
Multimedia Consent Decree

1999 Annual Report

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

Prepared by
Bethlehem Steel Corporation
Sparrows Point Division



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Introduction

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 1999. 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 C contains supporting cost documentation.

Section 1

Waste Minimization Work Plan Progress

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

- Sump/Tank Work Plan
- Tin Mill Canal Discharge Report (No further action required; discussion deleted from this report)
- Strong Caustic Solution Reuse Work Plan (No further action required, discussion deleted from this report)
- 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 2000. To satisfy Decree Section XVIII on pollution prevention expenditures, each item will list the costs incurred in 1999.

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

Submitted Date: October 8, 1998 (12 months from entry date)
1999 Expenditures \$20,270
Current Status 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).

Tasks were completed to implement the approved work plan including the development of preliminary and final inventories of tanks, sumps and trenches that require visual inspections. The final inventory was complete in June, 1999 and is included in Appendix B.

Planning tasks are now underway to complete the visual inspections of the inventoried units. These tasks have included or will include:

- Identification and prequalification of suitable vendors to perform the visual inspection of the units;
- Preinspection/planning tasks for the units include development of inspection protocol for each unit based on its characteristics such as materials of construction, material stored, length of service and inspection procedures such as cleaning and inspection requirements, electrical lockout/tagout, isolation and mechanical control requirements and outage requirements.

Visual inspection schedules will be developed for the inventoried units to complete the inspections within the approved work plan timeframe (24 months after completion of the inventory phase identified as 6 months from Agency approval of the work plan). A significant portion of the visual inspections will be completed in year 2000.

Tin Mill Canal Discharge Report

This report was reviewed, finalized, and submitted in July 1998. No further action is required on this item.

Strong Caustic Solution Reuse Work Plan

Submitted Date: December 19, 1997 (2 months from entry date plus 2 weeks)
1999 Expenditures: None (Costs of Plan implementation are not considered)
Current Status After 24 months, 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.

Numerous conversations regarding this work plan occurred in 1999 during the course of the monthly Agency conference calls. This resulted in a December 1 BSC letter resubmitting the results from analytical work performed in 1998. Even though Agency approval has not yet been received after 24 months, 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 2000.

Blast Furnace Gas Cleaning Slurry Recycle Work Plan

Submitted Date:	October 8, 1998 (12 months from entry date)
1999 Expenditures:	\$40,855
Current Status	Work plan is under Agency review. Work Plan does not require Agency approval.

A work plan was prepared and submitted on October 8, 1998 to recycle slurry from the treatment of gas from the blast furnace.

Testing and evaluation of technologies are underway for recycle of blast furnace gas cleaning slurry solids/filter cake. These technologies are:

- **Hydrocycloning (de-zincing) Scrubber Slurry** – The patented hydrocyclone process effectively removes the zinc particles producing a suitable revert for recycling to the sinter plant. However, once the Pulverized Coal Injection (PCI) facility is operational (Spring 2000), additional pilot testing is planned to evaluate the effect of "soot" from the PCI, on the hydrocyclone process. This work is planned for later this year.
- **Use of filter cake as a BOF Slag Conditioner** – Preliminary plant trials showed that the blast furnace filter cake can be used to condition the molten BOF slag during the steel making operation. The slag conditioning step is done to provide effective slag splashing and coating of the BOF vessel. Limestone and other similar materials are commonly used for this purpose. The filter cake is first dehydrated by blending with "warm" slag and the blend is used as the conditioner. If successful, most of the blast furnace filter cake could be recycled using this technique.
- **Cement Manufacture** – The use of the filter cake in combination with other plant solid wastes such as HCWWTP sludge, and BOF scrubber sludge are potential and valuable substitutes for raw materials in the manufacture for cement. Several cement companies expressed interest in the use of these materials.

• Recycling of BOF Fume Sludge Work Plan

Required Due Date:	April 8, 1999 (18 months from entry date)
1999 Expenditures:	\$69,690
Current Status	Work plan is under Agency review. Work Plan does not require Agency approval.

A work plan was prepared and submitted on April 8 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

Testing and evaluation of technologies are underway for recycle of BOF fume sludge. These technologies are:

- **RS Recycling at the BOF** – The use of processed BOF fume sludge referred to as RS, is presently used as a substitute coolant in the steelmaking operation. RS is a blend of sludge filter cake and slag, but can also contain other materials such as lime fines, kish, glass grit, shredded tire wires, ferro manganese fines, and other so-called solid wastes. The recipe of the RS can be adjusted according to the need of the BOF steelmaking operation. We are in the process of evaluation several combinations of materials in full-scale plant trials. It is anticipated that up to 80% of the BOF fume sludge can be recycled using this technique, plus significant amounts of the above mentioned wastes. This recycling process is now a standard procedure in the steelmaking operation.
- **Cement Manufacture** – The use of the filter cake in combination with other plant solid wastes such as HCWWTP sludge, and blast furnace scrubber sludge are potential substitutes for raw materials in the manufacture for cement. Several cement companies expressed interest in the use of these materials.

Humphreys Creek Wastewater Treatment Plant Sludge Work Plan

Required Due Date:	October 8, 1999 (24 months from entry date)
1999 Expenditures:	\$3,923
Current Status	Work Plan is under Agency review. Work Plan does not require Agency approval.

