysis :EPA Method 325.2
Reporting Units: mg/kg Cl

SW-846 METHOD SW6010/200.7 - Chromium

SW-846 METHOD SW6010 - Copper

EPA METHOD SW3050 - Soil Matrix Metals Digestion

SW-846 METHOD SW7471 (AA - Cold Vapor Method) - Mercury

SW-846 METHOD SW6010 - Nickel

SW846 METHOD SW6010 - Lead

Percent Solids
EPA Method 160.3 - Gravimetric, Dried at 103-105 Degrees C
To convert test results to "Dry Weight Basis" use this formula:

$$\text{RESULT (DRY WT.)} = \frac{\text{RESULT (REPORTED) X 100}}{\text{PERCENT SOLIDS}}$$

EPA Method 365.2 (Modified for Soils)

EPA Method 351.3 Modified For Soils

EPA Method 415.1 - Total Organic Carbon

SW-846 METHOD SW6010 - Zinc

INORGANIC QA/QC

Kemron
ENVIRONMENTAL SERVICES

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 07/17/95

			REFERENCE STANDARD					DUPLICATE SAMPLE			BLANK		MATRIX/MEDIA SPIKE				
Parameter	Units	Analyst	Known	Result	Rec.(%)	UCLx	LCLx	Result1	Result2	RPD (%)	Result	MDL	Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
LEAD-ICP V	mg/kg	TAS	128	119	92.97	120	80	39.11	56.8	36.89	<5	5	1	0.5866	58.66	125	75
ZINC-ICP V	mg/kg	TAS	76.5	69.5	90.85	120	80	57.19	57.01	0.32	<0.5	0.5	1	0.7587	75.87	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 07/17/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
AMMONIA	mg/L	REB	2	2.02	101.00	117	75	0.15	0.16	6.45	<0.1	0.1	1	0.994	99.40	125	75
SILVER-ICP J	mg/L	JYH	0.2	0.21	105.00	120	80	0.19	0.19	0.00	<0.01	0.01	0.2	0.19	95.00	125	75
BARIUM-ICP J	mg/L	JYH	10	10.4	104.00	120	80	9.8	9.6	2.06	<0.01	0.01	10	9.8	98.00	125	75
CADMIUM-ICP J	mg/L	JYH	1	1.05	105.00	120	80	0.91	0.87	4.49	<0.01	0.01	1	0.91	91.00	125	75
CHROMIUM-ICP J	mg/L	JYH	1	1.04	104.00	120	80	1.05	0.92	13.20	<0.02	0.02	1	1.05	105.00	125	75
COPPER-ICP J	mg/L	JYH	1	1.06	106.00	120	80	0.96	0.98	2.06	<0.02	0.02	1	0.96	96.00	125	75
NICKEL-ICP J	mg/L	JYH	1	1.07	107.00	120	80	0.92	0.91	1.09	<0.04	0.04	1	0.92	92.00	125	75
ZINC-ICP J	mg/L	JYH	1	1.05	105.00	120	80	1.12	1.1	1.80	<0.01	0.01	1	1.12	112.00	125	75
LEAD-ICP J	mg/L	JYH	1	1.03	103.00	120	80	1.07	1.06	0.94	<0.1	0.1	1	1.07	107.00	125	75
TKN	mg/L	REB	1	0.93	93.00	116	80	---	---	---	<0.1	0.1	---	---	---	---	---
TOC	mg/L	REB	25	24	96.00	110	90	1100	1100	0.00	<1	1	25	26.2	104.80	125	75
PHOSPHORUS	mg/L	REB	2	1.71	85.50	125	75	0.12	0.21	54.55	<0.1	0.1	0.5	0.518	103.60	125	75
SULFIDE	mg/L	SCM	20	20	100.00	125	75	---	---	---	<1	1	---	---	---	122	76
CYANIDE	mg/L	JWR	0.4	0.351	87.75	125	94	< 0.01	< 0.01	0.00	<0.01	0.01	0.2	0.195	97.50	124	78
THALLIUM-FURN A1	mg/L	AJS	0.025	0.0227	90.80	120	80	< 0.005	< 0.005	0.00	<0.005	0.005	0.025	0.0237	94.80	115	85
ARSENIC-FURNACE L	mg/L	TNO	0.025	0.0241	96.40	120	80	0.0255	0.0268	4.97	<0.004	0.004	0.025	0.0259	103.60	115	85
MERCURY Q	mg/L	KRA	0.001	0.0010	102.00	120	80	0.00109	0.0010	7.62	<0.0002	0.0002	0.001	0.00101	101.00	125	75
MERCURY G	mg/L	KRA	0.001	0.0009	94.00	120	80	0.00097	0.0009	1.04	<0.0002	0.0002	0.001	0.00097	97.00	125	75
THALLIUM-FURN U	mg/kg	ALC	90.8	106.66	117.47	139	45.4	0.36	0.36	0.00	<0.005	0.005	**	**	**	**	**
THALLIUM-FURN N	mg/kg	ALC	90.8	111.33	122.61	139	45.4	0.35	0.37	5.56	<0.005	0.005	**	**	**	**	**
LEAD-FURNACE N	mg/kg	ALC	128	131	102.34	179	68.9	51	53	3.85	<0.005	0.005	**	**	**	**	**
LEAD-FURNACE A1	mg/L	AJS	0.025	0.0262	105.00	120	80	< 0.006	< 0.006	0.00	<0.005	0.005	0.025	0.02395	95.80	115	85
MERCURY H	mg/L	KRA	0.001	0.0009	95.00	120	80	0.00096	0.0009	1.05	<0.0002	0.0002	0.001	0.00096	96.00	125	75
MERCURY I	mg/L	KRA	23.7	21.7	91.56	120	80	< 0.25	< 0.25	0.00	<0.0002	0.0002	0.001	0.00099	99.00	125	75
ARSENIC-FURNACE Y	mg/L	TNO	0.025	0.0227	90.80	120	80	0.0247	0.0236	4.55	<0.004	0.004	0.025	0.0254	101.60	115	85
ANTIMONY-FURN A1	mg/L	AJS	0.025	0.0269	107.60	120	80	< 0.02	< 0.02	0.00	<0.02	0.02	0.025	0.0267	106.80	115	85
ALUMINUM-ICP B	mg/L	TAS	1.5	1.485	99.00	120	80	1.502	1.558	3.66	<0.1	0.1	1.5	1.443	96.20	125	75
CADMIUM-ICP B	mg/L	TAS	1.5	1.46	97.33	120	80	1.532	1.494	2.51	<0.01	0.01	1.5	1.532	102.13	125	75
CHROMIUM-ICP B	mg/L	TAS	1.5	1.435	95.67	120	80	1.44	1.482	2.87	<0.02	0.02	1.5	1.44	96.00	125	75
COPPER-ICP B	mg/L	TAS	1.5	1.434	95.60	120	80	1.395	1.501	7.32	<0.02	0.02	1.5	1.363	90.87	125	75
IRON-ICP B	mg/L	TAS	1.5	1.524	101.60	120	80	2.447	2.499	2.10	<0.04	0.04	1.5	1.52	101.33	125	75
NICKEL-ICP B	mg/L	TAS	1.5	1.442	96.13	120	80	1.492	1.474	1.21	<0.04	0.04	1.5	1.47	98.00	125	75
ANTIMONY-ICP B	mg/L	TAS	1.5	1.29	86.00	120	80	1.359	1.36	0.07	<0.2	0.2	1.5	1.359	90.60	125	75
ZINC-ICP B	mg/L	TAS	1.5	1.454	96.93	120	80	1.528	1.504	1.58	<0.01	0.01	1.5	1.513	100.87	125	75
ARSENIC-ICP V	mg/kg	TAS	65.1	58.3	89.55	120	80	61	61	0.00	<5	5	1	0.8531	85.31	125	75
CADMIUM-ICP V	mg/kg	TAS	81.5	84.9	104.17	120	80	55.37	55	0.67	<0.5	0.5	1	0.8306	83.06	125	75
CHROMIUM-ICP V	mg/kg	TAS	57.4	54.8	95.47	120	80	179.4	131.7	30.67	<1	1	1	0.7515	75.15	125	75
COPPER-ICP V	mg/kg	TAS	146	153.4	105.07	120	80	61.91	60.45	2.39	<1	1	1	0.8823	88.23	125	75
NICKEL-ICP V	mg/kg	TAS	35.8	36.8	102.79	120	80	68.37	62.4	9.13	<2	2	1	0.8414	84.14	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
** = ANALYZED BY METHOD OF STANDARD ADDITION

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 07/14/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
NITRATE	mg/L	REB	1	0.955	95.50	113	90	5.9	6.1	3.33	<0.05	0.05	0.5	0.539	107.80	121	79
TOC	mg/L	REB	5	5.51	110.20	115	85	3	3	0.00	<1	1	5	5.2	104.00	125	75
SULFATE	mg/L	SCM	20	18.2	91.00	107	79	78	80	2.53	<2.0	2	10	9.21	92.10	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 07/14/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
COD	mg/L	PJH	100	110	110.00	120	80	< 5	< 5	0.00	<5	5	50	46.4	92.80	125	75
NITRITE	mg/L	MZL	0.1	0.112	112.00	125	75	< 0.01	< 0.01	0.00	<0.01	0.01	0.1	0.096	96.00	125	75
OIL & GREASE	mg/L	MZL	10	9.1	91.00	125	75	9	10	10.53	<1	1	10	10.3	103.00	125	75
TOX	mg/L	RJS	0.1	0.104	104.00	110	90	0.02	0.02	0.00	<0.01	0.01	0.1	0.1	100.00	125	75
TSS	mg/L	PJH	50	42	84.00	121	75	160	130	20.69	<5	5	50	55	110.00	125	75
LEAD-FURNACE R	mg/L	AJS	0.025	0.0258	103.20	120	80	0.02499	0.0246	1.33	<0.005	0.005	0.025	0.02499	99.96	115	85
CADMIUM-FURNACE R	mg/L	AJS	0.002	0.0026	104.00	120	80	0.00256	0.0025	0.78	<0.0005	0.0005	0.0025	0.00254	101.60	115	85
COPPER-FURNACE R	mg/L	AJS	0.025	0.0249	99.80	120	80	< 0.005	< 0.005	0.00	<0.005	0.005	0.025	0.02503	100.12	115	85
ARSENIC-FURN A2	mg/L	TNO	0.025	0.0257	102.80	120	80	0.0254	0.0255	0.39	<0.004	0.004	0.025	0.0276	110.40	115	85
ARSENIC-FURNACE M	mg/L	TNO	0.025	0.0241	96.40	120	80	0.0276	0.0239	14.37	<0.2	0.2	0.025	0.0258	103.20	115	85
CHROMIUM-FURN Z2	mg/L	JEC	0.025	0.0259	103.60	120	80	0.0293	0.0279	4.90	<0.005	0.005	0.025	0.0253	101.20	115	85
SILVER-ICP F	mg/L	TAS	0.2	0.1858	92.90	120	80	0.1731	0.1832	5.67	<0.01	0.01	0.2	0.1832	91.60	125	75
BARIUM-ICP F	mg/L	TAS	10	9.351	93.51	120	80	8.701	9.205	5.63	<0.01	0.01	10	9.181	91.81	125	75
CADMIUM-ICP F	mg/L	TAS	1	0.9746	97.46	120	80	0.9061	0.9619	5.97	<0.01	0.01	1	0.9061	90.61	125	75
CHROMIUM-ICP F	mg/L	TAS	1	0.9582	95.82	120	80	0.8976	0.9511	5.79	<0.02	0.02	1	0.9453	94.53	125	75
COPPER-ICP F	mg/L	TAS	1	0.9547	95.47	120	80	0.8862	0.9392	5.81	<0.02	0.02	1	0.9342	93.42	125	75
NICKEL-ICP F	mg/L	TAS	1	0.9519	95.19	120	80	0.8944	0.9522	6.26	<0.04	0.04	1	0.9468	94.68	125	75
LEAD-ICP F	mg/L	TAS	1	0.9912	99.12	120	80	0.936	0.9433	0.78	<0.1	0.1	1	0.936	93.60	125	75
ANTIMONY-ICP F	mg/L	TAS	1	0.8949	89.49	120	80	0.8859	0.9142	3.14	<0.2	0.2	1	0.8859	88.59	125	75
ZINC-ICP F	mg/L	TAS	1	0.962	96.20	120	80	0.9778	0.9906	1.30	<0.01	0.01	1	0.943	94.30	125	75
ARSENIC-ICP C	mg/L	TAS	1	0.9995	99.95	120	80	1.042	1.031	1.06	<1	1	1	1.017	101.70	125	75
BARIUM-ICP C	mg/L	TAS	10	9.585	95.85	120	80	9.157	9.261	1.13	<0.1	0.1	10	9.167	91.67	125	75
CADMIUM-ICP C	mg/L	TAS	1	1.028	102.80	120	80	1.002	1.019	1.68	<0.1	0.1	1	1.001	100.10	125	75
CHROMIUM-ICP C	mg/L	TAS	1	1.008	100.80	120	80	0.9706	0.9879	1.77	<0.2	0.2	1	0.9841	98.41	125	75
LEAD-ICP C	mg/L	TAS	1	1.042	104.20	120	80	1.032	1.031	0.10	<1	1	1	1.032	103.20	125	75
SELENIUM-ICP C	mg/L	TAS	1	1.009	100.90	120	80	1.028	0.9902	3.75	<1	1	1	1.028	102.80	125	75
SILVER-ICP C	mg/L	TAS	0.2	0.1936	96.80	120	80	1.843	1.862	1.03	<0.1	0.1	0.2	0.1843	92.15	125	75
NICKEL-ICP C	mg/L	TAS	1	1.02	102.00	120	80	0.9833	1	1.68	<0.04	0.04	1	0.9974	99.74	125	75
ZINC-ICP C	mg/L	TAS	1	1.023	102.30	120	80	2.04	2.081	1.99	<0.01	0.01	1	0.975	97.50	125	75
ARSENIC-ICP V	mg/kg	TAS	85	67.1	78.94	120	80	572.1	546.3	4.61	<5	5	1	0.8582	85.82	125	75
CADMIUM-ICP V	mg/kg	TAS	81.5	89.7	110.06	120	80	571.7	535.9	6.46	<0.5	0.5	1	0.8576	85.76	125	75
CHROMIUM-ICP V	mg/kg	TAS	57.4	56	97.56	120	80	551.4	516.3	6.57	<1	1	1	0.8216	82.16	125	75
COPPER-ICP V	mg/kg	TAS	146	149	102.05	120	80	533.6	500	6.50	<1	1	1	0.7948	79.48	125	75
NICKEL-ICP V	mg/kg	TAS	35.8	39.5	110.34	120	80	561.6	525.7	6.60	<2	2	1	0.8387	83.87	125	75
LEAD-ICP V	mg/kg	TAS	128	132	103.13	120	80	1445	1428	1.18	<5	5	1	0.9134	91.34	125	75
ZINC-ICP V	mg/kg	TAS	76.5	73.5	96.08	120	80	650.2	623.4	4.21	<0.5	0.5	1	0.839	83.90	125	75
MERCURY U	mg/L	KRA	23.7	21.9	92.41	120	80	0.00097	0.0009	1.03	<0.0002	0.0002	0.001	0.00098	98.00	125	75
MERCURY N	mg/L	KRA	0.001	0.0009	99.00	120	80	0.001	0.0010	3.92	<0.0002	0.0002	0.001	0.001	100.00	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
* = MATRIX SPIKE FAILED (NO SPIKE SOLUTION ADDED).
** = SPIKE DILUTED OUT DUE TO HIGH CONCENTRATION OF ANALYTE.

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium
POST SPIKE ADDITION PERFORMED SEE CORRECTIVE ACTION.

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 07/13/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
MAGNESIUM-ICP R	mg/L	JYH	10	10	100.00	120	80	10.3	10.3	0.00	<0.5	0.5	10	10.3	103.00	125	75
MANGANESE-ICP R	mg/L	JYH	1	1.05	105.00	120	80	1.06	1.07	0.94	<0.01	0.01	1	1.06	106.00	125	75
SODIUM-ICP R	mg/L	JYH	10	10.2	102.00	120	80	9.6	8	18.18	<0.5	0.5	10	9.6	96.00	125	75
NICKEL-ICP R	mg/L	JYH	1	1.04	104.00	120	80	1.1	1.08	1.83	<0.04	0.04	1	1.1	110.00	125	75
ANTIMONY-ICP R	mg/L	JYH	1	1.01	101.00	120	80	1.06	1.07	0.94	<0.2	0.2	1	1.06	106.00	125	75
VANADIUM-ICP R	mg/L	JYH	1	1	100.00	120	80	1.02	1.02	0.00	<0.01	0.01	1	1.02	102.00	125	75
ZINC-ICP R	mg/L	JYH	1	1.02	102.00	120	80	1.06	1.05	0.95	<0.01	0.01	1	1.06	106.00	125	75
ARSENIC-ICP R	mg/L	JYH	1	1.06	106.00	120	80	1.11	1.11	0.00	<0.1	0.1	1	1.11	111.00	125	75
LEAD-ICP R	mg/L	JYH	1	1	100.00	120	80	1.08	1.03	4.74	<0.1	0.1	1	1.08	108.00	125	75
SELENIUM-ICP R	mg/L	JYH	1	1.08	108.00	120	80	1.08	1.03	4.74	<0.1	0.1	1	1.08	108.00	125	75
MERCURY L	mg/L	KRA	0.001	0.0009	99.00	120	80	0.00099	0.0009	4.12	<0.0002	0.0002	0.001	0.00099	99.00	125	75
MERCURY H	mg/L	KRA	23.7	21.9	92.41	120	80	0.00084	0.0008	3.51	<0.0002	0.0002	0.001	0.00087	87.00	125	75
SELENIUM-FURN K	mg/L	TNO	0.025	0.0229	91.60	120	80	0.0215	0.0231	7.17	<0.004	0.004	0.025	0.0257	102.80	115	85
SELENIUM-FURN A2	mg/L	TNO	0.025	0.022	88.00	120	80	0.013	0.017	26.67	<0.004	0.004	0.025	0.0258	103.20	115	85
FLUORIDE	mg/L	SCH	2	2.11	105.50	124	89	< 0.1	< 0.1	0.00	<0.1	0.1	0.4	0.362	90.50	125	75
TDS	mg/L	MZL	500	486	97.20	114	80	540	540	0.00	<10	10	500	538	107.60	124	78
TSS	mg/L	MZL	50	52	104.00	121	75	240	240	0.00	<5	5	50	51	102.00	125	75
PHENOL	mg/L	JWR	0.5	0.45	90.00	114	85	< 0.005	< 0.005	0.00	<0.005	0.005	0.5	0.46	92.00	122	75
PHOSPHORUS-SOIL	mg/kg	PJH	50	43.5	87.00	111	90	< 2.5	< 2.5	0.00	<2.5	2.5	0.4	0.532	133.00	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
** = ANALYZED BY METHOD OF STANDARD ADDITION

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 07/13/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
ANTIMONY-FURN W	mg/L	AJS	0.025	0.024	96.00	120	80	0.0245	0.024	2.06	<0.02	0.02	0.025	0.0245	98.00	115	85
CHROMIUM-FURN W	mg/L	AJS	0.025	0.0249	99.60	120	80	0.02352	0.0257	9.05	<0.005	0.005	0.025	0.02575	103.00	115	85
ARSENIC-ICP B	mg/L	TAS	1	1.058	105.80	120	80	1.057	1.082	2.34	<1	1	1	1.012	101.20	125	75
BARIUM-ICP B	mg/L	TAS	10	9.96	99.60	120	80	10.14	10.03	1.09	<0.1	0.1	10.1	10.03	99.31	125	75
CADMIUM-ICP B	mg/L	TAS	1	0.9999	99.99	120	80	1.064	1.066	0.19	<0.1	0.1	1	1.06	106.00	125	75
CHROMIUM-ICP B	mg/L	TAS	1	1.005	100.50	120	80	1.051	1.05	0.10	<0.2	0.2	1	1.05	105.00	125	75
LEAD-ICP B	mg/L	TAS	1	1.001	100.10	120	80	1.077	1.124	4.27	<1	1	1	1.077	107.70	125	75
SELENIUM-ICP B	mg/L	TAS	1	0.9355	93.55	120	80	0.9646	1.012	4.80	<1	1	1	1.012	101.20	125	75
SILVER-ICP B	mg/L	TAS	0.2	0.195	97.50	120	80	0.2004	0.1983	1.05	<0.1	0.1	0.2	0.2004	100.20	125	75
NICKEL-ICP B	mg/L	TAS	1	0.9911	99.11	120	80	1.047	1.045	0.19	<0.04	0.04	1	1.036	103.60	125	75
SILVER-ICP F	mg/L	TAS	0.2	0.1979	98.95	120	80	0.1996	0.2069	3.59	<0.01	0.01	0.2	0.2015	100.75	125	75
BARIUM-ICP F	mg/L	TAS	10	9.651	96.51	120	80	9.717	9.869	1.55	<0.01	0.01	10	9.851	98.51	125	75
CADMIUM-ICP F	mg/L	TAS	1	1.003	100.30	120	80	1.03	1.059	2.78	<0.01	0.01	1	1.03	103.00	125	75
CHROMIUM-ICP F	mg/L	TAS	1	0.984	98.40	120	80	1.001	1.027	2.56	<0.02	0.02	1	0.9959	99.59	125	75
COPPER-ICP F	mg/L	TAS	1	0.9967	99.67	120	80	1.011	1.034	2.25	<0.02	0.02	1	1.001	100.10	125	75
NICKEL-ICP F	mg/L	TAS	1	1.009	100.90	120	80	1.015	1.054	3.77	<0.04	0.04	1	1.015	101.50	125	75
LEAD-ICP F	mg/L	TAS	1	1.006	100.60	120	80	1.007	1.014	0.69	<0.1	0.1	1	1.007	100.70	125	75
ANTIMONY-ICP F	mg/L	TAS	1	1.047	104.70	120	80	1.051	1.037	1.34	<0.2	0.2	1	1.037	103.70	125	75
ZINC-ICP F	mg/L	TAS	1	0.9943	99.43	120	80	1.049	1.075	2.45	<0.01	0.01	1	1.015	101.50	125	75
BORON-ICP R	mg/L	JYH	1	1.18	118.00	120	80	1.17	1.15	1.72	<0.5	0.5	1	1.17	117.00	125	75
MOLYBDENUM-ICP R	mg/L	JYH	2.5	2.6	104.00	120	80	2.8	2.7	3.64	<0.1	0.1	2.5	2.8	112.00	125	75
SILICON-ICP R	mg/L	JYH	25	29.6	118.40	120	80	27.1	25.6	5.69	<1.0	1	25	27.1	108.40	125	75
TITANIUM-ICP R	mg/L	JYH	1	1.04	104.00	120	80	1.07	1.03	3.81	<0.03	0.03	1	1.07	107.00	125	75
AMMONIA-DIST	mg/L	RJS	2	1.823	91.15	114	75	---	---	---	<0.01	0.1	1	0.992	99.20	125	75
CHLORIDE	mg/L	RJS	50	49.29	98.58	108	97	17.86	17.69	0.96	<2.0	2	20	21.26	106.30	113	80
SILVER-ICP R	mg/L	JYH	0.2	0.21	105.00	120	80	0.2	0.21	4.88	<0.01	0.01	0.2	0.2	100.00	125	75
ALUMINUM-ICP R	mg/L	JYH	1	1.04	104.00	120	80	1.06	1.07	0.94	<0.01	0.1	1	1.06	106.00	125	75
BARIUM-ICP R	mg/L	TAS	10	10.2	102.00	120	80	10	10.1	1.00	<0.01	0.01	10	10	100.00	125	75
BERYLLIUM-ICP R	mg/L	JYH	1	1	100.00	120	80	1.02	1.02	0.00	<0.01	0.01	1	1.02	102.00	125	75
CADMIUM-ICP R	mg/L	JYH	1	1.02	102.00	120	80	1.04	1.05	0.96	<0.01	0.01	1	1.04	104.00	125	75
COBALT-ICP R	mg/L	JYH	1	1.03	103.00	120	80	1.06	1.06	0.00	<0.02	0.02	1	1.06	106.00	125	75
CHROMIUM-ICP R	mg/L	JYH	1	1.04	104.00	120	80	1.06	1.06	0.00	<0.02	0.02	1	1.06	106.00	125	75
COPPER-ICP R	mg/L	JYH	1	1.02	102.00	120	80	1.03	1.02	0.98	<0.02	0.02	1	1.03	103.00	125	75
IRON-ICP R	mg/L	JYH	1	1.04	104.00	120	80	1.07	1.07	0.00	<0.04	0.04	1	1.07	107.00	125	75
POTASSIUM-ICP R	mg/L	JYH	10	10.3	103.00	120	80	10.9	10.2	6.64	<1	1	10	10.9	109.00	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
* = MATRIX SPIKE FAILED (NO SPIKE SOLUTION ADDED).
** = SPIKE DILUTED OUT DUE TO HIGH CONCENTRATION OF ANALYTE.

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium
POST SPIKE ADDITION PERFORMED SEE CORRECTIVE ACTION.

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 07/11/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
SILVER-ICP G	mg/kg	JYH	85	66	77.65	125	34	0.18	0.18	0.00	<0.01	0.01	0.2	0.18	90.00	125	75
BERYLLIUM-ICP G	mg/kg	JYH	152	190	125.00	211	97.3	0.86	0.91	5.65	<0.01	0.01	1	0.86	86.00	125	75
CADMIUM-ICP G	mg/kg	JYH	81.5	95	116.56	114	40.7	0.85	0.88	3.47	<0.01	0.01	1	0.85	85.00	125	75
CHROMIUM-ICP G	mg/kg	JYH	57.4	59	102.79	80.4	33.9	0.95	0.92	3.21	<0.02	0.02	1	0.95	95.00	125	75
COPPER-ICP G	mg/kg	JYH	146	170	116.44	205	88.8	0.96	0.9	6.45	<0.02	0.02	1	0.96	96.00	125	75
NICKEL-ICP G	mg/kg	JYH	35.8	42	117.32	51.2	21.1	0.86	0.91	5.65	<0.04	0.04	1	0.81	81.00	125	75
ZINC-ICP G	mg/kg	JYH	76.5	75	98.04	116	43.6	1.06	1.05	0.95	<0.01	0.01	1	1.06	106.00	125	75
MOLYBDENUM-ICP G	mg/kg	JYH	198	210	106.06	325	109	2.51	2.5	0.40	<0.1	0.1	2.5	2.51	100.40	125	75
SELENIUM-ICP G	mg/kg	JYH	47.6	45	94.54	69.5	24.3	0.84	0.89	5.78	<0.1	0.1	1	0.84	84.00	125	75
CHLORIDE	mg/L	REB	50	52.5	105.00	108	97	36	35	2.82	<2	2	20	18.7	93.50	113	80
CHLORIDE-SOIL	mg/kg	REB	200	194	97.00	125	75	280	230	19.61	<8	8	80	80	100.00	125	75
LEAD-FURNACE Y	mg/L	AJS	0.025	0.0255	102.12	120	80	0.02217	0.0220	0.50	<0.005	0.005	0.025	0.02314	92.56	115	85
LEAD-FURNACE DISS	mg/L	AJS	0.025	0.0234	93.80	120	80	< 0.005	< 0.005	0.00	<0.005	0.005	0.025	0.02427	97.08	115	85
LEAD-FURNACE O	mg/kg	ALC	128	132	103.13	68.9	179	0.0246	0.0244	0.82	<0.005	0.005	0.025	0.0246	98.40	115	85
CADMIUM-FURN DISS	mg/L	ALC	0.002	0.0026	107.60	120	80	0.00266	0.0026	1.13	<0.0005	0.0005	0.0025	0.00263	105.20	115	85
LEAD-ICP G	mg/L	JYH	128	143	111.72	179	68.9	1.12	1.09	2.71	<0.1	0.1	1	1.12	112.00	125	75
NITRATE	mg/L	REB	1	0.976	97.60	113	90	< 0.05	< 0.05	0.00	<0.05	0.05	0.5	0.445	89.00	121	79
TSS	mg/L	MZL	50	53	106.00	121	75	5500	5600	1.80	<5	5	25	---	---	---	---
TOC	mg/L	PJH	25	25.97	103.88	110	90	18.08	18.41	1.81	<1	1	25	24.6	98.40	125	75
OIL & GREASE	mg/L	PJH	10	9.8	98.00	125	75	9.8	9.3	5.24	<1	1	10	9.3	93.00	125	75
ARSENIC-FURN X	mg/L	SPL	0.025	0.0284	113.60	120	80	0.0193	0.0201	4.06	<0.004	0.004	0.025	0.0278	111.20	115	85
MERCURY F	mg/L	KRA	23.7	20.4	86.08	120	80	0.00113	0.001	12.21	<0.0002	0.0002	0.001	0.001	100.00	125	75
MERCURY C	mg/L	KRA	0.001	0.0009	90.00	120	80	0.00089	0.0009	1.12	<0.0002	0.0002	0.001	0.0009	90.00	125	75
MERCURY Q	mg/L	KRA	0.001	0.0008	84.00	120	80	0.00086	0.0008	2.35	<0.0002	0.0002	0.001	0.0086	860.00	125	75
ARSENIC-ICP G	mg/kg	JYH	65.1	73	112.14	97	31.9	0.89	0.95	6.52	<0.1	0.1	1	0.89	89.00	125	75
SULFATE	mg/L	MZL	20	18.9	94.50	107	79	19	19	0.00	<2	2	10	12	120.00	125	75
SELENIUM-FURN X	mg/L	TNO	0.025	0.0222	88.80	120	80	0.0249	0.0222	11.46	<0.004	0.004	0.025	0.0252	100.80	115	85
SILVER-ICP H	mg/L	TAS	0.2	0.191	95.50	120	80	0.18511	0.1846	0.28	<0.01	0.01	0.2	0.1856	92.80	125	75
BARIUM-ICP H	mg/L	TAS	10	9.608	96.08	120	80	9.32	9.228	0.99	<0.01	0.01	10	9.315	93.15	125	75
CADMIUM-ICP H	mg/L	TAS	1	0.9332	93.32	120	80	0.9002	0.8914	0.98	<0.01	0.01	1	0.9002	90.02	125	75
CHROMIUM-ICP H	mg/L	TAS	1	0.9358	93.58	120	80	0.9049	0.8979	0.78	<0.02	0.02	1	0.9025	90.25	125	75
COPPER-ICP H	mg/L	TAS	1	0.9827	98.27	120	80	0.955	0.9435	1.21	<0.02	0.02	1	0.9527	95.27	125	75
NICKEL-ICP H	mg/L	TAS	1	0.9291	92.91	120	80	0.9116	0.8912	2.26	<0.04	0.04	1	0.9116	91.16	125	75
LEAD-ICP H	mg/L	TAS	1	0.933	93.30	120	80	0.9315	0.8983	3.63	<0.1	0.1	1	0.9084	90.84	125	75
ANTIMONY-ICP H	mg/L	TAS	1	1.036	103.60	120	80	0.9157	1.036	12.33	<0.2	0.2	1	1.021	102.10	125	75
ZINC-ICP H	mg/L	TAS	1	0.9612	96.12	120	80	0.9567	0.9085	5.17	0.017	0.01	1	0.924	92.40	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
** = ANALYZED BY METHOD OF STANDARD ADDITION

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 07/07/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
CADMIUM-ICP X	mg/L	JYH	1	1.05	105.00	120	80	1.02	0.99	2.99	<0.01	0.01	1	1.02	102.00	125	75
NICKEL-ICP X	mg/L	JYH	1	1.07	107.00	120	80	1.11	1.1	0.90	<0.04	0.04	1	1.1	110.00	125	75
LEAD-ICP X	mg/L	JYH	1	1.06	106.00	120	80	0.93	0.9	3.28	<0.1	0.1	1	0.93	93.00	125	75
TIN-ICP X	mg/L	JYH	5	5.1	102.00	120	80	4.5	4.4	2.25	<0.5	0.5	5	4.5	90.00	125	75
ARSENIC-FURNACE I	mg/L	TNO	0.025	0.0228	91.20	120	80	0.0292	0.0275	6.00	<0.004	0.004	0.025	0.0289	115.60	115	85
ANTIMONY-FURN A	mg/L	AJS	0.025	0.0251	100.40	120	80	0.0275	0.0.0263	4.46	<0.02	0.02	0.025	0.0263*	105.20	115	85
LEAD-FURNACE A	mg/L	AJS	0.025	0.0253	101.20	120	80	0.027	0.0274	1.47	<0.005	0.005	0.025	0.0269*	107.60	115	85
ARSENIC-ICP K	mg/L	TAS	1	0.8217	82.17	120	80	0.9001	0.8814	2.10	<1	1	1	0.9269	92.69	125	75
BARIUM-ICP K	mg/L	TAS	10	9.056	90.56	120	80	8.844	8.912	0.77	<0.1	0.1	10	8.781	87.81	125	75
CADMIUM-ICP K	mg/L	TAS	1	0.9405	94.05	120	80	0.925	0.9362	1.20	<0.1	0.1	1	0.9347	93.47	125	75
CHROMIUM-ICP K	mg/L	TAS	1	0.9297	92.97	120	80	0.9058	0.9128	0.77	<0.2	0.2	1	0.9107	91.07	125	75
LEAD-ICP K	mg/L	TAS	1	0.9835	98.35	120	80	0.9028	0.9257	2.50	<1	1	1	0.9143	91.43	125	75
SELENIUM-ICP K	mg/L	TAS	1	0.8628	86.28	120	80	0.8583	0.9055	5.35	<1	1	1	0.8583	85.83	125	75
SILVER-ICP K	mg/L	TAS	0.2	0.1801	90.05	120	80	0.1729	0.1782	3.02	<0.1	0.1	0.2	0.1756	87.80	125	75
TKN	mg/L	JWR	1	0.85	85.00	116	80	0.9	0.96	6.45	<0.1	0.1	0.5	0.402	80.40	125	75
PHOSPHORUS	mg/L	JWR	2	1.9	95.00	125	75	0.16	0.2	22.22	<0.1	0.1	0.5	0.379	75.80	125	75
AMMONIA AA2	mg/L	JWR	2	2.09	104.50	117	75	1.01	1.03	1.96	<0.03	0.03	1	1.01	101.00	125	75
TSS	mg/L	MZL	50	53	106.00	121	75	27	31	13.79	<5	5	50	54	108.00	125	75
MERCURY S	mg/L	KRA	0.001	0.0010	102.00	120	80	0.00095	0.0009	2.08	<0.0002	0.0002	0.001	0.00097	97.00	125	75
SILVER-ICP A	mg/L	JEC	0.005	0.0050	101.80	120	80	0.00494	0.0051	3.77	<0.0005	0.0005	0.005	0.00491	98.20	115	85
CADMIUM-FURNACE A	mg/L	AJS	0.002	0.0024	98.80	120	80	0.00285	0.0029	2.43	<0.0005	0.0005	0.0025	.00257*	102.80	115	85
THALLIUM-FURN A	mg/L	ALC	0.025	0.0261	104.40	120	80	0.0215	0.022	2.30	<0.005	0.005	0.025	0.022	88.00	115	85
MBAS	mg/L	PJH	1	1.07	107.00	117	75	23	22	4.44	<0.1	0.1	1	1.02	102.00	112	75
ORTHOPHOSPHATE	mg/L	PJH	1	1.02	102.00	104	90	91	91	0.00	<0.05	0.05	0.5	0.466	93.20	118	75
TOC-SOIL	mg/kg	RJS	10000	10700	107.00	---	---	1000	1300	26.09	<200	200	5000	5880	117.60	125	75
COD	mg/L	PJH	100	106	106.00	120	80	< 5	< 5	0.00	<5	5	50	62.5	125.00	125	75
BOD	mg/L	SCM	200	188	94.00	119	82	100	100	0.00	<3	3	200	185	92.50	122	82

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
* = MATRIX SPIKE FAILED (NO SPIKE SOLUTION ADDED).
** = SPIKE DILUTED OUT DUE TO HIGH CONCENTRATION OF ANALYTE.

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium
POST SPIKE ADDITION PERFORMED SEE CORRECTIVE ACTION.

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 07/06/95

			REFERENCE STANDARD					DUPLICATE SAMPLE			BLANK		MATRIX/MEDIA SPIKE				
Parameter	Units	Analyst	Known	Result	Rec.(%)	UCLx	LCLx	Result1	Result2	RPD (%)	Result	MDL	Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
OIL & GREASE	mg/L	PJH	10	11.6	116.00	125	75	11.6	11.9	2.55	<1	1	10	11.9	119.00	125	75
TSS	mg/L	SCM	50	51	102.00	121	75	---	---	---	<5	5	---	---	---	125	75
SILVER-ICP S	mg/L	JYH	0.2	0.2	100.00	120	80	0.19	0.2	5.13	<0.01	0.01	0.2	0.19	95.00	125	75
BARIUM-ICP S	mg/L	JYH	10	9.7	97.00	120	80	9.5	9.7	2.08	<0.01	0.01	10	9.5	95.00	125	75
CADMIUM-ICP S	mg/L	JYH	1	1	100.00	120	80	0.95	0.98	3.11	<0.01	0.01	1	0.95	95.00	125	75
CHROMIUM-ICP S	mg/L	JYH	1	0.99	99.00	120	80	0.94	0.96	2.11	<0.02	0.02	1	0.94	94.00	125	75
IRON-ICP S	mg/L	JYH	1	1.07	107.00	120	80	0.97	0.98	1.03	<0.04	0.04	1	0.97	97.00	125	75
POTASSIUM-ICP S	mg/L	JYH	10	9.9	99.00	120	80	9.7	9.9	2.04	<1	1	10	9.7	97.00	125	75
NICKEL-ICP S	mg/L	JYH	1	1.01	101.00	120	80	0.98	0.98	0.00	<0.04	0.04	1	0.98	98.00	125	75
ARSENIC-ICP S	mg/L	JYH	1	1.01	101.00	120	80	0.94	1.02	8.16	<0.1	0.1	1	0.94	94.00	125	75
LEAD-ICP S	mg/L	JYH	1	1.01	101.00	120	80	0.93	0.97	4.21	<0.1	0.1	1	0.93	93.00	125	75
MERCURY O	mg/L	KRA	0.001	0.0010	106.00	120	80	0.00095	0.0009	0.00	<0.0002	0.0002	0.001	0.00095	95.00	125	75
SELENIUM-FURN L	mg/L	TNO	0.025	0.0251	100.40	120	80	0.0231	0.0217	6.25	<0.004	0.004	0.025	0.0232	92.80	115	85
COPPER-ICP N	mg/L	TAS	1	0.9758	97.58	120	80	1525	1589	4.11	<0.02	0.02	1	1.005	100.50	125	75
NICKEL-ICP N	mg/L	TAS	1	0.9842	98.42	120	80	9043	9515	5.09	<0.04	0.04	1	1.034	103.40	125	75
LEAD-ICP N	mg/L	TAS	1	0.9395	93.95	120	80	1133	1197	5.49	<0.1	0.1	1	0.9537	95.37	125	75
ARSENIC-ICP A	mg/L	TAS	1	0.9952	99.52	120	80	1.032	0.9855	4.61	<1	1	1	0.9843	98.43	125	75
BARIUM-ICP A	mg/L	TAS	10	9.928	99.28	120	80	9.861	9.228	6.63	<0.1	0.1	10	9.629	96.29	125	75
CADMIUM-ICP A	mg/L	TAS	1	1.009	100.90	120	80	1.046	1.006	3.90	<0.1	0.1	1	1.044	104.40	125	75
CHROMIUM-ICP A	mg/L	TAS	1	1.007	100.70	120	80	1.026	0.979	4.69	<0.2	0.2	1	1.018	101.80	125	75
LEAD-ICP A	mg/L	TAS	1	0.9502	95.02	120	80	1.051	0.9243	12.83	<1	1	1	1.051	105.10	125	75
SELENIUM-ICP A	mg/L	TAS	1	0.9609	96.09	120	80	1.008	0.9863	2.18	<1	1	1	1.008	100.80	125	75
SILVER-ICP A	mg/L	TAS	0.2	0.1929	96.45	120	80	0.1865	0.1772	5.11	<0.1	0.1	0.2	0.1865	93.25	125	75
ARSENIC-ICP Y	mg/L	TAS	1	0.8753	87.53	120	80	1	0.9362	6.59	<1	1	1	0.9362	93.62	125	75
BARIUM-ICP Y	mg/L	TAS	10	8.754	87.54	120	80	9.318	9.181	1.48	<0.1	0.1	10	9.257	92.57	125	75
CADMIUM-ICP Y	mg/L	TAS	1	0.9319	93.19	120	80	1.003	0.9922	1.08	<0.1	0.1	1	1.003	100.30	125	75
CHROMIUM-ICP Y	mg/L	TAS	1	0.9192	91.92	120	80	0.9835	0.9714	1.24	<0.2	0.2	1	0.9834	98.34	125	75
LEAD-ICP Y	mg/L	TAS	1	0.9316	93.16	120	80	1.002	0.9427	6.10	<1	1	1	1.002	100.20	125	75
SELENIUM-ICP Y	mg/L	TAS	1	0.8971	89.71	120	80	0.9593	1.012	5.35	<1	1	1	0.9593	95.93	125	75
SILVER-ICP Y	mg/L	TAS	0.2	0.1739	86.95	120	80	0.1847	0.1815	1.75	<0.1	0.1	0.2	0.1847	92.35	125	75
AMMONIA	mg/L	JWR	2	1.99	99.50	114	75	8.2	8.8	7.06	<0.1	0.1	1	1.14	114.00	125	75
ALKALINITY	mg/L	JWR	200	196	98.00	109	79	467	468	0.21	<10	10	100	81	81.00	108	75
CHLORIDE	mg/L	JWR	50	53.7	107.40	108	97	9	10	10.53	<2	2	20	21.2	106.00	113	80
AMMONIA	mg/kg	JWR	40	41.2	103.00	114	75	< 2	< 2	0.00	<2	2	20	---	---	125	75
AMMONIA AA	mg/L	JWR	2	1.93	96.50	114	75	0.2	0.21	4.88	<0.03	0.03	1	1.1	110.00	125	75
TDS	mg/L	SCM	500	494	98.80	114	80	4200	4300	2.35	<10	10	500	---	---	124	78
TOC-SOIL	mg/kg	RJS	10000	11300	113.00	*	*	98000	80000	20.22	<200	200	5000	7670	153.40	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

WORK ORDER #: N5016-532 SAMPLE #: 1-4 PAGE 1

SAMPLE #	TESTS	REASON	REMOVED BY (ADT)	REMOVED FROM	MOVED TO	RELIQ. BY	RET'D BY (ADT)	RET'D TO	REC'D BY	REASON
01-04A	NO3/TKN	Analysis/Sub	ARB 6-29-95	Log-in	Lancaster (lab)	ARB				
1-04	PCL-S	AN	pjh/6/29/95/1415	walk-in	wet Lab	ARB	pjh/6/29/95 1630	walk-in	ARB	Store
532-01-04	NH3	DISTIL	RJS/07/01/95/0845	~~ARCHIVE~~ ~~WALK-IN~~ RJS	WET LAB	Big	RJS/07/01/9345	WALKIN	Big 7/3/95 905	Not enough time to start analysis
6/532-01-04	TOC-S NH3	ANALYSIS	RJS/07/06/95/0810	WALKIN	WET LAB	ARB	RJS/07/06/95/1630	WALK-IN	ARB	STORE
-4	CL-S	SAW	mzh/7/6/0810	walkin	wet lab	ARB	mzh/7/6/0900	walkin	ARB	storage
-4	Phos-S	AN	pjh/7/10/0745	walkin	wet/lab	Big	pjh/7/10/95 1700	Archives	ARB	Storage
-4B	Metals	Anal	SAE/7/12/9:45	walkin	Metals	ARB	SAE/7/12 1413	walkin	ARB	Storage
-4	Phos-S	AN	pjh/7/13/825	Archives ~~walkin~~	wet Lab	Big	pjh/7/13/1055	Archives	Big	Storage

Samples sent to Lancaster 6-29-95 - Lancaster will dispose of samples. J.B.

ENVIRONMENTAL SERVICES

CHAIN-OF-CUSTODY RECORD

№ 3664

Page 1 of 1

Project Contact: William Burton

Turn Around Requirements:

Project No.: 062-002

Project Name: ACOE - Salem River

Sampler (print): Philip Wirth

Signature: Philip Wirth

Sample I.D. No.	Comp*	Grab	Date	Time	Protocol CWA	Protocol SW846	NUMBER OF SAMPLES	Hold	NO_3/TKN	Metals/AS/TOC	NH_3/Chloride/TP	ADDITIONAL REQUIREMENTS
Salem 1 c.p.p		X	6/27/95	11:05			3		✓	✓	✓	
Salem 2 c.p.p		X	6/27/95	11:35			3		✓	✓	✓	
Salem 3 c.p.p		X	6/27/95	12:30			3		✓	✓	✓	Bottles arr 18:00
Salem 4 c.p.p		X	6/27/95	14:30			3		✓	✓	✓	Bottles arr 14:00

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Philip Wirth	6/28/95	8:00					

Relinquished by: (Signature)	Date	Time	Received for Laboratory by: (Signature)	Date	Time	Remarks:
			Angela R. Brown	6/29/95	9:30	Cooler Temp 3.4 / Cooler Sealed / Seals intact

*Homogenize all composite samples prior to analysis

White - Lab Yellow - Office Pink - Field

KEMRON Environmental Services
109 Starlite Park
Marietta, Ohio 45750

Phone: (614) 373-4071

KEMRON ENVIRONMENTAL SERVICES

VERSAR, INC.
9200 Rumsey Road
Columbia, MD 21045-1934

Attn: Willie Burton

Order #: N5-07-014
Date: July 10, 1995 16:46
Work ID: 3062-002/Salem River Weir
Date Received: 07/01/95
Date Completed: 07/10/95

Client Code: VERSAR_MD331

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	Salem/Weir 0630-001	02	Salem/Weir 0630-002
03	Salem/Jetty 0629-001		

AS REQUESTED ALL TOTAL ANALYSES HAVE BEEN REPORTED ON A DRY WEIGHT BASIS WHERE APPLICABLE

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Deanna Hesson

Certified by
Deanna Hesson

KEMRON ENVIRONMENTAL SERVICES
RESULTS BY SAMPLE

This is to certify that the following samples were analyzed using good laboratory practices to show the following results.

SAMPLE ID: 01 Salem/Weir 0630-001 Collected: 06/30/95 10:45 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	<5	5	mg/L	07/06/95	SCM	160.2

SAMPLE ID: 02 Salem/Weir 0630-002 Collected: 06/30/95 11:00 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
* Total Suspended Solids	7	5	mg/L	07/06/95	SCM	160.2

SAMPLE ID: 03 Salem/Jetty 0629-001 Collected: 06/29/95 13:25 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	21	5	mg/L	07/06/95	SCM	160.2

INORGANIC QA/QC

Kemron
ENVIRONMENTAL SERVICES

EPA Method 160.2 (Dried at 103-105C) - Total Suspended Solids

EPA Method 180.1 - Turbidity

EPA Method 160.2 (Dried at 103-105C) - Total Suspended Solids

KEMRON ANALYST LIST

Ohio Valley Laboratory

04/21/95

AJS - - Ashlee J. Scott
ALC - - Ann L. Clark
BAR - - Beth A. Raper
CEB - - Chad E. Barnes
DIH - - Deanna I. Hesson
DJP - - Douglas J. Poling
DLP - - Dorothy L. Payne
DST - - Dennis S. Tepe
ECL - - Eric C. Lawson
EDG - - Eric D. Gerkin
FEH - - Fay E. Harmon
FRM - - Fred R. Montgomery
GWH - - George W. Hutchison
HV - - Hema Vilasagar
JEC - - Jesse E. Chapman
JYH - - Ji Y. Hu
JKM - - June K. Morris
JLH - - Janice L. Holland
JLL - - Janice L. Landshof
JMM - - Jim M. Monk
JWR - - John W. Richards
KHA - - Kim H. Archer
KMM - - Kevin M. McDonald
KPO - - Kevin P. Overstreet
KRA - - Kathy R. Albertson
LMW - - Lisa M. Wagner
MBJ - - Matthew B. Jarrell
MDA - - Mike D. Albertson
MDC - - Michael D. Cochran
MLS - - Michael L. Schimmel
MZL - - Melanie Z. Lewis
PJH - - Pamela J. Holtz
PST - - Pam S. Tornes
REB - - Russell E. Burton
REK - - Robert E. Kyer
RJS - - Rick J. Santos
RWC - - Rodney W. Campbell
SCM - - Susan C. Moellendick
SCW - - Stephen C. West
SLM - - Stephanie L. Mossburg
SPL - - Steve P. Learn
SSS - - Susan S. Snodgrass
TAS - - Tamela A. Sams
TKT - - Tonya K. Troutner
TLD - - Teresa L. Davis
TNO - - Tunde N. Oladunni
VC - - Vicki Collier
WCD - - Wade C. Dawson
WDL - - William D. Landshof

QUALITY ASSURANC Y REPORT

OHIO VALLEY LABORATORY Date: 07/06/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
OIL & GREASE	mg/L	PJH	10	11.6	116.00	125	75	11.6	11.9	2.55	<1	1	10	11.9	119.00	125	75
TSS	mg/L	SCM	50	51	102.00	121	75	---	---	---	<5	5	---	---	---	125	75
SILVER-ICP S	mg/L	JYH	0.2	0.2	100.00	120	80	0.19	0.2	5.13	<0.01	0.01	0.2	0.19	95.00	125	75
BARIUM-ICP S	mg/L	JYH	10	9.7	97.00	120	80	9.5	9.7	2.08	<0.01	0.01	10	9.5	95.00	125	75
CADMIUM-ICP S	mg/L	JYH	1	1	100.00	120	80	0.95	0.98	3.11	<0.01	0.01	1	0.95	95.00	125	75
CHROMIUM-ICP S	mg/L	JYH	1	0.99	99.00	120	80	0.94	0.96	2.11	<0.02	0.02	1	0.94	94.00	125	75
IRON-ICP S	mg/L	JYH	1	1.07	107.00	120	80	0.97	0.98	1.03	<0.04	0.04	1	0.97	97.00	125	75
POTASSIUM-ICP S	mg/L	JYH	10	9.9	99.00	120	80	9.7	9.9	2.04	<1	1	10	9.7	97.00	125	75
NICKEL-ICP S	mg/L	JYH	1	1.01	101.00	120	80	0.98	0.98	0.00	<0.04	0.04	1	0.98	98.00	125	75
ARSENIC-ICP S	mg/L	JYH	1	1.01	101.00	120	80	0.94	1.02	8.16	<0.1	0.1	1	0.94	94.00	125	75
LEAD-ICP S	mg/L	JYH	1	1.01	101.00	120	80	0.93	0.97	4.21	<0.1	0.1	1	0.93	93.00	125	75
MERCURY O	mg/L	KRA	0.001	0.0010	106.00	120	80	0.00095	0.0009	0.00	<0.0002	0.0002	0.001	0.00095	95.00	125	75
SELENIUM-FURN L	mg/L	TNO	0.025	0.0251	100.40	120	80	0.0231	0.0217	6.25	<0.004	0.004	0.025	0.0232	92.80	115	85
COPPER-ICP N	mg/L	TAS	1	0.9758	97.58	120	80	1525	1589	4.11	<0.02	0.02	1	1.005	100.50	125	75
NICKEL-ICP N	mg/L	TAS	1	0.9842	98.42	120	80	9043	9515	5.09	<0.04	0.04	1	1.034	103.40	125	75
LEAD-ICP N	mg/L	TAS	1	0.9395	93.95	120	80	1133	1197	5.49	<0.1	0.1	1	0.9537	95.37	125	75
ARSENIC-ICP A	mg/L	TAS	1	0.9952	99.52	120	80	1.032	0.9855	4.61	<1	1	1	0.9843	98.43	125	75
BARIUM-ICP A	mg/L	TAS	10	9.928	99.28	120	80	9.861	9.228	6.63	<0.1	0.1	10	9.629	96.29	125	75
CADMIUM-ICP A	mg/L	TAS	1	1.009	100.90	120	80	1.046	1.006	3.90	<0.1	0.1	1	1.044	104.40	125	75
CHROMIUM-ICP A	mg/L	TAS	1	1.007	100.70	120	80	1.026	0.979	4.69	<0.2	0.2	1	1.018	101.80	125	75
LEAD-ICP A	mg/L	TAS	1	0.9502	95.02	120	80	1.051	0.9243	12.83	<1	1	1	1.051	105.10	125	75
SELENIUM-ICP A	mg/L	TAS	1	0.9609	96.09	120	80	1.008	0.9863	2.18	<1	1	1	1.008	100.80	125	75
SILVER-ICP A	mg/L	TAS	0.2	0.1929	96.45	120	80	0.1865	0.1772	5.11	<0.1	0.1	0.2	0.1865	93.25	125	75
ARSENIC-ICP Y	mg/L	TAS	1	0.8753	87.53	120	80	1	0.9362	6.59	<1	1	1	0.9362	93.62	125	75
BARIUM-ICP Y	mg/L	TAS	10	8.754	87.54	120	80	9.318	9.181	1.48	<0.1	0.1	10	9.257	92.57	125	75
CADMIUM-ICP Y	mg/L	TAS	1	0.9319	93.19	120	80	1.003	0.9922	1.08	<0.1	0.1	1	1.003	100.30	125	75
CHROMIUM-ICP Y	mg/L	TAS	1	0.9192	91.92	120	80	0.9835	0.9714	1.24	<0.2	0.2	1	0.9834	98.34	125	75
LEAD-ICP Y	mg/L	TAS	1	0.9316	93.16	120	80	1.002	0.9427	6.10	<1	1	1	1.002	100.20	125	75
SELENIUM-ICP Y	mg/L	TAS	1	0.8971	89.71	120	80	0.9593	1.012	5.35	<1	1	1	0.9593	95.93	125	75
SILVER-ICP Y	mg/L	TAS	0.2	0.1739	86.95	120	80	0.1847	0.1815	1.75	<0.1	0.1	0.2	0.1847	92.35	125	75
AMMONIA	mg/L	JWR	2	1.99	99.50	114	75	8.2	8.8	7.06	<0.1	0.1	1	1.14	114.00	125	75
ALKALINITY	mg/L	JWR	200	196	98.00	109	79	467	468	0.21	<10	10	100	81	81.00	108	75
CHLORIDE	mg/L	JWR	50	53.7	107.40	108	97	9	10	10.53	<2	2	20	21.2	106.00	113	80
AMMONIA	mg/kg	JWR	40	41.2	103.00	114	75	< 2	< 2	0.00	<2	2	20	---	---	125	75
AMMONIA AA	mg/L	JWR	2	1.93	96.50	114	75	0.2	0.21	4.88	<0.03	0.03	1	1.1	110.00	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

WORK ORDER #: N5-07-014 SAMPLE #: 01-3 PAGE 1

SAMPLE #	TESTS	REASON	REMOVED BY (ADT)	REMOVED FROM	MOVED TO	RELIQ. BY	RET'D BY (ADT)	RET'D TO	REC'D BY	REASON
01-03	TSS	ANAL.	SCM/7/6/1000	WALK-IN	WET LAB	C/LB	SCM/7/6/1130	ARCHIVE	C/LB	ARCHIVE

INC.

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME
3062-002	SALEM RIVER ~~[illegible]~~ WEIR

SAMPLERS: (Signature) [signature]

(Printed) EMILY RZEMIEN

PARAMETERS: TSS

INDUSTRIAL HYGIENE SAMPLE: Y / N

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TSS	REMARKS
SALEM/WEIR-0630-001	6/30/95	10:45	✓		WEIR	1		
SALEM/WEIR 0630-002	6/30/95	14:00	✓			1		
SALEM/JETTY ~~[illegible]~~ 0629-001	6/29/95	13:25		✓		1		② bottle time says 13:4[illegible]

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	6/30/95 15:30				SXS rec'd 7-1-95
(Printed) EMILY RZEMIEN		(Printed)	(Printed)		(Printed) Stored in locked cooler

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
		Brenda Gregory	7/3/95 800	~~PT~~ TSS only C of C Sealed SXS in-tact Cooler Temp 5.3
(Printed)		(Printed) Brenda Gregory		

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

KEMRON Environmental Services
109 Starlite Park
Marietta, Ohio 45750

Phone: (614) 373-4071

VERSAR, INC.
9200 Rumsey Road
Columbia, MD 21045-1934

Attn: Willie Burton

Order #: N5-07-103
Date: July 14, 1995 16:20
Work ID: 3062-0023/Salem PACOE
Date Received: 07/08/95
Date Completed: 07/14/95

Client Code: VERSAR_MD331

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	0707-01		

NO RIVER. SAMPLE TAKEN

AS REQUESTED ALL TOTAL ANALYSES HAVE BEEN REPORTED ON A DRY WEIGHT BASIS WHERE APPLICABLE

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Deanna Hesson

Certified by
Deanna Hesson

REPORT COMMENTS:

* (TURBIDITY) - Sample ran out of hold per client's request.

KEMRON ENVIRONMENTAL SERVICES
RESULTS BY SAMPLE

This is to certify that the following samples were analyzed using good laboratory practices to show the following results.

SAMPLE ID: **01** **0707-01** Collected: **07/07/95 15:50** Category: **WATER**

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	7	5	mg/L	07/10/95	MZL	160.2
Turbidity	1.6*	0.1	NTU	07/12/95	REB	180.1

QUALITY ASSURANCE REPORT

OHIO VALLEY LABORATORY Date: 07/10/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
TSS	mg/L	MZL	50	56	112.00	121	75	6100	6200	1.63	<5	5	25	21	84.00	125	75
TOC	mg/L	PJH	5	5.07	101.40	115	85	15	16	6.45	<1	1	5	3.99	79.80	125	75
COD	mg/L	PJH	100	105	105.00	120	80	< 5	< 5	0.00	<5	5	50	51.8	103.60	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

WORK ORDER #: 95-07-103- SAMPLE #: PAGE

SAMPLE #	TESTS	REASON	REMOVED BY (ADT)	REMOVED FROM	MOVED TO	RELIQ. BY	RET'D BY (ADT)	RET'D TO	REC'D BY	REASON
01	TSS	anal.	MZL/7/10/1400	walk-in	wet lab	[illegible]	MZL/7/11/0800	archive	[illegible]	storage

QUALITY ASSURANCE REPORT

OHIO VALLEY LABORATORY Date: 07/26/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
CHROMIUM-ICP G	mg/L	JYH	1	1.03	103.00	120	80	0.99	0.96	3.08	<0.02	0.02	1	0.99	99.00	125	75
TKN	mg/L	REB	1	0.886	88.60	116	80	1	1.1	9.52	<0.1	0.1	1	1.05	105.00	125	75
PHOSPHORUS	mg/L	REB	2	1.75	87.50	125	75	< 0.1	< 0.1	0.00	<0.1	0.1	0.5	0.5	100.00	125	75
COD-HIGH	mg/L	REB	1000	1060	106.00	120	80	2000	2000	0.00	<5	5	500	514	102.80	125	75
COD-LO	mg/L	REB	100	10.6	10.60	120	80	10	10	0.00	<5	5	50	58.9	117.80	125	75
NITRITE	mg/L	MZL	0.1	0.109	109.00	125	75	1.7	1.6	6.06	<0.01	0.01	---	---	---	125	75
TOC	mg/L	REB	25	25.1	100.40	110	90	24	25	4.08	<1	1	25	24.3	97.20	125	75
SULFIDE	mg/L	SCM	20	20.9	104.50	125	75	21	21	0.00	<1	1	---	---	---	122	76
TSS	mg/L	MZL	50	53	106.00	121	75	50	52	3.92	<5	5	50	51	102.00	125	75
CYANIDE	mg/L	JWR	0.4	0.424	106.00	110	90	< 0.01	< 0.01	0.00	<0.01	0.01	0.2	0.191	95.50	124	78
CYANIDE-SOIL	mg/kg	JWR	20	21.3	106.50	*	*	< 0.5	< 0.5	0.00	<0.5	0.5	10	9.18	91.80	*	*
PHENOL	mg/L	JWR	0.5	0.488	97.60	114	85	< 0.005	< 0.005	0.00	<0.005	0.005	0.5	0.481	96.20	122	75
SILVER-ICP G	mg/L	JYH	0.2	0.21	105.00	120	80	0.18	0.17	5.71	<0.01	0.01	0.2	0.18	90.00	125	75
ALUMINUM-ICP G	mg/L	JYH	1	1.03	103.00	120	80	0.93	1.04	11.17	<0.1	0.1	1	0.93	93.00	125	75
BARIUM-ICP G	mg/L	JYH	10	10	100.00	120	80	8.9	8.9	0.00	<0.01	0.01	10	8.9	89.00	125	75
BERYLLIUM-ICP G	mg/L	JYH	1	1.01	101.00	120	80	0.93	0.88	5.52	<0.01	0.01	1	0.93	93.00	125	75
CADMIUM-ICP G	mg/L	JYH	1	1.04	104.00	120	80	0.98	0.94	4.17	<0.01	0.01	1	0.98	98.00	125	75
COBALT-ICP G	mg/L	JYH	1	1.03	103.00	120	80	0.96	0.94	2.11	<0.02	0.02	1	0.96	96.00	125	75
CHROMIUM-ICP G	mg/L	JYH	1	1.03	103.00	120	80	0.99	0.96	3.08	<0.02	0.02	1	0.96	96.00	125	75
COPPER-ICP G	mg/L	JYH	1	1.03	103.00	120	80	0.89	0.83	6.98	<0.02	0.02	1	0.89	89.00	125	75
IRON-ICP G	mg/L	JYH	1	1.04	104.00	120	80	1.06	1.05	0.95	<0.04	0.04	1	1.06	106.00	125	75
POTASSIUM-ICP G	mg/L	JYH	10	10.1	101.00	120	80	10.3	10.2	0.98	<1	1	10	10.3	103.00	125	75
MAGNESIUM-ICP G	mg/L	JYH	10	10.1	101.00	120	80	9	8.6	4.55	<0.5	0.5	10	9	90.00	125	75
MANGANESE-ICP G	mg/L	JYH	1	1.04	104.00	120	80	0.97	0.93	4.21	<0.01	0.01	1	0.97	97.00	125	75
SODIUM-ICP G	mg/L	JYH	10	10.1	101.00	120	80	9.3	9	3.28	<0.5	0.5	10	9.3	93.00	125	75
NICKEL-ICP G	mg/L	JYH	1	1.05	105.00	120	80	1.01	1	1.00	<0.04	0.04	1	1.01	101.00	125	75
ANTIMONY-ICP G	mg/L	JYH	1	1.04	104.00	120	80	0.95	0.97	2.08	<0.2	0.2	1	0.95	95.00	125	75
VANADIUM-ICP G	mg/L	JYH	1	0.99	99.00	120	80	0.91	0.86	5.65	<0.01	0.01	1	0.91	91.00	125	75
ZINC-ICP G	mg/L	JYH	1	1.06	106.00	120	80	1.05	0.96	8.96	<0.01	0.01	1	1.05	105.00	125	75
LEAD-ICP G	mg/L	JYH	1	1.04	104.00	120	80	0.96	1.01	5.08	<0.1	0.1	1	0.96	96.00	125	75
TIN-ICP G	mg/L	JYH	5	5	100.00	120	80	6	5.8	3.39	<0.5	0.5	5	6	120.00	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
** = ANALYZED BY METHOD OF STANDARD ADDITION

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

WORK ORDER #: N5-07-380 SAMPLE #: 01-2 PAGE 1

SAMPLE #	TESTS	REASON	REMOVED BY (ADT)	REMOVED FROM	MOVED TO	RELIQ. BY	RET'D BY (ADT)	RET'D TO	REC'D BY	REASON
t2	TSS	anal.	mzw 7/26 0830	wait-in	wat lab	[illegible]	mzw 7/26 1450	archive	JKW	storage

INC.

