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# Multimedia Consent Decree

## 1998 Annual Report

Prepared for  
U S Environmental Protection Agency  
Maryland Department of the Environment

Prepared by  
Bethlehem Steel Corporation  
Sparrows Point Division



February 1999

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# Introduction

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This Annual Report is prepared in accordance with a Multimedia Consent Decree (Decree) entered into by Bethlehem Steel Corporation (BSC), the U.S. Environmental Protection Agency Region III (EPA) and Maryland Department of the Environment (MDE). The Decree was signed in February 1997, entered by the Court and became effective on October 8, 1997.

There are three locations in the Decree where information is required to be reported annually;

Section VI	Paragraph 4	Waste Minimization,
Section XII	Paragraph 5	Notification and Certification of Documents,
Section XVIII	Paragraph 2	Civil Penalties and Pollution Prevention Credits.

This Annual Report complies with the requirements of these three paragraphs. For organization purposes, this Annual Report will present information in the order listed above. Section 1 provides status on Waste Minimization Projects required in Section VI of the Decree. Section 2 of this report provides a progress report on actions undertaken in 1998. Project cost information required in Section XVIII will be presented with each work plan discussion presented in Section 1.

## Decree Requirements

Section VI, Paragraph 4, Waste Minimization, requires a report on the previous year's status on implementing each Work Plan required under Section VI including sampling data related to hazardous waste regulatory determinations. Text from the Decree specific to this requirement is as follows:

4. *BSC shall submit to EPA and MDE an annual report due February 15 for the previous calendar year which describes the status of implementing each Work Plan under this Section VI, and includes sampling data related to hazardous waste regulatory determinations.*

Section XII, Paragraph 5, Notification and Certification of Documents, requires a progress report on actions completed detailed in Sections V and VII. The complete text from the Decree specific to this report is as follows:

5. *In addition to any other requirement of this Consent Decree, BSC shall submit to EPA and MDE a written annual report on the work undertaken pursuant to Sections V and VII that, with respect to such work:*
  - a) *Describes and assesses the progress and percentage of completion of all actions which have been taken toward achieving compliance with this Consent Decree during the reporting period;*

- b) Includes a summary of all results of sampling and tests and all other data and reports received or generated by BSC or their contractors or agents in the reporting period;*
- c) Includes any modifications to the work plans or other schedules or personnel that BSC has proposed to EPA and MDE that have been approved by EPA and MDE;*
- d) Summarizes all contacts with representatives of the local community, or public interest groups during the reporting period relevant to the activities in this Consent Decree;*
- e) Summarizes all problems or potential problems encountered during the reporting period, including but not limited to, unresolved or anticipated delays encountered by BSC that may affect the future schedule for implementation of the requirements of this Consent Decree;*
- f) Describes actions being taken to rectify problems;*
- g) Describes changes and additions to pertinent BSC personnel and contractors during the reporting period;*
- h) Describes all actions, including but not limited to, data collection and implementation of work plans, which are scheduled for the next reporting period; and*
- i) Describes all releases reportable under any federal and/or state law which took place at the Facility during the reporting period, the status of mitigation of such releases, and the government oversight agency, contact name and telephone number.*

Finally, an annual report is required by Section XVIII, Paragraph 2, Civil Penalties and Pollution Prevention Credits which requires reporting of actual pollution prevention expenditures during the previous calendar year for pollution prevention projects described in Section VI. Text from the Decree specific to this requirement is as follows:

- 2. On or before February 15 of each calendar year, BSC shall submit to MDE and EPA a written report, including supporting documentation, which describes actual pollution prevention expenditures during the previous calendar year for the pollution prevention projects described in Section VI of this Consent Decree.*

The expenditure reporting for these projects is provided in the following Section 1. Appendix E at the end of this report contains supporting cost documentation.

## Section 1

# Waste Minimization Work Plan Progress

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Decree Section VI, Waste Minimization, requires the following Work Plans or Reports:

- Sump/Tank Work Plan
- Tin Mill Canal Discharge Report
- Strong Caustic Solution Reuse Work Plan
- Blast Furnace Gas Cleaning Slurry Recycle Work Plan
- Recycling of BOF Fume Sludge Work Plan
- Humphreys Creek Wastewater Treatment Plant Sludge Work Plan
- Dredging of the Tin Mill Canal Work Plan
- Facility Wide Waste Minimization Plan

This section of the annual report will briefly describe the nature of each report or work plan, what the current status of the work activity is and what the planned activity will be in 1999. To satisfy Decree Section XVIII on pollution prevention expenditures, each item will list the costs incurred in 1998.

Figure 1-1 at the end of this section shows a schedule for the Work Plans described in the Section. It indicates generally when events are expected to occur with end dates. These are intended to provide the reader of the approximate time of the year when they will occur and not exact days upon which events will end. Milestones shown, however, are commitments fixed by the Decree or those made by work plans.

## Sump/Tank Work Plan

<b>Submitted Date:</b>	October 8, 1998 (12 months from entry date)
<b>1998 Expenditures</b>	\$7,913
<b>Current Status</b>	Agency approval of this Work Plan was received January 18, 1999.

This work plan addresses an inventory and visual inspection of active sumps and associated trenches located in the Cold Sheet Mill and the Tin Mill that contain significant amounts of acid, caustic, plating, or coating solutions. The work plan also includes an inventory and visual inspection of all above ground storage tanks with capacity greater than 500 gallons that store hazardous substances (exclusive of oil).

This work plan was prepared and submitted on October 8, 1998, on schedule. The work plan calls for an inventory of tanks, sumps and trenches to be prepared within 6 months of Agency approval of the work plan. A visual inspection of the inventoried units will occur within 24

months thereafter. A report of the findings will be submitted within 2 months of completion of the visual inspection. Implementation status of this project will be included in the 1999 Annual Report.

## **Tin Mill Canal Discharge Report**

**Submitted Date:** July 8, 1998 (9 months from entry date)  
**1998 Expenditures:** \$5,000  
**Current Status** No Agency comments or approval is required of this report.

