REDACTED

FILE

UNITED STATES PIPE AND FOUNDRY COMPANY

GENERAL OFFICE
3300 FIRST AVENUE NORTH • BIRMINGHAM, ALABAMA 35202

January 25, 1984

Mr. Frank Victory
Division of Solid Waste Management
Tennessee Department of Public Health
7th Floor, TERRA Building
150 Ninth Ave. North
Nashville, TN 37203

Subject: Chattanooga Landfill

Dear Mr. Victory:

In our meeting in Nashville on December 19, 1983, we indicated that our construction and operation plans would be submitted by January 20, 1984, per our letter to Mr. Steve Baxter of October 17, 1983. In our telephone conversation of December 29, 1983, we discussed the possibility of a delay in the submission date due to unresolved issues relative to baghouse dust. In a recent meeting with our consultant, MCI/Consulting Engineers, a decision was made to obtain several additional samples of baghouse dust and conduct distilled water leachate tests in lieu of the acid EP toxicity test. Therefore, in order to allow adequate time for the testing and for management review of the subject plans, we respectfully request an extension of the submission date until March 15, 1984. Should you have any questions on the above, please let me know.

Yours truly,

J. H. Watson

J. H. Watson
Principal Environmental Engineer

JHW/mk

cc: Mr. Steve Baxter

bcc: Messrs. W. E. Fleck
C. N. Codding
W. A. Berry
J. B. Dockery
D. C. Wallace
H. G. Reynolds
R. R. Ferguson

10946584

a Jim Walter company

MWPS006594

January 18, 1984

Subject: Meeting with MCI Consultants on Chattanooga landfill

Present: Bill Fleck, Don Wallace, Felon Wilson, Randy Ferguson, John Watson

Purpose of meeting was to provide guidance to MCI on proceeding with operation and construction plans for landfill in absense of any guidance on "baghouse dust disposal" from State of Tennessee. As of meeting time, we have not received letter from State promised on December 19, 1983 at our "show cause" hearing. Felon Wilson has contacted them twice/day past several weeks with no results. The following directions were provided by Bill Fleck:

1. Proceed with plans to utilize the total area available for waste disposal.

2. Assume all existing wastes will be disposed of on site as in past.

3. We will obtain additional baghouse dust samples and run several samples with distilled water. MCI to do!

4. MCI will provide approximate date for filing plans and I will write to State and request necessary extension.

5. Portion of CSP storage area up to paved area will be included in landfill plans for silt pond location!

RECEIVED Watson
NOV 25 1981
ENGINEERING DEPT.
REFERRED

STATE OF TENNESSEE
DEPARTMENT OF PUBLIC HEALTH
CORDELL HULL BUILDING
NASHVILLE, TENNESSEE 37219

November 20, 1981

Mr. John H. Watson
U.S. Pipe & Foundry Company
3300 First Avenue North
Birmingham, AL 35202

Re: Landfill Sites - Chattanooga Plants

Dear Mr. Watson:

This is to confirm our conversation concerning the results of your sand, slag and baghouse dust analyses. EP Toxicity and phenol analyses indicate that your wastes do not pose a toxicity problem. We, therefore, approve the use of these wastes in construction of the berm around the top of the existing fill area.

We are willing to be somewhat flexible with compliance dates as you requested until you are ready to finalize your construction plans.

We look forward to meeting with you as the project progresses. If you have any questions, please do not hesitate to call.

Sincerely,

Rebecca F. Harris

Rebecca F. Harris
Environmental Engineer
Division of Solid Waste Management

RFH/dfs/3-2

cc: James Spicer

Copies to: W. E. Fleck
12-17-81 J. A. Prignano
R. C. Hartman
A. Hicks
J. Smallwood

MWPS006596

UNITED STATES PIPE AND FOUNDRY COMPANY

GENERAL OFFICE
3300 FIRST AVENUE NORTH • BIRMINGHAM, ALABAMA 35202

FILE

October 27, 1981

Ms. Rebecca F. Harris, Environmental Engineer
Division of Solid Waste Management
State of Tennessee, Department of Public Health
150 9th Avenue North
Nashville, TN 37219

RE: Landfill Site - Chattanooga Plants

Dear Ms. Harris:

In accordance with your letter of September 29, 1981, and my phone conversation with Mr. James Spicer of your office on October 26, 1981, we are submitting the attached analytical data (four pages) requested on production proportional composite samples of solid waste being disposed on the referenced landfill site. Since each of our plants utilize separate areas of the landfill, we obtained samples from each consisting of proportional quantities of sand, slag, and baghouse dust. In addition to the EP Toxicity analyses which you requested, we are also including results from a distilled water extraction procedure which we feel is a more appropriate test for our type of wastes and landfill. Based upon the excellent results obtained (lack of contamination potential), we hereby request your approval for use of our existing wastes in construction of the necessary berm around the top of the existing fill area.

As for our confirming the compliance schedule suggested in items 2 and 3 of your letter, we are not in a position to do so at this time. As I explained to Mr. Spicer, we needed the results of the analytical data and your approval of the construction materials prior to proceeding with any cost estimates for compliance, and we certainly cannot fully commit ourselves to these compliance dates without knowing the cost involved and obtaining necessary management approval. Therefore, we request that the suggested compliance dates be retained as "suggested" dates until cost estimates are obtained and we can meet with you to finalize the actual completion dates. We appreciate your cooperation in this matter and if you have any questions, please let me know.

Sincerely,

John H. Watson

John H. Watson
Principal Environmental Engineer

JHW/bd

cc/Messrs. W. E. Fleck
J. A. Prigmore - A. Hicks
R. C. Hartman - J. Smallwood

Proj. 010027 - Solid Waste Disp. - Chatt. Plants 10-23-81

Sub: Leachate extraction results from composite waste samples

	Parameter	Max. Conc. for EP Toxicity mg/L	CV&F EP Extract mg/L	CV&F H_2O Extract mg/L	CSP EP Extract mg/L	CSP H_2O Extract mg/L
.05	Arsenic	5.0	<0.01	<0.01	<0.01	<0.01
1.0	Barium	100.0	0.22	0.04	0.04	0.04
.01	Cadmium	1.0	0.02	<0.02	0.08	<0.02
.05	Chromium	5.0	<0.02	<0.02	<0.02	<0.02
.05	Lead	5.0	0.14	0.05	0.32	<0.02
.002	Mercury	0.2	<0.002	<0.002	<0.002	<0.002
.01	Selenium	1.0	<0.005	<0.005	<0.005	<0.005
.05	Silver	5.0	<0.02	<0.02	<0.02	<0.02
.01	*Phenol	*0.1	0.142	0.052	0.045	0.032

* No EPA Standard Under EP Toxicity Test; Max. permissible in Drinking Water is 1 PPB (0.001 mg/L) due to taste problems caused by chlorination! Toxic to fish @ 2 mg/L; Toxic to man @ 7,000 mg/L
"Assuming" an EPA Toxicity Std. of 100 Times the D.W.S. of 0.001 mg/L, Phenol limit on leachate could be 0.1 mg/L (Worst condition)

GUARDIAN SYSTEMS, INC.

2610 - 19TH STREET SOUTH
BIRMINGHAM, ALABAMA 35209
TELEPHONE 205/879-1850

4301 15TH STREET EAST
TUSCALOOSA, ALABAMA 35401
TELEPHONE 205/556-6084

October 20, 1981

Customer: United States Pipe and Foundry Company
A Jim Walter Company
P. O. Box 10406
Birmingham, Al. 35202

Attn: John Watson

Laboratory Reference No.: 29563

Sample Identification

PO# CT 1351-1081, rec'd 10/8/81, Chattanooga Valve and Fitting, 29563

E.P. Toxicity - CV&F

LABORATORY REPORT

Parameter	Units	Results
Arsenic	mg/l	<0.01
Cadmium	mg/l	0.02
Chromium	mg/l	<0.02
Barium	mg/l	.22
Lead	mg/l	0.14
Mercury	mg/l	<0.002
Selenium	mg/l	<0.005
Silver	mg/l	<0.02
Phenol	mg/l	0.142

Method Reference: "Standard Methods", 14th Edition, 1975 APHA – AWWA – WPCF. ASTM ANNUAL STANDARDS

Approved by: Robert E. Smith

GUARDIAN SYSTEMS, INC.

2610 - 19TH STREET SOUTH
BIRMINGHAM, ALABAMA 35209
TELEPHONE 205/879-1850

4301 15TH STREET EAST
TUSCALOOSA, ALABAMA 35401
TELEPHONE 205/556-6084

October 20, 1981

Customer: United States Pipe and Foundry Company
A Jim Walter Company
P. O. Box 10406
Birmingham, Ala. 35202

Attn: John Watson

Laboratory Reference No.: 29563

Sample Identification

PO# CT 1351-1081, rec'd 10/8/81, Chattanooga Valve and Fitting, 29563

H_2O Extraction - CV&F

LABORATORY REPORT

Parameter	Units	Results
Arsenic	mg/l	<0.01
Cadmium	mg/l	<0.02
Chromium	mg/l	<0.02
Barium	mg/l	0.04
Lead	mg/l	0.05
Mercury	mg/l	<0.002
Selenium	mg/l	<0.005
Silver	mg/l	<0.02
Phenol	mg/l	0.052

Method Reference: "Standard Methods", 14th Edition, 1975 APHA – AWWA – WPCF. ASTM ANNUAL STANDARDS

Approved by: Robert E. Bassil

GUARDIAN SYSTEMS, INC.

2610 - 19TH STREET SOUTH
BIRMINGHAM, ALABAMA 35209
TELEPHONE 205/879-1850

4301 15TH STREET EAST
TUSCALOOSA, ALABAMA 35401
TELEPHONE 205/556-6084

October 20, 1981

Customer: United States Pipe and Foundry Company
A Jim Walter Company
P. O. Box 10406
Birmingham, Al. 35202

Attn: John Watson

Sample Identification

PO# CSP 5160-1081, rec'd 10/8/81, Chattanooga Soil Pipe 29564, E.P. Toxicity - CSP

Laboratory Reference No.: 29564

LABORATORY REPORT

Parameter	Units	Results
Arsenic	mg/l	<0.01
Cadmium	mg/l	0.08
Chromium	mg/l	<0.02
Barium	mg/l	0.04
Lead	mg/l	0.32
Mercury	mg/l	<0.002
Selenium	mg/l	<0.005
Silver	mg/l	<0.02
Phenol	mg/l	0.045

Method Reference: "Standard Methods", 14th Edition, 1975 APHA – AWWA – WPCF. ASTM ANNUAL STANDARDS

Approved by: [signature]

3-4

GUARDIAN SYSTEMS, INC.

2610 - 19TH STREET SOUTH
BIRMINGHAM, ALABAMA 35209
TELEPHONE 205/879-1850

4301 15TH STREET EAST
TUSCALOOSA, ALABAMA 35401
TELEPHONE 205/556-6084

October 20, 1981

Customer: United States Pipe and Foundry Company
A Jim Walter Company
P. O. Box 10406
Birmingham, Al. 35202

Attn: John Watson

Sample Identification

PO# CSP 5160-1081, rec'd 10/8/81, Chattanooga Soil Pipe 29564, H_2O Extraction - CSP

Laboratory Reference No.: 29564

LABORATORY REPORT

Parameter	Units	Results
Arsenic	mg/l	<0.01
Cadmium	mg/l	<0.02
Chromium	mg/l	<0.02
Barium	mg/l	0.04
Lead	mg/l	<0.02
Mercury	mg/l	<0.002
Selenium	mg/l	<0.005
Silver	mg/l	<0.02
Phenol	mg/l	0.032

Method Reference: "Standard Methods", 14th Edition, 1975 APHA – AWWA – WPCF. ASTM ANNUAL STANDARDS

Approved by: Robert E. Daniel

3-4

FILE

UNITED STATES PIPE AND FOUNDRY COMPANY

Birmingham, Alabama
June 10, 1983

MEMORANDUM FOR RECORD

From: J. H. Watson

SUBJECT: SOLID WASTE DISPOSAL - CHATTANOOGA PLANTS

Copies to: Messrs. W. E. Fleck
J. B. Dockery
W. A. Berry
J. Smallwood
S. Goodson

The landfill was inspected on June 8, 1983, by Messrs. S. Baxter and B. Krispen of the State, accompanied by Messrs. S. Goodson, J. Smallwood and myself. The primary purpose of this inspection was for Mr. Krispen to make a geological assessment of the site with his forthcoming report to initiate the registration or permitting process. We were advised that the State's proposed regulations requiring Closure and Post-Closure Care Plans is likely to be finalized by August, 1983. Before getting into the details of the inspection, permit me to briefly review what will be required by these proposed regulations. They will:

1. Require landfill operator to prepare, submit to State, and obtain State approval of a written plan which details how and when the landfill will be closed in accordance with applicable standards. The plan must include the estimated cost for such closure.

2. Require post-closure care of landfill for up to 10 years after closure.

3. Require operator to file and maintain with State a bond or other financial arrangement between operator and State which guarantees the availability of funds which the State may use to close landfill and provide post-closure care should the operator fail to do so.

During the course of the inspection, the following items were noted and discussed:

1. Abandoned 55 gallon drums

   These really get the attention of any inspector, similar to the reaction of a bull toward a red flag, particularly if the contents of the drum are unknown. In a September 2, 1981, memo commenting

1. Abandoned 55 gallon drums (Con't.)

upon the State inspection of August 27, 1981, it was recommended that empty returnable drums be accumulated and sold, with those not saleable possibly being sent to Anniston to be crushed and melted. It is again recommended that this procedure be followed if at all possible.