A work plan was prepared and submitted on October 8 to recycle into the sinter plant the sludge generated from the treatment of wastewater at Humphreys Creek Wastewater Treatment Plant.

Testing and evaluation of several technologies are underway for recycle of Humphrey's Creek Wastewater Treatment Plant (HCWWTP) oily sludge within the Sparrows Point iron and steelmaking operations. These technologies are:

- **Injection in the Sinter Plant** – Burns Harbor Division is presently installing a facility for recycling their oily sludge, a similar material to the HCWWTP sludge. Startup of this facility is anticipated for late 2000 or early 2001 and at that time, after successful startup and operation, tests are planned to simulate the Sparrows Point sinter plant for oily sludge injection; and if necessary, trials will be conducted using actual sludge transported from Sparrows Point. The sinter plant at Sparrows Point differs from that at Burns Harbor in that it does not have an annealing firing zone and this may preclude recycling by injection at Sparrows Point.
- **Microbial De-oiling** – Full scale (~10,000 ton) plant tests are planned at Burns Harbor to evaluate a proprietary process developed by Fiton Inc. a subsidiary of BFI, Inc. to remove the contained oils by microbial digestion. If successful, this process will be evaluated for treatment of the HCWWTP sludge.
- **Use in Sub-base for Roadway Construction** – Full scale plant trials are underway at Burns Harbor where sections of roadway within the plant have been replaced with sub-base material containing oily sludge using a process developed by ERT, Inc. In a similar

application, soils contaminated with petroleum wastes were successfully used in roadway construction in Texas.

- **Recycling at the BOF** – Studies are underway to evaluate the use of oily sludge as part of the current recycle material, see previous section on Recycling BOF Fume Sludge Work Plan. If all safety issues can be resolved in the recycle of materials containing oily wastes, plant trials will be considered.
- **Other Technologies** – We continue to evaluate other technologies, i.e. microwave (AISI study) for de-oiling these types of sludge for recycle back to the iron and steelmaking operations.
- **Cement manufacture** – We have also contacted cement companies in the use of oily sludge as a low-grade fuels and source of iron units in cement manufacture. The oily sludge would be blended with other plant reverts and slags to produce a material for addition to the cement kilns.

Dredging of the Tin Mill Canal Work Plan

Submitted Date: October 8, 1998 (12 months from entry date)
1999 Expenditures: \$0
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. No dredging activity occurred in 1999.

Facility Wide Waste Minimization Plan

Required Due Date: April 8, 1999 (18 months from entry date)
1999 Expenditures: \$21,350
Current Status Work Plan is under Agency review.

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.

CONSENT DECREE PROJECTS

Work plans have been submitted for the projects listed in the consent decree. The caustic solutions reuse plan has been implemented. Other projects are in various stages of implementation, research into process and product changes that may occur, and management of change evaluations to define the impacts of making the process changes.

VOLUNTARY PROJECTS DEFINED IN 1999

These projects are being pursued individually and scheduled in cooperation with the mill operations.

- **Blending Kish With BOF Oxide Fume Sludge** The concept has been tested with some success. Blending criteria are being developed. Process equipment is being identified. Research is underway to determine any changes to product quality that may arise from implementation of various blends. Management of change evaluations are underway to determine the impacts to the basic oxygen furnace steelmaking process as a result of adding the proposed blends to the scrap metal mix.
- **Recycle Chromic Acid, #8 Tin-Free Steel Line** A proposal has been received from an engineering firm. The proposal includes a pilot test to determine the recovery of chromic acid that may be expected. The scope and schedule of the pilot test are undetermined at this time. Process scaleup and management of change evaluations will depend on the results of the pilot test.
- **Replace The Lubrication System At The Continuous Caster** The air-oil mist system for lubrication of the rolls in the continuous caster has been fully implemented. The results are within the projected savings. Lubricant consumption has been reduced from 800 pounds per day to less than 80 pounds per day.
- **Caustic Washer, #3 Galvalume® Line** This project has been fully implemented. The caustic washer has improved the cleanliness of the strip to be coated. Full impacts of the process change have not been realized due to business conditions and product mix changes on this line.
- **Replace Slipper Couplings, Hot Strip Roughing Mill** The installation and startup of the new couplings has been completed. Consumption of the lubricant used in the couplings has been reduced. The full impact of this change has not been quantified; investigation is in progress.
- **Slag Splashing, Basic Oxygen Furnaces** The project has been completed. The life of the refractory lining in the furnaces has been increased from ~ 8 months to ~ 15 months.
- **Replace Dip Tanks With Spray System, Coating Lines Passivation System** These tanks have all been replaced.
- **Replace Electrolyte In Tin Plating Lines** The first line will be converted in the second quarter, 2000 and the second line will be converted in the second quarter, 2001.
- **New Cold Mill** The mill is under construction. Startup of the new facilities will commence in the second quarter, 2000 and the last of the replaced facilities will cease operation in the third quarter, 2001.
- **Sale Or Exchange Of Kish** No progress to report.

- **Pickle Liquor Sales** Due to the imminent startup of a new pickler and shutdown of two existing picklers, this activity has been focussed on the transition of products to existing customers. To date, the existing customers and the beneficial reuse of acid streams in wastewater treatment will consume all the projected production over the next two years. The balance of production and sales demand is being watched closely. Additional potential outlets have been identified. Development of these outlets will begin after the new pickler is started up and performance is demonstrated.
- **Steelmaking Slag Reuse As Aggregate Additive** No additional progress to report.