This report identifies and quantifies all discharges to Tin Mill Canal. It is based on a 1994 study of the discharges to TMC prepared by CH2M HILL characterizing the flow, TSS, Total oil and grease and metal discharges. This report was reviewed, finalized, and submitted in July 1998.

No further action is required on this item. This item will be deleted from the next annual report.

## **Strong Caustic Solution Reuse Work Plan**

**Submitted Date:** December 19, 1997 (2 months from entry date plus 2 weeks)  
**1998 Expenditures:** \$3,500  
**Current Status** Work Plan is still under Agency review.

This work plan provides for the beneficial reuse of strong caustic solutions at Humphreys Creek Wastewater Treatment Plant. The work plan additionally describes the controlled discharge of spent pickle liquor and pickling rinsewater to the Tin Mill Canal.

The original work plan was submitted on December 19, 1997. In reviewing this work plan, MDE requested on February 19, 1998, that a sampling plan of the spent caustic solution be submitted. This sampling plan was submitted on May 15 and subsequently approved on June 11. Results of this sampling effort were submitted on August 7 and are included in Appendix B.

In their letter of February 19, the Agencies acknowledged BSC's demonstration that the reuse of spent pickle liquor and pickling rinsewater is indeed beneficial reuse. BSC is awaiting final comment regarding beneficial reuse of strong caustic solutions.

Even though Agency approval has not yet been received, this plan has been implemented and caustic solutions are currently being beneficially reused. No other BSC activity or follow up to the plan is required in 1999.

## **Blast Furnace Gas Cleaning Slurry Recycle Work Plan**

**Submitted Date:** October 8, 1998 (12 months from entry date)  
**1998 Expenditures:** \$67,233  
**Current Status:** No comments have been received from the Agencies.

A work plan was prepared and submitted on October 8 to recycle slurry from the treatment of gas from the blast furnace by installing a hydrocyclone facility to remove zinc and lead from the solids in the slurry and recycle the solids into either the sinter plant or the iron and steel making processes. The scope of work for this project requires installation of hydrocyclones and ancillary process equipment including thickeners, process tanks and pumps, filters and chemical feed equipment to be located near the Blast Furnace/Sinter Plant facilities. The new equipment will be an integral part of the existing NPDES permitted wastewater treatment system at the Blast Furnace.

As stated in the work plan, testing of the proposed recycling project cannot proceed until the Blast Furnace has been relined and the Powdered Coal Injection System is operational. This testing cycle is expected to be completed by the end of 2000. Engineering and procurement of equipment is scheduled for completion by the end of 2001 with startup and testing completed by the first quarter of 2003. An update of this schedule will be provided in the next annual report. BSC continues to investigate alternative recycling solutions that may be more economical and/or technically feasible than the hydrocyclone project and that have similar beneficial environmental impact.

## **Recycling of BOF Fume Sludge Work Plan**

**Required Due Date:** April 8, 1999 (18 months from entry date)  
**1998 Expenditures:** \$56,753

A work plan must be prepared to recycle into either the sinter plant or the iron or steel making processes oxide fume sludge generated from the treatment of the exhaust gas from the Basic Oxygen Furnace

Limited testing activity occurred in 1998 on this project. Process development and limited field trials began in summer 1997 with good preliminary results. Planning activities and team formation for preparation of the work plan is expected to begin in February 1999.

## **Humphreys Creek Wastewater Treatment Plant Sludge Work Plan**

**Required Due Date:** October 8, 1999 (24 months from entry date)  
**1998 Expenditures:** \$1,604

A work plan will be prepared to recycle into the sinter plant the sludge generated from the treatment of wastewater at Humphreys Creek Wastewater Treatment Plant.

Preliminary discussions with plant operations to determine recycle options occurred in 1998. Planning activities and team formation for preparation of the work plan is expected to begin in March 1999.

## **Dredging of the Tin Mill Canal Work Plan**

**Submitted Date:** October 8, 1998 (12 months from entry date)

**1998 Expenditures:** \$28,116

**Current Status** Agency approval of this work plan is not required. The plan will be followed in the future when maintenance dredging occurs.

A work plan was prepared and submitted on October 8, 1998, for handling the material generated during maintenance dredging of the Tin Mill Canal. This work plan was consistent with the description of maintenance dredging described in Attachment F of the Decree.

This work plan provides for dredging of approximately 500 to 1,000 cubic yards of material per event. Dredging is proposed only when wastewater flow from sewers 34 and 36 becomes restricted into Tin Mill Canal. This historically has been required every 18 to 24 months. The Agencies will be notified in advance of the next dredging event. This is not expected to occur in 1999.

Dredged material will be removed using mobile cranes equipped with clamshell buckets. This material will then be transported to a temporary staging area for dewatering. The material will be sampled and analyzed for hazardous waste characteristics. After sampling and analysis has been completed, the material will be disposed of appropriately.

Approximately 8,000 cubic yards of dredged material is currently stockpiled along the banks of Tin Mill Canal. The stockpiled material will be sampled and analyzed for hazardous waste characteristics.

## **Facility Wide Waste Minimization Plan**

**Required Due Date:** April 8, 1999 (18 months from entry date)

**1998 Expenditures:** \$15,118

BSC agreed to develop and implement a Facility Wide Waste Minimization Plan. The goal of this task is to identify, if possible, ways to further reduce the volume, mobility and/or toxicity of solid wastes, hazardous wastes, and hazardous constituents generated at the Facility.