2. Garbage

Office and lunchroom type wastes (paper and food wastes) were again noted. It was recommended in a memo of August 14, 1981, that these type wastes should be disposed of at the municipal landfill. These type wastes are acceptable only at sanitary landfills and even when ours is eventually permitted, it will not be classified as a sanitary landfill. In fact, the permit issued by the State will list exactly what wastes can be disposed of on the landfill.

3. Baghouse Dust

Mr. Baxter noted at least two types of dust which were being picked up by the wind, one of which was obviously baghouse dust. He commented that they were creating air pollution and that we may have to find some method to alleviate the problem. It was then that he asked if we were disposing of any hazardous wastes and was advised that Environmental Protection Agency (EPA) originally listed baghouse dust as a hazardous waste but had delisted it shortly thereafter while they studied the problem nationwide. He then asked if we had performed the EP toxicity test on our baghouse dust and was advised we had not since EPA was doing the study. (Note: We did perform the EP toxicity test on composite waste samples of waste sand, cupola slag, and baghouse dust from each plant, however, the dust represented a maximum of 2% of the composite sample.) Mr. Baxter stated that he wanted to discuss this with "Nashville" and they may then request that we perform the test specifically on the baghouse dust.

4. Paint Waste

Mr. Baxter noted several areas where asphalt base paint waste had been disposed of on the landfill surface. His concern was probably based upon the fact that EPA originally listed paint residues as a hazardous waste. However, the listing was specific to the mechanical and electrical products industry utilizing paints with heavy metal pigment. In addition, paint residue was delisted by EPA on January 16, 1981. In our judgement, our asphalt base paint wastes are not a hazardous waste when disposed of in the typical manner (i.e. in a basically dry solid condition

4. Paint Waste (Con't.)

after practically all the solvent has evaporated!) Note: It should be pointed out that disposal of the liquid paint itself (unused condition), or the naptha solvent used for thinning, could be classified as disposal of a hazardous waste.

Summary and Conclusions

We will continue to work with the State to obtain the necessary permits and develop the soon to be required Closure and Post-Closure Care plans. However, as indicated in the above discussions, our current disposal practices will no doubt be altered by the State in the near future.

J. H. Watson

JHW/sd

RECEIVED
Watson
OCT 01 1981

ENGINEERING DEPT.
REFERRED

STATE OF TENNESSEE
DEPARTMENT OF PUBLIC HEALTH
CORDELL HULL BUILDING
NASHVILLE, TENNESSEE 37219

RETURN RECEIPT REQUESTED
CERTIFIED NO. 351431

September 29, 1981

Mr. John H. Watson
United States Pipe and Foundry Co.
3300 First Avenue North
P. O. Box 10406
Birmingham, Alabama 35202

Re: Open Dump Inventory - Chattanooga U. S. Pipe & Foundry Landfill Site

Dear Mr. Watson:

This is to confirm the negotiations held in our meeting with you, Mr. Albert Hicks and Mr. Jim Smallwood on September 24, 1981. You understand that due to violation of EPA floodplain and surface water criteria you must be reported to the EPA and the Bureau of Census as an Open Dump. In our meeting today we developed the basis of a mutually agreeable compliance schedule. The Open Dump report will indicate that you are on a compliance schedule.

The major points of concern in discussing the Chattanooga facility are:

1. Potential Contamination of the river
2. Runoff causing erosion and siltation
3. Washout causing erosion and siltation

The following compliance schedule was suggested to address each of these points:

1. Conduct EP Toxicity and Phenol Content Analyses of two production proportional composite samples; the first sample containing proportional quantities of sand, slag and baghouse dust, the second sample containing only sand and slag. The second sample is requested so data will be available in the event that the EPA lists baghouse dust as a hazardous waste. We have no indication of this happening in the immediate future so the second sample is optional. Sixty (60) days from receipt of this letter is allowed for analyses of at least the sand, slag and baghouse dust composite sample.

2. To contain runoff on the fill area a berm will be constructed around the top of the existing fill area. If the EP Toxicity and Phenol analyses do not indicate any threat of contamination, the berm may be constructed of the sand/bentonite clay material normally going into the fill. Otherwise, the berm must be constructed of other material acceptable to the Division of Solid Waste Management. Six months from receipt of this letter will be allowed for completion of berm construction.

3. To minimize washout the side slopes of the fill will be graded sufficiently to support proper erosion control vegetation. The area will then be seeded, sodded or otherwise revegetated. Six months from receipt of this letter is allowed for grading and revegetation.

To verify your agreement to follow this compliance schedule, please send us a letter of confirmation as soon as possible.

Do not hesitate to call me or James Spicer if you have any questions.

Sincerely,

Rebecca F. Harris

Rebecca F. Harris
Environmental Engineer
Division of Solid Waste Management

RFH/dgw 4/13

cc: Albert Hicks - U. S. Pipe & Foundry
Jim Smallwood - U. S. Pipe & Foundry
Mike Apple
Frank Victory
James Spicer

Copies given to Bill Flach & HGR on 10-2-81

UNITED STATES PIPE AND FOUNDRY COMPANY

Birmingham, Alabama
September 25, 1981

MEMORANDUM FOR RECORD

From: J. H. Watson

SUBJECT: SOLID WASTE DISPOSAL - CHATTANOOGA PLANTS

Copies to: Messrs. W. E. Fleck
R. C. Hartman
J. A. Prigmore
A. Hicks
J. Smallwood

On September 24, 1981, Messrs. A. Hicks, J. Smallwood, and J. H. Watson met with representatives of the State Solid Waste Management Division in Nashville per their request and letter of September 1, 1981. As noted in previous correspondence on this subject as being a distinct possibility, the State has now found us out of compliance with the following criteria and will list us as an "open dump" on their inventory:

1. Floodplain - We are in the 100 year floodplain and must protect against washout of solid waste.

2. Surface Water - Point source discharge of solid waste into "waters of the U. S." without an NPDES permit. (Note: They are referring to solids contaminated storm water runoff from side slopes of landfill).

Although the above items were discussed at length and some objections raised on our part, it is difficult to defend our current disposal practices. As a result of this meeting, the following improvements and compliance schedule were suggested:

1. Construction of a berm along the top of the flood prone sides of the landfill to an elevation above the 100 year flood level.

2. Installation of "riprap" or vegetative cover on the side slopes of the landfill to prevent washout during floods and discharge of solids during rainfall periods.

3. The above improvements to be completed by March 31, 1982. If vegetative cover is used, seeding is to be completed by this date.

In order to determine if the existing wastes may present a leachate problem, the State requested that the EP (Extraction Procedure) toxicity test be performed on a "representative sample" of wastes being disposed. This sample will be composed of proportional quantities of the various solids being disposed by each plant, and since each plant's wastes are disposed separately, samples from each would seem appropriate. Since baghouse dust may be classified as a "hazardous waste" by the Environmental Protection Agency (EPA), the test should be run on the proportional samples with and without baghouse dust included. In addition to the normal toxicity parameters, a test for phenol was also requested. If the above tests are negative, our wastes may be used for constructing the necessary berm.

Upon completion of the above discussion, we were advised that the existing landfill must be registered with the State and that we must cease our expansion into the 100 year flood plain until their approval is obtained. This in effect means that dumping on the side slopes of the landfill must be terminated until the above issues are resolved. Disposal operations should be limited to the existing depressions on top of the landfill.

The above information will be confirmed by a forthcoming letter from the State. After a quick review of the Tennessee regulations, we will proceed to get the existing landfill registered.

J. H. Watson

J. H. Watson

JHW/bd

EXTRA P. O. COPIES TO: R. C. Hartman, J. Smallwood, Plant Store, CT

FORM STD. 81 G.O. 11-75

PURCHASE ORDER

UNITED STATES PIPE AND FOUNDRY COMPANY

PURCHASING DEPARTMENT
P.O. Box 10405
Birmingham, AL 35202

ISSUING OFFICE ADDRESS

ALL COMMUNICATIONS IN REFERENCE TO THIS ORDER SHOULD BE ADDRESSED TO ISSUING OFFICE.

PLEASE RETURN ACKNOWLEDGEMENT COPY 1-A PROMPTLY TO ISSUING OFFICE.

2

TO:
Guardian Systems Inc.
2610 19th St. South
Homewood, AL

SHIP TO: UNITED STATES PIPE AND FOUNDRY COMPANY
WORKS: Chatt. Fittings & Valve
P.O. ADDRESS: 2701 Chestnut Street
DESTINATION: Chattanooga, TN 37408
ATTENTION OF: N. Alexander

OUR PURCHASE ORDER NUMBER AND SALES ORDER NUMBER WHEN SHOWN, MUST SHOW ON ALL INVOICES, PACKAGES, AND SHIPPING PAPERS.

DELIVERY	REQUEST NUMBER	AUTHORIZED JOB NUMBER	DATE	PURCHASE ORDER NUMBER	SALES ORDER NUMBER
ADVISE	1351		10-9-81	CT-1351-1081	

TERMS:	F.O.B.	SHIP VIA / RATE
Net 30	Shipping Point	US.P. Delivery

ITEM	QUANTITY	DESCRIPTION	UNIT	LIST PRICE	DISCOUNT
		Analytical services for conducting leachate extraction tests on composite solid waste sample delivered to your lab on October 8, 1981. Leachate from waste to be analyzed for following parameters: Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, Silver, and Phenol. The above parameter to be run on two leachate samples as follows: (1) Using the EPA specified EP toxicity Extraction Procedure of RCRA, and (2) Using deionized water (PH17) in lieu of the acid test required by the EPA procedures.	LOT	$310.00	Net'
		CONFIRMATION			
		VENDOR WARRANTS THAT THE PRICES UNDER WHICH THIS ORDER IS INVOICED ARE NO GREATER THAN THE HIGHEST WHICH MAY BE LEGALLY CHARGED UNDER THE PRESIDENT'S EXECUTIVE ORDER 11615 AND THE ECONOMIC STABILIZATION ACT OF 1970. VENDOR FURTHER AGREES TO REFUND OVERCHARGES WITHOUT DEMAND BY PURCHASER.			

C/hc
1-1501
1-9-81

ACCOUNT CHARGED

B. C. Camp, Purchasing Agent

BY | APPROVALS | ENGINEERING | DEPT. HEAD | EXECUTIVE

CHECKED BY STOREKEEPER _____ PLANT _____

MWPS006610

STD. 164—Rev. 9-62

REQUEST FOR MATERIAL

REQUEST NUMBER CT-1351-1981

PLANT Chattanooga Valve & Fitting DEPARTMENT Plant Manager

REQUEST DATE 10-8-81

REQUIRED FOR G.O. Proj. 010027 - Solid Waste Disposal

PURCHASE ORDER NO. CT-1351-1981

SALES ORDER NO.

PURCHASE ORDER DATE

AUTHORIZED CAPITAL JOB NO.

OTHER JOB NO.

SHOP ORDER NO.

DATE MATERIAL REQUIRED:

APPROXIMATE VALUE $ 310.00

PURCHASED FROM VENDOR	VENDORS RECOMMENDED	PREVIOUS ORDER REFERENCE
Guardian Systems Inc. 2610-19th St. South Homewood, Ala.	(1)	
	(2)	P/O NO. DATE
	(3)	VENDOR

TERMS	F. O. B.	SHIP VIA	DELIVERY

ITEM	QUANTITY	DESCRIPTION	UNIT	LIST PRICE	DISCOUNT
		Analytical services for conducting leachate extraction tests on composite solid waste sample delivered to your lab on Oct. 8, 1981. Leachate from waste to be analyzed for following parameters: Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, Silver, and Chloride.			
		The above parameters to be run on two leachate samples as follows: (1) Using the EPA specified EP Toxicity Extraction Procedure of RCRA, and (2) Using deionized water (pH ± 7) in lieu of the acid test required by the EPA procedures.			
		Confirmation			

ACCOUNT CHARGED 17-1501

EXTRA COPIES OF PURCHASE ORDER TO: R.C. Hartman, Jim Smallwood, Plant Stores

ORIGINATED BY John Watson

CHECKED BY STOREKEEPER

PLANT APPROVAL

ENGINEERING APPROVAL RCW

DEPARTMENT HEAD APPROVAL

EXECUTIVE APPROVAL

MWPS006611

'D. 164—Rev. 9-62

REQUEST FOR MATERIAL

REQUEST NUMBER CSP 5160-1081

:ANT Chattanooga Steel Pipe DEPARTMENT Plant General

REQUEST DATE 10-8-81

EQUIRED FOR G.O. Proj. 010027 - Solid Waste Disposal

PURCHASE ORDER NO. CSP 5160-1081

SALES ORDER NO.

PURCHASE ORDER DATE

UTHORIZED
APITAL JOB NO. OTHER JOB NO.

SHOP ORDER NO.

ATE MATERIAL REQUIRED:

APPROXIMATE VALUE $ 310.00

PURCHASED FROM VENDOR	VENDORS RECOMMENDED	PREVIOUS ORDER REFERENCE
uardian Systems Inc. 310-19th St. South rmewood, Ala.	(1) (2) (3)	P/O NO. DATE VENDOR

:RMS	F. O. B.	SHIP VIA	DELIVERY

:M	QUANTITY	DESCRIPTION	UNIT	LIST PRICE	DISCOUNT
		Analytical services for conducting leachate extraction tests on composite solid waste sample delivered to your lab on Oct. 8, 1981. Leachate from waste to be analyzed for following parameters: Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, Silver, and Phenol.			
		The above parameters to be run on two leachate samples as follows: (1) Using the EPA specified EP Toxicity Extraction Procedure of RCRA, and (2) Using deionized water (pH ± 7) in lieu of the said test required by the EPA procedures.			
		Confirmation			

:COUNT CHARGED 899-706-99 EXTRA COPIES OF PURCHASE ORDER TO: Jim Prigmore, Albert Hicks, CSP Stores

IGINATED BY John Watson CHECKED BY STOREKEEPER PLANT APPROVAL

GINEERING PROVAL DEPARTMENT HEAD APPROVAL EXECUTIVE APPROVAL

MWPS006612

RETURN RECEIPT REQUESTED
CERTIFIED #351 470

RECEIVED
SEP 09 1981
ENGINEERING DEPT.
REFERRED

Watson

STATE OF TENNESSEE
DEPARTMENT OF PUBLIC HEALTH
CORDELL HULL BUILDING
NASHVILLE, TENNESSEE 37219

September 1, 1981

Mr. Albert Hicks
U.S. Pipe & Foundry
Chattanooga, Tennessee

Re: Open Dump Inventory

Dear Mr. Hicks:

For the past two years the State of Tennessee has been required by the EPA to conduct surveys of specific landfill sites. These facilities have been inspected to determine compliance or non-compliance with EPA established guidelines for solid waste disposal facilities. Non-compliance with any one of the required criteria results in inclusion of the facility in the "Open Dump Inventory" published in the Federal Register.