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME
3062-002	Salem Weir

SAMPLERS: (Signature) Nathan Huff, Erin Klingebiel

(Printed) Nathan Huff, Erin Klingebiel

PARAMETERS: TSS

INDUSTRIAL HYGIENE SAMPLE: Y / N

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TSS	REMARKS
SALM-TSS-WE-Dur-001	7/21/95	11:30	✓		Salem Weir	1	✓	① bottle time 1215 (BG)
~~SALM-TSS~~-MH ~~RE-Dur-001~~				~~✓~~				
SALM-TSS-RE-Dur-001	7/21/95	12:00		✓	Salem River	1	✓	

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Erin Klingebiel (Printed)	07/21/95 2:40	(Printed)	(Printed)		(Printed) SXS rect 7-22-95 Stored in locked cooler over weekend (BG)

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
Nathan Huff (Printed) NATHAN HUFF	7/21/95 14:32	Brenda Gregory (Printed) Brenda Gregory	7/24/95 800	C of C Dealed SXS contract (BG) Cooler Temp 6.1

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

KEMRON Environmental Services
109 Starlite Park
Marietta, Ohio 45750

Phone: (614) 373-4071

VERSAR, INC.
9200 Rumsey Road
Columbia, MD 21045-1934

Attn: Willie Burton

Order #: N5-07-521
Date: August 2, 1995 15:08
Work ID: 3062-002/Salem River Weir
Date Received: 07/29/95
Date Completed: 08/02/95

Client Code: VERSAR_MD331

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	SALM-TSS-WE-DUR-001	02	SALM-TSS-R1-DUR-001

AS REQUESTED ALL TOTAL ANALYSES HAVE BEEN REPORTED ON A DRY WEIGHT BASIS WHERE APPLICABLE

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Deanna Hesson

Certified by
Deanna Hesson

KEMRON ENVIRONMENTAL SERVICES
RESULTS BY SAMPLE

This is to certify that the following samples were analyzed using good laboratory practices to show the following results.

SAMPLE ID: 01 SALM-TSS-WE-DUR-001 Collected: 07/28/95 11:45 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	12	5	mg/L	07/31/95	SCM	160.2

SAMPLE ID: 02 SALM-TSS-R1-DUR-001 Collected: 07/28/95 11:10 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	83	5	mg/L	07/31/95	SCM	160.2

EPA Method 160.2 (Dried at 103-105C) - Total Suspended Solids

INC.

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME	PARAMETERS	INDUSTRIAL HYGIENE SAMPLE Y / N
3062-002	SALEM PACOE		

SAMPLERS: (Signature) PHILIP WIRTH/NATHAN HUFF (Printed) Nathan Huff

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TSS								REMARKS
0707-01	07/07/95	15:50	✓		SALEM/WEIR	1	✓								SALEM/WEIR-0707-TSS-01

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Nathan Huff	7/7/95 1550				
(Printed) NATHAN HUFF		(Printed)	(Printed)		(Printed)

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
		Brenda Gregory	7/10/95 800	Sys rec'd 7-8-95 Stored in locked cooler BG
(Printed)		(Printed) Brenda Gregory		C&C Sealed Cooler temp 4.9 Sx intact BG

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

KEMRON Environmental Services
109 Starlite Park
Marietta, Ohio 45750

Phone: (614) 373-4071

VERSAR, INC.
9200 Rumsey Road
Columbia, MD 21045-1934

Attn: Willie Burton

Order #: N5-07-236
Date: July 21, 1995 16:19
Work ID: 3062-002/Salem Weir
Date Received: 07/15/95
Date Completed: 07/21/95

Client Code: VERSAR_MD331

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	Salem/Weir 0714-DLR01		

NO [illegible] SAMPLE

AS REQUESTED ALL TOTAL ANALYSES HAVE BEEN REPORTED ON A DRY WEIGHT BASIS WHERE APPLICABLE

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Deanna Hesson

Certified by
Deanna Hesson

KEMRON ENVIRONMENTAL SERVICES
RESULTS BY SAMPLE

This is to certify that the following samples were analyzed using good laboratory practices to show the following results

SAMPLE ID: **01** **Salem/Weir 0714-DLR01** Collected: **07/14/95 15:14** Category: **WATER**

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	7	5	mg/L	07/18/95	PJH	160.2

EPA Method 160.2 (Dried at 103-105C) - Total Suspended Solids

KEMRON ANALYST LIST

Ohio Valley Laboratory

07/17/95

AJS - - Ashlee J. Scott
ALC - - Ann L. Clark
BAR - - Beth A. Raper
CEB - - Chad E. Barnes
DIH - - Deanna I. Hesson
DJP - - Douglas J. Poling
DLP - - Dorothy L. Payne
DST - - Dennis S. Tepe
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TNO - - Tunde N. Oladunni
VC - - Vicki Collier
WCD - - Wade C. Dawson
WDL - - William D. Landshof

INORGANIC QA/QC

QUALITY ASSURANCE REPORT

OHIO VALLEY LABORATORY Date: 07/18/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
MERCURY P	mg/L	KRA	23.7	21.7	91.56	120	80	0.00105	0.0010	0.00	<0.0002	0.0002	0.001	0.00105	105.00	125	75
MERCURY W	mg/L	KRA	0.001	0.0010	101.00	120	80	< 0.0002	< 0.0002	0.00	<0.0002	0.0002	0.001	0.00103	103.00	115	85
SELENIUM-FURN L	mg/L	TNO	0.025	0.0229	91.60	120	80	0.0181	0.0184	1.64	<0.004	0.004	0.025	0.0223	89.20	115	85
SELENIUM-FURN C	mg/L	TNO	0.025	0.0217	86.80	120	80	0.0207	0.0209	0.96	<0.004	0.004	0.025	0.0269	107.60	115	85
COPPER-FURNACE K	mg/L	ALC	0.025	0.0238	95.24	120	80	< 0.005	< 0.005	0.00	<0.005	0.005	0.025	0.02294	91.76	115	85
SELENIUM-FURN N	mg/kg	TNO	47.6	51	107.14	120	80	0.0101	0.0092	9.33	<0.2	0.2	0.025	0.0259	103.60	115	85
THALLIUM-FURN U	mg/kg	ALC	90.8	106.66	117.47	139	45.4	0.36	0.36	0.00	<0.005	0.005	0.025	**	**	**	**
THALLIUM-FURN N	mg/kg	ALC	90.8	111.33	122.61	139	45.4	0.35	0.37	5.56	<0.005	0.005	0.025	**	**	**	**
SILVER-ICP DISS	mg/L	TAS	0.2	0.1992	99.60	120	80	0.02052	0.0211	2.83	<0.01	0.01	0.2	0.2052	102.60	125	75
BARIUM-ICP DISS	mg/L	TAS	10	9.776	97.76	120	80	9.717	10.18	4.65	<0.01	0.01	10	10.12	101.20	125	75
CALCIUM-ICP DISS	mg/L	TAS	10	10.11	101.10	120	80	10.35	10.26	0.87	<0.1	0.1	10	10.2	102.00	125	75
CHROMIUM-ICP DISS	mg/L	TAS	1	1.002	100.20	120	80	1.021	1.087	6.26	<0.02	0.02	1	1.021	102.10	125	75
COPPER-ICP DISS	mg/L	TAS	1	1.001	100.10	120	80	1.014	1.069	5.28	<0.02	0.02	1	1.013	101.30	125	75
IRON-ICP DISS	mg/L	TAS	1	1.01	101.00	120	80	1.296	1.355	4.45	<0.04	0.04	1	1.01	101.00	125	75
POTASSIUM-ICP DIS	mg/L	TAS	10	9.873	98.73	120	80	12.11	12.66	4.44	<0.5	0.5	10	10.08	100.80	125	75
MAGNESIUM-ICP DIS	mg/L	TAS	10	9.794	97.94	120	80	35.19	35.59	1.13	<0.1	0.1	10	10.69	106.90	125	75
MANGANESE-ICP DIS	mg/L	TAS	1	1.014	101.40	120	80	1.245	1.302	4.48	<0.01	0.01	1	1.033	103.30	125	75
SODIUM-ICP DISS	mg/L	TAS	10	9.988	99.88	120	80	21.92	22.23	1.40	<0.5	0.5	10	10.21	102.10	125	75
NICKEL-ICP DISS	mg/L	TAS	1	1.015	101.50	120	80	1.039	1.1	5.70	<0.04	0.04	1	1.039	103.90	125	75
ZINC-ICP DISS	mg/L	TAS	1	1.013	101.30	120	80	1.0103	1.143	12.33	<0.01	0.01	1	1.05	105.00	125	75
ARSENIC-ICP T	mg/L	TAS	1	0.993	99.30	120	80	1	1.066	6.39	<1	1	1	0.9894	98.94	125	75
BARIUM-ICP T	mg/L	TAS	10	9.802	98.02	120	80	9.681	9.985	3.09	<0.1	0.1	10	9.848	98.48	125	75
CADMIUM-ICP T	mg/L	TAS	1	0.9808	98.08	120	80	1.061	1.076	1.40	<0.1	0.1	1	1.01	101.00	125	75
CHROMIUM-ICP T	mg/L	TAS	1	0.9891	98.91	120	80	0.979	0.9939	1.51	<0.2	0.2	1	0.979	97.90	125	75
LEAD-ICP T	mg/L	TAS	1	1.004	100.40	120	80	0.9842	1.092	10.38	<1	1	1	0.9943	99.43	125	75
SELENIUM-ICP T	mg/L	TAS	1	1.099	109.90	120	80	0.9938	1.058	6.26	<1	1	1	0.9938	99.38	125	75
SILVER-ICP T	mg/L	TAS	0.2	0.193	96.50	120	80	0.1879	0.1944	3.40	<0.1	0.1	0.2	0.1879	93.95	125	75
NICKEL-ICP T	mg/L	TAS	1	0.9856	98.56	120	80	1.18	1.208	2.35	<0.04	0.04	1	1.049	104.90	125	75
ARSENIC-FURNACE Z	mg/L	JEC	0.025	0.0254	101.60	120	80	0.0378	0.039	3.12	<0.004	0.004	0.025	0.0265	106.00	115	85
TOX A	mg/L	RJS	0.1	0.0923	92.30	110	90	0.14	0.15	6.90	<0.01	0.01	---	---	---	---	---
TOX B	mg/L	RJS	0.1	0.0935	93.50	110	90	0.01	0.01	0.00	<0.01	0.01	0.1	0.0816	81.60	125	75
CONDUCTIVITY	uS/cm	PJH	1413	1394	98.66	125	85	530	510	3.85	<1	1	---	---	---	---	---
TSS	mg/L	PJH	50	48	96.00	121	75	9	7	25.00	<5	5	50	44.5	89.00	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
** = ANALYZED BY METHOD OF STANDARD ADDITION

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

WORK ORDER #: N5-07-236 SAMPLE #: 01 PAGE 1

SAMPLE #	TESTS	REASON	REMOVED BY (ADT)	REMOVED FROM	MOVED TO	RELIQ. BY	RET'D BY (ADT)	RET'D TO	REC'D BY	REASON
01	TSS	AIV	RJh/7/18/0905	walk-in	wet lab	BLG	RJh/7/18/95 1555	Archives	BLG	Storage

Weir Inc.

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME	PARAMETERS	INDUSTRIAL HYGIENE SAMPLE Y / N
3062-002	SALEM/WEIR		

SAMPLERS: (Signature) [signature] (Printed) NATHAN HUFF / PHILIP WIRTH

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	135-SALEM/WEIR 07/14-DUR-01									REMARKS
SALEM/WEIR 07/14-DUR01	7/14/95	15:14	X		SALEM WEIR	1	✓									comp for TSS

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	07/14/95				
(Printed) NATHAN HUFF		(Printed)	(Printed)		(Printed) Sx recd 7-15-95
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature) [signature]	Date / Time 7/17/95 800	Remarks	Stored in locked cooler over weekend
(Printed)		(Printed) Brenda Gregory		C of C sealed Sx intact	cooler temp 4.6

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

KEMRON Environmental Services
109 Starlite Park
Marietta, Ohio 45750

Phone: (614) 373-4071

VERSAR, INC.
9200 Rumsey Road
Columbia, MD 21045-1934

Attn: Willie Burton

Order #: N5-07-380
Date: July 27, 1995 15:52
Work ID: 3062-002/Salem Weir
Date Received: 07/22/95
Date Completed: 07/27/95

Client Code: VERSAR_MD331

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	SALM-TSS-WE-DUR-001	02	SALM-TSS-RI-DUR-001

AS REQUESTED ALL TOTAL ANALYSES HAVE BEEN REPORTED ON A DRY WEIGHT BASIS WHERE APPLICABLE

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Deanna Hesson

Certified by
Deanna Hesson

KEMRON ENVIRONMENTAL SERVICES
RESULTS BY SAMPLE

This is to certify that the following samples were analyzed using good laboratory practices to show the following results.

SAMPLE ID: **01** **SALM-TSS-WE-DUR-001** Collected: **07/21/95 11:30** Category: **WATER**

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	6	5	mg/L	07/26/95	MZL	160.2

SAMPLE ID: **02** **SALM-TSS-RI-DUR-001** Collected: **07/21/95 12:00** Category: **WATER**

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	130	10	mg/L	07/26/95	MZL	160.2

EPA Method 160.2 (Dried at 103-105C) - Total Suspended Solids

KEMRON ANALYST LIST

Ohio Valley Laboratory

07/17/95

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INORGANIC QA/QC

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INORGANIC QA/QC

QUALITY ASSURANCE REPORT

OHIO VALLEY LABORATORY Date: 07/31/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
SILVER-ICP S	mg/L	JYH	0.2	0.18	90.00	120	80	0.18	0.18	0.00	<0.01	0.01	0.2	0.18	90.00	125	75
BARIUM-ICP S	mg/L	JYH	10	9	90.00	120	80	9.2	9.2	0.00	<0.01	0.01	10	9.2	92.00	125	75
CADMIUM-ICP S	mg/L	JYH	1	0.88	88.00	120	80	0.92	0.92	0.00	<0.01	0.01	1	0.92	92.00	125	75
CHROMIUM-ICP S	mg/L	JYH	1	0.9	90.00	120	80	0.93	0.93	0.00	<0.02	0.02	1	0.93	93.00	125	75
ARSENIC-ICP S	mg/L	JYH	1	0.89	89.00	120	80	0.89	0.89	0.00	<0.1	0.1	1	0.89	89.00	125	75
LEAD-ICP S	mg/L	JYH	1	0.89	89.00	120	80	0.91	0.91	0.00	<0.1	0.1	1	0.91	91.00	125	75
SELENIUM-ICP S	mg/L	JYH	1	0.85	85.00	120	80	0.93	0.93	0.00	<0.1	0.1	1	0.93	93.00	125	75
MERCURY M	mg/L	KRA	0.001	0.0009	98.00	120	80	0.00099	0.0009	1.02	<0.0005	0.0005	0.001	0.00099	99.00	125	75
THALLIUM-FURN U	mg/kg	AJS	90.8	113	124.45	139	45.4	0.044	0.046	4.44	<2	2	0.025	0.0233	93.20	115	85
THALLIUM-FURN P	mg/kg	AJS	90.8	130	143.17	139	45.4	0.045	0.045	0.00	<2	2	0.025	0.0245	98.00	115	85
LEAD-FURNACE U	mg/kg	ALC	162	145	89.51	230	85.8	2.8	2.8	0.00	<0.2	0.2	0.025	0.0262	104.80	115	85
CHLORIDE	mg/L	REB	50	51.6	103.20	108	97	4	4	0.00	<2	2	20	19.7	98.50	113	80
NITRATE	mg/L	REB	1	1.02	102.00	113	90	< 0.05	< 0.05	0.00	<0.05	0.05	0.5	0.543	108.60	121	79
TOC	mg/L	DIH	5	4.89	97.80	110	90	3	3	0.00	<1	1	5	4.46	89.20	125	75
TOX A	mg/L	RJS	0.1	0.0947	94.70	110	90	< 0.02	< 0.02	0.00	<0.01	0.01	0.1	0.1	100.00	119	79
TOX B	mg/L	RJS	0.1	0.0943	94.30	110	90	< 0.02	< 0.02	0.00	<0.01	0.01	0.1	0.094	94.00	124	75
TDS	mg/L	SCM	500	510	102.00	114	80	590	580	1.71	<10	10	500	546	109.20	124	78
SULFATE	mg/L	JWR	20	19.7	98.50	120	80	42	42	0.00	<2	2	10	9.73	97.30	125	75
FLUORIDE	mg/L	PJH	2	2.27	113.50	124	89	0.1	0.1	0.00	<0.1	0.1	0.4	0.386	96.50	125	75
TSS	mg/L	SCM	50	58	116.00	121	75	300	330	9.52	<5	5	25	27.5	110.00	125	75
TDS	mg/L	SCM	500	494	98.80	114	80	370	370	0.00	<10	10	500	496	99.20	125	75
TS	mg/L	SCM	500	508	101.60	113	85	250	260	3.92	<10	10	500	500	100.00	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
** = ANALYZED BY METHOD OF STANDARD ADDITION

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

WORK ORDER #: N5-07-521 SAMPLE #: 01-02 PAGE 1

SAMPLE #	TESTS	REASON	REMOVED BY (ADT)	REMOVED FROM	MOVED TO	RELIQ. BY	RET'D BY (ADT)	RET'D TO	REC'D BY	REASON
01-02	TSS	ANAL	SCM 7/31 1405	WALK-IN	WET LAB	[illegible]	SCM 7/31 1640	ARCHIVE	[illegible]	ARCHIVE

versar INC.

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME
3062-002	Salem River Weir

SAMPLERS: (Signature) Erin Klingebiel, Nathan Huff

(Printed) Erin Klingebiel, Nathan Huff

PARAMETERS: TSS

INDUSTRIAL HYGIENE SAMPLE: Y / N

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TSS	REMARKS
SALM-TSS-WE-Our-001	7/28/95	11:45	✓		Salem River Weir	1	✓	
SALM-TSS-RI-Our-001	7/28/95	11:10		✓	Salem River	1	✓	bottle time 1100 BIG

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Erin L Klingebiel	7/28/95 3:00				
(Printed) Erin L. Klingebiel		(Printed)	(Printed)		(Printed) SKS rec'd 7-29-95. Stored in locked cooler over weekend BIG

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
		Brenda Gregory	7/31/95 800	Cooler broken SKS contact BIG / Cooler temp 5.6
(Printed)		(Printed) Brenda Gregory		

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

KEMRON Environmental Services
109 Starlite Park
Marietta, Ohio 45750

Phone: (614) 373-4071

VERSAR, INC.
9200 Rumsey Road
Columbia, MD 21045-1934

Attn: Willie Burton

Order #: N5-08-116
Date: August 10 1995 16:41
Work ID: Salem
Date Received: 08/05/95
Date Completed: 08/10/95

Client Code: VERSAR_MD331

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	SALM-TSS-WE-DUR-001	02	SALM-TSS-RI-DUR-001

AS REQUESTED ALL TOTAL ANALYSES HAVE BEEN REPORTED ON A DRY WEIGHT BASIS WHERE APPLICABLE

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Deanna Hesson

Certified by
Deanna Hesson

KEMRON ENVIRONMENTAL SERVICES
RESULTS BY SAMPLE

This is to certify that the following samples were analyzed using good laboratory practices to show the following results.

SAMPLE ID: 01 SALM-TSS-WE-DUR-001 Collected: 08/04/95 16:30 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	17	5	mg/L	08/08/95	PJH	160.2

SAMPLE ID: 02 SALM-TSS-RI-DUR-001 Collected: 08/04/95 16:30 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	16	5	mg/L	08/08/95	PJH	160.2

EPA Method 160.2 (Dried at 103-105C) - Total Suspended Solids

KEMRON ANALYST LIST

Ohio Valley Laboratory

07/17/95

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REK - - Robert E. Kyer
RJS - - Rick J. Santos
RWC - - Rodney W. Campbell
SCM - - Susan C. Moellendick
SCW - - Stephen C. West
SLT - - Stephanie L. Tepe
SPL - - Steve P. Learn
SSS - - Susan S. Snodgrass
TAS - - Tamela A. Sams
TKT - - Tonya K. Troutner
TLD - - Teresa L. Davis
TNO - - Tunde N. Oladunni
VC - - Vicki Collier
WCD - - Wade C. Dawson
WDL - - William D. Landshof

INORGANIC QA/QC

QUALITY ASSURANCE [illegible]LY REPORT

OHIO VALLEY LABORATORY Date: 08/08/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
ALKALINITY	mg/L	RJS	200	172.8	86.40	125	84	21	23	9.09	<10	10	100	81.7	81.70	108	75
SULFATE	mg/L	REB	20	18.1	90.50	120	80	75	76	1.32	<2	2	20	17.8	89.00	125	75
PHOSPHORUS	mg/L	REB	2	1.68	84.00	125	75	< 0.1	< 0.1	0.00	<0.1	0.1	0.5	0.488	97.60	125	75
SILVER-ICP S	mg/L	JYH	0.2	0.19	95.00	120	80	0.2	0.2	0.00	<0.01	0.01	0.2	0.2	100.00	125	75
BARIUM-ICP S	mg/L	JYH	10	9.1	91.00	120	80	9.9	9.5	4.12	<0.01	0.01	10	9.9	99.00	125	75
CADMIUM-ICP S	mg/L	JYH	1	0.95	95.00	120	80	0.97	0.97	0.00	<0.01	0.01	1	0.97	97.00	125	75
CHROMIUM-ICP S	mg/L	JYH	1	0.98	98.00	120	80	0.99	0.99	0.00	<0.02	0.02	1	0.99	99.00	125	75
ARSENIC-ICP S	mg/L	JYH	1	1.05	105.00	120	80	1.03	1.02	0.98	<0.1	0.1	1	1.03	103.00	125	75
LEAD-ICP S	mg/L	JYH	1	1.04	104.00	120	80	0.96	1.01	5.08	<0.1	0.1	1	0.96	96.00	125	75
SELENIUM-ICP S	mg/L	JYH	1	0.95	95.00	120	80	0.96	0.91	5.35	<0.1	0.1	1	0.96	96.00	125	75
TSS	mg/L	PJH	50	54	108.00	125	75	200	180	10.53	<5	5	50	53	106.00	125	75
AMMONIA AA	mg/L	RJS	2	1.748	87.40	117	75	< 0.1	< 0.1	0.00	<0.1	0.1	1	0.96	96.00	125	75
LEAD-FURNACE	mg/kg	JEC	162	159	98.15	230	85.8	0.12	0.141	16.09	<0.005	0.005	0.025	0.0248	99.20	115	85
ARSENIC-FURNACE E	mg/L	TNO	0.025	0.022	88.00	120	80	0.0221	0.0211	4.63	<0.004	0.004	0.025	0.027	108.00	115	85
SILVER-FURNACE O	mg/kg	ALC	65.4	50.58	77.34	95.5	29.4	0.0047	0.0047	0.00	<0.004	0.004	0.005	0.00474	94.80	115	85
ARSENIC-FURNACE O	mg/kg	ALC	82.4	55.7	67.60	123	40.4	0.0271	0.0259	4.53	<0.004	0.004	0.025	0.0242	96.80	115	85
MERCURY N	mg/L	TAS	0.001	0.0009	93.00	120	80	0.00178	0.0017	0.56	<0.0002	0.0002	0.001	0.00095	95.00	125	75
MERCURY A1	mg/L	TAS	0.001	0.0009	94.00	120	80	0.00895	0.0099	10.08	<0.0002	0.0002	0.001	0.00095	95.00	125	75
LEAD-FURNACE O	mg/kg	ALC	162	174.8	107.90	230	85.8	6.4	5.5	15.13	<0.005	0.005	0.025	0.0252	100.80	115	85
THALLIUM-FURN O	mg/kg	ALC	127	106.8	84.09	190	63.3	0.0214	0.0231	7.64	<0.005	0.004	0.025	0.0231	92.40	115	85

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
DL = DILUTED OUT

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

WORK ORDER #: N5.08.116 SAMPLE #: 01 & 02A PAGE 1

SAMPLE #	TESTS	REASON	REMOVED BY (ADT)	REMOVED FROM	MOVED TO	RELIQ. BY	RET'D BY (ADT)	RET'D TO	REC'D BY	REASON
01-02	TSS	AN	0900 p.h/08/8/95	walk-in	wet Lab	CAB	1500 p.h/08/8/95	Archives	AVD	Storage

VELSICOL INC.

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME	PARAMETERS	INDUSTRIAL HYGIENE SAMPLE Y / N
	SALEM		

SAMPLERS: (Signature) Nathan Huff (Printed) NATHAN HUFF

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TSS								REMARKS
SALM-TSS-WE-DUR-001	8/4/95	16:30	✓		SALEM	1	✓								
SALM-TSS-RI-DUR-001	8/4/95	16:30		✓	SALEM	1	✓								

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Nathan Huff	08/04/95 16:30				
(Printed) NATHAN HUFF		(Printed)	(Printed)		(Printed)

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
		Angelina R Brown	8/7/95 8:00	Sx's stored in locked cooler over weekend (A.B)
(Printed)		(Printed) Angelina R Brown		Cooler Temp @ 1 / Sx's received intact

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

KEMRON Environmental Services
109 Starlite Park
Marietta, Ohio 45750

Phone: (614) 373-4071

KEMRON ENVIRONMENTAL SERVICES

VERSAR, INC.
9200 Rumsey Road
Columbia, MD 21045-1934

Attn: Willie Burton

Order #: N5-08-280
Date: August 28, 1995 15:50
Work ID: 3062-002&003/WilmingtonDredge
Date Received: 08/12/95
Date Completed: 08/28/95

Client Code: VERSAR_MD331

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	WILM-TPTKN-WE-DUR-001	02	WILM-TSS-WE-DUR-001
03	WILM-TSS-RI-DUR-001	04	WILM-TKN-WE-DUR-001
05	WILM-NH3-WE-DUR-001 WILMINGTON	06	WILM-BOD-WE-DUR-001 WILMINGTON
07	WILM-NIT-WE-DUR-001	08	WILM-METAL-WE-DUR-001
09	SALM-TSS-WE-DUR-001	10	SALM-TSS-RI-DUR-001

AS REQUESTED ALL TOTAL ANALYSES HAVE BEEN REPORTED ON A DRY WEIGHT BASIS WHERE APPLICABLE

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Deanna Hesson

Certified by
Deanna Hesson

KEMRON ENVIRONMENTAL SERVICES
RESULTS BY SAMPLE

This is to certify that the following samples were analyzed using good laboratory practices to show the following results.

SAMPLE ID: 01 WILM-TPTKN-WE-DUR-001 Collected: 08/11/95 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Organic Carbon	9	1	mg/L	08/17/95	REB	415.1

SAMPLE ID: 02 WILM-TSS-WE-DUR-001 Collected: 08/11/95 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	8	5	mg/L	08/17/95	PJH	160.2

SAMPLE ID: 03 WILM-TSS-RI-DUR-001 Collected: 08/11/95 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	23	5	mg/L	08/17/95	PJH	160.2

SAMPLE ID: 04 WILM-TKN-WE-DUR-001 Collected: 08/11/95 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Nitrogen, Total Kjeldahl	5.4	0.4	mg/L N	08/18/95	REB	351.2

SAMPLE ID: 05 WILM-NH3-WE-DUR-001 Collected: 08/11/95 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Nitrogen, Ammonia	4.4	0.2	mg/L N	08/22/95	JWR	350.1

SAMPLE ID: 06 WILM-BOD-WE-DUR-001 Collected: 08/11/95 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Biochemical Oxygen Demand	9	3	mg/L O2	08/12/95	SCM	405.1

SAMPLE ID: 07 WILM-NIT-WE-DUR-001 Collected: 08/11/95 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Nitrogen, Nitrate	2.8	0.10	mg/L N	08/15/95	REB	353.2
Nitrogen, Nitrite	1.4	0.01	mg/L N	08/12/95	SCM	354.1

SAMPLE ID: 08 WILM-METAL-WE-DUR-001 Collected: 08/11/95 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Aluminum, Total	1.0	0.1	mg/L Al	08/24/95	JEC	200.7/6010A
Antimony, Total	<0.02	0.02	mg/L Sb	08/23/95	AJS	204.2/7041
Arsenic, Total	<0.004	0.004	mg/L As	08/24/95	ALC	206.2/7060A

SAMPLE ID: 08 WILM-METAL-WE-DUR-001 Collected: 08/11/95 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Barium, Total	0.06	0.01	mg/L Ba	08/24/95	JEC	200.7/6010A
Beryllium, Total	<0.01	0.01	mg/L Be	08/24/95	JEC	200.7/6010A
Cadmium, Total	<0.01	0.01	mg/L Cd	08/24/95	JEC	200.7/6010A
Calcium, Total	52	0.2	mg/L Ca	08/24/95	JEC	200.7/6010A
Chromium, Total	<0.02	0.02	mg/L Cr	08/24/95	JEC	200.7/6010A
Cobalt, Total	<0.02	0.02	mg/L Co	08/24/95	JEC	200.7/6010A
Copper, Total	<0.02	0.02	mg/L Cu	08/24/95	JEC	200.7/6010A
Iron, Total	0.70	0.04	mg/L Fe	08/24/95	JEC	200.7/6010A
Lead, Total	<0.006	0.006	mg/L Pb	08/23/95	AJS	239.2/7421
Magnesium, Total	65	0.5	mg/L Mg	08/24/95	JEC	200.7/6010A
Manganese, Total	4.5	0.01	mg/L Mn	08/24/95	JEC	200.7/6010A
Mercury, Total	<0.0002	0.0002	mg/L Hg	08/24/95	TAS	245.1/7470A
Nickel, Total	<0.04	0.04	mg/L Ni	08/24/95	JEC	200.7/6010A
Potassium, Total	19	1	mg/L K	08/24/95	JEC	200.7/6010A
Selenium, Total	<0.004	0.004	mg/L Se	08/24/95	JEC	270.2/7740
Silver, Total	<0.01	0.01	mg/L Ag	08/24/95	JEC	200.7/6010A
Sodium, Total	430	0.5	mg/L Na	08/24/95	JEC	200.7/6010A
Thallium, Total	<0.005	0.005	mg/L Tl	08/23/95	JEC	279.2/7841
Vanadium, Total	<0.01	0.01	mg/L V	08/24/95	JEC	200.7/6010A
Zinc, Total	0.22	0.01	mg/L Zn	08/24/95	JEC	200.7/6010A

SAMPLE ID: 09 SALM-TSS-WE-DUR-001 Collected: 08/11/95 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	8	5	mg/L	08/17/95	PJH	160.2

SAMPLE ID: 10 SALM-TSS-RI-DUR-001 Collected: 08/11/95 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	59	5	mg/L	08/17/95	PJH	160.2

KEMRON Environmental Services
109 Starlite Park
Marietta, Ohio 45750

Phone: (614) 373-4071

KEMRON ENVIRONMENTAL SERVICES

VERSAR, INC.
9200 Rumsey Road
Columbia, MD 21045-1934

Attn: Willie Burton

Order #: N5-08-440
Date: August 29, 1995 09:24
Work ID: 3062-002/Salem River Dredge
Date Received: 08/23/95
Date Completed: 08/29/95

Client Code: VERSAR_MD331

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	SALM-TSS-WE-DUR-001	02	SALM-TSS-R1-DUR-001

AS REQUESTED ALL TOTAL ANALYSES HAVE BEEN REPORTED ON A DRY WEIGHT BASIS WHERE APPLICABLE

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Deanna Hesson

Certified by
Deanna Hesson

KEMRON ENVIRONMENTAL SERVICES
RESULTS BY SAMPLE

This is to certify that the following samples were analyzed using good laboratory practices to show the following results.

SAMPLE ID: 01 SALM-TSS-WE-DUR-001 Collected: 08/22/95 12:00 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	12	5	mg/L	08/28/95	DIH	160.2

SAMPLE ID: 02 SALM-TSS-R1-DUR-001 Collected: 08/22/95 11:30 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	25	5	mg/L	08/28/95	DIH	160.2

A Method 160.2 (Dried at 103-105C) - Total Suspended Solids

KEMRON ANALYST LIST

Ohio Valley Laboratory

08/16/95

AJS - - Ashlee J. Scott
ALC - - Ann L. Clark
BAR - - Beth A. Raper
CEB - - Chad E. Barnes
DIH - - Deanna I. Hesson
DJP - - Douglas J. Poling
DLP - - Dorothy L. Payne
DST - - Dennis S. Tepe
ECL - - Eric C. Lawson
EDG - - Eric D. Gerkin
FEH - - Fay E. Harmon
FRM - - Fred R. Montgomery
GWH - - George W. Hutchison
HV - - Hema Vilasagar
JEC - - Jesse E. Chapman
JYH - - Ji Y. Hu
JKM - - June K. Morris
JLM - - Joy L. Mullins
JLH - - Janice L. Holland
JLL - - Janice L. Landshof
JMM - - Jim M. Monk
JWR - - John W. Richards
KHA - - Kim H. Archer
KMM - - Kevin M. McDonald
KPO - - Kevin P. Overstreet
KRA - - Kathy R. Albertson
LMW - - Lisa M. Wagner
MBJ - - Matthew B. Jarrell
MDA - - Mike D. Albertson
MDC - - Michael D. Cochran
MLS - - Michael L. Schimmel
PJH - - Pamela J. Holtz
REB - - Russell E. Burton
REK - - Robert E. Kyer
RJS - - Rick J. Santos
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TAS - - Tamela A. Sams
TLD - - Teresa L. Davis
VC - - Vicki Collier
WCD - - Wade C. Dawson

INORGANIC QA/QC

Kemron
ENVIRONMENTAL SERVICES

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 08/28/95

			REFERENCE STANDARD					DUPLICATE SAMPLE			BLANK		MATRIX/MEDIA SPIKE				
Parameter	Units	Analyst	Known	Result	Rec.(%)	UCLx	LCLx	Result1	Result2	RPD (%)	Result	MDL	Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
SILVER-ICP N	mg/L	JYH	0.2	0.2	100.00	120	80	0.17	0.18	5.71	<0.01	0.01	0.2	0.17	85.00	125	75
BARIUM-ICP N	mg/L	JYH	10	9.7	97.00	120	80	8.3	8.4	1.20	<0.01	0.01	10	8.3	83.00	125	75
CADMIUM-ICP N	mg/L	JYH	1	1.02	102.00	120	80	0.92	0.98	6.32	<0.01	0.01	1	0.92	92.00	125	75
CHROMIUM-ICP N	mg/L	JYH	1	1.01	101.00	120	80	0.96	0.9	6.45	<0.02	0.02	1	0.96	96.00	125	75
ARSENIC-ICP N	mg/L	JYH	1	1.03	103.00	120	80	0.92	0.99	7.33	<0.1	0.1	1	0.92	92.00	125	75
LEAD-ICP N	mg/L	JYH	1	1.02	102.00	120	80	0.89	0.98	9.63	<0.1	0.1	1	0.89	89.00	125	75
SELENIUM-ICP N	mg/L	JYH	1	1.02	102.00	120	80	0.85	0.93	8.99	<0.1	0.1	1	0.85	85.00	125	75
LEAD-FURNACE Y	mg/L	KHA	0.025	0.025	100.00	120	80	0.0239	0.025	4.50	<0.005	0.005	0.025	0.025	100.00	115	85
ARSENIC-ICP Z	mg/L	TAS	1	1.02	102.00	120	80	1.043	1.006	3.61	<1	1	1	1.043	104.30	125	75
BARIUM-ICP Z	mg/L	TAS	10	10.21	102.10	120	80	10.07	9.728	3.45	<0.1	0.1	10	10.03	100.30	125	75
CADMIUM-ICP Z	mg/L	TAS	1	1.02	102.00	120	80	1.195	1.205	0.83	<0.1	0.1	1	1.038	103.80	125	75
CHROMIUM-ICP Z	mg/L	TAS	1	1.036	103.60	120	80	1.692	1.679	0.77	<0.2	0.2	1	1.011	101.10	125	75
LEAD-ICP Z	mg/L	TAS	1	1.059	105.90	120	80	3.595	3.48	3.25	<1	1	1	0.8973	89.73	125	75
SELENIUM-ICP Z	mg/L	TAS	1	0.9935	99.35	120	80	1.084	1.067	1.58	<1	1	1	1.018	101.80	125	75
SILVER-ICP Z	mg/L	TAS	0.2	0.2003	100.15	120	80	0.2001	0.1957	2.22	<0.1	0.1	0.2	0.1973	98.65	125	75
TSS	mg/L	DIH	50	42	84.00	121	75	< 5	< 5	0.00	<5	5	50	41	82.00	125	75
COD-LOW	mg/L	PJH	100	105	105.00	120	80	< 5	< 5	0.00	<5	5	50	57.6	115.20	125	75
COD-HIGH	mg/L	PJH	1000	986	98.60	120	80	910	890	2.22	<150	150	500	495	99.00	125	75
ALUMINUM-ICP B	mg/L	JYH	1	0.92	92.00	120	80	0.9	0.96	6.45	<0.1	0.1	1	0.9	90.00	125	75
BERYLLIUM-ICP B	mg/L	JYH	1	0.98	98.00	120	80	0.95	0.94	1.06	<0.01	0.01	1	0.95	95.00	125	75
CALCIUM-ICP B	mg/L	JYH	10	10.8	108.00	120	80	11.4	10	13.08	<0.2	0.2	10	11.4	114.00	125	75
COBALT-ICP B	mg/L	JYH	1	1.05	105.00	120	80	0.91	0.97	6.38	<0.02	0.02	1	0.91	91.00	125	75
COPPER-ICP B	mg/L	JYH	1	0.93	93.00	120	80	0.87	0.9	3.39	<0.02	0.02	1	0.87	87.00	125	75
IRON-ICP B	mg/L	JYH	1	1.07	107.00	120	80	0.8	1	22.22	<0.04	0.04	1	1	100.00	125	75
MAGNESIUM-ICP B	mg/L	JYH	10	9.2	92.00	120	80	8.4	9.2	9.09	<0.5	0.5	10	8.4	84.00	125	75
MANGANESE-ICP B	mg/L	JYH	1	1.04	104.00	120	80	1.04	1.03	0.97	<0.01	0.01	1	1.04	104.00	125	75
NICKEL-ICP B	mg/L	JYH	1	1.05	105.00	120	80	1.03	1	2.96	<0.04	0.04	1	1.03	103.00	125	75
VANADIUM-ICP B	mg/L	JYH	1	0.97	97.00	120	80	0.97	0.96	1.04	<0.01	0.01	1	0.97	97.00	125	75
ZINC-ICP B	mg/L	JYH	1	1.05	105.00	120	80	1.04	0.99	4.93	<0.01	0.01	1	1.04	104.00	125	75
BORON-ICP B	mg/L	JYH	1	1.01	101.00	120	80	0.79	0.84	6.13	<0.5	0.5	1	0.84	84.00	125	75
MOLYBDENUM-ICP B	mg/L	JYH	2.5	2.48	99.20	120	80	2.23	2.3	3.09	<0.1	0.1	2.5	2.3	92.00	125	75
TIN-ICP B	mg/L	JYH	5	5.2	104.00	120	80	5	5.3	5.83	<0.5	0.5	5	5	100.00	125	75
TITANIUM-ICP B	mg/L	JYH	1	0.98	98.00	120	80	0.99	1.09	9.62	<0.03	0.03	1	0.99	99.00	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
NR = NOT REQUIRED
DL = DILUTED OUT
** = MATRIX INTERFERENCE

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

WORK ORDER #: N5-08-440 SAMPLE #: 01-02 PAGE 1

SAMPLE #	TESTS	REASON	REMOVED BY (ADT)	REMOVED FROM	MOVED TO	RELIQ. BY	RET'D BY (ADT)	RET'D TO	REC'D BY	REASON
01-02	TSS	analysis	DIH/8/28/0810/45	WALK-IN ~~log-in~~	wet lab	Bug	DIH/8/28/1100/45	archive	Bug	archive

Versar INC.

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME
3062-002	Salem/River Dredge

SAMPLERS: (Signature)	(Printed)
[signature]	EMILY RZEWICKI

INDUSTRIAL HYGIENE SAMPLE	Y	N

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TSS								REMARKS
SALM-TSS-WE-DUC-001	8/22	12:00	✓		WEIR	1	✓								
SALM-TSS-RI-DUK-001	8/22	11:30		✓	JETTY	1	✓								

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	8/22 4:30 pm				
(Printed) EMILY RZEWICKI		(Printed)	(Printed)		(Printed)

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
		Brenda Gregory	8/23/95 1000	SAMPLES TAKEN IN RETRY OF 8/18 @ 1 (BATTERY DEAD IN SAMPLER)
(Printed)		(Printed) Brenda Gregory		Sealed SXB Intact Cooler temp 2.5

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Files (pink).

KEMRON Environmental Services
109 Starlite Park
Marietta, Ohio 45750

Phone: (614) 373-4071

KEMRON ENVIRONMENTAL SERVICES

VERSAR, INC.
9200 Rumsey Road
Columbia, MD 21045-1934

Attn: Willie Burton

Order #: N5-08-543
Date: August 29, 1995 09:26
Work ID: 3062.002/Salem/River Dredge
Date Received: 08/26/95
Date Completed: 08/29/95

Client Code: VERSAR_MD331

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	SALM-TSS-RI-DUR-001	02	SALM-TSS-WE-DUR-001

AS REQUESTED ALL TOTAL ANALYSES HAVE BEEN REPORTED ON A DRY WEIGHT BASIS WHERE APPLICABLE

This report shall not be reproduced, except in full, without the written approval of KEMRON.

Deanna Hesson

Certified by
Deanna Hesson

KEMRON ENVIRONMENTAL SERVICES
RESULTS BY SAMPLE

This is to certify that the following samples were analyzed using good laboratory practices to show the following results.

SAMPLE ID: **01** **SALM-TSS-RI-DUR-001** Collected: **08/25/95 11:00** Category: **WATER**

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	34	5	mg/L	08/28/95	DIH	160.2

SAMPLE ID: **02** **SALM-TSS-WE-DUR-001** Collected: **08/25/95 10:45** Category: **WATER**

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	26	5	mg/L	08/28/95	DIH	160.2

EPA Method 160.2 (Dried at 103-105C) - Total Suspended Solids

KEMRON ANALYST LIST

Ohio Valley Laboratory

08/16/95

AJS - - Ashlee J. Scott
ALC - - Ann L. Clark
BAR - - Beth A. Raper
CEB - - Chad E. Barnes
DIH - - Deanna I. Hesson
DJP - - Douglas J. Poling
DLP - - Dorothy L. Payne
DST - - Dennis S. Tepe
ECL - - Eric C. Lawson
EDG - - Eric D. Gerkin
FEH - - Fay E. Harmon
FRM - - Fred R. Montgomery
GWH - - George W. Hutchison
HV - - Hema Vilasagar
JEC - - Jesse E. Chapman
JYH - - Ji Y. Hu
JKM - - June K. Morris
JLM - - Joy L. Mullins
JLH - - Janice L. Holland
JLL - - Janice L. Landshof
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SCM - - Susan C. Moellendick
SCW - - Stephen C. West
SLT - - Stephanie L. Tepe
SPL - - Steve P. Learn
TAS - - Tamela A. Sams
TLD - - Teresa L. Davis
VC - - Vicki Collier
WCD - - Wade C. Dawson

INORGANIC QA/QC

Kemron
ENVIRONMENTAL SERVICES

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 08/28/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
SILVER-ICP N	mg/L	JYH	0.2	0.2	100.00	120	80	0.17	0.18	5.71	<0.01	0.01	0.2	0.17	85.00	125	75
BARIUM-ICP N	mg/L	JYH	10	9.7	97.00	120	80	8.3	8.4	1.20	<0.01	0.01	10	8.3	83.00	125	75
CADMIUM-ICP N	mg/L	JYH	1	1.02	102.00	120	80	0.92	0.98	6.32	<0.01	0.01	1	0.92	92.00	125	75
CHROMIUM-ICP N	mg/L	JYH	1	1.01	101.00	120	80	0.96	0.9	6.45	<0.02	0.02	1	0.96	96.00	125	75
ARSENIC-ICP N	mg/L	JYH	1	1.03	103.00	120	80	0.92	0.99	7.33	<0.1	0.1	1	0.92	92.00	125	75
LEAD-ICP N	mg/L	JYH	1	1.02	102.00	120	80	0.89	0.98	9.63	<0.1	0.1	1	0.89	89.00	125	75
SELENIUM-ICP N	mg/L	JYH	1	1.02	102.00	120	80	0.85	0.93	8.99	<0.1	0.1	1	0.85	85.00	125	75
LEAD-FURNACE Y	mg/L	KHA	0.025	0.025	100.00	120	80	0.0239	0.025	4.50	<0.005	0.005	0.025	0.025	100.00	115	85
ARSENIC-ICP Z	mg/L	TAS	1	1.02	102.00	120	80	1.043	1.006	3.61	<1	1	1	1.043	104.30	125	75
BARIUM-ICP Z	mg/L	TAS	10	10.21	102.10	120	80	10.07	9.728	3.45	<0.1	0.1	10	10.03	100.30	125	75
CADMIUM-ICP Z	mg/L	TAS	1	1.02	102.00	120	80	1.195	1.205	0.83	<0.1	0.1	1	1.038	103.80	125	75
CHROMIUM-ICP Z	mg/L	TAS	1	1.036	103.60	120	80	1.692	1.679	0.77	<0.2	0.2	1	1.011	101.10	125	75
LEAD-ICP Z	mg/L	TAS	1	1.059	105.90	120	80	3.595	3.48	3.25	<1	1	1	0.8973	89.73	125	75
SELENIUM-ICP Z	mg/L	TAS	1	0.9935	99.35	120	80	1.084	1.067	1.58	<1	1	1	1.018	101.80	125	75
SILVER-ICP Z	mg/L	TAS	0.2	0.2003	100.15	120	80	0.2001	0.1957	2.22	<0.1	0.1	0.2	0.1973	98.65	125	75
TSS	mg/L	DIH	50	42	84.00	121	75	< 5	< 5	0.00	<5	5	50	41	82.00	125	75
COD-LOW	mg/L	PJH	100	105	105.00	120	80	< 5	< 5	0.00	<5	5	50	57.6	115.20	125	75
COD-HIGH	mg/L	PJH	1000	986	98.60	120	80	910	890	2.22	<150	150	500	495	99.00	125	75
ALUMINUM-ICP B	mg/L	JYH	1	0.92	92.00	120	80	0.9	0.96	6.45	<0.1	0.1	1	0.9	90.00	125	75
BERYLLIUM-ICP B	mg/L	JYH	1	0.98	98.00	120	80	0.95	0.94	1.06	<0.01	0.01	1	0.95	95.00	125	75
CALCIUM-ICP B	mg/L	JYH	10	10.8	108.00	120	80	11.4	10	13.08	<0.2	0.2	10	11.4	114.00	125	75
COBALT-ICP B	mg/L	JYH	1	1.05	105.00	120	80	0.91	0.97	6.38	<0.02	0.02	1	0.91	91.00	125	75
COPPER-ICP B	mg/L	JYH	1	0.93	93.00	120	80	0.87	0.9	3.39	<0.02	0.02	1	0.87	87.00	125	75
IRON-ICP B	mg/L	JYH	1	1.07	107.00	120	80	0.8	1	22.22	<0.04	0.04	1	1	100.00	125	75
MAGNESIUM-ICP B	mg/L	JYH	10	9.2	92.00	120	80	8.4	9.2	9.09	<0.5	0.5	10	8.4	84.00	125	75
MANGANESE-ICP B	mg/L	JYH	1	1.04	104.00	120	80	1.04	1.03	0.97	<0.01	0.01	1	1.04	104.00	125	75
NICKEL-ICP B	mg/L	JYH	1	1.05	105.00	120	80	1.03	1	2.96	<0.04	0.04	1	1.03	103.00	125	75
VANADIUM-ICP B	mg/L	JYH	1	0.97	97.00	120	80	0.97	0.96	1.04	<0.01	0.01	1	0.97	97.00	125	75
ZINC-ICP B	mg/L	JYH	1	1.05	105.00	120	80	1.04	0.99	4.93	<0.01	0.01	1	1.04	104.00	125	75
BORON-ICP B	mg/L	JYH	1	1.01	101.00	120	80	0.79	0.84	6.13	<0.5	0.5	1	0.84	84.00	125	75
MOLYBDENUM-ICP B	mg/L	JYH	2.5	2.48	99.20	120	80	2.23	2.3	3.09	<0.1	0.1	2.5	2.3	92.00	125	75
TIN-ICP B	mg/L	JYH	5	5.2	104.00	120	80	5	5.3	5.83	<0.5	0.5	5	5	100.00	125	75
TITANTIUM-ICP B	mg/L	JYH	1	0.98	98.00	120	80	0.99	1.09	9.62	<0.03	0.03	1	0.99	99.00	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
NR = NOT REQUIRED
DL = DILUTED OUT
** = MATRIX INTERFERENCE

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

WORK ORDER #: N5-08-543 SAMPLE #: 01-02 PAGE 1

SAMPLE #	TESTS	REASON	REMOVED BY (ADT)	REMOVED FROM	MOVED TO	RELIQ. BY	RET'D BY (ADT)	RET'D TO	REC'D BY	REASON
1-2	TSS	analysis	014/8/28/1043/95	walk-in	wet	Brg	014/8/28/1100/95	archive	Brg	archive

Versar

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME	PARAMETERS	INDUSTRIAL HYGIENE SAMPLE Y / N
3062002	Salem / River Dredge		

SAMPLERS: (Signature) Stephen D. Kartalia (Printed) Stephen D. Kartalia

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TSS								REMARKS
SALM-TSS-RI-DUR-001	8/25/95	1100		X	River	1	✓								
SALM-TSS-WE-DUR-001	8/25/95	1045	X		Weir	1	✓								

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Stephen D. Kartalia	8/25/95 1630				SKS recd 8-26-95. Stored in locked Cooler
(Printed) Stephen D. Kartalia		(Printed)	(Printed)		(Printed)

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
		Brenda Gregory	8/28/95 800	C of C Sealed Shipment Cooler Temp 5.4
(Printed)		(Printed) Brenda Gregory		

Distribution: Original (with shipment); One copy (with shipment); Company files; Coordinator Field files (pink)

KEMRON Environmental Services
109 Starlite Park
Marietta, Ohio 45750

Phone: (614) 373-4071

VERSAR, INC.
9200 Rumsey Road
Columbia, MD 21045-1934

Attn: Willie Burton

Order #: N5-09-031
Date: September 7, 1995 12:44
Work ID: 3062-002/Salem Weir River
Date Received: 09/02/95
Date Completed: 09/07/95

Client Code: VERSAR_MD331

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	SAL-TSS-WE-DUR-001	02	SAL-TSS-RI-DUR-001

AS REQUESTED ALL TOTAL ANALYSES HAVE BEEN REPORTED ON A DRY WEIGHT BASIS WHERE APPLICABLE

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Deanna Hesson

Certified by
Deanna Hesson

KEMRON ENVIRONMENTAL SERVICES
RESULTS BY SAMPLE

This is to certify that the following samples were analyzed using good laboratory practices to show the following results.

SAMPLE ID: **01** **SAL-TSS-WE-DUR-001** Collected: **09/01/95 10:30** Category: **WATER**

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	94	5	mg/L	09/05/95	SCM	160.2

SAMPLE ID: **02** **SAL-TSS-RI-DUR-001** Collected: **09/01/95 11:30** Category: **WATER**

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	12	5	mg/L	09/05/95	SCM	160.2

A Method 160.2 (Dried at 103-105C) - Total Suspended Solids

KEMRON ANALYST LIST

Ohio Valley Laboratory

08/16/95

AJS - - Ashlee J. Scott
ALC - - Ann L. Clark
BAR - - Beth A. Raper
CEB - - Chad E. Barnes
DIH - - Deanna I. Hesson
DJP - - Douglas J. Poling
DLP - - Dorothy L. Payne
DST - - Dennis S. Tepe
ECL - - Eric C. Lawson
EDG - - Eric D. Gerkin
FEH - - Fay E. Harmon
FRM - - Fred R. Montgomery
GWH - - George W. Hutchison
HV - - Hema Vilasagar
JEC - - Jesse E. Chapman
JYH - - Ji Y. Hu
JKM - - June K. Morris
JLM - - Joy L. Mullins
JLH - - Janice L. Holland
JLL - - Janice L. Landshof
JMM - - Jim M. Monk
JWR - - John W. Richards
KHA - - Kim H. Archer
KMM - - Kevin M. McDonald
KPO - - Kevin P. Overstreet
KRA - - Kathy R. Albertson
LMW - - Lisa M. Wagner
MBJ - - Matthew B. Jarrell
MDA - - Mike D. Albertson
MDC - - Michael D. Cochran
MLS - - Michael L. Schimmel
PJH - - Pamela J. Holtz
REB - - Russell E. Burton
REK - - Robert E. Kyer
RJS - - Rick J. Santos
RWC - - Rodney W. Campbell
SCM - - Susan C. Moellendick
SCW - - Stephen C. West
SLT - - Stephanie L. Tepe
SPL - - Steve P. Learn
TAS - - Tamela A. Sams
TLD - - Teresa L. Davis
VC - - Vicki Collier
WCD - - Wade C. Dawson

INORGANIC QA/QC

Kemron
ENVIRONMENTAL SERVICES

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 09/05/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
SILVER-ICP W	mg/L	JYH	0.2	0.2	100.00	120	80	0.19	0.19	0.00	<0.01	0.01	0.2	0.19	95.00	125	75
CADMIUM-ICP W	mg/L	JYH	1	1.02	102.00	120	80	0.99	1.03	3.96	<0.01	0.01	1	0.99	99.00	125	75
CHROMIUM-ICP W	mg/L	JYH	1	1.01	101.00	120	80	0.98	1	2.02	<0.02	0.02	1	0.98	98.00	125	75
ARSENIC-ICP W	mg/L	JYH	1	1.05	105.00	120	80	1.05	1.09	3.74	<0.1	0.1	1	1.05	105.00	125	75
LEAD-ICP W	mg/L	JYH	1	1.04	104.00	120	80	0.98	1.08	9.71	<0.1	0.1	1	0.98	98.00	125	75
SELENIUM-ICP W	mg/L	JYH	1	0.96	96.00	120	80	0.94	1.02	8.16	<0.1	0.1	1	0.94	94.00	125	75
ANTIMONY-FURN A	mg/L	JEC	0.025	0.0272	108.80	120	80	0.0202	0.0196	3.02	<0.02	0.02	0.025	0.0249	99.60	115	85
MERCURY	mg/L	VC	0.001	0.0009	90.00	120	80	0.001	0.0009	6.19	<0.0002	0.0002	0.001	0.00101	101.00	115	85
ALKALINITY	mg/L	REB	200	192	96.00	109	79	380	380	0.00	<10	10	100	83.3	83.30	108	75
CHLORIDE	mg/L	REB	50	51.6	103.20	108	97	210	210	0.00	<2	2	20	19	95.00	113	80
CHLORIDE-SOIL	mg/kg	REB	200	194	97.00	125	75	2400	2400	0.00	<8	8	80	80	100.00	125	75
TOC	mg/L	REB	5	4.89	97.80	110	90	< 1	< 1	0.00	<1	1	5	4.58	91.60	125	75
ALUMINUM-ICP W	mg/L	JYH	1	1.05	105.00	120	80	1.03	1.09	5.66	<0.1	0.1	1	1.03	103.00	125	75
BARIUM-ICP W	mg/L	JYH	10	9.8	98.00	120	80	9.8	9.7	1.03	<0.01	0.01	10	9.8	98.00	125	75
BERYLLIUM-ICP W	mg/L	JYH	1	1	100.00	120	80	0.95	0.97	2.08	<0.01	0.01	1	0.95	95.00	125	75
CALCIUM-ICP W	mg/L	JYH	10	10.2	102.00	120	80	11.4	11.2	1.77	<0.2	0.2	10	11.4	114.00	125	75
COBALT-ICP W	mg/L	JYH	1	1.02	102.00	120	80	0.99	1.02	2.99	<0.02	0.02	1	0.99	99.00	125	75
COPPER-ICP W	mg/L	JYH	1	1.01	101.00	120	80	0.91	0.92	1.09	<0.02	0.02	1	0.91	91.00	125	75
IRON-ICP W	mg/L	JYH	1	1.09	109.00	120	80	1.04	1.07	2.84	<0.04	0.04	1	1.07	107.00	125	75
POTASSIUM-ICP W	mg/L	JYH	10	10.1	101.00	120	80	8.8	7.8	12.05	<1	1	10	8.8	88.00	125	75
MAGNESIUM-ICP W	mg/L	JYH	10	9.9	99.00	120	80	9.4	9.6	2.11	<0.5	0.5	10	9.4	94.00	125	75
MANGANESE-ICP W	mg/L	JYH	1	1.04	104.00	120	80	1	1.03	2.96	<0.01	0.01	1	1	100.00	125	75
SODIUM-ICP W	mg/L	JYH	10	10	100.00	120	80	890	880	1.13	<0.5	0.5	10	DL	DL	125	75
NICKEL-ICP W	mg/L	JYH	1	1.05	105.00	120	80	1.04	1.08	3.77	<0.04	0.04	1	1.04	104.00	125	75
ANTIMONY-ICP W	mg/L	JYH	1	1.06	106.00	120	80	0.98	1.01	3.02	<0.2	0.2	1	0.98	98.00	125	75
VANADIUM-ICP W	mg/L	JYH	1	0.98	98.00	120	80	0.94	0.96	2.11	<0.01	0.01	1	0.94	94.00	125	75
ZINC-ICP W	mg/L	JYH	1	1.04	104.00	120	80	1	1.03	2.96	<0.01	0.01	1	1	100.00	125	75
BARIUM-ICP F	mg/kg	JYH	238	220	92.44	311	138	9.7	9.2	5.29	<0.5	0.5	10	9.7	97.00	125	75
CADMIUM-ICP F	mg/kg	JYH	90	83	92.22	130	51.3	0.88	0.86	2.30	<0.5	0.5	1	0.88	88.00	125	75
STRONTIUM-ICP F	mg/L	JYH	2	1.9	95.00	120	80	1.96	2.06	4.98	<0.01	0.01	2	1.96	98.00	125	75
ARSENIC-FURNACE I	mg/L	AJS	0.025	0.0269	107.72	120	80	0.02575	0.0260	1.31	<0.004	0.004	0.025	0.02575	103.00	115	85
ALUMINUM-ICP EX	mg/kg	TAS	1	0.9062	90.62	120	80	11.75	11.89	1.18	<0.1	0.1	1	1.004	100.40	125	75
CADMIUM-FURNACE G	mg/L	KHA	0.002	0.0025	100.00	120	80	0.0024	0.0024	0.00	<0.0005	0.0005	0.0025	0.0024	96.00	115	85
LEAD-FURNACE G	mg/L	KHA	0.025	0.0284	113.60	120	80	0.0274	0.0262	4.48	<0.005	0.005	0.025	0.0247	98.80	115	85
COPPER-FURNACE K	mg/L	AJS	0.025	0.0235	94.00	120	80	0.1158	0.1044	10.35	<0.005	0.005	0.025	0.02488	99.52	115	85
CHROMIUM-FURN K	mg/L	SPL	0.025	0.0234	93.60	120	80	0.0238	0.0242	1.67	<0.005	0.005	0.025	0.0256	102.40	115	85
CHROMIUM-FURN G	mg/L	SPL	0.025	0.025	100.00	120	80	0.022	0.0233	5.74	<0.003	0.003	0.025	0.0222	88.80	115	85
TDS	mg/L	SCM	500	500	100.00	114	80	1300	1200	8.00	<10	10	500	510	102.00	124	78
TSS	mg/L	SCM	50	52	104.00	121	75	24	19	23.26	<5	5	50	64	128.00	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
NR = NOT REQUIRED
DL = DILUTED OUT

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

WORK ORDER #: N5-09-031 SAMPLE #: 01-2 PAGE 1

SAMPLE #	TESTS	REASON	REMOVED BY (ADT)	REMOVED FROM	MOVED TO	RELIQ. BY	RET'D BY (ADT)	RET'D TO	REC'D BY	REASON
01,02	TSS	ANALYSIS	SCM/9/5/1000	WALK IN	WET L.	CFL	SCM/9/5/1515	ARCHIVE	CFL	ARCHIVE

Versar INC.

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME
3062-002	Salem Weir/River

SAMPLERS: (Signature) Stephen D. Kartalia (Printed) Stephen D. Kartalia

PARAMETERS: TSS

INDUSTRIAL HYGIENE SAMPLE: Y / N

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TSS								REMARKS
SAL-TSS-WE-DWR-001	9/1/95	1030	X		WEIR	1	✓								
SAL-TSS-RI-DWR-001	9/1/95	1130		X	RIVER	1	✓								

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Stephen D. Kartalia	9/1/95 1630				SKS rec'd 9-2-
(Printed) Stephen D. Kartalia		(Printed)	(Printed)		(Printed) Stored in locked cooler

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
		Brenda Gregory	9/5/95 800	C.o.C. sealed SKS intact/ cooler temp 5.2
(Printed)		(Printed) Brenda Gregory		

Distribution: Original Plus One Accompanying Shipment (White and Yellow); Copy to Coordinator Field Files (pink)

KEMRON
ENVIRONMENTAL SERVICES

KEMRON Environmental Services
109 Starlite Park
Marietta, Ohio 45750

Phone: (614) 373-4071

VERSAR, INC.
9200 Rumsey Road
Columbia, MD 21045-1934

Attn: Willie Burton

Order #: N5-09-152
Date: September 15, 1995 16:33
Work ID: 3062-002/Salem Weir/River
Date Received: 09/09/95
Date Completed: 09/15/95

Client Code: VERSAR_MD331

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	SAL-TSS-WE-DUR-001	02	SAL-TSS-RI-DUR-001

AS REQUESTED ALL TOTAL ANALYSES HAVE BEEN REPORTED ON A DRY WEIGHT BASIS WHERE APPLICABLE

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Deanna Hesson

Certified by
Deanna Hesson

KEMRON ENVIRONMENTAL SERVICES
RESULTS BY SAMPLE

This is to certify that the following samples were analyzed using good laboratory practices to show the following results.