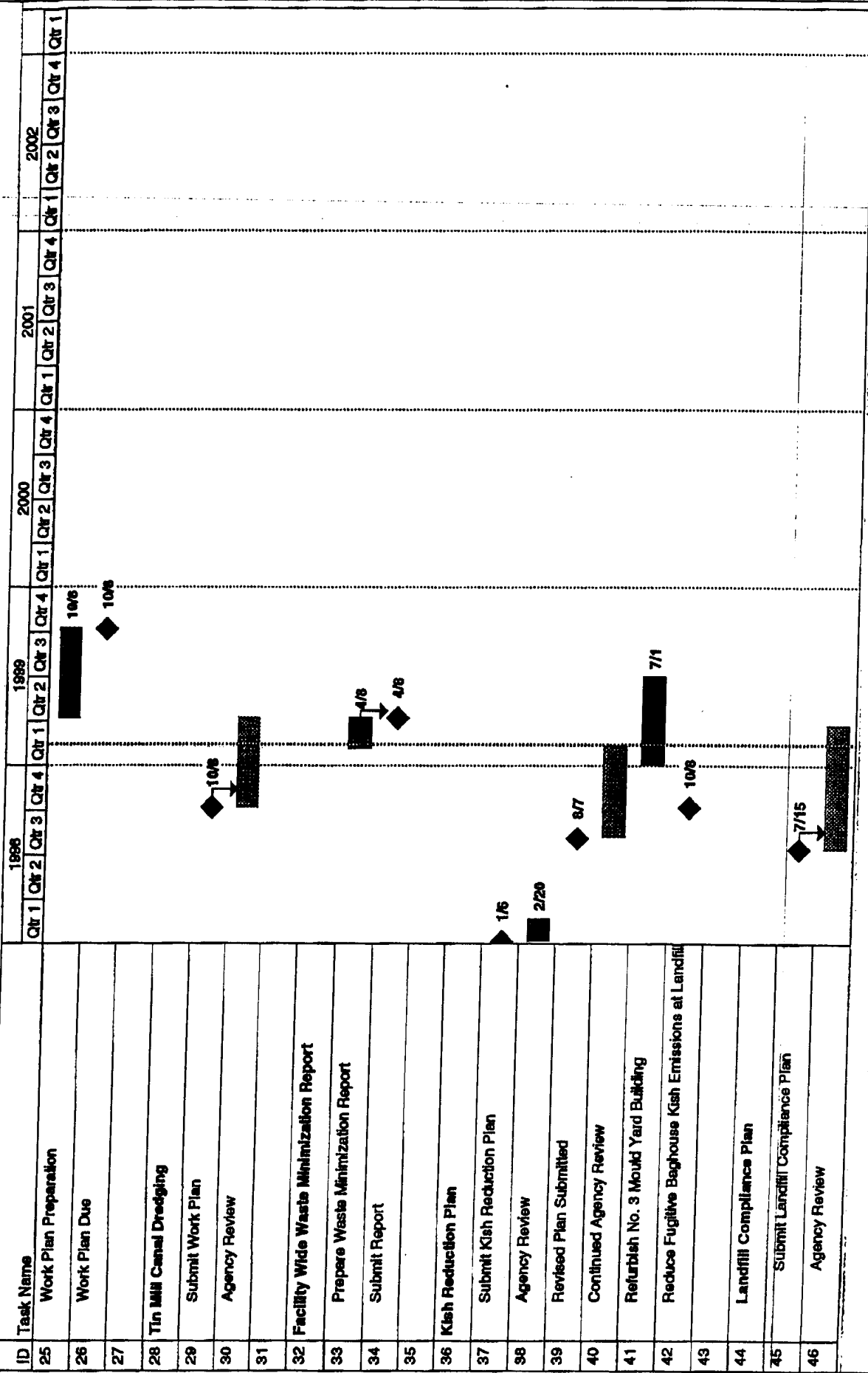
Team formation and planning activities have occurred in the Fall, 1998. In addition to the 4 waste minimization projects specifically identified in the Decree, approximately 11 other



projects have either been implemented or are in the planning stages since 1994. Discussion of these projects will be included in the April report.



# Waste Minimization Work Plans



Date: 2/12/99

Figure 1-1

## Section 2

# Progress on Actions

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Paragraph 5 of Section XII requires a description of the work undertaken in Sections V and VII of the Decree. This section describes the progress on actions undertaken in 1998. Projects described in these two sections are as follows:

Section V - Corrective Measures projects including:

- Rod & Wire Mill Groundwater Treatment Plant
- Site Wide Investigation.

Section VII - Compliance Requirements including:

- Report on BOF Fugitive Emissions Improvements since the last reporting period
- Kish Reduction Work Plan
- Landfill Compliance Plan.

Further, Paragraph 5 provides for discussion requirements in subparagraphs (a) through (i). This section of the report will respond to each of the subparagraphs in order.

- a) Describe and assess the progress and percentage of completion of all actions which have been taken toward achieving compliance with this Consent Decree during the reporting period;*

### **Rod & Wire Mill Groundwater Treatment Plant**

This remediation project is the only ongoing Interim Measure project identified under the Decree. This groundwater treatment facility was constructed in 1986 in response to a Phase I and Phase II investigation of a cadmium and zinc contaminated area near the Rod and Wire Mill. Groundwater pumping and treatment has continued each year from 1987 to the present. Through 1998, an estimated 35.4 million gallons of groundwater has been pumped and treated. Significant remediation has occurred in the highest impacted wells since 1987. Cadmium concentrations in shallow well 88 have been reduced 94 percent from 1,150 mg/l to 73 mg/l. Cadmium concentrations in intermediate well 27 have been reduced by 95 percent from 157 mg/l to 6.8 mg/l.

An annual report is required for this interim measure, due the end of January for the previous year. Detailed information about sampling, analytical results and trends are found in these reports. The 1998 report was submitted on schedule on January 29, 1999. In order to bring the interim measure into focus, and considering the demolition activities currently taking place at the Rod and Wire Mill, BSC has proposed that a reassessment report be submitted in late July 1999.