The U.S. Pipe & Foundry landfill site was inspected in the 1981 fiscal year program. The facility was found to be out of compliance with the floodplain and surface water criteria.

The EPA requires that Tennessee provide status reports on the inspected facilities on September 30, 1981. If the facility is brought into compliance before that time then it will not be reported as an open dump.

We would like you to meet with us on September 24, 1981 at 9:00 a.m. in the Nashville Solid Waste Management Office to discuss the status of your facility. Our office is in a new location on the 7th floor of the TERRA building, located at 150 9th Avenue North. If it appears you will not be in compliance by September 30, 1981, then it is vital to establish a compliance schedule during our meeting in an effort to protect you from possible legal action by private citizens.

Do not hesitate to call me or your Regional Solid Waste Management Office if you have any questions or if you have a conflict with this meeting date.

Sincerely,

Don Shackelford

Don Shackelford
Environmental Consultant
Division of Solid Waste Management

RFH/ns

cc: Mike Apple
Frank Victory
Rebecca Harris
James Spicer - 615-741-3424
or Bob Gardner

Talked with Mr. Spicer on 9-11-81:
surface water violation: runoff from side slopes of landfill into river!!
Turns out this is more of an informational type meeting to acquaint us with what the state is looking for in terms of permitting and compliance!

MWPS006613

UNITED STATES PIPE AND FOUNDRY COMPANY

September 2, 1981

RECEIVED
SEP 03 1981
ENGINEERING DEPT.
REFERRED

Watson

TO: Mr. Wayne Lamb ADDRESS: CSP

FROM: Albert Hicks ADDRESS: "

SUBJECT: SOLID WASTE DISPOSAL

For your Info.
ABH

COPIES TO: Mr. James Dockery
Mr. J. T. Hodges
Mr. Homer Munns

The State of Tennessee made an inspection of our land fill on Thursday, August 27, 1981. Criterion of their inspection was not revealed but comments during their inspection did reveal some of the points that we should be on guard against. They did take particular note of 55 gallon drums which were on the dump. Some drums which contained a small amount of asphalt base paint were on the south end of the dump. By agreement the Chattanooga Soil Pipe plant is to use the portion of the dump which is north of the gulch which has been dug out by the metal reclamation project and south of this gulch is to be used by the Chattanooga Valve and Fittings plant. Any drums the Soil Pipe plant may have which are not returnable should be accumulated and sent to the Anniston Soil Pipe plant to be crushed so that they can be melted in the cupola. Any asphalt base paint that is disposed of should be disposed of in a low area on the inner portion of the dump where it can be covered over and there is no danger of any of it going to the river.

Prior to the inspection of the land fill, Mr. John Watson of the General Office pointed out that we had two major point source discharge points to the river. One was on the north portion of the land fill where it had been washed out leaving a ditch under the fence along the river bank large enough to drive a dump truck through. Prior to the inspector's arrival, we had rip rap of concrete chunks placed at the top of the river bank then foundry sand placed behind the rip rap to form a berm for the prevention of water going to the river. A berm should be maintained at all times at the top edge of the dump so that water will pond during rains and seep into the sand. The other point source discharge point was the gulch which allowed surface water from a large area to discharge directly into the river. A dam of foundry sand was formed at the river side of the gulch so that the surface water would form a lake. The Mogle Company which has been reclaiming metal will be advised that the dam must be maintained.

Mr. Watson also notified us that putrescible wastes (office and lunch room type wastes) are disposed of and thus capable of attracting disease vector such as flies and rats. This should be covered daily.

In summary, the Chattanooga Soil Pipe plant is to use the portion of the dump north of the gulch. No drums should be disposed of on the dump. Wood refuse should be placed in the parking lot for employees to take for fire wood. The dump should be kept reasonably level with a berm on the river side to prevent water going to the river. Office and lunch room waste should be covered daily. Waste from the clarifier and baghouses should be disposed of away from the river bank of the dump. No wood or floatable objects should be placed or pushed onto the banks of the river. All persons conveying materials to the dump should be advised of regulations for the dump.

FILE

UNITED STATES PIPE AND FOUNDRY COMPANY

Birmingham, Alabama
August 31, 1981

MEMORANDUM FOR RECORD

From: J. H. Watson

SUBJECT: SOLID WASTE DISPOSAL - CHATTANOOGA PLANTS

Copies to: Messrs. W. E. Fleck
R. C. Hartman
J. A. Prigmore
A. Hicks
J. Smallwood

On August 27, 1981, Messrs. Bob Gardner and James Spicer, out of the Nashville office of the State's Division of Solid Waste Management, inspected the landfill between the subject plants. They are in the process of completing (by October 1, 1981) the "open dump inventory" as required under Subtitle D of RCRA, and will evaluate our landfill in accordance with the eight "criteria" listed under the regulation to determine the proper classification. Prior to inspecting the site, we were advised that the State now requires that our landfill be registered and they will send us the necessary forms.

During the site inspection, they did not appear to be overly concerned with the landfill appearance, however, they did state that their job was to complete the required paperwork for the inventory and that enforcement action was not their responsibility. As for the eight classification criteria, they did note that the landfill is located in the 100 year floodplain of the Tennessee river. They also took note of the east-west cut through the landfill created by the metal reclaimer and were advised that surface runoff is contained by a "dam" located at the river end of this cut (constructed the day before).

Mr. Gardner expressed an unusual interest in the numerous 55 gal. drums evident on the landfill, especially their contents, which we were unable to identify in most cases.

The existing method of drum disposal and usage should be carefully examined since the current practice may be short lived.

We will be advised of any problems which they noted in the near future.

J. H. Watson

JHW/bd

FILE

UNITED STATES PIPE AND FOUNDRY COMPANY

August 14, 1981

TO: Mr. R. C. Hartman
Mr. J. A. Prigmore

ADDRESS: Chattanooga V & F
Chattanooga Soil Pipe

FROM: J. H. Watson

ADDRESS: General Office

SUBJECT: PROJECT 010027 - SOLID WASTE DISPOSAL

COPIES TO: Messrs. W. E. Fleck
A. Hicks
J. Smallwood

Just prior to the Soil Pipe Plant's recent vacation shutdown, Mr. Hicks was contacted by the State concerning a proposed inspection of our landfill located between the plants. However, due to the shutdown, this was postponed and at present has not been rescheduled. Since I was in the area on August 10, 1981, I took the liberty of walking over the dump site to see if there were any noticeable problems which may be of concern to the State. Unfortunately, there are some potential problem areas where corrective action should be taken, and prior to the State visit, if possible. Before discussing these problems, let me briefly review previous State contacts and the regulations relating to the subject landfill.

Back in May 1976, State Water Quality personnel inspected this landfill in conjunction with their inspection of the two wastewater outfalls at the Fittings Plant. During their inspection, they located two points on the river side of the landfill where it was obvious that surface runoff was occurring during rainfall periods. It was their intent to subsequently return and sample these points. Within a few days of this visit, a berm was constructed along the edge of the landfill to eliminate surface runoff into the river. To my knowledge, the State never returned to perform the proposed sampling.

In an April 1980, memo on solid wastes, all of our plants were advised of the possible impact of two sections of the Resource Conservation and Recovery Act of 1976 (RCRA), these being Subtitle C (hazardous waste) and Subtitle D (non-hazardous waste). The Subtitle D regulations have been in effect since October 1979, and authorizes the State's to evaluate any disposal facility in accordance with eight "criteria", the purpose of which is to classify all disposal sites as either in compliance or as "open dumps", which must be either upgraded to comply or closed. Out of these eight criteria, we may be cited for violating the following three as follows:

1. Floodplains

   One of the requirements of this criterion is that facilities located in the 100 year floodplain must protect against washout of solid waste. Numerous wooden pallets were observed on the side of the landfill adjacent to the river, particularly the recent addition south of the 78" culvert. Under flood conditions, these pallets will likely be taken

downstream. Of course, this criterion is not applicable only to wastes that will float, however, the pallets are a very obvious violation.

2. Surface Water

One of the requirements of this criterion is that "point source" discharges must not violate requirements of the National Pollutant Discharge Elimination System (NPDES) Permit system. This is the type discharge State personnel intended to sample back in 1976. It is doubtful that surface runoff from any landfill could meet NPDES requirements without treatment, therefore, it is best to avoid "point source" discharges whenever possible. At least two major "point source" discharge points to the river were observed on August 10, 1981. The first was in the north or older part of the landfill where a chain link fence was installed several year ago. A portion of the landfill has been washed out leaving a ditch under the fence thru which a truck could be driven. The second was created by the contractor reclaiming metal when a deep cut running east-west across the landfill was made to the very edge of the river. During wet weather, these two points discharge surface runoff from a very large area. These two areas and any other observed should be filled in, the edge of the landfill graded, and a new berm constructed to eliminate point source discharge.

3. Disease Vectors

This criterion is applicable to landfills where putrescible wastes are disposed and thus capable of attracting disease vector such as rats and flies. These vectors are normally controlled by requiring the application of daily cover material. On August 10, 1981, it was observed that office and lunchroom type wastes are being disposed of on the company landfill. Unless we are willing to provide daily cover as required of municipal landfills, it is recommended that these particular wastes be sent to the local municipal landfill.

Addressing the above possible problem areas will not guarantee that other problems will not arise since the State has "eight criteria" to work with under Subtitle D, not to mention the hazardous waste regulations should any of our wastes be listed as such. However, correcting these obvious problems and managing the landfill to prevent their recurrence may preclude additional problems in the future.

Should you have any questions on the above, please let me know.

J. H. Watson

J. H. Watson

JHW/sd

STATE OF TENNESSEE
DEPARTMENT OF PUBLIC HEALTH
SOUTHEAST REGIONAL OFFICE
2501 MILNE STREET
CHATTANOOGA, TENNESSEE 37406

August 9, 1983

CERTIFIED MAIL
P34 7955263

Rec Aug 11 1983

Mr. John H. Watson
Environmental Engineer
U. S. Pipe and Foundry Company
3300 First Avenue, North
Birmingham, Alabama 35202

Re: Geologic Approval - Foundry Sand Disposal Site
U. S. Pipe and Foundry Company
Chattanooga

Dear Mr. Watson:

This office has completed the geologic evaluation of an existing on-site foundry sand disposal area proposed for registration by U. S. Pipe and Foundry Company. The site, located on the east side of the Tennessee River at mile 461.5, was visited by Mr. Bill Krispin, staff geologist, on June 8, 1983.

Based on Mr. Krispin's evaluation, the site is considered geologically suitable, "with certain restrictions," for disposal of the company's "non-hazardous," foundry sand waste. (See enclosed geologic evaluation.)

In order to proceed with site registration, you must now submit detailed site construction and operational plans to this office for review. The plans must be designed to conform with the enclosed geologic restrictions as well as the requirements outlined in Mike Apple's memo dated July 28, 1983, which is also enclosed. Generally, such plans contain a manual outlining daily operational procedures, a plan review of the operation on a scale of one inch equals one hundred feet and cross sections of the site.

The above referenced plans must be submitted to this office within sixty (60) days of receipt of this writing.

If you have questions or need further assistance, please feel free to call me at 615/624-9921.

Cordially yours,

Steve Baxter

Steve Baxter
Environmental Consultant
Division of Solid Waste Management

SB/ss

enclosures

cc: Mike Apple, Division of Solid Waste Management, Nashville
Becky Harris, Division of Solid Waste Management, Nashville

TENNESSEE DEPARTMENT OF PUBLIC HEALTH

OFFICE CORRESPONDENCE

FROM	TO	DATE
SWM	Reg.	

DATE: July 28, 1983

TO: Regional Offices

FROM: J. M. Apple (Thru J. T. Tiesler)

SUBJECT: Foundary Sands

In the past several months the proper disposal of foundary sand has been an unresolved problem. The primary concern is that although the material is by definition a "solid waste" the volumes to be disposed, the generally inert characteristics (phenols being an exception), and the desirability as fill material has created a void in the Divisions permitting process. Therefore, the following guidance was drafted.

Potential problems:

1) Phenol release to the environment.
2) Siltation problems and general fill stabilization.
2) Final grade.

Fill requirements:

1) Material defined as non hazardous (i.e. E P Toxicity).
2) Phenols less than 15 ppm.
3) Fill not in ground or surface waters of the State (including floodplain unless proper permits obtained).
4) Vegetative stabilization of surface upon fill to final grade.

"Plan requirements"

1) Plan and profile of existing and final grade.
2) Fill sequence - objective of bringing areas to final grade as soon as possible.
3) Silt pond design to control runoff of entire site with quarterly. monitoring for phenols and any other parameters deemed necessary by review of casting process.

The above guidance is general and is to be used at the discretion of the field office manager. Requirements are at a minimum and may be expanded as necessary.