NEW PROJECTS IDENTIFIED

Replace Lubrication System, 48" Tandem Mill The pumped grease lubrication system for the rolls on the tandem mill will be replaced with an air-oil mist lubrication system. The expectation is that this will reduce lubricant use on the mill by ~ 60 – 80% with some additional increases in the life of the rolls and bearings.

Waste Minimization Work Plans

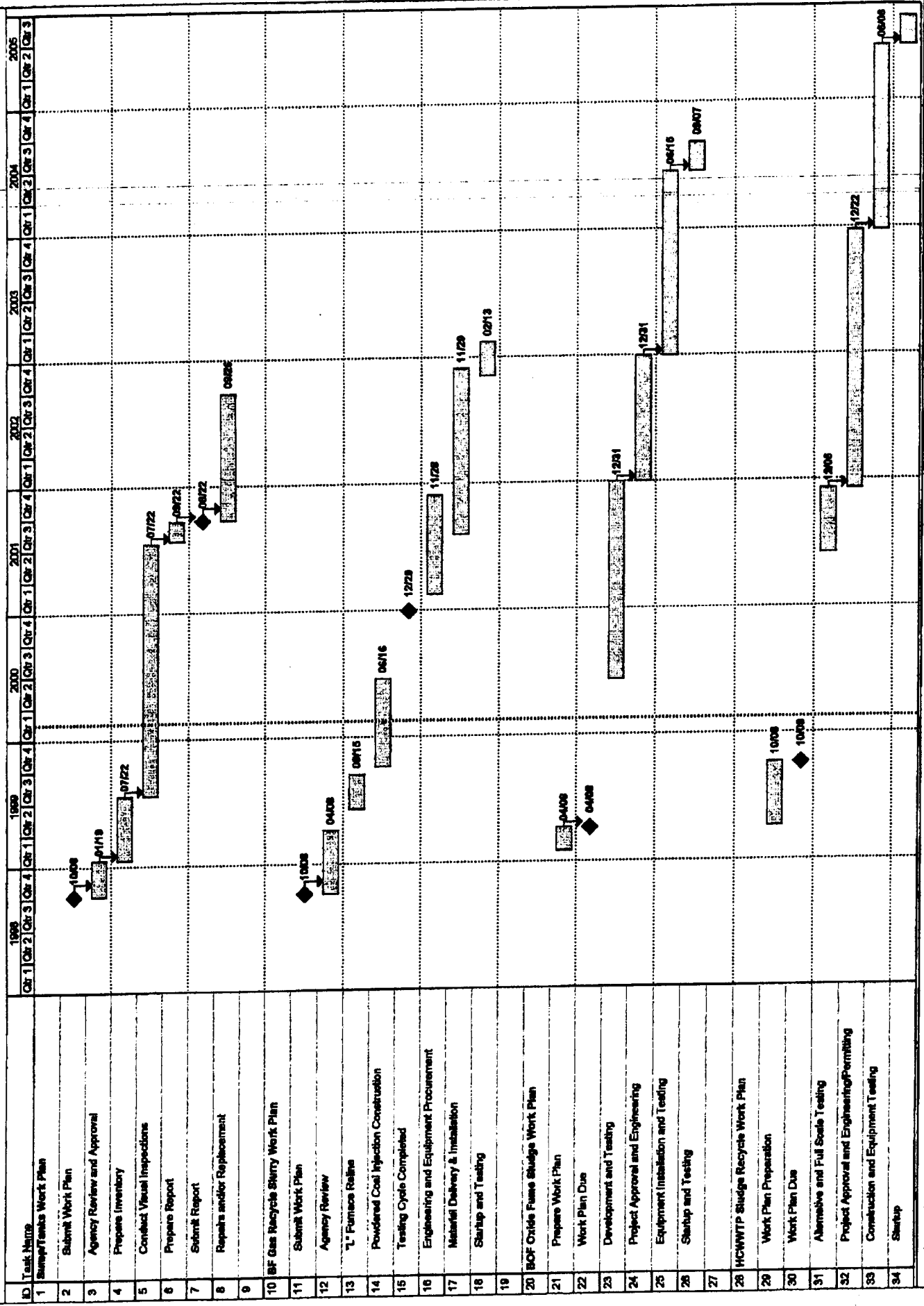


Figure 1-1

Section 2

Progress on Actions

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 1998. 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.

The groundwater pumping was discontinued and the treatment plant dismantled in 1999 as part of an overall demolition project at the Rod and Wire Mill. A revised operating plan was submitted to the agencies on April 27 to perform sampling and reassessment of this interim measure. Approval of this proposed operating plan was received on August 2.

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 reassessment report was submitted on schedule on January 31, 2000. BSC has determined that the most appropriate interim remedial action for groundwater is to resume groundwater pumping and treatment as soon as practicable.

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, 1998 to discuss our respective comments. Approval of the DCC contingent upon final agency comments was received on December 9.

Task 3, the work plan for the Phase I - Site Wide Investigation was prepared and submitted on March 1, 1999. Comments were received from the Agencies on December 16. Response to Agency comments will be submitted on February 14, 2000.