### **Site Wide Investigation**

The Site Wide Investigation (SWI) is a comprehensive evaluation of the potential for both current and future risk to human health and the environment from current and past releases of

hazardous wastes and hazardous constituents at the Facility. The SWI consists of seven tasks that are detailed in Attachments B and C of the Decree. These tasks are:

1. Preparation of the Description of Current Conditions Report
2. Pre-investigation Evaluation of Corrective Measures Technologies
3. Preparation of the Site Wide Investigation Work Plan
4. Site Wide Investigation
5. Investigation Analysis
6. Laboratory and Bench-Scale Studies
7. Reports

The first task under the SWI is the preparation of the Description of Current Conditions Report (CCR). The CCR was submitted for review and approval on January 20, 1998. Draft agency comments were received on July 27, 1998. Responses to the comments were submitted on September 17. A meeting was held between the Agencies and BSC on October 1 to discuss our respective comments. Final agency comments and approval of the DCC were received on December 9. Task 3, the work plan for the Phase I - Site Wide Investigation is being prepared and will be submitted on March 1, 1999. Figure 2-1 provides a summary of scheduled events completed in 1998 and those anticipated in 1999. Dates for tasks shown beyond the Work Plan submittal are estimates only. Refer to the SWI Work Plan for details.

### **Report on BOF Fugitive Emissions Improvements**

This report summarizes the improvements on environmental control equipment installed at the BOF since September, 1993. The report was submitted on January 20, 1998.

No other activities or follow up to this report is required in 1999. Work on this item of the Decree is now complete. No further action is required. This item will be deleted from the next annual report.

### **Kish Reduction Work Plan**

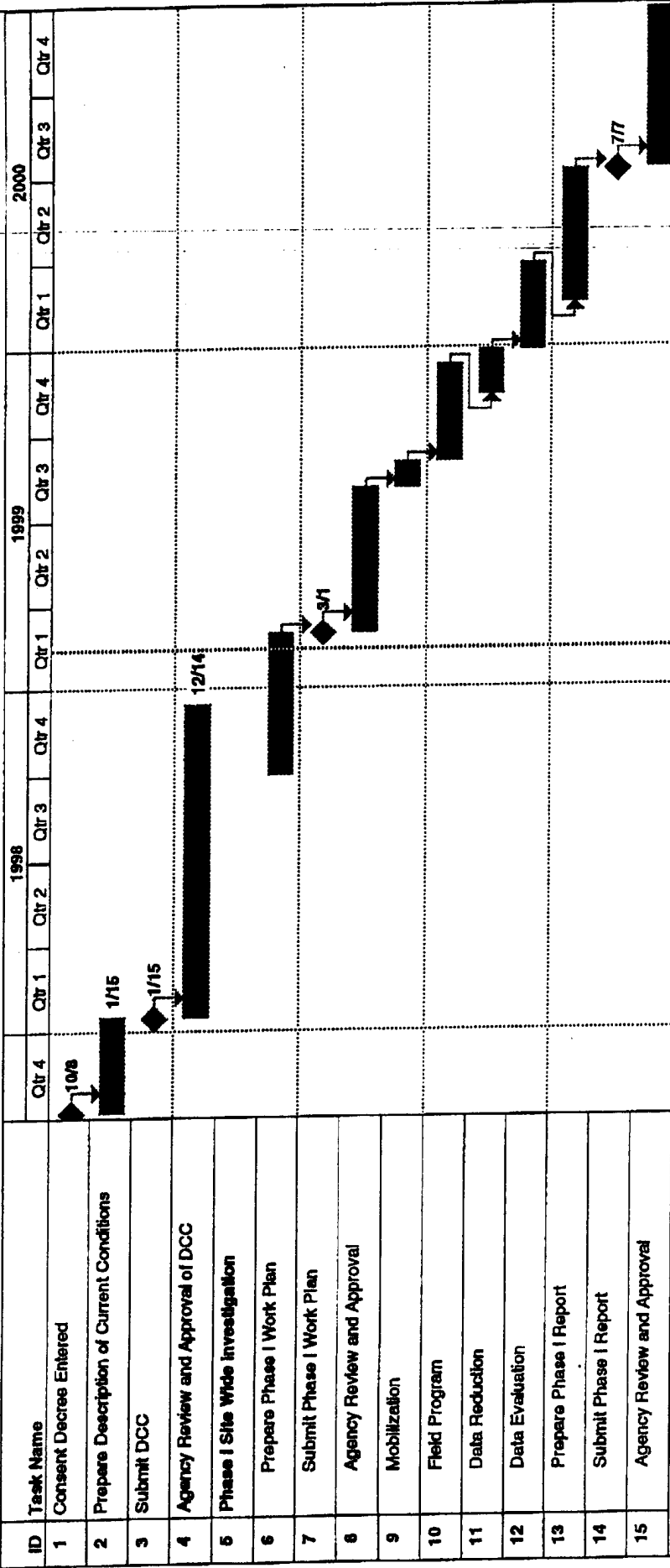
This report summarized the kish reduction actions taken in previous years, those taken and implemented currently and those kish reduction actions planned over the next 3 years. The Kish Reduction Work Plan was submitted for review and approval on January 6, 1998. MDE returned detailed comments to the plan on February 20, 1998. A revised plan was submitted by BSC in August 1998. Responses to the comments have been provided through conference calls and verbal communications with MDE. No written approval has been received from the Agencies.

In accordance with the Kish Reduction Plan, this annual report will provide a status on the following proposed actions to reduce kish emissions:

#### **Reduce Hot Metal Beaching**

During 1998, 4,950 tons of hot metal was beached down considerably from the 6,087 tons beached in 1997.

### Site Wide Investigation



"L" Blast Furnace reline is scheduled for mid-year 1999. This outage will necessitate the beaching of more hot metal than normal during the year. It is expected that this additional beaching will cause the 1999 tonnage to exceed 1998. All hot metal beaching will occur in the refurbished No. 3 Mould Yard building.

#### Refurbish No. 3 Mould Yard Building

Due to critical construction schedule constraints, BSC has proceeded with this significant component of the Kish Reduction Plan even though the plan has not been formally approved. In September 1998, BSC approved the necessary funds to proceed with the rehabilitation of No. 3 Mould Yard. This project was identified as necessary to contain kish emissions during hot metal beaching. As of the end of 1998, some of the necessary fabricated steel has been received. All siding and roofing materials have been delivered. Electrical engineering for lighting is in progress. Repair work is scheduled to begin in January of 1999. This project will be completed before the planned blast furnace reline mid-year 1999.