JMA/dlc 4-6

ROM	DATE
1A	
0	
77	

PH-0001

MWPS006620

STATE OF TENNESSEE
DEPARTMENT OF PUBLIC HEALTH
CORDELL HULL BUILDING
NASHVILLE, TENNESSEE 37219

July 27, 1983

Hamilton County

Subject: Geologic evaluation of a foundry sand disposal site for US Pipe and Foundry in Hamilton county.

Date of Visit: June 8, 1983

Category: Industrial

Applicant: US Pipe and Foundry

Site Description

Facility: Existing

Waste Types: Foundry Sands

Location: Chattanooga Quadrangle (105-SE)
The site is located on the east side of the Tennessee River at mile 461.5.
Latitude: 35° 01' 55" Longitude: 85° 19' 25"

Topography: Most of the area has been filled with foundry sands so the natural topography has been changed. The area to the south of the sand is a very gentle, almost flat area. The sands are an estimated 30 feet or more in depth. Old sand areas are used for storage and parking facilities. The active disposal area is currently being mined to recover metal from the sands.

The slopes of the sand, near the river, are steep to very steep with an abundance of vegetation growing on them.

Geologic Setting

Bedrock: Mississippian age Fort Payne chert

Lithology: The Fort Payne is limestone and dolomite, highly siliceous, gray, fine to coarse grained, weathers to thick chert ledges. At the base is the Maury shale, a thin pale green shale.

Beaneath the Fort Payne is the Chattanooga shale which is shale,

brownish black, bituminous and fissle.

Because of the location, next to the river, the surface geology might consist of some alluvial material.

Structure: The beds should be dipping to the southeast. The area has undergone some faulting so the beds might be fractured. The Rockwood formation has been thrust over the Fort Payne chert.

(Geologic Map and Mineral Resources Summary of the Chattanooga Quadrangle, Tennessee.)

Unconsolidated Material: The Fort Payne is usually deeply weathered and consists of a rubble of chert in a silty clay soil. Any alluvium present will be poorly sorted and consist of sands, silts, clays and gravel.

The Soil Survey of Hamilton County lists the soil present as being the Huntington silt loam. It is derived from alluvium washed largely from soils underlain by limestone and exhibits a high water table.

Hydrology

Runoff Directions: Drainage from the sand will be to the west and east.

Receiving Stream: The site will drain to the Tennessee River. The small amount of runoff that flows to the east will enter a culvert beneath the sand and flow to the Tennessee River.

Flooding: The site is in the floodplain of the Tennessee River. According to the Environmental Geology of Hamilton County, Tennessee (Sitterly and Wilson, 1978), the site is within the 100 year flood boundary. Also, the following flood information has been provided by the Tennessee Valley Authority:

	Elevations	
Mile	100-Year Flood	Structure Profile
461.0	655.5	668.0
462.0	656.0	668.0

Other Surface Water Data: Older maps of the area show part of the site once contained backup water from the Tennessee River.

Ground Water: Ground water in the area should be shallow and will likely be affected by the river. Shallow ground water should be found in the alluvium and/or residuum. Ground water movement should be towards the river. Deeper water will be round in the Fort Payne (limestone and dolomite) and will probably be moving in a southeasterly direction.

No seeps were evident at the base of the sand.

Previous Investigation: During the Open Dump Inventory, the Division of Solid Waste Management reviewed this site. The site was found in noncompliance in the categories of floodplain and surface water discharge and put on a compliance schedule.

A 11/20/81 letter from this Division said the E P Toxicity test and the Phenol analysis indicated the waste does not pose a hazardous problem.

Recommendations

The site is only marginally suitable for use due to the flooding, shallow water and the soil and rock type present. However, due to the nature of the waste (foundry sands), the site presently being used as well as the area south of the sand is suitable for disposal. There are, however, some restrictions which must be placed on the site.

1) The site is only for the disposal of foundry sands. Some of the area contains demolition waste, trash, 55 gallon drums and ash.

2) No water should be allowed to pond on any portion of the site.

3) The site is to be properly stabilized to ensure against erosion and siltation and against possible washout due to flooding.

4) The Tennessee Valley Authority has flood easement rights in the area and they must be contacted for the proper permits, if necessary, for the filling a floodplain.

   Also, the City of Chattanooga must be contacted for permits, requirements, etc. the city might have in regards to filling a floodplain.

Recommendations concerning the suitability of the site may be changed upon review of additional information.

William Krispin
Geologist
Division of Solid Waste Management

WK/pas

Hamilton County
US Pipe and Foundry
Chattanooga Quadrangle (105-SE)
Foundry Sand Disposal

Location and boundaries are approximate.

MWPS006624

Copies to: (10-30-84)
W.P. Flock
Wayne Berry
Jim Dockery
Jim Smallwood
Don Montgomery
H.G. Reynolds

STATE OF TENNESSEE
DEPARTMENT OF PUBLIC HEALTH
SOUTHEAST REGIONAL OFFICE
2501 MILNE STREET
CHATTANOOGA, TENNESSEE 37406-3399

ENVIRONMENTAL SERVICE
OCT 19 1984

October 16, 1984

Mr. John H. Watson, Environmental Engineer
U.S. Pipe and Foundry Company
3300 First Avenue, North
Birmingham, Alabama 35202

Re: Plans Review - Solid Waste Disposal Site
U.S. Pipe and Foundry Company - Chattanooga

Dear Mr. Watson:

This letter is to confirm our October 15, 1984, phone conversation concerning the above-referenced site.

As you know, the proposed plans encompass an existing disposal area which has been utilized by U.S. Pipe and Foundry Company for a number of years to dispose of wastes generated at both the soil pipe and valve fitting plants. Wastes disposed of at the site consist primarily of non-hazardous foundry sands and, to a lesser degree, a variety of other materials, including baghouse dust, demolition debris, plant garbage, wastewater treatment sludge, cupola slag and sand castings. -No!

The exact nature and chemical composition of all the specific wastes involved has not been made available to us. However, we do know from your March 28 submittal that the baghouse dust will leach significant concentrations of lead and cadmium when extracted with distilled water.

In order to proceed with our review of the proposed plans submitted on March 28, 1984, we must first ask U.S. Pipe and Foundry Company to determine what impact the existing wastes have had on the groundwater beneath the site. The groundwater monitoring system must be approved by the Division, and, at minimum, must be monitored for phenols, cadmium, TOC, lead, and iron.

Irregardless of the impending groundwater monitoring results, we will not approve the baghouse dust for disposal at this site. The leaching potential is just too great for a site which has little or no natural geologic protection. U.S. Pipe and Foundry must take immediate steps to find an alternative method of disposal for the dust. The material must be disposed of at an EPA or state approved hazardous waste or solid waste disposal facility. Disposal at a solid facility in Tennessee must first be approved by the Division. It's not likely that such approval will be granted for disposal at a municipal sanitary landfill unless special precautions are taken to keep the material

Mr. John H. Watson, Environmental Engineer
U.S. Pipe and Foundry Company
3300 First Avenue, North
Birmingham, Alabama 35202
October 16, 1984

isolated in a non-acid environment.

If you have questions concerning this matter, please feel free to call me at 615/624-9921.

Cordially yours,

Steve Baxter

Steve Baxter
Environmental Consultant
Division of Solid Waste Management

SB/tc

cc: Division of Solid Waste Management, Nashville

BUTLER, VINES, BABB AND THREADGILL
ATTORNEYS AT LAW
SUITE 810, FIRST AMERICAN CENTER
POST OFFICE BOX 2649
KNOXVILLE, TENNESSEE 37901-2649

T. WARREN BUTLER
WILLIAM D. VINES III
DENNIS L. BABB
JOHN O. THREADGILL
WAYNE CHRISTESON
MARTIN L. ELLIS
JAMES C. WRIGHT
ALICE M. WOODY

AREA CODE 615
TELEPHONE 637-3531
524-5944

September 27, 1984

ENVIRONMENTAL SERVICES
OCT 1 1984

Mr. Gerre Reynolds
Jim Walter Corporation
Post Office Box 22601
Tampa, Florida 33622

Re: United States Pipe & Foundry Company
TND 07-489-3777
TND 98-031-6301

Dear Gerre:

I may have already talked with you by the time you get this letter but pursuant our discussion I am withdrawing the Petition for declaratory relief. Done

The assistant general counsel apparently makes the decision about fining concerning our failure to report our alleged hazardous waste. I had a long conversation with her (she is from Knoxville) and it looks like one thousand one hundred dollars plus sixty nine dollars "damages" is about as good as we can do. This fine may be assessed in the next thirty days or so. ($1169)

I will keep you advised.

Very truly yours,

WILLIAM D. VINES, III

WDV/es

cc: Mr. Jim Dockery
Mr. W.E. Fleck
Mr. John Watson

BUTLER, VINES, BABB AND THREADGILL
ATTORNEYS AT LAW
SUITE 810, FIRST AMERICAN CENTER
POST OFFICE BOX 2649
KNOXVILLE, TENNESSEE 37901-2649

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MARTIN L. ELLIS
JAMES C. WRIGHT
ALICE M. WOODY

AREA CODE 615
TELEPHONE 637-3531

September 24, 1984

Mr. Tom Tiesler
Director
Division of Solid Waste Management
Tennessee Department of Health and Environment
Bureau of Environment
T.E.R.R.A. Building
159 Ninth Avenue North
Nashville, Tennessee 37203

Re: United States Pipe & Foundry Company
TND 07-489-3777
TND 98-031-6301

Dear Mr. Tiesler:

Based upon the information contained in your letters dated September 11, 1984 addressed to Mr. Wayne Berry and Mr. Jim Dockery, United States Pipe & Foundry Company hereby withdraws its Petition for declaratory order as to the validity or applicability of the statute's rules and exemptions noted in said Petition.

We certainly appreciate the cooperation of your department and if anything further is needed, we will be happy to receive your advice.

Very truly yours,

WILLIAM D. VINES, III

WDV/es

cc: Ms. Mary E. Johnston
Mr. Gerre Reynolds
Mr. Jim Dockery
Mr. Wayne Berry
Mr. W.E. Fleck
Mr. John Watson

FILE

UNITED STATES PIPE AND FOUNDRY COMPANY

Birmingham, Alabama
September 20, 1984

MEMORANDUM FOR RECORD

From: J. H. Watson

SUBJECT: PROJECT 010027 - SOLID WASTE DISPOSAL - CHATTANOOGA

Copies to: Messrs. W. E. Fleck
C. N. Codding
W. A. Berry
J. B. Dockery
D. C. Wallace
J. Smallwood
D. Montgomery

At the request of Mr. Steve Baxter, Solid Waste Division, a meeting was held in Chattanooga the afternoon of September 18, 1984, to discuss the landfill operation and construction plans which were submitted to the State in late March, 1984. The following were present:

Don Montgomery - U. S. Pipe
Jim Smallwood - U. S. Pipe
Jim Book - U. S. Pipe
John Watson - U. S. Pipe
Steve Baxter - State of Tennessee
Byrl Maupin - State of Tennessee
Marvin Bowers - MCI
Mike Stomer - MCI
Randy Ferguson - MCI

Mr. Baxter advised that he felt this meeting was an opportunity to discuss items within our plan which present possible problems for the State and to obtain our input prior to his formal letter of reply commenting upon the plans. Following the discussion, it was his feeling that resolving our differences would probably require a meeting between himself, U. S. Pipe and our consultant, and the permit issuing office in Nashville. The following items were discussed:

1. Landfill Side Slopes:

In order to maximize landfill volume (and life), our consultant (MCI), performed slope stability studies and, based upon those studies, set the side slope at 1 vertical to 2 horizontal (1:2). Mr. Baxter indicated that even if he approved the 1:2 slope, the Nashville office might overrule him since they prefer 1:3 slopes on landfills. In addition to slope stability, the State is concerned about the ability to grow grass and maintain it on the steeper slopes. Our consultant is prepared to argue this point due to their results on the slope stability studies.

2. Final Cover:

Our plans do not call for final cover but propose using the waste sand as final cover and for growing the vegetative cover (grass). Mr. Baxter questions whether the waste sand is suitable for growing grass and is contemplating requiring a minimum of one foot of topsoil as final cover. He stated that other foundry landfills in Tennessee had been required to provide two feet of final cover.

Mr. Montgomery suggested that a test plot on the landfill be developed to determine if the waste will indeed support grass growth on a 1:2 slope. It was agreed that such a test could help resolve this issue and Mr. Montgomery offered to implement it utilizing the local soil conservation office as necessary.

3. Waste Streams for Disposal on Site:

The States original geologic report approved the site for disposal of foundry sand only although it has been our intent from the beginning to dispose of all our non-garbage and non-organic type wastes. Any permit issued by the State will specify exactly what types of waste can be disposed of at the site. Therefore, we will have to develop a list of the specific wastes and provide justification for their disposal in the landfill. In some cases, the justification may require a chemical analysis of the waste. Mr. Baxter specifically referred to the following wastes as follows:

a. Demolition Debris

We must provide a list of exactly what this consists of and it will be approved on an item-by-item basis. Some portions may have to be hauled to the City's demolition waste site.

b. Wastewater Treatment Sludge from Chattanooga Soil Pipe Clarifier

Obtaining approval for this waste will require a chemical analysis.

c. Baghouse Dust

In spite of the fact that the fossil fuel exemption has been reinstated, Mr. Baxter expressed concern about approving on-site disposal due to our location adjacent to the Tennessee River. He intends to discuss this with the Nashville office.

4. Landfill Runoff Silt Control:

The silt pond was sized for 10 hours retention time and the State felt it should be larger. We will have to provide some type of silt control (filter fences) at base of initial slope above the river since runoff from this area does not flow into the silt pond.

5. Scrap Metal Reclamation in Landfill:

This operation will be a condition of the permit and must be performed in a manner that will not interfere with the "fill progression" of the construction plans nor cause "ponding" of runoff on the surface of the landfill.