Figure 2-1 provides a summary of scheduled events completed in 1999 and those anticipated in 2000. 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

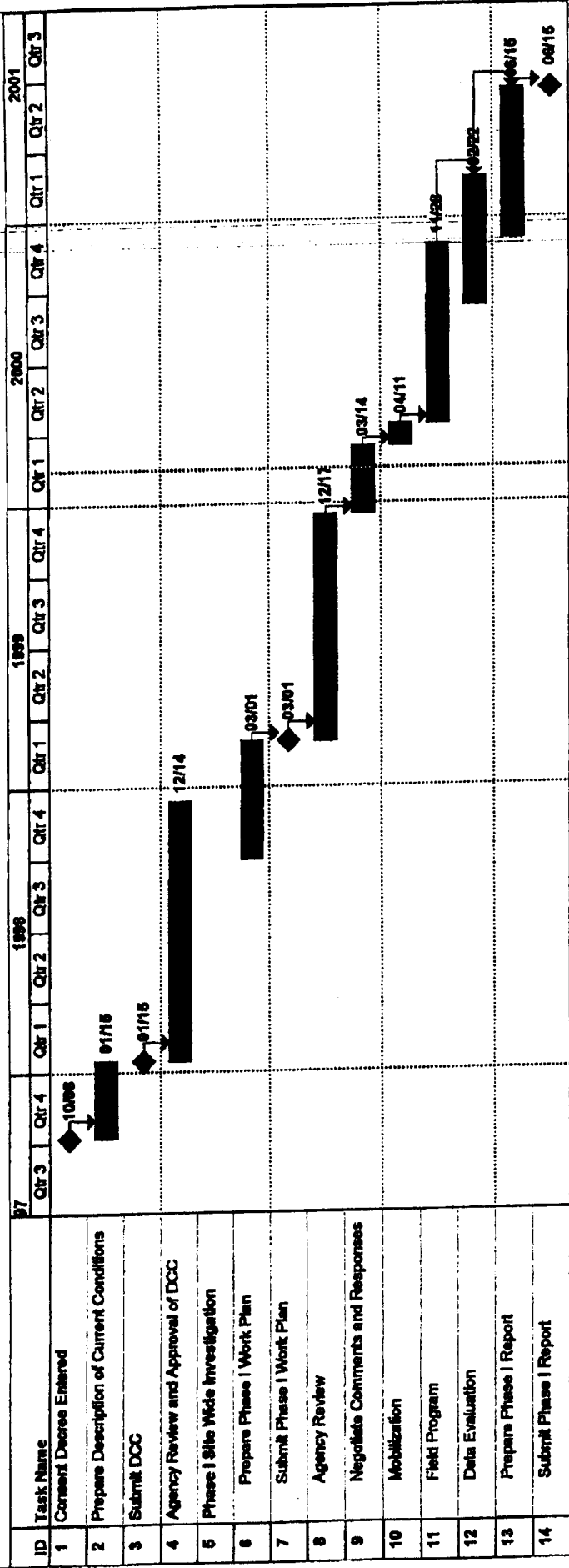
This report summarizes the improvements on environmental control equipment installed at the BOF since September, 1993. The report was submitted on January 20, 1998. Work on this item of the Decree is now complete. No further action is required. This item will be deleted from the next annual report.

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. Approval was received from the Agencies on December 1, 1999.

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

Site Wide Investigation



Reduce Hot Metal Beaching

During 1999, 9,642 tons of hot metal was beached compared to 4,950 tons beached in 1998. This increase was caused by the shut down and reline of "L" Blast Furnace. Prior to shut down and immediately upon start up of this furnace, iron must be beached due to iron quality.

"L" Blast Furnace reline occurred mid-year 1999. This outage necessitated the beaching of more hot metal than normal during the year. All hot metal beaching occurred in the refurbished No. 3 Mould Yard building or was pigged at Maryland Pig.

Refurbish No. 3 Mould Yard Building

Due to critical construction schedule constraints, BSC proceeded with this significant component of the Kish Reduction Plan even though the plan had not been formally approved. This project was completed in time before the planned blast furnace reline mid-year 1999. This project met the expected outcome for containment of kish. To supplement this project, a study is underway to further contain kish emissions at the No 3 Mould Yard with CO₂ suppression systems.

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 in the dedicated asbestos cell 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 1999.

Investigate Other Methods of Slag Skimming

The Kish Reduction Plan proposed this study to be completed 9 months after approval. A consulting firm has been retained as of February 1 to conduct this study and prepare a report by August 2000.

Other Tests or Studies

Pilot studies were conducted in 1999 to recycle baghouse kish with BOF slag. Please refer to Section 1, Recycling of BOF Fume sludge Work Plan.

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. The required Plan and Timetable for Future Uses and Closure of Coke Point Landfills was submitted on April 8, 1999, the Decree due date. Maryland Department of the Environment (MDE) is the primary reviewing Agency.

Preliminary MDE comments concerning the Landfill Compliance Plan and the Plan and Timetable for Future Uses and Closure of Coke Point Landfills were received by BSC on May 7, 1999. BSC provided a written response to the comments on July 7, 1999. This response addressed specific issues including: 1) continuing use and development of the existing landfill facilities, 2) engineering and operational improvements for the existing landfills, and 3) compliance requirements for continued use of the landfills.