SAMPLE ID: **01** **SAL-TSS-WE-DUR-001** Collected: **09/08/95 10:00** Category: **WATER**

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	6	5	mg/L	09/14/95	SCM	160.2

SAMPLE ID: **02** **SAL-TSS-RI-DUR-001** Collected: **09/08/95 09:30** Category: **WATER**

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	36	5	mg/L	09/14/95	SCM	160.2

Method 160.2 (Dried at 103-105C) - Total Suspended Solids

KEMRON ANALYST LIST

Ohio Valley Laboratory

08/16/95

AJS - - Ashlee J. Scott
ALC - - Ann L. Clark
BAR - - Beth A. Raper
CEB - - Chad E. Barnes
DIH - - Deanna I. Hesson
DJP - - Douglas J. Poling
DLP - - Dorothy L. Payne
DST - - Dennis S. Tepe
ECL - - Eric C. Lawson
EDG - - Eric D. Gerkin
FEH - - Fay E. Harmon
FRM - - Fred R. Montgomery
GWH - - George W. Hutchison
HV - - Hema Vilasagar
JEC - - Jesse E. Chapman
JYH - - Ji Y. Hu
JKM - - June K. Morris
JLM - - Joy L. Mullins
JLH - - Janice L. Holland
JLL - - Janice L. Landshof
JMM - - Jim M. Monk
JWR - - John W. Richards
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LMW - - Lisa M. Wagner
MBJ - - Matthew B. Jarrell
MDA - - Mike D. Albertson
MDC - - Michael D. Cochran
MLS - - Michael L. Schimmel
PJH - - Pamela J. Holtz
REB - - Russell E. Burton
REK - - Robert E. Kyer
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SCM - - Susan C. Moellendick
SCW - - Stephen C. West
SLT - - Stephanie L. Tepe
SPL - - Steve P. Learn
TAS - - Tamela A. Sams
TLD - - Teresa L. Davis
VC - - Vicki Collier
WCD - - Wade C. Dawson

INORGANIC QA/QC

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ENVIRONMENTAL SERVICES

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 09/14/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
FLUORIDE	mg/L	PJH	0.4	0.378	94.50	123	75	6.5	6.6	1.53	<0.1	0.1	0.4	0.384	96.00	125	75
HARDNESS	mg/L	RJS	100	101	101.00	111	97	680	680	0.00	<5	5	50	50.5	101.00	117	86
PHOSPHORUS	mg/L	REB	2	1.65	82.50	125	75	< 0.1	< 0.1	0.00	<0.1	0.1	0.5	0.392	78.40	125	75
LEAD-FURNACE U	mg/L	KHA	0.025	0.0243	97.20	120	80	0.0205	0.0219	6.60	<0.005	0.005	0.025	0.0219	87.60	115	85
MERCURY P	mg/L	TAS	0.001	0.0010	101.00	120	80	0.00094	0.0010	7.63	<0.0002	0.0002	0.001	0.000945	94.50	115	85
MERCURY E	mg/L	TAS	0.001	0.0009	99.00	120	80	0.00093	0.0008	5.18	<0.0002	0.0002	0.001	0.000931	93.10	115	85
MERCURY S	mg/kg	TAS	1.92	1.15	59.90	3.5	0.92	0.00097	0.0010	2.83	<0.0002	0.0002	0.001	0.000974	97.40	115	85
ARSENIC-FURNACE D	mg/kg	ALC	82.4	87.4	106.07	123	40.4	1.5	1.4	6.90	<0.004	0.004	0.025	0.02575	103.00	115	85
TSS	mg/L	SCM	50	48	96.00	121	75	23	25	8.33	<50	50	50	51	102.00	125	75
CYANIDE-SOIL	mg/kg	JWR	20	20.6	103.00	110	90	< 0.5	< 0.5	0.00	<0.5	0.5	10	9.81	98.10	125	75
CYANIDE	mg/L	JWR	0.4	0.406	101.50	110	90	0.1	0.1	0.00	<0.01	0.01	0.2	0.205	102.50	125	75
SILVER-ICP N	mg/L	JYH	0.2	0.2	100.00	120	80	0.21	0.21	0.00	<0.01	0.01	0.2	0.21	105.00	125	75
BARIUM-ICP N	mg/L	JYH	10	10.2	102.00	120	80	9.5	9.4	1.06	<0.01	0.01	10	9.5	95.00	125	75
CADMIUM-ICP N	mg/L	JYH	1	1	100.00	120	80	1.02	1.03	0.98	<0.01	0.01	1	1.02	102.00	125	75
CHROMIUM-ICP N	mg/L	JYH	1	1.03	103.00	120	80	1.06	1.07	0.94	<0.02	0.02	1	1.06	106.00	125	75
ARSENIC-ICP N	mg/L	JYH	1	1.01	101.00	120	80	1.12	1.11	0.90	<0.1	0.1	1	1.12	112.00	125	75
LEAD-ICP N	mg/L	JYH	1	1.02	102.00	120	80	1.08	1.05	2.82	<0.1	0.1	1	1.08	108.00	125	75
SELENIUM-ICP N	mg/L	JYH	1	1.01	101.00	120	80	1.06	1.13	6.39	<0.1	0.1	1	1.06	106.00	125	75
THALLIUM-ICP N	mg/L	JYH	1	0.97	97.00	120	80	1.09	1.06	2.79	<0.5	0.5	1	1.09	109.00	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
NR = NOT REQUIRED
DL = DILUTED OUT

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

Versar INC.

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME	PARAMETERS	INDUSTRIAL HYGIENE SAMPLE Y / N
3062-002	Salem Weir / River		

SAMPLERS: (Signature) Stephen D. Kartalia (Printed) Stephen D. Kartalia

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TSS								REMARKS
SAL-TSS-WE-DWR-001	9/8/95	1000	X		Weir	1	✓								
SAL-TSS-RI-DWR-001	9/8/95	0930		X	River	1	✓								

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Stephen D. Kartalia	9/8/95 1500				
(Printed) Stephen D. Kartalia		(Printed)	(Printed)		(Printed)

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
(Printed)		(Printed)		

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

WORK ORDER #: N5-09-152 SAMPLE #: 01-02 PAGE 1

SAMPLE #	TESTS	REASON	REMOVED BY (ADT)	REMOVED FROM	MOVED TO	RELIQ. BY	RET'D BY (ADT)	RET'D TO	REC'D BY	REASON
1-2	TSS	anal.	DIH/9/14/0730	walk-in	wet	Bug	SCM/9/14/1015	ARCHIVE	Bug	ARCHIVE

KEMRON Environmental Services
109 Starlite Park
Marietta, Ohio 45750

Phone: (614) 373-4071

VERSAR, INC.
9200 Rumsey Road
Columbia, MD 21045-1934

Attn: Willie Burton

Order #: N5-09-305
Date: September 29, 1995 15:20
Work ID: 3062-002/Salem River Dredge
Date Received: 09/16/95
Date Completed: 09/29/95

Client Code: VERSAR_MD331

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	SALM-TSS-R1-DUR-001	02	SALM-TSS-WE-DUR-001

AS REQUESTED ALL TOTAL ANALYSES HAVE BEEN REPORTED ON A DRY WEIGHT BASIS WHERE APPLICABLE

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Certified by
Deanna Hesson

KEMRON ENVIRONMENTAL SERVICES
RESULTS BY SAMPLE

This is to certify that the following samples were analyzed using good laboratory practices to show the following results.

SAMPLE ID: 01 SALM-TSS-R1-DUR-001 Collected: 09/15/95 09:45 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	36	5	mg/L	09/20/95	PJH	160.2

SAMPLE ID: 02 SALM-TSS-WE-DUR-001 Collected: 09/15/95 09:45 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	5	5	mg/L	09/20/95	PJH	160.2

EPA Method 160.2 (Dried at 103-105C) - Total Suspended Solids

KEMRON ANALYST LIST

Ohio Valley Laboratory

09/19/95

AJS - - Ashlee J. Scott
ALC - - Ann L. Clark
CEB - - Chad E. Barnes
DIH - - Deanna I. Hesson
DJP - - Douglas J. Poling
DLP - - Dorothy L. Payne
DST - - Dennis S. Tepe
ECL - - Eric C. Lawson
EDG - - Eric D. Gerkin
FEH - - Fay E. Harmon
FRM - - Fred R. Montgomery
GWH - - George W. Hutchison
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JLL - - Janice L. Landshof
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SLT - - Stephanie L. Tepe
SPL - - Steve P. Learn
TAS - - Tamela A. Sams
TLD - - Teresa L. Davis
VC - - Vicki Collier
WCD - - Wade C. Dawson

SAMPLE #	TESTS	REASON	REMOVED BY (ADT)	REMOVED FROM	MOVED TO	RELIQ. BY	RET'D BY (ADT)	RET'D TO	REC'D BY	REASON
1-2	TSS	anal	dth/9/20/0745 fn 134	walk-in	wet	Big	pth/9/20/1700	archive	AB	storage
-										

Versar INC.

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME	INDUSTRIAL HYGIENE SAMPLE Y / N
3062-002	Submarine River Dredge	

SAMPLERS: (Signature) [signature] (Printed) E. Rzemien

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TSS								REMARKS
SRUM-TSS-R1-DUR-001	9/15/95	9:45		✓	Jetty	1	✓								
SRUM-TSS-WS-DUR-001	9/15/95	9:45	✓		Weir	1	✓								

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	9/15/95 4:00 pm				
(Printed) E. Rzemien		(Printed)	(Printed)		(Printed) SXS rec'd 9-16-95 Stored in locked cooler over weekend

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
		Brenda Gregory	9/18/95 800	C of C sealed SXS intact
(Printed)		(Printed) Brenda Gregory		Cooler temp 7.3

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

KEMRON Environmental Services
109 Starlite Park
Marietta, Ohio 45750

Phone: (614) 373-4071

VERSAR, INC.
9200 Rumsey Road
Columbia, MD 21045-1934

Attn: Willie Burton

Order #: N5-09-470
Date: September 29, 1995 17:17
Work ID: 3062-002/Salem River Dredge
Date Received: 09/23/95
Date Completed: 09/29/95

Client Code: VERSAR_MD331

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	SALM-TSS-RI-DUR-001	02	SALM-TSS-WE-DUR-001

AS REQUESTED ALL TOTAL ANALYSES HAVE BEEN REPORTED ON A DRY WEIGHT BASIS WHERE APPLICABLE.

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Deanna Hesson

Certified by
Deanna Hesson

KEMRON ENVIRONMENTAL SERVICES
RESULTS BY SAMPLE

This is to certify that the following samples were analyzed using good laboratory practices to show the following results.

SAMPLE ID: 01 SALM-TSS-RI-DUR-001 Collected: 09/22/95 12:30 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	240	10	mg/L	09/25/95	PJH	160.2

SAMPLE ID: 02 SALM-TSS-WE-DUR-001 Collected: 09/22/95 11:30 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	20	5	mg/L	09/25/95	PJH	160.2

PA Method 160.2 (Dried at 103-105C) - Total Suspended Solids

KEMRON ANALYST LIST

Ohio Valley Laboratory

09/19/95

AJS - - Ashlee J. Scott
ALC - - Ann L. Clark
CEB - - Chad E. Barnes
DIH - - Deanna I. Hesson
DJP - - Douglas J. Poling
DLP - - Dorothy L. Payne
DST - - Dennis S. Tepe
ECL - - Eric C. Lawson
EDG - - Eric D. Gerkin
FEH - - Fay E. Harmon
FRM - - Fred R. Montgomery
GWH - - George W. Hutchison
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JEC - - Jesse E. Chapman
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JLH - - Janice L. Holland
JLL - - Janice L. Landshof
JMM - - Jim M. Monk
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MDC - - Michael D. Cochran
MLS - - Michael L. Schimmel
PJH - - Pamela J. Holtz
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SPL - - Steve P. Learn
TAS - - Tamela A. Sams
TLD - - Teresa L. Davis
VC - - Vicki Collier
WCD - - Wade C. Dawson

ORDER #: _____ SAMPLE #: _____ PAGE 1

SAMPLE #	TESTS	REASON	REMOVED BY (ADT)	REMOVED FROM	MOVED TO	RELIQ. BY	RET'D BY (ADT)	RET'D TO	REC'D BY	REASON
1-2	TSS	Pn	jth/9/25/95/0925	walk-in	wet lab	ACB	jth/9/25/95/1700	Archives	ACB	Storage
~~Pn~~										

Versar INC.

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME	PARAMETERS	INDUSTRIAL HYGIENE SAMPLE Y / N
3062-002	Salem / River Dredge		

SAMPLERS: (Signature) [signature] (Printed) EMILY RZEMIEN

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TSS								REMARKS
SALM-TSS-RV-DUR-001	9/22	12:30		✓	JETTY	1	✓								
SALM-TSS-WE-DUR-001	9/22	11:30	✓		WEIR	1	✓								

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	9/22/95 4:00 pm				
(Printed) EMILY RZEMIEN		(Printed)	(Printed)		(Printed)

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
		Angelina R. Brown	9-25-95 8:00	Sis stored in locked cooler over weekend (A.B)
(Printed)		(Printed) Angelina R. Brown		Cooler Temp 1.3 / C of C Sealed / Sis intact

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

KEMRON Environmental Services
109 Starlite Park
Marietta, Ohio 45750

Phone: (614) 373-4071

KEMRON ENVIRONMENTAL SERVICES

VERSAR, INC.
9200 Rumsey Road
Columbia, MD 21045-1934

Attn: Willie Burton

Order #: N5-11-108
Date: November 8, 1995 14:06
Work ID: 3062-002/Salem River Dredging
Date Received: 11/04/95
Date Completed: 11/08/95

Client Code: VERSAR_MD331

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	WEDUR001	02	RIDUR001

AS REQUESTED ALL TOTAL ANALYSES HAVE BEEN REPORTED ON A DRY WEIGHT BASIS WHERE APPLICABLE

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Deanna Hesson

Certified by
Deanna Hesson

KEMRON ENVIRONMENTAL SERVICES
RESULTS BY SAMPLE

This is to certify that the following samples were analyzed using good laboratory practices to show the following results.

SAMPLE ID: 01 WEDUR001 Collected: 11/03/95 13:22 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	44	5	mg/L	11/06/95	PJH	160.2

SAMPLE ID: 02 RIDUR001 Collected: 11/03/95 14:05 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	120	5	mg/L	11/06/95	PJH	160.2

A Method 160.2 (Dried at 103-105C) - Total Suspended Solids

KEMRON ANALYST LIST

Ohio Valley Laboratory

09/19/95

AJS - - Ashlee J. Scott
ALC - - Ann L. Clark
CEB - - Chad E. Barnes
DIH - - Deanna I. Hesson
DJP - - Douglas J. Poling
DLP - - Dorothy L. Payne
DST - - Dennis S. Tepe
ECL - - Eric C. Lawson
EDG - - Eric D. Gerkin
FEH - - Fay E. Harmon
FRM - - Fred R. Montgomery
GWH - - George W. Hutchison
HV - - Hema Vilasagar
JEC - - Jesse E. Chapman
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JLI - - Janice L. Inghram
JLL - - Janice L. Landshof
JLM - - Joy L. Mullins
JMM - - Jim M. Monk
JWR - - John W. Richards
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PJH - - Pamela J. Holtz
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REK - - Robert E. Kyer
RJS - - Rick J. Santos
RWC - - Rodney W. Campbell
SCM - - Susan C. Moellendick
SCW - - Stephen C. West
SLT - - Stephanie L. Tepe
SPL - - Steve P. Learn
TAS - - Tamela A. Sams
TLD - - Teresa L. Davis
VC - - Vicki Collier
WCD - - Wade C. Dawson

INORGANIC QA/QC

Kemron
ENVIRONMENTAL SERVICES

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 11/06/95

			REFERENCE STANDARD					DUPLICATE SAMPLE			BLANK		MATRIX/MEDIA SPIKE				
Parameter	Units	Analyst	Known	Result	Rec.(%)	UCLx	LCLx	Result1	Result2	RPD (%)	Result	MDL	Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
SILVER-ICP L	mg/L	JYH	0.2	0.17	85.00	120	80	0.17	0.17	0.00	<0.01	0.01	0.2	0.17	85.00	125	75
ALUMINUM-ICP L	mg/L	JYH	1	0.86	86.00	120	80	0.83	0.88	5.85	<0.1	0.1	1	0.83	83.00	125	75
BARIUM-ICP L	mg/L	JYH	10	8.4	84.00	102	80	8.1	8.5	4.82	<0.01	0.01	10	8.1	81.00	125	75
BERYLLIUM-ICP L	mg/L	JYH	1	0.88	88.00	120	80	0.83	0.88	5.85	<0.01	0.01	1	0.83	83.00	125	75
CADMIUM-ICP L	mg/L	JYH	1	0.92	92.00	120	80	0.87	0.93	6.67	<0.01	0.01	1	0.87	87.00	125	75
COBALT-ICP L	mg/L	JYH	1	0.91	91.00	120	80	0.85	0.9	5.71	<0.02	0.02	1	0.85	85.00	125	75
CHROMIUM-ICP L	mg/L	JYH	1	0.9	90.00	120	80	0.85	0.9	5.71	<0.02	0.02	1	0.85	85.00	125	75
COPPER-ICP L	mg/L	JYH	1	0.86	86.00	120	80	0.82	0.86	4.76	<0.02	0.02	1	0.82	82.00	125	75
IRON-ICP L	mg/L	JYH	1	0.9	90.00	120	80	0.92	0.97	5.29	<0.04	0.04	1	0.92	92.00	125	75
NICKEL-ICP L	mg/L	JYH	1	0.95	95.00	120	80	0.87	0.92	5.59	<0.04	0.04	1	0.87	87.00	125	75
ZINC-ICP L	mg/L	JYH	1	0.91	91.00	120	80	0.88	0.93	5.52	<0.01	0.01	1	0.88	88.00	125	75
MERCURY W	mg/L	TAS	0.001	0.0011	115.00	120	80	0.00103	0.0010	0.98	<0.0002	0.0002	0.001	0.00102	102.00	115	85
ANTIMONY-FURN X	mg/L	KHA	0.025	0.0253	101.20	120	80	0.027	0.0318	16.33	<0.02	0.02	0.025	0.0234	93.60	115	85
ANTIMONY-FURN R	mg/L	KHA	0.025	0.0232	92.80	120	80	< 0.02	< 0.02	0.00	<0.02	0.02	0.025	0.026	104.00	115	85
LEAD-FURNACE R	mg/L	KHA	0.025	0.025	100.00	120	80	0.0095	0.0086	9.94	<0.005	0.005	0.025	0.0243	97.20	115	85
THALLIUM-FURN R	mg/L	KHA	0.025	0.0246	98.40	120	80	0.0164	0.0162	1.23	<0.005	0.005	0.025	0.022	88.00	115	85
ARSENIC-ICP L	mg/L	JYH	1	0.94	94.00	120	80	1.03	1.11	7.48	<0.1	0.1	1	1.03	103.00	125	75
LEAD-ICP L	mg/L	JYH	1	0.94	94.00	120	80	0.89	0.94	5.46	<0.1	0.1	1	0.89	89.00	125	75
SELENIUM-ICP L	mg/L	JYH	1	0.87	87.00	120	80	1	1.16	14.81	<0.1	0.1	1	1	100.00	125	75
COPPER-FURNACE R	mg/L	TAS	0.025	0.0232	93.00	120	80	0.0279	0.0279	0.18	<0.005	0.005	0.025	0.02679	107.16	115	85
COPPER-FURNACE M	mg/L	TAS	0.025	0.0241	96.64	120	80	5	5	0.00	<0.005	0.005	0.025	S	S	115	85
THALLIUM-FURN M	mg/L	AJS	0.025	0.0293	117.20	120	80	0.0225	0.0238	5.62	<0.005	0.005	0.025	S	S	115	85
CADMIUM-FURNACE	mg/L	ALC	0.002	0.0024	96.40	120	80	0.00231	0.0022	1.31	<0.0005	0.0005	0.0025	0.00223	89.20	115	85
PHENOL A	mg/L	REB	0.5	0.534	106.80	114	85	0.3	0.3	0.00	<0.005	0.005	0.5	0.532	106.40	122	75
PHENOL B	mg/L	REB	0.5	0.546	109.20	114	85	1.4	1.5	6.90	<0.005	0.005	0.5	0.537	107.40	122	75
TSS A	mg/L	PJH	50	49	98.00	125	75	93	81	13.79	<5	5	NR	NR	NR	NR	NR
TSS B	mg/L	PJH	50	54	108.00	125	75	5	5	0.00	<5	5	NR	NR	NR	NR	NR
TOX A	mg/L	JWR	0.1	0.092	92.00	110	90	< 0.02	< 0.02	0.00	<0.02	0.02	0.1	0.103	103.00	119	79
TOX B	mg/L	JWR	0.1	0.095	95.00	110	90	< 0.02	< 0.02	0.00	<0.02	0.02	0.1	0.093	93.00	124	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
S = ANALYZED BY METHOD OF STANDARD ADDITION
DL = DILUTED OUT
NR = NOT REQUIRED

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

WO[illegible] .ER #: CN5-11-108 SAMPLE #: 011402A PAGE 1

SAMPLE #	TESTS	REASON	REMOVED BY (ADT)	REMOVED FROM	MOVED TO	RELIQ. BY	RET'D BY (ADT)	RET'D TO	REC'D BY	REASON
1-2	TSS	AN	pjh/11/6/95/1028	walk-in	wet lab	BLG	pjh/11/6/95/1108	Archives	BLG	Storage

Versar INC.

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME
3062-002	Salem River Dredging

SAMPLERS: (Signature) Dee Allen (Printed) Dee Allen

PARAMETERS: TSS

INDUSTRIAL HYGIENE SAMPLE: Y / N

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TSS								REMARKS
WEDUR001	11/03/95	1322	X		Weir	1	X								
RIDUR001	11/03/95	1405		X	River @ Jetty End	1	X								

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Dee Allen	11/03/95 1700				
(Printed) Dee Allen		(Printed)	(Printed)		(Printed)

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
		Angelina R. Brown	11/6/95 8:00	C of C Sealed / Sis rec'd intact Sis stored in locked cooler over weekend
(Printed)		(Printed) Angelina R. Brown		Cooler Temp 1.0

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

KEMRON Environmental Services
109 Starlite Park
Marietta, Ohio 45750

Phone: (614) 373-4071

VERSAR, INC.
9200 Rumsey Road
Columbia, MD 21045-1934

Attn: Willie Burton

Order #: N5-11-242
Date: November 16, 1995 15:21
Work ID: 3062-002/Salem River Dredge
Date Received: 11/11/95
Date Completed: 11/15/95

Client Code: VERSAR_MD331

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	SALEM-WE-DUR-001	02	SALEM-RI-DUR-001

AS REQUESTED ALL TOTAL ANALYSES HAVE BEEN REPORTED ON A DRY WEIGHT BASIS WHERE APPLICABLE

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Deanna Hesson

Certified by
Deanna Hesson

KEMRON ENVIRONMENTAL SERVICES
RESULTS BY SAMPLE

This is to certify that the following samples were analyzed using good laboratory practices to show the following results.

SAMPLE ID: 01 SALEM-WE-DUR-001 Collected: 11/10/95 12:15 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	34,000	250	mg/L	11/13/95	PJH	160.2

SAMPLE ID: 02 SALEM-RI-DUR-001 Collected: 11/10/95 12:15 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	470	20	mg/L	11/13/95	PJH	160.2

EPA Method 160.2 (Dried at 103-105C) - Total Suspended Solids

KEMRON ANALYST LIST

Ohio Valley Laboratory

09/19/95

AJS - - Ashlee J. Scott
ALC - - Ann L. Clark
CEB - - Chad E. Barnes
DIH - - Deanna I. Hesson
DJP - - Douglas J. Poling
DLP - - Dorothy L. Payne
DST - - Dennis S. Tepe
ECL - - Eric C. Lawson
EDG - - Eric D. Gerkin
FEH - - Fay E. Harmon
FRM - - Fred R. Montgomery
GWH - - George W. Hutchison
HV - - Hema Vilasagar
JEC - - Jesse E. Chapman
JKM - - June K. Morris
JLI - - Janice L. Inghram
JLL - - Janice L. Landshof
JLM - - Joy L. Mullins
JMM - - Jim M. Monk
JWR - - John W. Richards
JYH - - Ji Y. Hu
KHA - - Kim H. Archer
KMM - - Kevin M. McDonald
KPO - - Kevin P. Overstreet
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MLS - - Michael L. Schimmel
PJH - - Pamela J. Holtz
REB - - Russell E. Burton
REK - - Robert E. Kyer
RJS - - Rick J. Santos
RWC - - Rodney W. Campbell
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SLT - - Stephanie L. Tepe
SPL - - Steve P. Learn
TAS - - Tamela A. Sams
TLD - - Teresa L. Davis
VC - - Vicki Collier
WCD - - Wade C. Dawson

INORGANIC QA/QC

Kemron
ENVIRONMENTAL SERVICES

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 11/13/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
NITRATE	mg/L	REB	1	0.974	97.40	111	90	13	13	0.00	<0.05	0.05	0.25	0.254	101.60	123	76
TOC A	mg/L	REB	5	4.51	90.20	110	90	1.5	1.7	12.50	<1	1	5	5.07	101.40	125	75
TOC B	mg/L	REB	5	5.2	104.00	110	90	3	3	0.00	<1	1	5	5.83	116.60	125	75
SILVER-ICP A	mg/L	JYH	0.2	0.2	100.00	120	80	0.22	0.19	14.63	<0.01	0.01	0.2	0.22	110.00	125	75
BARIUM-ICP A	mg/L	JYH	10	9.9	99.00	120	80	10.5	9	15.38	<0.01	0.01	10	10.5	105.00	125	75
BERYLLIUM-ICP A	mg/L	JYH	1	0.94	94.00	120	80	1.06	0.92	14.14	<0.01	0.01	1	1.06	106.00	125	75
COBALT-ICP A	mg/L	JYH	1	0.98	98.00	120	80	1.1	0.99	10.53	<0.02	0.02	1	1.1	110.00	125	75
CHROMIUM-ICP A	mg/L	JYH	1	0.99	99.00	120	80	1.1	0.98	11.54	<0.02	0.02	1	1.1	110.00	125	75
COPPER-ICP A	mg/L	JYH	1	1.01	101.00	120	80	1.06	0.94	12.00	<0.02	0.02	1	1.06	106.00	125	75
NICKEL-ICP A	mg/L	JYH	1	1	100.00	120	80	1.15	1.03	11.01	<0.04	0.04	1	1.15	115.00	125	75
ZINC-ICP A	mg/L	JYH	1	0.98	98.00	120	80	1.08	0.97	10.73	<0.01	0.01	1	1.08	108.00	125	75
SILICON-ICP A	mg/L	JYH	25	23	92.00	120	80	29	17.5	49.46	<1.0	1	25	29	116.00	125	75
THALLIUM-ICP A	mg/L	JYH	1	0.97	97.00	120	80	1.08	0.99	8.70	<0.5	0.5	1	1.08	108.00	125	75
TSS A	mg/L	PJH	50	54	108.00	125	75	< 5	< 5	0.00	<5	5	NR	NR	NR	NR	NR
TSS B	mg/L	PJH	50	48	96.00	125	75	< 5	< 5	0.00	<5	5	NR	NR	NR	NR	NR
SELENIUM-FURN B1	mg/L	JEC	0.025	0.0268	107.20	120	80	0.0222	0.0217	2.28	<0.004	0.004	0.025	0.028	112.00	115	85
SILVER-FURNACE C	mg/L	AJS	0.005	0.0042	85.20	120	80	< 0.004	< 0.004	0.00	<0.004	0.004	0.005	S	S	115	85
SILVER-FURNACE F	mg/kg	AJS	170	173	101.76	248	85	< 0.2	< 0.2	0.00	<0.004	0.004	0.005	0.00493	98.60	115	85
CHROMIUM-FURN C	mg/kg	ALC	0.025	0.0264	105.64	120	80	0.02732	0.0268	1.62	<0.005	0.005	0.025	0.02688	107.52	115	85

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
S = ANALYZED BY METHOD OF STANDARD ADDITION
DL = DILUTED OUT
NR = NOT REQUIRED

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

WORK ORDER #: N5-11-242 SAMPLE #: 01-2 PAGE 1

SAMPLE #	TESTS	REASON	REMOVED BY (ADT)	REMOVED FROM	MOVED TO	RELIQ. BY	RET'D BY (ADT)	RET'D TO	REC'D BY	REASON
1-2	TSS	AN	pjh/11/13/95/1600	walk-in	wet Lab	Big	pjh/11/13/95/1615	Archives	Big	Storage

Versar INC.

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME
3062-002	Salem River Dredge Proj

SAMPLERS: (Signature) Gary Bielski (Printed) Gary A Bielski

PARAMETERS: TSS

INDUSTRIAL HYGIENE SAMPLE: Y / N

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TSS								REMARKS
Salem TSS WE DUROOI	11/10/95	12:15	X		Weir	1	X								
Salem TSS RI DUROOI	"	[illegible]		X	River (Jetty)	1	+								

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Gary Bielski	11/10/95 1535				
(Printed) Gary A Bielski		(Printed)	(Printed) C of C Sealed SXS Intact		(Printed) Cooler Temp 4.0
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature) Brenda Gregory	Date / Time 11/13/95 800	Remarks Please return cooler to Versar, 1900 Frost Rd. suite 110 Bristol, PA 19007 by next Thursday (11/16/95). SXS Rec'd 11-11-95. Stored in locked cooler (bg)	
(Printed)		(Printed) Brenda Gregory			

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

KEMRON Environmental Services
109 Starlite Park
Marietta, Ohio 45750

Phone: (614) 373-4071

VERSAR, INC.
9200 Rumsey Road
Columbia, MD 21045-1934

Attn: Willie Burton

Order #: N5-11-385
Date: November 28, 1995 13:22
Work ID: 3062-002/Salem River Dredge
Date Received: 11/20/95
Date Completed: 11/28/95

Client Code: VERSAR_MD331

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	SALEM TSS WE DUR 001/Weir	02	SALEM TSS RI DUR 001/River

AS REQUESTED ALL TOTAL ANALYSES HAVE BEEN REPORTED ON A DRY WEIGHT BASIS WHERE APPLICABLE

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Deanna Hesson

Certified by
Deanna Hesson

KEMRON ENVIRONMENTAL SERVICES
RESULTS BY SAMPLE

This is to certify that the following samples were analyzed using good laboratory practices to show the following results.

SAMPLE ID: 01 SALEM TSS WE DUR 001/Wei Collected: 11/17/95 12:00 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	140	10	mg/L	11/21/95	SCM	160.2

SAMPLE ID: 02 SALEM TSS RI DUR 001/River Collected: 11/17/95 12:30 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	48	10	mg/L	11/21/95	SCM	160.2

A Method 160.2 (Dried at 103-105C) - Total Suspended Solids

KEMRON ANALYST LIST

Ohio Valley Laboratory

09/19/95

AJS - - Ashlee J. Scott
ALC - - Ann L. Clark
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TLD - - Teresa L. Davis
VC - - Vicki Collier
WCD - - Wade C. Dawson

INORGANIC QA/QC

Kemron
ENVIRONMENTAL SERVICES

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 11/21/95

			REFERENCE STANDARD					DUPLICATE SAMPLE			BLANK		MATRIX/MEDIA SPIKE				
Parameter	Units	Analyst	Known	Result	Rec.(%)	UCLx	LCLx	Result1	Result2	RPD (%)	Result	MDL	Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
BERYLLIUM-ICP D	mg/kg	JKM	64.9	62.7	96.61	90.8	41.3	47	47	0.00	<0.5	0.5	1	0.948	94.80	125	75
CADMIUM-ICP D	mg/kg	JKM	51.4	51.8	100.78	74.1	29.1	48	49	2.06	<0.5	0.5	1	0.87	87.00	125	75
CHROMIUM-ICP D	mg/kg	JKM	91.3	89.4	97.92	129	48.8	64	69	7.52	<1	1	1	0.879	87.90	125	75
COPPER-ICP D	mg/kg	JKM	88.5	84.5	95.48	128	50.5	103	140	30.45	<1	1	1	0.389	38.90	125	75
NICKEL-ICP D	mg/kg	JKM	94	92.1	97.98	137	51.3	58	64	9.84	<2	2	1	0.826	82.60	125	75
SILVER-ICP D	mg/kg	JKM	170	150	88.24	248	85	9	9.3	3.28	<2	2	0.2	0.182	91.00	125	75
ZINC-ICP D	mg/kg	JKM	98.1	91.7	93.48	146	53	190	240	23.26	<0.5	0.5	1	DL	0.00	125	75
LEAD-ICP D	mg/kg	JKM	176	169	96.02	251	92.8	90	100	10.53	<5	5	1	0.53	53.00	125	75
ARSENIC-ICP D	mg/kg	JKM	228	215	94.30	340	112	53	61	14.04	<5	5	1	0.847	84.70	125	75
BARIUM-ICP D	mg/kg	JKM	320	295	92.19	419	224	570	610	6.78	<0.5	0.5	10	9.63	96.30	125	75
TSS A	mg/L	SCM	50	53	106.00	125	75	< 5	< 5	0.00	<5	5	NR	NR	NR	NR	NR
TSS B	mg/L	SCM	50	47	94.00	125	75	220	200	9.52	<5	5	NR	NR	NR	NR	NR
TDS A	mg/L	SCM	500	470	94.00	114	80	1300	1200	8.00	<10	10	500	590	118.00	124	78
TDS B	mg/L	SCM	500	460	92.00	114	80	250	250	0.00	<10	10	500	504	100.80	124	78

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
NR = NOT REQUIRED
DL = DILUTED OUT
S = ANALYZED BY METHOD OF STANDARD ADDITION

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

WORK ORDER #: 15-11-315 SAMPLE #: 01-02 PAGE 1

SAMPLE #	TESTS	REASON	REMOVED BY (ADT)	REMOVED FROM	MOVED TO	RELIQ. BY	RET'D BY (ADT)	RET'D TO	REC'D BY	REASON
01,02	TSS	ANALYSIS	SCM 11/21 0830	WALK-IN	WET L	CJB	SCM 11/21 1320	ARCHIVE	CJB	ARCHIVE

Versar INC.

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME
3062-002	Salem River Dredge Proj.

SAMPLERS: (Signature) [signature] (Printed) Gary A Bielski

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TSS								REMARKS
Salem TSS WE DUR 001	11/17/95	1200	X		Weir	1	X								
Salem TSS RE DUR 001	11/17/95	1230		X	River	1	X								

PARAMETERS

INDUSTRIAL HYGIENE SAMPLE Y / N

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	11/17/95 1500				
(Printed) Gary Bielski		(Printed)	(Printed)		(Printed)

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
		[signature]	11/20/95 9:45	Please return cooler to Versar, 1900 Frost Rd. Bristol, PA 19007, ASAP. IT is our only small cooler. Thank you.
(Printed)		(Printed) Angelina P. Brown		

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

Cooler Temp 9C / C of C Sealed

KEMRON Environmental Services
109 Starlite Park
Marietta, Ohio 45750

Phone: (614) 373-4071

VERSAR, INC.
9200 Rumsey Road
Columbia, MD 21045-1934

Attn: Willie Burton

Order #: N5-11-423
Date: December 1, 1995 14:24
Work ID: 3062-002/Salem River Dredge
Date Received: 11/22/95
Date Completed: 12/01/95

Client Code: VERSAR_MD331

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	SALM-TSS-WE-DUR-001	02	SALM-TSS-RI-DUR-001

AS REQUESTED ALL TOTAL ANALYSES HAVE BEEN REPORTED ON A DRY WEIGHT BASIS WHERE APPLICABLE

This report shall not be reproduced, except in full, without the written approval of KEMRON.

Deanna Hesson

Certified by
Deanna Hesson

KEMRON ENVIRONMENTAL SERVICES
RESULTS BY SAMPLE

This is to certify that the following samples were analyzed using good laboratory practices to show the following results.

SAMPLE ID: **01** **SALM-TSS-WE-DUR-001** Collected: **11/21/95 12:00** Category: **WATER**

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	8	5	mg/L	11/27/95	SCM	160.2

SAMPLE ID: **02** **SALM-TSS-RI-DUR-001** Collected: **11/21/95 11:17** Category: **WATER**

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	94	10	mg/L	11/27/95	SCM	160.2

EPA Method 160.2 (Dried at 103-105C) - Total Suspended Solids

KEMRON ANALYST LIST

Ohio Valley Laboratory

09/19/95

AJS - - Ashlee J. Scott
ALC - - Ann L. Clark
CEB - - Chad E. Barnes
DIH - - Deanna I. Hesson
DJP - - Douglas J. Poling
DLP - - Dorothy L. Payne
DST - - Dennis S. Tepe
ECL - - Eric C. Lawson
EDG - - Eric D. Gerkin
FEH - - Fay E. Harmon
FRM - - Fred R. Montgomery
GWH - - George W. Hutchison
HV - - Hema Vilasagar
JEC - - Jesse E. Chapman
JKM - - June K. Morris
JLI - - Janice L. Inghram
JLL - - Janice L. Landshof
JLM - - Joy L. Mullins
JMM - - Jim M. Monk
JWR - - John W. Richards
JYH - - Ji Y. Hu
KHA - - Kim H. Archer
KMM - - Kevin M. McDonald
KPO - - Kevin P. Overstreet
KRA - - Kathy R. Albertson
LMW - - Lisa M. Wagner
MBJ - - Matthew B. Jarrell
MDA - - Mike D. Albertson
MDC - - Michael D. Cochran
MLS - - Michael L. Schimmel
PJH - - Pamela J. Holtz
REB - - Russell E. Burton
REK - - Robert E. Kyer
RJS - - Rick J. Santos
RWC - - Rodney W. Campbell
SCM - - Susan C. Moellendick
SCW - - Stephen C. West
SLT - - Stephanie L. Tepe
SPL - - Steve P. Learn
TAS - - Tamela A. Sams
TLD - - Teresa L. Davis
VC - - Vicki Collier
WCD - - Wade C. Dawson

INORGANIC QA/QC

Kemron
ENVIRONMENTAL SERVICES

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 11/27/95

			REFERENCE STANDARD					DUPLICATE SAMPLE			BLANK		MATRIX/MEDIA SPIKE				
Parameter	Units	Analyst	Known	Result	Rec.(%)	UCLx	LCLx	Result1	Result2	RPD (%)	Result	MDL	Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
ARSENIC-FURN N	mg/L	JEC	0.025	0.0254	101.60	120	80	0.0226	0.0299	27.81	<0.004	0.004	0.025	0.0248	99.20	115	85
ARSENIC-FURN J	mg/L	JEC	0.025	0.0265	106.00	120	80	< 0.004	< 0.004	0.00	<0.004	0.004	0.025	0.0225	90.00	115	85
SILVER-ICP L	mg/L	JEC	0.2	0.198	99.00	120	80	0.196	0.199	1.52	<0.01	0.01	0.2	0.195	97.50	125	75
BARIUM-ICP L	mg/L	JEC	10	9.15	91.50	120	80	9.27	9.24	0.32	<0.01	0.01	10	9.13	91.30	125	75
BERYLLIUM-ICP L	mg/L	JEC	1	0.955	95.50	120	80	1.03	1.02	0.98	<0.01	0.01	1	1.02	102.00	125	75
CALCIUM-ICP L	mg/L	JEC	10	11.1	111.00	120	80	59.9	59	1.51	<0.1	0.1	10	11.7	117.00	125	75
CADMIUM-ICP L	mg/L	JEC	1	0.999	99.90	120	80	1.13	1.12	0.89	<0.01	0.01	1	1.13	113.00	125	75
COBALT-ICP L	mg/L	JEC	1	0.963	96.30	120	80	1.06	1.06	0.00	<0.02	0.02	1	1.04	104.00	125	75
CHROMIUM-ICP L	mg/L	JEC	1	0.954	95.40	120	80	1.06	1.05	0.95	<0.02	0.02	1	1.03	103.00	125	75
COPPER-ICP L	mg/L	JEC	1	0.944	94.40	120	80	0.983	0.981	0.20	<0.02	0.02	1	0.963	96.30	125	75
IRON-ICP L	mg/L	JEC	1	0.975	97.50	120	80	32	31.7	0.94	<0.04	0.04	1	0.812	81.20	125	75
POTASSIUM-ICP L	mg/L	JEC	10	9.5	95.00	120	80	16.2	15.6	3.77	<1	1	10	9.02	90.20	125	75
MAGNESIUM-ICP L	mg/L	JEC	10	9.73	97.30	120	80	31.6	31.1	1.59	<0.5	0.5	10	1.15	11.50	125	75
MANGANESE-ICP L	mg/L	JEC	1	0.948	94.80	120	80	1.34	1.33	0.75	<0.01	0.01	1	1.03	103.00	125	75
SODIUM-ICP L	mg/L	JEC	10	9.66	96.60	120	80	110	109	0.91	<0.5	0.5	10	11.8	118.00	125	75
NICKEL-ICP L	mg/L	JEC	1	0.965	96.50	120	80	1.11	1.11	0.00	<0.04	0.04	1	1.06	106.00	125	75
VANADIUM-ICP L	mg/L	JEC	1	0.914	91.40	120	80	1	0.996	0.40	<0.01	0.01	1	0.97	97.00	125	75
ZINC-ICP L	mg/L	JEC	1	1.02	102.00	120	80	1.25	1.25	0.00	<0.01	0.01	1	1.15	115.00	125	75
ARSENIC-ICP L	mg/L	JEC	1	0.97	97.00	120	80	1.1	1.09	0.91	<0.1	0.1	1	1.11	111.00	125	75
LEAD-ICP L	mg/L	JEC	1	1	100.00	120	80	1.09	1.07	1.85	<0.1	0.1	1	1.14	114.00	125	75
SELENIUM-ICP L	mg/L	JEC	1	0.993	99.30	120	80	1.09	1.04	4.69	<0.1	0.1	1	1.03	103.00	125	75
TDS	mg/L	SCM	500	468	93.60	114	80	260	260	0.00	<10	10	500	516	103.20	124	78
TSS A	mg/L	SCM	50	45	90.00	125	75	< 5	< 5	0.00	<5	5	NR	NR	NR	NR	NR
TSS B	mg/L	SCM	50	47	94.00	125	75	33	30	9.52	<5	5	NR	NR	NR	NR	NR

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
NR = NOT REQUIRED
DL = DILUTED OUT
S = ANALYZED BY METHOD OF STANDARD ADDITION

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

QUALITY ASSURANCE REPORT

OHIO VALLEY LABORATORY Date: 11/27/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
CHROMIUM-FURN T	mg/kg	KHA	91.3	114.5	125.41	129	48.8	0.0264	0.0248	6.25	<0.25	0.25	0.025	0.0264	105.60	115	85
CHROMIUM-FURN A	mg/L	KHA	0.025	0.0281	112.40	120	80	0.0288	0.0186	43.04	<0.005	0.005	0.025	0.0288	115.20	115	85
COPPER-FURNACE A	mg/L	KHA	0.025	0.0222	88.80	120	80	0.0191	0.0207	8.04	<0.005	0.005	0.025	0.0212	84.80	115	85
MERCURY A9	mg/L	TAS	0.001	0.0011	114.00	120	80	0.00088	0.0008	0.57	<0.0002	0.0002	0.001	0.000887	88.70	115	85
MERCURY I	mg/L	TAS	0.001	0.0008	89.00	120	80	0.00108	0.0010	2.82	<0.0002	0.0002	0.001	0.00105	105.00	115	85
ANTIMONY-FURN M	mg/kg	AJS	37.2	44.4	119.35	109	7.44	14	11	24.00	<0.02	0.02	0.025	S	S	115	85
CADMIUM-FURNACE Y	mg/L	KHA	0.002	0.0025	100.00	120	80	0.00242	0.0023	1.67	<0.0005	0.0005	0.0025	0.00242	96.80	115	85
CADMIUM-FURNACE A	mg/L	KHA	0.002	0.0024	98.40	120	80	0.00228	0.0022	0.00	<0.0005	0.0005	0.0025	0.00228	91.20	115	85
SILVER-ICP F	mg/L	JYH	0.2	0.2	100.00	120	80	0.2	0.19	5.13	<0.01	0.01	0.2	0.2	100.00	125	75
ALUMINUM-ICP F	mg/L	JYH	1	1	100.00	120	80	0.91	0.82	10.40	<0.1	0.1	1	0.82	82.00	125	75
BARIUM-ICP F	mg/L	JYH	10	9.7	97.00	120	80	9.4	8.9	5.46	<0.01	0.01	10	9.4	94.00	125	75
CADMIUM-ICP F	mg/L	JYH	1	0.98	98.00	120	80	1.03	0.98	4.98	<0.01	0.01	1	1.03	103.00	125	75
CHROMIUM-ICP F	mg/L	JYH	1	1	100.00	120	80	1.01	0.96	5.08	<0.02	0.02	1	1.01	101.00	125	75
COPPER-ICP F	mg/L	JYH	1	1.01	101.00	120	80	0.98	0.93	5.24	<0.02	0.02	1	0.98	98.00	125	75
IRON-ICP F	mg/L	JYH	1	1.02	102.00	120	80	0.99	0.92	7.33	<0.04	0.04	1	0.99	99.00	125	75
MANGANESE-ICP F	mg/L	JYH	1	0.98	98.00	120	80	1.02	0.97	5.03	<0.01	0.01	1	0.97	97.00	125	75
NICKEL-ICP F	mg/L	JYH	1	0.98	98.00	120	80	1.03	0.99	3.96	<0.04	0.04	1	1.03	103.00	125	75
ZINC-ICP F	mg/L	JYH	1	0.99	99.00	120	80	1.03	0.97	6.00	<0.01	0.01	1	1.03	103.00	125	75
ARSENIC-ICP F	mg/L	JYH	1	1.03	103.00	120	80	1.08	1.05	2.82	<0.1	0.1	1	1.08	108.00	125	75
LEAD-ICP F	mg/L	JYH	1	0.97	97.00	120	80	1.06	1.01	4.83	<0.1	0.1	1	1.06	106.00	125	75
CALCIUM-ICP C	mg/L	JYH	10	9.4	94.00	120	80	160	150	6.45	<0.2	0.2	10	DL	DL	125	75
MAGNESIUM-ICP C	mg/L	JYH	10	9.9	99.00	120	80	9.6	9.3	3.17	<0.5	0.5	10	9.6	96.00	125	75
SODIUM-ICP C	mg/L	JYH	10	9.9	99.00	120	80	9.7	8.8	9.73	<0.5	0.5	10	9.7	97.00	125	75
THALLIUM-FURN S	mg/L	ALC	0.025	0.0211	84.40	120	80	0.027	0.0281	3.99	<0.002	0.002	0.025	0.027	108.00	115	85
THALLIUM-FURN A	mg/L	ALC	0.025	0.0275	110.00	120	80	0.0247	0.0245	0.81	<0.002	0.002	0.025	0.0247	98.80	115	85
SULFATE A	mg/L	JWR	20	20.5	102.50	120	80	1700	1800	5.71	<2	2	10	7	70.00	125	75
SULFATE B	mg/L	JWR	20	20.3	101.50	120	80	150	150	0.00	<2	2	10	10.2	102.00	125	75
PHENOL A	mg/L	RJS	0.5	0.4867	97.34	114	85	< 0.005	< 0.005	0.00	<0.005	0.005	0.5	0.4867	97.34	122	75
PHENOL B	mg/L	RJS	0.5	0.465	93.00	114	85	< 0.005	< 0.005	0.00	<0.005	0.005	0.05	0.04525	90.50	122	75
SELENIUM-ICP L	mg/L	JEC	1	0.993	99.30	120	80	1.09	1.04	4.69	<0.1	0.1	1	1.13	113.00	125	75
SELENIUM-FURN M	mg/kg	AJS	75.5	77.5	102.65	112	39.5	< 0.004	< 0.004	0.00	<0.004	0.004	0.025	0.0203	81.20	115	85
SELENIUM-FURN J	mg/L	AJS	0.025	0.0261	104.40	120	80	0.0226	0.0233	3.05	<0.004	0.004	0.025	0.0249	99.60	115	85
COD A	mg/L	PJH	100	113	113.00	120	80	10	9	10.53	<5	5	100	74	74.00	125	75
PHENOL-SOIL	mg/kg	rjs	10	9.39	93.90	125	75	< 0.1	< 0.1	0.00	<0.1	0.1	10	8.98	89.80	125	75
CONDUCTIVITY B	uS/cm	PJH	1413	1370	96.96	113	91	7000	6900	1.44	<1	1	NR	NR	NR	NR	NR
CONDUCTIVITY A	uS/cm	PJH	1413	1380	97.66	113	91	680	690	1.46	<1	1	NR	NR	NR	NR	NR
COD C	mg/L	PJH	1000	1110	111.00	120	80	370	360	2.74	<5	5	500	524	104.80	125	75
COD B	mg/L	PJH	100	113	113.00	120	80	< 5	< 5	0.00	<5	5	50	60.2	120.40	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
S = ANALYZED BY METHOD OF STANDARD ADDITION
DL = DILUTED OUT
NR = NOT REQUIRED

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

WORK ORDER #: NJ-11-4123 SAMPLE #: 01-02 PAGE 1

SAMPLE #	TESTS	REASON	REMOVED BY (ADT)	REMOVED FROM	MOVED TO	RELIQ. BY	RET'D BY (ADT)	RET'D TO	REC'D BY	REASON
01-02	TSS	ANALYSIS	SCM 11/27/0845/95	WALK-IN	WET	CfB	SCM 11/27/1600/95	ARCHIVE	CfB	ARCHIVE

INC.

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME
3062-002	Salem River Dredge

SAMPLERS: (Signature) Gary Bielski (Printed) Gary Bielski

PARAMETERS: NO. OF CONTAINERS; TSS

INDUSTRIAL HYGIENE SAMPLE: Y / N

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TSS								REMARKS
Salm TSS WEDuR001	11/21/95	1200	X		Weir	1	X								
Salm TSS RZDuR001	11/21/95	1117		X	River	1	X								

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Gary Bielski	11/21/95 1500				
(Printed) Gary Bielski		(Printed)	(Printed)		(Printed)

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
		Brenda Gregory	11/22/95 1000	Cooler Sealed Sp intact / Cooler Temp 4.0
(Printed)		(Printed) Brenda Gregory		

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

KEMRON Environmental Services
109 Starlite Park
Marietta, Ohio 45750

Phone: (614) 373-4071

VERSAR, INC.
9200 Rumsey Road
Columbia, MD 21045-1934

Attn: William Burton

Order #: N5-06-367
Date: July 10, 1995 13:10
Work ID: 3062-002/Salem River
Date Received: 06/21/95
Date Completed: 07/10/95

Client Code: VERSAR_MD331

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	CH/N-A-PRE-001	02	CH/N-B-PRE-001
03	CH/N-C-PRE-001	04	TPTKN-A-PRE-001
05	TPTKN-B-PRE-001	06	TPTKN-C-PRE-001
07	NH3-A-PRE-001	08	NH3-B-PRE-001
09	NH3-C-PRE-001	10	HARD-A-PRE-001
11	HARD-B-PRE-001	12	HARD-C-PRE-001
13	METAL-A-PRE-001	14	METAL-B-PRE-001
15	METAL-C-PRE-001	16	TSS-A-PRE-001
17	TSS-B-PRE-001	18	TSS-C-PRE-001
19	TOC-A-PRE-001	20	TOC-B-PRE-001
21	TOC-C-PRE-001		

AS REQUESTED ALL TOTAL ANALYSES HAVE BEEN REPORTED ON A DRY WEIGHT BASIS WHERE APPLICABLE

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Certified by
June K. Morris

KEMRON ENVIRONMENTAL SERVICES
RESULTS BY SAMPLE

This is to certify that the following samples were analyzed using good laboratory practices to show the following results.

SAMPLE ID: **01** **CH/N-A-PRE-001** Collected: **06/20/95 10:01** Category: **WATER**

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Chloride	3200	100	mg/L Cl	06/22/95	REB	325.2
Nitrogen, Nitrate	1.7	0.05	mg/L N	06/21/95	REB	353.2

SAMPLE ID: **02** **CH/N-B-PRE-001** Collected: **06/20/95 10:20** Category: **WATER**

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Chloride	3200	100	mg/L Cl	06/22/95	REB	325.2
Nitrogen, Nitrate	1.5	0.05	mg/L N	06/21/95	REB	353.2

SAMPLE ID: **03** **CH/N-C-PRE-001** Collected: **06/20/95 10:32** Category: **WATER**

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Chloride	3200	100	mg/L Cl	06/22/95	REB	325.2
Nitrogen, Nitrate	1.7	0.05	mg/L N	06/21/95	REB	353.2

SAMPLE ID: **04** **TPTKN-A-PRE-001** Collected: **06/20/95 10:01** Category: **WATER**

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Nitrogen, Total Kjeldahl	1.0	0.1	mg/L N	07/05/95	DIH	351.2
Phosphorus, Total	<0.1	0.1	mg/L P	06/26/95	REB	365.4

SAMPLE ID: **05** **TPTKN-B-PRE-001** Collected: **06/20/95 10:20** Category: **WATER**

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Nitrogen, Total Kjeldahl	0.6	0.1	mg/L N	07/05/95	DIH	351.2
Phosphorus, Total	<0.1	0.1	mg/L P	06/26/95	REB	365.4

SAMPLE ID: **06** **TPTKN-C-PRE-001** Collected: **06/20/95 10:32** Category: **WATER**

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Nitrogen, Total Kjeldahl	0.6	0.1	mg/L N	07/05/95	DIH	351.2
Phosphorus, Total	<0.1	0.1	mg/L P	06/26/95	REB	365.4

SAMPLE ID: **07** **NH3-A-PRE-001** Collected: **06/20/95 10:01** Category: **WATER**

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Nitrogen, Ammonia	<0.1	0.1	mg/L N	06/28/95	REB	350.1

SAMPLE ID: 08 NH3-B-PRE-001 Collected: 06/20/95 10:20 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Nitrogen, Ammonia	<0.1	0.1	mg/L N	06/28/95	REB	350.1

SAMPLE ID: 09 NH3-C-PRE-001 Collected: 06/20/95 10:32 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Nitrogen, Ammonia	<0.1	0.1	mg/L N	06/28/95	REB	350.1

SAMPLE ID: 10 HARD-A-PRE-001 Collected: 06/20/95 10:01 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Hardness	1100	50	mg/L CaCO3	06/22/95	SCM	130.2

SAMPLE ID: 11 HARD-B-PRE-001 Collected: 06/20/95 10:20 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Hardness	1100	50	mg/L CaCO3	06/22/95	SCM	130.2

SAMPLE ID: 12 HARD-C-PRE-001 Collected: 06/20/95 10:32 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Hardness	1100	50	mg/L CaCO3	06/22/95	SCM	130.2

SAMPLE ID: 13 METAL-A-PRE-001 Collected: 06/20/95 10:01 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Arsenic, Total	<0.1	0.1	mg/L As	07/05/95	TAS	200.7/6010
Cadmium, Total	<0.01	0.01	mg/L Cd	07/05/95	TAS	200.7
Chromium, Total	<0.02	0.02	mg/L Cr	07/05/95	TAS	200.7
Copper, Total	<0.02	0.02	mg/L Cu	07/05/95	TAS	200.7
Lead, Total	<0.1	0.1	mg/L Pb	07/05/95	TAS	200.7
Mercury, Total	<0.0002	0.0002	mg/L Hg	07/05/95	KRA	245.1
Nickel, Total	<0.04	0.04	mg/L Ni	07/05/95	TAS	200.7
Zinc, Total	0.03	0.01	mg/L Zn	07/05/95	TAS	200.7

SAMPLE ID: 14 METAL-B-PRE-001 Collected: 06/20/95 10:20 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Arsenic, Total	<0.1	0.1	mg/L As	07/05/95	TAS	200.7/6010
Cadmium, Total	<0.01	0.01	mg/L Cd	07/05/95	TAS	200.7
Chromium, Total	<0.02	0.02	mg/L Cr	07/05/95	TAS	200.7
Copper, Total	<0.02	0.02	mg/L Cu	07/05/95	TAS	200.7
Lead, Total	<0.1	0.1	mg/L Pb	07/05/95	TAS	200.7
Mercury, Total	<0.0002	0.0002	mg/L Hg	07/05/95	KRA	245.1
Nickel, Total	<0.04	0.04	mg/L Ni	07/05/95	TAS	200.7
Zinc, Total	0.02	0.01	mg/L Zn	07/05/95	TAS	200.7

SAMPLE ID: 15 METAL-C-PRE-001 Collected: 06/20/95 10:32 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Arsenic, Total	<0.1	0.1	mg/L As	07/05/95	TAS	200.7/6010
Cadmium, Total	<0.01	0.01	mg/L Cd	07/05/95	TAS	200.7
Chromium, Total	<0.02	0.02	mg/L Cr	07/05/95	TAS	200.7
Copper, Total	<0.02	0.02	mg/L Cu	07/05/95	TAS	200.7
Lead, Total	<0.1	0.1	mg/L Pb	07/05/95	TAS	200.7
Mercury, Total	<0.0002	0.0002	mg/L Hg	07/05/95	KRA	245.1
Nickel, Total	<0.04	0.04	mg/L Ni	07/05/95	TAS	200.7
Zinc, Total	0.01	0.01	mg/L Zn	07/05/95	TAS	200.7

SAMPLE ID: 16 TSS-A-PRE-001 Collected: 06/20/95 10:01 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	110	5	mg/L	06/22/95	MZL	160.2

SAMPLE ID: 17 TSS-B-PRE-001 Collected: 06/20/95 10:20 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	82	5	mg/L	06/22/95	MZL	160.2

SAMPLE ID: 18 TSS-C-PRE-001 Collected: 06/20/95 10:32 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Suspended Solids	71	5	mg/L	06/22/95	MZL	160.2

SAMPLE ID: 19 TOC-A-PRE-001 Collected: 06/20/95 10:01 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Organic Carbon	4	1	mg/L	06/21/95	REB	415.1

SAMPLE ID: 20 TOC-B-PRE-001 Collected: 06/20/95 10:20 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Organic Carbon	3	1	mg/L	06/21/95	REB	415.1

SAMPLE ID: 21 TOC-C-PRE-001 Collected: 06/20/95 10:32 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Total Organic Carbon	3	1	mg/L	06/21/95	REB	415.1

EPA Method 200.7/SW6010 (ICP)- Arsenic

EPA Method 200.7/SW6010 (ICP) - Cadmium

EPA Method 325.2 - Colorimetric, Automated Ferricyanide - Chloride

EPA Method 200.7/SW6010 (ICP) - Chromium

EPA Method 200.7/SW6010 (ICP) - Copper

EPA Method SW3005 and/or SW3020 - Metals Digestion

EPA Method 130.2 Hardness - Titrimetric

EPA Method 245.1/SW7470 (Cold Vapor) - Mercury

EPA Method 350.1 - Ammonia - Distillation and Automated Phenate

EPA Method 200.7/SW6010 (ICP) - Nickel

EPA Method 353.2 - Automated Cadmium Reduction - Nitrate

SW-846 METHOD SW6010 (ICP) - Lead

EPA Method 365.4 - Automated Colorimetric, Ascorbic Acid - Phosphorus, Total

EPA Method 351.2 - Automated, Colorimetric - Total Kjeldahl Nitrogen

EPA Method 415.1 - Total Organic Carbon

EPA Method 160.2 (Dried at 103-105C) - Total Suspended Solids

EPA Method 200.7/SW6010 (ICP) - Zinc

KEMRON ANALYST LIST

Ohio Valley Laboratory

04/21/95

AJS - - Ashlee J. Scott
ALC - - Ann L. Clark
BAR - - Beth A. Raper
CEB - - Chad E. Barnes
DIH - - Deanna I. Hesson
DJP - - Douglas J. Poling
DLP - - Dorothy L. Payne
DST - - Dennis S. Tepe
ECL - - Eric C. Lawson
EDG - - Eric D. Gerkin
FEH - - Fay E. Harmon
FRM - - Fred R. Montgomery
GWH - - George W. Hutchison
HV - - Hema Vilasagar
JEC - - Jesse E. Chapman
JYH - - Ji Y. Hu
JKM - - June K. Morris
JLH - - Janice L. Holland
JLL - - Janice L. Landshof
JMM - - Jim M. Monk
JWR - - John W. Richards
KHA - - Kim H. Archer
KMM - - Kevin M. McDonald
KPO - - Kevin P. Overstreet
KRA - - Kathy R. Albertson
LMW - - Lisa M. Wagner
MBJ - - Matthew B. Jarrell
MDA - - Mike D. Albertson
MDC - - Michael D. Cochran
MLS - - Michael L. Schimmel
MZL - - Melanie Z. Lewis
PJH - - Pamela J. Holtz
PST - - Pam S. Tornes
REB - - Russell E. Burton
REK - - Robert E. Kyer
RJS - - Rick J. Santos
RWC - - Rodney W. Campbell
SCM - - Susan C. Moellendick
SCW - - Stephen C. West
SLM - - Stephanie L. Mossburg
SPL - - Steve P. Learn
SSS - - Susan S. Snodgrass
TAS - - Tamela A. Sams
TKT - - Tonya K. Troutner
TLD - - Teresa L. Davis
TNO - - Tunde N. Oladunni
VC - - Vicki Collier
WCD - - Wade C. Dawson
WDL - - William D. Landshof

INORGANIC QA/QC

QUALITY ASSURANCE [illegible]LY REPORT

OHIO VALLEY LABORATORY Date: 07/05/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
MAGNESIUM-ICP O	mg/L	TAS	10	9.578	95.78	120	80	231.3	227.8	1.52	<0.5	0.5	10	6.103	61.03	125	75
MANGANESE-ICP O	mg/L	TAS	1	0.9819	98.19	120	80	1.683	1.664	1.14	<0.01	0.01	1	0.9092	90.92	125	75
SODIUM-ICP O	mg/L	TAS	10	9.579	95.79	120	80	642.6	646.5	0.61	<0.5	0.5	10	9.582	95.82	125	75
NICKEL-ICP O	mg/L	TAS	1	0.9899	98.99	120	80	0.906	0.8897	1.82	<0.04	0.04	1	0.8996	89.96	125	75
VANADIUM-ICP O	mg/L	TAS	1	0.9516	95.16	120	80	0.8976	0.8887	1.00	<0.01	0.01	1	0.8972	89.72	125	75
ZINC-ICP O	mg/L	TAS	1	1.005	100.50	120	80	0.9321	0.8995	3.56	<0.01	0.01	1	0.9236	92.36	125	75
POTASSIUM-ICP O	mg/L	TAS	10	9.769	97.69	120	80	28.94	29.25	1.07	<1	1	10	9.48	94.80	125	75
LEAD-ICP O	mg/L	TAS	1	0.9661	96.61	120	80	0.9242	0.9203	0.42	<0.1	0.1	1	0.9649	96.49	125	75
ARSENIC-ICP O	mg/L	TAS	1	0.9564	95.64	120	80	0.9572	0.9615	0.45	<0.1	0.1	1	0.962	96.20	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 07/05/95