6. Stormwater Runoff Monitoring:

State will require that runoff discharge from the silt pond be monitored for Iron, Lead, Cadmium, and Phenol.

We will begin a review of the various waste streams going to the landfill from each plant in an effort to be ready for Mr. Baxter's forthcoming letter.

J. H. Watson

J. H. Watson

JHW/sd

John Watson		
Noel Montgomery	Plant Eng.	Soil Pipe
Jim Smallwood	Plt Eng	Valve & Fittings
Jim Book	Project Engr.	Valve & Fittings
Marvin Bowers	Civil Eng.	MCI/Consulting Engrs.
Michael R. Stomer	Engineering Geol.	Geologic Assoc. Inc.
Randy Ferguson	Environ. Engineer	MCI/Consult. Eng.
Steve Barth	Solid waste	
Bud (Maupin)	" "	
Maupin		

Sep. 18, 84 - Chatt. SP

1. Side slopes: state wants 3:1 - Discussed by Randy & Mike Stoner
Steve concerned about vegetation staying put on steep slopes.
Extra data on seeding wanted!
Slopes above 2 to 1 may not be acceptable! (1½:1 existing slopes on bank?)

2. Final Cover: Must be suitable for growing grass - min. of 1 ft
Must prove that sand will grow grass
Test plot on landfill? Other foundries were reqd. to provide 2' cover

3. Waste for disposal: (1) Specify demolition debris going to landfill
(2) Analysis of wastewater sludge.
(3) Baghouse Dust - Sep. disposal
State will send letter specifying types of waste and we can
respond with list we want to dispose of!

4. Silt Control: Settling pond designed for 10 hr. rentention:
(a) Need to raise spillway of pond above 100 yr. flood
(b) Specify control on outslope of river (1st rise)
(c) Fill progression? Spec. slopes in cell

5. Salvaging of iron: A condition of the permit

6. Monitoring of sediment pond: Iron, lead, cad., & phenol

ENVIRONMENTAL SERVICE
AUG 27 1984

BUTLER, VINES, BABB AND THREADGILL
ATTORNEYS AT LAW
SUITE 810, FIRST AMERICAN CENTER
POST OFFICE BOX 2649
KNOXVILLE, TENNESSEE 37901-2649

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WAYNE CHRISTESON
MARTIN L. ELLIS
JAMES C. WRIGHT
ALICE M. WOODY

AREA CODE 615
TELEPHONE 637-3531

August 24, 1984

Mr. Tom Tiesler
Director
Division of Solid Waste
Management
Tennessee Department of Health
and Environment
Bureau of Environment
T.E.R.R.A. Building
150 9th Avenue North
Nashville, Tennessee 37203

Mr. James E. Word
Commissioner of Health
and Environment
344 Cordell Hull Building
Nashville, Tennessee 37219

Re: United States Pipe & Foundry Company
TND 07-489-3777
TND 98-031-6301

Dear Mr. Tiesler and Commissioner Word:

Please note that this firm represents United States Pipe & Foundry Company in Chattanooga, Tennessee with regard to the above styled matter. We ask that the attached Response and Petition be filed on behalf that company.

Thank you for your cooperation.

Very truly yours,

WILLIAM D. VINES, III

WDV/es

Enclosure

bcc: Mr. Gerre Reynolds
Jim Walter Corporation
Post Office Box 22601
Tampa, Florida 33622

Mr. W.E. Fleck
Vice President of Manufacturing
United States Pipe & Foundry Company
3300 First Avenue North
Birmingham, Alabama 35202

Mr. Jim Dockery
United States Pipe & Foundry Company
1000 West 19th Street
Chattanooga, Tennessee 37401

Mr. Wayne Berry
United States Pipe & Foundry Company
2701 Chestnut Street
Box 311
Chattanooga, Tennessee 37401

Mr. John Watson
United States Pipe & Foundry Company
3300 First Avenue North
Birmingham, Alabama 35202

Mr. W.J. Michael Cody
Attorney General
State of Tennessee
450 James Robertson Parkway
Nashville, Tennessee 37219

RE: UNITED STATES PIPE & FOUNDRY COMPANY
TND 07-489-3777
TND 98-031-6301

TO: Mr. Tom Tiesler
Director
Division of Solid Waste
Management
Tennessee Department of Health
and Environment
Bureau of Environment
T.E.R.R.A. Building
150 9th Avenue North
Nashville, Tennessee 37203

Mr. James E. Word
Commissioner of Health
and Environment
344 Cordell Hull Building
Nashville, Tennessee 37219

RESPONSE OF UNITED STATES PIPE & FOUNDRY COMPANY
AND PETITION IN RESPONSE TO
LETTERS DATED JULY 25, 1984 FROM
MR. TOM TIESLER, DIRECTOR,
DIVISION OF SOLID WASTE MANAGEMENT

United States Pipe & Foundry Company is in receipt of letters dated July 25, 1984 addressed to W.A. Berry and J.B. Dockery with regard to the question of claimed hazardous waste. The company interprets these letters as being preliminary notification of the position of the Tennessee Department of Health and Environment requesting a response within thirty days of receipt thereof. The company appreciates this opportunity to respond and formally state its position before any order is entered herein.

POSITION OF UNITED STATES PIPE & FOUNDRY COMPANY

1. The baghouse dust of United States Pipe & Foundry Company is exempt under Rule 1200-1-11-.02(1)(d)(3)(ii)(I) same being promulgated pursuant the Hazardous Waste Management Act. The following under that Rule is exempt:

> 1) Fly ash waste, 2) bottom ash waste, 3) slag waste, and 4) flue gas emission control waste generated primarily from the combustion of coal or other fossil fuels.

The exemption above stated clearly applies to the material in question at United States Pipe & Foundry Company. The material involves fly ash and also flue gas emission control waste generated primarily from the combustion of coal

or other fossil fuel. The cupola at United States Pipe & Foundry Company uses coke (a product of coal) which clearly is a fossil fuel.

United States Pipe & Foundry Company understands some believe a proper interpretation of the above exemption is that same only applies to utilities. This construction of the exemption is most unreasonable. The amount of waste generated by foundries, as compared to that generated by utilities, would be insignificant. To exempt the large volume waste producers, and not exempt the much smaller volume foundry cupolas, would be illogical.

Secondly, no support can be found in the rules or applicable statutes for the construction that said exemption only applies to utilities. The rule is clear. The exemption applies to United States Pipe & Foundry Company.

2. The regulations specified EP toxicity test procedures under which notice is being given United States Pipe & Foundry Company. The EP toxicity test, however, is appropriate only for sanitary landfills and not monofills. In fact, the aforementioned tests were specifically designed . . . "to simulate the leaching a waste will undergo if disposed of in an improperly designed sanitary landfill." United States Pipe & Foundry Company represents that all of the material in question herein is placed in a monofill landfill specifically designed for the purpose of receiving same. Therefore there is no sanitary landfill involved to which these test procedures are appropriate.

3. Pursuant TCA 68-46-103 the baghouse waste materials are exempted from consideration.

> Exemptions. - Exempted from the provisions of this chapter are:
>
> (1) Emissions to the air subject to regulation of and which are regulated by the Tennessee air pollution control board;

MWPS006637

The very structure involved in this case is the baghouse and dust therefrom. Clearly the matter is under the jurisdiction and regulated by the Tennessee Air Pollution Control Board. Under the express language of the statute above, this matter is exempted from consideration in the manner herein attempted.

4. The material as actually deposited in the monofill landfill will pass all EP toxicity tests. The baghouse material comprises only a very small portion of the material as it is actually deposited and, taken as a whole, the actual deposit is not a hazardous waste as defined under the applicable acts and regulations.

REQUEST FOR AFFIRMATIVE RELIEF

If the construction of the letters of July 25, 1984 given by United States Pipe & Foundry Company is inappropriate and said letters should be treated as an order issued by the Tennessee Department of Health and Environment, then United States Pipe & Foundry Company requests that this document be treated as a petition for review under Tennessee Code Annotated 68-46-111 and Tennessee Code Annotated 68-46-113. United States Pipe & Foundry Company requests a hearing in this matter to determine the reasonableness of the order entered herein for the reasons stated in the above response.

Secondly, United States Pipe & Foundry Company petitions for a declaratory order pursuant Tennessee Code Annotated 4-5-223 for a determination as to the validity or applicability of the involved statutes, rules and exemptions herein noted.

PETITION FOR STAY

Lastly, and in the event the letters of July 25, 1984 be considered orders herein, United States Pipe & Foundry Company earnestly petitions that a stay be granted herein regarding the enforcement of said order which stay shall be for a reasonable time. Petitioner shows that investigation

MWPS006638

throughout the United States indicates that the construction of the regulations given herein is one of first impression. Such a construction has never been found applicable to the foundry industry in the United States.

The foundry industry is very competitive. Enforcement, in the manner attempted herein, could have the effect of making a Tennessee foundry non-competitive as compared to other states due to the very significant increased cost of waste disposal.

Secondly, the company has examined the possibilities of the handling of the alleged hazardous waste by hazardous waste disposal facilities. The company has found that it would be impossible to find a facility thirty days from the receipt of the aforesaid letters which will be in a position to accept the alleged hazardous waste. In order to accept this waste, it is necessary to have testing and analytical research done before the hazardous waste disposal facilities are in a position to even respond to the company as to whether they can accept the material. Diligent effort is being made but no final answer can be received probably for a period of several months.

Further, the company is exploring process changes, but must make necessary tests and allow time for engineering considerations, none of which can be complete within thirty days from receipt of the letter.

Lastly, it is noted that heretofore all rules and regulations have been construed in favor of the position advanced herein of United States Pipe & Foundry Company. The implementation of any order requiring disposal of this waste at a licensed hazardous waste disposal facility will be very costly to the company and will require transportation of the alleged

MWPS006639

hazardous waste over a very long distance. No licensed hazardous waste disposal facility exists in the State of Tennessee and the nearest such facility is approximately three hundred twenty miles. At the present time no transportation of the alleged hazardous waste is required.

In view of the cost involved herein, in further consideration of the anti-competitive nature of the position taken by the new construction of the rules, and further in view of the fact that rules have heretofore been construed in favor of the position of United States Pipe & Foundry Company, said company earnestly requests a stay for a reasonable period of six months from the date hereof.

RESPECTFULLY SUBMITTED,

WILLIAM D. VINES, III -
Attorney for
United States Pipe & Foundry
Company

BUTLER, VINES, BABB & THREADGILL
Suite 810
First American Center
Knoxville, Tennessee 37902

MWPS006640

RECEIVED
JAN 23 1984
ENGINEERING DEPT.
REFERRED

Watson

MCI/ CONSULTING ENGINEERS, INC.
P. O. Box 23010
10628 Dutchtown Road
Knoxville, Tennessee 37933-1010
Telephone (615) 966-9788

Corporate Headquarters:
Nashville, Tennessee

Branch Offices:
Knoxville, Tennessee
Denver, Colorado
Huntsville, Alabama

January 19, 1984

Mr. John Watson
U.S. Pipe and Foundry Company
P.O. Box 10406
Birmingham, AL 35202

RE: Industrial Landfill Design; U.S. Pipe and Foundry; Chattanooga, Tennessee; MCI-83-592

Dear John:

Thank you for taking the time to meet with Felon Wilson and me last Wednesday.

Based on our discussions, we will proceed with designing the subject landfill for disposal of foundry sand, baghouse dust and demolition debris. It is understood, however, that the Tennessee Division of Solid Waste Management (DSWM) has limited the landfill operation to disposal of foundry sand only at this time. We will need to talk to you further regarding generation of the waste materials at the plants.

45 days
Plans

With regard to the January 20, 1984 deadline, we believe that you should request a thirty to forty-five day extension for submittal of the plans. This time period should allow us to conduct analyses of water and waste samples collected at the site. We believe that it would be advantageous to have as much of this information assimilated as possible, prior to submittal of the construction drawings.

All services conducted by MCI beyond those described in our proposal of September 22, 1983, will be billed on an hourly basis in accordance with our standard Schedule of Fees (see attached). We will conduct the sampling phase of the project under the terms and conditions of our proposal of September 22, 1983, and your purchase order of October 26, 1983, until we receive an updated purchase order from you.

Please advise if you have any questions or comments. MCI/Consulting Engineers, Inc. appreciates this opportunity to be of service to U.S. Pipe and Foundry Company.

Sincerely,

MCI/CONSULTING ENGINEERS, INC.

Randy Ferguson

R. Randolph Ferguson
Project Engineer

RRF:jll

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
#P520677254 # 55

TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT
Bureau of Environment
T.E.R.R.A. BUILDING
150 NINTH AVENUE, NORTH
NASHVILLE, TENNESSEE 37203

November 22, 1983

Mr. W. A. Berry
U. S. Pipe and Foundry Company
Valve and Fittings Plant
2701 Chestnut Street
P. O. Box 311
Chattanooga, Tennessee 37401

and

Mr. J. B. Dockery
U. S. Pipe and Foundry Company
Soil Pipe Plant
1000 West 19th Street
P. O. Box 6129
Chattanooga, Tennessee 37401

Dear Messrs Berry and Dockery:

Through investigation by Division of Solid Waste Management personnel, this Division must allege that U. S. Pipe and Foundry Company - Valve and Fitting Plant, located at 2701 Chestnut Street, Chattanooga, Tennessee, and U. S. Pipe and Foundry Company - Soil Pipe Plant, located at 1000 West 19th Street, Chattanooga, Tennessee, have violated the Tennessee Hazardous Waste Management Act, Section 68-46-106(2), which states: "Any person who is generating a waste which is considered hazardous by the Department's standards shall notify the Department in writing of the quantities and composition of wastes generated and the method by which he intends to store, treat or dispose of such wastes." The Division further alleges U. S. Pipe and Foundry Company - Valve Fitting Plant and U. S. Pipe and Foundry Company - Soil Pipe Plant have violated the Tennessee Solid Waste Act 68-31-104(3). Specifically, the Division alleges U. S. Pipe and Foundry Company had failed to determine if the above mentioned company sites generate a hazardous waste. It is also alleged that the company is operating an unpermitted solid waste disposal facility on its property at the Soil Pipe Plant. Tennessee Code Annotated Section 68-31-112 authorizes the Commissioner or his designee, prior to any enforcement action, to request the presence of an alleged violator to show cause why enforcement actions ought not to be taken by the Department. Among the enforcement actions available to the Department is the assessment of a ten thousand ($10,000.00) dollars per day civil penalty for violation of Tennessee Code Annotated Section 68-46-101 et. seq., and an assessment of five thousand ($5,000.00) dollars per day civil penalty for violation of Tennessee Code Annotated Sections 68-31-101 et. seq.