BSC received approval from the Baltimore County Soil Conservation District for the erosion and sediment control plan submitted for Greys Landfill on September 2, 1999.

BSC also provided a revised submittal for Greys Landfill on September 30, 1999. This submittal was responsive to both the original requirements of the Consent Decree and to the comments provided by the Agency on May 7, 1999 and included:

- Bethlehem Steel Corporation Greys Landfill Erosion and Sediment Control Plan and associated Small Pond Approval and Operation and Maintenance Plan Guidelines. These plans and guidelines were approved for construction by the local National Resource Conservation District (Baltimore County Soil Conservation District).
- Greys Landfill Operations Manual (Revision 1 dated 9/28/99).

The intent of this submittal was to obtain approval from the Agency for the continued operation of Greys Landfill as defined in:

- 1) The Sparrows Point Plant Landfill Compliance Plan and the Coke Point and Greys Landfills Engineering Study submitted on July 15, 1998,
- 2) The Plan and Timetable For Future Uses and Closure of Coke Point and Greys Landfill dated April 8, 1999.
- 3) The approved Erosion and Sediment Control Plan for Greys Landfill and revised Greys Landfill Operations Manual.

No further review comments have been received from the Agency. When Plan approval is received for Greys Landfill, the sediment and erosion control structures and improvements for Greys Landfill will begin in accordance with the schedule submitted. Final permitting procedures have been initiated to support construction of the planned improvements.

In response to Agency comments concerning Coke Point Landfill, BSC has undertaken a complete slope stability analysis of the projected height of the landfill. Field investigations including Cone Penetration Tests and standard geotechnical borings were completed in

1999. Laboratory strength and characterization analyses of the recovered soil samples were also completed in 1999. At the time of this report, analysis of the slope stability and final report is being prepared for submittal to the Agency for review. It is planned in 2000 to submit the slope stability analysis report for Coke Point Landfill and to obtain approvals for the erosion and sediment control plan for this landfill.

- 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 1999 Remediation and Monitoring Activities submitted January 30, 1999.

BOF roof monitoring observations compliant with the Decree began on October 28, 1997. A summary of the 1999 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 1999. No personnel changes or additions are proposed for the year 2000.

- 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 1999 with representatives from community groups and with the community at large. A chronology of meetings and presentations in 1999 is as follows:

- | | |
|-------------------------|---|
| <u>May 18, 1999</u> | Attended Dundalk Citizen of the Year dinner. |
| <u>June 1, 1999</u> | Held a MMCD Task Force meeting at Eastern Baltimore Area Chamber of Commerce offices with the Community technical advisor. |
| <u>June 7, 1999</u> | Presentation made to local legislators on the Risk Management Plan. |
| <u>June 9, 1999</u> | Community Commitment Initiative meeting held with CCI leadership group to discuss the following: <ul style="list-style-type: none">• Presented the Risk Management Plan• Reported on MMCD progress and current status• Discussed various community issues• Discussed ongoing and future building demolition projects |
| <u>October 10, 1999</u> | Attended the North Point Peninsula Community Coordinating Council meeting to discuss "fallout" incidents. Presented plans to mitigate and minimize future incidents. |

December 1, 1999

Community Commitment Initiative meeting held with CCI leadership group to discuss the following:

- Reported on MMCD progress and current status. Including the approval of the Kish Reduction Plan and other associated projects.
- Discussed various community issues
- Discussed ongoing and future building demolition projects

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 1999 on any planned deliverables. No delays are expected on any deliverable due in 2000. The Site Wide Investigation Work Plan was submitted on the due date of March 1. The next deliverable in the Site Wide Investigation series is the due after the first phase is completed in 2001.

f) Describes actions being taken to rectify problems;

No problems occurred in 1999 where corrective actions were necessary.

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

No changes in subcontractors occurred in 1999.

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 2000

- Site Wide Investigation Phase I Status Report

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.

Refer to the previous section on BOF roof monitoring for exceedances in emissions in 1999. No other reportable releases occurred in 1999.

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
1/5/99	6.3	4.3	2/2/99	0	6.1
1/6/99	0.4	3.4	2/3/99	2.5	3.7
1/7/99	8.1	4.9	2/4/99	2.3	1.6
1/12/99	7.3	5.3	2/9/99	6	3.6
1/13/99	7.3	7.6	2/10/99	3.5	3.9
1/15/99	5	6.5	2/11/99	4.6	4.7
1/19/99	4.4	5.6	2/16/99	13.1	7.1
1/20/99	0.2	3.2	2/17/99	46.3	21.3
1/21/99	2.9	2.5	2/19/99	1.5	20.3
1/26/99	0	1	2/23/99	4.7	17.5
1/27/99	9.8	4.2	2/24/99	1	2.4
1/28/99	8.5	6.1	2/25/99	2.1	2.6

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
3/3/99	0.2	1.1	4/1/99	2.5	4
3/4/99	2.1	1.5	4/6/99	0.8	3
3/5/99	5	2.4	4/7/99	0.6	1.3
3/9/99	0.2	2.4	4/8/99	8.5	3.3
3/10/99	3.3	2.8	4/13/99	11.7	6.9
3/11/99	11.9	5.1	4/14/99	5	8.4
3/17/99	2.1	5.8	4/15/99	0	5.6
3/18/99	1	5	4/20/99	0	1.7
3/19/99	5	2.7	4/21/99	1.3	0.4
3/23/99	0.6	2.2	4/22/99	4.6	2
3/24/99	2.9	2.8	4/27/99	15.2	7
3/25/99	2.9	2.1	4/28/99	5	8.3
3/30/99	3.8	3.2	4/29/99	10.4	10.2
3/31/99	5.6	4.1			