			REFERENCE STANDARD					DUPLICATE SAMPLE			BLANK		MATRIX/MEDIA SPIKE				
Parameter	Units	Analyst	Known	Result	Rec.(%)	UCLx	LCLx	Result1	Result2	RPD (%)	Result	MDL	Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
HARDNESS	mg/L	MZL	100	100	100.00	111	97	72	74	2.74	<5	5	100	104	104.00	117	86
SULFIDE	mg/L	MZL	20	20.5	102.50	125	75	20.5	20.8	1.45	<1	1	20	20.8	104.00	122	76
NITRITE	mg/L	PJH	0.1	0.118	118.00	125	75	< 0.01	< 0.01	0.00	<0.1	0.1	0.1	0.104	104.00	125	75
FLUORIDE-DIST	mg/L	PJH	2	2.02	101.00	125	75	3.8	3.9	2.60	<0.1	0.1	1	0.96	96.00	125	75
FLUORIDE	mg/L	PJH	2	1.99	99.50	124	89	5.8	5.7	1.74	<0.1	0.1	0.6	0.33	55.00	125	75
AMMONIA	mg/L	DIH	2	1.93	96.50	117	75	0.2	0.2	0.00	<0.1	0.1	1	1.02	102.00	125	75
NITRATE	mg/L	DIH	1	0.959	95.90	113	90	0.45	0.46	2.20	<0.05	0.05	0.5	0.404	80.80	121	79
TKN	mg/L	DIH	1	0.85	85.00	125	75	0.2	0.3	40.00	<0.1	0.1	1	1.15	115.00	125	75
TOC	mg/L	DIH	25	23.7	94.80	115	85	27	27	0.00	<1	1	25	25.8	103.20	125	75
PHOSPHORUS	mg/L	DIH	2	1.73	86.50	125	75	< 0.1	< 0.1	0.00	<0.1	0.1	0.5	0.475	95.00	125	75
OIL & GREASE	mg/L	PJH	10	9.8	98.00	125	75	9.8	10.7	8.78	<1	1	10	10.7	107.00	125	75
MERCURY J	mg/L	KRA	0.001	0.0008	80.00	120	80	0.00094	0.0009	0.00	<0.0002	0.0002	0.001	0.00094	94.00	125	75
ARSENIC-FURN M	mg/L	TNO	0.025	0.0231	92.40	120	80	0.0236	0.0229	3.01	<0.004	0.004	0.025	0.0243	97.20	115	85
ARSENIC-FURN	mg/L	AJS	0.025	0.0245	98.00	120	80	0.0269	0.0267	0.75	<0.004	0.004	0.025	0.0267	106.80	115	85
BERYLLIUM-FURN W	mg/L	ALC	0.002	0.0024	96.00	120	80	0.0023	0.0023	0.00	<0.0005	0.0005	0.0025	0.00234	93.60	115	85
SILVER-ICP F	mg/L	JYH	0.2	0.19	95.00	120	80	0.19	0.19	0.00	<0.01	0.01	0.2	0.19	95.00	125	75
CADMIUM-ICP F	mg/L	JYH	1	0.93	93.00	120	80	0.9	0.97	7.49	<0.01	0.01	1	0.9	90.00	125	75
NICKEL-ICP F	mg/L	JYH	1	0.94	94.00	120	80	1.03	1.08	4.74	<0.04	0.04	1	1.03	103.00	125	75
ZINC-ICP F	mg/L	JYH	1	0.94	94.00	120	80	0.95	0.96	1.05	<0.01	0.01	1	0.95	95.00	125	75
LEAD-ICP F	mg/L	JYH	1	0.92	92.00	120	80	1.09	0.99	9.62	<0.1	0.1	1	1.09	109.00	125	75
BORON-ICP F	mg/L	JYH	1	1	100.00	120	80	1.02	0.95	7.11	<0.5	0.5	1	1.02	102.00	125	75
MOLYBDENUM-ICP F	mg/L	JYH	2.5	2.4	96.00	120	80	2.3	2.2	4.44	<0.1	0.1	2.5	2.3	92.00	125	75
CADMIUM-FURN N	mg/L	ALC	0.002	0.0026	104.00	120	80	0.0025	0.0024	4.08	<0.0005	0.0005	0.0025	0.00241	96.40	115	85
CADMIUM-ICP E	mg/L	TAS	1	0.9808	98.08	120	80	1345	1470	8.88	<0.01	0.01	1	0.577	57.70	125	75
NICKEL-ICP E	mg/L	TAS	1	0.9822	98.22	120	80	63820	48220	27.85	<0.04	0.04	1	3.39	339.00	125	75
LEAD-ICP E	mg/L	TAS	1	0.9824	98.24	120	80	1534	1872	19.85	<0.1	0.1	1	0	0.00	125	75
LEAD-ICP N	mg/L	TAS	1	0.9143	91.43	120	80	1.227	1.269	3.37	<0.04	0.04	1	0.9624	96.24	125	75
COPPER-ICP N	mg/L	TAS	1	0.921	92.10	120	80	0.9575	0.9981	4.15	<0.02	0.02	1	0.9331	93.31	125	75
MERCURY W	mg/L	KRA	0.001	0.0008	80.00	120	80	0.00087	0.0008	1.16	<0.0002	0.0002	0.001	0.00091	91.00	125	75
SILVER-ICP O	mg/L	TAS	0.2	0.1857	92.85	120	80	0.1799	0.1787	0.67	<0.01	0.01	0.2	0.1799	89.95	125	75
ALUMINUM-ICP O	mg/L	TAS	1	0.9753	97.53	120	80	1	0.9889	1.12	<0.1	0.1	1	0.917	91.70	125	75
BARIUM-ICP O	mg/L	TAS	10	9.162	91.62	120	80	8.962	8.933	0.32	<0.01	0.01	10	8.532	85.32	125	75
BERYLLIUM-ICP O	mg/L	TAS	1	0.9372	93.72	120	80	0.9117	0.8991	1.39	<0.01	0.01	1	0.9102	91.02	125	75
CADMIUM-ICP O	mg/L	TAS	1	1.016	101.60	120	80	0.943	0.9172	2.77	<0.01	0.01	1	0.9427	94.27	125	75
CHROMIUM-ICP O	mg/L	TAS	1	0.983	98.30	120	80	0.9188	0.9007	1.99	<0.02	0.02	1	0.918	91.80	125	75
CALCIUM-ICP O	mg/L	TAS	10	9.802	98.02	120	80	284	281	1.06	<0.2	0.2	10	5.788	57.88	125	75
COBALT-ICP O	mg/L	TAS	1	0.9871	98.71	120	80	0.9282	0.9023	2.83	<0.02	0.02	1	0.9216	92.16	125	75
COPPER-ICP O	mg/L	TAS	1	0.939	93.90	120	80	0.8944	0.8844	1.12	<0.02	0.02	1	0.8886	88.86	125	75
IRON-ICP O	mg/L	TAS	1	0.9619	96.19	120	80	10.11	10.08	0.30	<0.04	0.04	1	0.7917	79.17	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

XL Envi . . ntal . . ices

QUALITY ASSURANCE [illegible]Y REPORT

OHIO VALLEY LABORATORY Date: 06/28/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
PHENOLICS	mg/L	JWR	0.5	0.447	89.40	114	85	0.028	0.033	16.39	<0.005	0.005	0.5	0.475	95.00	122	75
TDS	mg/L	SCM	500	494	98.80	114	80	2300	2300	0.00	<10	10	500	412	82.40	124	78
BOD	mg/L	SCM	200	195	97.50	119	82	54	38	34.78	<3	3	200	179	89.50	122	82

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
** = Samples calculated by method of standard addition

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 06/28/95

			REFERENCE STANDARD					DUPLICATE SAMPLE			BLANK		MATRIX/MEDIA SPIKE				
Parameter	Units	Analyst	Known	Result	Rec.(%)	UCLx	LCLx	Result1	Result2	RPD (%)	Result	MDL	Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
MERCURY E	mg/L	KRA	0.001	0.0011	116.00	120	80	0.00108	0.0010	0.93	<0.0002	0.0002	0.001	0.00107	107.00	125	75
THALLIUM-FURN B	mg/L	AJS	0.025	0.027	108.00	120	80	0.0216	0.0212	1.87	<0.005	0.005	0.025	0.0221	88.40	115	85
ANTIMONY-FURN B	mg/L	AJS	0.025	0.027	108.00	120	80	0.0209	0.022	5.13	<0.02	0.02	0.025	0.022	88.00	115	85
COD	mg/L	PJH	100	110	110.00	120	80	< 5	< 5	0.00	<5	5	50	60.2	120.40	125	75
AMMONIA	mg/L	REB	2	1.86	93.00	114	75	1	1	0.00	<0.1	0.1	1	1.01	101.00	125	75
TOX A	mg/L	RJS	0.1	0.0946	94.60	110	90	< 0.02	0.02	0.00	<0.01	0.01	0.1	0.111	111.00	125	75
TOX B	mg/L	RJS	0.1	0.101	101.00	110	90	< 0.02	0.02	0.00	<0.01	0.01	0.1	0.115	115.00	125	75
CADMIUM-FURNACE B	mg/L	AJS	0.002	0.0025	101.60	120	80	< 0.0005	< 0.0005	0.00	<0.0005	0.0005	0.0025	0.00252	100.80	115	85
CADMIUM-FURNACE	mg/L	AJS	0.002	0.0026	104.80	120	80	< 0.0005	< 0.0005	0.00	<0.0005	0.0005	0.0025	0.00259	103.60	115	85
LEAD-FURNACE B	mg/L	AJS	0.025	0.0235	94.00	120	80	0.0225	0.0225	0.00	<0.005	0.005	0.025	0.0236	94.40	115	85
SILVER-ICP G	mg/L	JYH	0.2	0.2	100.00	120	80	0.21	0.17	21.05	<0.01	0.01	0.2	0.21	105.00	125	75
ALUMINUM-ICP G	mg/L	JYH	1	1.02	102.00	120	80	1.05	0.88	17.62	<0.1	0.1	1	1.05	105.00	125	75
BARIUM-ICP G	mg/L	JYH	10	10.2	102.00	120	80	10.1	8.8	13.76	<0.01	0.01	10	10.1	101.00	125	75
CALCIUM-ICP G	mg/L	JYH	10	10.2	102.00	120	80	9.1	11.3	21.57	<0.2	0.2	10	11.3	113.00	125	75
CADMIUM-ICP G	mg/L	JYH	1	1.02	102.00	120	80	1.01	0.87	14.89	<0.01	0.01	1	1.01	101.00	125	75
COBALT-ICP G	mg/L	JYH	1	1.03	103.00	120	80	1	0.87	13.90	<0.02	0.02	1	1	100.00	125	75
CHROMIUM-ICP G	mg/L	JYH	1	1.02	102.00	120	80	0.99	0.87	12.90	<0.02	0.02	1	0.99	99.00	125	75
COPPER-ICP G	mg/L	JYH	1	1.05	105.00	120	80	1.02	0.9	12.50	<0.02	0.02	1	1.02	102.00	125	75
IRON-ICP G	mg/L	JYH	1	1.04	104.00	120	80	1.01	0.89	12.63	<0.04	0.04	1	1.01	101.00	125	75
POTASSIUM-ICP G	mg/L	JYH	10	8.5	85.00	120	80	9.8	9.6	2.06	<1	1	10	9.8	98.00	125	75
MANGANESE-ICP G	mg/L	JYH	1	1.03	103.00	120	80	1.01	0.88	13.76	<0.01	0.01	1	1.01	101.00	125	75
SODIUM-ICP G	mg/L	JYH	10	10.2	102.00	120	80	10.5	9.1	14.29	<0.5	0.5	10	10.5	105.00	125	75
NICKEL-ICP G	mg/L	JYH	1	1.05	105.00	120	80	1	0.89	11.64	<0.04	0.04	1	1	100.00	125	75
ZINC-ICP G	mg/L	JYH	1	1.05	105.00	120	80	1	0.89	11.64	<0.01	0.01	1	1	100.00	125	75
LEAD-ICP G	mg/L	JYH	1	1.03	103.00	120	80	1	0.83	18.58	<0.1	0.1	1	1	100.00	125	75
BORON-ICP G	mg/L	JYH	1	0.97	97.00	120	80	0.98	0.86	13.04	<0.5	0.5	1	0.98	98.00	125	75
HARDNESS	mg/L	MZL	100	101	101.00	111	97	340	360	5.71	<5	5	100	108	108.00	117	86
SELENIUM-FURN O	mg/L	TNO	0.025	0.0264	105.60	120	80	0.0248	0.0243	2.04	<0.004	0.004	0.025	0.026	104.00	115	85
SELENIUM-FURN M	mg/L	TNO	0.025	0.0255	102.00	120	80	0.0217	0.021	3.28	<0.004	0.004	0.025	0.0266	106.40	115	85
ARSENIC-ICP M	mg/L	TAS	1	1.088	108.80	120	80	0.9875	1.036	4.79	<1.0	1	1	0.9875	98.75	125	75
BARIUM-ICP M	mg/L	TAS	10	9.867	98.67	120	80	9.777	9.15	6.63	<10	10	10	9.777	97.77	125	75
CADMIUM-ICP M	mg/L	TAS	1	1.001	100.10	120	80	1.041	0.9788	6.16	<1	1	1	0.9788	97.88	125	75
CHROMIUM-ICP M	mg/L	TAS	1	1.002	100.20	120	80	1.02	0.956	6.48	<1	1	1	0.9889	98.89	125	75
LEAD-ICP M	mg/L	TAS	1	0.9997	99.97	120	80	1.033	0.9903	4.22	<1	1	1	0.955	95.50	125	75
SELENIUM-ICP M	mg/L	TAS	1	0.9729	97.29	120	80	1.021	0.9548	6.70	<1	1	1	1.021	102.10	125	75
SILVER-ICP M	mg/L	TAS	0.2	0.1895	94.75	120	80	0.1918	0.181	5.79	<0.2	0.2	0.2	0.1918	95.90	125	75
CHROMIUM-FURN B	mg/L	ALC	0.025	0.0230	92.36	120	80	< 0.005	< 0.005	0.00	<0.005	0.005	0.025	0.02406	96.24	115	85
COPPER-FURNACE B	mg/L	ALC	0.025	0.0245	98.32	120	80	0.015	0.016	6.45	<0.005	0.005	0.025	0.02839	113.56	115	85

UCLx = Upper Control Limit (Standard)
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UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
** = ANALYZED BY METHOD OF STANDARD ADDITION

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

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QUALITY ASSURANCE REPORT

OHIO VALLEY LABORATORY Date: 06/26/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
LEAD-FURNACE D	mg/L	ALC	0.025	0.0248	99.20	120	80	0.016	0.017	6.06	<0.005	0.005	0.025	0.0227	90.80	115	85
LEAD-FURNACE P	mg/L	ALC	0.025	0.0221	88.40	120	80	0.022	0.023	4.44	<0.005	0.005	0.025	0.0227	90.80	115	85
CYANIDE	mg/L	JWR	0.4	0.423	105.75	125	94	0.155	0.155	0.00	<0.01	0.01	0.2	0.188	94.00	124	78
NITRITE	mg/L	PJH	0.1	0.117	117.00	125	75	0.06	0.06	0.00	<0.01	0.01	0.1	0.099	99.00	125	75
COD-LOW	mg/L	SCM	100	90.2	90.20	120	80	< 5	< 5	0.00	<5	5	50	57	114.00	125	75
COD-HIGH	mg/L	SCM	1000	940	94.00	120	80	400	420	4.88	<150	150	500	481	96.20	125	75

UCLx = Upper Control Limit (Standard)
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RPD (%) = Relative Percent Difference
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UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 06/26/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
MERCURY V	mg/L	KRA	0.001	0.0009	90.00	120	80	0.00092	0.0009	0.00	<0.0002	0.0002	0.001	0.00092	92.00	125	75
THALLIUM-FURN P	mg/L	AJS	0.025	0.0298	119.20	120	80	< 0.005	< 0.005	0.00	<0.005	0.005	0.025	0.0232	92.80	115	85
THALLIUM-FURN D	mg/L	AJS	0.025	0.0236	94.40	120	80	< 0.005	< 0.005	0.00	<0.005	0.005	0.025	0.0259	103.60	115	85
CADMIUM-FURN P	mg/L	ALC	0.002	0.0024	96.00	120	80	0.0023	0.0023	0.00	<0.0005	0.0005	0.0025	0.0023	92.00	115	85
CADMIUM-FURN D	mg/L	ALC	0.002	0.0024	96.00	120	80	0.0022	0.0022	0.00	<0.0005	0.0005	0.0025	0.00223	89.20	115	85
PHOSPHORUS	mg/L	REB	2	1.8	90.00	125	75	< 0.1	< 0.1	0.00	<0.1	0.1	0.5	0.421	84.20	125	75
TOC	mg/L	REB	5	4.87	97.40	115	85	< 1	< 1	0.00	<1	1	5	5.48	109.60	125	75
SELENIUM-FURN J	mg/L	TNO	0.025	0.0251	100.40	120	80	0.0224	0.0229	2.21	<0.004	0.004	0.025	0.0241	96.40	115	85
SELENIUM-FURN W	mg/L	TNO	0.025	0.0227	90.80	120	80	0.0217	0.0202	7.16	<0.004	0.004	0.025	0.0257	102.80	115	88
CHROMIUM-FURN C	mg/L	AJS	0.025	0.0244	97.92	120	80	NA**	NA**	NA**	<0.005	0.005	0.025	NA**	0.00	115	85
CHROMIUM-FURN D	mg/L	AJS	0.025	0.0290	116.20	120	80	0.009	0.006	40.00	<0.005	0.005	0.025	NA**	0.00	115	85
CHROMIUM-FURN P	mg/L	AJS	0.025	0.0290	116.04	120	80	< 0.005	< 0.005	0.00	<0.005	0.005	0.025	NA**	0.00	115	85
ARSENIC-ICP X	mg/L	TAS	1	1.044	104.40	120	80	1.024	1.022	0.20	<1.0	1	1	1.024	102.40	125	75
BARIUM-ICP X	mg/L	TAS	10	10.01	100.10	120	80	9.712	9.704	0.08	<10.0	10	10	9.712	97.12	125	75
CADMIUM-ICP X	mg/L	TAS	1	1.033	103.30	120	80	0.9739	0.9675	0.66	<1.0	1	1	0.9739	97.39	125	75
CHROMIUM-ICP X	mg/L	TAS	1	1.038	103.80	120	80	0.9854	0.9829	0.25	<1.0	1	1	0.9854	98.54	125	75
LEAD-ICP X	mg/L	TAS	1	1.025	102.50	120	80	1.027	0.9907	3.60	<1.0	1	1	1.027	102.70	125	75
SELENIUM-ICP X	mg/L	TAS	1	1.072	107.20	120	80	1.025	1.043	1.74	<1.0	1	1	1.025	102.50	125	75
SILVER-ICP X	mg/L	TAS	0.2	0.1982	99.10	120	80	0.1903	0.188	1.22	<0.2	0.2	0.2	0.1903	95.15	125	75
SILVER-ICP A	mg/kg	TAS	0.2	0.1771	88.55	120	80	0.9967	1.059	6.06	<2.0	2	0.2	0.1665	83.25	125	75
BARIUM-ICP A	mg/kg	TAS	10	9.011	90.11	120	80	5.165	5.393	4.32	<0.5	0.5	10	8.626	86.26	125	75
CADMIUM-ICP A	mg/kg	TAS	1	0.9337	93.37	120	80	0.4714	0.5013	6.15	<0.5	0.5	1	0.8811	88.11	125	75
CHROMIUM-ICP A	mg/kg	TAS	1	0.9264	92.64	120	80	5.712	5.624	1.55	<1.0	1	1	0.9538	95.38	125	75
LEAD-ICP A	mg/kg	TAS	1	0.9959	99.59	120	80	5.03	5.38	6.72	<5	5	1	0.9378	93.78	125	75
ARSENIC-ICP A	mg/kg	TAS	1	0.9489	94.89	120	80	5.5	5.764	4.69	<5.0	5	1	0.9185	91.85	125	75
SILVER-ICP H	mg/L	JYH	0.2	0.2	100.00	120	80	0.19	0.19	0.00	<0.01	0.01	0.2	0.19	95.00	125	75
ALUMINUM-ICP H	mg/L	JYH	1	1.04	104.00	120	80	1.17	1.16	0.86	<0.1	0.1	1	1.17	117.00	125	75
BARIUM-ICP H	mg/L	JYH	10	9.4	94.00	120	80	9.8	9.9	1.02	<0.01	0.01	10	9.8	98.00	125	75
BERYLLIUM-ICP H	mg/L	JYH	1	0.95	95.00	120	80	1.02	0.98	4.00	<0.01	0.01	1	1.02	102.00	125	75
CADMIUM-ICP H	mg/L	JYH	1	0.98	98.00	120	80	1.06	1.01	4.83	<0.01	0.01	1	1.06	106.00	125	75
CHROMIUM-ICP H	mg/L	JYH	1	0.96	96.00	120	80	1.04	1.01	2.93	<0.02	0.02	1	1.01	101.00	125	75
COPPER-ICP H	mg/L	JYH	1	0.97	97.00	120	80	1.01	0.96	5.08	<0.02	0.02	1	1.01	101.00	125	75
IRON-ICP H	mg/L	JYH	1	0.98	98.00	120	80	1.07	1.04	2.84	<0.04	0.04	1	1.07	107.00	125	75
SODIUM-ICP H	mg/L	JYH	10	9.5	95.00	120	80	11.2	11	1.80	<0.5	0.5	10	11.2	112.00	125	75
NICKEL-ICP H	mg/L	JYH	1	0.99	99.00	120	80	1.05	1.01	3.88	<0.04	0.04	1	1.05	105.00	125	75
ZINC-ICP H	mg/L	JYH	1	0.99	99.00	120	80	1.08	1.05	2.82	<0.01	0.01	1	1.08	108.00	125	75
LEAD-ICP H	mg/L	JYH	1	1	100.00	120	80	1.08	1.08	0.00	<0.1	0.1	1	1.08	108.00	125	75

UCLx = Upper Control Limit (Standard)
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UCLr = Upper Control Limit (Range)
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UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

QUALITY ASSURANCE [illegible]LY REPORT

OHIO VALLEY LABORATORY Date: 06/22/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
LEAD-FURN A	mg/L	ALC	0.025	0.0201	80.40	120	80	5.9	5.8	1.71	<0.005	0.005	0.025	0.0226	90.40	115	85
LEAD-FURN G	mg/L	ALC	0.025	0.0217	86.80	120	80	< 0.025	< 0.025	0.00	<0.005	0.005	0.025	**	0.00	115	85
ANTIMONY-FURN A	mg/L	ALC	0.025	0.0259	103.60	120	80	0.018	0.018	0.00	<0.02	0.02	0.025	**	0.00	115	85
NITRITE	mg/L	SCM	0.1	0.115	115.00	125	75	< 0.01	< 0.01	0.00	<0.01	0.01	0.1	0.105	105.00	125	75

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UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
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** = Samples calculated by method of standard addition

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 06/22/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
HARDNESS	mg/L	SCM	100	101	101.00	111	97	220	220	0.00	<5	5	50	52	104.00	117	86
OIL & GREASE	mg/L	PJH	10	9.8	98.00	125	75	9.8	10.6	7.84	<1	1	10	10.6	106.00	125	75
SILVER-ICP Y	mg/L	JYH	0.2	0.2	100.00	120	80	0.19	0.19	0.00	<0.01	0.01	0.2	0.19	95.00	125	75
ALUMINUM-ICP Y	mg/L	JYH	1	1.01	101.00	120	80	0.99	0.98	1.02	<0.1	0.1	1	0.99	99.00	125	75
BARIUM-ICP Y	mg/L	JYH	10	10.3	103.00	120	80	8.2	8	2.47	<0.01	0.01	10	8.2	82.00	125	75
BERYLLIUM-ICP Y	mg/L	JYH	1	0.98	98.00	120	80	0.99	0.97	2.04	<0.01	0.01	1	0.99	99.00	125	75
CALCIUM-ICP Y	mg/L	JYH	10	9.8	98.00	120	80	10.9	9	19.10	<0.2	0.2	10	10.9	109.00	125	75
CADMIUM-ICP Y	mg/L	JYH	1	0.98	98.00	120	80	1.04	1.02	1.94	<0.01	0.01	1	1.04	104.00	125	75
COBALT-ICP Y	mg/L	JYH	1	0.98	98.00	120	80	1.05	1.03	1.92	<0.02	0.02	1	1.05	105.00	125	75
CHROMIUM-ICP Y	mg/L	JYH	1	1	100.00	120	80	1.04	1.02	1.94	<0.02	0.02	1	1.04	104.00	125	75
COPPER-ICP Y	mg/L	JYH	1	1.02	102.00	120	80	0.92	0.9	2.20	<0.02	0.02	1	0.92	92.00	125	75
IRON-ICP Y	mg/L	JYH	1	1.01	101.00	120	80	0.97	0.95	2.08	<0.04	0.04	1	0.97	97.00	125	75
POTASSIUM-ICP Y	mg/L	JYH	10	8.5	85.00	120	80	10.6	9.9	6.83	<1	1	10	9.9	99.00	125	75
MAGNESIUM-ICP Y	mg/L	JYH	10	9.9	99.00	120	80	9.6	8.9	7.57	<0.5	0.5	10	9.6	96.00	125	75
MANGANESE-ICP Y	mg/L	JYH	1	1.01	101.00	120	80	1.05	1	4.88	<0.01	0.01	1	1.05	105.00	125	75
SODIUM-ICP Y	mg/L	JYH	10	10.1	101.00	120	80	9.9	8.8	11.76	<0.5	0.5	10	9.9	99.00	125	75
NICKEL-ICP Y	mg/L	JYH	1	1	100.00	120	80	1.05	1.02	2.90	<0.04	0.04	1	1.05	105.00	125	75
ANTIMONY-ICP Y	mg/L	JYH	1	0.98	98.00	120	80	1.04	1.06	1.90	<0.2	0.2	1	1.04	104.00	125	75
VANADIUM-ICP Y	mg/L	JYH	1	0.98	98.00	120	80	0.97	0.95	2.08	<0.01	0.01	1	0.97	97.00	125	75
ZINC-ICP Y	mg/L	JYH	1	0.99	99.00	120	80	1.05	1.04	0.96	<0.01	0.01	1	1.05	105.00	125	75
ARSENIC-ICP Y	mg/L	JYH	1	0.97	97.00	120	80	1.08	1.04	3.77	<0.1	0.1	1	1.08	108.00	125	75
LEAD-ICP Y	mg/L	JYH	1	0.95	95.00	120	80	0.99	0.99	0.00	<0.1	0.1	1	0.99	99.00	125	75
ARSENIC-FURNACE T	mg/L	TNO	0.025	0.0251	100.40	120	80	0.025	0.0239	4.50	<0.004	0.004	0.025	0.0251	100.40	115	85
ARSENIC-FURNACE W	mg/L	TNO	0.025	0.0221	88.40	120	80	0.0243	0.0243	0.00	<0.004	0.004	0.025	0.0244	97.60	115	85
ARSENIC-FURNACE A	mg/L	TNO	0.025	0.0276	110.40	120	80	0.0258	0.0229	11.91	<0.2	0.2	0.025	0.0258	103.20	115	85
MERCURY B	mg/L	KRA	0.001	0.0009	95.00	120	80	0.0011	0.0009	13.18	0.0002	0.0002	0.001	0.000964	96.40	115	85
THALLIUM-FURN A	mg/L	AJS	0.025	0.0228	91.20	120	80	< 25	< 25	0.00	<0.005	0.005	0.025	0.0229	91.60	115	85
SILVER-ICP O	mg/L	TAS	0.2	0.1988	99.40	120	80	1.863	1.868	0.27	<0.1	0.1	0.2	0.1924	96.20	125	75
BARIUM-ICP O	mg/L	TAS	10	10.42	104.20	120	80	9.642	9.454	1.97	<0.1	0.1	10	10.09	100.90	125	75
CADMIUM-ICP O	mg/L	TAS	1	1.016	101.60	120	80	10.27	9.987	2.79	<0.1	0.1	1	1.02	102.00	125	75
CHROMIUM-ICP O	mg/L	TAS	1	1.036	103.60	120	80	163.9	165.9	1.21	<0.2	0.2	1	1.024	102.40	125	75
LEAD-ICP O	mg/L	TAS	1	1.085	108.50	120	80	10.37	10.27	0.97	<1	1	1	1.078	107.80	125	75
SELENIUM-ICP O	mg/L	TAS	1	0.8998	89.98	120	80	10.42	9.589	8.31	<1	1	1	0.9381	93.81	125	75
ARSENIC-ICP O	mg/L	TAS	1	0.9562	95.62	120	80	9.916	9.525	4.02	<1	1	1	0.9876	98.76	125	75
CHLORIDE	mg/L	REB	50	51.9	103.80	108	97	5	5	0.00	<2	2	2	19.4	970.00	113	80
CONDUCTIVITY	mg/L	MZL	1413	1414	100.07	125	85	620	630	1.60	<1	1		---	ERR.	---	---
TOX A	mg/L	RJS	0.1	0.0983	98.30	110	90	< 0.02	< 0.02	0.00	<0.02	0.02	0.1	0.088	88.00	125	75
TSS	mg/L	MZL	50	49	98.00	121	75	5	< 5	0.00	<5	5	50	61	122.00	125	75

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UCLs (%) = Upper Control Limit (Spike Recovery)
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Post-digestion spikes on sodium, potassium, calcium, and magnesium

QUALITY ASSURANCE [illegible]Y REPORT

OHIO VALLEY LABORATORY Date: 06/21/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
SELENIUM-FURN I	mg/L	TNO	0.025	0.0234	93.60	120	80	0.0239	0.0271	12.55	<0.004	0.004	0.025	0.0248	99.20	125	75
ANTIMONY-FURN Q	mg/L	SPL	0.025	0.0262	104.80	120	80	< 0.02	< 0.02	0.00	<0.02	0.02	0.025	0.0257	102.80	115	85
MERCURY C	mg/L	KRA	0.001	0.0009	90.00	120	80	< 0.0002	< 0.0002	0.00	<0.0002	0.0002	0.001	0.00095	95.00	125	75
THALLIUM-FURN Q	mg/L	AJS	0.025	0.0227	90.80	120	80	< 0.005	< 0.005	0.00	<0.005	0.005	0.025	0.023	92.00	115	85
PHENOL	mg/L	RJS	0.5	0.53	106.00	114	85	< 0.005	< 0.005	0.00	<0.005	0.005	0.5	0.55	110.00	122	75
TOC	mg/L	REB	5	5.44	108.80	115	85	5.9	6.2	4.96	<1	1	5	4.82	96.40	125	75
CADMIUM-FURN Q	mg/L	ALC	0.002	0.0024	96.00	120	80	0.0023	0.0025	8.33	<0.0005	0.0005	0.0025	0.00248	99.20	115	85
NITRITE	mg/L	REB	1	0.114	11.40	125	75	1.2	1.2	0.00	<0.01	0.01	0.1	0.103	103.00	125	75
SULFATE	mg/L	MZL	20	18	90.00	107	79	14	15	6.90	<2.0	2	10	11.9	119.00	125	75
TDS	mg/L	MZL	500	498	99.60	114	80	2400	2500	4.08	<10	10	500	490	98.00	124	78
BOD	mg/L	SCM	200	207	103.50	119	82	91	100	9.42	<3	3	200	206	103.00	122	82
CHROMIUM-FURN R	mg/L	JEC	0.025	0.0205	82.00	120	80	0.046	0.046	0.00	<0.005	0.005	0.025	---	0.00	115	85
CHROMIUM-FURN S	mg/L	JEC	0.025	0.0218	87.20	120	80	0.03	0.029	3.39	<0.005	0.005	0.025	0.0282	112.80	115	85

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
** = Samples calculated by method of standard addition

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 06/21/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
SILVER-ICP P	mg/L	JYH	0.2	0.19	95.00	120	80	0.19	0.19	0.00	<0.01	0.01	0.2	0.19	95.00	125	75
ALUMINIUM-ICP P	mg/L	JYH	1	0.94	94.00	120	80	1.06	1.05	0.95	<0.1	0.1	1	1.06	106.00	125	75
BARIUM-ICP P	mg/L	JYH	10	9.3	93.00	120	80	10.4	9.9	4.93	<0.01	0.01	10	10.4	104.00	125	75
BERYLLIUM-ICP P	mg/L	JYH	1	0.9	90.00	120	80	0.92	0.96	4.26	<0.01	0.01	1	0.92	92.00	125	75
CALCIUM-ICP P	mg/L	JYH	10	9.1	91.00	120	80	11.2	11.2	0.00	<0.2	0.2	10	11.2	112.00	125	75
CADMIUM-ICP P	mg/L	JYH	1	0.92	92.00	120	80	0.95	1	5.13	<0.01	0.01	1	0.95	95.00	125	75
COBALT-ICP P	mg/L	JYH	1	0.91	91.00	120	80	0.93	0.96	3.17	<0.02	0.02	1	0.93	93.00	125	75
CHROMIUM-ICP P	mg/L	JYH	1	0.93	93.00	120	80	0.95	0.98	3.11	<0.02	0.02	1	0.95	95.00	125	75
COPPER-ICP P	mg/L	JYH	1	0.94	94.00	120	80	0.93	0.98	5.24	<0.02	0.02	1	0.93	93.00	125	75
IRON-ICP P	mg/L	JYH	1	0.98	98.00	120	80	0.98	0.97	1.03	<0.04	0.04	1	0.98	98.00	125	75
POTASSIUM-ICP P	mg/L	JYH	10	8.7	87.00	120	80	10.3	9.3	10.20	<1	1	10	10.3	103.00	125	75
MAGNESIUM-ICP P	mg/L	JYH	10	9.7	97.00	120	80	9.5	10.2	7.11	<0.5	0.5	10	9.5	95.00	125	75
MANGANESE-ICP P	mg/L	JYH	1	0.94	94.00	120	80	0.96	1	4.08	<0.01	0.01	1	0.96	96.00	125	75
SODIUM-ICP P	mg/L	JYH	10	9.5	95.00	120	80	39	39	0.00	<0.5	0.5	10	10.3	103.00	125	75
NICKEL-ICP P	mg/L	JYH	1	0.95	95.00	120	80	1.01	1.01	0.00	<0.04	0.04	1	1.01	101.00	125	75
ANTIMONY-ICP P	mg/L	JYH	1	0.92	92.00	120	80	1.03	0.98	4.98	<0.2	0.2	1	1.03	103.00	125	75
VANADIUM-ICP P	mg/L	JYH	1	0.9	90.00	120	80	0.91	0.95	4.30	<0.01	0.01	1	0.91	91.00	125	75
ZINC-ICP P	mg/L	JYH	1	0.92	92.00	120	80	0.98	1	2.02	<0.01	0.01	1	0.98	98.00	125	75
BORON-ICP P	mg/L	JYH	1	1.06	106.00	120	80	0.99	0.95	4.12	<0.5	0.5	1	0.99	99.00	125	75
MOLYBDENUM-ICP P	mg/L	JYH	2.5	2.5	100.00	120	80	0.9	0.97	7.49	<0.1	0.1	2.5	0.9	36.00	125	75
TIN-ICP P	mg/L	JYH	5	5.04	100.80	120	80	5.3	5.2	1.90	<0.5	0.5	5	5.3	106.00	125	75
TITANIUM-ICP P	mg/L	JYH	1	1.01	101.00	120	80	1.02	1	1.98	<0.03	0.03	1	1.02	102.00	125	75
COPPER-FURN S	mg/L	AJS	0.025	0.0271	108.40	120	80	0.17	0.17	0.00	<0.005	0.005	0.025	0.02565	102.60	115	85
BERYLLIUM-FURN S	mg/L	TAS	0.002	0.0022	88.00	120	80	0.00224	0.0020	6.93	<0.0005	0.0005	0.0025	0.0023	92.00	115	85
ANTIMONY-FURN R	mg/L	AJS	0.025	0.0255	102.00	120	80	0.0227	0.0228	0.44	<0.02	0.02	0.025	0.0228	91.20	115	85
LEAD-FURN R	mg/L	AJS	0.025	0.0243	97.20	120	80	< 0.005	< 0.005	0.00	<0.005	0.005	0.025	0.0251	100.40	115	85
THALLIUM-FURN R	mg/L	AJS	0.025	0.024	96.00	120	80	< 0.005	< 0.005	0.00	<0.005	0.005	0.025	0.0215	86.00	115	85
ALKALINITY	mg/L	REB	200	187	93.50	109	79	27	30	10.53	<10	10	100	86.2	86.20	108	75
AMMONIA	mg/L	REB	2	2.14	107.00	114	75	5.2	5.7	9.17	<0.1	0.1	1	1	100.00	125	75
AMMONIA AA	mg/L	REB	2	2.06	103.00	117	75	0.2	0.18	10.53	<0.04	0.03	1	0.96	96.00	125	75
NITRATE	mg/L	REB	1	0.994	99.40	113	90	< 0.05	< 0.05	0.00	<0.05	0.05	0.5	0.515	103.00	121	79
ARSENIC-ICP J	mg/L	JEC	1	0.9902	99.02	120	80	1.04	1.106	6.15	<1	1	1	1.0404	104.04	125	75
BARIUM-ICP J	mg/L	JEC	10	9.966	99.66	120	80	10.05	10.13	0.79	<0.1	0.1	10	9.974	99.74	125	75
CADMIUM-ICP J	mg/L	JEC	1	1.006	100.60	120	80	1.099	1.093	0.55	<0.1	0.1	1	1.099	109.90	125	75
CHROMIUM-ICP J	mg/L	JEC	1	1.016	101.60	120	80	1.068	1.07	0.19	<0.2	0.2	1	1.068	106.80	125	75
LEAD-ICP J	mg/L	JEC	1	0.9827	98.27	120	80	1.132	1.158	2.27	<1	1	1	1.132	113.20	125	75
SELENIUM-ICP J	mg/L	JEC	1	1.016	101.60	120	80	0.9968	1.043	4.53	<1	1	1	0.9968	99.68	125	75
SILVER-ICP J	mg/L	JEC	0.2	0.1946	97.30	120	80	0.1997	0.2009	0.60	<0.1	0.1	0.2	0.1997	99.85	125	75
MERCURY D	mg/L	KRA	0.001	0.0009	90.00	120	80	< 0.0002	< 0.0002	0.00	<0.0002	0.0002	0.001	0.00097	97.00	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

WORK ORDER #: N5-06-367 SAMPLE #: 01-21 PAGE 1

SAMPLE #	TESTS	REASON	REMOVED BY (ADT)	REMOVED FROM	MOVED TO	RELIQ. BY	RET'D BY (ADT)	RET'D TO	REC'D BY	REASON
1-3	NO3	ANAL.	REB/6/21/1400	log-in	wet lab	BLG	REB/6/21/1600/95	WALK in	ArB	Storage
19-21	TOC	ANAL	REB/6/21/1510	log-in	wet lab	BLG	REB/6/21/1620/95	Archived	ArB	Archive
1-3	Cl	ANAL	REB/6/22/0750	WALK in	wet lab	BLG	MZL/6/22/	700 archive	[illegible]	[illegible]
16,17,18	TSS	anal.	MZL/6/22/0810	walk-in	wet lab	BLG	MZL/6/22/	1630 archive	BLG	Storage
10,11,12	HARDNESS	ANAL.	SCM/6/22/1440	walk-in	WET LAB	BLG	SCM/6/22/17	00 archive	[illegible]	[illegible]
4-6	TKN, PHOS	ANAL.	REB/6/26/0730/95	walk-in	wet lab	BLG	REB/6/26/1410	Archive	BLG	Archive
7-9	NH3	ANAL	REB/6/27/0740/95	walk-in	wet lab.	BLG	REB/6/27/1630	Archive	ArB	archive
06-367-07-09	NH3	DIST (second left)	RJS/07/01/95/0845	ARCHIVE	WET LAB	BLG	RJS/07/01/1340	ARCHIVE	AKB 0705 7/3/95	STORAGE
13-15-14	METALS	PREP	BWH 7-3-95/0925	WALK-IN	WET LAB	BLG	RJS/07/03/RJS/1500	ARCHIVE	BLG	Archive
06-367-01-03	TKN, PHOS	ANAL.	RJS/07/03/95/1200	STORAGE ARCHIVE	WET LAB	BLG	BWH 7-3-95/1245	ARCHIVE	BLG	Archive

1 of 2

Versar INC.

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME	INDUSTRIAL HYGIENE SAMPLE Y / N
3062-002	SALEM RIVER	

SAMPLERS: (Signature) Emily C.R. / Willy Burton (Printed) EMILY RZEMIEN / WILLY BURTON

FIELD SAMPLE NUMBER	DATE *	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	NITRATE	CHLORIDE	TOTAL PHOSPHORUS	TKN	NH_3	Hardness	Metals (As)	TOC	REMARKS
						PARAMETERS									* 6-21-95
CH/N-A-PRE-001	6/20	10:01	✓		Weir 0,0	7	✓	✓							* Bottles day CL/N BIG
CH/N-B-Pre-001	6/20	10:20	✓		Weir 50	1	✓	✓							
CH/N-C-Pre-001	6/20	10:32	✓		Weir 100	1	✓	✓							
TPTKN-A-Pre-001	6/20	10:01	✓		Weir 0,0	1			✓	✓					
TPTKN-B-Pre-001	6/20	10:20	✓		Weir 50	1			✓	✓					
TPTKN-C-Pre-001	6/20	10:32	✓		Weir 100	1			✓	✓					
NH3-A-Pre-001	6/20	10:01	✓		Weir 0,0	1					✓				
NH3-B-Pre-001	6/20	~~10:20~~	✓		Weir 50	1					✓				
NH3-C-Pre-001	6/20	10:32	✓		Weir 100	1					✓				
HARD-A-Pre-001	6/20	10:01	✓		Weir 0,0	1						✓			
Hard-B-Pre-001	6/20	10:20	✓		Weir 50	1						✓			
Hard C-Pre-001	6/20	10:32	✓		Weir 100	1						✓			

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Emily C.R.	6/20 5:00pm				C of C Sealed
(Printed)		(Printed)	(Printed)		(Printed) Intact BIG
					Cooler temp = 6.9 9.0

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
		Yolanda Gregory	6/21/95 1000	* Bottles dated 6/21/95 - in error !! should be 6/20/95 - field error
(Printed)		(Printed) Brenda Gregory		

Distribution: Original Plus One Accompanies Shipment (White and Yellow); Coordinator Field Files (pink)

VerSar INC.

CHAIN OF CUSTODY RECORD

2

PROJECT NO.	PROJECT NAME	PARAMETERS	INDUSTRIAL HYGIENE SAMPLE Y / N
3062-002	SALEM RIVER		

SAMPLERS: (Signature) (Printed)

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Metals/As	TOC	TSS						REMARKS
METAL A-Pre-001	6/20	10:01	✓		weir 0,0	1	✓								
Metal B-Pre-001	6/20	10:20	✓		weir 50	1	✓								
Metal C-Pre-001	6/20	10:32	✓		weir 100	1	✓								
TSS-A-Pre-001	6/20	10:01	✓		weir 0,0	1			✓						
TSS-B-Pre-001	6/20	10:20	✓		weir 50	1			✓						
TSS-C-Pre-001	6/20	10:32	✓		weir 100	1			✓						
TOC-A-Pre-001	6/20	10:01	✓		weir 0,0	1		✓							
TOC-B-Pre-001	6/20	10:20	✓		weir 50	1		✓							
TOC-C-Pre-001	6/20	10:32	✓		weir 100	1		✓							

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature] (Printed)	6/20 5:00 PM	(Printed)	(Printed)		[signature] Sealed Intact (Printed)

Cooler Temps = 6.9 9.0

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
(Printed)		Brenda Gregory (Printed) Brenda Gregory	6/21/95 1000	Bottles dated 6/21/95 - in error!! Should be 6/20/95 - field error!

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

KEMRON Environmental Services
109 Starlite Park
Marietta, Ohio 45750

Phone: (614) 373-4071

VERSAR, INC.
9200 Rumsey Road
Columbia, MD 21045-1934

Attn: Willie Burton

Order #: N5-07-083
Date: July 17, 1995 10:22
Work ID: 3062-002/Salem Dredge
Date Received: 07/07/95
Date Completed: 07/17/95

Client Code: VERSAR_MD331

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	Salem-A-DUR	02	Salem-B-DUR
03	Salem-C-DUR		

AS REQUESTED ALL TOTAL ANALYSES HAVE BEEN REPORTED ON A DRY WEIGHT BASIS WHERE APPLICABLE
REPORT W/W.O. #07-101

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Deanna Hesson

Certified by
Deanna Hesson

KEMRON ENVIRONMENTAL SERVICES
RESULTS BY SAMPLE

This is to certify that the following samples were analyzed using good laboratory practices to show the following results.

SAMPLE ID: **01** **Salem-A-DUR** Collected: **07/06/95 18:08** Category: **WATER**

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Hardness	1300	25	mg/L CaCO3	07/10/95	MZL	130.2
Nitrogen, Ammonia	<0.1	0.1	mg/L N	07/13/95	RJS	350.1
Nitrogen, Nitrate	2.6	0.1	mg/L N	07/11/95	REB	353.2
Nitrogen, Total Kjeldahl	0.6	0.1	mg/L N	07/12/95	REB	351.2
Phosphorus, Total	0.1	0.1	mg/L P	07/12/95	REB	365.4
Total Organic Carbon	<1	1	mg/L	07/10/95	PJH	415.1
Total Suspended Solids	<5	5	mg/L	07/10/95	MZL	160.2
Arsenic, Total	<0.1	0.1	mg/L As	07/12/95	TAS	200.7/6010
Cadmium, Total	<0.01	0.01	mg/L Cd	07/12/95	TAS	200.7
Chromium, Total	<0.02	0.02	mg/L Cr	07/12/95	TAS	200.7
Copper, Total	<0.02	0.02	mg/L Cu	07/12/95	TAS	200.7
Lead, Total	<0.1	0.1	mg/L Pb	07/12/95	TAS	200.7
Mercury, Total	<0.0002	0.0002	mg/L Hg	07/11/95	KRA	245.1
Nickel, Total	<0.04	0.04	mg/L Ni	07/12/95	TAS	200.7
Zinc, Total	0.03	0.01	mg/L Zn	07/12/95	TAS	200.7

Inbrich - see other sample results (order # N5-07-101)

SAMPLE ID: **02** **Salem-B-DUR** Collected: **07/06/95 18:18** Category: **WATER**

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Hardness	1300	25	mg/L CaCO3	07/10/95	MZL	130.2
Nitrogen, Ammonia	<0.1	0.1	mg/L N	07/13/95	RJS	350.1
Nitrogen, Nitrate	2.9	0.1	mg/L N	07/11/95	REB	353.2
Nitrogen, Total Kjeldahl	0.3	0.1	mg/L N	07/12/95	REB	351.2
Phosphorus, Total	0.1	0.1	mg/L P	07/12/95	REB	365.4
Total Organic Carbon	<1	1	mg/L	07/10/95	PJH	415.1
Total Suspended Solids	<5	5	mg/L	07/10/95	MZL	160.2
Arsenic, Total	<0.1	0.1	mg/L As	07/12/95	TAS	200.7/6010
Cadmium, Total	<0.01	0.01	mg/L Cd	07/12/95	TAS	200.7
Chromium, Total	<0.02	0.02	mg/L Cr	07/12/95	TAS	200.7
Copper, Total	<0.02	0.02	mg/L Cu	07/12/95	TAS	200.7
Lead, Total	<0.1	0.1	mg/L Pb	07/12/95	TAS	200.7
Mercury, Total	<0.0002	0.0002	mg/L Hg	07/11/95	KRA	245.1
Nickel, Total	<0.04	0.04	mg/L Ni	07/12/95	TAS	200.7
Zinc, Total	0.04	0.01	mg/L Zn	07/12/95	TAS	200.7

SAMPLE ID: **03** **Salem-C-DUR** Collected: **07/06/95 18:35** Category: **WATER**

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Hardness	1400	25	mg/L CaCO3	07/10/95	MZL	130.2
Nitrogen, Ammonia	<0.1	0.1	mg/L N	07/13/95	RJS	350.1
Nitrogen, Nitrate	1.7	0.5	mg/L N	07/11/95	REB	353.2
Nitrogen, Total Kjeldahl	0.4	0.1	mg/L N	07/12/95	REB	351.2
Phosphorus, Total	<0.1	0.1	mg/L P	07/12/95	REB	365.4
Total Organic Carbon	<1	1	mg/L	07/10/95	PJH	415.1
Total Suspended Solids	6	5	mg/L	07/10/95	MZL	160.2
Arsenic, Total	<0.1	0.1	mg/L As	07/12/95	TAS	200.7/6010
Cadmium, Total	<0.01	0.01	mg/L Cd	07/12/95	TAS	200.7
Chromium, Total	<0.02	0.02	mg/L Cr	07/12/95	TAS	200.7
Copper, Total	<0.02	0.02	mg/L Cu	07/12/95	TAS	200.7
Lead, Total	<0.1	0.1	mg/L Pb	07/12/95	TAS	200.7
Mercury, Total	<0.0002	0.0002	mg/L Hg	07/11/95	KRA	245.1
Nickel, Total	<0.04	0.04	mg/L Ni	07/12/95	TAS	200.7
Zinc, Total	0.03	0.01	mg/L Zn	07/12/95	TAS	200.7

INORGANIC QA/QC

QUALITY ASSURANCE DA[illegible]EPORT

OHIO VALLEY LABORATORY Date: 07/13/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
MAGNESIUM-ICP R	mg/L	JYH	10	10	100.00	120	80	10.3	10.3	0.00	<0.5	0.5	10	10.3	103.00	125	75
MANGANESE-ICP R	mg/L	JYH	1	1.05	105.00	120	80	1.06	1.07	0.94	<0.01	0.01	1	1.06	106.00	125	75
SODIUM-ICP R	mg/L	JYH	10	10.2	102.00	120	80	9.6	8	18.18	<0.5	0.5	10	9.6	96.00	125	75
NICKEL-ICP R	mg/L	JYH	1	1.04	104.00	120	80	1.1	1.08	1.83	<0.04	0.04	1	1.1	110.00	125	75
ANTIMONY-ICP R	mg/L	JYH	1	1.01	101.00	120	80	1.06	1.07	0.94	<0.2	0.2	1	1.06	106.00	125	75
VANADIUM-ICP R	mg/L	JYH	1	1	100.00	120	80	1.02	1.02	0.00	<0.01	0.01	1	1.02	102.00	125	75
ZINC-ICP R	mg/L	JYH	1	1.02	102.00	120	80	1.06	1.05	0.95	<0.01	0.01	1	1.06	106.00	125	75
ARSENIC-ICP R	mg/L	JYH	1	1.06	106.00	120	80	1.11	1.11	0.00	<0.1	0.1	1	1.11	111.00	125	75
LEAD-ICP R	mg/L	JYH	1	1	100.00	120	80	1.08	1.03	4.74	<0.1	0.1	1	1.08	108.00	125	75
SELENIUM-ICP R	mg/L	JYH	1	1.08	108.00	120	80	1.08	1.03	4.74	<0.1	0.1	1	1.08	108.00	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
** = SPIKE DILUTED OUT DUE TO HIGH CONCENTRATION OF ANALYTE.

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

Kenron Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 07/13/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
ANTIMONY-FURN W	mg/L	AJS	0.025	0.024	96.00	120	80	0.0245	0.024	2.06	<0.02	0.02	0.025	0.0245	98.00	115	85
CHROMIUM-FURN W	mg/L	AJS	0.025	0.0249	99.60	120	80	0.02352	0.0257	9.05	<0.005	0.005	0.025	0.02575	103.00	115	85
ARSENIC-ICP B	mg/L	TAS	1	1.058	105.80	120	80	1.057	1.082	2.34	<1	1	1	1.012	101.20	125	75
BARIUM-ICP B	mg/L	TAS	10	9.96	99.60	120	80	10.14	10.03	1.09	<0.1	0.1	10.1	10.03	99.31	125	75
CADMIUM-ICP B	mg/L	TAS	1	0.9999	99.99	120	80	1.064	1.066	0.19	<0.1	0.1	1	1.06	106.00	125	75
CHROMIUM-ICP B	mg/L	TAS	1	1.005	100.50	120	80	1.051	1.05	0.10	<0.2	0.2	1	1.05	105.00	125	75
LEAD-ICP B	mg/L	TAS	1	1.001	100.10	120	80	1.077	1.124	4.27	<1	1	1	1.077	107.70	125	75
SELENIUM-ICP B	mg/L	TAS	1	0.9355	93.55	120	80	0.9646	1.012	4.80	<1	1	1	1.012	101.20	125	75
SILVER-ICP B	mg/L	TAS	0.2	0.195	97.50	120	80	0.2004	0.1983	1.05	<0.1	0.1	0.2	0.2004	100.20	125	75
NICKEL-ICP B	mg/L	TAS	1	0.9911	99.11	120	80	1.047	1.045	0.19	<0.04	0.04	1	1.036	103.60	125	75
SILVER-ICP F	mg/L	TAS	0.2	0.1979	98.95	120	80	0.1996	0.2069	3.59	<0.01	0.01	0.2	0.2015	100.75	125	75
BARIUM-ICP F	mg/L	TAS	10	9.651	96.51	120	80	9.717	9.869	1.55	<0.01	0.01	10	9.851	98.51	125	75
CADMIUM-ICP F	mg/L	TAS	1	1.003	100.30	120	80	1.03	1.059	2.78	<0.01	0.01	1	1.03	103.00	125	75
CHROMIUM-ICP F	mg/L	TAS	1	0.984	98.40	120	80	1.001	1.027	2.56	<0.02	0.02	1	0.9959	99.59	125	75
COPPER-ICP F	mg/L	TAS	1	0.9967	99.67	120	80	1.011	1.034	2.25	<0.02	0.02	1	1.001	100.10	125	75
NICKEL-ICP F	mg/L	TAS	1	1.009	100.90	120	80	1.015	1.054	3.77	<0.04	0.04	1	1.015	101.50	125	75
LEAD-ICP F	mg/L	TAS	1	1.006	100.60	120	80	1.007	1.014	0.69	<0.1	0.1	1	1.007	100.70	125	75
ANTIMONY-ICP F	mg/L	TAS	1	1.047	104.70	120	80	1.051	1.037	1.34	<0.2	0.2	1	1.037	103.70	125	75
ZINC-ICP F	mg/L	TAS	1	0.9943	99.43	120	80	1.049	1.075	2.45	<0.01	0.01	1	1.015	101.50	125	75
BORON-ICP R	mg/L	JYH	1	1.18	118.00	120	80	1.17	1.15	1.72	<0.5	0.5	1	1.17	117.00	125	75
MOLYBDENUM-ICP R	mg/L	JYH	2.5	2.6	104.00	120	80	2.8	2.7	3.64	<0.1	0.1	2.5	2.8	112.00	125	75
SILICON-ICP R	mg/L	JYH	25	29.6	118.40	120	80	27.1	25.6	5.69	<1.0	1	25	27.1	108.40	125	75
TITANIUM-ICP R	mg/L	JYH	1	1.04	104.00	120	80	1.07	1.03	3.81	<0.03	0.03	1	1.07	107.00	125	75
AMMONIA-DIST	mg/L	RJS	2	1.823	91.15	114	75	---	---	---	<0.01	0.1	1	0.992	99.20	125	75
CHLORIDE	mg/L	RJS	50	49.29	98.58	108	97	17.86	17.69	0.96	<2.0	2	20	21.26	106.30	113	80
SILVER-ICP R	mg/L	JYH	0.2	0.21	105.00	120	80	0.2	0.21	4.88	<0.01	0.01	0.2	0.2	100.00	125	75
ALUMINUM-ICP R	mg/L	JYH	1	1.04	104.00	120	80	1.06	1.07	0.94	<0.01	0.1	1	1.06	106.00	125	75
BARIUM-ICP R	mg/L	TAS	10	10.2	102.00	120	80	10	10.1	1.00	<0.01	0.01	10	10	100.00	125	75
BERYLLIUM-ICP R	mg/L	JYH	1	1	100.00	120	80	1.02	1.02	0.00	<0.01	0.01	1	1.02	102.00	125	75
CADMIUM-ICP R	mg/L	JYH	1	1.02	102.00	120	80	1.04	1.05	0.96	<0.01	0.01	1	1.04	104.00	125	75
COBALT-ICP R	mg/L	JYH	1	1.03	103.00	120	80	1.06	1.06	0.00	<0.02	0.02	1	1.06	106.00	125	75
CHROMIUM-ICP R	mg/L	JYH	1	1.04	104.00	120	80	1.06	1.06	0.00	<0.02	0.02	1	1.06	106.00	125	75
COPPER-ICP R	mg/L	JYH	1	1.02	102.00	120	80	1.03	1.02	0.98	<0.02	0.02	1	1.03	103.00	125	75
IRON-ICP R	mg/L	JYH	1	1.04	104.00	120	80	1.07	1.07	0.00	<0.04	0.04	1	1.07	107.00	125	75
POTASSIUM-ICP R	mg/L	JYH	10	10.3	103.00	120	80	10.9	10.2	6.64	<1	1	10	10.9	109.00	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
* = MATRIX SPIKE FAILED (NO SPIKE SOLUTION ADDED).
** = SPIKE DILUTED OUT DUE TO HIGH CONCENTRATION OF ANALYTE.

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium
POST SPIKE ADDITION PERFORMED SEE CORRECTIVE ACTION.

QUALITY ASSURANCE DA[illegible]EPORT

OHIO VALLEY LABORATORY Date: 07/12/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
MAGNESIUM-ICP W	mg/L	TAS	10	9.909	99.09	120	80	14.37	13.29	7.81	<0.5	0.5	1	0.7949	79.49	125	75
MANGANESE-ICP W	mg/L	TAS	1	1.011	101.10	120	80	1.18	1.092	7.75	<0.01	0.01	1	0.973	97.30	125	75
SODIUM-ICP W	mg/L	TAS	10	9.948	99.48	120	80	289.7	268.6	7.56	<0.5	0.5	1	1.352	135.20	125	75
NICKEL-ICP W	mg/L	TAS	1	1.023	102.30	120	80	1.08	1.008	6.90	<0.04	0.04	1	1.027	102.70	125	75
VANADIUM-ICP W	mg/L	TAS	1	0.9762	97.62	120	80	1.004	0.9203	8.70	<0.01	0.01	1	0.9694	96.94	125	75
ZINC-ICP W	mg/L	TAS	1	1.022	102.20	120	80	1.134	1.062	6.56	<0.01	0.01	1	1.055	105.50	125	75
ARSENIC-ICP W	mg/L	TAS	1	0.9789	97.89	120	80	1.11	0.9328	17.35	<0.1	0.1	1	1.11	111.00	125	75
CADMIUM-ICP W	mg/L	TAS	1	1.046	104.60	120	80	1.127	1.047	7.36	<0.01	0.01	1	1.127	112.70	125	75
LEAD-ICP W	mg/L	TAS	1	0.9795	97.95	120	80	1.132	0.96	16.44	<0.1	0.1	1	1.132	113.20	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
** = SPIKE DILUTED OUT DUE TO HIGH CONCENTRATION OF ANALYTE.

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 07/12/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
MERCURY E	mg/L	KRA	0.001	0.0010	104.00	120	80	0.00098	0.0009	2.06	<0.0002	0.0002	0.001	0.00098	98.00	125	75
MERCURY Q	mg/L	KRA	0.001	0.0010	105.00	120	80	0.00089	0.0008	0.00	<0.0002	0.0002	0.001	0.00089	89.00	125	75
THALLIUM-FURN W	mg/L	ALC	0.025	0.0253	101.20	120	80	0.022	0.022	0.00	<0.005	0.005	0.025	0.0223	89.20	115	85
ARSENIC-FURN	mg/L	AJS	0.025	0.0297	118.80	120	80	0.0282	0.0282	0.00	<0.004	0.004	0.025	0.0282	112.80	115	85
BERYLLIUM-FURN W	mg/L	ALC	0.002	0.0024	96.00	120	80	0.00249	0.0026	5.47	<0.0005	0.0005	0.0025	0.00249	99.60	115	85
LEAD-FURN W	mg/L	ALC	0.025	---	0.00	120	80	0.023	0.024	4.26	<0.005	0.005	0.025	0.0244	97.60	115	85
SILVER-ICP J	mg/L	JYH	0.2	0.2	100.00	120	80	0.19	0.19	0.00	<0.01	0.01	0.2	0.19	95.00	125	75
BARIUM-ICP J	mg/L	JYH	10	9.6	96.00	120	80	9.4	9.4	0.00	<0.01	0.01	10	9.4	94.00	125	75
CADMIUM-ICP J	mg/L	JYH	1	0.97	97.00	120	80	0.96	0.97	1.04	<0.01	0.01	1	0.96	96.00	125	75
CHROMIUM-ICP J	mg/L	JYH	1	1	100.00	120	80	0.98	0.99	1.02	<0.02	0.02	1	0.9	90.00	125	75
NICKEL-ICP J	mg/L	JYH	1	1.02	102.00	120	80	1	1	0.00	<0.04	0.04	1	1	100.00	125	75
ARSENIC-ICP J	mg/L	JYH	1	1.06	106.00	120	80	0.99	0.99	0.00	<0.1	0.1	1	0.99	99.00	125	75
LEAD-ICP J	mg/L	JYH	1	1.07	107.00	120	80	0.94	1.01	7.18	<0.1	0.1	1	0.94	94.00	125	75
SELENIUM-ICP J	mg/L	JYH	1	1.01	101.00	120	80	0.97	0.97	0.00	<0.1	0.1	1	0.97	97.00	125	75
SELENIUM-FURN	mg/L	AJS	0.025	0.0247	98.80	120	80	0.02475	0.0243	1.71	<0.004	0.004	0.025	0.02475	99.00	115	85
ARSENIC-FURN S	mg/L	TNO	0.028	0.0277	98.93	120	80	0.0218	0.0285	26.64	<0.004	0.004	0.025	0.0261	104.40	115	85
ARSENIC-FURN P	mg/L	TNO	0.025	0.0227	90.80	120	80	0.0222	0.0238	6.96	<0.004	0.004	0.025	0.0249	99.60	115	85
SILVER-ICP H	mg/L	TAS	0.2	0.1959	97.95	120	80	0.1873	0.189	0.90	<0.01	0.01	0.2	0.18	90.00	125	75
BARIUM-ICP H	mg/L	TAS	10	9.807	98.07	120	80	9.436	9.366	0.74	<0.01	0.01	10	9.425	94.25	125	75
CADMIUM-ICP H	mg/L	TAS	1	1.021	102.10	120	80	0.9761	0.9892	1.33	<0.01	0.01	1	0.9879	98.79	125	75
CHROMIUM-ICP H	mg/L	TAS	1	1.002	100.20	120	80	0.9593	0.971	1.21	<0.02	0.02	1	0.9669	96.69	125	75
COPPER-ICP H	mg/L	TAS	1	0.998	99.80	120	80	0.9546	0.9634	0.92	<0.02	0.02	1	0.9602	96.02	125	75
NICKEL-ICP H	mg/L	TAS	1	1.017	101.70	120	80	0.9593	0.9778	1.91	<0.04	0.04	1	0.9629	96.29	125	75
LEAD-ICP H	mg/L	TAS	1	0.9512	95.12	120	80	0.9359	0.954	1.92	<0.1	0.1	1	0.9359	93.59	125	75
ANTIMONY-ICP H	mg/L	TAS	1	1.024	102.40	120	80	0.9408	0.8734	7.43	<0.2	0.2	1	0.9052	90.52	125	75
ZINC-ICP H	mg/L	TAS	1	1.022	102.20	120	80	1.023	0.9751	4.79	<0.01	0.01	1	0.9653	96.53	125	75
ALKALINITY	mg/L	REB	200	178	89.00	109	79	250	260	3.92	<10	10	100	80.7	80.70	108	75
PHOSPHORUS	mg/L	REB	2	1.91	95.50	25	75	< 0.1	< 0.1	0.00	<0.1	0.1	---	---	---	---	---
TKN	mg/L	REB	1	0.891	89.10	116	80	0.5	0.6	18.18	<0.1	0.1	0.5	0.509	101.80	125	75
SILVER-ICP W	mg/L	TAS	0.2	0.1956	97.80	120	80	0.1974	0.1814	8.45	<0.01	0.01	0.2	0.1909	95.45	125	75
BARIUM-ICP W	mg/L	TAS	10	9.504	95.04	120	80	9.426	8.665	8.41	<0.01	0.01	10	9.326	93.26	125	75
BERYLLIUM-ICP W	mg/L	TAS	1	0.9792	97.92	120	80	1.002	0.927	7.78	<0.01	0.01	1	1.001	100.10	125	75
CADMIUM-ICP W	mg/L	TAS	10	10.06	100.60	120	80	21.66	21.08	2.71	<0.2	0.2	1	0.8852	88.52	125	75
COBALT-ICP W	mg/L	TAS	1	1.011	101.10	20	80	1.072	0.9931	7.64	<0.02	0.02	1	1.058	105.80	125	75
CHROMIUM-ICP W	mg/L	TAS	1	1.006	100.60	120	80	1.057	0.9767	7.90	<0.02	0.02	1	1.015	101.50	125	75
COPPER-ICP W	mg/L	TAS	1	0.9956	99.56	120	80	0.9953	0.9183	8.05	<0.02	0.02	1	0.9776	97.76	125	75
IRON-ICP W	mg/L	TAS	1	1.031	103.10	120	80	9.174	8.248	10.63	<0.04	0.04	1	0	0.00	125	75
POTASSIUM-ICP W	mg/L	TAS	10	9.886	98.86	120	80	13.77	12.6	8.87	<1	1	1	0.5858	58.58	125	75

UCLx = Upper Control Limit (Standard)
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* = Initial Data Collection
* = MATRIX SPIKE FAILED (NO SPIKE SOLUTION ADDED).
** = SPIKE DILUTED OUT DUE TO HIGH CONCENTRATION OF ANALYTE.