→ 53-4306(a) have regs been revoked,

Therefore, we are requesting that you meet with us in this office on December 13, 1983 at 10:00 a.m., C.S.T., and show cause why this Division should not take enforcement action including the assessment of an appropriate civil penalty. Our office is located in the TERRA Building, 150 Ninth Avenue North, Seventh Floor, Nashville, Tennessee. You or your representatives should bring all relevant information, reports, and documents pertaining to the two aforementioned companies' management of hazardous waste and the company's operation of the unpermitted solid waste disposal site at the soil pipe plant and should be prepared to discuss, in detail with reasonable accuracy, this matter so that all parties might reach a mutually agreeable solution.

Sincerely,

Tom Tiesler

Tom Tiesler, Director
Division of Solid Waste Management

TT/DR/dgw SW/81

cc: John H. Watson
Jim Smallwood
Sam Goodson
W. E. Fleck
Hamilton County Health Department
Chattanooga Field Office, SWM

FILE

UNITED STATES PIPE AND FOUNDRY COMPANY

Birmingham, Alabama
December 28, 1983

(615)741-2434

MEMORANDUM FOR RECORD

From: J. H. Watson

SUBJECT: SOLID WASTE DISPOSAL - CHATTANOOGA PLANTS

Copies to: Messrs. W. E. Fleck
J. B. Dockery
W. A. Berry
C. N. Codding
J. Smallwood
H. G. Reynolds

In accordance with the State's letter of November 22, 1983, Mr. Reynolds and I attended a "show cause" hearing in Nashville on December 19, 1983. The following were in attendance:

Tom Tiesler - Director of Division of Solid Waste Management
Frank Victory - State of Tennessee
Doye Rowland - State of Tennessee
Gerald Reynolds
John Watson

Mr. Steve Baxter of the State's Chattanooga office was to attend but did not because of weather conditions, however, he was contacted by phone and thus did participate in the conference. The two following specific alleged violations of State regulations were discussed:

1. Failure to determine if plants were generating hazardous wastes (cupola baghouse dust specifically).

2. Operating an "unpermitted landfill".

As for Item 1, this is indeed the case, however, there are mitigating circumstances which we discussed with the State personnel. In addition, the required notification forms were submitted in October 1983 and our particular waste has been exempted from the State hazardous waste regulations (expect for the determination and notification requirements).

As for Item 2, we reviewed our correspondence and phone conversations with the State going back to September 1981 and our on-going efforts to get this landfill permitted. It appeared that the State personnel present were unaware of these efforts and possibly had not reviewed the whole file prior to the meeting.

It turns out that the State's primary purpose for the hearing was to get us on a compliance schedule. We advised them that our consultant, MCI, was to submit the operation and construction plans by January 20, 1984, and without those plans no commitments could be made, and they agreed. Therefore, for the time being, their compliance schedule will specify only that we submit the required plans by January 20, 1984. They pointed out that when the permit is issued, it will specify exactly what waste can be deposited on the landfill (primarily waste foundry sand) and it may not include baghouse dust! We can expect a letter from the State shortly confirming the above and assessing a penalty for the subject violations. Based upon our discussions with them, we anticipate only a token penalty.

The above was discussed with our consultant (Felon Wilson of MCI) on December 21, 1983, and they do not anticipate any problems with the January 20, 1984 submission date. They have been asked to address the disposal of baghouse dust as well as our other wastes not classified as foundry sand in their plans.

J. H. Watson

J. H. Watson

JHW/mk

Note: 12-29-83 Discussed Jan 20 date with Frank Victory today. He had draft of letter ready to go out after 1st of year with that date in it. Requested that they change it to Feb 1 to give our management time to review. He replied that it was not a problem and would change to Feb. 1, 84!

FILE

UNITED STATES PIPE AND FOUNDRY COMPANY

GENERAL OFFICE
3300 FIRST AVENUE NORTH • BIRMINGHAM, ALABAMA 35202

October 17, 1983

Mr. Steve Baxter, Environmental Consultant
Tennessee Dept. of Health and Environment
Division of Solid Waste Management
2501 Milne Street
Chattanooga, TN 37406

Re: Chattanooga Landfill

Dear Mr. Baxter:

In accordance with our phone conversation on October 14, 1983, we hereby confirm that MCI/Consulting Engineers, Inc. has been retained to prepare the required construction and operation plans for the subject landfill. In addition, we respectfully request an extension of the original submission date for these plans until January 20, 1984. Should you have any questions on the above, please let me know.

Yours truly,

J. H. Watson

J. H. Watson
Principal Environmental Engineer

JHW/mk

bcc: Messrs. W. E. Fleck
C. N. Codding
W. A. Berry
J. B. Dockery

STD 362-C REV. 3-76

Jim Walter corporation – SPEED LETTER

To Messrs: Jim Dockery, Wayne Berry — Address CSP, CY&F

SUBJECT: Landfill

Attached for your review is a proposal (only copy) from MCI Inc. to provide the state required plans to register your landfill. The state requested these plans by Oct. 10, 1983, however, due to the flap over Bighouse dust and time required to obtain a consultant, the 60 days will not be met. This is not expected to present a problem assuming we are making progress on Oct. 10. Mr. Fleck has reviewed the proposal and requested that it be forwarded to each of you for your review. Should you have any questions about the above, please let me know.

From John Watson — Address G.O. — Date 9-28-83

REPLY: To _____ Address _____

Prorated cost for work required on landfill based upon volume of solid waste going to dump:

CYF – 35,000 TPY – 72.5%

CSP – 13,250 TPY – 27.5%

From _____ Date _____

SENDER'S COPY – DETACH AND RETAIN

MWPS006648

RECEIVED
SEP 0 8 1983
ENGINEERING DEPT.
REFERRED

STATE OF TENNESSEE
DEPARTMENT OF PUBLIC HEALTH
SOUTHEAST REGIONAL OFFICE
2501 MILNE STREET
CHATTANOOGA, TENNESSEE 37406

September 6, 1983 CERTIFIED MAIL
#P34 7955269

Mr. John H. Watson, Environmental Engineer
U. S. Pipe and Foundry Company
3300 First Avenue, North
Birmingham, Alabama 35202

Re: First Notice of Non-Compliance
U. S. Pipe and Foundry Company
Chattanooga

Dear Mr. Watson:

On August 22, 1983, an inspection was conducted to evaluate the facility's compliance with the applicable requirements of the Rules Governing Hazardous Waste Management In Tennessee.

As a result of the inspection, U. S. Pipe and Foundry Company was found in violation of Rule 1200-1-11-.03(1)(b) of the above referenced Regulations. (See enclosed Inspection Report.)

This violation must be corrected within fifteen (15) days of receipt of this writing. Your failure to implement the necessary corrective measures, as specified, will force the Division to consider other enforcement alternatives available under the Tennessee Hazardous Waste Management Act, TCA, Sections 53-6301 through 53-6317.

If the Cupola baghouse dust is identified as a hazardous waste, you will be required to notify the Department in accordance with Rule 1200-1-11-.03(2)(a). The appropriate notification forms and a copy of the Regulations Governing Hazardous Waste Management In Tennessee will be forwarded to you from our Nashville office.

Should you have questions or need further assistance regarding this matter, please feel free to call me at 615/624-9921.

Copies to: H. E. Fleck
H. G. Reynolds

Cordially yours,

Steve Baxter

Steve Baxter
Environmental Consultant
Division of Solid Waste Management

SB/ss

enclosure

cc: Frank Victory, Division of Solid Waste Management, Nashville

MWPS006649

Sep. 9, 1983

Sub: Telecon with Steve Baxter about Chatt. landfill

Called Steve to advise him that our baghouse dust from both plants had failed the EP toxicity test and to discuss complying with the requirements in his violation notice of Sep. 6, 1983. He will have the notification forms mailed to me for submittal. Also stated that the concentration of Cadmium & Lead would have to be included on notification form. We would then have complied with his letter of Sep. 6! I asked if this would now require a change in our disposal practice for baghouse dust and his reply was not at this time, but it would be addressed under our operational and construction plans under their solid waste regs. MCI/Consulting Engr. is presently preparing a proposal for developing these plans.

John Watson

MWPS006650

STATE OF TENNESSEE
DEPARTMENT OF PUBLIC HEALTH
SOUTHEAST REGIONAL OFFICE
2501 MILNE STREET
CHATTANOOGA, TENNESSEE 37406

INSPECTION REPORT

1. Site/Operation Inspected:

   U. S. Pipe and Foundry Company
   2501 Chestnut Street
   Chattanooga
   Hamilton County 37408

2. Primary Contact:

   Mr. John H. Watson, Environmental Engineer
   U. S. Pipe and Foundry Company
   3300 First Avenue, North
   Birmingham, Alabama 35202
   205/254-7435

3. Date and Time of Inspection:

   August 22, 1983
   1:00 p.m. - 3:00 p.m.

4. Report Prepared By:

   Steve Baxter, Environmental Consultant
   Tennessee Department of Health and Environment
   Division of Solid Waste Management
   Chattanooga, Tennessee 37406
   615/624-9921

5. Names and Affiliations of Other Inspection Participants:

   Sam Goodson, U. S. Pipe and Foundry Company
   James L. Smallwood, U. S. Pipe and Foundry Company
   James W. Book, U. S. Pipe and Foundry Company

6. Purpose of Inspection:

To evaluate the facility's compliance with the applicable requirements of the Rules Governing Hazardous Waste Management In Tennessee.

7. Facility Description:

Nature of Business: Foundry

Hazardous Waste Generated:

Company officials indicated that the Cupola baghouse may be hazardous due to high concentrations of heavy metals.

Inspection Status: Generator (Undetermined Facility Status)

The baghouse dust was being generated from the process of melting scrap metals with coke as fuel. Based upon Rule 1200-1-11-.02(1)(d)3(ii)(I), this waste shall not be subject to the requirements of Rules 1200-1-11-.03 through 1200-1-11-.07 except for the hazardous waste determination requirement of Rule 1200-1-11-.03(1)(b) and, if determined to be hazardous, the generator notification requirement of Rule 1200-1-11-.03(2).

8. Inspection Findings:

Rule 1200-1-11-.03(1)(b) requires persons who generate a waste, to determine if that waste is a hazardous waste.

At the time of the inspection, U. S. Pipe and Foundry had not conducted the required hazardous waste determination for the Cupola baghouse dust.

9. Comments:

The baghouse dust, along with foundry sands, was being deposited on-site at an unregistered disposal facility in violation of the Tennessee Solid Waste Disposal Act, TCA, Section 53-4306. Measures to register the illegal site must be promptly implemented.

SIGNED Steve Burton

DATED September 6, 1983

Regulatory Cite	Generator Checklist Rule 1200-1-11-.03 Item	Name U.S. Pipe & Foundry ID Number NONE ISSUED Page 1 of 3				
	I. Review of Records					
	A. Hazardous Waste Determination					
(1)(b)	1. Waste determination	10	NA	CP	NC	
(5)(b)3.	2. Records of data	20	NA	CP	NC	
	B. Accumulation Time					
	1. Temporary Storage					
(4)(b)1.(ii)	a. Containers	30	NA	CP	NC	
	b. Tanks					
(4)(b)1.(ii)	I) Discharge control equipment	40	NA	CP	NC	
(4)(b)1.(ii)	II) Data gathered from monitoring equipment	50	NA	CP	NC	
(4)(b)1.(ii)	III) Level of waste in the tank	60	NA	CP	NC	
(4)(b)1.(ii)	IV) Construction materials of the tank	70	NA	CP	NC	
(4)(b)1.(ii)	V) Discharge confinement structures	80	NA	CP	NC	
(4)(b)1.(v)	c. I) Employee training program	90	NA	CP	NC	
(4)(b)1.(v)	i) Directed by a qualifed person	100		CP	NC	
(4)(b)1.(v)	ii) Completed properly and timely . . .	110		CP	NC	
(4)(b)1.(v)	iii) Reviewed annually	120		CP	NC	
(4)(b)1.(v)	II) Documents and Records of Training . . .	130	NA	CP	NC	
(4)(b)1.(v)	III) Personnel documents maintained	140	NA	CP	NC	
(4)(b)1.(v)	d. Development and Maintainment of contingency plan	150	NA	CP	NC	
(4)(b)1.(v)	I) i) Describes the actions employees must take	160		CP	NC	
(4)(b)1.(v)	ii) Describes arrangements with local agencies	170		CP	NC	
(4)(b)1.(v)	iii) Emergency coordinator data	180		CP	NC	
(4)(b)1.(v)	iv) Emergency equipment data	190		CP	NC	
(4)(b)1.(v)	v) Evacuation plan	200		CP	NC	