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
5/4/99	9.6	8.3	6/1/99	3.8	3.5
5/6/99	7.3	9.1	6/2/99	1.5	2.6
5/7/99	0	5.6	6/3/99	1	1.2
5/11/99	5	4.1	<p>Sparrows Point Plant conducted a shut down to the blast furnace and BOF facilities for major repairs and maintenance for the balance of June, July and most of August. No readings were conducted until August 25, 1999</p>		
5/12/99	2.5	2.5			
5/13/99	8.1	5.2			
5/18/99	2.1	4.2			
5/19/99	13.5	7.9			
5/20/99	1.9	5.8			
5/25/99	1	5.5			
5/26/99	4.2	2.4			
5/27/99	2.5	2.6			

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
No readings were conducted in July due to facility shutdown for maintenance.			8/25/99	1	1.2
			8/26/99	0	0.7
			8/27/99	0	0.3
			8/31/99	1.3	0.4

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
9/1/99	2.3	1.2	10/6/99	4.6	4.5
9/2/99	0	1.2	10/7/99	2.1	3.6
9/7/99	3.3	1.9	10/8/99	13.1	6.6
9/8/99	2.3	1.9	10/12/99	5.2	6.8
9/9/99	0.2	1.9	10/13/99	2.1	6.8
9/14/99	2.5	1.7	10/14/99	9.8	5.7
9/15/99	1.9	1.5	10/19/99	5.4	5.8
9/17/99	13.8	6.1	10/20/99	1.3	5.5
9/22/99	2.5	6.1	10/21/99	6.9	4.5
9/23/99	4.4	6.9	10/25/99	44	17.4
9/24/99	15	7.3	10/28/99	12.7	21.2
9/28/99	0	6.5	10/29/99	14.6	23.8
9/29/99	4.8	6.6			
9/30/99	4.2	3			

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
11/1/99	1.3	9.5	12/1/99	2.1	3.2
11/4/99	1.5	5.8	12/2/99	5.4	3.4
11/5/99	2.3	1.7	12/3/99	9.8	5.8
11/9/99	5	2.9	12/7/99	0.4	5.2
11/10/99	1.7	3	12/8/99	7.3	5.8
11/11/99	2.7	3.1	12/9/99	6.3	4.7
11/16/99	13.5	6	12/15/99	0	4.5
11/17/99	3.5	6.6	12/16/99	1	2.4
11/18/99	1.7	6.2	12/17/99	9.2	3.4
11/22/99	4	3.1	12/20/99	0	3.4
11/23/99	4.8	3.5	12/21/99	9.2	6.1
11/24/99	2.7	3.8	12/22/99	4	4.4
			12/29/99	8.3	7.2
			12/30/99	1	4.4
			12/31/99	2.3	3.9

Appendix B

SUMPS/TANKS AND TRENCHES
 MANAGEMENT UNIT INVENTORY
 Bethlehem Steel Corporation Sparrows Point Plant