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium
POST SPIKE ADDITION PERFORMED SEE CORRECTIVE ACTION.

QUALITY ASSURANCE DATA REPORT

OHIO VALLEY LABORATORY Date: 07/11/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
SILVER-ICP G	mg/kg	JYH	85	66	77.65	125	34	0.18	0.18	0.00	<0.01	0.01	0.2	0.18	90.00	125	75
BERYLLIUM-ICP G	mg/kg	JYH	152	190	125.00	211	97.3	0.86	0.91	5.65	<0.01	0.01	1	0.86	86.00	125	75
CADMIUM-ICP G	mg/kg	JYH	81.5	95	116.56	114	40.7	0.85	0.88	3.47	<0.01	0.01	1	0.85	85.00	125	75
CHROMIUM-ICP G	mg/kg	JYH	57.4	59	102.79	80.4	33.9	0.95	0.92	3.21	<0.02	0.02	1	0.95	95.00	125	75
COPPER-ICP G	mg/kg	JYH	146	170	116.44	205	88.8	0.96	0.9	6.45	<0.02	0.02	1	0.96	96.00	125	75
NICKEL-ICP G	mg/kg	JYH	35.8	42	117.32	51.2	21.1	0.86	0.91	5.65	<0.04	0.04	1	0.81	81.00	125	75
ZINC-ICP G	mg/kg	JYH	76.5	75	98.04	116	43.6	1.06	1.05	0.95	<0.01	0.01	1	1.06	106.00	125	75
MOLYBDENUM-ICP G	mg/kg	JYH	198	210	106.06	325	109	2.51	2.5	0.40	<0.1	0.1	2.5	2.51	100.40	125	75
SELENIUM-ICP G	mg/kg	JYH	47.6	45	94.54	69.5	24.3	0.84	0.89	5.78	<0.1	0.1	1	0.84	84.00	125	75
CHLORIDE	mg/L	REB	50	52.5	105.00	108	97	36	35	2.82	<2	2	20	18.7	93.50	113	80
CHLORIDE-SOIL	mg/kg	REB	200	194	97.00	125	75	280	230	19.61	<8	8	80	80	100.00	125	75
LEAD-FURNACE Y	mg/L	AJS	0.025	0.0255	102.12	120	80	0.02217	0.0220	0.50	<0.005	0.005	0.025	0.02314	92.56	115	85
LEAD-FURNACE DISS	mg/L	AJS	0.025	0.0234	93.80	120	80	< 0.005	< 0.005	0.00	<0.005	0.005	0.025	0.02427	97.08	115	85
LEAD-FURNACE O	mg/kg	ALC	128	132	103.13	68.9	179	0.0246	0.0244	0.82	<0.005	0.005	0.025	0.0246	98.40	115	85
CADMIUM-FURN DISS	mg/L	ALC	0.002	0.0026	107.60	120	80	0.00266	0.0026	1.13	<0.0005	0.0005	0.0025	0.00263	105.20	115	85
LEAD-ICP G	mg/L	JYH	128	143	111.72	179	68.9	1.12	1.09	2.71	<0.1	0.1	1	1.12	112.00	125	75
NITRATE	mg/L	REB	1	0.976	97.60	113	90	< 0.05	< 0.05	0.00	<0.05	0.05	0.5	0.445	89.00	121	79
TSS	mg/L	MZL	50	53	106.00	121	75	5500	5600	1.80	<5	5	25	---	0.00	125	75
TOC	mg/L	PJH	25	25.97	103.88	110	90	18.08	18.41	1.81	<1	1	25	24.6	98.40	125	75
OIL & GREASE	mg/L	PJH	10	9.8	98.00	125	75	9.8	9.3	5.24	<1	1	10	9.3	93.00	125	75
ARSENIC-FURN X	mg/L	SPL	0.025	0.0284	113.60	120	80	0.0193	0.0201	4.06	<0.004	0.004	0.025	0.0278	111.20	115	85
MERCURY F	mg/L	KRA	23.7	20.4	86.08	120	80	0.00113	0.001	12.21	<0.0002	0.0002	0.001	0.001	100.00	125	75
MERCURY C	mg/L	KRA	0.001	0.0009	90.00	120	80	0.00089	0.0009	1.12	<0.0002	0.0002	0.001	0.0009	90.00	125	75
MERCURY Q	mg/L	KRA	0.001	0.0008	84.00	120	80	0.00086	0.0008	2.35	<0.0002	0.0002	0.001	0.0086	860.00	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
* = MATRIX SPIKE FAILED (NO SPIKE SOLUTION ADDED).
** = SPIKE DILUTED OUT DUE TO HIGH CONCENTRATION OF ANALYTE.

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium
POST SPIKE ADDITION PERFORMED SEE CORRECTIVE ACTION.

KEMRON ENVIRONMENTAL SERVICES

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 07/10/95

			REFERENCE STANDARD					DUPLICATE SAMPLE			BLANK		MATRIX/MEDIA SPIKE				
Parameter	Units	Analyst	Known	Result	Rec.(%)	UCLx	LCLx	Result1	Result2	RPD (%)	Result	MDL	Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
TSS	mg/L	MZL	50	56	112.00	121	75	6100	6200	1.63	<5	5	25	21	84.00	125	75
TOC	mg/L	PJH	5	5.07	101.40	115	85	15	16	6.45	<1	1	5	3.99	79.80	125	75
COD	mg/L	PJH	100	105	105.00	120	80	< 5	< 5	0.00	<5	5	50	51.8	103.60	125	75
HARDNESS	mg/L	MZL	100	102	102.00	111	97	660	660	0.00	<5	5	100	100	100.00	117	86
TDS	mg/L	MZL	500	476	95.20	114	80	390	370	5.26	<10	10	500	472	94.40	124	78

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
** = SPIKE DILUTED OUT DUE TO HIGH CONCENTRATION OF ANALYTE.

UCLb = Upper Control Limit (Blank)
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UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

Versar INC.

CHAIN OF CUSTODY RECORD

2 of 2

PROJECT NO.	PROJECT NAME
3062-002	SALEM DREDGE

SAMPLERS: (Signature) [signature] (Printed) Emily Rzemien

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	NO3/CHL	NH3	HARDNESS	TALMET	TSS	TOC	TP/TKN	INDUSTRIAL HYGIENE SAMPLE Y/N	REMARKS
SALEM-B-DW TOC	18:18	7/6	✓		weir 50	1						✓	1		
SALEM-C-DW NIT/CHL	18:35	7/6	✓		weir 100	1	✓								
SALEM-C-DW TP/TKN	"	"	✓		"								✓		
SALEM-C-DW NH3	"	"	✓		"			✓							
SALEM C-DW HARD	"	"	✓		"				✓						
SALEM-C-DW TALMET	"	"	✓		"					✓					
SALEM-C-DW TSS	"	"	✓		"						✓				
SALEM-C-DW TOC	"	"	✓		"							✓			

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	7/6 19:40				
(Printed) Emily Rzemien		(Printed)	(Printed)		(Printed)

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
		Brenda Gregory	7/7/95 930	Three stations sampled A, B, C
(Printed)		(Printed) Brenda Gregory		C of C sealed OK intact

Cooler temp 3

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

Versar INC.

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME	INDUSTRIAL HYGIENE SAMPLE Y / N
3062-002	SALEM DREDGE - [redacted]	

SAMPLERS: (Signature) [signature] (Printed) EMILY RZEMIEN

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	NIT/CHLORIDE	NH3	HARDNESS	TALKET	TSS	TOC	TP/TKN	REMARKS
SALEM-A-DUR (NIT/CHL.)	7/6/95	18:08	✓		Weir 0,0	1	✓							
SALEM-A-DUR TP/TKN	"		✓		"	1							✓	
SALEM-A-DUR NH3	"		✓		"	1		✓						
SALEM-A-DUR HARD	"		✓		"	1			✓					
SALEM-A-DUR TALKET	"		✓		"	1				✓				
SALEM-A-DUR TSS	"		✓		"	1					✓			
SALEM-A-DUR TOC	"		✓		"	1						✓		
SALEM-B-DUR NIT/CHL	"	18:18	✓		Weir 50	1	✓							
SALEM-B-DUR TP/TKN	"		✓			1							✓	
SALEM B-DUR NH3	"		✓			1			✓					
SALEM-B-DUR TALKET	"		✓			1				✓				
SALEM-B-DUR TSS	"		✓			1					✓			

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
(Printed)		(Printed)	(Printed)		(Printed) [illegible]

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
(Printed)		(Printed) Brenda Gregory	7/7/95 930	Bottle labels state 16:08, 16:18 & 16:35 — IN ERROR. Should be 18:08, 18:18, 18:35 for collection [illegible]

Distribution: [illegible] One [illegible] company [illegible] ment [illegible] e and [illegible]): C[illegible] Coor[illegible] r Fie[illegible] (pin[illegible]

KEMRON Environmental Services
109 Starlite Park
Marietta, Ohio 45750

Phone: (614) 373-4071

VERSAR, INC.
9200 Rumsey Road
Columbia, MD 21045-1934

Attn: Willie Burton

Order #: N5-07-101
Date: July 14, 1995 14:32
Work ID: 3062-002/Salem Dredge
Date Received: 07/08/95
Date Completed: 07/14/95

Client Code: VERSAR_MD331

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	SALEM-A-DUR-001	02	SALEM-B-DUR-001
03	SALEM-C-DUR-001		

AS REQUESTED ALL TOTAL ANALYSES HAVE BEEN REPORTED ON A DRY WEIGHT BASIS WHERE APPLICABLE

This report shall not be reproduced, except in full, without the written approval of KEMRON.

Deanna Hesson

Certified by
Deanna Hesson

KEMRON ENVIRONMENTAL SERVICES
RESULTS BY SAMPLE

This is to certify that the following samples were analyzed using good laboratory practices to show the following results.

SAMPLE ID: 01 SALEM-A-DUR-001 Collected: 07/06/95 18:08 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Chloride	3800	2	mg/L Cl	07/13/95	RJS	325.2

SAMPLE ID: 02 SALEM-B-DUR-001 Collected: 07/06/95 18:10 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Chloride	3900	2	mg/L Cl	07/13/95	RJS	325.2

SAMPLE ID: 03 SALEM-C-DUR-001 Collected: 07/06/95 13:35 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Chloride	3900	2	mg/L Cl	07/13/95	RJS	325.2

EPA Method 325.2 - Colorimetric, Automated Ferricyanide - Chloride

KEMRON ANALYST LIST

Ohio Valley Laboratory

04/21/95

AJS - - Ashlee J. Scott
ALC - - Ann L. Clark
BAR - - Beth A. Raper
CEB - - Chad E. Barnes
DIH - - Deanna I. Hesson
DJP - - Douglas J. Poling
DLP - - Dorothy L. Payne
DST - - Dennis S. Tepe
ECL - - Eric C. Lawson
EDG - - Eric D. Gerkin
FEH - - Fay E. Harmon
FRM - - Fred R. Montgomery
GWH - - George W. Hutchison
HV - - Hema Vilasagar
JEC - - Jesse E. Chapman
JYH - - Ji Y. Hu
JKM - - June K. Morris
JLH - - Janice L. Holland
JLL - - Janice L. Landshof
JMM - - Jim M. Monk
JWR - - John W. Richards
KHA - - Kim H. Archer
KMM - - Kevin M. McDonald
KPO - - Kevin P. Overstreet
KRA - - Kathy R. Albertson
LMW - - Lisa M. Wagner
MBJ - - Matthew B. Jarrell
MDA - - Mike D. Albertson
MDC - - Michael D. Cochran
MLS - - Michael L. Schimmel
MZL - - Melanie Z. Lewis
PJH - - Pamela J. Holtz
PST - - Pam S. Tornes
REB - - Russell E. Burton
REK - - Robert E. Kyer
RJS - - Rick J. Santos
RWC - - Rodney W. Campbell
SCM - - Susan C. Moellendick
SCW - - Stephen C. West
SLM - - Stephanie L. Mossburg
SPL - - Steve P. Learn
SSS - - Susan S. Snodgrass
TAS - - Tamela A. Sams
TKT - - Tonya K. Troutner
TLD - - Teresa L. Davis
TNO - - Tunde N. Oladunni
VC - - Vicki Collier
WCD - - Wade C. Dawson
WDL - - William D. Landshof

INORGANIC QA/QC

Kemron
ENVIRONMENTAL SERVICES

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 07/13/95

			REFERENCE STANDARD					DUPLICATE SAMPLE			BLANK		MATRIX/MEDIA SPIKE				
Parameter	Units	Analyst	Known	Result	Rec.(%)	UCLx	LCLx	Result1	Result2	RPD (%)	Result	MDL	Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
MAGNESIUM-ICP R	mg/L	JYH	10	10	100.00	120	80	10.3	10.3	0.00	<0.5	0.5	10	10.3	103.00	125	75
MANGANESE-ICP R	mg/L	JYH	1	1.05	105.00	120	80	1.06	1.07	0.94	<0.01	0.01	1	1.06	106.00	125	75
SODIUM-ICP R	mg/L	JYH	10	10.2	102.00	120	80	9.6	8	18.18	<0.5	0.5	10	9.6	96.00	125	75
NICKEL-ICP R	mg/L	JYH	1	1.04	104.00	120	80	1.1	1.08	1.83	<0.04	0.04	1	1.1	110.00	125	75
ANTIMONY-ICP R	mg/L	JYH	1	1.01	101.00	120	80	1.06	1.07	0.94	<0.2	0.2	1	1.06	106.00	125	75
VANADIUM-ICP R	mg/L	JYH	1	1	100.00	120	80	1.02	1.02	0.00	<0.01	0.01	1	1.02	102.00	125	75
ZINC-ICP R	mg/L	JYH	1	1.02	102.00	120	80	1.06	1.05	0.95	<0.01	0.01	1	1.06	106.00	125	75
ARSENIC-ICP R	mg/L	JYH	1	1.06	106.00	120	80	1.11	1.11	0.00	<0.1	0.1	1	1.11	111.00	125	75
LEAD-ICP R	mg/L	JYH	1	1	100.00	120	80	1.08	1.03	4.74	<0.1	0.1	1	1.08	108.00	125	75
SELENIUM-ICP R	mg/L	JYH	1	1.08	108.00	120	80	1.08	1.03	4.74	<0.1	0.1	1	1.08	108.00	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
** = SPIKE DILUTED OUT DUE TO HIGH CONCENTRATION OF ANALYTE.

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

QUALITY ASSURANCE REPORT

OHIO VALLEY LABORATORY Date: 07/13/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
ANTIMONY-FURN W	mg/L	AJS	0.025	0.024	96.00	120	80	0.0245	0.024	2.06	<0.02	0.02	0.025	0.0245	98.00	115	85
CHROMIUM-FURN W	mg/L	AJS	0.025	0.0249	99.60	120	80	0.02352	0.0257	9.05	<0.005	0.005	0.025	0.02575	103.00	115	85
ARSENIC-ICP B	mg/L	TAS	1	1.058	105.80	120	80	1.057	1.082	2.34	<1	1	1	1.012	101.20	125	75
BARIUM-ICP B	mg/L	TAS	10	9.96	99.60	120	80	10.14	10.03	1.09	<0.1	0.1	10.1	10.03	99.31	125	75
CADMIUM-ICP B	mg/L	TAS	1	0.9999	99.99	120	80	1.064	1.066	0.19	<0.1	0.1	1	1.06	106.00	125	75
CHROMIUM-ICP B	mg/L	TAS	1	1.005	100.50	120	80	1.051	1.05	0.10	<0.2	0.2	1	1.05	105.00	125	75
LEAD-ICP B	mg/L	TAS	1	1.001	100.10	120	80	1.077	1.124	4.27	<1	1	1	1.077	107.70	125	75
SELENIUM-ICP B	mg/L	TAS	1	0.9355	93.55	120	80	0.9646	1.012	4.80	<1	1	1	1.012	101.20	125	75
SILVER-ICP B	mg/L	TAS	0.2	0.195	97.50	120	80	0.2004	0.1983	1.05	<0.1	0.1	0.2	0.2004	100.20	125	75
NICKEL-ICP B	mg/L	TAS	1	0.9911	99.11	120	80	1.047	1.045	0.19	<0.04	0.04	1	1.036	103.60	125	75
SILVER-ICP F	mg/L	TAS	0.2	0.1979	98.95	120	80	0.1996	0.2069	3.59	<0.01	0.01	0.2	0.2015	100.75	125	75
BARIUM-ICP F	mg/L	TAS	10	9.651	96.51	120	80	9.717	9.869	1.55	<0.01	0.01	10	9.851	98.51	125	75
CADMIUM-ICP F	mg/L	TAS	1	1.003	100.30	120	80	1.03	1.059	2.78	<0.01	0.01	1	1.03	103.00	125	75
CHROMIUM-ICP F	mg/L	TAS	1	0.984	98.40	120	80	1.001	1.027	2.56	<0.02	0.02	1	0.9959	99.59	125	75
COPPER-ICP F	mg/L	TAS	1	0.9967	99.67	120	80	1.011	1.034	2.25	<0.02	0.02	1	1.001	100.10	125	75
NICKEL-ICP F	mg/L	TAS	1	1.009	100.90	120	80	1.015	1.054	3.77	<0.04	0.04	1	1.015	101.50	125	75
LEAD-ICP F	mg/L	TAS	1	1.006	100.60	120	80	1.007	1.014	0.69	<0.1	0.1	1	1.007	100.70	125	75
ANTIMONY-ICP F	mg/L	TAS	1	1.047	104.70	120	80	1.051	1.037	1.34	<0.2	0.2	1	1.037	103.70	125	75
ZINC-ICP F	mg/L	TAS	1	0.9943	99.43	120	80	1.049	1.075	2.45	<0.01	0.01	1	1.015	101.50	125	75
BORON-ICP R	mg/L	JYH	1	1.18	118.00	120	80	1.17	1.15	1.72	<0.5	0.5	1	1.17	117.00	125	75
MOLYBDENUM-ICP R	mg/L	JYH	2.5	2.6	104.00	120	80	2.8	2.7	3.64	<0.1	0.1	2.5	2.8	112.00	125	75
SILICON-ICP R	mg/L	JYH	25	29.6	118.40	120	80	27.1	25.6	5.69	<1.0	1	25	27.1	108.40	125	75
TITANIUM-ICP R	mg/L	JYH	1	1.04	104.00	120	80	1.07	1.03	3.81	<0.03	0.03	1	1.07	107.00	125	75
AMMONIA-DIST	mg/L	RJS	2	1.823	91.15	114	75	---	---	---	<0.01	0.1	1	0.992	99.20	125	75
CHLORIDE	mg/L	RJS	50	49.29	98.58	108	97	17.86	17.69	0.96	<2.0	2	20	21.26	106.30	113	80
SILVER-ICP R	mg/L	JYH	0.2	0.21	105.00	120	80	0.2	0.21	4.88	<0.01	0.01	0.2	0.2	100.00	125	75
ALUMINUM-ICP R	mg/L	JYH	1	1.04	104.00	120	80	1.06	1.07	0.94	<0.01	0.1	1	1.06	106.00	125	75
BARIUM-ICP R	mg/L	TAS	10	10.2	102.00	120	80	10	10.1	1.00	<0.01	0.01	10	10	100.00	125	75
BERYLLIUM-ICP R	mg/L	JYH	1	1	100.00	120	80	1.02	1.02	0.00	<0.01	0.01	1	1.02	102.00	125	75
CADMIUM-ICP R	mg/L	JYH	1	1.02	102.00	120	80	1.04	1.05	0.96	<0.01	0.01	1	1.04	104.00	125	75
COBALT-ICP R	mg/L	JYH	1	1.03	103.00	120	80	1.06	1.06	0.00	<0.02	0.02	1	1.06	106.00	125	75
CHROMIUM-ICP R	mg/L	JYH	1	1.04	104.00	120	80	1.06	1.06	0.00	<0.02	0.02	1	1.06	106.00	125	75
COPPER-ICP R	mg/L	JYH	1	1.02	102.00	120	80	1.03	1.02	0.98	<0.02	0.02	1	1.03	103.00	125	75
IRON-ICP R	mg/L	JYH	1	1.04	104.00	120	80	1.07	1.07	0.00	<0.04	0.04	1	1.07	107.00	125	75
POTASSIUM-ICP R	mg/L	JYH	10	10.3	103.00	120	80	10.9	10.2	6.64	<1	1	10	10.9	109.00	125	75

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UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
* = MATRIX SPIKE FAILED (NO SPIKE SOLUTION ADDED).
** = SPIKE DILUTED OUT DUE TO HIGH CONCENTRATION OF ANALYTE.

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium
POST SPIKE ADDITION PERFORMED SEE CORRECTIVE ACTION.

WORK ORDER #: N5-07-101 SAMPLE #: 01-03 PAGE 01

SAMPLE #	TESTS	REASON	REMOVED BY (ADT)	REMOVED FROM	MOVED TO	RELIQ. BY	RET'D BY (ADT)	RET'D TO	REC'D BY	REASON
1-3A	C1	ANALYSIS	ZEB 7/11/0935/95	WALK in	WET LAB	Big	ZEB/7/11/1400/95	WALK in	Big	Storage
1-3	C1	ANALYSIS	RJS/07/13/95/1410	WALK IN	WET LAB	Big	RJS/07/13/95/1521	ARCHIVE	Big	STORAGE

verar INC.

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME	INDUSTRIAL HYGIENE SAMPLE Y / N
302-002	~~[illegible]~~ SALEM DREDGE	

SAMPLERS: (Signature) [illegible] (Printed) EMILY RZEMIEN

PARAMETERS: Chloride

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Chloride								REMARKS
SALEM-A-DUR 001 (CHL)	7/6	18:08	✓		Weir 0	1	✓								
SALEM-B-DUR 001 (CHL)	7/6	18:10	✓		Weir 50	1	✓								
SALEM-C-DUR 001 (CHL)	7/6	18:35	✓		Weir 100	1	✓								

SXS recd 7-8-95 Stored in locked cooler BLG

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[illegible]	7/7/95 4:30pm				C of C sealed & intact BLG
(Printed) EMILY RZEMIEN		(Printed)	(Printed)		(Printed)

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
		Brenda Gregory	7/10/95 1800	As arranged w/ Sigrid Jenling for chloride sampling — instead of TSS — cooler temp 7.1
(Printed)		(Printed) Brenda Gregory		

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

KEMRON Environmental Services
109 Starlite Park
Marietta, Ohio 45750

Phone: (614) 373-4071

KEMRON ENVIRONMENTAL SERVICES

ok

VERSAR, INC.
9200 Rumsey Road
Columbia, MD 21045-1934

Attn: Willie Burton

Order #: N5-08-252
Date: August 25, 1995 15:02
Work ID: 3062-002/Salem River Dredge
Date Received: 08/11/95
Date Completed: 08/25/95

Client Code: VERSAR_MD331

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	SALEM-METAL-A-DUR-001	02	SALEM-TSS/NO3-A-DUR-001 *
03	SALEM-HARD-A-DUR-001	04	SALEM-TOC/TKN-A-DUR-001
05	SALEM-CHLOR-A-DUR-001	06	SALEM-NH3-A-DUR-001
07	SALEM-METAL-B-DUR-001	08	SALEM-TSS/NO3-B-DUR-001
09	SALEM-HARD-B-DUR-001	10	SALEM-TOC/TKN-B-DUR-001
11	SALEM-CHLOR-B-DUR-001	12	SALEM-NH3-B-DUR-001
13	SALEM-METAL-C-DUR-001	14	SALEM-TSS/NO3-C-DUR-001
15	SALEM-HARD-C-DUR-001	16	SALEM-TOC/TKN-C-DUR-001
17	SALEM-CHLOR-C-DUR-001	18	SALEM-NH3-C-DUR-001

AS REQUESTED ALL TOTAL ANALYSES HAVE BEEN REPORTED ON A DRY WEIGHT BASIS WHERE APPLICABLE

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Deanna Hesson

Certified by
Deanna Hesson

KEMRON ENVIRONMENTAL SERVICES
RESULTS BY SAMPLE

This is to certify that the following samples were analyzed using good laboratory practices to show the following results.

SAMPLE ID: 01 SALEM-METAL-A-DUR-001 Collected: 08/10/95 14:05 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Arsenic, Total	<0.1	0.1	mg/L As	08/24/95	JEC	200.7/6010A
Cadmium, Total	<0.01	0.01	mg/L Cd	08/24/95	JEC	200.7/6010A
Chromium, Total	<0.02	0.02	mg/L Cr	08/24/95	JEC	200.7/6010A
Copper, Total	<0.02	0.02	mg/L Cu	08/24/95	JEC	200.7/6010A
Lead, Total	<0.1	0.1	mg/L Pb	08/24/95	JEC	200.7/6010A
Mercury, Total	<0.0002	0.0002	mg/L Hg	08/24/95	TAS	245.1/7470A
Nickel, Total	<0.04	0.04	mg/L Ni	08/24/95	JEC	200.7/6010A
Zinc, Total	0.09	0.01	mg/L Zn	08/24/95	JEC	200.7/6010A

SAMPLE ID: 02 SALEM-TSS/NO3-A-DUR-001 Collected: 08/10/95 14:05 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Nitrogen, Nitrate	1.6	0.05	mg/L N	08/15/95	REB	353.2
Total Suspended Solids	100	5	mg/L	08/14/95	SCM	160.2

SAMPLE ID: 03 SALEM-HARD-A-DUR-001 Collected: 08/10/95 14:05 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Hardness	1200	20	mg/L CaCO3	08/17/95	RJS	130.2

SAMPLE ID: 04 SALEM-TOC/TKN-A-DUR-001 Collected: 08/10/95 14:05 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Nitrogen, Total Kjeldahl	0.7	0.1	mg/L N	08/18/95	REB	351.2
Phosphorus, Total	0.1	0.1	mg/L P	08/17/95	REB	365.4
Total Organic Carbon	5	1	mg/L	08/17/95	REB	415.1

SAMPLE ID: 05 SALEM-CHLOR-A-DUR-001 Collected: 08/10/95 14:05 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Chloride	3400	100	mg/L Cl	08/16/95	REB	325.2

SAMPLE ID: 06 SALEM-NH3-A-DUR-001 Collected: 08/10/95 14:05 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Nitrogen, Ammonia	<0.1	0.1	mg/L N	08/22/95	JWR	350.1

SAMPLE ID: 07 SALEM-METAL-B-DUR-001 Collected: 08/10/95 14:16 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Arsenic, Total	<0.1	0.1	mg/L As	08/24/95	JEC	200.7/6010A
Cadmium, Total	<0.01	0.01	mg/L Cd	08/24/95	JEC	200.7/6010A
Chromium, Total	<0.02	0.02	mg/L Cr	08/24/95	JEC	200.7/6010A

SAMPLE ID: 07 SALEM-METAL-B-DUR-001 Collected: 08/10/95 14:16 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Copper, Total	<0.02	0.02	mg/L Cu	08/24/95	JEC	200.7/6010A
Lead, Total	<0.1	0.1	mg/L Pb	08/24/95	JEC	200.7/6010A
Mercury, Total	<0.0002	0.0002	mg/L Hg	08/24/95	TAS	245.1/7470A
Nickel, Total	<0.04	0.04	mg/L Ni	08/24/95	JEC	200.7/6010A
Zinc, Total	0.08	0.01	mg/L Zn	08/24/95	JEC	200.7/6010A

SAMPLE ID: 08 SALEM-TSS/NO3-B-DUR-001 Collected: 08/10/95 14:16 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Nitrogen, Nitrate	1.6	0.05	mg/L N	08/15/95	REB	353.2
Total Suspended Solids	170	5	mg/L	08/14/95	SCM	160.2

SAMPLE ID: 09 SALEM-HARD-B-DUR-001 Collected: 08/10/95 14:16 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Hardness	1100	20	mg/L CaCO3	08/17/95	RJS	130.2

SAMPLE ID: 10 SALEM-TOC/TKN-B-DUR-001 Collected: 08/10/95 14:16 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Nitrogen, Total Kjeldahl	0.4	0.1	mg/L N	08/18/95	REB	351.2
Phosphorus, Total	0.2	0.1	mg/L P	08/17/95	REB	365.4
Total Organic Carbon	4	1	mg/L	08/17/95	REB	415.1

SAMPLE ID: 11 SALEM-CHLOR-B-DUR-001 Collected: 08/10/95 14:16 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Chloride	3300	100	mg/L Cl	08/16/95	REB	325.2

SAMPLE ID: 12 SALEM-NH3-B-DUR-001 Collected: 08/10/95 14:16 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Nitrogen, Ammonia	<0.1	0.1	mg/L N	08/22/95	JWR	350.1

SAMPLE ID: 13 SALEM-METAL-C-DUR-001 Collected: 08/10/95 14:30 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Arsenic, Total	<0.1	0.1	mg/L As	08/24/95	JEC	200.7/6010A
Cadmium, Total	<0.01	0.01	mg/L Cd	08/24/95	JEC	200.7/6010A
Chromium, Total	0.03	0.02	mg/L Cr	08/24/95	JEC	200.7/6010A
Copper, Total	<0.02	0.02	mg/L Cu	08/24/95	JEC	200.7/6010A
Lead, Total	<0.1	0.1	mg/L Pb	08/24/95	JEC	200.7/6010A
Mercury, Total	<0.0002	0.0002	mg/L Hg	08/24/95	TAS	245.1/7470A
Nickel, Total	0.04	0.04	mg/L Ni	08/24/95	JEC	200.7/6010A
Zinc, Total	0.16	0.01	mg/L Zn	08/24/95	JEC	200.7/6010A

SAMPLE ID: 14 SALEM-TSS/NO3-C-DUR-001 Collected: 08/10/95 14:30 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Nitrogen, Nitrate	1.7	0.05	mg/L N	08/15/95	REB	353.2
Total Suspended Solids	300	10	mg/L	08/14/95	SCM	160.2

SAMPLE ID: 15 SALEM-HARD-C-DUR-001 Collected: 08/10/95 14:30 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Hardness	1100	20	mg/L CaCO3	08/17/95	RJS	130.2

SAMPLE ID: 16 SALEM-TOC/TKN-C-DUR-001 Collected: 08/10/95 14:30 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Nitrogen, Total Kjeldahl	0.7	0.1	mg/L N	08/18/95	REB	351.2
Phosphorus, Total	0.5	0.1	mg/L P	08/17/95	REB	365.4
Total Organic Carbon	5	1	mg/L	08/17/95	REB	415.1

SAMPLE ID: 17 SALEM-CHLOR-C-DUR-001 Collected: 08/10/95 14:30 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Chloride	3100	100	mg/L Cl	08/16/95	REB	325.2

SAMPLE ID: 18 SALEM-NH3-C-DUR-001 Collected: 08/10/95 14:30 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Nitrogen, Ammonia	0.2	0.1	mg/L N	08/22/95	JWR	350.1

EPA Method 200.7/SW6010A (ICP)- Arsenic

EPA Method 200.7/SW6010A (ICP) - Cadmium

EPA Method 325.2 - Colorimetric, Automated Ferricyanide - Chloride

EPA Method 200.7/SW6010A (ICP) - Chromium

EPA Method 200.7/SW6010A (ICP) - Copper

EPA Method SW3005 and/or SW3020 - Metals Digestion

EPA Method 130.2 Hardness - Titrimetric

EPA Method 245.1/SW7470A (Cold Vapor) - Mercury

EPA Method 350.1 - Ammonia - Distillation and Automated Phenate

EPA Method 200.7/SW6010A (ICP) - Nickel

EPA Method 353.2 - Automated Cadmium Reduction - Nitrate

METHOD 200.7/SW6010 (ICP) - Lead

EPA Method 365.4 - Automated Colorimetric, Ascorbic Acid - Phosphorus, Total

EPA Method 351.2 - Automated, Colorimetric - Total Kjeldahl Nitrogen

EPA Method 415.1 - Total Organic Carbon

EPA Method 160.2 (Dried at 103-105C) - Total Suspended Solids

EPA Method 200.7/SW6010A (ICP) - Zinc

KEMRON ANALYST LIST

Ohio Valley Laboratory

08/16/95

AJS - - Ashlee J. Scott
ALC - - Ann L. Clark
BAR - - Beth A. Raper
CEB - - Chad E. Barnes
DIH - - Deanna I. Hesson
DJP - - Douglas J. Poling
DLP - - Dorothy L. Payne
DST - - Dennis S. Tepe
ECL - - Eric C. Lawson
EDG - - Eric D. Gerkin
FEH - - Fay E. Harmon
FRM - - Fred R. Montgomery
GWH - - George W. Hutchison
HV - - Hema Vilasagar
JEC - - Jesse E. Chapman
JYH - - Ji Y. Hu
JKM - - June K. Morris
JLM - - Joy L. Mullins
JLH - - Janice L. Holland
JLL - - Janice L. Landshof
JMM - - Jim M. Monk
JWR - - John W. Richards
KHA - - Kim H. Archer
KMM - - Kevin M. McDonald
KPO - - Kevin P. Overstreet
KRA - - Kathy R. Albertson
LMW - - Lisa M. Wagner
MBJ - - Matthew B. Jarrell
MDA - - Mike D. Albertson
MDC - - Michael D. Cochran
MLS - - Michael L. Schimmel
PJH - - Pamela J. Holtz
REB - - Russell E. Burton
REK - - Robert E. Kyer
RJS - - Rick J. Santos
RWC - - Rodney W. Campbell
SCM - - Susan C. Moellendick
SCW - - Stephen C. West
SLT - - Stephanie L. Tepe
SPL - - Steve P. Learn
TAS - - Tamela A. Sams
TLD - - Teresa L. Davis
VC - - Vicki Collier
WCD - - Wade C. Dawson

INORGANIC QA/QC

QUALITY ASSURANCE [illegible]Y REPORT

OHIO VALLEY LABORATORY Date: 08/24/95

			REFERENCE STANDARD					DUPLICATE SAMPLE			BLANK		MATRIX/MEDIA SPIKE				
Parameter	Units	Analyst	Known	Result	Rec.(%)	UCLx	LCLx	Result1	Result2	RPD (%)	Result	MDL	Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
MERCURY H	mg/kg	TAS	1.95	1.85	94.87	3.5	0.92	0.00098	0.0009	1.84	<0.0002	0.0002	0.001	0.00098	98.00	115	85
ARSENIC-FURNACE S	mg/kg	KHA	82.4	94.5	114.68	123	40.4	0.0163	0.0182	11.01	<0.004	0.004	0.04	0.0345	86.25	115	85
ARSENIC-FURNACE X	mg/kg	KHA	82.4	91.7	111.29	123	40.4	0.0354	0.0389	9.42	<0.004	0.004	0.025	0.028	112.00	115	85
LEAD-FURNACE	mg/L	KHA	0.025	0.0271	108.40	120	80	< 0.005	< 0.005	0.00	<0.005	0.005	0.025	0.025	100.00	115	85
MERCURY Q	mg/L	TAS	0.001	0.0010	103.00	120	80	0.00104	0.0010	1.90	<0.0002	0.0002	0.001	0.00102	102.00	115	85
SELENIUM-FURNACE	mg/L	JEC	0.025	0.0267	106.80	120	80	< 0.004	< 0.004	0.00	<0.004	0.004	0.025	0.0246	98.40	115	85
SILVER-ICP	mg/L	JEC	0.2	0.195	97.50	120	80	< 0.01	< 0.01	0.00	<0.01	0.01	0.2	0.196	98.00	125	75
BARIUM-ICP	mg/L	JEC	10	10.1	101.00	120	80	< 0.01	< 0.01	0.00	<0.01	0.01	10	9.8	98.00	125	75
CADMIUM-ICP	mg/L	JEC	1	1.01	101.00	120	80	< 0.01	< 0.01	0.00	<0.01	0.01	1	1.07	107.00	125	75
CHROMIUM-ICP	mg/L	JEC	1	1.02	102.00	120	80	< 0.02	< 0.02	0.00	<0.02	0.02	1	0.999	99.90	125	75
ARSENIC-ICP	mg/L	JEC	1	0.991	99.10	120	80	< 0.1	< 0.1	0.00	<0.1	0.1	1	0.995	99.50	125	75
LEAD-ICP	mg/L	JEC	1	1.06	106.00	120	80	< 0.1	< 0.1	0.00	<0.1	0.1	1	1.07	107.00	125	75
SELENIUM-ICP	mg/L	JEC	1	1.05	105.00	120	80	< 0.1	< 0.1	0.00	<0.1	0.1	1	1.11	111.00	125	75
TOC-SOIL	mg/kg	RJS	10000	10578	105.78	125	75	59451	57103	4.03	<200	200	10000	7812	78.12	125	75
CHLORIDE	mg/L	REB	50	51.1	102.20	108	97	120	120	0.00	<2	2	20	18.2	91.00	113	80
ALKALINITY	mg/L	REB	200	192	96.00	109	79	270	270	0.00	<10	10	100	120	120.00	108	75
AMMONIA	mg/L	REB	2	1.89	94.50	127	75	0.2	0.2	0.00	<0.1	0.1	1	0.841	84.10	125	75
AMMONIA AA	mg/L	REB	2	2	100.00	117	75	1.1	1.1	0.00	<0.1	0.1	1	1.12	112.00	125	75
HARDNESS	mg/L	RJS	100	103	103.00	111	97	120	120	0.00	<5	5	50	46	92.00	125	75
SILVER-ICP V	mg/L	JEC	0.2	0.195	97.50	120	80	1.87	1.84	1.62	<0.01	0.01	0.2	0.193	96.50	125	75
BARIUM-ICP V	mg/L	JEC	10	10.1	101.00	120	80	95.2	95.6	0.42	<0.01	0.01	10	9.8	98.00	125	75
CADMIUM-ICP V	mg/L	JEC	1	1.01	101.00	120	80	9.83	9.92	0.91	<0.01	0.01	1	1.07	107.00	125	75
CHROMIUM-ICP V	mg/L	JEC	1	1.02	102.00	120	80	9.77	9.84	0.71	<0.02	0.02	1	0.999	99.90	125	75
COPPER-ICP V	mg/L	JEC	1	1.01	101.00	120	80	9.51	9.56	0.52	<0.02	0.02	1	1.01	101.00	125	75
NICKEL-ICP V	mg/L	JEC	1	1.01	101.00	120	80	9.77	9.8	0.31	<0.02	0.02	1	1.04	104.00	125	75
VANADIUM-ICP V	mg/L	JEC	1	1	100.00	120	80	9.49	9.54	0.53	<0.01	0.01	1	1	100.00	125	75
ZINC-ICP V	mg/L	JEC	1	0.996	99.60	120	80	5538	529	165.12	<0.01	0.01	1	1.06	106.00	125	75
ARSENIC-ICP V	mg/L	JEC	1	0.991	99.10	120	80	9.45	9.7	2.61	<0.1	0.1	1	0.995	99.50	125	75
LEAD-ICP V	mg/L	JEC	1	1.06	106.00	120	80	12.5	12.7	1.59	<0.1	0.1	1	1.03	103.00	125	75
SELENIUM-ICP V	mg/L	JEC	1	1.05	105.00	120	80	10.1	10.4	2.93	<0.1	0.1	1	1.11	111.00	125	75
SELENIUM-FURN P	mg/kg	JEC	109	143	131.19	56.5	162	0.00616	0.0074	18.42	<0.004	0.004	0.025		0.00	115	85
SELENIUM-FURN R	mg/L	JEC	0.025	0.0267	106.80	120	80	< 0.004	< 0.004	0.00	<0.004	0.004	0.025	0.0253	101.20	115	85
SELENIUM-FURN G	mg/L	JEC	0.025	0.0241	96.40	120	80	0.0157	0.0166	5.57	<0.004	0.004	0.025	0.0246	98.40	115	85
SELENIUM-FURN V	mg/L	JEC	0.025	0.0221	88.40	120	80	< 0.004	< 0.004	0.00	<0.004	0.004	0.025	0.0225	90.00	115	85
NITRITE	mg/L	SCM	0.1	0.097	97.00	125	75	< 0.01	< 0.01	0.00	<0.01	0.01	0.1	0.092	92.00	125	75
OIL & GREASE	mg/L	PJH	10	11	110.00	114	83	11	12	8.70	<1	1	10	11.7	117.00	125	75
SULFATE	mg/L	JWR	20	19.9	99.50	107	79	34	35	2.90	<2	2	10	10.4	104.00	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
NR = NOT REQUIRED
DL = DILUTED OUT
** = MATRIX INTERFERENCE

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 08/24/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
ARSENIC-FURN G	mg/L	ALC	0.025	0.0238	95.20	120	80	0.0067	0.0067	0.00	<0.004	0.004	0.025	0.02129	85.16	115	85
THALLIUM-FURN V	mg/L	ALC	0.025	0.0238	95.20	120	80	0.0243	0.0241	0.83	<0.005	0.005	0.025	0.0243	97.20	115	85
ANTIMONY-FURN V	mg/L	ALC	0.025	0.0251	100.40	120	80	0.025	0.0234	6.61	<0.02	0.02	0.025	0.025	100.00	115	85
BERYLLIUM-FURN V	mg/L	ALC	0.002	0.0027	108.00	120	80	0.00235	0.0025	6.98	<0.0005	0.0005	0.0025	0.00252	100.80	115	85
MERCURY A-1	mg/kg	TAS	1.92	1.92	100.00	3.5	0.92	0.00085	0.0006	28.19	<0.0002	0.0002	0.001	0.00085	85.00	115	85
MERCURY M	mg/L	TAS	0.001	0.0009	90.00	120	80	0.0011	0.0010	3.70	<0.0002	0.0002	0.001	0.00102	102.00	115	85
MERCURY Y	mg/kg	TAS	1.92	1.76	91.67	3.5	0.92	0.00104	0.0009	6.97	<0.0002	0.0002	0.001	0.00104	104.00	115	85
SILVER-ICP N	mg/L	JEC	0.2	0.199	99.50	120	80	0.179	0.181	1.11	<0.01	0.01	0.2	0.178	89.00	125	75
ALUMINUM-ICP N	mg/L	JEC	1	1.04	104.00	120	80	0.41	0.382	7.07	<0.1	0.1	1	0.764	76.40	125	75
BARIUM-ICP N	mg/L	JEC	10	10.2	102.00	120	80	8.87	9.06	2.12	<0.01	0.01	10	0.88	8.80	125	75
BERYLLIUM-ICP N	mg/L	JEC	1	1.02	102.00	120	80	0.931	0.929	0.22	<0.01	0.01	1	0.929	92.90	125	75
CALCIUM-ICP N	mg/L	JEC	10	10.3	103.00	120	80	94.2	93.2	1.07	<0.2	0.2	10	10.2	102.00	125	75
CADMIUM-ICP N	mg/L	JEC	1	1.03	103.00	120	80	0.931	0.921	1.08	<0.01	0.01	1	0.926	92.60	125	75
COBALT-ICP N	mg/L	JEC	1	1.02	102.00	120	80	0.918	0.91	0.88	<0.02	0.02	1	0.912	91.20	125	75
CHROMIUM-ICP N	mg/L	JEC	1	1.02	102.00	120	80	0.922	0.912	1.09	<0.02	0.02	1	0.916	91.60	125	75
IRON-ICP N	mg/L	JEC	1	1.04	104.00	120	80	3.71	3.67	1.08	<0.04	0.04	1	0.949	94.90	125	75
MAGNESIUM-ICP N	mg/L	JEC	10	10.2	102.00	120	80	17.3	17.1	1.16	<0.5	0.5	10	0.94	9.40	125	75
MANGANESE-ICP N	mg/L	JEC	1	1.02	102.00	120	80	1.74	1.72	1.16	<0.01	0.01	1	0.93	93.00	125	75
SODIUM-ICP N	mg/L	JEC	10	9.98	99.80	120	80	107	106	0.94	<0.5	0.5	10	1.06	10.60	125	75
NICKEL-ICP N	mg/L	JEC	1	1.03	103.00	120	80	0.956	0.956	0.00	<0.04	0.04	1	0.921	92.10	125	75
ANTIMONY-ICP N	mg/L	JEC	1	1.04	104.00	120	80	1.05	0.991	5.78	<0.2	0.2	1	0.96	96.00	125	75
ZINC-ICP	mg/L	JEC	1	1.06	106.00	120	80	1.08	1.04	3.77	<0.01	0.01	1	0.965	96.50	125	75
SILVER-ICP E	mg/L	JEC	0.2	0.195	97.50	120	80	0.168	0.175	4.08	<0.01	0.01	0.2	0.186	93.00	125	75
ALUMINUM-ICP E	mg/L	JEC	1	1.05	105.00	120	80	2.54	3.11	20.18	<0.1	0.1	1	1.05	105.00	125	75
BARIUM-ICP E	mg/L	JEC	10	9.98	99.80	120	80	8.54	8.9	4.13	<0.01	0.01	10	9.78	97.80	125	75
BERYLLIUM-ICP E	mg/L	JEC	1	0.98	98.00	120	80	0.881	0.914	3.68	<0.01	0.01	1	1.01	101.00	125	75
CALCIUM-ICP E	mg/L	JEC	10	9.95	99.50	120	80	88.1	91.7	4.00	<0.2	0.2	10	1.02	10.20	125	75
CADMIUM-ICP E	mg/L	JEC	1	1.01	101.00	120	80	0.888	0.911	2.56	<0.01	0.01	1	1.03	103.00	125	75
COBALT-ICP E	mg/L	JEC	1	1	100.00	120	80	0.877	0.9	2.59	<0.02	0.02	1	1	100.00	125	75
CHROMIUM-ICP E	mg/L	JEC	1	1.01	101.00	120	80	0.883	0.913	3.34	<0.02	0.02	1	1.01	101.00	125	75
COPPER-ICP E	mg/L	JEC	1	0.995	99.50	120	80	0.873	0.91	4.15	<0.02	0.02	1	0.993	99.30	125	75
IRON-ICP E	mg/L	JEC	1	1.03	103.00	120	80	3.09	3.55	13.86	<0.04	0.04	1	1.01	101.00	125	75
POTASSIUM-ICP E	mg/L	JEC	10	10	100.00	120	80	72.2	75.7	4.73	<1	1	10	11.2	112.00	125	75
MAGNESIUM-ICP E	mg/L	JEC	10	9.7	97.00	120	80	225	234	3.92	<0.5	0.5	10	10.8	108.00	125	75
MANGANESE-ICP E	mg/L	JEC	1	1.02	102.00	120	80	1.12	1.17	4.37	<0.01	0.01	1	1.02	102.00	125	75
SODIUM-ICP E	mg/L	JEC	10	9.81	98.10	120	80	1640	1710	4.18	<0.5	0.5	10	DL	0.00	125	75
NICKEL-ICP E	mg/L	JEC	1	1.01	101.00	120	80	0.886	0.905	2.12	<0.04	0.04	1	0.996	99.60	125	75
VANADIUM-ICP E	mg/L	JEC	1	0.991	99.10	120	80	0.878	0.908	3.36	<0.01	0.01	1	1.01	101.00	125	75
ZINC-ICP E	mg/L	JEC	1	1.02	102.00	120	80	0.98	1.03	4.98	<0.01	0.01	1	1.03	103.00	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

QUALITY ASSURANCE REPORT

OHIO VALLEY LABORATORY Date: 08/22/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
AMMONIA	mg/L	JWR	2	1.9	95.00	125	75	< 0.1	< 0.1	0.00	<0.1	0.1	1	0.883	88.30	125	75
SILVER-ICP N	mg/kg	JYH	65.4	60	91.74	95.5	29.4	0.18	0.18	0.00	<0.5	0.5	0.2	0.18	90.00	125	75
BARIUM-ICP N	mg/kg	JYH	238	200	84.03	311	138	9	8.9	1.12	<0.5	0.5	10	9	90.00	125	75
CADMIUM-ICP N	mg/kg	JYH	90	79	87.78	130	51.3	0.84	0.86	2.35	<0.5	0.5	1	0.84	84.00	125	75
CHROMIUM-ICP N	mg/kg	JYH	167	140	83.83	236	90.3	0.83	0.83	0.00	<1.0	1	1	0.83	83.00	125	75
COPPER-ICP N	mg/kg	JYH	196	180	91.84	284	112	0.87	0.9	3.39	<1.0	1	1	0.97	97.00	125	75
ZINC-ICP N	mg/kg	JYH	199	180	90.45	296	103	DL	DL	DL	<0.5	0.5	1	DL	DL	125	75
LEAD-ICP N	mg/kg	JYH	162	140	86.42	230	85.8	0.8	0.84	4.88	<5	5	1	0.8	80.00	125	75
ARSENIC-ICP N	mg/kg	JYH	82.4	79	95.87	123	40.4	0.82	0.9	9.30	<5	5	1	0.82	82.00	125	75
SILVER-ICP H	mg/L	JYH	0.2	0.2	100.00	120	80	0.19	0.19	0.00	<0.01	0.01	0.2	0.19	95.00	125	75
BARIUM-ICP H	mg/L	JYH	10	9.9	99.00	120	80	9.8	9.8	0.00	<0.01	0.01	10	9.8	98.00	125	75
CADMIUM-ICP H	mg/L	JYH	1	0.97	97.00	120	80	0.98	0.98	0.00	<0.01	0.01	1	0.98	98.00	125	75
CHROMIUM-ICP H	mg/L	JYH	1	0.98	98.00	120	80	0.98	0.98	0.00	<0.02	0.02	1	0.98	98.00	125	75
COPPER-ICP H	mg/L	JYH	1	1	100.00	120	80	1	1	0.00	<0.02	0.02	1	1	100.00	125	75
NICKEL-ICP H	mg/L	JYH	1	0.99	99.00	120	80	1	1.01	1.00	<0.04	0.04	1	1	100.00	125	75
VANADIUM-ICP H	mg/L	JYH	1	0.96	96.00	120	80	0.97	0.97	0.00	<0.01	0.01	1	0.97	97.00	125	75
ZINC-ICP H	mg/L	JYH	1	0.98	98.00	120	80	0.97	0.95	2.08	<0.01	0.01	1	0.97	97.00	125	75
ARSENIC-ICP H	mg/L	JYH	1	1.02	102.00	120	80	1.1	1.04	5.61	<0.1	0.1	1	1.1	110.00	125	75
LEAD-ICP H	mg/L	JYH	1	0.95	95.00	120	80	0.9	0.92	2.20	<0.1	0.1	1	0.9	90.00	125	75
SELENIUM-ICP H	mg/L	JYH	1	0.94	94.00	120	80	0.94	0.91	3.24	<0.1	0.1	1	0.94	94.00	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
DL = DILUTED OUT
NR = NOT REQUIRED

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 08/18/95

			REFERENCE STANDARD					DUPLICATE SAMPLE			BLANK		MATRIX/MEDIA SPIKE				
Parameter	Units	Analyst	Known	Result	Rec.(%)	UCLx	LCLx	Result1	Result2	RPD (%)	Result	MDL	Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
AMMONIA AA	mg/L	REB	2	2.02	101.00	117	75	< 0.1	< 0.1	0.00	<0.1	0.1	1	1.06	106.00	125	75
CADMIUM-FURNACE J	mg/kg	AJS	90	94	104.44	130	513	0.00188	0.0017	9.47	<0.0005	0.0005	0.0025	0.00244	97.60	115	85
SILVER-FURNACE J	mg/kg	AJS	65.4	89.1	136.24	95.5	29.4	< 0.2	< 0.2	0.00	<0.004	0.004	0.005	0.005	100.00	115	85
LEAD-FURNACE Z1	mg/kg	JEC	128	143	111.72	179	68.9	0.0355	0.0367	3.32	<0.005	0.005	0.025	0.0232	92.80	115	85
THALLIUM-FURN L	mg/L	AJS	0.025	0.0234	93.60	120	80	< 0.001	< 0.001	0.00	<0.005	0.005	0.025	0.0248	99.20	115	85
MERCURY B	mg/L	VC	0.001	0.0010	102.00	120	80	0.00103	0.0007	30.17	<0.0002	0.0002	0.001	0.00103	103.00	125	75
TKN	mg/L	REB	1	0.988	98.80	125	75	0.6	0.6	0.00	<0.1	0.1	0.5	0.596	119.20	125	75
PHENOL	mg/L	JWR	0.5	0.488	97.60	114	85	0.013	0.015	14.29	<0.005	0.005	0.5	0.478	95.60	122	75
SILVER-ICP F	mg/L	JYH	0.2	0.2	100.00	120	80	0.18	0.18	0.00	<0.01	0.01	0.2	0.18	90.00	125	75
ALUMINUM-ICP F	mg/L	JYH	1	1.08	108.00	120	80	0.98	1.02	4.00	<0.1	0.1	1	0.98	98.00	125	75
BARIUM-ICP F	mg/L	JYH	10	9.8	98.00	120	80	8.4	8	4.88	<0.01	0.01	10	8.4	84.00	125	75
BERYLLIUM-ICP F	mg/L	JYH	1	1.02	102.00	120	80	0.88	0.88	0.00	<0.01	0.01	1	0.88	88.00	125	75
CALCIUM-ICP F	mg/L	JYH	10	10.3	103.00	120	80	12.4	9.9	22.42	<0.2	0.2	10	12.4	124.00	125	75
CADMIUM-ICP F	mg/L	JYH	1	1.03	103.00	120	80	0.92	0.93	1.08	<0.01	0.01	1	0.92	92.00	125	75
CHROMIUM-ICP F	mg/L	JYH	1	1	100.00	120	80	0.92	0.93	1.08	<0.02	0.02	1	0.92	92.00	125	75
COPPER-ICP F	mg/L	JYH	1	1.04	104.00	120	80	0.95	0.95	0.00	<0.02	0.02	1	0.95	95.00	125	75
IRON-ICP F	mg/L	JYH	1	1.04	104.00	120	80	0.97	1.01	4.04	<0.04	0.04	1	0.97	97.00	125	75
MAGNESIUM-ICP F	mg/L	JYH	10	10.1	101.00	120	80	10.1	11.1	9.43	<0.5	0.5	10	10.1	101.00	125	75
MANGANESE-ICP F	mg/L	JYH	1	1.01	101.00	120	80	1.04	1.05	0.96	<0.01	0.01	1	1.04	104.00	125	75
SODIUM-ICP F	mg/L	JYH	10	10.2	102.00	120	80	9.9	11.4	14.08	<0.5	0.5	10	9.9	99.00	125	75
NICKEL-ICP F	mg/L	JYH	1	1.01	101.00	120	80	0.91	0.93	2.17	<0.04	0.04	1	0.91	91.00	125	75
ZINC-ICP F	mg/L	JYH	1	1.04	104.00	120	80	0.96	0.96	0.00	<0.01	0.01	1	0.96	96.00	125	75
ARSENIC-ICP F	mg/L	JYH	1	1.01	101.00	120	80	0.96	1.01	5.08	<0.1	0.1	1	0.96	96.00	125	75
LEAD-ICP F	mg/L	JYH	1	1	100.00	120	80	0.86	0.92	6.74	<0.1	0.1	1	0.86	86.00	125	75
SELENIUM-ICP F	mg/L	JYH	1	1.01	101.00	120	80	0.91	0.94	3.24	<0.1	0.1	1	0.91	91.00	125	75
OIL & GREASE	mg/L	PJH	10	10.3	103.00	114	83	10	11	9.52	1	1	10	11.3	113.00	125	75
SELENIUM-FURN C	mg/L	JEC	0.025	0.0229	91.60	120	80	0.0091	0.0101	10.42	<0.004	0.004	0.025	0.023	92.00	115	85
BOD	mg/L	SCM	200	192	96.00	119	82	600	660	9.52	<3	3	200	203	101.50	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
DL = DILUTED OUT
NR = NOT REQUIRED

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

QUALITY ASSURANCE REPORT

OHIO VALLEY LABORATORY Date: 08/17/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
PHOSPHORUS A	mg/L	REB	2	1.79	89.50	125	75	< 0.1	< 0.1	0.00	<0.1	0.1	0.5	0.468	93.60	125	75
CHROMIUM-FURN J	mg/kg	KHA	167	170	101.80	236	90.3	0.01836	0.0182	0.82	<0.005	0.005	0.025	0.0226	90.40	115	85
PHOSPHORUS B	mg/L	REB	2	1.73	86.50	125	75	0.1	< 0.1	0.00	<0.1	0.1	0.5	0.472	94.40	125	75
PHOSPHORUS C	mg/L	REB	2	1.85	92.50	125	75	0.1	0.1	0.00	<0.1	0.1	0.5	0.472	94.40	125	75
HARDNESS	mg/L	RJS	100	103	103.00	111	97	110	110	0.00	<5	5	100	100	100.00	117	86
CYANIDE	mg/L	JWR	0.4	0.38	95.00	110	90	0.06	0.06	0.00	<0.01	0.01	0.2	0.193	96.50	124	78
TOC	mg/L	REB	5	4.97	99.40	110	90	5	5	0.00	<1	1	5	4.49	89.80	125	75
SILVER-ICP A	mg/L	JYH	0.2	0.19	95.00	120	80	0.2	0.2	0.00	<0.01	0.01	0.2	0.2	100.00	125	75
BARIUM-ICP A	mg/L	JYH	10	9.4	94.00	120	80	9.8	10	2.02	<0.01	0.01	10	9.8	98.00	125	75
CADMIUM-ICP A	mg/L	JYH	1	0.99	99.00	120	80	1.01	1.04	2.93	<0.01	0.01	1	1.01	101.00	125	75
CHROMIUM-ICP A	mg/L	JYH	1	1.02	102.00	120	80	1.04	1.07	2.84	<0.02	0.02	1	1.04	104.00	125	75
IRON-ICP A	mg/L	JYH	1	1.03	103.00	120	80	1.05	1.07	1.89	<0.04	0.04	1	1.05	105.00	125	75
ARSENIC-ICP A	mg/L	JYH	1	1.05	105.00	120	80	1.03	1.08	4.74	<0.1	0.1	1	1.03	103.00	125	75
LEAD-ICP A	mg/L	JYH	1	1.05	105.00	120	80	1.04	1.08	3.77	<0.1	0.1	1	1.04	104.00	125	75
SELENIUM-ICP A	mg/L	JYH	1	0.9	90.00	120	80	0.98	1.02	4.00	<0.1	0.1	1	0.98	98.00	125	75
LEAD-FURNACE K	mg/L	KHA	0.025	0.025	100.00	120	80	0.0224	0.0238	6.06	<0.005	0.005	0.025	0.0236	94.40	115	85
CADMIUM-FURNACE K	mg/L	KHA	0.002	0.0022	91.60	120	80	0.00223	0.0022	2.22	<0.0005	0.0005	0.0025	0.00229	91.60	115	85
THALLIUM-FURN J	mg/kg	AJS	127	120	94.49	120	63.3	< 0.25	< 0.25	0.00	<0.005	0.005	0.025	0.0242	96.80	115	85
ANTIMONY-FURN L	mg/L	AJS	0.025	0.0273	109.20	120	80	< 0.02	< 0.02	0.00	<0.02	0.02	0.025	0.0269	107.60	115	85
ANTIMONY-FURN J	mg/kg	AJS	49.4	23.8	48.18	81.8	148	< 1	< 1	0.00	<0.02	0.02	0.025	0.0249	99.60	115	85
LEAD-EP	mg/L	JEC	1	0.966	96.60	120	80	63	63.6	0.95	<0.1	0.1	1	1.1	110.00	125	75
TSS	mg/L	PJH	50	54	108.00	121	75	2800	3000	6.90	<5	5	50	41.5	83.00	125	75
TDS	mg/L	PJH	500	498	99.60	114	80	1300	1300	0.00	<10	10	500	484	96.80	124	78

UCLx = Upper Control Limit (Standard)
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UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
DL = DILUTED OUT

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 08/16/95

			REFERENCE STANDARD					DUPLICATE SAMPLE			BLANK		MATRIX/MEDIA SPIKE				
Parameter	Units	Analyst	Known	Result	Rec.(%)	UCLx	LCLx	Result1	Result2	RPD (%)	Result	MDL	Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
CHLORIDE A	mg/L	REB	50	49.8	99.60	108	97	19	18	5.41	<2	2	20	19.4	97.00	113	80
CHLORIDE-SOIL	mg/kg	REB	200	183	91.50	125	75	89	92	3.31	<8	8	80	83.2	104.00	125	75
CHLORIDE B	mg/L	REB	50	51.5	103.00	108	97	< 2	< 2	0.00	<2	2	20	19	95.00	113	80
CHLORIDE C	mg/L	REB	50	50.6	101.20	108	97	18	19	5.41	<2	2	20	18.6	93.00	113	80
CHLORIDE D	mg/L	REB	50	51.3	102.60	108	97	14	15	6.90	<2	2	20	19.9	99.50	113	80
CHLORIDE E	mg/L	REB	50	51.1	102.20	108	97	750	730	2.70	<2	2	20	19	95.00	113	80
CHLORIDE F	mg/L	REB	50	48.4	96.80	108	97	33	32	3.08	<2	2	20	18.6	93.00	113	80
ALKALINITY A	mg/L	REB	200	186	93.00	109	79	470	460	2.15	<10	10	50	34.6	69.20	108	75
ALKALINITY B	mg/L	REB	200	196	98.00	109	79	550	560	1.80	<10	10	100	79.4	79.40	108	75
ALKALINITY C	mg/L	REB	200	187	93.50	109	79	83	83	0.00	<10	10	200	125	62.50	108	75
ALKALINITY D	mg/L	REB	200	192	96.00	109	79	39	48	20.69	<10	10	200	159	79.50	108	75
FLUORIDE A	mg/L	PJH	2	2.01	100.50	124	89	1.5	1.5	0.00	<0.1	0.1	0.4	0.37	92.50	125	75
FLUORIDE B	mg/L	PJH	2	2.04	102.00	124	89	1.9	1.9	0.00	<0.1	0.1	0.4	0.382	95.50	125	75
MBAS	mg/L	JWR	1	1.12	112.00	117	75	< 0.1	< 0.1	0.00	<0.1	0.1	1	1.13	113.00	122	75
COD-HIGH	mg/L	PJH	100	100	100.00	120	80	< 5	< 5	0.00	<5	5	50	47.1	94.20	125	75
COD-LOW	mg/L	PJH	1000	999	99.90	120	80	540	530	1.87	<150	150	500	502	100.40	125	75
CALCIUM-ICP W	mg/L	JYH	10	11.2	112.00	120	80	DL	DL	DL	<0.2	0.2	10	DL	DL	125	75
CHROMIUM-ICP W	mg/L	JYH	1	1.06	106.00	120	80	0.98	1.05	6.90	<0.02	0.02	1	0.98	98.00	125	75
POTASSIUM-ICP W	mg/L	JYH	10	8.6	86.00	120	80	9.7	9.9	2.04	<1	1	10	9.7	97.00	125	75
MAGNESIUM-ICP W	mg/L	JYH	10	9.3	93.00	120	80	DL	DL	DL	<0.5	0.5	10	DL	DL	125	75
MANGANESE-ICP W	mg/L	JYH	1	1.05	105.00	120	80	0.96	1.04	8.00	<0.01	0.01	1	0.96	96.00	125	75
SODIUM-ICP W	mg/L	JYH	10	9.1	91.00	120	80	DL	DL	DL	<0.5	0.5	10	DL	DL	125	75
NICKEL-ICP W	mg/L	JYH	1	1.11	111.00	120	80	0.96	1.02	6.06	<0.04	0.04	1	0.96	96.00	125	75
VANADIUM-ICP W	mg/L	JYH	1	0.97	97.00	120	80	0.92	0.98	6.32	<0.01	0.01	1	0.92	92.00	125	75
ZINC-ICP W	mg/L	JYH	1	1.06	106.00	120	80	0.98	1.05	6.90	<0.01	0.01	1	0.98	98.00	125	75
SILVER-ICP H	mg/kg	JYH	65.4	66	100.92	95.5	29.4	0.2	0.2	0.00	<0.5	0.5	0.2	0.2	100.00	125	75
ALUMINUM-ICP H	mg/kg	JYH	3490	3600	103.15	5410	1570	1.04	0.85	20.11	<5.0	5	1	1.04	104.00	125	75
BARIUM-ICP H	mg/kg	JYH	238	220	92.44	311	138	0.8	0.85	6.06	<0.5	0.5	1	0.8	80.00	125	75
BERYLLIUM-ICP H	mg/kg	JYH	152	140	92.11	213	97.2	0.79	0.82	3.73	<0.5	0.5	1	0.79	79.00	125	75
CALCIUM-ICP H	mg/kg	JYH	2410	2235	92.74	3400	1250	9.8	9.8	0.00	<10	10	10	9.8	98.00	125	75
CADMIUM-ICP H	mg/kg	JYH	90	86	95.56	130	51.3	0.78	0.82	5.00	<0.5	0.5	1	0.78	78.00	125	75
CHROMIUM-ICP H	mg/kg	JYH	167	160	95.81	236	90.3	DL	DL	DL	<1.0	1	1	DL	DL	125	75
POTASSIUM-ICP H	mg/kg	JYH	2310	2300	99.57	3050	1430	9.3	9.5	2.13	<50	50	10	9.3	93.00	125	75
MAGNESIUM-ICP H	mg/kg	JYH	2370	2300	97.05	3410	1420	9.6	9.6	0.00	<25	25	10	9.6	96.00	125	75
MANGANESE-ICP H	mg/kg	JYH	367	350	95.37	496	246	0.97	0.94	3.14	<0.5	0.5	1	0.97	97.00	125	75
SODIUM-ICP H	mg/kg	JYH	502	490	97.61	885	118	9.3	9.2	1.08	<25	25	10	9.3	93.00	125	75
NICKEL-ICP H	mg/kg	JYH	135	130	96.30	197	74.3	1.01	0.97	4.04	<2	2	1	1.01	101.00	125	75
LEAD-ICP H	mg/kg	JYH	162	150	92.59	230	85.8	0.97	0.98	1.03	<5	5	1	0.97	97.00	125	75
LEAD-FURNACE J	mg/kg	AJS	162	160	98.77	230	85.8	0.0231	0.0247	6.69	<0.005	0.005	0.025	0.0248	99.20	115	85