Regulatory Cite	Generator Checklist Item	Name ID Number Page 2 of 3				
(4)(b)1.(v)	II) Kept up-to-date	210		CP	NC	
(4)(b)1.(v)	III) Submitted to local agencies	220		CP	NC	
(4)(b)1.(v)	e. Availability of Emergency Coordinator	230	NA	CP	NC	
	f. Arrangements made with local agencies					
(4)(b)1.(v)	I) Familiarize local agencies with hazards present	240	NA	CP	NC	
(4)(b)1.(v)	II) Designate primary emergency authority	250	NA	CP	NC	
(4)(b)1.(v)	III) Agreements with State emergency authority	260	NA	CP	NC	
(4)(b)1.(v)	IV) Agreement with local hospitals	270	NA	CP	NC	
	V) Document any refusal of local agencies	280	NA	CP	NC	
(4)(b)1.(v)	g. Record of incident of contingency	290	NA	CP	NC	
	II. Manifest					
	A. Manifest Usage					
(3)(a)1.	1. Used for off-site shipments	300	NA	CP	NC	
(5)(a)1.	2. Copies of the manifest	310	NA	CP	NC	
(3)(b)1.(i)	a. Document Number	320		CP	NC	
(3)(b)1.(ii)	b. Generator data	330		CP	NC	
(3)(b)1.(iii)	c. Transporter data	340		CP	NC	
(3)(b)1.(iv)	d. Designated facility data	350		CP	NC	
(3)(b)1.(v)	e. Description of Waste	360		CP	NC	
(3)(b)1.(vi)	f. Total Quantity	370		CP	NC	
(3)(b)2.	g. Certification	380		CP	NC	
	3. Exception Report					
(5)(c)	a. Filing of Exception Report	390	NA	CP	NC	
	4. International Shipments					
(6)(a)2.(i)	a. Foreign Consignee's signature	400	NA	CP	NC	
(6)(a)2.(ii)	b. Foreign Consignee data	410	NA	CP	NC	
(6)(a)3.	c. Exception report	420	NA	CP	NC	

Regulatory Cite	Generator Checklist Item	Name ID Number Page 3 of 3				
	III. Site Inspection					
	A. Accumulation Time					
(4)(b)1.(i)	1. Storage is less than 90 days.	440	NA	CP	NC	
(4)(b)1.(ii)	2. Stored in either tanks or containers	450	NA	CP	NC	
	a) In containers	460	NA	CP	NC	
	b) In tanks					
(4)(b)1.(ii)	I) Ignitable or reactive and incompatible waste	470	NA	CP	NC	
(4)(b)1.(ii)	II) Treatment reagents	480	NA	CP	NC	
(4)(b)1.(ii)	III) Uncovered tanks with proper freeboard . .	490	NA	CP	NC	
(4)(b)1.(ii)	IV) Means to stop inflow	500	NA	CP	NC	
(4)(b)1.(iii)	3. Date storage began is clearly visible on each container	510	NA	CP	NC	
(4)(b)1.(iv)	4. Each container is properly labeled	520	NA	CP	NC	
(4)(b)1.(v)	5. Stored to minimize releases of hazardous waste	530	NA	CP	NC	
	6. Safety equipment					
(4)(b)1.(v)	a) Internal communications of alarm system . . .	540	NA	CP	NC	
(4)(b)1.(v)	b) Device for summoning outside emergency assistance	550	NA	CP	NC	
(4)(b)1.(v)	c) Emergency response equipment	560	NA	CP	NC	
(4)(b)1.(v)	d) Water is adequate	570	NA	CP	NC	
(4)(b)1.(v)	7. Emergency equipment kept in working order	580	NA	CP	NC	
(4)(b)1.(v)	8. Access to emergency communication devices	590	NA	CP	NC	
(4)(b)1.(v)	9. Adequate aisle space	600	NA	CP	NC	

MCI
Consulting Engineers, Inc.

10628 Dutchtown Road, P.O. Box 23010
Knoxville, Tennessee 37933-1010
615 966-9788

Engineering, Planning, Landscape Architecture

September 30, 1986

Mr. John Watson
Principal Environmental Engineer
U.S. Pipe and Foundry Co.
3300 First Avenue, North
Birmingham, AL 35202

RE: Cupola Baghouse Dust Monofill
MCI #2259210

Dear Mr. Watson:

As you requested, we have made a preliminary cost estimate regarding a potential disposal fill for cupola baghouse dust at the subject site. In this regard, we have prepared a preliminary design, shown on the included drawings (3 sets) and discussed in the following text.

BACKGROUND

In 1984, MCI designed a landfill for waste generated by U.S. Pipe. This landfill was a modification to the existing landfill and consisted of raising the height of the existing landfill and extending it to the south along the Tennessee River.

U.S. Pipe is now interested in the feasibility of constructing a monofill for the disposal of cupola baghouse dust. This special purpose monofill is considered to be most suitably located south of and contiguous to the existing landfill, as shown on the enclosed Sheet 1. We were involved in the design of similar facilities for Wheland Foundry. Although the permitting of the Wheland facility is still in progress, we believe that the proposed system is a cost effective method of disposal. It is our opinion that a similar type system is applicable for U.S. Pipe.

CUPOLA BAGHOUSE DUST MONOFILL

As shown on the attached drawings, site preparation for the proposed monofill will consist of raising the grade in the area above the 100-year flood level using foundry sand/slag fill. The bottom of the monofill will slope on a 2% grade toward the center and will then slope on a 1% to 2% grade toward one end of the fill. The outslopes will be protected using rock rip-rap or the sandstone-like castings that are currently disposed at the site. A combination clay liner (i.e., 12 inches thick) and synthetic liner will be installed along the top of the sand/slag fill. An underdrain covered with slag will then be installed in the center of the fill to collect drainage as shown on the attached drawings. * The outlet of this drain will then be conveyed to an existing sanitary sewer. Finally, dikes composed of slag will be installed along the perimeter of the site to form two cells, one on each side of the collection drain. There is a possibility that we may have to treat this discharge before it would be acceptable!

Dust is difficult to wet!

* Water will have to be added to the cupola baghouse dust before it is transported to the disposal site to allow the dust to be effectively compacted in the cells. The slag dikes will serve as wind-breaks to reduce the formation of blowing dust so that daily cover will not be necessary. As a cell is being filled with dust, new slag dikes can be constructed partially on the previous dikes and partially on compacted dust. Also, soil can be used to cap the outslopes of the dikes so that they can be vegetated. After the cells have reached their final height, they can be covered with slag and capped with a clayey soil to enable them to be vegetated and to inhibit infiltration.

high (75-80) "920 TPY

We understand that U.S. Pipe produces about 88 tons per month of the cupola baghouse dust. U. S. Pipe personnel estimate that about 285 cubic yards per month of the cupola dust are generated at a dry unit weight of 23 pcf. We believe that by wetting and compacting the dust, a density of about 50 pcf can be obtained. This would reduce the monthly volume to approximately 130 cubic yards. We estimate that the monofill

shown on the attached drawings will provide about 34,000 cubic yards of disposal capacity, which will provide a disposal life of about 20 years (18,400 Tons) for the baghouse dust. Table 1 contains a preliminary cost estimate for the monofill as shown on the attached drawings.

If you have any questions and need additional information, please advise.

Sincerely,

MCI/CONSULTING ENGINEERS, INC.

Charles F. Priddy, Jr., P.E.
Senior Environmental Engineer

CP/bf37

cc: Wayne McCoy
Barry K. Thacker

TABLE 1

Preliminary Cost Estimate

*Cell Construction

Clearing and Grubbing - 5 Ac @ $3000/Ac	=	$ 15,000
Undercutting of Soft Soil - 10,000 cy @ $2.50/cy	=	$ 25,000
Leachate Collection Drain - 800 LF @ $80.00/LF	=	$ 64,000
Clay Liner - 4500 cy @ $6.00/cy	=	$ 27,000
Synthetic Liner - 100,000 sq. ft. @ $1.50/sq. ft.	=	$150,000
Drain Pipe - 300 ft. @ $16.00/LF	=	$ 4,800
Manhole - 2 @ $4,000/each	=	$ 8,000
Chain Link Fence - 1200 LF @ $8.00/LF	=	$ 9,600
Flow Measuring Structure @ $6,000 (LUMP SUM)	=	$ 6,000
Quality Control Monitoring @ $15,000 (LUMP SUM)	=	$ 15,000
Monitoring Wells @ $10,000 (LUMP SUM)	=	$ 10,000
Design	=	$ 40,000
		$374,400

Closure

Borrow - 16,000 cy @ $3.00/cy	$ 48,000
Seeding/Mulching - 5 Ac @ $3,000/Ac	$ 15,000
	$ 63,000

*Note: Cost of: (1) dike construction using slag and foundry sand; and (2) dust handling costs are not included in the above cost estimate. Leachate transport assumed to be by gravity.

This will be required even if we go with the solidification project!

Chatt. Landfill - Option I - Monofill

Initial Cost - $375,000

Disadvantages:

1. May have to wet baghouse dust before putting it on landfill
2. May have to treat leachate from collection system prior to discharge to sanitary sewer. (Lead limit @ CSP sewer ditch is 1.5 PPM)
3. ~~May be unacceptable to state due to its location on bank of river.~~ Monofill suggested by State!
4. May eventually be unacceptable to EPA which could require that we have to reclaim from landfill and then treat!

Advantages: Cost/ton of $20 (over 20 year life)

Chatt. Landfill - Option II - Solidification

Initial Cost - $500,000 (two systems)

Annual treatment costs - 920TPY x $75/Ton ≅ $70,000 ($75/Ton)

STATE OF TENNESSEE
DEPARTMENT OF HEALTH AND ENVIRONMENT
SOUTHEAST REGIONAL OFFICE
2501 MILNE STREET
CHATTANOOGA, TENNESSEE 37406-3399

ENVIRONMENTAL SERVICE
AUG - 4 1986

July 31, 1986

Mr. John H. Watson
U. S. Pipe and Foundry Company
3300 First Avenue, North
Birmingham, Alabama 35202

Dear Mr. Watson:

This office has completed a review of the Construction Plans, Operations Manual, waste streams, and waste analyses submitted by U. S. Pipe and Foundry (USPF) for permitting of the USPF solid waste disposal facility. A review of this submitted material and on-site investigation have resulted in the following comments, observations, and determinations:

1. The existing landfill is only suitable for wastes which are inert. Cupola baghouse dust, brass foundry grinding baghouse dust (CVF source K(b)), brass foundry melting baghouse dust (CVF source K (c)), and waste isocure sand have been shown through analyses submitted by USPF to leach undesirable constituents. These wastes and any other wastes which leach undesirable constituents must be treated as a special waste. These special wastes must be treated and rendered inert or otherwise be disposed in a manner to ensure that leaching of the waste into the environment will not occur. The Division has decided that a disposal site designed for these special wastes should at a minimum, meet the requirements for monofills as outlined in Rule 1200-1-11-.05(11)(b)4 of the Rules Governing Hazardous Waste Management In Tennessee. It is not our intent to regulate these special wastes as hazardous waste. It is our intent, however, to ensure that these special wastes are disposed of in a manner that will prevent the leaching of undersirable constituents into the environment.

2. During an on-site meeting with Jim Book on July 25, 1986, a sewage pumping station was observed at the east end of the site. The pumping station appeared to be pumping sewage to the southwest, under the landfill. A sewage overflow ditch was also observed at the pumping station. The ditch was about fifty to sixty feet in length and abruptly ended-not allowing proper drainage. The rest of the area was low (but not a defined ditch); this area lead to the entrance of a large (72 inch) corrugated metal pipe. This pipe probably runs southwest under the landfill to a inlet area and conveys sewage to the river during wet weather conditions.

   On the day of my visit no sewage or water was entering the 72-inch pipe, yet a flow of water was exiting the 72-inch pipe at the river. Since no water was entering the pipe at the source, it appears that the pipe

must be intercepting some type of drainage from within the landfill. The source of this drainage must be explained. It must also be noted that this pipe provides a route for wastes to flow from the landfill to the Tennessee River.

Other observations included a concrete pipe located slightly south of the inlet area. The concrete pipe was located beneath a concrete slab at the edge of the river. The pipe was observed in the water and travels north across the inlet. This pipe could be the sewage pumping line. Approximately 700 feet south of the concrete slab a 10-foot elevated manhole was observed.

None of the above features are shown on the submitted plans or discussed in the Operations Manual. These features must be identified and explained. All drainage and drainage structures located on-site (or under the site) must be discussed and clearly shown on the plans. The effect of such structures and associated drainage on construction of the landfill and the surrounding environment must be assessed.

3. A TVA Section 26a Permit may be required for the outfall line(s) from the sediment basin to the river. A permit application is enclosed with this letter.

The following pages contain specific requirements and comments resulting from the review of the Operations Manual and Construction Plans. As previously stated, this site is only suitable for inert wastes, therefore, this review was conducted considering only the disposal of inert wastes at this site.

As you know, this site is currently unregistered and thus is in violation of the Tennessee Solid Waste Act. Pursuant to the show cause meeting held in Nashville on December 19, 1983, the Division has not pursued any additional enforcement action because USPF has been preceeding in good faith to register this site. If this enforcement position is to continue, the amended Construction Plans and Operations Manual must be submitted by October 15, 1986.

We would be happy to meet with you at anytime to discuss the contents of this letter. If you have any questions, please feel free to contact me or Steve Baxter at 624-9921.

Sincerely,

Janet Dutto

Janet Dutto
Environmental Engineer
Division of Solid Waste Management

JD/ss

cc: Division of Solid Waste Management, Nashville
Dr. Frank Failing, Hamilton County Health Department

OPERATIONS MANUAL

1. Page 2, each waste that is to be disposed of in the landfill must be specifically named in the Operations Manual. Only inert wastes shall be disposed of in this landfill.