ID	LOCATION	Orig #	Tagge	Contents	Description	NDT	POC
S-6	#1 TIN	1	1	NaH2 Rinse	Entry End Sump and Trenches		Downey/Chaban
S-7	#1 TIN	3	1		Spent Pickle Liquor Sump		Downey/Chaban
S-8	#1 TIN	6	1		Tin Plating Solution Sump and Assoc. Trenches		Downey/Chaban
S-9	#1 TIN	9	1		Chromium-Bearing Wastewater Sump		Downey/Chaban
S-10	#1 TIN	10	1	Sodium Dichromate	Chem-Treat Storage Containment Sump		Downey/Chaban
T-20	#1 TIN	2	1	Sodium Hydroxide	Caustic Soda Tank		Downey/Chaban
T-21	#1 TIN	4	1		Plating Solution Storage Tank (Recycle Tank)		Downey/Chaban
T-22	#1 TIN	7	1	Sodium Dichro Rinse	Chem-Treat Storage Tank		Downey/Chaban
T-23	#1 TIN	8	1	Sodium Dichromate	Chem-Treat Mix Tank		Downey/Chaban
T-24	#1 TIN	13	1		Clean Plating Solution Storage Tank		Downey/Chaban
T-25	#1 TIN	14A	1		Upper Storage Tank for Tin Plating Washwater		Downey/Chaban
T-26	#1 TIN	14B	1		Lower Storage Tank for Tin Plating Washwater		Downey/Chaban
T-27	#1 TIN	16	1		Pickle Acid Storage Tank		Downey/Chaban
T-28	#1 TIN	15	1		Pickle Acid Storage Tank		Downey/Chaban
T-72	#1 TIN				Recycle Slurry Storage		Downey/Chaban
TR-3	#1 TIN				Pickler Section Trench		Downey/Chaban
S-11	#2 TIN	1	1	NaH2 Rinse	Entry End Sump and Trenches		Downey/Chaban
S-12	#2 TIN	5	1		Spent Pickle Liquor Storage Sump		Downey/Chaban
S-13	#2 TIN	6	1		Tin Plating Solution Sump and Assoc. Trenches		Downey/Chaban
S-14	#2 TIN	11	1		Chromium-Bearing Wastewater Sump		Downey/Chaban
T-29	#2 TIN	2	1	Caustic Soda, NaH2	Caustic Soda Storage Tank No. 1		Downey/Chaban
T-30	#2 TIN	3	1	Caustic Soda, NaH2	Caustic Soda Storage Tank No. 2		Downey/Chaban
T-31	#2 TIN	4	1	NaH2 Concentrate	Caustic Soda Storage Tank (Virgin Material)		Downey/Chaban
T-32	#2 TIN	8	1		Tin Plating Washwater Recycle Storage Tank		Downey/Chaban
T-33	#2 TIN	9	1	Sodium Dichromate Pss	Chem-Treat Mix Tank		Downey/Chaban
T-34	#2 TIN	10	1	Chromium Rinsewater	Chem-Treat Storage Tank		Downey/Chaban
T-35	#2 TIN	16	1		Storage Tank for Tin Plating Washwater (Upper)		Downey/Chaban
T-36	#2 TIN	17	1		Storage Tank for Tin Plating Washwater (Lower)		Downey/Chaban
T-37	#2 TIN	18	1		Storage Tank for Clean Plating Solution		Downey/Chaban
T-38	#2 TIN	19	1		Pickle Acid Storage Tank		Downey/Chaban
T-39	#2 TIN	20	1		Pickle Acid Storage Tank		Downey/Chaban
T-71	#2 TIN		1		Recycle Slurry Storage		Downey/Chaban
TR-2	#2 TIN				No. 2 Tin Line Pickler Section Trench		Downey/Chaban
S-2	#5 CAL	3	1	NaMetasilicate NaH2	Containment Sump for Recirculation Tank and No. 5 CA line		
T-4	#5 CAL	1	1	NaMetasilicate NaH2	SMS2L Silicated Alkaline Strip Cleaner Tank		
T-5	#5 CAL	2	1	NaMetasilicate SMS2L	Caustic Recirculation Tank		
S-1	#6 WASH	2	1	Caustic Rinsewater	Caustic Recirculation Tank Area Containment Sump		
T-1	#6 WASH	1	1	NaMetasilicate NaH2	Virgin Caustic Soda Tank - Insulated		
T-2	#6 WASH	2	1	NaMetasilicate NaH2	Recirculating Tank		
T-3	#6 WASH		1	?	Tank Next to Recirculating Tank		
S-3	#8 TFS	7		Chromium Rinsewater	Chrome Basement Sump		
S-4	#8 TFS			Caustic/Pickling Rinse	Non-Chromium Bearing Wastewaters Sump		
T-6	#8 TFS	6		NaDichro, Chromic Acid	Chem-Treat Rinse Tank		
T-7	#8 TFS	4		Sodium Dichromate	Chem-Treat Plating Solution Storage Tank		
T-8A	#8 TFS	5A		Chromic Acid	Plating Dragout Tanks		
T-8B	#8 TFS	5B		Chromic Acid	Plating Dragout Tanks		
T-9	#8 TFS	8		Sodium Dichromate	Chem-Treat Make-Up Tank		
T-10	#8 TFS	9		Chromic Acid	Plating Solution Make-Up Tank		
T-11	#8 TFS	1		Sodium Hydroxide	Caustic Cleaner Tank		