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
DL = DILUTED OUT

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

QUALITY ASSURANCE REPORT

OHIO VALLEY LABORATORY Date: 08/15/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
CADMIUM-FURNACE R	mg/L	AJS	0.002	0.0025	100.40	120	80	0.00246	0.0025	2.81	<0.0005	0.0005	0.0025	0.00246	98.40	115	85
THALLIUM-FURN R	mg/L	AJS	0.025	0.0267	106.80	120	80	< 0.001	< 0.001	0.00	<0.001	0.001	0.025	0.0242	96.80	115	85
COPPER-FURNACE V	mg/L	KHA	0.025	0.024	96.00	120	80	0.024	0.031	25.45	<0.005	0.005	0.025	0.018	72.00	115	85
ARSENIC-FURNACE K	mg/L	SPL	0.025	0.0235	94.00	120	80	0.023	0.024	4.26	<0.004	0.004	0.025	0.023	92.00	115	85
ARSENIC-FURNACE C	mg/L	SPL	0.025	0.0231	92.40	120	80	0.024	0.024	0.00	<0.004	0.004	0.025	0.024	96.00	115	85
ANTIMONY-FURN R	mg/L	AJS	0.025	0.0263	105.20	120	80	0.0221	0.0227	2.68	<0.006	0.006	0.025	0.0227	90.80	115	85
MERCURY W	mg/L	KRA	0.001	0.0010	106.00	120	80	0.00102	0.0010	0.99	<0.0002	0.0002	0.001	0.00101	101.00	125	75
MERCURY T	mg/L	KRA	0.001	0.0010	101.00	120	80	0.00104	0.0010	0.00	<0.0002	0.0002	0.001	0.00104	104.00	125	75
SILVER-ICP J	mg/L	JYH	0.2	0.2	100.00	120	80	0.2	0.2	0.00	<0.01	0.01	0.2	0.2	100.00	125	75
BARIUM-ICP J	mg/L	JYH	10	9.5	95.00	120	80	9.4	9.4	0.00	<0.01	0.01	10	9.4	94.00	125	75
CADMIUM-ICP J	mg/L	JYH	1	1.04	104.00	120	80	1.04	1.05	0.96	<0.01	0.01	1	1.04	104.00	125	75
CHROMIUM-ICP J	mg/L	JYH	1	1.07	107.00	120	80	1.05	1.05	0.00	<0.02	0.02	1	1.05	105.00	125	75
COPPER-ICP J	mg/L	JYH	1	0.98	98.00	120	80	0.97	0.97	0.00	<0.02	0.02	1	0.97	97.00	125	75
ARSENIC-ICP J	mg/L	JYH	1	1.12	112.00	120	80	1.13	1.08	4.52	<0.1	0.1	1	1.13	113.00	125	75
LEAD-ICP J	mg/L	JYH	1	1.12	112.00	120	80	1.12	1.08	3.64	<0.1	0.1	1	1.12	112.00	125	75
SELENIUM-ICP J	mg/L	JYH	1	0.97	97.00	120	80	0.98	1.01	3.02	<0.1	0.1	1	0.98	98.00	125	75
AMMONIA	mg/L	REB	2	1.95	97.50	125	75	< 0.1	< 0.1	0.00	<0.1	0.1	1	1.05	105.00	125	75
AMMONIA AA	mg/L	REB	2	1.62	81.00	117	75	< 0.1	< 0.1	0.00	<0.1	0.1	1	1.05	105.00	125	75
OIL & GREASE	mg/L	PJH	10	10.3	103.00	114	83	10.3	10.9	5.66	<1	1	10	10.9	109.00	125	75
LEAD-FURNACE L	mg/L	ALC	0.025	0.0269	107.80	120	80	0.02311	0.0230	0.35	<0.005	0.005	0.025	0.02311	92.44	115	85
TOC	mg/L	REB	25	24.4	97.60	110	90	410	420	2.41	<1	1	25	22.9	91.60	125	75
NITRATE A	mg/L	REB	1	0.92	92.00	113	90	< 0.05	< 0.05	0.00	<0.05	0.05	0.5	0.603	120.60	121	79
NITRATE B	mg/L	REB	1	0.919	91.90	113	90	< 0.05	< 0.05	0.00	<0.05	0.05	0.5	0.575	115.00	121	79
NITRATE C	mg/L	REB	1	1.08	108.00	113	90	0.45	0.48	6.45	<0.05	0.05	0.5	0.481	96.20	121	79
PHENOL	mg/L	JWR	0.5	0.491	98.20	114	85	0.2	0.2	0.00	<0.005	0.005	0.5	0.512	102.40	122	75
SULFIDE	mg/L	SCM	20	14.1	70.50	118	82	< 1	< 1	0.00	<1	1	---	---	---	---	---
MERCURY W	mg/L	KRA	0.001	0.0010	106.00	120	80	0.00103	0.0010	0.98	<0.0002	0.0002	0.001	0.00102	102.00	125	75

UCLX = Upper Control Limit (Standard)
LCLX = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
DL = DILUTED OUT

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 08/14/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
TSS A	mg/L	SCM	50	53	106.00	121	75	< 5	5	0.00	<5	5	50	52	104.00	125	75
TSS B	mg/L	SCM	50	51	102.00	121	75	31	31	0.00	<5	5	50	45	90.00	125	75
TSS C	mg/L	SCM	50	54	108.00	121	75	48	51	6.06	<5	5	50	74	148.00	125	75
TDS A	mg/L	SCM	500	490	98.00	114	80	450	460	2.20	<10	10	500	546	109.20	124	78
TDS B	mg/L	SCM	500	498	99.60	114	80	170	160	6.06	<10	10	500	510	102.00	124	78
TDS C	mg/L	SCM	500	496	99.20	114	80	820	830	1.21	<10	10	500	478	95.60	124	78

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

WORK ORDER #: [illegible] SAMPLE #: OIH-18A PAGE 1

SAMPLE #	TESTS	REASON	REMOVED BY (ADT)	REMOVED FROM	MOVED TO	RELIQ. BY	RET'D BY (ADT)	RET'D TO	REC'D BY	REASON
0,2,8,14	NO2	analy	OIH/8/11/1100	log-in	wetlab	JB	SCM/8/14/1605	WALK IN	BLG	STORAGE
2,8,14	solids	analy	OIH/8/14/0715	log-in	wet lab	BLG @ 730	SCM/8/14/1605	WALK IN	BLG	STORAGE
2,8,14	NO3	ANAL.	REB/8/15/1300	WALK-IN	wet lab	BLG	REB/8/15/1650	Archive	JW	Archive
5,11,17	Cl	ANAL	REB/8/16/0800	walk-in	wet lab	JB	REB/8/28/1400	Archive	BLG	Archive
4,10,16	TKN, Phos	ANALL	REB/8/16/1130	walk in	wet lab	JB	REB/8/17/1400	Archive	JB	Archive
03,09,16	HARD	ANALYSIS	RJS/08/17/1200	WALK IN	WET LAB	JB @ 12:15	RJS/08/17/1500	ARCHIVE	JB	ARCHIVE
6,12,18	NH3	"Analysis"	JWR 08/21/0820/45	Walk In	Wet Lab	BLG	JWR/08/28/1220	Archives	BLG	Archive
01-07-13	METALS	PREP.	DWH 08/22/95-1100	WALK-IN	MET-LAB	BLG	DWH 08/22/95-1610	ARCHIVE	BLG	ARCHIVE

1 of 2

NSI INC.

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME	INDUSTRIAL HYGIENE SAMPLE Y / N
5062-002	SALEM RIVER DREDGE	

SAMPLERS: (Signature) [signature] (Printed) EMILY RZOMIER

PARAMETERS

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	metal	TSS	NO3 (nitrate)	HARDNESS	TOC	TKN	CHLOR	NH3	TOTAL PHOSPHATE	REMARKS
SALM-METAL-A-DUR-001	8/10	14:05	✓		weir 50		✓									
SALM-TSS/NO3/-A-DUR-001	↓	↓	✓		↓			✓	✓							
SALM-HARD-A-DUR-001	↓	↓	✓		↓					✓						
SALM-TOC/TKN-A-DUR-001	↓	↓	✓		↓						✓	✓				
SALM-CHLOR-A-DUR-001	↓	↓	✓		↓								✓			
SALM-NH3-A-DUR-001	↓	↓	✓		↓									✓		
[illegible] 50	↓		✓		↓											
SALM-METAL-B-DUR-001	↓	14:16	✓		weir 50		✓									
SALM-TSS/NO3-B-DUR-001	↓	↓	✓		↓			✓	✓							
SALM-HARD-B-DUR-001	↓	↓	✓		↓					✓						
SALM-TOC/TKN-B-DUR-001	↓	↓	✓		↓						✓	✓				
SALM-CHLOR-B-DUR-001	↓	↓	✓		↓								✓			

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	8/10/95 18:30				
(Printed) EMILY RZOMIER		(Printed)	(Printed)		(Printed)

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
		Angelia R. Brown	8/11/95 10:00	Cooler Temp 5.6
(Printed)		(Printed) Angelia R Brown		

Cooler Sealed
Sx's recd w/a

Distribution: [illegible]al Plus One Accompanies Shipment (white and yellow); Copy to Coordinator F[illegible]s (pink).

Versar INC.

CHAIN OF CUSTODY RECORD

2 of 2

PROJECT NO.	PROJECT NAME	INDUSTRIAL HYGIENE SAMPLE Y / N
3062-002	SALEM RIVER DREDGE	

SAMPLERS: (Signature) (Printed)

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Metals	TSS	NO3 (Nitrate)	Hardness	TOC	TKN	Chlor	NH3	Total Phosphorus	REMARKS
SALM-NH3-B-DUR-001	8/10		✓											✓		
SALM-TP-B-DUR-001		↓	✓		↓											
SALM-METAL-C-DUR-001		14:30	✓		Weir 100		✓									
SALM-TSS/NO3-C-DUR-001			✓					✓	✓							
SALM-HARD-C DUR-001			✓							✓						
SALM-TOC/TKN-C-DUR-001			✓								✓	✓				
SALM-CHLOR-C-DUR-001			✓										✓			
SALM-NH3-C-DUR-001			✓											✓		
SALM-TP-C-DUR-001		↓	✓												✓	samples preserved incorrectly. Volume taken from TKN.
SALM-TP-A-DUR-001	↓	14:40	✓		Weir 0,0										✓	
																JL 8/15/95

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
(Printed) EMILY KRUMKAN	8/10/95 18:30	(Printed)	(Printed)		(Printed)

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
(Printed)		(Printed) Angelina R. Brown		Cooler Temp 5.6 / Pb/C Sealed 5x's sealed intact

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

KEMRON Environmental Services
109 Starlite Park
Marietta, Ohio 45750

Phone: (614) 373-4071

VERSAR, INC.
9200 Rumsey Road
Columbia, MD 21045-1934

Attn: Willie Burton

Order #: N5-09-404
Date: October 3, 1995 14:20
Work ID: 3062-002/Salem/River Dredge
Date Received: 09/21/95
Date Completed: 10/03/95

Client Code: VERSAR_MD331

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	SALEM-TKN/P/TOC-A-DUR-001	02	SALM-CL/NO3/TSS-A-DUR-001
03	SALM-METAL-A-DUR-001	04	SALM-NH3-A-DUR-001
05	SALM-HARD-A-DUR-001	06	SALEM/TKN/P/TOC-B-DUR-001
07	SALM-CL/NO3/TSS-B-DUR-001	08	SALM-METAL-B-DUR-001
09	SALM-NH3-B-DUR-001	10	SALM-HARD-B-DUR-001
11	SALM-TKN/P/TOC-C-DUR-001	12	SALM-CL/NO3/TSS-C-DUR-001
13	SALM-METAL-C-DUR-001	14	SALM-NH3-C-DUR-001
15	SALM-HARDNESS-C-DUR-001		

AS REQUESTED ALL TOTAL ANALYSES HAVE BEEN REPORTED ON A DRY WEIGHT BASIS WHERE APPLICABLE

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Certified by
June K. Morris

KEMRON ENVIRONMENTAL SERVICES
RESULTS BY SAMPLE

This is to certify that the following samples were analyzed using good laboratory practices to show the following results.

SAMPLE ID: 01 SALEM-TKN/P/TOC-A-DUR-0 Collected: 09/20/95 09:30 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Nitrogen, Total Kjeldahl	1.3	0.1	mg/L N	09/22/95	REB	351.2
Phosphorus, Total	0.2	0.1	mg/L P	09/22/95	REB	365.4
Total Organic Carbon	9	1	mg/L	09/29/95	REB	415.1

SAMPLE ID: 02 SALM-CL/NO3/TSS-A-DUR-00 Collected: 09/20/95 09:30 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Chloride	4400	100	mg/L Cl	09/27/95	REB	325.2
Nitrogen, Nitrate	1.4	0.05	mg/L N	09/26/95	REB	353.2
Total Suspended Solids	33	5	mg/L	09/25/95	PJH	160.2

SAMPLE ID: 03 SALM-METAL-A-DUR-001 Collected: 09/20/95 09:30 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Arsenic, Total	<0.1	0.1	mg/L As	09/30/95	JYH	200.7/6010A
Cadmium, Total	<0.01	0.01	mg/L Cd	09/29/95	JYH	200.7/6010A
Chromium, Total	<0.02	0.02	mg/L Cr	09/30/95	JYH	200.7/6010A
Copper, Total	<0.02	0.02	mg/L Cu	09/30/95	JYH	200.7/6010A
Lead, Total	<0.1	0.1	mg/L Pb	09/30/95	JYH	200.7/6010A
Mercury, Total	<0.0002	0.0002	mg/L Hg	09/28/95	JEC	245.1/7470A
Nickel, Total	<0.04	0.04	mg/L Ni	09/30/95	JYH	200.7/6010A
Zinc, Total	0.01	0.01	mg/L Zn	09/30/95	JYH	200.7/6010A

SAMPLE ID: 04 SALM-NH3-A-DUR-001 Collected: 09/20/95 09:30 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Nitrogen, Ammonia	0.4	0.1	mg/L N	09/28/95	REB	350.1

SAMPLE ID: 05 SALM-HARD-A-DUR-001 Collected: 09/20/95 09:30 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Hardness	90	5	mg/L CaCO3	09/28/95	RJS	130.2

SAMPLE ID: 06 SALEM/TKN/P/TOC-B-DUR-0 Collected: 09/20/95 09:50 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Nitrogen, Total Kjeldahl	3.4	0.1	mg/L N	09/22/95	REB	351.2
Phosphorus, Total	<0.1	0.1	mg/L P	09/22/95	REB	365.4
Total Organic Carbon	4	1	mg/L	09/29/95	REB	415.1

SAMPLE ID: 07 SALM-CL/NO3/TSS-B-DUR-00 Collected: 09/20/95 09:50 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Chloride	4700	100	mg/L Cl	09/27/95	REB	325.2
Nitrogen, Nitrate	1.4	0.05	mg/L N	09/26/95	REB	353.2
Total Suspended Solids	47	5	mg/L	09/25/95	PJH	160.2

SAMPLE ID: 08 SALM-METAL-B-DUR-001 Collected: 09/20/95 09:50 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Arsenic, Total	<0.1	0.1	mg/L As	09/30/95	JYH	200.7/6010A
Cadmium, Total	<0.01	0.01	mg/L Cd	09/29/95	JYH	200.7/6010A
Chromium, Total	<0.02	0.02	mg/L Cr	09/30/95	JYH	200.7/6010A
Copper, Total	<0.02	0.02	mg/L Cu	09/30/95	JYH	200.7/6010A
Lead, Total	<0.1	0.1	mg/L Pb	09/30/95	JYH	200.7/6010A
Mercury, Total	<0.0002	0.0002	mg/L Hg	09/28/95	JEC	245.1/7470A
Nickel, Total	<0.04	0.04	mg/L Ni	09/30/95	JYH	200.7/6010A
Zinc, Total	<0.01	0.01	mg/L Zn	09/30/95	JYH	200.7/6010A

SAMPLE ID: 09 SALM-NH3-B-DUR-001 Collected: 09/20/95 09:50 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Nitrogen, Ammonia	0.1	0.1	mg/L N	09/28/95	REB	350.1

SAMPLE ID: 10 SALM-HARD-B-DUR-001 Collected: 09/20/95 09:50 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Hardness	1700	40	mg/L CaCO3	09/28/95	RJS	130.2

SAMPLE ID: 11 SALM-TKN/P/TOC-C-DUR-001 Collected: 09/20/95 10:05 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Nitrogen, Total Kjeldahl	0.3	0.1	mg/L N	09/22/95	REB	351.2
Phosphorus, Total	<0.1	0.1	mg/L P	09/22/95	REB	365.4
Total Organic Carbon	4	1	mg/L	09/29/95	REB	415.1

SAMPLE ID: 12 SALM-CL/NO3/TSS-C-DUR-00 Collected: 09/20/95 10:05 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Chloride	4700	100	mg/L Cl	09/27/95	REB	325.2
Nitrogen, Nitrate	1.4	0.05	mg/L N	09/26/95	REB	353.2
Total Suspended Solids	42	5	mg/L	09/25/95	PJH	160.2

SAMPLE ID: 13 SALM-METAL-C-DUR-001 Collected: 09/20/95 10:05 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Arsenic, Total	<0.1	0.1	mg/L As	09/30/95	JYH	200.7/6010A
Cadmium, Total	<0.01	0.01	mg/L Cd	09/29/95	JYH	200.7/6010A
Chromium, Total	<0.02	0.02	mg/L Cr	09/30/95	JYH	200.7/6010A

SAMPLE ID: 13 SALM-METAL-C-DUR-001 Collected: 09/20/95 10:05 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Copper, Total	<0.02	0.02	mg/L Cu	09/30/95	JYH	200.7/6010A
Lead, Total	<0.1	0.1	mg/L Pb	09/30/95	JYH	200.7/6010A
Mercury, Total	<0.0002	0.0002	mg/L Hg	09/28/95	JEC	245.1/7470A
Nickel, Total	<0.04	0.04	mg/L Ni	09/30/95	JYH	200.7/6010A
Zinc, Total	<0.01	0.01	mg/L Zn	09/30/95	JYH	200.7/6010A

SAMPLE ID: 14 SALM-NH3-C-DUR-001 Collected: 09/20/95 10:05 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Nitrogen, Ammonia	0.1	0.1	mg/L N	09/28/95	REB	350.1

SAMPLE ID: 15 SALM-HARDNESS-C-DUR-001 Collected: 09/20/95 10:05 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Hardness	1700	40	mg/L CaCO3	09/28/95	RJS	130.2

EPA Method 200.7/SW6010A (ICP)- Arsenic

EPA Method 200.7/SW6010A (ICP) - Cadmium

EPA Method 325.2 - Colorimetric, Automated Ferricyanide - Chloride

EPA Method 200.7/SW6010A (ICP) - Chromium

EPA Method 200.7/SW6010A (ICP) - Copper

EPA Method SW3005 and/or SW3020 - Metals Digestion

EPA Method 130.2 Hardness - Titrimetric

EPA Method 245.1/SW7470A (Cold Vapor) - Mercury

EPA Method 350.1 - Ammonia - Distillation and Automated Phenate

EPA Method 200.7/SW6010A (ICP) - Nickel

EPA Method 353.2 - Automated Cadmium Reduction - Nitrate

METHOD 200.7/SW6010 (ICP) - Lead

EPA Method 365.4 - Automated Colorimetric, Ascorbic Acid - Phosphorus, Total

EPA Method 351.2 - Automated, Colorimetric - Total Kjeldahl Nitrogen

EPA Method 415.1 - Total Organic Carbon

EPA Method 160.2 (Dried at 103-105C) - Total Suspended Solids

EPA Method 200.7/SW6010A (ICP) - Zinc

KEMRON ANALYST LIST

Ohio Valley Laboratory

09/19/95

AJS - - Ashlee J. Scott
ALC - - Ann L. Clark
CEB - - Chad E. Barnes
DIH - - Deanna I. Hesson
DJP - - Douglas J. Poling
DLP - - Dorothy L. Payne
DST - - Dennis S. Tepe
ECL - - Eric C. Lawson
EDG - - Eric D. Gerkin
FEH - - Fay E. Harmon
FRM - - Fred R. Montgomery
GWH - - George W. Hutchison
HV - - Hema Vilasagar
JEC - - Jesse E. Chapman
JYH - - Ji Y. Hu
JKM - - June K. Morris
JLM - - Joy L. Mullins
JLH - - Janice L. Holland
JLL - - Janice L. Landshof
JMM - - Jim M. Monk
JWR - - John W. Richards
KHA - - Kim H. Archer
KMM - - Kevin M. McDonald
KPO - - Kevin P. Overstreet
KRA - - Kathy R. Albertson
LMW - - Lisa M. Wagner
MBJ - - Matthew B. Jarrell
MDA - - Mike D. Albertson
MDC - - Michael D. Cochran
MLS - - Michael L. Schimmel
PJH - - Pamela J. Holtz
REB - - Russell E. Burton
REK - - Robert E. Kyer
RJS - - Rick J. Santos
RWC - - Rodney W. Campbell
SCM - - Susan C. Moellendick
SCW - - Stephen C. West
SLT - - Stephanie L. Tepe
SPL - - Steve P. Learn
TAS - - Tamela A. Sams
TLD - - Teresa L. Davis
VC - - Vicki Collier
WCD - - Wade C. Dawson

INORGANIC QA/QC

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QUALITY ASSURANCE D... REPORT

OHIO VALLEY LABORATORY Date: 09/30/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
SILVER-ICP K	mg/L	JYH	0.2	0.18	90.00	120	80	0.19	0.18	5.41	<0.01	0.01	0.2	0.19	95.00	125	75
ALUMINUM-ICP K	mg/L	JYH	1	1.12	112.00	120	80	0.91	0.91	0.00	<0.1	0.1	1	0.91	91.00	125	75
BARIUM-ICP K	mg/L	JYH	10	8.2	82.00	120	80	8.7	8.5	2.33	<0.01	0.01	10	8.7	87.00	125	75
BERYLLIUM-ICP K	mg/L	JYH	1	0.86	86.00	120	80	0.9	0.88	2.25	<0.01	0.01	1	0.9	90.00	125	75
CALCIUM-ICP K	mg/L	JYH	10	11.6	116.00	120	80	10.3	10.1	1.96	<0.2	0.2	10	10.3	103.00	125	75
CADMIUM-ICP K	mg/L	JYH	1	0.97	97.00	120	80	1.02	1	1.98	<0.01	0.01	1	1	100.00	125	75
COBALT-ICP K	mg/L	JYH	1	0.97	97.00	120	80	1.03	0.98	4.98	<0.02	0.02	1	1.03	103.00	125	75
CHROMIUM-ICP K	mg/L	JYH	1	0.94	94.00	120	80	0.99	0.96	3.08	<0.02	0.02	1	0.99	99.00	125	75
COPPER-ICP K	mg/L	JYH	1	0.87	87.00	120	80	0.92	0.89	3.31	<0.02	0.02	1	0.92	92.00	125	75
IRON-ICP K	mg/L	JYH	1	0.95	95.00	120	80	0.99	0.97	2.04	<0.04	0.04	1	0.99	99.00	125	75
MAGNESIUM-ICP K	mg/L	JYH	10	8.6	86.00	120	80	9.1	8.7	4.49	<0.5	0.5	10	9.1	91.00	125	75
MANGANESE-ICP K	mg/L	JYH	1	0.95	95.00	120	80	0.97	1	3.05	<0.01	0.01	1	0.97	97.00	125	75
SODIUM-ICP K	mg/L	JYH	10	9.8	98.00	120	80	9	8.8	2.25	<0.5	0.5	10	9	90.00	125	75
NICKEL-ICP K	mg/L	JYH	1	0.98	98.00	120	80	1.04	1.01	2.93	<0.04	0.04	1	1.04	104.00	125	75
VANADIUM-ICP K	mg/L	JYH	1	0.87	87.00	120	80	0.92	0.89	3.31	<0.01	0.01	1	0.92	92.00	125	75
ZINC-ICP K	mg/L	JYH	1	1.04	104.00	120	80	1.05	1.03	1.92	<0.01	0.01	1	1.05	105.00	125	75
ARSENIC-ICP K	mg/L	JYH	1	1.01	101.00	120	80	1.06	1.04	1.90	<0.1	0.1	1	1.06	106.00	125	75
LEAD-ICP K	mg/L	JYH	1	1.06	106.00	120	80	1.12	1.09	2.71	<0.1	0.1	1	1.12	112.00	125	75
POTASSIUM-ICP N	mg/L	JYH	10	9.7	97.00	120	80	8.7	8.7	0.00	<1	1	10	8.7	87.00	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
NR = NOT REQUIRED
DL = DILUTED OUT

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 09/29/95

			REFERENCE STANDARD					DUPLICATE SAMPLE			BLANK		MATRIX/MEDIA SPIKE				
Parameter	Units	Analyst	Known	Result	Rec.(%)	UCLx	LCLx	Result1	Result2	RPD (%)	Result	MDL	Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
PHENOL	mg/L	RJS	0.05	0.038	76.00	125	75	< 0.005	< 0.005	0.00	<0.005	0.005	0.05	0.0469	93.80	125	75
TOC A	mg/L	REB	5	4.82	96.40	110	90	2	2	0.00	<1	1	5	4.82	96.40	125	75
TOC B	mg/L	REB	5	4.95	99.00	110	90	9	9	0.00	<1	1	5	4.3	86.00	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
NR = NOT REQUIRED
DL = DILUTED OUT

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

QUALITY ASSURANCE D[illegible] REPORT

OHIO VALLEY LABORATORY Date: 09/29/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
MERCURY T	mg/L	KRA	0.001	0.0009	98.00	120	80	0.00105	0.0010	2.90	<0.0002	0.0002	0.001	0.00105	105.00	125	75
MERCURY P	mg/kg	TAS	9.9	11.15	112.63	15.6	5.25	0.00091	0.0009	1.09	<0.0002	0.0002	0.001	0.00092	92.00	115	85
ANTIMONY-FURN A2	mg/L	JEC	0.025	0.0254	101.60	120	80	0.024	0.0254	5.67	<0.02	0.02	0.025	0.0254	101.60	115	85
ANTIMONY-FURN C	mg/L	AJS	0.025	0.0259	103.60	120	80	0.0184	0.0171	7.32	<0.02	0.02	0.025	0.0268	107.20	115	85
SILVER-FURNACE A2	mg/L	AJS	0.005	0.0045	91.20	120	80	0.00419	0.0043	3.06	<0.004	0.004	0.005	0.00443	88.60	115	85
SILVER-FURNACE A	mg/kg	AJS	65.4	61.1	93.43	95.5	29.4	0.00486	0.0049	0.82	<0.004	0.004	0.005	0.0049	98.00	115	85
SILVER-FURNACE C	mg/L	AJS	0.005	0.0043	86.40	120	80	0.0042	0.0044	6.23	<0.004	0.004	0.005	0.00489	97.80	115	85
BERYLLIUM-FURN A2	mg/L	AJS	0.002	0.0024	96.00	120	80	0.00269	0.0027	3.65	<0.0005	0.0005	0.0025	0.00267	106.80	115	85
LEAD-FURNACE C	mg/L	AJS	0.025	0.0232	92.80	120	80	0.0199	0.0195	2.03	<0.005	0.005	0.025	0.0228	91.20	115	85
CADMIUM-FURNACE C	mg/L	AJS	0.002	0.0023	92.40	120	80	0.00195	0.0019	0.51	<0.0005	0.0005	0.0025	0.00248	99.20	115	85
THALLIUM-FURN A2	mg/L	AJS	0.025	0.0214	85.60	120	80	0.0214	0.0217	1.39	<0.005	0.005	0.025	0.0234	93.60	115	85
THALLIUM-FURN C	mg/L	AJS	0.025	0.0211	84.40	120	80	0.0178	0.0185	3.86	<0.005	0.005	0.025	0.0238	95.20	115	85
SILVER-ICP N	mg/L	JYH	0.2	0.2	100.00	120	80	0.18	0.18	0.00	<0.01	0.01	0.2	0.18	90.00	125	75
ALUMINUM-ICP N	mg/L	JYH	1	1.02	102.00	120	80	5.8	5.5	5.31	<0.1	0.1	1	DL	DL	125	75
BARIUM-ICP N	mg/L	JYH	10	9.9	99.00	120	80	8.6	8.5	1.17	<0.01	0.01	10	8.6	86.00	125	75
BERYLLIUM-ICP N	mg/L	JYH	1	0.99	99.00	120	80	0.89	0.9	1.12	<0.01	0.01	1	0.89	89.00	125	75
CALCIUM-ICP N	mg/L	JYH	10	10	100.00	120	80	9.3	10.1	8.25	<0.2	0.2	10	9.3	93.00	125	75
CADMIUM-ICP N	mg/L	JYH	1	1.01	101.00	120	80	0.92	0.94	2.15	<0.01	0.01	1	0.92	92.00	125	75
COBALT-ICP N	mg/L	JYH	1	1	100.00	120	80	0.92	0.93	1.08	<0.02	0.02	1	0.92	92.00	125	75
CHROMIUM-ICP N	mg/L	JYH	1	0.99	99.00	120	80	0.92	0.93	1.08	<0.02	0.02	1	0.92	92.00	125	75
COPPER-ICP N	mg/L	JYH	1	1.01	101.00	120	80	0.89	0.89	0.00	<0.02	0.02	1	0.89	89.00	125	75
IRON-ICP N	mg/L	JYH	1	1.01	101.00	120	80	4.6	4.5	2.20	<0.04	0.04	1	DL	DL	125	75
POTASSIUM-ICP N	mg/L	JYH	10	9.7	97.00	120	80	8.7	8.7	0.00	<1	1	10	8.7	87.00	125	75
MAGNESIUM-ICP N	mg/L	JYH	10	9.8	98.00	120	80	8.8	8.8	0.00	<0.5	0.5	10	8.8	88.00	125	75
MANGANESE-ICP N	mg/L	JYH	1	1.01	101.00	120	80	0.92	0.93	1.08	<0.01	0.01	1	0.92	92.00	125	75
SODIUM-ICP N	mg/L	JYH	10	9.9	99.00	120	80	8.7	8.7	0.00	<0.5	0.5	10	8.7	87.00	125	75
NICKEL-ICP N	mg/L	JYH	1	1.03	103.00	120	80	0.95	0.98	3.11	<0.04	0.04	1	0.95	95.00	125	75
ANTIMONY-ICP N	mg/L	JYH	1	1.04	104.00	120	80	0.92	0.91	1.09	<0.2	0.2	1	0.92	92.00	125	75
VANADIUM-ICP N	mg/L	JYH	1	0.97	97.00	120	80	0.88	0.89	1.13	<0.01	0.01	1	0.89	89.00	125	75
ZINC-ICP N	mg/L	JYH	1	1.02	102.00	120	80	0.93	0.94	1.07	<0.01	0.01	1	0.93	93.00	125	75
ARSENIC-ICP N	mg/L	JYH	1	1.06	106.00	120	80	0.99	0.95	4.12	<0.1	0.1	1	0.99	99.00	125	75
LEAD-ICP N	mg/L	JYH	1	0.97	97.00	120	80	0.94	0.99	5.18	<0.1	0.1	1	0.94	94.00	125	75
SELENIUM-ICP N	mg/L	JYH	1	0.97	97.00	120	80	0.84	0.88	4.65	<0.1	0.1	1	0.84	84.00	125	75
TIN-ICP N	mg/L	JYH	5	5.2	104.00	120	80	2.8	2.6	7.41	<0.5	0.5	2.5	2.8	112.00	125	75
NITRATE A	mg/L	REB	1	0.99	99.00	113	90	< 0.05	< 0.05	0.00	<0.05	0.05	0.5	0.493	98.60	121	79
NITRATE B	mg/L	REB	1	1	100.00	113	90	< 0.05	< 0.05	0.00	<0.05	0.05	0.5	0.523	104.60	121	79
NITRATE C	mg/L	REB	1	1	100.00	113	90	1.4	1.4	0.00	<0.05	0.05	0.5	0.522	104.40	121	79
NITRATE D	mg/L	REB	1	1	100.00	113	90	53	53	0.00	<0.05	0.05	0.5	0.492	98.40	121	79
NITRATE E	mg/L	REB	1	0.979	97.90	113	90	1.5	1.5	0.00	<0.05	0.05	0.5	0.455	91.00	121	79

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
NR = NOT REQUIRED
DL = DILUTED OUT

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 09/28/95

			REFERENCE STANDARD					DUPLICATE SAMPLE			BLANK		MATRIX/MEDIA SPIKE				
Parameter	Units	Analyst	Known	Result	Rec.(%)	UCLx	LCLx	Result1	Result2	RPD (%)	Result	MDL	Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
AMMONIA A	mg/L	REB	2	2	100.00	125	75	< 0.1	< 0.1	0.00	<0.1	0.1	1	0.977	97.70	125	75
AMMONIA B	mg/L	REB	2	2.16	108.00	125	75	0.8	0.6	28.57	<0.1	0.1	1	0.96	96.00	125	75
AMMONIA AA A	mg/L	REB	2	2	100.00	117	75	1.1	0.91	18.91	<0.1	0.1	1	0.99	99.00	125	75
AMMONIA AA B	mg/L	REB	2	1.97	98.50	117	75	0.36	0.37	2.74	<0.1	0.1	1	1.06	106.00	125	75
AMMONIA AA C	mg/L	REB	2	1.88	94.00	117	75	0.6	0.61	1.65	<0.1	0.1	1	0.872	87.20	125	75
CYANIDE-SOIL	mg/kg	JWR	20	21.4	107.00	110	90	< 0.5	< 0.5	0.00	<0.50	0.5	10	9.92	99.20	125	75
CYANIDE	mg/L	JWR	0.4	0.424	106.00	110	90	< 0.01	< 0.01	0.00	<0.01	0.01	0.2	0.211	105.50	125	75
SILVER-ICP T	mg/kg	JYH	202	160	79.21	295	101	0.1	0.1	0.00	<0.01	0.01	0.2	0.17	85.00	125	75
BARIUM-ICP T	mg/kg	JYH	88.6	83	93.68	116	61.9	10.7	10.5	1.89	<0.01	0.01	10	10	100.00	125	75
CADMIUM-ICP T	mg/kg	JYH	180	160	88.89	259	101	0.85	0.83	2.38	<0.01	0.01	1	0.85	85.00	125	75
CHROMIUM-ICP T	mg/kg	JYH	250	230	92.00	352	134	0.8	0.8	0.00	<0.02	0.02	1	0.8	80.00	125	75
COPPER-ICP T	mg/kg	JYH	62.4	57	91.35	90.4	35.6	0.86	0.81	5.99	<0.02	0.02	1	0.86	86.00	125	75
NICKEL-ICP T	mg/kg	JYH	171	160	93.57	249	93.1	0.8	0.79	1.26	<0.04	0.04	1	0.8	80.00	125	75
ZINC-ICP T	mg/kg	JYH	630	570	90.48	938	341	0.85	0.82	3.59	<0.01	0.01	1	0.85	85.00	125	75
LEAD-ICP T	mg/kg	JYH	94.8	84	88.61	135	49.8	0.8	0.89	10.65	<0.1	0.1	1	0.8	80.00	125	75
CHROMIUM-FURN V	mg/L	JEC	0.025	0.0259	103.60	120	80	0.0375	0.0378	0.80	<0.005	0.005	0.025	0.0194	77.60	115	85
LEAD-FURNACE D	mg/kg	KHA	94.8	81.2	85.65	135	49.8	0.0842	0.0785	7.01	<0.005	0.005	0.025	0.0232	92.80	115	85
MERCURY A1	mg/kg	JEC	9.99	12.6	126.13	15.6	5.25	0.198	0.191	3.60	<0.0002	0.0002	0.001	0.00097	97.00	115	85
MERCURY W	mg/L	JEC	0.001	0.0010	105.00	120	80	0.00105	0.0010	0.95	<0.0002	0.0002	0.001	0.00105	105.00	115	85
ARSENIC-ICP W	mg/L	TAS	1	0.9923	99.23	120	80	1.031	1.029	0.19	<0.1	0.1	1	1.031	103.10	125	75
BARIUM-ICP W	mg/L	TAS	10	10.56	105.60	120	80	9.702	9.594	1.12	<0.01	0.01	10	9.702	97.02	125	75
CADMIUM-ICP W	mg/L	TAS	1	1.019	101.90	120	80	0.998	0.9864	1.17	<0.01	0.01	1	0.998	99.80	125	75
CHROMIUM-ICP W	mg/L	TAS	1	1.052	105.20	120	80	1.002	0.9922	0.98	<0.02	0.02	1	1.002	100.20	125	75
LEAD-ICP W	mg/L	TAS	1	1.039	103.90	120	80	0.985	0.9731	1.22	<0.1	0.1	1	0.985	98.50	125	75
SELENIUM-ICP W	mg/L	TAS	1	1.039	103.90	120	80	0.9711	0.9975	2.68	<0.1	0.1	1	0.9711	97.11	125	75
SILVER-ICP W	mg/L	TAS	0.2	0.2078	103.90	120	80	0.1981	0.1931	2.56	<0.01	0.01	0.2	0.1981	99.05	125	75
CHROMIUM-ICP E	mg/L	TAS	1	0.9701	97.01	120	80	0.979	0.9365	4.44	<0.02	0.02	1	0.979	97.90	125	75
ZINC-ICP E	mg/L	TAS	1	0.968	96.80	120	80	1.036	0.9602	7.59	<0.01	0.01	1	1.036	103.60	125	75
IRON-ICP E	mg/L	TAS	1	0.9616	96.16	120	80	1.542	1.389	10.44	<0.04	0.04	1	1.389	138.90	125	75
BARIUM-ICP E	mg/L	TAS	10	9.232	92.32	120	80	9.635	9.245	4.13	<0.01	0.01	10	9.635	96.35	125	75
CADMIUM-FURNACE X	mg/L	AJS	0.002	0.0023	95.60	120	80	0.00244	0.0024	0.00	<0.0005	0.0005	0.0025	0.00244	97.60	115	85
LEAD-FURNACE U	mg/L	AJS	0.025	0.0236	94.40	120	80	< 0.005	< 0.005	0.00	<0.005	0.005	0.025	0.0237	94.80	115	85
ANTIMONY-FURN X	mg/L	AJS	0.025	0.0255	102.00	120	80	0.0206	0.0218	5.66	<0.02	0.02	0.025	0.0243	97.20	115	85
ANTIMONY-FURN U	mg/L	AJS	0.025	0.0232	92.80	120	80	0.0268	0.0247	8.16	<0.02	0.02	0.025	0.0247	98.80	115	85
LEAD-FURNACE X	mg/L	AJS	0.025	0.0237	94.88	120	80	0.02423	0.0248	2.61	<0.005	0.005	0.025	0.02487	99.48	115	85
LEAD-ICP F	mg/L	JYH	1	0.93	93.00	120	80	0.96	0.91	5.35	<0.1	0.1	1	0.96	96.00	125	75
OIL & GREASE A	mg/L	PJH	10	9.3	93.00	114	83	9.3	8.3	11.36	<1	1	10	8.3	83.00	125	75
OIL & GREASE B	mg/L	PJH	10	9.8	98.00	114	83	9.8	9.6	2.06	<1	1	10	9.6	96.00	125	75
CHROMIUM (6)	mg/L	PJH	0.1	0.106	106.00	114	89	< 0.01	< 0.01	0.00	<0.01	0.01	0.1	0.105	105.00	120	77

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
NR = NOT REQUIRED
DL = DILUTED OUT

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

QUALITY ASSURANCE DA[illegible] REPORT

OHIO VALLEY LABORATORY Date: 09/27/95

			REFERENCE STANDARD					DUPLICATE SAMPLE			BLANK		MATRIX/MEDIA SPIKE				
Parameter	Units	Analyst	Known	Result	Rec.(%)	UCLx	LCLx	Result1	Result2	RPD (%)	Result	MDL	Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
CHROMIUM-FURN A2	mg/L	KHA	0.025	0.0241	96.40	120	80	0.0257	0.0259	0.78	<0.005	0.005	0.025	0.0286	114.40	115	85
MERCURY T	mg/L	TAS	0.001	0.0009	96.00	120	80	0.00094	0.0008	8.82	<0.0002	0.0002	0.001	0.000947	94.70	115	85
COPPER-FURNACE A2	mg/L	JEC	0.025	0.0254	101.60	120	80	0.0326	0.032	1.86	<0.005	0.005	0.025	0.0282	112.80	115	85
COPPER-FURNACE X	mg/L	JEC	0.025	0.0275	110.00	120	80	0.0198	0.0202	2.00	<0.005	0.005	0.025	0.0283	113.20	115	85
ARSENIC-FURNACE Q	mg/L	AJS	0.025	0.0253	101.56	120	80	0.0239	0.0237	0.80	<0.004	0.004	0.025	0.0239	95.60	115	85
ARSENIC-FURNACE K	mg/kg	JEC	178	172	96.63	265	87.4	1	1	0.00	<0.004	0.004	0.025	0.025	100.00	115	85
THALLIUM-FURN K	mg/kg	KHA	73.5	65	88.44	110	36.7	0.0109	0.0108	0.92	<0.005	0.005	0.025	0.0226	90.40	115	85
LEAD-FURNACE I	mg/kg	KHA	162	151	93.21	230	85.8	0.0116	0.0127	9.05	<0.005	0.005	0.025	0.0262	104.80	115	85
SELENIUM-FURN Q	mg/L	JEC	0.025	0.0242	96.80	120	80	0.0048	0.005	4.08	<0.004	0.004	0.025	0.0245	98.00	115	85
SELENIUM-FURN B	mg/L	JEC	0.025	0.0244	97.60	120	80	0.0167	0.0175	4.68	<0.004	0.004	0.025	0.0248	99.20	115	85
THALLIUM-FURN I	mg/kg	AJS	127	135	106.30	190	63.3	0.0229	0.0236	3.01	<0.005	0.005	0.025	0.0245	98.00	115	85
SILVER-ICP F	mg/L	JYH	0.2	0.18	90.00	120	80	0.18	0.18	0.00	<0.01	0.01	0.2	0.18	90.00	125	75
BARIUM-ICP F	mg/L	JYH	10	8.7	87.00	120	80	9	9	0.00	<0.01	0.01	10	9	90.00	125	75
CALCIUM-ICP F	mg/L	JYH	10	9.4	94.00	120	80	9.5	9.7	2.08	<0.2	0.2	10	9.5	95.00	125	75
CADMIUM-ICP F	mg/L	JYH	1	0.89	89.00	120	80	0.94	0.94	0.00	<0.01	0.01	1	0.94	94.00	125	75
CHROMIUM-ICP F	mg/L	JYH	1	0.92	92.00	120	80	0.96	0.97	1.04	<0.02	0.02	1	0.96	96.00	125	75
COPPER-ICP F	mg/L	JYH	1	0.87	87.00	120	80	0.94	0.94	0.00	<0.02	0.02	1	0.94	94.00	125	75
NICKEL-ICP F	mg/L	JYH	1	0.94	94.00	120	80	1	1	0.00	<0.04	0.04	1	1	100.00	125	75
ZINC-ICP F	mg/L	JYH	1	0.91	91.00	120	80	0.95	0.96	1.05	<0.01	0.01	1	0.95	95.00	125	75
ARSENIC-ICP F	mg/L	JYH	1	0.9	90.00	120	80	0.99	0.95	4.12	<0.1	0.1	1	0.9	90.00	125	75
LEAD-ICP F	mg/L	JYH	1	0.93	93.00	120	80	0.97	0.94	3.14	<0.1	0.1	1	0.97	97.00	125	75
SELENIUM-ICP F	mg/L	JYH	1	0.87	87.00	120	80	0.88	0.9	2.25	<0.1	0.1	1	0.88	88.00	125	75
CYANIDE	mg/L	JWR	0.4	0.434	108.50	110	90	< 0.01	< 0.01	0.00	<0.01	0.01	0.2	0.221	110.50	125	75
MBAS	mg/L	RJS	1	1.05	105.00	117	75	< 0.1	< 0.1	0.00	<0.1	0.1	1	1.05	105.00	122	75
ALKALINITY A	mg/L	REB	200	192	96.00	109	79	550	530	3.70	<10	10	---	---	---	---	---
ALKALINITY B	mg/L	REB	200	168	84.00	109	79	730	700	4.20	<10	10	---	---	---	---	---
ALKALINITY C	mg/L	REB	200	201	100.50	109	79	170	160	6.06	<10	10	200	194	97.00	108	75
CHLORIDE A	mg/L	REB	50	50.9	101.80	108	97	37	37	0.00	<2	2	20	20.3	101.50	113	80
CHLORIDE B	mg/L	REB	50	51.2	102.40	108	97	270	270	0.00	<2	2	20	19.9	99.50	113	80
CHLORIDE C	mg/L	REB	50	51.2	102.40	108	97	23	23	0.00	<2	2	20	19.1	95.50	113	80
CHLORIDE D	mg/L	REB	50	51.6	103.20	108	97	70	69	1.44	<2	2	20	17.7	88.50	113	80
NITRITE	mg/L	PJH	0.1	0.101	101.00	125	75	< 0.01	< 0.01	0.00	<0.01	0.01	0.1	0.092	92.00	125	75

UCLx = Upper Control Limit (Standard)
LCLX = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
NR = NOT REQUIRED
DL = DILUTED OUT

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 09/26/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
CADMIUM-FURNACE	mg/L	JEC	0.002	0.0024	96.00	120	80	0.00231	0.0023	2.56	<0.0005	0.0005	0.0025	0.00242	96.80	115	85
SELENIUM-FURNACE	mg/kg	JEC	109	126	115.60	162	56.5	0.0041	0.0042	2.41	<0.004	0.004	0.025	0.0233	93.20	115	85
LEAD-FURNACE	mg/L	JEC	0.025	0.0237	94.80	120	80	0.0258	0.0256	0.78	<0.005	0.005	0.025	0.0228	91.20	115	85
ARSENIC-FURNACE B	mg/L	KHA	0.025	0.0252	100.80	120	80	0.0253	0.0266	5.01	<0.004	0.004	0.025	0.0265	106.00	115	85
NITRATE A	mg/L	REB	1	1.03	103.00	113	90	0.7	0.7	0.00	<0.05	0.05	0.5	0.54	108.00	121	79
NITRATE B	mg/L	REB	1	1.06	106.00	113	90	< 0.05	< 0.05	0.00	<0.05	0.05	0.5	0.561	112.20	121	79
NITRATE C	mg/L	REB	1	1.03	103.00	113	90	0.7	0.7	0.00	<0.05	0.05	0.5	0.568	113.60	121	79
THALLIUM-FURN X	mg/L	KHA	0.025	0.0256	102.40	120	80	0.0236	0.0249	5.36	<0.005	0.005	0.025	0.0248	99.20	115	85
SELENIUM-FURN O	mg/kg	JEC	109	111	101.83	162	56.5	< 1	< 1	0.00	<0.004	0.004	0.025	0.0245	98.00	115	85
SELENIUM-FURN Y	mg/L	JEC	0.025	0.0219	87.60	120	80	0.0141	0.0145	2.80	<0.004	0.004	0.025	0.0229	91.60	115	85
SELENIUM-FURN K	mg/kg	JEC	185	194	104.86	276	97	< 1	< 1	0.00	<0.004	0.004	0.025	0.0239	95.60	115	85
LEAD-FURNACE A2	mg/L	JEC	0.025	0.0237	94.80	120	80	0.0258	0.0256	0.78	<0.005	0.005	0.025	0.0228	91.20	115	85
LEAD-FURNACE H	mg/L	JEC	0.025	0.0246	98.40	120	80	0.023	0.0232	0.87	<0.005	0.005	0.025	0.0235	94.00	115	85
SILVER-ICP J	mg/L	JYH	0.2	0.2	100.00	120	80	0.19	0.19	0.00	<0.01	0.01	0.2	0.19	95.00	125	75
ALUMINUM-ICP J	mg/L	JYH	1	0.97	97.00	120	80	0.9	1.01	11.52	<0.1	0.1	1	0.9	90.00	125	75
BARIUM-ICP J	mg/L	JYH	10	9.6	96.00	120	80	8.6	8.7	1.16	<0.01	0.01	10	8.6	86.00	125	75
BERYLLIUM-ICP J	mg/L	JYH	1	0.97	97.00	120	80	0.94	0.96	2.11	<0.01	0.01	1	0.94	94.00	125	75
CALCIUM-ICP J	mg/L	JYH	10	9.8	98.00	120	80	10.3	11	6.57	<0.2	0.2	10	10.3	103.00	125	75
CADMIUM-ICP J	mg/L	JYH	1	0.99	99.00	120	80	1.01	0.98	3.02	<0.01	0.01	1	1.01	101.00	125	75
COBALT-ICP J	mg/L	JYH	1	0.98	98.00	120	80	1.01	1.04	2.93	<0.02	0.02	1	1.01	101.00	125	75
CHROMIUM-ICP J	mg/L	JYH	1	0.97	97.00	120	80	0.98	1.02	4.00	<0.02	0.02	1	0.98	98.00	125	75
COPPER-ICP J	mg/L	JYH	1	0.98	98.00	120	80	0.89	0.91	2.22	<0.02	0.02	1	0.89	89.00	125	75
IRON-ICP J	mg/L	JYH	1	0.98	98.00	120	80	0.99	1.07	7.77	<0.04	0.04	1	0.99	99.00	125	75
POTASSIUM-ICP J	mg/L	JYH	10	9.6	96.00	120	80	8.6	9.1	5.65	<1	1	10	8.6	86.00	125	75
MAGNESIUM-ICP J	mg/L	JYH	10	9.6	96.00	120	80	9	9.1	1.10	<0.5	0.5	10	9	90.00	125	75
MANGANESE-ICP J	mg/L	JYH	1	0.99	99.00	120	80	0.99	1.03	3.96	<0.01	0.01	1	1.03	103.00	125	75
SODIUM-ICP J	mg/L	JYH	10	9.6	96.00	120	80	8.2	8.9	8.19	<0.5	0.5	10	8.2	82.00	125	75
NICKEL-ICP J	mg/L	JYH	1	0.99	99.00	120	80	1.01	1.06	4.83	<0.04	0.04	1	1.01	101.00	125	75
VANADIUM-ICP J	mg/L	JYH	1	0.94	94.00	120	80	0.93	0.95	2.13	<0.01	0.01	1	0.93	93.00	125	75
ZINC-ICP J	mg/L	JYH	1	1.01	101.00	120	80	1.01	1.05	3.88	<0.01	0.01	1	1.01	101.00	125	75
ARSENIC-ICP J	mg/L	JYH	1	1.01	101.00	120	80	1.02	0.99	2.99	<0.1	0.1	1	1.02	102.00	125	75
LEAD-ICP J	mg/L	JYH	1	0.99	99.00	120	80	1.04	1.06	1.90	<0.1	0.1	1	1.04	104.00	125	75
SELENIUM-ICP J	mg/L	JYH	1	0.95	95.00	120	80	0.99	1.02	2.99	<0.1	0.1	1	0.99	99.00	125	75
MERCURY R	mg/kg	TAS	9.99	10.3	103.10	15.6	5.25	0.00092	0.0010	8.68	<0.0002	0.0002	0.001	0.00101	101.00	115	85
MERCURY W	mg/L	TAS	0.001	0.0009	94.00	120	80	0.00102	0.001	2.47	<0.0002	0.0002	0.001	0.001	100.00	125	75
CADMIUM-FURNACE H	mg/L	AJS	0.002	0.0022	88.80	120	80	0.00211	0.0021	0.47	<0.0005	0.0005	0.0025	0.00212	84.80	115	85
CADMIUM-FURNACE A	mg/kg	AJS	90	81.9	91.00	130	51.3	0.00201	0.0020	1.97	<0.0005	0.0005	0.0025	0.00212	84.80	115	85

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
NR = NOT REQUIRED
DL = DILUTED OUT

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

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QUALITY ASSURANCE DAI... REPORT

OHIO VALLEY LABORATORY Date: 09/25/95

			REFERENCE STANDARD					DUPLICATE SAMPLE			BLANK		MATRIX/MEDIA SPIKE				
Parameter	Units	Analyst	Known	Result	Rec.(%)	UCLx	LCLx	Result1	Result2	RPD (%)	Result	MDL	Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
TSS A	mg/L	PJH	50	51	102.00	121	75	< 5	< 5	0.00	<5	5	50	43	86.00	125	75
TSS B	mg/L	PJH	50	51	102.00	121	75	< 5	< 5	0.00	<5	5	50	47	94.00	125	75
TSS C	mg/L	PJH	50	54	108.00	121	75	330	340	2.99	<5	5	50	48.9	97.80	125	75
TSS D	mg/L	PJH	50	46	92.00	121	75	< 5	< 5	0.00	<5	5	50	46	92.00	125	75
TDS	mg/L	PJH	500	470	94.00	114	80	980	850	14.21	<10	10	500	534	106.80	124	78
CYANIDE-SOIL	mg/kg	JWR	20	21.9	109.50	110	90	< 0.5	< 0.5	0.00	<0.5	0.5	10	11.1	111.00	125	75
CHLORIDE A	mg/L	RJS	50	51.7	103.40	108	97	22	22	0.00	<2	2	20	20.7	103.50	113	80
COD A	mg/L	REB	100	93	93.00	120	80	< 5	< 5	0.00	<5	5	50	48.7	97.40	125	75
COD B	mg/L	REB	100	90.4	90.40	120	80	< 5	< 5	0.00	<5	5	50	47.1	94.20	125	75
COD C	mg/L	REB	1000	928	92.80	120	80	440	440	0.00	<150	150	500	434	86.80	125	75
CHLORIDE B	mg/L	RJS	50	51	102.00	108	97	120	110	8.70	<2	2	20	18.9	94.50	113	80

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
NR = NOT REQUIRED
DL = DILUTED OUT

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 09/22/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
TSS	mg/L	PJH	50	50	100.00	121	75	6000	5800	3.39	<1	1	50	36	72.00	125	75
SILVER-ICP U	mg/L	JYH	0.2	0.2	100.00	120	80	0.2	0.2	0.00	<0.01	0.01	0.2	0.2	100.00	125	75
BARIUM-ICP U	mg/L	JYH	10	10	100.00	120	80	9.6	9.6	0.00	<0.01	0.01	10	9.6	96.00	125	75
CADMIUM-ICP U	mg/L	JYH	1	0.97	97.00	120	80	0.99	1	1.01	<0.01	0.01	1	0.99	99.00	125	75
CHROMIUM-ICP U	mg/L	JYH	1	0.97	97.00	120	80	1.01	1.01	0.00	<0.02	0.02	1	1	100.00	125	75
ARSENIC-ICP U	mg/L	JYH	1	1	100.00	120	80	1.05	1.03	1.92	<0.1	0.1	1	1.05	105.00	125	75
LEAD-ICP U	mg/L	JYH	1	0.98	98.00	120	80	500	510	1.98	<0.1	0.1	1	DL	DL	125	75
SELENIUM-ICP U	mg/L	JYH	1	0.92	92.00	120	80	0.98	0.96	2.06	<0.1	0.1	1	0.98	98.00	125	75
COPPER-FURNACE	mg/L	AJS	0.025	0.0238	95.48	120	80	0.02409	0.0242	0.50	<0.005	0.005	0.025	0.02421	96.84	115	85
THALLIUM-FURN H	mg/L	AJS	0.025	0.0257	102.80	120	80	0.023	0.0229	0.44	<0.005	0.005	0.025	0.0234	93.60	115	85
LEAD-FURNACE V	mg/L	AJS	0.025	0.0243	97.20	120	80	< 0.005	< 0.005	0.00	<0.005	0.005	0.025	0.0238	95.20	115	85
MERCURY G	mg/kg	TAS	1.92	1.79	93.23	3.5	0.92	0.00099	0.0009	3.68	<0.0002	0.0002	0.001	0.000995	99.50	115	85
NITRITE	mg/L	SCM	0.1	0.097	97.00	125	75	0.07	0.07	0.00	<0.01	0.01	0.1	0.085	85.00	125	75
CHROMIUM (6)	mg/L	SCM	0.1	0.098	98.00	114	89	< 0.01	< 0.01	0.00	<0.01	0.01	0.1	0.094	94.00	120	77
PHOSPHORUS	mg/L	REB	2	1.75	87.50	125	75	0.1	0.1	0.00	<0.1	0.1	0.5	0.443	88.60	125	75
TKN	mg/L	REB	1	0.841	84.10	125	75	1.1	1.1	0.00	<0.1	0.1	0.5	0.375	75.00	125	75
BOD A	mg/L	SCM	200	201	100.50	119	82	< 3	< 3	0.00	<3	3	200	212	106.00	125	75
TDS	mg/L	PJH	500	494	98.80	114	80	478	508	6.09	<10	10	500	478	95.60	124	78
CYANIDE-SOIL	mg/kg	JWR	20	21.9	109.50	110	90	< 0.5	< 0.5	0.00	<0.5	0.5	10	12	120.00	125	75
BOD B	mg/L	SCM	200	215	107.50	119	82	580	480	18.87	<3	3	200	218	109.00	125	75
CONDUCTIVITY A	uS/cm	REB	1413	1407	99.58	113	91	1200	1200	0.00	<1	1	---	---	---	---	---
CONDUCTIVITY B	uS/cm	REB	1413	1401	99.15	113	91	2000	2000	0.00	<1	1	---	---	---	---	---
CONDUCTIVITY C	uS/cm	REB	1413	1401	99.15	113	91	1100	1100	0.00	<1	1	---	---	---	---	---
NITRITE	mg/L	PJH	0.1	0.101	101.00	125	75	< 0.01	< 0.01	0.00	<0.01	0.01	0.1	0.092	92.00	125	75
OIL & GREASE	mg/L	PJH	10	10	100.00	114	83	10	9	10.53	<	1	10	8.9	89.00	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
NR = NOT REQUIRED
DL = DILUTED OUT

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

WORK ORDER #: N5-09-404 SAMPLE #: 01-15 PAGE 1

SAMPLE #	TESTS	REASON	REMOVED BY (ADT)	REMOVED FROM	MOVED TO	RELIQ. BY	RET'D BY (ADT)	RET'D TO	REC'D BY	REASON
2,7,12	NO2	AN	MJN/9/21/95/1330	walk-in	wet lab	BLG	MJN/9/21/95/1705	walk in	CLB	storage
1,6,11	TKN/Phos	Anal.	REB/9/21/1350/95	walk in	wet lab	BLG	REB/9/21/1515	walk in	BLG	Storage
2A,7A 12A	Cl	ANALYZE	RJS/09/25/95/0815	WALK-IN	WET LAB	BLG	REB/9/26/95/1650	walk in	CLB	storage
4,9,14	NH_3	Anal.	REB/09/27/0715/95	WALK-IN	Wet LAB	BLG @ 730	REB/9/27/95/1645	Archives	BLG	Storage
2,7,12	Cl	ANAL.	REB/9/27/0715/95	WALK-IN	wet lab	BLG @ 730	REB/9/27/95/1645	Archives	BLG	Storage
3A,8A,13A	METALS	PREP	DJH/9/28/95/0800	WALK-IN	MET. LAB	CLB	DJH/9/28/95 1610	ARCHIVE	CLB	archive
5A,10A,15A	HARD	ANALYZE	RJS/09/28/95/0950	WALK-IN	WET LAB	BLG	RJS/09/28/95/1555	Archive	BLG	storage
1,6,11	TOC	"	DJH/9/28/1540	WALK-IN	wet	BLG	DJH/9/28/1650	archive	CLB	storage
1,6,11	TOC	ANAL.	REB/9/29/1145	Archive	wet	BLG	REB/9/29/1000/95	Archive	CLB	archive

Versar INC.

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME	INDUSTRIAL HYGIENE SAMPLE
3062-002	SALEM / RIVER DREDGE	Y / N

SAMPLERS: (Signature) [signature] (Printed) Erik Rzemien

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TKN	Total Phosphorus	Nitrates	TOC	Metals	Hardness	Chloride	TSS	Ammonia (NH_3)	REMARKS
SALEM-TKN P/TOC-A-DUR-001	9/20	9:30	✓		O,O weir		✓	✓		✓						
SALEM-CL/NO3/TS-A-DUR-001	9/20	9:30	✓		"				✓				✓	✓		
A SALEM-METAL-A DUR-001	9/20	9:30	✓		"						✓					
SALEM-NH3-A-DUR-001	9/20	9:30	✓		"										✓	
SALEM-HARD-A DUR-001	9/20	9:30	✓									✓				
SALEM-TKN/P/TOC B-DUR-001	9/20	9:50	✓		SD weir		✓	✓		✓						
B SALEM-CL/NO3/TS-B-DUR-001	9/20	9:50	✓		"				✓				✓	✓		
SALEM-METAL-B-DUR-001	9/20	9:50	✓		"						✓					
SALEM-NH3-B-DUR-001	9/20	9:50	✓		"										✓	
SALEM-HARD-B DUR-001	9/20	9:50	✓		"							✓				
SALEM-TKN/P/TOC C-DUR-001	9/20	~~10:00~~	✓		LOO weir		✓	✓		✓						
C ~~SALEM-TKN/P/TOC C-DUR-001~~	~~9/20~~	~~9:50~~	✓													

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	9/20/95 3:30pm				
(Printed) EMILY RZEMIEN		(Printed)	(Printed)		(Printed)

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
		Brenda Gregory	9/21/95 930	C of C Dated SKS intact / Cooler Temp 1.7
(Printed)		(Printed) Brenda Gregory		

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Files (pink).

vergil INC.