#### Reduce Fugitive Emissions During Landfilling

In accordance with the kish reduction plan, trial disposal of kish at Greys Landfill was conducted early in 1998. Kish is landfilled together with asbestos waste and covered daily at Greys Landfill. Results of this trial were successful, resulting in considerably less fugitive kish emissions during landfilling activities. Since early 1998, BSC no longer disposes of baghouse kish at Coke Point Landfill. This portion of the Plan has been implemented.

#### Reduce Fugitive Emissions During Collection and Disposal of Kish from BOF Shop Baghouses

Audit inspections and follow up of kish collection equipment and methods were conducted in 1998.

#### Investigate Other Methods of Slag Skimming

The Kish Reduction Plan proposed this study to be completed 9 months after approval. No activity has occurred on this study in 1998.

#### Other Tests or Studies

Pilot studies were conducted in 1998 to recycle baghouse kish with BOF slag. This mixture would then be returned to the BOF for use. Results from this pilot work are very encouraging and have resulted in plans for further testing. Results of this testing will be reported in the next annual report.

Finally, BSC's contractors Maryland Pig and C. J. Langenfelder developed their own plans for kish emission reduction. Maryland Pig completed their planned projects in March 1998. They also continue monitoring the performance of their baghouses as described in the Plan. Changes and modifications to operating practices described by C. J. Langenfelder were implemented in 1998. C. J. Langenfelder continues to work with BSC to look for and implement improved operating practices to further reduce fugitive kish emissions.

#### **Landfill Compliance Plan**

The compliance plan requires the preparation of a landfill operations plan and an engineering plan for Greys Landfill and Coke Point Landfill. Both plans provide for improved operations at the two landfills. Both of these reports were delivered July 15, 1998, on time. As of the date

of this report, no review comments have been received from the Agency. BSC is required to submit a plan and timetable for future uses and eventual closure of each solid waste acceptance facility that is due April 8, 1999.

- b) Includes a summary of all results of sampling and tests and all other data and reports received or generated by BSC or their contractors or agents in the reporting period;*

Sampling and analytical work occurred in two areas of the Decree; the Interim Measure project at the Rod and Wire Mill groundwater treatment system and the BOF roof monitoring.

All sampling work and subsequent analytical results gathered for the Cadmium and Zinc groundwater treatment plant are discussed in the previous section of this report and reported in the Annual Report of 1998 Remediation and Monitoring Activities submitted January 30, 1998. Generally, the results indicate continued improvement in groundwater quality in the shallow and intermediate water bearing strata.

BOF roof monitoring observations compliant with the Decree began on October 28, 1997. A summary of the 1998 observation results is presented in the tables found in Appendix A.

- c) Includes any modifications to the work plans or other schedules or personnel that BSC has proposed to EPA and MDE that have been approved by EPA and MDE;*

No modifications to work plans or schedules have been proposed at the end of 1998. No personnel changes or additions are proposed for the year 1999.

- d) Summarizes all contacts with representatives of the local community, or public interest groups during the reporting period relevant to the activities in this Consent Decree;*

Several informational meetings have been held in 1998 with representatives from community groups and with the community at large. A chronology of meetings and presentations in 1998 is as follows:

- |                          |  |
|--------------------------|--|
| <u>January 14, 1998</u>  | A CCI/community leadership meeting was held on the status of the Cold Reduction Mill permit.   |
| <u>February 4, 1998</u>  | A public meeting was held, in conjunction with MDE, to review the permitting and construction of the new Cold Reduction Mill.                                      |
| <u>February 12, 1998</u> | A public meeting was held, in conjunction with MDE, to inform the public of BSC's application to renew its permit for the PCB storage facility.                    |
| <u>February 15, 1998</u> | Copy of the 1997 Annual Report sent to Chesapeake Bay Foundation.  |
| <u>April 15, 1998</u>    | Ceremonial groundbreaking of the new Cold Reduction Mill Facility.   |
| <u>April 15, 1998</u>    | Public information meeting was held by Detroit Edison group to present the Powdered Coal Injection (PCI) project. The public was informed of the required permits. |
| <u>May 15, 1998</u>      | Meeting with the CCI steering committee was held to provide updates on the Multimedia Consent Decree. The CCI technical advisor was introduced at this meeting.    |



- June 3, 1998 Public meeting was held by MDE to announce their intention to issue the required permits to construct the PCI project.
- June 24, 1998 A public hearing was held, in conjunction with MDE, to receive public comments on MDE's decision to issue a permit to construct the new Cold Reduction Mill.
- July 30, 1998 Public meeting was held by MDE upon request of Senator Norman Stone to answer lingering questions from concerned community members about technical issues surrounding the operation of PCI. Issues were resolved at this meeting. MDE announced intention to issue the required permits to construct.
- October 27, 1998 A CCI/community leadership meeting was held to introduce the technical advisor selected by the CCI to the group. A report on progress of ongoing and planned construction and demolition projects was given. Other community issues were discussed including the planned rally for "Stand Up for Steel". Detailed update on deliverable items required by the Decree was also provided.

- e) Summarizes all problems or potential problems encountered during the reporting period, including but not limited to, unresolved or anticipated delays encountered by BSC that may affect the future schedule for implementation of the requirements of this Consent Decree;*

No problems with schedules occurred in 1998 on any planned deliverables. No delays are expected on any deliverable due in 1999. The CCR report was submitted on the due date of January 20, 1998. The next deliverable in the Site Wide Investigation series is the Site Wide Investigation Work Plan due March 1, 1999.

- f) Describes actions being taken to rectify problems;*

No problems occurred in 1998 where corrective actions were necessary.

- g) Describes changes and additions to pertinent BSC personnel and contractors during the reporting period;*

Two changes in subcontractors occurred in 1998. Rust E&I who had prepared the Description of Current Conditions Report will no longer be working on the Site Wide Investigation. Baker Environmental who has been working on the Rod and Wire Mill Interim Measure will no longer be working on this interim measure. BSC has chosen CH2M HILL to continue work with both projects. Resumes originally submitted are still current for CH2M HILL with no changes in project team except Mr. Ed Need has joined CH2M HILL as the Site Wide Investigation project manager.