ID	LOCATION	Orig #	Tagge	Contents	Description	NDT	POC
T-12	#8 TFS	2		Sulfuric Acid	Pickle Liquor Dump Tank		
T-13	#8 TFS	3		Chromic Acid	Chromic Acid Plating Solution Storage Tank		
T-44	#8 TFS			Chromium Rinsewater	Tank X		
T-45	#8 TFS				Spent Pickle Liquor Storage Tank		
T-63	BF/SP	1	1	Sulfuric Acid	Sulfuric Acid Storage Tank	X	
T-64	BF/SP	2	1	Spent Sulf. Acid	Spent Pickle Liquor Storage Tank (Fiberglass? Shaped Tank?)	X	
S-15	CRTF		1	Chromium Rinsewater	Vacuum Filter Sump (Sand)		Conrad/Robier
T-46	CRTF	1	1	Sulfur Dioxide	Sulfur Dioxide Storage Tank (Pressure Vessel)		Conrad/Robier
T-47	CRTF	2	1	Sulfuric Acid	Sulfuric Acid Storage Tank	X	Conrad/Robier
T-48	CRTF	3	1	Chromium Rinsewater	Chrome Influent Equalization Storage Tank	X	Conrad/Robier
T-49	CRTF	4	1	Sodium Hydroxide	Sodium Hydroxide Storage Tank		Conrad/Robier
T-50	CRTF	5	1	Chromium Rinsewater	Chromium Reduction Reactor Tank	X	Conrad/Robier
T-51	CRTF	6	1	Chromium Hydrox Prec	Neutralization Reactor Tank	X	Conrad/Robier
T-52	CRTF	7	1	Lime/Chr Hydrox Slurry	Alkalinization Reactor Tank	X	Conrad/Robier
T-53	CRTF	8	1	Chromium Hydrox	Flocculator Tank	X	Conrad/Robier
T-54	CRTF	9	1	Chromium Hydrox Slurry	Clarifier	X	Conrad/Robier
T-55	CRTF	10	1	Chromium Hydrox Sol	UHR Filter (Sand)	X	Conrad/Robier
T-56	CRTF		1	Chromium Hydro Solids	Chrome HDS Treatment Vacuum Filter	X	Conrad/Robier
T-57	CSM		1	Sulfuric Acid	CSM Sulfuric Acid Storage Tank Virgin, Outside	X	
T-58	CSM	1	1	Caustic Solutions	No. 3 Hot Dip Line Caustic Storage Tank (new tank, insulated)		
T-59	CSM	1	1		Caustic Recirculation Tank No. 1		
T-60	CSM	2	1		Caustic Recirculation Tank No. 2		
T-61	CSM	3	1		Caustic Recirculation Tank No. 3		
T-62	CSM	4	1	NaH2 Concentrate	Concentrated Caustic Storage Tank (Insulated, 2nd floor)		
TR-4	CSM				S&A Pickler Trench System		
T-65	HCWTP	1	1		Spent Caustic Storage Tank		
T-66	HCWTP	2	1	Virgin Caustics	Caustic Storage Tank		
T-69	HHR	1	1	Phosphoric Acid	Phosphoric Acid Storage Tank Foam Insulation	X	Conrad/Robier
T-70	HHR	2	1	Phosphoric Acid	Phosphoric Acid Storage Tank	X	Conrad/Robier
TR-1	PICKLER				Tin Mill Pickler SPL Trench		
T-67	PPP		1	NaH2	Sodium Hydroxide Tank		Kolner
T-68	PPP		1	Sulfuric Acid	Sulfuric Acid Tank	X	Kolner
S-5	TIN GEN	14	1		Tin Mill Pickle Liquor Sump		
T-14	TIN GEN	10		Sulfuric Acid	Sulfuric Acid Storage Tank (Acid Alley)		
T-15	TIN GEN	11		Sulfuric Acid	Sulfuric Acid Storage Tank (Acid Alley)		
T-16	TIN GEN	12		Sulfuric Acid	Sulfuric Acid Storage Tank (Acid Alley)		
T-17	TIN GEN	13		Sulfuric Acid	Sulfuric Acid Storage Tank (Acid Alley)		
T-18	TIN GEN	1	1		Spent Pickle Liquor Aboveground Storage Tank (Outside N CSM) Ins.	X	Conrad/Robier
T-19	TIN GEN	2	1		Spent Pickle Liquor Aboveground Storage Tank (Outside N CSM) Ins.	X	Conrad/Robier
T-40	TIN GEN	21	1		Spent Pickle Liquor Aboveground Storage Tank (Outside Tin Line Bldg)	X	Downey/Chaban
T-41	TIN GEN	22	1		Spent Tin Plating Solution Storage Tank (Outside Tin Line Bldg) lower		
T-42	TIN GEN	15	1	Sulfuric Acid	Sulfuric Acid Aboveground Storage Tank (Outside Tin Line Bldg) N	X	Downey/Chaban
T-43	TIN GEN	16	1	Sulfuric Acid	Sulfuric Acid Aboveground Storage Tank (Outside Tin Line Bldg) S	X	Downey/Chaban

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BF/SP BLAST FURNACE/SINTER PLANT
 CAL CONTINUOUS ANNEAL LINE
 CRTF CHROME RECOVERY TREATMENT FACILITY
 CSM COLD SHEET MILL
 HCWTP HUMPHREYS CREEK WASTEWATER TREATMENT PLANT
 HHR HIGH HEAD RESERVOIR
 PPP PENNWOOD POWER PLANT
 TFS TIN FREE STEEL LINE
 WASH WASHER LINE

Appendix C

Corporate Office Environmental Affairs Labor and Expenses
Sparrows Point Multi-Media Project

Project	Full Time Bethlehem Personnel												Consultants		
	A. M. Carman		J. D. Lynn		R. B. Allen		S. T. Herman		R. K. Chaturvedi		G.E. Keyser		V. P. Messina		
	hours	dollars	hours	dollars	hours	dollars	hours	dollars	hours	dollars	hours	dollars	hours	dollars	
Citizens Committee	32	\$3,304													
Waste Minimization	7	\$723													
Site Wide Investigation	147	\$15,177			19	\$1,962									
Blast Furnace Sludge Recycle	31	\$3,201	40	\$4,130							80	\$2,796			
BOF Sludge Recycle	2	\$206	464	\$47,908							362	\$11,241			
Kash Reduction											151	\$4,868			
Wire Mill Groundwater							19	\$1,962					79	\$2,785	
Landfill Studies	8	\$826													
Waste Management/P2 Plans/Reports									68	\$7,021					
Tin Mill Canal Dredging															
Spent Caustic Reuse															
HCMWTP Sludge Recycle	36	\$3,717									2	\$206			
Sumps, Tanks, and Trenches	2	\$206									47	\$4,853			
Other Multi-Media															
Totals	265	\$27,360	504	\$52,036	19	\$1,962	68	\$7,021	68	\$7,021	603	\$18,725	79	\$2,785	
Total Professional Hours	924														
Total Professional Dollars	\$95,400														
Total Consultant Hours	682														
Total Consultant Dollars Including Travel Expense	\$21,490														
Total Cost	\$116,890														

* - Includes Travel Expenses