CHAIN OF CUSTODY RECORD

2 of 2

PROJECT NO.	PROJECT NAME
302-002	SALEM / RIVER DREDGE

SAMPLERS: (Signature) [signature] (Printed) EMILY KLEMEN

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TKN	Total Phosphorus	Nitrates	TOC	METALS	HARDNESS	CHLORIDE	TSS	AMMONIA NH3	REMARKS
SALM-CL/NO3/TSS-C-DUR-001	9/20	10:05	✓		Weir (00 cut.				✓				✓	✓		
SALM-METALS-C-DUR-001	9/20	10:05	✓		"						✓					
SALM-NH3-C-DUR-001	9/20	10:05	✓		"										✓	
SALM-HARDNESS-C-DUR-001	9/20	10:05	✓		"							✓				

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	9/20/95 3:30 pm				
(Printed)		(Printed)	(Printed)		(Printed)

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
		Brenda Gregory	9/21/95 930	C of C sealed SXS intact
(Printed)		(Printed) Brenda Gregory		Cooler Temp 1.7

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

KEMRON Environmental Services
109 Starlite Park
Marietta, Ohio 45750

Phone: (614) 373-4071

KEMRON ENVIRONMENTAL SERVICES

VERSAR, INC.
9200 Rumsey Road
Columbia, MD 21045-1934

Attn: Willie Burton

Order #: N5-12-101
Date: December 18, 1995 14:05
Work ID: 3062-002/Salem River Dredge
Date Received: 12/06/95
Date Completed: 12/18/95

Client Code: VERSAR_MD331

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	SALM-A-POST-001	02	SALM-B-POST-001
03	SALM-C-POST-001		

AS REQUESTED ALL TOTAL ANALYSES HAVE BEEN REPORTED ON A DRY WEIGHT BASIS WHERE APPLICABLE

This report shall not be reproduced, except in full, without the written approval of KEMRON.

Deanna Hesson

Certified by
Deanna Hesson

KEMRON ENVIRONMENTAL SERVICES
RESULTS BY SAMPLE

This is to certify that the following samples were analyzed using good laboratory practices to show the following results.

SAMPLE ID: 01 SALM-A-POST-001 Collected: 12/05/95 13:13 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Chloride	820	40	mg/L Cl	12/14/95	DIH	325.2
Hardness	330	10	mg/L CaCO3	12/11/95	PJH	130.2
Nitrogen, Ammonia	0.1	0.1	mg/L N	12/15/95	REB	350.1
Nitrogen, Nitrate	1.6	0.05	mg/L N	12/07/95	DIH	353.2
Nitrogen, Total Kjeldahl	1.1	0.1	mg/L N	12/12/95	REB	351.2
Phosphorus, Total	0.2	0.1	mg/L P	12/12/95	REB	365.4
Total Organic Carbon	5	1	mg/L	12/11/95	REB	415.1
Total Suspended Solids	74	10	mg/L	12/11/95	SCM	160.2
Turbidity	42	0.1	NTU	12/07/95	REB	180.1
Arsenic, Total	<0.1	0.1	mg/L As	12/12/95	JYH	200.7/6010A
Cadmium, Total	<0.01	0.01	mg/L Cd	12/11/95	JYH	200.7/6010A
Chromium, Total	<0.02	0.02	mg/L Cr	12/11/95	JYH	200.7/6010A
Copper, Total	<0.02	0.02	mg/L Cu	12/11/95	JYH	200.7/6010A
Lead, Total	<0.1	0.1	mg/L Pb	12/12/95	JYH	200.7/6010A
Mercury, Total	<0.0002	0.0002	mg/L Hg	12/11/95	TAS	245.1/7470A
Nickel, Total	<0.04	0.04	mg/L Ni	12/11/95	JYH	200.7/6010A
Zinc, Total	0.03	0.01	mg/L Zn	12/11/95	JYH	200.7/6010A

SAMPLE ID: 02 SALM-B-POST-001 Collected: 12/05/95 13:30 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Chloride	880	40	mg/L Cl	12/14/95	DIH	325.2
Hardness	340	10	mg/L CaCO3	12/11/95	PJH	130.2
Nitrogen, Ammonia	<0.1	0.1	mg/L N	12/15/95	REB	350.1
Nitrogen, Nitrate	1.6	0.05	mg/L N	12/07/95	DIH	353.2
Nitrogen, Total Kjeldahl	0.5	0.1	mg/L N	12/12/95	REB	351.2
Phosphorus, Total	0.1	0.1	mg/L P	12/12/95	REB	365.4
Total Organic Carbon	4	1	mg/L	12/11/95	REB	415.1
Total Suspended Solids	70	10	mg/L	12/11/95	SCM	160.2
Turbidity	41	0.1	NTU	12/07/95	REB	180.1
Arsenic, Total	<0.1	0.1	mg/L As	12/12/95	JYH	200.7/6010A
Cadmium, Total	<0.01	0.01	mg/L Cd	12/11/95	JYH	200.7/6010A
Chromium, Total	<0.02	0.02	mg/L Cr	12/11/95	JYH	200.7/6010A
Copper, Total	<0.02	0.02	mg/L Cu	12/11/95	JYH	200.7/6010A
Lead, Total	<0.1	0.1	mg/L Pb	12/12/95	JYH	200.7/6010A
Mercury, Total	<0.0002	0.0002	mg/L Hg	12/11/95	TAS	245.1/7470A
Nickel, Total	<0.04	0.04	mg/L Ni	12/11/95	JYH	200.7/6010A
Zinc, Total	0.04	0.01	mg/L Zn	12/11/95	JYH	200.7/6010A

SAMPLE ID: 03 SALM-C-POST-001 Collected: 12/05/95 13:45 Category: WATER

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Chloride	860	40	mg/L Cl	12/14/95	DIH	325.2
Hardness	380	10	mg/L CaCO3	12/11/95	PJH	130.2
Nitrogen, Ammonia	<0.1	0.1	mg/L N	12/15/95	REB	350.1
Nitrogen, Nitrate	1.6	0.05	mg/L N	12/07/95	DIH	353.2
Nitrogen, Total Kjeldahl	0.7	0.1	mg/L N	12/12/95	REB	351.2
Phosphorus, Total	0.2	0.1	mg/L P	12/12/95	REB	365.4
Total Organic Carbon	4	1	mg/L	12/11/95	REB	415.1
Total Suspended Solids	110	10	mg/L	12/11/95	SCM	160.2
Turbidity	56	0.1	NTU	12/07/95	REB	180.1
Arsenic, Total	<0.1	0.1	mg/L As	12/12/95	JYH	200.7/6010A
Cadmium, Total	<0.01	0.01	mg/L Cd	12/11/95	JYH	200.7/6010A
Chromium, Total	<0.02	0.02	mg/L Cr	12/11/95	JYH	200.7/6010A
Copper, Total	<0.02	0.02	mg/L Cu	12/11/95	JYH	200.7/6010A
Lead, Total	<0.1	0.1	mg/L Pb	12/12/95	JYH	200.7/6010A
Mercury, Total	<0.0002	0.0002	mg/L Hg	12/11/95	TAS	245.1/7470A

KEMRON ENVIRONMENTAL SERVICES
RESULTS BY SAMPLE

SAMPLE ID: **03** **SALM-C-POST-001** Collected: **12/05/95 13:45** Category: **WATER**

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Nickel, Total	<0.04	0.04	mg/L Ni	12/11/95	JYH	200.7/6010A
Zinc, Total	0.04	0.01	mg/L Zn	12/11/95	JYH	200.7/6010A

EPA Method 200.7/SW6010A (ICP)- Arsenic

EPA Method 200.7/SW6010A (ICP) - Cadmium

EPA Method 325.2 - Colorimetric, Automated Ferricyanide - Chloride

EPA Method 200.7/SW6010A (ICP) - Chromium

EPA Method 200.7/SW6010A (ICP) - Copper

EPA Method 130.2 Hardness - Titrimetric

EPA Method 245.1/SW7470A (Cold Vapor) - Mercury

EPA Method 350.1 - Ammonia - Distillation and Automated Phenate

EPA Method 200.7/SW6010A (ICP) - Nickel

EPA Method 353.2 - Automated Cadmium Reduction - Nitrate

METHOD 200.7/SW6010 (ICP) - Lead

EPA Method 365.4 - Automated Colorimetric, Ascorbic Acid - Phosphorus, Total

EPA Method 351.2 - Automated, Colorimetric - Total Kjeldahl Nitrogen

EPA Method 415.1 - Total Organic Carbon

EPA Method 160.2 (Dried at 103-105C) - Total Suspended Solids

EPA Method 180.1 - Turbidity

EPA Method 200.7/SW6010A (ICP) - Zinc

KEMRON ANALYST LIST

Ohio Valley Laboratory

09/19/95

AJS - - Ashlee J. Scott
ALC - - Ann L. Clark
CEB - - Chad E. Barnes
DIH - - Deanna I. Hesson
DJP - - Douglas J. Poling
DLP - - Dorothy L. Payne
DST - - Dennis S. Tepe
ECL - - Eric C. Lawson
EDG - - Eric D. Gerkin
FEH - - Fay E. Harmon
FRM - - Fred R. Montgomery
GWH - - George W. Hutchison
HV - - Hema Vilasagar
JEC - - Jesse E. Chapman
JKM - - June K. Morris
JLI - - Janice L. Inghram
JLL - - Janice L. Landshof
JLM - - Joy L. Mullins
JMM - - Jim M. Monk
JWR - - John W. Richards
JYH - - Ji Y. Hu
KHA - - Kim H. Archer
KMM - - Kevin M. McDonald
KPO - - Kevin P. Overstreet
KRA - - Kathy R. Albertson
LMW - - Lisa M. Wagner
MBJ - - Matthew B. Jarrell
MDA - - Mike D. Albertson
MDC - - Michael D. Cochran
MLS - - Michael L. Schimmel
PJH - - Pamela J. Holtz
REB - - Russell E. Burton
REK - - Robert E. Kyer
RJS - - Rick J. Santos
RWC - - Rodney W. Campbell
SCM - - Susan C. Moellendick
SCW - - Stephen C. West
SLT - - Stephanie L. Tepe
SPL - - Steve P. Learn
TAS - - Tamela A. Sams
TLD - - Teresa L. Davis
VC - - Vicki Collier
WCD - - Wade C. Dawson

INORGANIC QA/QC

Kemron
ENVIRONMENTAL SERVICES

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 12/15/95

			REFERENCE STANDARD					DUPLICATE SAMPLE			BLANK		MATRIX/MEDIA SPIKE				
Parameter	Units	Analyst	Known	Result	Rec.(%)	UCLx	LCLx	Result1	Result2	RPD (%)	Result	MDL	Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
AMMONIA-E A	mg/kg	REB	30	26.2	87.33	125	75	1.3	1.3	0.00	<0.45	0.45	15	16.6	110.67	125	75
AMMONIA-E B	mg/kg	REB	30	32.7	109.00	125	75	< 0.45	< 0.45	0.00	<0.45	0.45	15	15.5	103.33	125	75
AMMONIA A	mg/L	REB	2	1.59	79.50	125	75	< 0.1	< 0.1	0.00	<0.1	0.1	1	0.806	80.60	125	75
AMMONIA B	mg/L	REB	2	1.81	90.50	125	75	1	1	0.00	<0.1	0.1	1	0.802	80.20	125	75
AMMONIA C	mg/L	REB	2	1.64	82.00	125	75	0.95	1	5.13	<0.1	0.1	1	0.839	83.90	125	75
AMMONIA AA	mg/L	REB	2	1.93	96.50	125	75	0.3	0.3	0.00	<0.1	0.1	---	---	---	---	---
SILVER-ICP A	mg/L	JYH	0.2	0.19	95.00	120	80	0.19	0.19	0.00	<0.01	0.01	0.2	0.19	95.00	125	75
ALUMINUM-ICP A	mg/L	JYH	1	0.99	99.00	120	80	0.99	1.02	2.99	<0.1	0.1	1	0.99	99.00	125	75
BARIUM-ICP A	mg/L	JYH	10	9.8	98.00	120	80	9.8	9.9	1.02	<0.01	0.01	10	9.8	98.00	125	75
CADMIUM-ICP A	mg/L	JYH	1	1.01	101.00	120	80	1	1.02	1.98	<0.01	0.01	1	1	100.00	125	75
CHROMIUM-ICP A	mg/L	JYH	1	0.99	99.00	120	80	1	1	0.00	<0.02	0.02	1	1	100.00	125	75
COPPER-ICP A	mg/L	JYH	1	0.99	99.00	120	80	1	1	0.00	<0.02	0.02	1	1	100.00	125	75
LEAD-ICP A	mg/L	JYH	1	1.01	101.00	120	80	1.05	1.05	0.00	<0.04	0.04	1	1.05	105.00	125	75
MANGANESE-ICP A	mg/L	JYH	1	1.02	102.00	120	80	1.02	1.02	0.00	<0.01	0.01	1	1.02	102.00	125	75
NICKEL-ICP A	mg/L	JYH	1	1.02	102.00	120	80	1.01	1.02	0.99	<0.04	0.04	1	1.01	101.00	125	75
ZINC-ICP A	mg/L	JYH	1	1.02	102.00	120	80	1.04	1.02	1.94	<0.01	0.01	1	1.04	104.00	125	75
ARSENIC-ICP A	mg/L	JYH	1	1.03	103.00	120	80	1.01	1.06	4.83	<0.1	0.1	1	1.06	106.00	125	75
LEAD-ICP A	mg/L	JYH	1	0.99	99.00	120	80	1.01	1.02	0.99	<0.1	0.1	1	1.01	101.00	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
DL = DILUTED OUT
NR = NOT REQUIRED
S = ANALYZED BY METHOD OF STANDARD ADDITION

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

QUALITY ASSURANCE DA REPORT

OHIO VALLEY LABORATORY Date: 12/14/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
CHLORIDE	mg/L	DIH	50	49.4	98.80	111	93	140	150	6.90	<2	2	20	23.2	116.00	117	76
CYANIDE	mg/kg	JWR	20	19	95.00	110	90	4.1	4.5	9.30	<0.5	0.5	10	10.03	100.30	125	75
COD-LOW	mg/L	SCM	100	108	108.00	120	80	100	100	0.00	<5	5	50	66	132.00	125	75
COD-HI	mg/L	SCM	1000	1047	104.70	120	80	250	250	0.00	<150	150	500	540	108.00	125	75
SILVER-ICP D	mg/L	JYH	0.2	0.2	100.00	120	80	0.2	0.19	5.13	<0.01	0.01	0.2	0.19	95.00	125	75
ALUMINIUM-ICP D	mg/L	JYH	1	1.01	101.00	120	80	0.99	0.96	3.08	<0.1	0.1	1	0.99	99.00	125	75
BARIUM-ICP D	mg/L	JYH	10	9.9	99.00	120	80	10	9.8	2.02	<0.01	0.01	10	9.8	98.00	125	75
BERYLLIUM-ICP D	mg/L	JYH	1	0.95	95.00	120	80	0.97	0.96	1.04	<0.01	0.01	1	0.97	97.00	125	75
CADMIUM-ICP D	mg/L	JYH	1	0.98	98.00	120	80	0.99	0.97	2.04	<0.01	0.01	1	0.99	99.00	125	75
NICKEL-ICP D	mg/L	JYH	1	1	100.00	120	80	1.02	1.02	0.00	<0.04	0.04	1	1.02	102.00	125	75
ANTIMONY-ICP D	mg/L	JYH	1	0.99	99.00	120	80	1.03	0.97	6.00	<0.2	0.2	1	1.03	103.00	125	75
ARSENIC-ICP D	mg/L	JYH	1	0.99	99.00	120	80	1.06	1.03	2.87	<0.1	0.1	1	1.06	106.00	125	75
LEAD-ICP D	mg/L	JYH	1	0.97	97.00	120	80	0.96	0.97	1.04	<0.1	0.1	1	0.96	96.00	125	75
SELENIUM-ICP D	mg/L	JYH	1	0.97	97.00	120	80	1.02	1.02	0.00	<0.1	0.1	1	1.02	102.00	125	75
LEAD-FURN I	mg/kg	KHA	176	168.4	95.68	251	92.8	DL	DL	---	<0.25	0.25	0.025	0.0226	90.40	115	85
MERCURY A-1	mg/L	TAS	0.001	0.0011	110.00	120	80	0.00092	0.0010	12.24	<0.0002	0.0002	0.001	0.00104	104.00	115	85
MERCURY A-7	mg/kg	TAS	3.3	3.16	95.76	120	80	0.00101	0.0010	4.83	<0.0002	0.0002	0.001	0.00101	101.00	115	85
ARSENIC-FURN M	mg/L	AJS	0.025	0.0282	112.80	120	80	0.0312	0.0317	1.59	<0.004	0.004	0.025	0.0267	106.80	115	85
ANTIMONY-FURN D	mg/kg	ALC	37.2	31.1	83.60	109	7.44	0.0679	0.0667	1.78	<0.020	0.02	0.025	0.0252	100.80	115	85
ANTIMONY-FURN L	mg/kg	ALC	37.2	31.7	85.22	109	7.44	0.0862	0.085	1.40	<0.020	0.02	0.025	0.0237	94.80	115	85
SILVER-FURN I	mg/kg	KHA	170	124.3	73.12	248	85	0.00273	0.0023	14.54	<0.2	0.2	0.005	0.00347	69.40	115	85
CADMIUM-FURN I	mg/kg	KHA	51.4	45	87.55	74.1	29.1	0.0012	0.0012	0.00	<0.025	0.025	0.0025	0.0023	92.00	115	85
CADMIUM-FURN R	mg/L	KHA	0.002	0.0024	96.00	120	80	0.0022	0.0023	4.44	<0.0005	0.0005	0.0025	0.0022	88.00	115	85
ANTIMONY-FURN R	mg/L	ALC	0.025	0.0254	101.60	120	80	< 0.02	< 0.02	0.00	<0.02	0.02	0.025	0.0229	91.60	115	85
ANTIMONY-FURN G	mg/L	ALC	0.025	0.0261	104.40	120	80	0.0221	0.0223	0.90	<0.02	0.02	0.025	0.0223	89.20	115	85
LEAD-FURN U	mg/L	ALC	0.025	0.0252	100.80	120	80	0.0244	0.0253	3.62	<0.002	0.002	0.025	0.0253	101.20	115	85

UCLx = Upper Control Limit (Standard)
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UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
DL = DILUTED OUT
NR = NOT REQUIRED
S = ANALYZED BY METHOD OF STANDARD ADDITION

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 12/12/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
SILVER-ICP C	mg/L	JYH	0.2	0.2	100.00	120	80	0.18	0.18	0.00	<0.01	0.01	0.2	0.18	90.00	125	75
BARIUM-ICP C	mg/L	JYH	10	9.7	97.00	120	80	8.2	8.2	0.00	<0.01	0.01	10	8.2	82.00	125	75
CADMIUM-ICP C	mg/L	JYH	1	0.98	98.00	120	80	0.96	0.96	0.00	<0.01	0.01	1	0.96	96.00	125	75
CHROMIUM-ICP C	mg/L	JYH	1	0.99	99.00	120	80	0.9	0.95	5.41	<0.02	0.02	1	0.9	90.00	125	75
ARSENIC-ICP C	mg/L	JYH	1	0.98	98.00	120	80	0.97	0.97	0.00	<0.1	0.1	1	0.97	97.00	125	75
LEAD-ICP C	mg/L	JYH	1	0.99	99.00	120	80	0.89	0.93	4.40	<0.1	0.1	1	0.89	89.00	125	75
SELENIUM-ICP C	mg/L	JYH	1	0.96	96.00	120	80	0.9	0.9	0.00	<0.1	0.1	1	0.9	90.00	125	75
BORON-ICP C	mg/L	JYH	1	1.01	101.00	120	80	0.87	0.87	0.00	<0.1	0.1	1	0.87	87.00	125	75
MOLYBDENUM-ICP C	mg/L	JYH	2.5	2.44	97.60	120	80	2.3	2.3	0.00	<0.1	0.1	2.5	2.3	92.00	125	75
CHLORIDE A	mg/L	REB	50	50.3	100.60	111	93	130	120	8.00	<2	2	20	18	90.00	117	76
CHLORIDE B	mg/L	REB	50	51.5	103.00	111	93	4	4	0.00	<2	2	20	17.6	88.00	117	76
CHLORIDE C	mg/L	REB	50	50.7	101.40	111	93	27	29	7.14	<2	2	20	19	95.00	117	76
PHOSPHORUS	mg/L	REB	2	1.77	88.50	125	75	6.3	5.6	11.76	<0.1	0.1	0.5	0.518	103.60	125	75
COD LOW	mg/L	DIH	100	108	108.00	120	80	130	120	8.00	<5	5	50	56	112.00	125	75
COD HIGH	mg/L	DIH	1000	1067	106.70	120	80	340	350	2.90	<150	150	500	505	101.00	125	75
FORMALDEHYDE	mg/L	JWR	0.5	0.496	99.20	121	79	< 0.1	< 0.1	0.00	<.1	0.1	0.5	0.487	97.40	125	75
TKN A	mg/L	REB	1	0.843	84.30	125	75	6.7	6.3	6.15	<0.1	0.1	0.5	0.443	88.60	125	75
TKN B	mg/L	REB	1	0.746	74.60	125	75	0.65	0.65	0.00	<0.1	0.1	0.5	0.456	91.20	125	75
OIL & GREASE A	mg/L	PJH	10	10	100.00	114	83	10	10.4	3.92	<1	1	NR	NR	NR	NR	NR
OIL & GREASE B	mg/L	PJH	10.1	10.6	104.95	114	83	10.6	11.7	9.87	<1	1	NR	NR	NR	NR	NR
OIL & GREASE C	mg/L	PJH	10	9.5	95.00	114	83	9.5	10.5	10.00	<1	1	NR	NR	NR	NR	NR
CYANIDE	mg/L	RJS	0.4	0.437	109.25	110	90	0.01	0.01	0.00	<0.01	0.01	0.2	0.195	97.50	125	75
CYANIDE-SOIL	mg/kg	RJS	20	18.881	94.41	110	90	16	16	0.00	<0.50	0.5	10	5.16	51.60	125	75
MERCURY J	mg/L	TAS	0.001	0.001	100.00	120	80	8 0.00097	0.0009	0.00	<0.0002	0.0002	0.001	0.000976	97.60	115	85
MERCURY D	mg/L	TAS	0.001	0.001	100.00	120	80	0.00101	0.0009	4.04	<0.0002	0.0002	0.001	0.00101	101.00	115	85
CHROMIUM-FURN U	mg/L	AJS	0.025	0.0262	104.80	120	80	0.0248	0.0328	27.78	<0.005	0.005	0.025	0.0248	99.20	115	85
ARSENIC-FURN I	mg/kg	AJS	228	239	104.82	340	112	0.053	0.0529	0.19	<0.004	0.004	0.025	0.025	100.00	115	85
THALLIUM-FURN X	mg/kg	ALC	64.3	69.6	108.24	96.4	32.1	0.0261	0.0241	7.97	<0.25	0.25	0.025	0.0244	97.60	115	85
THALLIUM-FURN Y	mg/kg	ALC	64.3	68	105.75	96.4	32.1	0.0216	0.0229	5.84	<0.25	0.25	0.025	0.0248	99.20	115	85
PHENOL A	mg/L	JWR	0.5	0.543	108.60	114	85	0.011	0.012	8.70	<0.05	0.05	0.5	0.535	107.00	122	75
PHENOL B	mg/L	JWR	0.5	0.53	106.00	114	85	0.015	0.018	18.18	<0.005	0.005	0.5	0.598	119.60	122	75
FLUORIDE	mg/L	SCM	2	1.97	98.50	116	87	0.1	0.1	0.00	<.1	0.1	1	0.95	95.00	116	75

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RPD (%) = Relative Percent Difference
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S = ANALYZED BY METHOD OF STANDARD ADDITION

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

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QUALITY ASSURANCE DA[illegible] REPORT

OHIO VALLEY LABORATORY Date: 12/11/95

			REFERENCE STANDARD					DUPLICATE SAMPLE			BLANK		MATRIX/MEDIA SPIKE				
Parameter	Units	Analyst	Known	Result	Rec.(%)	UCLx	LCLx	Result1	Result2	RPD (%)	Result	MDL	Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
SULFATE	mg/L	PJH	20	21.2	106.00	120	80	69	65	5.97	<2	2	10	8.6	86.00	125	75
CYANIDE-SOIL	mg/kg	JWR	20	19.5	97.50	110	90	< 0.5	< 0.5	0.00	<0.5	0.5	10	10.5	105.00	125	75
BARIUM-ICP T	mg/L	JYH	10	9.8	98.00	120	80	9.6	9.3	3.17	<0.01	0.01	10	9.6	96.00	125	75
TSS A	mg/L	SCM	50	48	96.00	125	75	71	74	4.14	<5	5	NR	NR	NR	NR	NR
TSS B	mg/L	SCM	50	50	100.00	125	75	24	28	15.38	<5	5	NR	NR	NR	NR	NR
TSS C	mg/L	SCM	50	50	100.00	125	75	35	38	8.22	<5	5	NR	NR	NR	NR	NR
TDS C	mg/L	SCM	500	522	104.40	114	80	500	430	15.05	<10	10	500	516	103.20	124	78
TDS B	mg/L	SCM	500	486	97.20	114	80	290	360	21.54	<10	10	500	474	94.80	124	78
TDS A	mg/L	SCM	500	490	98.00	114	80	640	600	6.45	<10	10	500	484	96.80	124	78
SULFIDE	mg/L	SCM	20	19.2	96.00	118	82	19	19	0.00	<1	1	NR	NR	NR	NR	NR

UCLx = Upper Control Limit (Standard)
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RPD (%) = Relative Percent Difference
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UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
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Post-digestion spikes on sodium, potassium, calcium, and magnesium

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 12/11/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
MERCURY H-1	mg/L	TAS	0.001	0.001	100.00	120	80	0.00103	0.0010	0.98	<0.0002	0.0002	0.001	0.0102	102.00	115	85
CADMIUM-ICP T	mg/L	JYH	1	0.98	98.00	120	80	0.94	0.92	2.15	<0.01	0.01	1	0.94	94.00	125	75
CHROMIUM-ICP T	mg/L	JYH	1	0.98	98.00	120	80	0.95	0.93	2.13	<0.02	0.02	1	0.95	95.00	125	75
COPPER-ICP T	mg/L	JYH	1	0.98	98.00	120	80	0.96	0.93	3.17	<0.02	0.02	1	0.96	96.00	125	75
IRON-ICP T	mg/L	JYH	1	1.05	105.00	120	80	1.01	0.94	7.18	<0.04	0.04	1	1.01	101.00	125	75
NICKEL-ICP T	mg/L	JYH	1	1.03	103.00	120	80	0.96	0.94	2.11	<0.04	0.04	1	0.96	96.00	125	75
VANADIUM-ICP T	mg/L	JYH	1	0.96	96.00	120	80	0.94	0.92	2.15	<0.01	0.01	1	0.94	94.00	125	75
ZINC-ICP T	mg/L	JYH	1	0.99	99.00	120	80	0.94	0.92	2.15	<0.01	0.01	1	0.94	94.00	125	75
ARSENIC-ICP T	mg/L	JYH	1	1.01	101.00	120	80	0.96	0.97	1.04	<0.1	0.1	1	0.96	96.00	125	75
LEAD-ICP T	mg/L	JYH	1	0.99	99.00	120	80	0.94	0.92	2.15	<0.1	0.1	1	0.94	94.00	125	75
SELENIUM-ICP T	mg/L	JYH	1	0.94	94.00	120	80	0.91	0.95	4.30	<0.1	0.1	1	0.95	95.00	125	75
SILVER-ICP M	mg/L	JEC	0.2	0.199	99.50	120	80	0.19	0.182	4.30	<0.01	0.01	0.2	0.189	94.50	125	75
ALUMINIUM-ICP M	mg/L	JEC	1	0.989	98.90	120	80	1.29	1.26	2.35	<0.1	0.1	1	0.896	89.60	125	75
CADMIUM-ICP M	mg/L	JEC	1	1.07	107.00	120	80	1.03	0.992	3.76	<0.01	0.01	1	1.03	103.00	125	75
CHROMIUM-ICP M	mg/L	JEC	1	1.02	102.00	120	80	1.04	0.999	4.02	<0.02	0.02	1	0.959	95.90	125	75
COPPER-ICP M	mg/L	JEC	1	1.01	101.00	120	80	0.965	0.935	3.16	<0.02	0.02	1	0.938	93.80	125	75
IRON-ICP M	mg/L	JEC	1	1.04	104.00	120	80	3.97	3.84	3.33	<0.04	0.04	1	0.967	96.70	125	75
MAGNESIUM-ICP M	mg/L	JEC	10	10.5	105.00	120	80	23	22.1	3.99	<0.5	0.5	10	10.1	101.00	125	75
MANGANESE-ICP M	mg/L	JEC	1	1.03	103.00	120	80	1.09	1.06	2.79	<0.01	0.01	1	0.982	98.20	125	75
NICKEL-ICP M	mg/L	JEC	1	1.04	104.00	120	80	1.22	1.18	3.33	<0.04	0.04	1	1	100.00	125	75
ZINC-ICP M	mg/L	JEC	1	1.06	106.00	120	80	1.06	1.04	1.90	<0.01	0.01	1	1.04	104.00	125	75
SELENIUM-FURN A7	mg/L	JEC	0.025	0.0264	105.60	120	80	0.0355	0.0352	0.85	<0.004	0.004	0.025	0.0276	110.40	115	85
SILVER-ICP Q	mg/L	JEC	0.2	0.197	98.50	120	80	0.171	0.179	4.57	<0.01	0.01	0.2	0.189	94.50	125	75
ALUMINIUM-ICP Q	mg/L	JEC	1	0.971	97.10	120	80	1.58	1.64	3.73	<0.1	0.1	1	0.965	96.50	125	75
BERYLLIUM-ICP Q	mg/L	JEC	1	0.97	97.00	120	80	0.866	0.908	4.74	<0.01	0.01	1	0.969	96.90	125	75
CADMIUM-ICP Q	mg/L	JEC	1	1.01	101.00	120	80	0.933	0.98	4.91	<0.01	0.01	1	1.02	102.00	125	75
CHROMIUM-ICP Q	mg/L	JEC	1	1	100.00	120	80	0.878	0.921	4.78	<0.02	0.02	1	0.981	98.10	125	75
COPPER-ICP Q	mg/L	JEC	1	0.981	98.10	120	80	0.85	0.891	4.71	<0.02	0.02	1	0.97	97.00	125	75
IRON-ICP Q	mg/L	JEC	1	1.06	106.00	120	80	0.973	1.03	5.69	<0.04	0.04	1	0.952	95.20	125	75
NICKEL-ICP Q	mg/L	JEC	1	0.99	99.00	120	80	0.915	0.995	8.38	<0.04	0.04	1	1.02	102.00	125	75
ZINC-ICP Q	mg/L	JEC	1	1.01	101.00	120	80	0.988	1.05	6.08	<0.01	0.01	1	1.03	103.00	125	75
NITRATE A	mg/L	REB	1	0.943	94.30	111	90	0.07	0.06	15.38	<0.05	0.05	0.5	0.514	102.80	123	76
NITRATE B	mg/L	REB	1	0.955	95.50	111	90	0.59	0.6	1.68	<0.05	0.05	0.5	0.473	94.60	123	76
NITRATE C	mg/L	REB	1	0.97	97.00	111	90	0.94	0.94	0.00	<0.05	0.05	0.5	0.481	96.20	123	76
NITRATE D	mg/L	REB	1	0.914	91.40	111	90	0.66	0.66	0.00	<0.05	0.05	0.5	0.426	85.20	123	76
HARDNESS	mg/L	DIH	100	105	105.00	111	97	1400	1400	0.00	<5	5	100	102	102.00	117	86
TOC A	mg/L	REB	5	5.45	109.00	110	90	1400	1400	0.00	<1	1	5	4.9	98.00	125	75
TOC B	mg/L	REB	5	5.23	104.60	110	90	< 1	< 1	0.00	<1	1	5	3.87	77.40	125	75
TOC C	mg/L	REB	5	5.27	105.40	110	90	< 1	< 1	0.00	<1	1	5	5.12	102.40	125	75

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UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

QUALITY ASSURANCE DATA REPORT

OHIO VALLEY LABORATORY Date: 12/07/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
PHOSPHORUS A	mg/L	REB	2	1.8	90.00	125	75	< 0.1	< 0.1	0.00	<0.1	0.1	0.5	0.501	100.20	125	75
PHOSPHORUS B	mg/L	REB	2	1.81	90.50	125	75	0.11	0.17	42.86	<0.1	0.1	0.5	0.511	102.20	125	75
PHOSPHORUS C	mg/L	REB	2	1.82	91.00	125	75	< 0.1	< 0.1	0.00	<0.1	0.1	0.5	0.469	93.80	125	75
TKN A	mg/L	REB	1	1.03	103.00	125	75	0.7	0.9	25.00	<0.1	0.1	0.5	0.444	88.80	125	75
TKN B	mg/L	REB	1	0.959	95.90	125	75	1	0.73	31.21	<0.1	0.1	0.5	0.385	77.00	125	75
TKN C	mg/L	REB	1	0.822	82.20	125	75	1	0.88	12.77	<0.1	0.1	0.5	0.49	98.00	125	75
NITRATE A	mg/L	DIH	1	0.978	97.80	111	90	< 0.05	< 0.05	0.00	<0.05	0.05	0.5	0.513	102.60	123	76
NITRATE B	mg/L	DIH	1	0.966	96.60	111	90	0.13	0.13	0.00	<0.5	0.5	0.5	0.49	98.00	123	76
PHENOL	mg/L	RJS	0.5	0.521	104.20	114	85	< 0.005	< 0.005	0.00	<0.005	0.005	0.5	0.53	106.00	122	75
SILVER-ICP T	mg/L	JYH	0.2	0.19	95.00	120	80	0.18	0.18	0.00	<0.01	0.01	0.2	1.18	590.00	125	75
ALUMINIUM-ICP T	mg/L	JYH	1	1.07	107.00	120	80	1.14	1.03	10.14	<0.1	0.1	1	1.14	114.00	125	75
BARIUM-ICP T	mg/L	JYH	10	10.4	104.00	120	80	10.5	10.2	2.90	<0.01	0.01	10	10.5	105.00	125	75
BERYLLIUM-ICP T	mg/L	JYH	1	0.99	99.00	120	80	0.98	0.96	2.06	<0.01	0.01	1	0.98	98.00	125	75
CALCIUM-ICP T	mg/L	JYH	10	10.3	103.00	120	80	11.6	9.8	16.82	<0.2	0.2	10	9.8	98.00	125	75
CADMIUM-ICP T	mg/L	JYH	1	1	100.00	120	80	1	0.99	1.01	<0.01	0.01	1	0.99	99.00	125	75
COBALT-ICP T	mg/L	JYH	1	1.03	103.00	120	80	1.01	0.99	2.00	<0.02	0.02	1	1.01	101.00	125	75
CHROMIUM-ICP T	mg/L	JYH	1	1.03	103.00	120	80	1	0.92	8.33	<0.02	0.02	1	1	100.00	125	75
COPPER-ICP T	mg/L	JYH	1	1.05	105.00	120	80	1.04	1.02	1.94	<0.02	0.02	1	1.04	104.00	125	75
IRON-ICP T	mg/L	JYH	1	1.05	105.00	120	80	1.04	1.02	1.94	<0.04	0.04	1	1.04	104.00	125	75
MAGNESIUM-ICP T	mg/L	JYH	10	10.4	104.00	120	80	10.2	9.5	7.11	<0.5	0.5	10	10.2	102.00	125	75
MANGANESE-ICP T	mg/L	JYH	1	1.05	105.00	120	80	1.06	1.04	1.90	<0.01	0.01	1	1.06	106.00	125	75
SODIUM-ICP T	mg/L	JYH	10	10.5	105.00	120	80	160	170	6.06	<0.5	0.5	10	DL	0.00	125	75
NICKEL-ICP T	mg/L	JYH	1	1.04	104.00	120	80	1.05	0.99	5.88	<0.04	0.04	1	1.05	105.00	125	75
ANTIMONY-ICP T	mg/L	JYH	1	1.05	105.00	120	80	1.05	1.04	0.96	<0.2	0.2	1	1.05	105.00	125	75
VANADIUM-ICP T	mg/L	JYH	1	1.04	104.00	120	80	1.04	1.02	1.94	<0.01	0.01	1	1.04	104.00	125	75
ZINC-ICP T	mg/L	JYH	1	1.02	102.00	120	80	1.04	1.02	1.94	<0.01	0.01	1	1.04	104.00	125	75
ARSENIC-ICP T	mg/L	JYH	1	1.04	104.00	120	80	1.04	1.04	0.00	<0.1	0.1	1	1.04	104.00	125	75
LEAD-ICP T	mg/L	JYH	1	1.02	102.00	120	80	0.99	0.97	2.04	<0.1	0.1	1	0.99	99.00	125	75
SELENIUM-ICP T	mg/L	JYH	1	1.02	102.00	120	80	1.01	1	1.00	<0.1	0.1	1	1.01	101.00	125	75
THALLIUM-ICP T	mg/L	JYH	1	1.09	109.00	120	80	1.1	1.13	2.69	<0.5	0.5	1	1.13	113.00	125	75
BORON-ICP T	mg/L	JYH	1	1.05	105.00	120	80	1.1	1.03	6.57	<0.5	0.5	1	1.1	110.00	125	75
MOLYBDENUM-ICP T	mg/L	JYH	2.5	2.56	102.40	120	80	2.53	2.53	0.00	<0.1	0.1	2.5	2.53	101.20	125	75
SILICON-ICP T	mg/L	JYH	25	23.7	94.80	120	80	26.9	24.9	7.72	<1.0	1	25	26.9	107.60	125	75
NITRITE	mg/L	PJH	0.1	0.091	91.00	125	75	< 0.01	< 0.01	0.00	<.01	0.01	0.1	0.083	83.00	125	75
CHROMIUM-FURN V	mg/kg	KHA	91.3	83.8	91.79	129	48.8	0.0272	0.0288	5.71	<0.25	0.25	0.025	0.0276	110.40	115	85
SELENIUM-FURN K	mg/L	KHA	0.025	0.0255	102.00	120	80	0.0299	0.0276	8.00	<0.004	0.004	0.025	0.0258	103.20	115	85
MERCURY H	mg/L	TAS	0.001	0.001	100.00	120	80	0.00095	0.0009	2.13	<0.0002	0.0002	0.001	0.000951	95.10	115	85
MERCURY I	mg/L	TAS	0.001	0.0009	90.00	120	80	0.00098	0.0009	1.03	<0.0002	0.0002	0.001	0.000987	98.70	115	85
CYANIDE	mg/L	JWR	0.4	0.386	96.50	110	90	< 0.01	< 0.01	0.00	<0.01	0.01	0.2	0.167	83.50	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
DL = DILUTED OUT
NR = NOT REQUIRED
S = ANALYZED BY METHOD OF STANDARD ADDITION

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

WORK ORDER #: N5-12-101 SAMPLE #: D1 03 PAGE 1

SAMPLE #	TESTS	REASON	REMOVED BY (ADT)	REMOVED FROM	MOVED TO	RELIQ. BY	RET'D BY (ADT)	RET'D TO	REC'D BY	REASON
1-3	NO_2	AN	pjh/12/6/95 1515	~~walk-in~~ Lock-in	wetlab	CHB	dwh/12/7/1650	walkin	CHB	walkin
1-03	METALS	PREP	BWH/12-8-95/0820	WALK-IN	WET-LAB	BRG	BWH/12-8-95/1625	ARCHIVE	BRG	Archive
-3	hard	ANAlyl.	dwh/12/11/0730	WALK-IN	wet	~~dwh~~ BRG	pjh/12/11/95/1446	Archives	BRG	Storage
-3 A	gen	"	dwh/12/11/0730	"	"	~~dwh~~ BRG	REB/12/12/1530/45	WALK IN	BRG	STORAGE
1-3	TKN/PHOS	Anal.	REB/12/11/1200	"	"	MGD	REB/12/11/1620	Archives.	CHB	Archive
1-3	NH_3	Anal	REB/12/13/1000	WALK-in	wetlab	BRG	REB/12/14/1400	Archives	BRG	Archive
1-3	Cl	"	dwh/12/14/1245	"	"	~~dwh~~ BRG	dwh/12/14/1400	"	BRG	Archive

OAKWOOD BEACH

INC.

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME	PARAMETERS	INDUSTRIAL HYGIENE SAMPLE Y / N
3062-002	Salem River Dredge		

SAMPLERS: (Signature) E.M. (Printed) E. Azemian

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TKN	T.PHOS	TOC	HARDNESS	CL	TSS	TURBIDITY	NO3	NH3	METALS	REMARKS
~~[illegible]~~																	
SALM-A-Position	12/5	13:13	✓		Weir 0,0	5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
SALM-B-Position	12/5	13:30	✓		Weir 0,50	5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
SALM-C-Position	12/5	13:45	✓		Weir 0,100	5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
E.M.	12/5/95 17:15				
(Printed) E. Azemian		(Printed)	(Printed) C of C Sealed		(Printed) Cooler Temp 2.0

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
		Brenda Gregory	12/6/95 930	Slip intact
(Printed)		(Printed) Brenda Gregory		please do Turbidity as well! Thanks

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

APPENDIX D

SCOPE OF WORK

Water Quality Monitoring
for
Salem River Dredging Operations

1.0 SUMMARY AND SITE DESCRIPTION

The U.S. Army Corps of Engineers has approval to widen and deepen the existing Salem River navigation channel, which is currently 150 feet wide by 12 feet deep at Salem Cove, narrowing to 100 feet wide at Sinnicksons Landing. The channel modifications will produce a one-way channel that varies in width from 150 feet to 250 feet with a depth of 16 feet MLW. The Salem River is located in western Salem County, New Jersey and drains approximately 113.6 square miles, ultimately discharging into the Delaware River at mile point 60. The dredged material disposal area to be used for this dredging is the Reedy Point South Dredged Material Disposal Area, located in the state of Delaware, immediately south of the C&D Canal, at the mouth of the Delaware River. The dredging and excavation from this project will remove approximately 700,000 cubic yards of material from the Salem River.

2.0 CORPS POINT OF CONTACT

Beth Brandreth, Environmental Resources Branch 215-656-6558; U.S. Army Corps of Engineers, Philadelphia District, Wanamaker Building, 100 Penn Square East, Philadelphia, PA 19107-3390

3.0 WATER QUALITY SAMPLING AND ANALYSIS

A. PRE-DREDGING

1. Background Water

Three background water samples will be collected at and near the weir at Reedy Point South dredged material disposal area prior to the onset of dredging and disposal (Figure 1). One sample should be taken in front of the weir, the second sample should be taken approximately 50 yards downstream of the weir and the other sample should be taken approximately 100 yards downstream of the weir. Samples will be taken with the outgoing tide. All three water samples will be analyzed for Total Kjeidal Nitrogen (TKN), Ammonia as N, Nitrate as N, Total Phosphorus, Total Organic Carbon (TOC), Zinc, Lead, Cadmium, Chromium, Copper, Nickel, Mercury, Total Suspended Solids (TSS), Turbidity, Temperature, pH, Chloride, Dissolved Oxygen (DO), hardness and Arsenic. Each background sample should be depth integrated by taking equal water volumes from 20% and 80% of the total water column depth at the time of sampling.

2. Sediment

Four sediment cores shall be collected at randomly selected locations, evenly distributed in the proposed dredging area. An appropriate method will

be utilized to collect core samples of a minimum of 4 feet in length. Samples will be preserved on site for transportation to a certified laboratory for analysis. Sample site locations will be recorded using LORAN or GPS, and actual locations shown on a figure depicting the project area. The sediment cores shall be extruded from the coring device and visually inspected to identify distinct sediment strata, if any. For each core, a written core log based on the visual inspection shall be completed. The log shall include the date, location, core number, water depth, elevations of each strata, including the top and bottom depths, a general description of each strata, and labels of sediment samples taken from the core will be noted. For each core, each sediment strata greater than six inches shall constitute a separate sample for chemical analysis. A bulk analysis will be conducted on each sample for the chemical parameters described in Section A.1. Sediments from the interior portion of the core shall be removed with stainless steel knives and spoons, thoroughly homogenized in a stainless steel or glass container, and subsampled to provide sufficient sediment for chemical analysis. Sediment from the exterior portion of the core, which has been in contact with the core tube, will not be used for chemical analysis. If a core consists of a single, homogenous unit, the interior portions of the core will be removed over the entire length of the core, thoroughly homogenized in a stainless steel or glass container and stored.

After samples from an individual stratum are taken, the knives and spoons that were in contact with the sediment will be wiped and rinsed with deionized water. After sampling of an entire core is completed, the knives and spoons shall be cleaned in the following sequence: non-phosphate detergent and tap water rinse, tap water rinse, deionized water rinse, acetone rinse, and a final deionized water rinse.

Sediment samples will be kept in the dark and at -20 degrees C or less.

B. DURING DREDGING

1. Water Column

Three water samples will be taken at and downstream of the weir at the disposal site one time per month during the period of disposal (approximately 4 months). One sample should be taken in front of the weir, the second sample should be taken approximately 50 yards downstream of the weir and the other sample should be taken approximately 100 yards downstream of the weir.

All of these samples should also be depth integrated as described under the background water sample instructions in Section A.1 above and analyzed (unfiltered) for the same parameters. These samples should be taken with the outgoing tide.

2. Weir Discharge (TSS)

One 24 hour composite sample, consisting of grabs taken every 6 hours, will be taken once a week during the period of disposal (approximately 4

months). The volumetric flowrate over the weir must be taken concurrent to each weir water quality grab. The flowrate shall be calculated using the equation for a rectangular weir: $Q = CLH^{3/2}$, where Q = flow rate in cfs, C = 3.1, L = length of the weir in feet and H = the height of the water flowing over the weir in feet. The samples will be analyzed for Total Suspended Solids (TSS).

C. POST DREDGING

1. Water Column

Three water column samples shall be collected from the stations used for pre and post dredging collections, approximately 2 weeks after dredging operations have ceased. The post-dredge water quality samples should be depth integrated as described above and taken with the outgoing tide. These unfiltered samples shall be analyzed for the parameters described above in Section A.1.

2. Dewatering Discharge

A 24 hour composite water sample (grabs taken every 6 hours) shall be taken directly from the effluent once a month for a period of 2 months during the settling period. The samples will be analyzed for the same parameters as described for the background water sample analysis (unfiltered) in Section A.1.

Volumetric flowrate must be determined concurrent to the water quality sampling. See Section B.2 above for methodology.

4.0 REPORTING REQUIREMENTS

All results will be evaluated and presented in a report format clean-typed with figures illustrating sample locations.

The recommended report format should include:

- TITLE PAGE- bearing appropriate title, date, author, and contract number.

- EXECUTIVE SUMMARY- a brief description of the study's purpose, findings, conclusions, and recommendations for improving future water quality monitoring efforts.

- INTRODUCTION- stating the purpose of the study with reference to the District's Salem River navigation project.

- METHODOLOGY- a description of the sampling and analysis equipment and methodologies used.

- RESULTS- raw data presented in tabular form with each

page identifying the project name, sample collection dates, sample type and identification number, parameter names and unit results.

- DISCUSSION- a situation analysis with reference to standards. The discussion should include identification of any Delaware Water Quality violations, the degree and extent. Suspended solids data should be discussed with reference to site specific baseline data and presented graphically.

- RECOMMENDATIONS- ideas suggested for improving the water monitoring efforts specific to the project area.

5.0 SUBMISSIONS

Four copies of the draft report shall be submitted to the Point of Contact within 30 days of completion of dredging operations. The draft report will be reviewed and returned to the contractor for revision, if necessary, in 15 working days. The draft report will be amended, if necessary, and a final report (4 bound and 1 unbound copies) submitted to the Point of Contact 2 weeks from the draft report review period.

Dewatering Sample Results - this data will be compiled in tabular form and presented to the Point of Contact no later than 30 days after each monthly collection.

An amendment to the final report including the location of the sampling sites, dates samples are collected, raw data, reference to standards, situation analysis, and discussion will be provided no later than 30 days after the post-dredge samples are taken.

AMENDMENT:

WATER QUALITY MONITORING

FOR

SALEM RIVER DREDGING OPERATIONS

Prepared for

U.S. Army Corps of Engineers
Philadelphia District
Wanamaker Builing
100 Penn Square East
Philadelphia, PA 19107-3390

Prepared by

Versar, Inc.
9200 Rumsey Road
Columbia, MD 21045

February 1996

SUMMARY OF WEIR DISCHARGE DEWATERING SAMPLING CONDUCTED AT THE REEDY POINT UPLAND DISPOSAL SITE

FOREWORD

This amendment to the report entitled "Water Quality Monitoring for the Salem River Dredging Operations" is being submitted to the U.S. Army Corps of Engineers, Philadelphia District by Versar Inc. to fulfill the requirements of the Statement of Work for Contract No. DACW61-95-D-0011; Task order 0003. This task was conducted to monitor water quality parameters in discharge water from the Reedy Point disposal area for a period of two months after cessation of all dredging activities.

BACKGROUND AND METHODS

The water quality monitoring study for the recently completed Salem River dredging project included contaminant analysis of weir discharge during the dewatering process at the Reedy Point upland disposal area. The purpose of the testing was to determine if contaminant levels within the weir discharge exceeded regulatory criteria or affected water quality in the Delaware River. One 24-hour composite sample was taken in December 1995 and January 1996 using the same collection techniques that were used in dredge monitoring study. Composite water samples were analyzed for total suspended solids, turbidity, chloride, total organic carbon, nutrients, and trace metals.

MONITORING RESULTS

Post dredge weir discharge monitoring suggested that water quality in the Delaware River was not degraded during the dewatering process. Nutrient levels within the weir discharge corresponded closely to in-river levels observed during the pre, during and post dredging periods of the 1995 monitoring study (Table 1). Among the weir discharge samples collected in December and January seven out of eight metals New Jersey's coastal areas were below detection limits. Concentrations of zinc ranged from 0.02 mg/l in December and 0.03 mg/l in January and were similar to levels observed during the dredging monitoring study. Chloride and hardness were at least 200% lower than river conditions in December, probably due to dilution from precipitation in the retention pond. Total suspended solids and turbidity levels for both months were well below the average river and weir levels measured during the dredging.

Contaminant concentration in the weir discharge were below state water quality criteria. Turbidity did not exceed Delaware River Basin Commission's regulatory maximum

of 150 NTU any time during the discharge monitoring. The low detections of zinc were all below Delaware's acute and chronic criteria. Although no Delaware state criteria are defined for nutrients, TOC, and chloride in the tidal waters of the Delaware Bay (below the Delaware Memorial Bridge), levels for nitrates were below EPA's drinking water standard of 10 mg/l.

No flow rate calculations could be made as little or no water was flowing over the weir during the two sampling periods.

Table 1. Contaminant concentrations in weir dewatering discharge monitored after the completion of the Salem River dredging project.

Parameters (mg/L)	Sample Date 12/7/95	Sample Date 1/3/96	Range of in-river Concentrations Observed Among the Pre, During, and Post-Dredge Monitoring Periods	Delaware Surface Water Quality Criteria (mg/L) - Marine		Detection Limit
Chloride	460	250	82 - 4700	None		20.0
Hardness	230	150	90 - 1700	None		5.0
Ammonia	0.4	0.1	< 0.1 - 0.4	Temperature and pH dependent		0.1
Nitrate	1.1	0.28	1.4 - 2.9	10 mg/L		0.05
Total Kjeldahl nitrogen	1.0	1.8	0.3 - 3.4	None		0.1
Total Phosphorus	< 0.1	< 0.1	< 0.1 - 0.5	None		0.1
Total Organic Carbon	5	5	< 1 - 9	None		1.0
Turbidity (NTUs)*	5.5	19	16 - 135	10 NTU's above natural conditions[a]		0.1
Total Suspended Solids	6	16	< 5 - 300	(b)		5.0
				Acute	Chronic	
Arsenic	< 0.1	< 0.1	ND	0.069	0.036	0.1
Cadmium	< 0.01	< 0.01	ND	0.043	0.0093	0.01
Chromium	< 0.02	<0.02	ND	1.10	0.050	0.02
Copper	< 0.02	< 0.02	ND	0.0029	--	0.02
Lead	< 0.1	< 0.1	ND	0.140	0.0056	0.1
Mercury	< 0.0002	< 0.0002	ND	0.0021	0.000025	0.0002
Nickel	< 0.04	< 0.04	ND	0.075	0.0083	0.04
Zinc	0.02	0.03	< 0.01 - 0.16	0.095	0.086	0.01

ND = Not detected.

** Turbidity measured using an Orbeco-Hellige Turbidimeter (nephelometer).

(a) Delaware River Basin Commission's stream quality objectives for Zone 5 include 30-day average turbidity, 40 NTU, or a one-time 150 NTU maximum. Delaware state surface water quality standards for marine water state that turbidity shall not exceed natural levels by more than 10 NTU.

(b) Delaware River Basin Commission's (1983) effluent quality requirements for all waters state that suspended solids should not exceed 30 mg/l as 30-day average and 45 mg/l as a 7-day average.

APPENDIX A

WATER QUALITY RESULTS
LABORATORY CERTIFICATES
DECEMBER 1995
JANUARY 1996

KEMRON Environmental Services
109 Starlite Park
Marietta, Ohio 45750

Phone: (614) 373-4071

VERSAR, INC.
9200 Rumsey Road
Columbia, MD 21045-1934

Attn: Willie Burton

Order #: N5-12-167
Date: December 20, 1995 11:20
Work ID: 3062-002/Salem River Dredge
Date Received: 12/08/95
Date Completed: 12/20/95

Client Code: VERSAR_MD331

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	SALM-WE-DUR-001		

AS REQUESTED ALL TOTAL ANALYSES HAVE BEEN REPORTED ON A DRY WEIGHT BASIS WHERE APPLICABLE

This report shall not be reproduced, except in full, without the written approval of KEMRON.

Deanna Hesson

Certified by
Deanna Hesson

CASE NARRATIVE

The pH analysis was analyzed outside of the hold time on sample SALM-WE-DUR-001 (Kemron ID N5-12-167-01) per client request.

KEMRON ENVIRONMENTAL SERVICES
RESULTS BY SAMPLE

This is to certify that the following samples were analyzed using good laboratory practices to show the following results.