Included in Appendix C are copies of acknowledgements from current contractors that they have received a copy of the Decree and will comply with its provisions and requirements. No other changes to BSC personnel or to contractors being utilized for Decree deliverables occurred in 1998 or are anticipated in 1999.

Included in Appendix D is a copy of Gascoyne Laboratory statement of commitment to EPA's program for QA/QC. Gascoyne Laboratory has served BSC for many years and has met all

BSC QA/QC requirements. It is expected that Gascoyne will provide all analytical work for the Phase I Site Wide Investigation.

- h) Describes all actions, including but not limited to, data collection and implementation of work plans, which are scheduled for the next reporting period; and*

The following work plans and/or reports are expected to be submitted in 1999

- Site Wide Investigation Phase I Work Plan
- BOF Oxide Fume Sludge Report
- Humphreys Creek Wastewater Treatment Plant Recycle Work Plan.
- Landfills Future Use Plan

In accordance with the planned actions described in each of the work plans, BSC intends to carry out the schedules submitted.

- i) Describes all releases reportable under any federal and/or state law which took place at the Facility during the reporting period, the status of mitigation of such releases, and the government oversight agency, contact name and telephone number.*

There were no reportable releases at the Facility for 1998.

## Appendix A

**BOF Roof Monitor Observations for January and February**

Observation Date	Highest six Minutes	Rolling 3 Day Average	Observation Date	Highest six Minutes	Rolling 3 Day Average
1/5/98	0	2.2	2/3/98	0.2	5.0
1/6/98	1	2.5	2/5/98	1	3.5
1/9/98	6.5	2.5	2/7/98	2.9	1.4
1/10/98	3.1	3.5	2/10/98	12.1	5.3
1/13/98	3.8	4.5	2/11/98	8.5	7.8
1/14/98	2.5	3.1	2/12/98	1.3	7.3
1/16/98	7.9	4.7	2/18/98	2.1	4.0
1/20/98	1.9	4.1	2/19/98	1.9	1.8
1/21/98	7.3	5.7	2/24/98	3.5	2.5
1/22/98	7.1	5.4	2/25/98	6.3	3.9
1/26/98	3.8	6.1	2/26/98	6	5.3
1/29/98	5.4	5.4	2/27/98	14.4	8.9
1/30/98	9.4	6.2			

BOF Roof Monitor Observations for March and April

Observation Date	Highest six Minutes	Rolling 3 Day Average	Observation Date	Highest six Minutes	Rolling 3 Day Average
3/3/98	2.7	7.7	4/1/98	4.2	5.2
3/6/98	14.6	10.6	4/2/98	2.5	3.1
3/7/98	5.0	7.4	4/7/98	3.1	3.3
3/11/98	0.8	6.8	4/8/98	13.1	6.2
3/13/98	3.3	3.0	4/14/98	0	5.4
3/16/98	3.1	2.4	4/15/98	13.5	8.9
3/17/98	16.7	7.7	4/16/98	10.6	8.0
3/18/98	5.2	8.3	4/18/98	6.3	10.1
3/19/98	0.8	7.6	4/21/98	5.6	7.5
3/24/98	7.5	4.5	4/22/98	7.7	66.5
3/25/98	0	2.8	4/23/98	19.6	11.0
3/26/98	8.7	5.4	4/29/98	2.9	10.1
3/31/98	2.7	3.8	4/30/98	2.7	8.4

**BOF Roof Monitor Observations for May and June**

Observation Date	Highest six Minutes	Rolling 3 Day Average	Observation Date	Highest six Minutes	Rolling 3 Day Average
5/1/98	0.2	1.9	6/3/98	2.7	2.4
5/5/98	0.4	1.1	6/4/98	28.1	11.2
5/8/98	3.3	1.3	6/5/98	1.9	10.9
5/9/98	13.1	5.6	6/8/98	3.1	11.0
5/15/98	1.5	6.0	6/9/98	1.3	2.1
5/19/98	7.3	7.3	6/10/98	24.4	9.6
5/20/98	5.2	4.7	6/16/98	0	8.6
5/21/98	0	4.2	6/17/98	0.2	8.2
5/22/98	9.6	4.9	6/20/98	10.0	3.4
5/26/98	1.7	3.8	6/25/98	1.9	4.0
5/27/98	1.3	4.2	6/30/98	1.3	1.1
5/28/98	1.7	1.6			
5/29/98	2.7	1.9			

**BOF Roof Monitor Observations for July and August**

Observation Date	Highest six Minutes	Rolling 3 Day Average	Observation Date	Highest six Minutes	Rolling 3 Day Average
7/1/98	1.7	1.6	8/3/98	7.3	7.8
7/2/98	3.5	2.2	8/5/98	1.7	5.7
7/7/98	11.7	5.6	8/6/98	0	3.0
7/9/98	10.8	8.7	8/11/98	0.6	0.8
7/10/98	1.3	7.9	8/12/98	14.6	5.1
7/13/98	11.5	7.9	8/15/98	2.9	6.0
7/16/98	1.7	4.8	8/18/98	12.7	10.1
7/17/98	9.2	7.5	8/19/98	2.3	6.0
7/20/98	0.2	3.7	8/20/98	1.7	5.6
7/22/98	0	3.1	8/25/98	1.3	1.8
7/23/98	5.6	1.9	8/26/98	4.2	2.4
7/24/98	0	1.9	8/27/98	3.1	2.9
7/28/98	2.5	2.7			
7/30/98	7.9	3.5			
7/31/98	8.1	6.2			