SAMPLE ID: **01** **SALM-WE-DUR-001** Collected: **12/07/95 12:10** Category: **WATER**

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Chloride	460	20	mg/L Cl	12/14/95	DIH	325.2
Hardness	230	5	mg/L CaCO3	12/11/95	PJH	130.2
Nitrogen, Ammonia	0.4	0.1	mg/L N	12/15/95	REB	350.1
Nitrogen, Nitrate	1.1	0.05	mg/L N	12/11/95	REB	353.2
Nitrogen, Total Kjeldahl	1.0	0.1	mg/L N	12/12/95	REB	351.2
pH (Lab)	7.2		S.U.	12/08/95	SCM	150.1/9040B
Phosphorus, Total	<0.1	0.1	mg/L P	12/12/95	REB	365.4
Total Organic Carbon	5	1	mg/L	12/11/95	REB	415.1
Total Suspended Solids	6	5	mg/L	12/11/95	SCM	160.2
Turbidity	5.5	0.1	NTU	12/08/95	SCM	180.1
Arsenic, Total	<0.1	0.1	mg/L As	12/18/95	JEC	200.7/6010A
Cadmium, Total	<0.01	0.01	mg/L Cd	12/18/95	JEC	200.7/6010A
Chromium, Total	<0.02	0.02	mg/L Cr	12/18/95	JEC	200.7/6010A
Copper, Total	<0.02	0.02	mg/L Cu	12/18/95	JEC	200.7/6010A
Lead, Total	<0.1	0.1	mg/L Pb	12/18/95	JEC	200.7/6010A
Mercury, Total	<0.0002	0.0002	mg/L Hg	12/12/95	TAS	245.1/7470A
Nickel, Total	<0.04	0.04	mg/L Ni	12/18/95	JEC	200.7/6010A
Zinc, Total	0.02	0.01	mg/L Zn	12/18/95	JEC	200.7/6010A

EPA Method 200.7/SW6010A (ICP)- Arsenic

EPA Method 200.7/SW6010A (ICP) - Cadmium

EPA Method 325.2 - Colorimetric, Automated Ferricyanide - Chloride

EPA Method 200.7/SW6010A (ICP) - Chromium

EPA Method 200.7/SW6010A (ICP) - Copper

EPA Method 130.2 Hardness - Titrimetric

EPA Method 245.1/SW7470A (Cold Vapor) - Mercury

EPA Method 350.1 - Ammonia - Distillation and Automated Phenate

EPA Method 200.7/SW6010A (ICP) - Nickel

EPA Method 353.2 - Automated Cadmium Reduction - Nitrate

METHOD 200.7/SW6010 (ICP) - Lead

EPA Method 150.1/SW9040B - pH - Electrometric

EPA Method 365.4 - Automated Colorimetric, Ascorbic Acid - Phosphorus, Total

EPA Method 351.2 - Automated, Colorimetric - Total Kjeldahl Nitrogen

EPA Method 415.1 - Total Organic Carbon

EPA Method 160.2 (Dried at 103-105C) - Total Suspended Solids

EPA Method 180.1 - Turbidity

EPA Method 200.7/SW6010A (ICP) - Zinc

KEMRON ANALYST LIST

Ohio Valley Laboratory

09/19/95

AJS - - Ashlee J. Scott
ALC - - Ann L. Clark
CEB - - Chad E. Barnes
DIH - - Deanna I. Hesson
DJP - - Douglas J. Poling
DLP - - Dorothy L. Payne
DST - - Dennis S. Tepe
ECL - - Eric C. Lawson
EDG - - Eric D. Gerkin
FEH - - Fay E. Harmon
FRM - - Fred R. Montgomery
GWH - - George W. Hutchison
HV - - Hema Vilasagar
JEC - - Jesse E. Chapman
JKM - - June K. Morris
JLI - - Janice L. Inghram
JLL - - Janice L. Landshof
JLM - - Joy L. Mullins
JMM - - Jim M. Monk
JWR - - John W. Richards
JYH - - Ji Y. Hu
KHA - - Kim H. Archer
KMM - - Kevin M. McDonald
KPO - - Kevin P. Overstreet
KRA - - Kathy R. Albertson
LMW - - Lisa M. Wagner
MBJ - - Matthew B. Jarrell
MDA - - Mike D. Albertson
MDC - - Michael D. Cochran
MLS - - Michael L. Schimmel
PJH - - Pamela J. Holtz
REB - - Russell E. Burton
REK - - Robert E. Kyer
RJS - - Rick J. Santos
RWC - - Rodney W. Campbell
SCM - - Susan C. Moellendick
SCW - - Stephen C. West
SLT - - Stephanie L. Tepe
SPL - - Steve P. Learn
TAS - - Tamela A. Sams
TLD - - Teresa L. Davis
VC - - Vicki Collier
WCD - - Wade C. Dawson

INORGANIC QA/QC

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 12/18/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
ALUMINIUM-ICP J	mg/L	JYH	1	0.99	99.00	120	80	1.01	0.99	2.00	<0.1	0.1	1	1.01	101.00	125	75
CADMIUM-ICP J	mg/L	JYH	1	0.97	97.00	120	80	0.98	0.97	1.03	<0.01	0.01	1	0.98	98.00	125	75
CHROMIUM-ICP J	mg/L	JYH	1	0.97	97.00	120	80	0.97	0.95	2.08	<0.02	0.02	1	0.97	97.00	125	75
COPPER-ICP J	mg/L	JYH	1	0.99	99.00	120	80	0.99	1	1.01	<0.02	0.02	1	1	100.00	125	75
NICKEL-ICP J	mg/L	JYH	1	0.99	99.00	120	80	0.97	0.97	0.00	<0.04	0.04	1	0.97	97.00	125	75
ZINC-ICP J	mg/L	JYH	1	0.97	97.00	120	80	0.96	0.95	1.05	<0.01	0.01	1	0.95	95.00	125	75
MOLYBDENUM-ICP J	mg/L	JYH	1	0.95	95.00	120	80	0.95	0.95	0.00	<0.1	0.1	1	0.95	95.00	125	75
BORON-ICP J	mg/L	JYH	1	0.99	99.00	120	80	1.06	1.05	0.95	<0.1	0.1	1	1.06	106.00	125	75
BERYLLIUM-FURN Z	mg/L	KHA	0.002	0.0023	92.00	120	80	0.00422	0.0042	0.94	<0.0005	0.0005	0.0025	0.00279	111.60	115	85
MERCURY F	mg/kg	TAS	3.3	3.13	94.85	5.15	1.47	0.00097	0.0009	3.14	<0.25	0.25	0.001	0.00097	97.00	115	85
MERCURY Y	mg/L	TAS	0.001	0.0009	90.00	120	80	0.00094	0.0010	14.78	<0.0002	0.0002	0.001	0.000947	94.70	115	85
MERCURY V	mg/L	TAS	0.001	0.0009	90.00	120	80	0.00099	0.0009	4.12	<0.0002	0.0002	0.001	0.001	100.00	115	85
SILVER-ICP W	mg/L	JEC	0.2	0.214	107.00	120	80	0.2	0.191	4.60	<0.01	0.01	0.2	0.183	91.50	125	75
ALUMINUM-ICP W	mg/L	JEC	1	1.09	109.00	120	80	50.6	48.3	4.65	<0.1	0.1	1	0.91	91.00	125	75
BARIUM-ICP W	mg/L	JEC	10	10.4	104.00	120	80	9.22	8.36	9.78	<0.01	0.01	10	8.8	88.00	125	75
BERYLLIUM-ICP W	mg/L	JEC	1	1.03	103.00	120	80	0.927	0.894	3.62	<0.01	0.01	1	0.903	90.30	125	75
CALCIUM-ICP W	mg/L	JEC	10	10.5	105.00	120	80	24.5	24.5	0.00	<0.2	0.2	10	9.15	91.50	125	75
CADMIUM-ICP W	mg/L	JEC	1	1.07	107.00	120	80	0.967	0.941	2.73	<0.01	0.01	1	0.948	94.80	125	75
CHROMIUM-ICP W	mg/L	JEC	1	1.04	104.00	120	80	0.948	0.933	1.59	<0.02	0.02	1	0.907	90.70	125	75
COPPER-ICP W	mg/L	JEC	1	1.07	107.00	120	80	1.01	0.965	4.56	<0.02	0.02	1	0.911	91.10	125	75
IRON-ICP W	mg/L	JEC	1	1.06	106.00	120	80	18.7	18.1	3.26	<0.04	0.04	1	0.911	91.10	125	75
POTASSIUM-ICP W	mg/L	JEC	10	9.95	99.50	120	80	26.3	25	5.07	<1	1	10	8.68	86.80	125	75
MAGNESIUM-ICP W	mg/L	JEC	10	10.4	104.00	120	80	24.6	23.8	3.31	<0.5	0.5	10	9.36	93.60	125	75
MANGANESE-ICP W	mg/L	JEC	1	1.06	106.00	120	80	1	0.973	2.74	<0.01	0.01	1	0.919	91.90	125	75
SODIUM-ICP W	mg/L	JEC	10	10.5	105.00	120	80	136	129	5.28	<0.5	0.5	10	9.68	96.80	125	75
NICKEL-ICP W	mg/L	JEC	1	1.06	106.00	120	80	0.961	0.937	2.53	<0.04	0.04	1	0.938	93.80	125	75
ZINC-ICP W	mg/L	JEC	1	1.08	108.00	120	80	1.28	1.29	0.78	<0.01	0.01	1	0.958	95.80	125	75
ARSENIC-ICP W	mg/L	JEC	1	1.07	107.00	120	80	0.923	0.891	3.53	<0.1	0.1	1	0.953	95.30	125	75
LEAD-ICP W	mg/L	JEC	1	0.976	97.60	120	80	0.905	0.935	3.26	<0.1	0.1	1	0.937	93.70	125	75
CADMIUM-ICP C	mg/L	JEC	1	0.961	96.10	120	80	0.756	0.73	3.50	<0.01	0.01	1	0.936	93.60	125	75
CHROMIUM-ICP C	mg/L	JEC	1	0.94	94.00	120	80	1.56	1.46	6.62	<0.02	0.02	1	0.914	91.40	125	75
COPPER-ICP C	mg/L	JEC	1	0.941	94.10	120	80	3.38	3.25	3.92	<0.02	0.02	1	0.919	91.90	125	75
NICKEL-ICP C	mg/L	JEC	1	0.948	94.80	120	80	1.23	1.17	5.00	<0.04	0.04	1	0.934	93.40	125	75
ZINC-ICP C	mg/L	JEC	1	0.983	98.30	120	80	24.9	24.3	2.44	<0.01	0.01	1	0.962	96.20	125	75
LEAD-ICP C	mg/L	JEC	1	0.952	95.20	120	80	19.3	19	1.57	<0.1	0.1	1	0.931	93.10	125	75
CADMIUM-ICP C	mg/L	ALC	0.002	0.0024	97.20	120	80	0.00247	0.0024	2.04	<0.0005	0.0005	0.0025	0.00247	98.80	115	85
CADMIUM-ICP J	mg/kg	ALC	51.4	53.8	104.67	74.1	29.1	0.0024	0.0023	1.68	<0.0005	0.0005	0.0025	0.0024	96.00	115	85
LEAD-FURNACE C	mg/L	ALC	0.025	0.0247	98.80	120	80	0.0238	0.0242	1.67	<0.005	0.005	0.025	0.0242	96.80	115	85
LEAD-FURNACE J	mg/kg	ALC	176	162	92.05	251	92.8	0.0263	0.0296	11.81	<0.005	0.005	0.025	0.0278	111.20	115	85

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
DL = DILUTED OUT
NR = NOT REQUIRED
S = ANALYZED BY METHOD OF STANDARD ADDITION

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 12/15/95

			REFERENCE STANDARD					DUPLICATE SAMPLE			BLANK		MATRIX/MEDIA SPIKE				
Parameter	Units	Analyst	Known	Result	Rec.(%)	UCLx	LCLx	Result1	Result2	RPD (%)	Result	MDL	Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
AMMONIA-E A	mg/kg	REB	30	26.2	87.33	125	75	1.3	1.3	0.00	<0.45	0.45	15	16.6	110.67	125	75
AMMONIA-E B	mg/kg	REB	30	32.7	109.00	125	75	< 0.45	< 0.45	0.00	<0.45	0.45	15	15.5	103.33	125	75
AMMONIA A	mg/L	REB	2	1.59	79.50	125	75	< 0.1	< 0.1	0.00	<0.1	0.1	1	0.806	80.60	125	75
AMMONIA B	mg/L	REB	2	1.81	90.50	125	75	1	1	0.00	<0.1	0.1	1	0.802	80.20	125	75
AMMONIA C	mg/L	REB	2	1.64	82.00	125	75	0.95	1	5.13	<0.1	0.1	1	0.839	83.90	125	75
AMMONIA AA	mg/L	REB	2	1.93	96.50	125	75	0.3	0.3	0.00	<0.1	0.1	---	---	---	---	---
SILVER-ICP A	mg/L	JYH	0.2	0.19	95.00	120	80	0.19	0.19	0.00	<0.01	0.01	0.2	0.19	95.00	125	75
ALUMINUM-ICP A	mg/L	JYH	1	0.99	99.00	120	80	0.99	1.02	2.99	<0.1	0.1	1	0.99	99.00	125	75
BARIUM-ICP A	mg/L	JYH	10	9.8	98.00	120	80	9.8	9.9	1.02	<0.01	0.01	10	9.8	98.00	125	75
CADMIUM-ICP A	mg/L	JYH	1	1.01	101.00	120	80	1	1.02	1.98	<0.01	0.01	1	1	100.00	125	75
CHROMIUM-ICP A	mg/L	JYH	1	0.99	99.00	120	80	1	1	0.00	<0.02	0.02	1	1	100.00	125	75
COPPER-ICP A	mg/L	JYH	1	0.99	99.00	120	80	1	1	0.00	<0.02	0.02	1	1	100.00	125	75
LEAD-ICP A	mg/L	JYH	1	1.01	101.00	120	80	1.05	1.05	0.00	<0.04	0.04	1	1.05	105.00	125	75
MANGANESE-ICP A	mg/L	JYH	1	1.02	102.00	120	80	1.02	1.02	0.00	<0.01	0.01	1	1.02	102.00	125	75
NICKEL-ICP A	mg/L	JYH	1	1.02	102.00	120	80	1.01	1.02	0.99	<0.04	0.04	1	1.01	101.00	125	75
ZINC-ICP A	mg/L	JYH	1	1.02	102.00	120	80	1.04	1.02	1.94	<0.01	0.01	1	1.04	104.00	125	75
ARSENIC-ICP A	mg/L	JYH	1	1.03	103.00	120	80	1.01	1.06	4.83	<0.1	0.1	1	1.06	106.00	125	75
LEAD-ICP A	mg/L	JYH	1	0.99	99.00	120	80	1.01	1.02	0.99	<0.1	0.1	1	1.01	101.00	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
DL = DILUTED OUT
NR = NOT REQUIRED
S = ANALYZED BY METHOD OF STANDARD ADDITION

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

QUALITY ASSURANCE [illegible]LY REPORT

OHIO VALLEY LABORATORY Date: 12/14/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
CHLORIDE	mg/L	DIH	50	49.4	98.80	111	93	140	150	6.90	<2	2	20	23.2	116.00	117	76
CYANIDE	mg/kg	JWR	20	19	95.00	110	90	4.1	4.5	9.30	<0.5	0.5	10	10.03	100.30	125	75
COD-LOW	mg/L	SCM	100	108	108.00	120	80	100	100	0.00	<5	5	50	66	132.00	125	75
COD-HI	mg/L	SCM	1000	1047	104.70	120	80	250	250	0.00	<150	150	500	540	108.00	125	75
SILVER-ICP D	mg/L	JYH	0.2	0.2	100.00	120	80	0.2	0.19	5.13	<0.01	0.01	0.2	0.19	95.00	125	75
ALUMINIUM-ICP D	mg/L	JYH	1	1.01	101.00	120	80	0.99	0.96	3.08	<0.1	0.1	1	0.99	99.00	125	75
BARIUM-ICP D	mg/L	JYH	10	9.9	99.00	120	80	10	9.8	2.02	<0.01	0.01	10	9.8	98.00	125	75
BERYLLIUM-ICP D	mg/L	JYH	1	0.95	95.00	120	80	0.97	0.96	1.04	<0.01	0.01	1	0.97	97.00	125	75
CADMIUM-ICP D	mg/L	JYH	1	0.98	98.00	120	80	0.99	0.97	2.04	<0.01	0.01	1	0.99	99.00	125	75
NICKEL-ICP D	mg/L	JYH	1	1	100.00	120	80	1.02	1.02	0.00	<0.04	0.04	1	1.02	102.00	125	75
ANTIMONY-ICP D	mg/L	JYH	1	0.99	99.00	120	80	1.03	0.97	6.00	<0.2	0.2	1	1.03	103.00	125	75
ARSENIC-ICP D	mg/L	JYH	1	0.99	99.00	120	80	1.06	1.03	2.87	<0.1	0.1	1	1.06	106.00	125	75
LEAD-ICP D	mg/L	JYH	1	0.97	97.00	120	80	0.96	0.97	1.04	<0.1	0.1	1	0.96	96.00	125	75
SELENIUM-ICP D	mg/L	JYH	1	0.97	97.00	120	80	1.02	1.02	0.00	<0.1	0.1	1	1.02	102.00	125	75
LEAD-FURN I	mg/kg	KHA	176	168.4	95.68	251	92.8	DL	DL	---	<0.25	0.25	0.025	0.0226	90.40	115	85
MERCURY A-1	mg/L	TAS	0.001	0.0011	110.00	120	80	0.00092	0.0010	12.24	<0.0002	0.0002	0.001	0.00104	104.00	115	85
MERCURY A-7	mg/kg	TAS	3.3	3.16	95.76	120	80	0.00101	0.0010	4.83	<0.0002	0.0002	0.001	0.00101	101.00	115	85
ARSENIC-FURN M	mg/L	AJS	0.025	0.0282	112.80	120	80	0.0312	0.0317	1.59	<0.004	0.004	0.025	0.0267	106.80	115	85
ANTIMONY-FURN D	mg/kg	ALC	37.2	31.1	83.60	109	7.44	0.0679	0.0667	1.78	<0.020	0.02	0.025	0.0252	100.80	115	85
ANTIMONY-FURN L	mg/kg	ALC	37.2	31.7	85.22	109	7.44	0.0862	0.085	1.40	<0.020	0.02	0.025	0.0237	94.80	115	85
SILVER-FURN I	mg/kg	KHA	170	124.3	73.12	248	85	0.00273	0.0023	14.54	<0.2	0.2	0.005	0.00347	69.40	115	85
CADMIUM-FURN I	mg/kg	KHA	51.4	45	87.55	74.1	29.1	0.0012	0.0012	0.00	<0.025	0.025	0.0025	0.0023	92.00	115	85
CADMIUM-FURN R	mg/L	KHA	0.002	0.0024	96.00	120	80	0.0022	0.0023	4.44	<0.0005	0.0005	0.0025	0.0022	88.00	115	85
ANTIMONY-FURN R	mg/L	ALC	0.025	0.0254	101.60	120	80	< 0.02	< 0.02	0.00	<0.02	0.02	0.025	0.0229	91.60	115	85
ANTIMONY-FURN G	mg/L	ALC	0.025	0.0261	104.40	120	80	0.0221	0.0223	0.90	<0.02	0.02	0.025	0.0223	89.20	115	85
LEAD-FURN U	mg/L	ALC	0.025	0.0252	100.80	120	80	0.0244	0.0253	3.62	<0.002	0.002	0.025	0.0253	101.20	115	85
TOC A	mg/L	DIH	10	9.21	92.10	110	90	5	5	0.00	<1	1	5	6.3	126.00	125	75
TOC B	mg/L	DIH	10	11	110.00	110	90	49	46	6.32	<1	1	5	5.93	118.60	125	75
NICKEL-ICP D	mg/kg	JEC	94	88.3	93.94	137	51.3	1.04	1.05	0.96	<0.04	0.04	1	0.895	89.50	125	75
ARSENIC-ICP D	mg/kg	JEC	228	220	96.49	340	112	1.04	0.964	7.58	<0.1	0.1	1	0.899	89.90	125	75
LEAD-ICP D	mg/kg	JEC	176	166	94.32	251	92.8	0.909	0.912	0.33	<0.1	0.1	1	0.901	90.10	125	75
SELENIUM-ICP D	mg/kg	JEC	75.5	71	94.04	112	39.5	0.864	0.901	4.19	<0.1	0.1	1	0.935	93.50	125	75
CHROMIUM-ICP A	mg/kg	JEC	91.3	86.8	95.07	129	48.8	0.282	0.265	6.22	<0.02	0.02	1	0.892	89.20	125	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
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RPD (%) = Relative Percent Difference
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S = ANALYZED BY METHOD OF STANDARD ADDITION

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 12/12/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
SILVER-ICP C	mg/L	JYH	0.2	0.2	100.00	120	80	0.18	0.18	0.00	<0.01	0.01	0.2	0.18	90.00	125	75
BARIUM-ICP C	mg/L	JYH	10	9.7	97.00	120	80	8.2	8.2	0.00	<0.01	0.01	10	8.2	82.00	125	75
CADMIUM-ICP C	mg/L	JYH	1	0.98	98.00	120	80	0.96	0.96	0.00	<0.01	0.01	1	0.96	96.00	125	75
CHROMIUM-ICP C	mg/L	JYH	1	0.99	99.00	120	80	0.9	0.95	5.41	<0.02	0.02	1	0.9	90.00	125	75
ARSENIC-ICP C	mg/L	JYH	1	0.98	98.00	120	80	0.97	0.97	0.00	<0.1	0.1	1	0.97	97.00	125	75
LEAD-ICP C	mg/L	JYH	1	0.99	99.00	120	80	0.89	0.93	4.40	<0.1	0.1	1	0.89	89.00	125	75
SELENIUM-ICP C	mg/L	JYH	1	0.96	96.00	120	80	0.9	0.9	0.00	<0.1	0.1	1	0.9	90.00	125	75
BORON-ICP C	mg/L	JYH	1	1.01	101.00	120	80	0.87	0.87	0.00	<0.1	0.1	1	0.87	87.00	125	75
MOLYBDENUM-ICP C	mg/L	JYH	2.5	2.44	97.60	120	80	2.3	2.3	0.00	<0.1	0.1	2.5	2.3	92.00	125	75
CHLORIDE A	mg/L	REB	50	50.3	100.60	111	93	130	120	8.00	<2	2	20	18	90.00	117	76
CHLORIDE B	mg/L	REB	50	51.5	103.00	111	93	4	4	0.00	<2	2	20	17.6	88.00	117	76
CHLORIDE C	mg/L	REB	50	50.7	101.40	111	93	27	29	7.14	<2	2	20	19	95.00	117	76
PHOSPHORUS	mg/L	REB	2	1.77	88.50	125	75	6.3	5.6	11.76	<0.1	0.1	0.5	0.518	103.60	125	75
COD LOW	mg/L	DIH	100	108	108.00	120	80	130	120	8.00	<5	5	50	56	112.00	125	75
COD HIGH	mg/L	DIH	1000	1067	106.70	120	80	340	350	2.90	<150	150	500	505	101.00	125	75
FORMALDEHYDE	mg/L	JWR	0.5	0.496	99.20	121	79	< 0.1	< 0.1	0.00	<.1	0.1	0.5	0.487	97.40	125	75
TKN A	mg/L	REB	1	0.843	84.30	125	75	6.7	6.3	6.15	<0.1	0.1	0.5	0.443	88.60	125	75
TKN B	mg/L	REB	1	0.746	74.60	125	75	0.65	0.65	0.00	<0.1	0.1	0.5	0.456	91.20	125	75
OIL & GREASE A	mg/L	PJH	10	10	100.00	114	83	10	10.4	3.92	<1	1	NR	NR	NR	NR	NR
OIL & GREASE B	mg/L	PJH	10.1	10.6	104.95	114	83	10.6	11.7	9.87	<1	1	NR	NR	NR	NR	NR
OIL & GREASE C	mg/L	PJH	10	9.5	95.00	114	83	9.5	10.5	10.00	<1	1	NR	NR	NR	NR	NR
CYANIDE	mg/L	RJS	0.4	0.437	109.25	110	90	0.01	0.01	0.00	<0.01	0.01	0.2	0.195	97.50	125	75
CYANIDE-SOIL	mg/kg	RJS	20	18.881	94.41	110	90	16	16	0.00	<0.50	0.5	10	5.16	51.60	125	75
MERCURY J	mg/L	TAS	0.001	0.001	100.00	120	80	8 0.00097	0.0009	0.00	<0.0002	0.0002	0.001	0.000976	97.60	115	85
MERCURY D	mg/L	TAS	0.001	0.001	100.00	120	80	0.00101	0.0009	4.04	<0.0002	0.0002	0.001	0.00101	101.00	115	85
CHROMIUM-FURN U	mg/L	AJS	0.025	0.0262	104.80	120	80	0.0248	0.0328	27.78	<0.005	0.005	0.025	0.0248	99.20	115	85
ARSENIC-FURN I	mg/kg	AJS	228	239	104.82	340	112	0.053	0.0529	0.19	<0.004	0.004	0.025	0.025	100.00	115	85
THALLIUM-FURN X	mg/kg	ALC	64.3	69.6	108.24	96.4	32.1	0.0261	0.0241	7.97	<0.25	0.25	0.025	0.0244	97.60	115	85
THALLIUM-FURN Y	mg/kg	ALC	64.3	68	105.75	96.4	32.1	0.0216	0.0229	5.84	<0.25	0.25	0.025	0.0248	99.20	115	85
PHENOL A	mg/L	JWR	0.5	0.543	108.60	114	85	0.011	0.012	8.70	<0.05	0.05	0.5	0.535	107.00	122	75
PHENOL B	mg/L	JWR	0.5	0.53	106.00	114	85	0.015	0.018	18.18	<0.005	0.005	0.5	0.598	119.60	122	75
FLUORIDE	mg/L	SCM	2	1.97	98.50	116	87	0.1	0.1	0.00	<.1	0.1	1	0.95	95.00	116	75

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
DL = DILUTED OUT
NR = NOT REQUIRED
S = ANALYZED BY METHOD OF STANDARD ADDITION

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

QUALITY ASSURANCE REPORT

OHIO VALLEY LABORATORY Date: 12/11/95

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
SULFATE	mg/L	PJH	20	21.2	106.00	120	80	69	65	5.97	<2	2	10	8.6	86.00	125	75
CYANIDE-SOIL	mg/kg	JWR	20	19.5	97.50	110	90	< 0.5	< 0.5	0.00	<0.5	0.5	10	10.5	105.00	125	75
BARIUM-ICP T	mg/L	JYH	10	9.8	98.00	120	80	9.6	9.3	3.17	<0.01	0.01	10	9.6	96.00	125	75
TSS A	mg/L	SCM	50	48	96.00	125	75	71	74	4.14	<5	5	NR	NR	NR	NR	NR
TSS B	mg/L	SCM	50	50	100.00	125	75	24	28	15.38	<5	5	NR	NR	NR	NR	NR
TSS C	mg/L	SCM	50	50	100.00	125	75	35	38	8.22	<5	5	NR	NR	NR	NR	NR
TDS C	mg/L	SCM	500	522	104.40	114	80	500	430	15.05	<10	10	500	516	103.20	124	78
TDS B	mg/L	SCM	500	486	97.20	114	80	290	360	21.54	<10	10	500	474	94.80	124	78
TDS A	mg/L	SCM	500	490	98.00	114	80	640	600	6.45	<10	10	500	484	96.80	124	78
SULFIDE	mg/L	SCM	20	19.2	96.00	118	82	19	19	0.00	<1	1	NR	NR	NR	NR	NR

UCLx = Upper Control Limit (Standard)
LCLx = Lower Control Limit (Standard)
UCLr = Upper Control Limit (Range)
RPD (%) = Relative Percent Difference
* = Initial Data Collection
** = ANALYZED BY METHOD OF STANDARD ADDITION

UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 12/11/95

			REFERENCE STANDARD					DUPLICATE SAMPLE			BLANK		MATRIX/MEDIA SPIKE				
Parameter	Units	Analyst	Known	Result	Rec.(%)	UCLx	LCLx	Result1	Result2	RPD (%)	Result	MDL	Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
MERCURY H-1	mg/L	TAS	0.001	0.001	100.00	120	80	0.00103	0.0010	0.98	<0.0002	0.0002	0.001	0.00102	102.00	115	85
CADMIUM-ICP T	mg/L	JYH	1	0.98	98.00	120	80	0.94	0.92	2.15	<0.01	0.01	1	0.94	94.00	125	75
CHROMIUM-ICP T	mg/L	JYH	1	0.98	98.00	120	80	0.95	0.93	2.13	<0.02	0.02	1	0.95	95.00	125	75
COPPER-ICP T	mg/L	JYH	1	0.98	98.00	120	80	0.96	0.93	3.17	<0.02	0.02	1	0.96	96.00	125	75
IRON-ICP T	mg/L	JYH	1	1.05	105.00	120	80	1.01	0.94	7.18	<0.04	0.04	1	1.01	101.00	125	75
NICKEL-ICP T	mg/L	JYH	1	1.03	103.00	120	80	0.96	0.94	2.11	<0.04	0.04	1	0.96	96.00	125	75
VANADIUM-ICP T	mg/L	JYH	1	0.96	96.00	120	80	0.94	0.92	2.15	<0.01	0.01	1	0.94	94.00	125	75
ZINC-ICP T	mg/L	JYH	1	0.99	99.00	120	80	0.94	0.92	2.15	<0.01	0.01	1	0.94	94.00	125	75
ARSENIC-ICP T	mg/L	JYH	1	1.01	101.00	120	80	0.96	0.97	1.04	<0.1	0.1	1	0.96	96.00	125	75
LEAD-ICP T	mg/L	JYH	1	0.99	99.00	120	80	0.94	0.92	2.15	<0.1	0.1	1	0.94	94.00	125	75
SELENIUM-ICP T	mg/L	JYH	1	0.94	94.00	120	80	0.91	0.95	4.30	<0.1	0.1	1	0.95	95.00	125	75
SILVER-ICP M	mg/L	JEC	0.2	0.199	99.50	120	80	0.19	0.182	4.30	<0.01	0.01	0.2	0.189	94.50	125	75
ALUMINIUM-ICP M	mg/L	JEC	1	0.989	98.90	120	80	1.29	1.26	2.35	<0.1	0.1	1	0.896	89.60	125	75
CADMIUM-ICP M	mg/L	JEC	1	1.07	107.00	120	80	1.03	0.992	3.76	<0.01	0.01	1	1.03	103.00	125	75
CHROMIUM-ICP M	mg/L	JEC	1	1.02	102.00	120	80	1.04	0.999	4.02	<0.02	0.02	1	0.959	95.90	125	75
COPPER-ICP M	mg/L	JEC	1	1.01	101.00	120	80	0.965	0.935	3.16	<0.02	0.02	1	0.938	93.80	125	75
IRON-ICP M	mg/L	JEC	1	1.04	104.00	120	80	3.97	3.84	3.33	<0.04	0.04	1	0.967	96.70	125	75
MAGNESIUM-ICP M	mg/L	JEC	10	10.5	105.00	120	80	23	22.1	3.99	<0.5	0.5	10	10.1	101.00	125	75
MANGANESE-ICP M	mg/L	JEC	1	1.03	103.00	120	80	1.09	1.06	2.79	<0.01	0.01	1	0.982	98.20	125	75
NICKEL-ICP M	mg/L	JEC	1	1.04	104.00	120	80	1.22	1.18	3.33	<0.04	0.04	1	1	100.00	125	75
ZINC-ICP M	mg/L	JEC	1	1.06	106.00	120	80	1.06	1.04	1.90	<0.01	0.01	1	1.04	104.00	125	75
SELENIUM-FURN A7	mg/L	JEC	0.025	0.0264	105.60	120	80	0.0355	0.0352	0.85	<0.004	0.004	0.025	0.0276	110.40	115	85
SILVER-ICP Q	mg/L	JEC	0.2	0.197	98.50	120	80	0.171	0.179	4.57	<0.01	0.01	0.2	0.189	94.50	125	75
ALUMINIUM-ICP Q	mg/L	JEC	1	0.971	97.10	120	80	1.58	1.64	3.73	<0.1	0.1	1	0.965	96.50	125	75
BERYLLIUM-ICP Q	mg/L	JEC	1	0.97	97.00	120	80	0.866	0.908	4.74	<0.01	0.01	1	0.969	96.90	125	75
CADMIUM-ICP Q	mg/L	JEC	1	1.01	101.00	120	80	0.933	0.98	4.91	<0.01	0.01	1	1.02	102.00	125	75
CHROMIUM-ICP Q	mg/L	JEC	1	1	100.00	120	80	0.878	0.921	4.78	<0.02	0.02	1	0.981	98.10	125	75
COPPER-ICP Q	mg/L	JEC	1	0.981	98.10	120	80	0.85	0.891	4.71	<0.02	0.02	1	0.97	97.00	125	75
IRON-ICP Q	mg/L	JEC	1	1.06	106.00	120	80	0.973	1.03	5.69	<0.04	0.04	1	0.952	95.20	125	75
NICKEL-ICP Q	mg/L	JEC	1	0.99	99.00	120	80	0.915	0.995	8.38	<0.04	0.04	1	1.02	102.00	125	75
ZINC-ICP Q	mg/L	JEC	1	1.01	101.00	120	80	0.988	1.05	6.08	<0.01	0.01	1	1.03	103.00	125	75
NITRATE A	mg/L	REB	1	0.943	94.30	111	90	0.07	0.06	15.38	<0.05	0.05	0.5	0.514	102.80	123	76
NITRATE B	mg/L	REB	1	0.955	95.50	111	90	0.59	0.6	1.68	<0.05	0.05	0.5	0.473	94.60	123	76
NITRATE C	mg/L	REB	1	0.97	97.00	111	90	0.94	0.94	0.00	<0.05	0.05	0.5	0.481	96.20	123	76
NITRATE D	mg/L	REB	1	0.914	91.40	111	90	0.66	0.66	0.00	<0.05	0.05	0.5	0.426	85.20	123	76
HARDNESS	mg/L	DIH	100	105	105.00	111	97	1400	1400	0.00	<5	5	100	102	102.00	117	86
TOC A	mg/L	REB	5	5.45	109.00	110	90	1400	1400	0.00	<1	1	5	4.9	98.00	125	75
TOC B	mg/L	REB	5	5.23	104.60	110	90	< 1	< 1	0.00	<1	1	5	3.87	77.40	125	75
TOC C	mg/L	REB	5	5.27	105.40	110	90	< 1	< 1	0.00	<1	1	5	5.12	102.40	125	75

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Post-digestion spikes on sodium, potassium, calcium, and magnesium

WORK ORDER #: 12-167-01 SAMPLE #: -01 PAGE 1

SAMPLE #	TESTS	REASON	REMOVED BY (ADT)	REMOVED FROM	MOVED TO	RELIQ. BY	RET'D BY (ADT)	RET'D TO	REC'D BY	REASON
-01	pH, NO_2, TURBID	ANALYSIS	SCM/12/8/1445	LOG-IN	WETL.	BRG	SCM/12/8/1640	WALK-IN	CB	STORAGE
-01	hard	"	dwh/12/11/0730	walkin	wet	BRG	dwh/12/11/1446	Archives	BRG	Storage
-01 A	general	"	dwh/12/11/0730	"	"	BRG	REB/12/11/1620	walkin	CB	storage
01 E	METALS	PRES.	DWH/12/11/95@1115	WALK-IN	WETLAB	CB	DWH/12-11-95/1520	ARCHIVE	BRG	Archive
-01	TKN/PHO	Anal.	REB/12/11/1200/95	"	wet/lab	MGD	REB/12/11/1620	Archive	CB	storage
-01	Cl	Anal	REB/12/12/0800/95	"	"	BRG	REB/12/12/1530	WALK-IN	BRG	Storage
01	NH_3	ANAL	REB/12/13/1600/95	walkin	wet lab	BRG	REB/12/14/1400	Archives	BRG	Archive
01	Cl	"	dwh/12/14/1245/95	"	"	~~BRG~~ BRG	dwh/12/14/1400	"	BRG	Archive

Versar INC.

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME	INDUSTRIAL HYGIENE SAMPLE Y / N
3062-002	Salem River Dredge - Dewatering	

SAMPLERS: (Signature) Gary Dilski (Printed) Gary A. Dilski

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TKN, PHOS, TOC	NH_3	Metal	Cl, NO_3, pH, TSS	Zn, Pb, Cd, Cr, Cu, Ni, Hg, As-ICP				REMARKS
SALMWDUR001	4/3/95	1210	X		Weir	5	X	X	X	X	X				

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Gary Dilski (Printed)	12/7/95 1500	(Printed)	(Printed)		(Printed)

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
(Printed)		Brenda Gregory (Printed) Brenda Gregory	12/8/95 930	C of C sealed Sp intact

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

Water Sample 10

Tag

KEMRON Environmental Services
109 Starlite Park
Marietta, Ohio 45750

Phone: (614) 373-4071

KEMRON ENVIRONMENTAL SERVICES

VERSAR, INC.
9200 Rumsey Road
Columbia, MD 21045-1934

Attn: Willie Burton

Order #: N6-01-052
Date: January 11, 1996 15:33
Work ID: 3062-002/Salem River Dredge
Date Received: 01/04/96
Date Completed: 01/11/96

Client Code: VERSAR_MD331

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	SALM-WE-DUR001		

AS REQUESTED ALL TOTAL ANALYSES HAVE BEEN REPORTED ON A DRY WEIGHT BASIS WHERE APPLICABLE

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Deanna Hesson

Certified by
Deanna Hesson

KEMRON ENVIRONMENTAL SERVICES
RESULTS BY SAMPLE

This is to certify that the following samples were analyzed using good laboratory practices to show the following results.

SAMPLE ID: **01** **SALM-WE-DUR001** Collected: **01/03/96 12:00** Category: **WATER**

TEST DESCRIPTION	RESULT	DETECTION LIMIT	UNITS	DATE ANALYZED	BY	METHOD
Chloride	250	20	mg/L Cl			325.2
Hardness	150	5	mg/L CaCO3	01/10/96	PJH	130.2
Nitrogen, Ammonia	0.1	0.1	mg/L N	01/10/96	REB	350.1
Nitrogen, Nitrate	0.28	0.05	mg/L N	01/11/96	REB	353.2
Nitrogen, Total Kjeldahl	1.8	0.1	mg/L N	01/10/96	REB	351.2
pH (Lab)	7.0		S.U.	01/04/96	SCM	150.1/9040B
Phosphorus, Total	<0.1	0.1	mg/L P	01/10/96	REB	365.4
Total Organic Carbon	5	1	mg/L	01/05/96	PJH	415.1
Total Suspended Solids	16	5	mg/L	01/04/96	PJH	160.2
Turbidity	19	0.1	NTU	01/05/96	REB	180.1
Arsenic, Total	<0.1	0.1	mg/L As	01/10/96	JYH	200.7/6010A
Cadmium, Total	<0.01	0.01	mg/L Cd	01/10/96	JYH	200.7/6010A
Chromium, Total	<0.02	0.02	mg/L Cr	01/10/96	JYH	200.7/6010A
Copper, Total	<0.02	0.02	mg/L Cu	01/10/96	JYH	200.7/6010A
Lead, Total	<0.1	0.1	mg/L Pb	01/10/96	JYH	200.7/6010A
Mercury, Total	<0.0002	0.0002	mg/L Hg	01/10/96	TAS	245.1/7470A
Nickel, Total	<0.04	0.04	mg/L Ni	01/10/96	JYH	200.7/6010A
Zinc, Total	0.03	0.01	mg/L Zn	01/10/96	JYH	200.7/6010A

EPA Method 200.7/SW6010A (ICP)- Arsenic

EPA Method 200.7/SW6010A (ICP) - Cadmium

EPA Method 325.2 - Colorimetric, Automated Ferricyanide - Chloride

EPA Method 200.7/SW6010A (ICP) - Chromium

EPA Method 200.7/SW6010A (ICP) - Copper

EPA Method 130.2 Hardness - Titrimetric

EPA Method 245.1/SW7470A (Cold Vapor) - Mercury

EPA Method 350.1 - Ammonia - Distillation and Automated Phenate

EPA Method 200.7/SW6010A (ICP) - Nickel

EPA Method 353.2 - Automated Cadmium Reduction - Nitrate

METHOD 200.7/SW6010 (ICP) - Lead

EPA Method 150.1/SW9040B - pH - Electrometric

EPA Method 365.4 - Automated Colorimetric, Ascorbic Acid - Phosphorus, Total

EPA Method 351.2 - Automated, Colorimetric - Total Kjeldahl Nitrogen

EPA Method 415.1 - Total Organic Carbon

EPA Method 160.2 (Dried at 103-105C) - Total Suspended Solids

EPA Method 180.1 - Turbidity

EPA Method 200.7/SW6010A (ICP) - Zinc

KEMRON ANALYST LIST

Ohio Valley Laboratory

09/19/95

AJS - - Ashlee J. Scott
ALC - - Ann L. Clark
CEB - - Chad E. Barnes
DIH - - Deanna I. Hesson
DJP - - Douglas J. Poling
DLP - - Dorothy L. Payne
DST - - Dennis S. Tepe
ECL - - Eric C. Lawson
EDG - - Eric D. Gerkin
FEH - - Fay E. Harmon
FRM - - Fred R. Montgomery
GWH - - George W. Hutchison
HV - - Hema Vilasagar
JEC - - Jesse E. Chapman
JKM - - June K. Morris
JLI - - Janice L. Inghram
JLL - - Janice L. Landshof
JLM - - Joy L. Mullins
JMM - - Jim M. Monk
JWR - - John W. Richards
JYH - - Ji Y. Hu
KHA - - Kim H. Archer
KMM - - Kevin M. McDonald
KPO - - Kevin P. Overstreet
KRA - - Kathy R. Albertson
LMW - - Lisa M. Wagner
MBJ - - Matthew B. Jarrell
MDA - - Mike D. Albertson
MDC - - Michael D. Cochran
MLS - - Michael L. Schimmel
PJH - - Pamela J. Holtz
REB - - Russell E. Burton
REK - - Robert E. Kyer
RJS - - Rick J. Santos
RWC - - Rodney W. Campbell
SCM - - Susan C. Moellendick
SCW - - Stephen C. West
SLT - - Stephanie L. Tepe
SPL - - Steve P. Learn
TAS - - Tamela A. Sams
TLD - - Teresa L. Davis
VC - - Vicki Collier
WCD - - Wade C. Dawson

INORGANIC QA/QC

Kemron
ENVIRONMENTAL SERVICES

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 01/11/96

			REFERENCE STANDARD					DUPLICATE SAMPLE			BLANK		MATRIX/MEDIA SPIKE				
Parameter	Units	Analyst	Known	Result	Rec.(%)	UCLx	LCLx	Result1	Result2	RPD (%)	Result	MDL	Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
ANTIMONY-FURN G	mg/kg	KHA	37.2	24.4	65.59	109	7.44	0.021	0.0207	1.44	<1	1	0.025	0.0241	96.40	115	85
CADMIUM-FURN Q	mg/L	KHA	0.002	0.0025	100.00	120	80	0.00244	0.0024	0.82	<0.0005	0.0005	0.0025	0.00244	97.60	115	85
CADMIUM-FURN I	mg/kg	KHA	51.4	57.5	111.87	74.1	29.1	0.00217	0.0023	8.39	<0.025	0.025	0.0025	0.00215	86.00	115	85
MERCURY P	mg/L	TAS	0.001	0.0011	110.00	120	80	0.00115	0.0009	16.98	<0.0002	0.0002	0.001	0.000975	97.50	115	85
MERCURY M	mg/L	TAS	0.001	0.0009	90.00	120	80	0.00089	0.0009	3.31	<0.0002	0.0002	0.001	0.000922	92.20	115	85
CHLORIDE A	mg/L	REB	50	50.8	101.60	111	93	DL	DL	---	<2	2	20	DL	0.00	117	76
CHLORIDE B	mg/L	REB	50	52.1	104.20	111	93	43	43	0.00	<2	2	20	18.2	91.00	117	76
ALKALINITY	mg/L	REB	200	196	98.00	109	79	450	460	2.20	<10	10	NR	NR	NR	NR	NR
NITRATE A	mg/L	REB	1	0.993	99.30	111	90	1.7	1.7	0.00	<0.05	0.05	0.5	0.405	81.00	123	76
NITRATE B	mg/L	REB	1	0.944	94.40	111	90	0.46	0.45	2.20	<0.05	0.05	0.5	0.434	86.80	123	76
PHENOLICS	mg/L	JWR	0.5	0.541	108.20	114	85	< 0.005	< 0.005	0.00	<0.005	0.005	0.5	0.541	108.20	122	75
PHENOLICS-SOIL	mg/kg	JWR	10	10.6	106.00	125	75	44	45	2.25	<0.1	0.1	10	5.31	53.10	125	75
SULFIDE	mg/L	SCM	20	18.3	91.50	118	82	NR	NR	NR	<1	1	NR	NR	NR	NR	NR
TSS	mg/L	SCM	50	49	98.00	125	75	16	20	22.22	<5	5	NR	NR	NR	NR	NR
NITRITE	mg/L	SCM	0.1	0.093	93.00	125	75	0.09	0.09	0.00	<0.01	0.01	0.1	0.8	800.00	125	75
BORON-ICP D	mg/L	JYH	1	0.92	92.00	120	80	0.99	0.94	5.18	<0.5	0.5	1	0.94	94.00	125	75
MOLYBDENUM-ICP D	mg/L	JYH	2.5	2.3	92.00	120	80	2.6	2.6	0.00	<0.1	0.1	2.5	2.6	104.00	125	75
STRONTIUM-ICP D	mg/L	JYH	2	1.8	90.00	120	80	2.2	2.1	4.65	<0.01	0.01	2	2.2	110.00	125	75
SILVER-ICP D	mg/L	JYH	0.2	0.19	95.00	120	80	0.2	0.19	5.13	<0.01	0.01	0.2	0.19	95.00	125	75
ALUMINUM-ICP D	mg/L	JYH	1	0.95	95.00	120	80	0.99	1.02	2.99	<0.1	0.1	1	0.99	99.00	125	75
BARIUM-ICP D	mg/L	JYH	10	9.2	92.00	120	80	9.4	9.5	1.06	<0.01	0.01	10	9.5	95.00	125	75
BERYLLIUM-ICP D	mg/L	JYH	1	0.91	91.00	120	80	0.92	0.94	2.15	<0.01	0.01	1	0.92	92.00	125	75
CADMIUM-ICP D	mg/L	JYH	1	0.95	95.00	120	80	0.94	0.98	4.17	<0.01	0.01	1	0.94	94.00	125	75
COBALT-ICP D	mg/L	JYH	1	0.95	95.00	120	80	0.96	0.97	1.04	<0.02	0.02	1	0.96	96.00	125	75
CHROMIUM-ICP D	mg/L	JYH	1	0.94	94.00	120	80	0.95	0.97	2.08	<0.02	0.02	1	0.95	95.00	125	75
COPPER-ICP D	mg/L	JYH	1	0.95	95.00	120	80	0.97	0.99	2.04	<0.02	0.02	1	0.97	97.00	125	75
IRON-ICP D	mg/L	JYH	1	0.96	96.00	120	80	0.93	0.99	6.25	<0.04	0.04	1	0.99	99.00	125	75
MANGANESE-ICP D	mg/L	JYH	1	0.96	96.00	120	80	0.98	1	2.02	<0.01	0.01	1	0.98	98.00	125	75
NICKEL-ICP D	mg/L	JYH	1	0.97	97.00	120	80	0.95	0.99	4.12	<0.04	0.04	1	0.99	99.00	125	75
ANTIMONY-ICP D	mg/L	JYH	1	0.98	98.00	120	80	0.91	0.92	1.09	<0.01	0.01	1	0.91	91.00	125	75
VANADIUM-ICP D	mg/L	JYH	1	0.92	92.00	120	80	0.95	0.96	1.05	<0.01	0.01	1	0.95	95.00	125	75
ZINC-ICP D	mg/L	JYH	1	0.96	96.00	120	80	1	1.01	1.00	<0.01	0.01	1	1	100.00	125	75

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UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 01/10/96

Parameter	Units	Analyst	REFERENCE STANDARD Known	Result	Rec.(%)	UCLx	LCLx	DUPLICATE SAMPLE Result1	Result2	RPD (%)	BLANK Result	MDL	MATRIX/MEDIA SPIKE Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
MERCURY B	mg/L	TAS	0.001	0.0009	94.00	120	80	0.00090	0.0009	0.11	<0.0002	0.0002	0.001	0.000908	90.80	115	85
AMMONIA A	mg/L	REB	2	1.83	91.50	125	75	0.1	0.1	0.00	<0.1	0.1	1	0.867	86.70	125	75
AMMONIA B	mg/L	REB	2	1.75	87.50	125	75	0.7	0.8	13.33	<0.1	0.1	1	0.833	83.30	125	75
PHOSPHORUS	mg/L	REB	2	1.67	83.50	125	75	< 0.1	< 0.1	0.00	<0.1	0.1	0.5	0.484	96.80	125	75
TKN	mg/L	REB	1	0.92	92.00	125	75	1.8	1.5	18.18	<0.1	0.1	0.5	0.521	104.20	125	75
CHROMIUM-6	mg/L	REB	0.1	0.0996	99.60	114	89	< 0.01	< 0.01	0.00	<0.01	0.01	0.1	0.974	974.00	120	77
CYANIDE	mg/L	JWR	0.4	0.402	100.50	110	90	< 0.01	< 0.01	0.00	<0.01	0.01	0.2	0.21	105.00	125	75
TOC	mg/L	REB	5	4.93	98.60	110	90	1	1	0.00	<1	1	5	4.91	98.20	125	75
COD-LOW	mg/L	PJH	100	114	114.00	120	80	< 5	< 5	0.00	<5	5	50	52.6	105.20	125	75
COD-HIGH	mg/L	PJH	1000	1070	107.00	120	80	2300	2300	0.00	<150	150	500	553	110.60	125	75
HARDNESS	mg/L	PJH	100	99	99.00	111	97	120	120	0.00	<5	5	100	104	104.00	117	86
SILVER-ICP F	mg/L	JYH	0.2	0.19	95.00	120	80	0.19	0.19	0.00	<0.01	0.01	0.2	0.19	95.00	125	75
BARIUM-ICP F	mg/L	JYH	10	9.2	92.00	120	80	9.3	9.3	0.00	<0.01	0.01	10	9.3	93.00	125	75
CADMIUM-ICP F	mg/L	JYH	1	0.96	96.00	120	80	0.96	0.97	1.04	<0.01	0.01	1	0.96	96.00	125	75
CHROMIUM-ICP F	mg/L	JYH	1	0.95	95.00	120	80	0.95	0.96	1.05	<0.02	0.02	1	0.95	95.00	125	75
ARSENIC-ICP F	mg/L	JYH	1	1.03	103.00	120	80	1.02	1.05	2.90	<0.1	0.1	1	1.02	102.00	125	75
LEAD-ICP F	mg/L	JYH	1	0.99	99.00	120	80	0.98	0.96	2.06	<0.1	0.1	1	0.98	98.00	125	75
SELENIUM-ICP F	mg/L	JYH	1	1.05	105.00	120	80	1.01	0.96	5.08	<0.1	0.1	1	1.01	101.00	125	75
LEAD-FURNACE V	mg/L	AJS	0.025	0.027	108.00	120	80	0.0263	0.0272	3.36	<0.005	0.005	0.025	0.0263	105.20	115	85
CADMIUM-FURNACE V	mg/L	KHA	0.002	0.0023	93.20	120	80	0.00226	0.0023	2.62	<0.0005	0.0005	0.0025	0.00226	90.40	115	85
COPPER-ICP D	mg/L	JYH	1	0.93	93.00	120	80	0.95	0.96	1.05	<0.02	0.02	1	0.95	95.00	125	75
NICKEL-ICP D	mg/L	JYH	1	1	100.00	120	80	0.97	0.99	2.04	<0.04	0.04	1	0.97	97.00	125	75
ZINC-ICP D	mg/L	JYH	1	0.96	96.00	120	80	1.04	1.03	0.97	<0.01	0.01	1	1.04	104.00	125	75

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UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

KEMRON Environmental Services

QUALITY ASSURANCE DAILY REPORT

OHIO VALLEY LABORATORY Date: 01/05/96

			REFERENCE STANDARD					DUPLICATE SAMPLE			BLANK		MATRIX/MEDIA SPIKE				
Parameter	Units	Analyst	Known	Result	Rec.(%)	UCLx	LCLx	Result1	Result2	RPD (%)	Result	MDL	Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
SILVER-ICP M	mg/L	JYH	0.2	0.21	105.00	120	80	0.2	0.2	0.00	<0.01	0.01	0.2	0.2	100.00	125	75
BARIUM-ICP M	mg/L	JYH	10	10.2	102.00	120	80	10.4	10.2	1.94	<0.01	0.01	10	10.2	102.00	125	75
BERYLLIUM-ICP M	mg/L	JYH	1	0.98	98.00	120	80	0.97	0.98	1.03	<0.01	0.01	1	0.97	97.00	125	75
CADMIUM-ICP M	mg/L	JYH	1	1	100.00	120	80	1	0.99	1.01	<0.01	0.01	1	1	100.00	125	75
CHROMIUM-ICP M	mg/L	JYH	1	1.02	102.00	120	80	1.01	1	1.00	<0.02	0.02	1	1.02	102.00	125	75
NICKEL-ICP M	mg/L	JYH	1	1.02	102.00	120	80	1.02	1.01	0.99	<0.04	0.04	1	1.02	102.00	125	75
ANTIMONY-ICP M	mg/L	JYH	1	1.02	102.00	120	80	0.99	1	1.01	<0.01	0.01	1	1	100.00	125	75
ARSENIC-ICP M	mg/L	JYH	1	1.03	103.00	120	80	1.01	1	1.00	<0.1	0.1	1	1.01	101.00	125	75
LEAD-ICP M	mg/L	JYH	1	1.01	101.00	120	80	1.02	0.99	2.99	<0.1	0.1	1	1.02	102.00	125	75
SELENIUM-ICP M	mg/L	JYH	1	1.02	102.00	120	80	1.01	1.06	4.83	<0.1	0.1	1	1.01	101.00	125	75
CHLORIDE A	mg/L	DIH	50	52.4	104.80	111	93	2	2	0.00	<2	2	20	20	100.00	117	76
CHLORIDE B	mg/L	DIH	50	52.2	104.40	111	93	20	20	0.00	<2	2	20	20.1	100.50	117	76
AMMONIA	mg/L	REB	2	1.87	93.50	125	75	16	14	13.33	<0.1	0.1	1	0.989	98.90	125	75
AMMONIA AA	mg/L	REB	2	2.04	102.00	120	75	< 0.1	< 0.1	0.00	<0.1	0.1	1	1.02	102.00	125	75
AMMONIA-SOIL	mg/kg	REB	40	40.7	101.75	125	75	23	26	12.24	<2	2	20	18.9	94.50	125	75
CHROMIUM-ICP O	mg/kg	JYH	91.3	92	100.77	129	48.8	0.96	0.98	2.06	<1.0	1	1	0.96	96.00	125	75
MERCURY A	mg/L	TAS	0.001	0.0009	98.00	120	80	0.00107	0.0010	0.00	<0.0002	0.0002	0.001	0.00107	107.00	115	85
MERCURY I	mg/kg	TAS	3.3	3.31	100.30	5.15	1.47	0.001	0.001	0.00	<0.25	0.25	0.001	0.001	100.00	115	85
ANTIMONY-FURN Z	mg/L	AJS	0.025	0.0268	107.20	120	80	0.0167	0.0169	1.19	<0.02	0.02	0.025	0.0193	77.20	115	85
ANTIMONY-FURN N	mg/kg	AJS	37.2	13.5	36.29	109	7.44	0.0271	0.0274	1.10	<0.02	0.02	0.025	0.0271	108.40	115	85
THALLIUM-FURN Z	mg/L	KHA	0.025	0.0246	98.40	120	80	0.0118	0.0135	13.44	<0.005	0.005	0.025	0.0242	96.80	115	85
THALLIUM-FURN N	mg/kg	KHA	64.3	75.5	117.42	96.4	32.1	0.0236	0.0244	3.33	<0.25	0.25	0.025	0.0236	94.40	115	85
SELENIUM-FURN	mg/L	JEC	0.025	0.025	100.00	120	80	0.026	0.0264	1.53	<0.004	0.004	0.025	0.0264	105.60	115	85
BOD	mg/L	SCM	200	208	104.00	119	82	1400	1400	0.00	<3	3	200	215	107.50	125	75
TOC	mg/L	PJH	5	4.83	96.60	110	90	2	2	0.00	<1	1	5	4.34	86.80	125	75

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UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

KEMRON Environmenta[illegible]vices

QUALITY ASSURANCE DAI[illegible] REPORT

OHIO VALLEY LABORATORY Date: 01/04/96

			REFERENCE STANDARD					DUPLICATE SAMPLE			BLANK		MATRIX/MEDIA SPIKE				
Parameter	Units	Analyst	Known	Result	Rec.(%)	UCLx	LCLx	Result1	Result2	RPD (%)	Result	MDL	Conc.	Recovery	Rec.(%)	UCLs (%)	LCLs (%)
SILVER-ICP M	mg/L	JYH	0.2	0.19	95.00	120	80	0.2	0.2	0.00	<0.01	0.01	0.2	0.2	100.00	125	75
BARIUM-ICP M	mg/L	JYH	10	10.2	102.00	120	80	9.7	9.5	2.08	<0.01	0.01	10	9.7	97.00	125	75
CADMIUM-ICP M	mg/L	JYH	1	1	100.00	120	80	1	0.99	1.01	<0.2	0.2	1	1	100.00	125	75
CHROMIUM-ICP M	mg/L	JYH	1	1.01	101.00	120	80	1.01	1	1.00	<0.02	0.02	1	1.01	101.00	125	75
ARSENIC-ICP M	mg/L	JYH	1	1.03	103.00	120	80	1.01	1	1.00	<0.1	0.1	1	1.01	101.00	125	75
LEAD-ICP M	mg/L	JYH	1	1.01	101.00	120	80	1.02	0.99	2.99	<0.1	0.1	1	1.02	102.00	125	75
SELENIUM-ICP M	mg/L	JYH	1	1.02	102.00	120	80	1.01	1.06	4.83	<0.1	0.1	1	1.01	101.00	125	75
NITRATE A	mg/L	DIH	1	1.04	104.00	111	90	0.07	0.07	0.00	<0.05	0.05	0.5	0.486	97.20	123	76
NITRATE B	mg/L	DIH	1	1.01	101.00	111	90	< 0.05	< 0.05	0.00	<0.05	0.05	0.5	0.558	111.60	123	76
TKN	mg/L	REB	1	0.895	89.50	125	75	< 0.1	< 0.1	0.00	<0.1	0.1	0.5	0.452	90.40	125	75
FLUORIDE-DIST	mg/L	SCM	2	1.79	89.50	123	75	2	2	0.00	0.1	0.1	1	1.02	102.00	125	75
HARDNESS	mg/L	SCM	100	100	100.00	111	97	950	950	0.00	<5	5	50	52	104.00	117	86
TSS	mg/L	PJH	50	44	88.00	125	75	11000	11000	0.00	<5	5	NR	NR	NR	NR	NR
COPPER-FURN	mg/L	ALC	0.025	0.0283	113.20	120	80	0.0134	0.0166	21.81	<0.005	0.005	0.025	0.02472	98.88	115	85
CADMIUM-FURN X	mg/kg	ALC	51.4	50.3	97.86	74.1	29.1	0.00255	0.0025	1.98	<0.025	0.025	0.0025	0.0025	100.00	115	85
CADMIUM-FURN N	mg/kg	ALC	51.4	49.7	96.69	74.1	29.1	0.00254	0.0023	6.92	<0.025	0.025	0.0025	0.00254	101.60	115	85
MERCURY A	mg/L	TAS	0.001	0.0009	90.00	120	80	0.00098	0.0010	4.98	<0.0002	0.0002	0.001	0.000871	87.10	115	85
CHROMIUM-FURN X	mg/kg	KHA	91.3	72.8	79.74	129	48.8	0.0196	0.0186	5.24	<0.25	0.25	0.025	0.0237	94.80	115	85
LEAD-FURN Z	mg/L	KHA	0.025	0.0253	101.20	120	80	0.0122	0.0136	10.85	<0.005	0.005	0.025	0.0223	89.20	115	85
LEAD-FURN N	mg/kg	alc	176	176	100.00	251	92.8	0.03855	0.041	6.16	<0.025	0.025	0.025	0.02684	107.36	115	85
LEAD-FURN C	mg/kg	ALC	176	173	98.30	251	92.8	0.01597	0.0179	11.56	<0.025	0.025	0.025	0.02559	102.36	115	85
MBAS	mg/L	JWR	1	1	100.00	125	75	< 0.1	< 0.2	66.67	<0.1	0.1	1	1.02	102.00	122	75
TDS	mg/L	PJH	500	618	123.60	125	75	230	220	4.44	<10	10	500	454	90.80	125	75
SELENIUM-FURN	mg/L	JEC	0.025	0.0211	84.40	120	80	0.014	0.0145	3.51	<0.004	0.004	0.025	0.0259	103.60	115	85
BERYLLIUM-ICP M	mg/L	JYH	1	0.98	98.00	120	80	0.99	0.97	2.04	<0.01	0.01	1	0.99	99.00	125	75
CADMIUM-ICP M	mg/L	JYH	10	10	100.00	120	80	1	0.99	1.01	<0.2	0.2	10	10	100.00	125	75
NICKEL-ICP M	mg/L	JYH	1	1.02	102.00	120	80	1.02	1.01	0.99	<0.04	0.04	1	1.02	102.00	125	75
ANTIMONY-ICP M	mg/L	JYH	1	1.02	102.00	120	80	1	0.99	1.01	<0.01	0.01	1	1	100.00	125	75
THALLIUM-ICP M	mg/L	JYH	1	1.03	103.00	120	80	1.02	1	1.98	<0.1	0.1	1	1	100.00	125	75

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UCLb = Upper Control Limit (Blank)
MDL = Method Detection Limit
UCLs (%) = Upper Control Limit (Spike Recovery)
LCLs (%) = Lower Control Limit (Spike Recovery)
Post-digestion spikes on sodium, potassium, calcium, and magnesium

WOI ORDER #: N0-01-052 SAMPLE #: 01 PAGE 1

SAMPLE #	TESTS	REASON	REMOVED BY (ADT)	REMOVED FROM	MOVED TO	RELIQ. BY	RET'D BY (ADT)	RET'D TO	REC'D BY	REASON
01	TSS, pH	AN	pjh/1/4/96/1445	walk-in ~~wet lab~~ ph	wet-Lab	JLB	SCM/1/4/1645	WALK-IN	JKW	STORAGE
01	gen	"	dwh/1/5/0755	"	"	BIG	REB/1/5/1600	WALK-IN	JLB	archive
01	TOC	AN	pjh/1/5/96/0943	walk-in	wet Lab	BIG	pjh/1/5/1623	walk-in	JLB	storage
~~01 RB 1/5/96~~	~~TOC~~									
01	TKN	AN	REB/1/8/96/1220	WALK-IN	wet lab	KRA	REB/1/10/1545/96	Archive	BIG	archive
01	NH_3	AN	REB/1/9/96/0740	walk-in	wet lab	BIG	REB/1/10/1545/96	Archive.	BIG	archive
01 E	METALS	PREP	BWH/1-9-96/0945	WALK-IN	METLAB	JLB	BWH/1/9/96/1535	ARCHIVE	BIG	archive
01	Hard	AN	pjh/1/10/96 0835	walk-in	wet Lab	BIG	pjh/1/10/1130/96	Archive	BIG	storage
01	gen	AN	REB/1/11/0800	WALK-in	wet lab	BIG	REB/1/11/1510/96	Archives	[illegible]	archive

ENVIRONMENTAL SERVICES

CHAIN-OF-CUSTODY RECORD

No. 81067

Page _____ of _____

Project Contact: Emily Reznier

Turn Around Requirements: 2 wk TAT

Project No.: 506-052

Project Name: Salem River Dredge

Sampler (print): Gary A Bielski

Signature: Gary A Bielski

Sample I.D. No.	Comp*	Grab	Date	Time	Protocol CWA	Protocol SW846	NUMBER OF SAMPLES	Hold	Cl, NO3, TSS, Turb, pH	TKN, PHOS, TOC	NH3	Hardness	Zn, Pb, Cd, Cr, Cu, Ni, Hg, As - ICP	ADDITIONAL REQUIREMENTS
Salmu-Dur 001	X		1/3/96	1200			5		X	X	X	X	X	

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Gary A Bielski	1/3/96	1430					

Relinquished by: (Signature)	Date	Time	Received for Laboratory by: (Signature)	Date	Time	Remarks:
			Brenda Gregory	1/4/96	1000	C of C Sealed Intact Cooler Temp 6.0

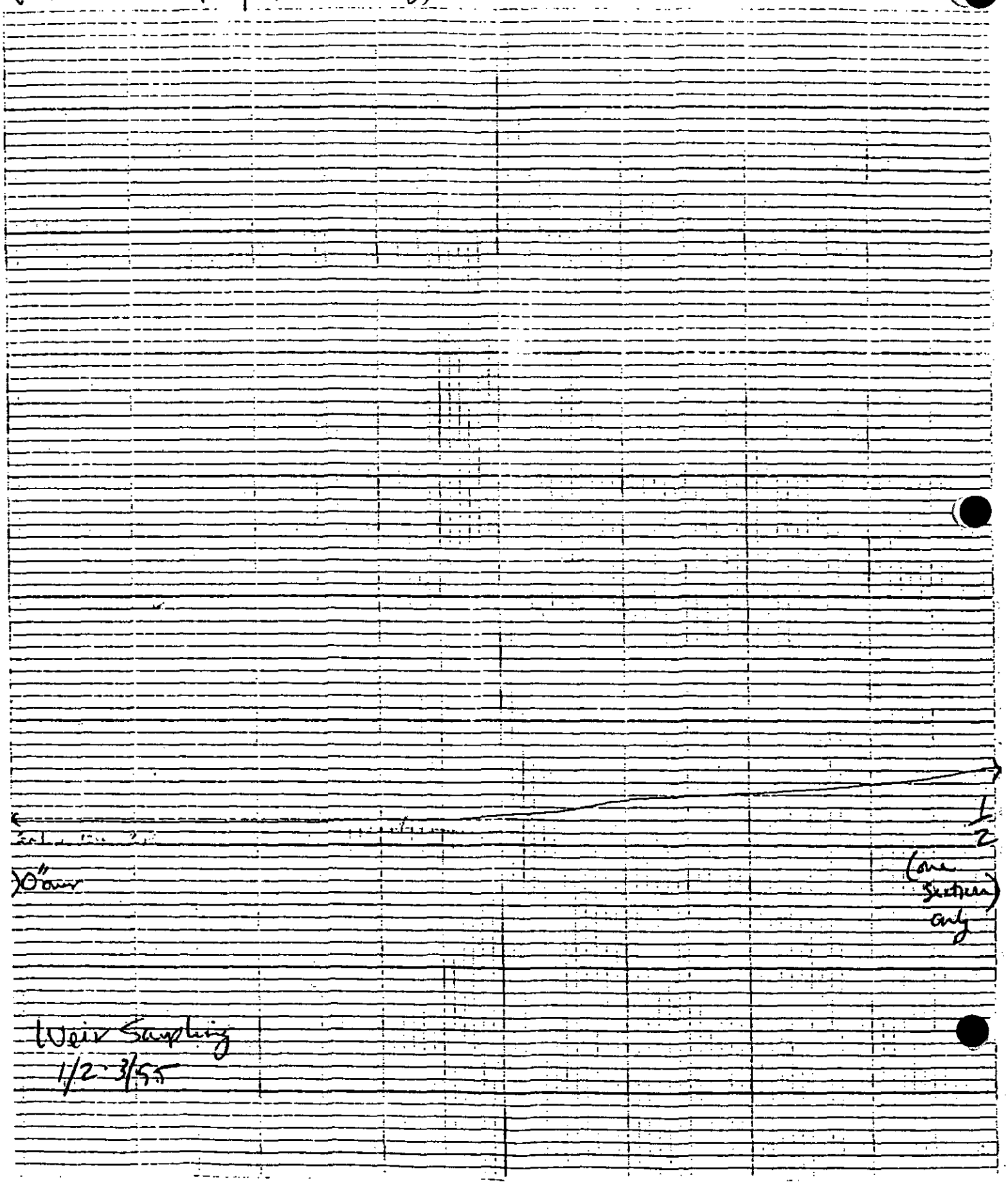
*Homogenize all composite samples prior to analysis

White – Lab Yellow – Office Pink – Field

APPENDIX B

WATER LEVEL RECORDER HYDROGRAPHS DECEMBER 1995 JANUARY 1996

Water Level Hydrograph (January)



Weir Sampling
1/2-3/55

Water Level Hydrograph (Dec)

[illegible]

20"

0

[illegible]

12/8/92

Table 3-4. Water quality, nutrients, and metal concentrations for monthly monitoring in the Delaware River at three stations at and near the weir discharge, 1995

	Predredge			During Dredge									Post Dredge			Delaware Surface Water Quality Criteria (mg/l) - Marine	
	June			July			August			September			December				
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C		
Dissolved Oxygen (mg/L)	6.42	7.29	7.19	7.52	7.63	7.40	7.26	7.60	7.51	7.52	7.11	7.33	11.36	11.45	12.47	6.0 mg/L	
pH	7.54	7.55	7.54	7.68	7.3	7.22	7.61	7.56	7.45	7.30	7.5	7.50	7.75	7.8	7.78	6.5 - 8.5	
Chloride (mg/L)	3200	3200	3200	3800	3900	3900	3400	3300	3100	4400	4700	4700	820	880	860	None	
Temperature (°C) (mg/L)	24.09	24.20	24.05	26.17	25.80	25.85	27.62	27.83	27.89	20.81	21.64	21.25	6.19	6.08	6.08	4°C above natural conditions	
Hardness $CaCO_3$	1100	1100	1100	1300	1300	1400	1200	1100	1100	90	1700	1700	330	340	380	None	
Nitrogen, Ammonia (mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.2	0.4	0.1	0.1	0.1	<0.1	<0.1	*Temperature and Ph dependent	
Nitrogen, Nitrate (mg/L)	1.7	1.5	1.7	2.6	2.9	1.7	1.6	1.6	1.7	1.4	1.4	1.4	1.6	1.6	1.6	10 mg/L	
Nitrogen, Total Kjeldahl (mg/L)	1.0	0.6	0.6	0.6	0.3	0.4	0.7	0.4	0.7	1.3	3.4	0.3	1.1	0.5	0.7	None	
Phosphorus, Total (mg/L)	<0.1	<0.1	<0.1	0.1	0.1	<0.1	0.1	0.2	0.5	0.2	<0.1	<0.1	0.2	0.1	0.2	None	
Total Organic Carbon (mg/L)	4	3	3	<1	<1	<1	5	4	5	9	4	4	5	4	4	None	
Turbidity (NTU)	102	56	49	39.9	30.2	42.1	81.2	111.0	135.0	16.0	18.8	21.5	42	41	56	10 NTU's above natural conditions	
Total Suspended Solids (mg/L)	110	82	71	<5	<5	6	100	170	300	33	47	42	74	70	110	8 grams/L over natural conditions	
Arsenic (mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Acute	Chronic
Cadmium (mg/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.069	0.036
Chromium (mg/L)	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.043	0.0093
Copper (mg/L)	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	1.10	0.050
Mercury (mg/L)	<0.0002	<0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.220	0.0085
Nickel (mg/L)	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0021	0.000025
Lead (mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	0.075	0.0083
Zinc (mg/L)	0.03	0.02	0.01	0.03	0.04	0.03	0.09	0.08	0.16	0.01	<0.01	<0.01	0.04	0.04	0.04	0.140	0.0056
																0.095	0.086