**BOF Roof Monitor Observations for September and October**

Observation Date	Highest six Minutes	Rolling 3 Day Average	Observation Date	Highest six Minutes	Rolling 3 Day Average
9/1/98	2.5	3.3	10/1/98	2.9	5.3
9/2/98	2.7	2.8	10/7/98	7.1	5.7
9/3/98	9.6	4.9	10/8/98	9.8	6.6
9/9/98	3.3	5.2	10/13/98	1.0	6.0
9/10/98	9.6	7.5	10/14/98	3.3	4.7
9/11/98	0	4.3	10/15/98	8.7	4.3
9/15/98	2.1	3.9	10/16/98	2.9	5.0
9/16/98	3.1	1.7	10/20/98	16.0	9.2
9/17/98	1.3	2.6	10/21/98	2.7	7.2
9/22/98	3.3	2.6	10/22/98	13.8	10.8
9/23/98	18.1	7.6	10/27/98	0.4	5.6
9/24/98	7.7	9.7	10/28/98	3.1	5.8
9/29/98	6	10.6	10/29/98	2.7	2.1
9/30/98	7.1	6.9			



**BOF Roof Monitor Observations for November and December**

Observation Date	Highest six Minutes	Rolling 3 Day Average	Observation Date	Highest six Minutes	Rolling 3 Day Average
11/3/98	3.1	3.0	12/3/98	4.4	6.2
11/4/98	11.0	5.6	12/4/98	2.9	2.4
11/5/98	7.1	7.1	12/8/98	0	2.4
11/10/98	6.7	8.3	12/9/98	7.7	3.5
11/11/98	3.8	5.9	12/10/98	5.4	4.4
11/12/98	11.5	7.3	12/11/98	14.4	9.2
11/17/98	15.6	10.3	12/16/98	2.9	7.6
11/18/98	4.8	10.6	12/17/98	6.9	8.1
11/19/98	8.1	9.5	12/18/98	6.9	5.6
11/23/98	10.2	7.7	12/21/98	4.2	6.0
11/24/98	14.2	10.8	12/22/98	1.7	4.3
11/25/98	0	8.1	12/23/98	2.1	2.7
			12/29/98	6.9	3.6
			12/30/98	3.1	4.0
			12/31/98	3.5	4.5

## **Appendix B**

## Appendix C

## **Appendix D**

# Gascoyne Laboratories, Inc.

YOUR ON-TIME QUALITY LAB...

DR. W. J. GASCOYNE  
1887-1938

W. J. GASCOYNE, JR.  
1938-1952

W. J. GASCOYNE, III  
1952-1978

SUSANA V. PTAK  
Chief Executive Officer

FRANCIS L. PTAK  
President

(410) 633-1800

FAX  
(410) 633-2178

(800) GAS-COYN

www.gascoyne.com



February 9, 1999

Mr. Phil Roby  
CH2M Hill  
5111 North Point Boulevard  
Baltimore, MD 21219

RE: Laboratory Quality Assurance Policies

Dear Mr. Roby:

This letter is in response to your request for a summary of the quality assurance policies of this laboratory in regard to the methods, standards, reagents, and equipment used in sample analysis.

Gascoyne Laboratories, Inc., established in 1887, is a full service, certified, independent commercial testing laboratory that specializes in environmental testing, particularly in the field of water, wastewater, soil, hazardous waste and petroleum testing.

It is the policy of Gascoyne Laboratories, Inc. to collect and receive samples under proper chain-of-custody procedures and to adhere to proper sample preservation and collection techniques. The laboratory complies with requirements stated in Federal Regulations including the Clean Water Act (CWA), Safe Drinking Water Act (SDWA), and Resource Conservation and Recovery Act (RCRA) in choosing the methods of analysis. A test method reference chart is enclosed.

The analysis of samples is achieved using equipment that is properly calibrated. Recognized calibration procedures are referenced from a specific method, SOP, or from manufacturer's instructions. Calibration standards are traceable to NIST reference materials whenever available. The laboratory endeavors to obtain certificates of traceability where applicable. Quality control checks are performed on instruments, methods and analysts. This is accomplished through the use of standards, blanks, duplicates, and spiked samples to check accuracy, precision and matrix effects.

The laboratory holds certifications by a variety of states and other certifying agencies. A complete list of the scopes of accreditations that are currently held by the laboratory is available upon request. A copy of our QA Manual is also available to our clients. Should you have further questions concerning the quality assurance policies of this laboratory, you may contact me at 410-633-1800. Thank you.

Sincerely,  
GASCOYNE LABORATORIES, INC.

June A. Main  
Quality Assurance Officer

Enclosure

2101 Van Daman Street • Holabird Business Park • Baltimore, MD 21224

## *Gascoyne Laboratories, Inc.*

### *Test Method Reference Chart*

<b>Matrix</b>	<b>Tests</b>	<b>Method</b>	<b>Reference</b>	<b>Regulation</b>	
<b>Wastewater</b>	Metals	200.7 ICP	40 CFR Part 136	CWA	
		200.8 ICP-MS	EPA 600/R-94-111		
		200 Series	EPA 600/4-79-020		
		FAA, GFAA	EPA 600/4-79-020		
	Volatiles	601 GC	40 CFR Part 136	“	
		602 GC			
		624 GC-MS			
	Semi-Volatiles	625 GC-MS	“	“	
	Pest / PCB's	608 GC	“	“	
	Inorganics	300 Series	EPA 600/4-79-020	“	
	Herbicides	8151	EPA SW-846	“	
<b>Groundwater / Haz. Waste</b>	Metals	6010 ICP	EPA SW-846	RCRA	
		6020 ICP-MS			
		7000 Series			
		FAA, GFAA			
		Volatiles	8015 GC	“	“
			8021 GC		
			8260 GC-MS		
	Semi-Volatiles	8270 GC-MS	“	“	
	Pest / PCB's	8081 / 8082 GC	“	“	
	Inorganics	EPA 9000 Series	“	“	
	Herbicides	8151	“		
<b>Drinking Water</b>	Metals	200.7 ICP	EPA 600/R-94-111	SDWA	
		200.8 ICP-MS			
		Volatiles	502.2 GC	EPA 600/R-95-131	“
			524.2 GC-MS		
		Semi-Volatiles	525.2 GC-MS	“	“
		Pest / PCB's	507 / 508 GC	“	“
		Inorganics	EPA 300 Series	EPA 600/R-93-100	“
			SM 4500 Series	Standard Methods	
	Microbiologicals	SM 9000 Series	Standard Methods	“	
	Herbicides	515.1	EPA 600/R-95-131	“	

## Appendix E

**Home Office Environmental Affairs Man Hours and Dollars Associated with The Sparrows Point Multi-Media Project**

Project	Full Time Bethlehem Personnel												Consultants					
	A. M. Caram hours	A. M. Caram dollars	J. D. Lynn hours	J. D. Lynn dollars	L. M. Stuart hours	L. M. Stuart dollars	R. B. Allen hours	R. B. Allen dollars	S. T. Herman hours	S. T. Herman dollars	J. E. Schindler hours	J. E. Schindler dollars	A. G. Ossman hours	A. G. Ossman dollars	G. E. Keyser hours	G. E. Keyser dollars (*)	V. P. Messina hours	V. P. Messina dollars (*)
Citizens Committee	36	\$3,609.60																
Waste Minimization	68	\$6,818.13																
Site Wide Investigation	117	\$11,731.20																
Blast Furnace Sludge Recycle	35	\$3,509.33	242	\$24,284.53	4	\$401.07												
BOF Sludge Recycle	1	\$100.27	348	\$34,892.80	13	\$1,303.47									365	\$12,317.46		
Kish Reduction	48	\$4,812.80	108	\$10,828.80											656	\$20,456.35		
Wira Mill Groundwater	28	\$2,807.47			16	\$1,604.27			15	\$1,504.00					139	\$4,334.50		
Landfill Studies	52	\$5,213.87						28	\$2,807.47								113.5	\$3,972.50
Waste Management/P2 Plant/Reports	5	\$501.33	182	\$19,251.20														
Tin Mill Canal Dredging	61	\$6,116.27																
Spent Caustic Reuse	9	\$902.40			1	\$100.27												
HCWWTP Sludge Recycle			16	\$1,604.27														
Sumps, Trenches, and Tanks																		
Other Multi-Media	124	\$12,433.07	224	\$22,459.73	1	\$100.27	84	\$8,422.40	49	\$4,913.07								
Totals	584	\$58,555.73	1130	\$113,301.33	35	\$3,509.33	84	\$8,422.40	84	\$8,425.07	8	\$802.13	3	\$300.80	1190	\$37,108.31	114	\$3,972.50
Total Professional Hours	1,838.0																	
Total Professional Dollars	\$184,316.80																	
Total Consultant Hours	1,303.5																	
Total Consultant Dollars including Travel Expense	\$41,080.81																	
Total Cost	\$235,397.61																	

\* - Includes Travel Expenses



SPARROWS POINT DIVISION  
 APPROPRIATION MANAGEMENT AND REPORTING SYSTEM  
 SUMMARY BY CAPITAL ORDER SUBORDER

REPORT 1A  
 01/08/99  
 Jan 8,99  
 PAGE 111

CAPITAL ORDER NO: 9097 PREL. ENGINEERING - 1997

TEAM MEMBERS: WRB

DATE OF RUN -  
 FOR DAY OF MONTH -

SUB S ORD T	DESCRIPTION INDUCTORS-CSH	ROLL-UP APPROP	EST FINAL COST	COMMITMENT TOTAL	EFC MINUS COMMIT	ACTUAL CURRENT MONTH	EXPENDITURES CURRENT YEAR	TO DATE	COMMIT MINUS EXPEND	SCH OPER DATE	FIN COMP DATE
071 C	K-6 ROLL GRINDER C ALIPER SYS-HSM	0	0	0	0	0	0	0	0	0398	1Q98
072 C	TIN MILL MSA CONVE RSION	0	0	0	0	0	0	0	0	0898	3Q98
073	BL FCE SLURRY HYDR OCYCLONING	0	0	0	0	1,560	26,741	26,741	-26,741	1298	4Q98
074 C	REPLACE NO.2 DESCA LING BOX-HSM	0	0	0	0	0	0	0	0	1198	4Q98
075 C	REPLACE ENTRY GUID ES-F7-F9,HSM	0	0	0	0	0	0	0	0	1098	4Q98
076 C	OUTBOARD BEARING S UP.TENSION REEL-TM	0	0	0	0	0	0	0	0	0598	2Q98
077 C	ELIMINATE PONDING- N END_HSM	0	0	0	0	0	0	0	0	0798	3Q98
078	CASTER LADLE RETUR N-LADLE TREAT.STA.	0	0	0	0	1,555	3,025	3,025	-3,025	1298	4Q98
079 C	CASTER BREAKOUT PR EVENTION	0	0	0	0	0	0	0	0	1198	4Q98
080 C	VESSEL TAPHOLE SLA B DETECT INFRA CAM	0	0	0	0	0	0	0	0	1198	4Q98
081	BOF LADLE,VERTICAL PREHEAT/DRYERS	0	0	0	0	-5,062	699	699	-699	1298	4Q98
082	SLAB STORAGE LOADS -HSM	0	0	0	0	0	0	0	0	1298	4Q98
085 C	REPLACE FCE.CONTRO LS-3 COATING LINE	0	0	0	0	0	0	0	0	1098	4Q98
086 C	REPL.PREMELT INDUC TOR COILS-3 LINE	0	0	0	0	0	0	0	0	0998	3Q98
087 C	UPGRADE ENTRY END CONTROLS-3 LINE	0	0	0	0	0	0	0	0	0998	3Q98
088 C	THIRD CASTER STUDY	0	0	0	0	0	0	0	0	1298	4Q98

Smartcom Fax for Windows

# Cover Sheet

To: PHIL ROBEY  
From: JOE DOLAN  
BETHLEHEM STEEL  
Date: 01/08/99 10:53a  
Pages: 5

Message:

I KNOW OF NO SPILLS FOR THE YEAR 1998. IF THIS DOES NOT SUIT  
YOUR NEEDS LET ME KNOW.

JOE