   (a) What does the demolition debris consist of? Will this debris contain any asbestos?

   (b) Will wet collector sludge be taken to the landfill? All sludge taken to the landfill must pass the paint filter test to determine the presence of free liquids. No sludge containing free liquids shall be disposed of in the landfill.

   (c) All other inert waste such as refractories, coke fines, cement linings, inert baghouse dust, etc., must be specifically named in the Operations Manual.

2. Analyses that have been conducted on these wastes must be included in the appendix.

3. Correct any changes in the waste generation numbers.

4. There must be a 50-foot buffer zone between any new waste and the river edge (normal pool).

5. Page 4, states that the landfill is being mined for scrap iron. According to Jim Book, on June 18, 1986, this is no longer occurring.

6. Page 5, Fill Operations

   Discuss fill progression in detail. State in what direction construction will begin and how it will proceed. State when the sediment basin, ditches, and culverts will be constructed. Discuss how each area will be filled. Indicate length of time for each phase of construction.

   Discuss daily fill operations. How often is waste taken to the site? Approximately how much waste is taken to the site daily? Discuss daily cell development, application to working face, number of lifts, compaction, and cover. State the size and working face slope of a typical cell. Explain how bulky demolition debris will be incorporated into the fill progression plan.

   All outslopes in the 100-year floodplain must be covered with two (2) feet of compacted soil. In addition to cover, the outslopes to the west (along the river) must be riprapped up to the 100-year floodplain to prevent erosion of the bank during high river stages. All other final elevations must be covered with one (1) foot of compacted soil. The top four (4) to six (6) inches of soil cover must be a soil which will support growth of native grasses. All outslopes must have slopes no steeper than 3:1. A slope of 2:1 may be acceptable if it can be shown that this steeper slope can be stabilized and maintained. Also a slope stability analysis must be submitted showing that a 2:1 slope, with cover and riprap as required, will produce a minimum safety factor of greater than 1.0 for the previously tested conditions. Slopes steeper than 2:1 are not acceptable; they are difficult to stabilize and maintain.

7. Page 5, Cover and Final Grading

To provide a uniform working surface and to control dust, all wastes (except foundry sand) taken to the landfill must be immediately covered with foundry sand. Wastes must be applied to the working face and covered. The working race, as well as all other areas, must be sloped to drain. No slope shall be so steep as to cause erosion. There shall be no ponding of water on site. As each area reaches its final elevation, it shall immediately be covered by one (1) foot of compacted soil (two (2) feet below 100-year flood elevation). The area must be seeded and revegetated in accordance with the specifications on Sheet 7 of the Construction Plans.

8. Page 6, Operating Equipment

State how the waste will be hauled to the site. Discuss how it will be unloaded and incorporated into the fill area and working face.

9. Page 7, Projected Refuse and Cover Volumes

Update these numbers to reflect any changes. Also, include the following:

a) Calculate projected life and acreage for each phase of construction.

b) Calculate projected acreage to be used each year.

c) Calculate the amount of borrow material needed to cover the site. Show that this amount is available on-site or state how this will be obtained.

d) State total acreage to be permitted. Total acreage to be permitted must include all fill areas, ditches, sediment basin, and any other areas or structures which are utilized in the landfill operations.

10. Page 7, Drainage Facilities

Discuss drainage in more detail. Discuss the system of ditches and culverts and how they combine to enter the sediment basin. Discuss slope and stabilization of the ditches.

The ditches and culverts which run directly into the river are a potential siltation problem. The Operations Manual does not adequately address silt protection of the river. Methods to assure siltation protection of the river must be thoroughly discussed and a silt control plan for the site must be submitted.

As discussed in the attached letter, all drainage and drainage structures (pumping station, pipes, manholes, etc.) must be discussed. The effect of such structures and associated drainage on the construction of the landfill and the surrounding environment must be assessed.

11. Page 9, Landfill Records and Reports

Maintain records on type and amount of waste taken to the landfill. Keep records of surface water and groundwater analyses.

12. Page 9, Landfill Sign

The sign must state that no hazardous , liquid, or unauthorized waste will be accepted at the landfill. It is recommended that the sign state what wastes are acceptable.

13. Page 10, Dust Control

Also state that dust will be controlled by covering wastes with foundry sand as soon as they are taken to the site.

14. Page 11, Salvaging

According to Jim Book (6/18/86), the landfill is no longer being mined for scrap iron. State that before any salvage operations are begun, approval of the operation shall be obtained from the Division of Solid Waste Management.

15. Page 13, Monitoring Requirements

State that surface water and groundwater monitoring of the sediment basin and wells will be conducted on a quarterly basis for the parameters deemed necessary by the DSWM. State how a surface water sample will be obtained from the basin.

16. Page 13, Revegetated Operations

State that all final elevations will receive one (1) foot of compacted soil cover (two (2) feet below 100-year floodplain). The top four (4) to six (6) inches of soil cover must be a soil which will support the growth of native grasses. Each area must be seeded and revegetated in accordance with the specifications shown on Sheet 7 of the Construction Plans.

17. Discuss silt control in more detail.

    a) State within the manual when the sediment basin must be cleaned out and what will be done with the material removed from the basin.

    b) Address in more detail the ditches and culverts emptying directly into the river. How will siltation of the river be prevented?

    c) Discuss silt control methods to be employed during construction.

    d) Submit a silt control plan showing how silt will be controlled at the site.

18. The sediment basin must be designed to accommodate runoff from a 10-year 24-hour storm. In calculating the discharge capacity of the six (6) inch discharge pipe, it was found that the proposed sediment basin can not adequately handle runoff from a 10-year, 24-hour storm. Either the volume of basin must be increased or the size of the discharge pipe increased. The basin must be able to accomodate runoff from this size storm without flowing runoff over the emergency spillway. It should be noted that this area experiences Type II storms; these storms usually receive a major part of their runoff within the early hours of rainfall. It is recommended that a perforated standpipe and a discharge pipe be used. A perforated standpipe will reduce standing water in the basin. If possible, the discharge pipe should be raised to discharge at a higher elevation to prevent river water from backing into the sedimentation basin in flood conditions.

19. The sediment basin must be constructed out of compacted soil-minimum two (2) feet in thickness.

20. A TVA Section 26a Permit will be required for the outfall line(s) from the sediment basin to the river. This permit must be included in the appendix of the Operations Manual.

CONSTRUCTION PLANS

Master Plan

1. Show U.S. Pipe and Foundry's property lines.

2. Show boundry of area to be permitted.

3. Show the location of the sewage pumping station and associated pipes.

Construction Plans

1. Show boundry of total area to be permitted. Total area to be permitted must include all fill areas, ditches, sediment basin, and any areas or associated structures which are utilized in landfill operations.

2. Identify landfill sign locations.

3. Provide a silt control plan which will address how silt will be controlled onsite. In particular, address ditches and culverts draining to river, and silt control during construction stages.

4. Clearly identify all fencing (existing or proposed).

5. Show a typical cell.
   a. Size of typical cell
   b. Slope of working face
   c. Number of lifts
   d. Amount of cover

6. Submit a fill progression plan showing how the site will be filled. This plan must show what direction construction and fill will begin and how it will proceed.

7. Show the location of the groundwater monitoring wells.

8. Show the location of the sampling point of the sediment basin.

9. Show the location of the soil borrow area (if located on site).

10. Show a detailed view of the sediment basin inlet.

11. Show riprap of the western bank.

12. There must be a fifty (50) foot buffer between any new waste and the river (normal pool). This buffer area must be indicated on the plans.

13. Will all terraces be used as access roads and be constructed of compacted slag and gravel (sheet 1 of 4)? If not, indicate which terraces will be considered access roads.

14. Where is the ditch in Section 'E-E'? It is not shown in the cross-sectional view.

15. Show the location of the sewage pumping station and associated ditches, culverts, and manholes. Show how drainage of these structures is occurring on-site.

16. Show how the southeast side of the fill area is drained.

ss

M E M O R A N D U M

ENVIRONMENTAL SERVICE

MAR 11 1988

TO: Jim Smallwood

FROM: Chuck Priddy CP

DATE: March 7, 1988

RE: U.S. Pipe & Grading
MCI #4479-20

Copies to: W.E. Fleck
C.N. Codding
J.R. Walker
D.C. Wallace
H.G. Reynolds

We met on March 1st with Ms. Janet Dutto and Mr. Steve Baxter of the Chattanooga Division of Solid Waste Management on the landfill site. We walked over the entire site, and Steve and Janet seemed favorably impressed with the corrective work done to date. They indicated that only two areas on the river side of the landfill needed a small amount of seeding and strawing; however, these areas were not eroded. Steve indicated he was to bring Commissioner Jim Word by the site on March 9.

Steve did not know when the plans for the landfill would be reviewed and suggested if U.S. Pipe was in a hurry for the review, they should contact Tom Teasler. The Hazardous Waste Permits are taking priority over "landfills such as yours" with Steve's limited staff. You may want to contact Tom Teasler about getting your permit, particularly with the investment you are planning with the Solafix System and what would appear to be the time necessary to prepare the Phase II portion of the landfill for your use. If we can help you with these matters, please let me know. *

Jim Book has asked us to help him collect the second set of ground water and storm drain effluent samples. Monte McDonald is planning on doing this next week.

*Note: Mr. Teasler has made their position clear already. They will not issue us a permit as long as untreated cupola baghouse dust is being disposed of on the on-site landfill!

CFP:kss

cc: Jim Book
John Watson
Monte McDonald

THE EDGe GROUP

MWPS006669

M E M O R A N D U M

TO: Jim Smallwood
U. S. Pipe & Foundry
Chattanooga, TN

ENVIRONMENTAL SERVICE
FEB - 8 1988

FROM: Chuck Priddy CP

DATE: February 3, 1988

RE: Foundry Waste Landfill; MCI #21447910

The Contractor is continuing work on the subject landfill. The majority of his work has continued to be along the eastern edge of the site along the drainage ditch. The northern end of the site is also being used for continuing fill operations, and the access ramp to the soil pipe plant is being constructed. A sizeable quantity of waste water sludge had to be undercut from this area in order to construct the access road ramp.

As you know, a significant rainfall event occurred in January which "tested" some of the drainage facilities that have been installed. Overall, the drainage structures appeared to work adequately, but there was some breakthrough of the silt collection system at the south end of the site. This breakthrough was corrected and the ditch and pond were enlarged to provide for more capacity. However, we have suggested a couple of pipe sizes to be increased and will so indicate on our final submittal to the State. (We understand that you plan to use 24" D.I.P. for all culverts.)

A sanitary sewer manhole was discovered on the eastern edge of the site by the drainage ditch. Although this was reported to the City, completion of manhole was performed by your contractor. The top of the site is nearly ready for seeding and mulching. At his present rate of operation, we anticipate the contractor completing his work for Phase I by the middle of March, assuming we have favorable weather.

In order for the temporary rock dam to be installed at the northern end of the site, wood pallets and wire cages need to be moved.

To date, we have not heard a response from the State on our plan submittal.

CFP:kss

cc: Mr. Jim Book
Mr. John Watson
Mr. Monte McDonald

Watson

MEMORANDUM

ENVIRONMENTAL SERVICE
DEC 14 1987

TO: Mr. Jim Smallwood

FROM: Chuck Priddy CP

DATE: December 9, 1987

RE: Chattanooga Landfill Grading; MCI #21447920

I visited the site on November 30th to observe the construction grading activities that have taken place since November 9th. The northeastern end of the landfill has been graded to a final slope of approximately two and a half to one, and the southern end of the landfill has also been graded. A silt collection system has been installed along the old access road on the south end of the site and appears to be functioning adequately. The top of the site is being graded to provide positive drainage to the southern end of the site. The contractor is presently working on clearing the eastern edge of the site along the drainage ditch and the interstate right-of-way. A rock sedimentation area was also constructed on the western edge of the site by the river, and the top of this area was graded to the existing top of the landfill. These improvements have been coordinated on site by our representative, Monte McDonald.

Jim Book is to submit results of the water analyses from the two wells and the storm pipe to the Division of Solid Waste Management, as well as the monthly inspection form. When the next set of water samples are collected, pH, alkalinity and acidity should also be run.

Although the State has indicated the river side of the landfill can be left as is, we will still need to provide a 50' wide terrace, which includes a 25' wide road, for slope stability if the 100 year flood elevation of the river is reached, followed by rapid drawdown.

It is our understanding that the replacement of the storm sewer will be deferred, as the landfill can be utilized for several years until additional fill is placed over the pipe. During this period, the City of Chattanooga may take steps to eliminate combined storm and sanitary sewers. Furthermore, the extension of the storm sewer to the regulator chamber does not appear to be cost effective at this time and will not be included in the revised landfill operation plans.

We are proceeding with revision of the operation plans and intend to have a review set for you shortly after January 1, 1988.

CFP:kss

cc: Mr. Jim Book
Mr. John Watson
Mr. Monte McDonald

G. O. ENG.
DEC 11 1987
RECEIVED

MCI
Consulting Engineers, Inc.

MWPS006671

MEMORANDUM

ENVIRONMENTAL SERVICE
NOV 16 1987
Copies to:
W.E. Fleck
J.J. Pikciunas

TO: Mr. Jim Smallwood

FROM: Chuck Priddy CP

DATE: November 10, 1987

RE: U.S. Pipe & Foundry; MCI #21447910
Chatt. Landfill - Interim measures

In accordance with your request, we visited the Chattanooga site on this date and met with Mr. Jim Book regarding grading of the landfill site for interim control measures and in accordance with the proposed grading plan for the landfill. We met with representatives of the soil pipe plant and discussed the types of waste that are allowed in the landfill, and we designated an area for dumping of the sand waste during the interim grading operations. This area is located on the north side of the landfill and will consist of dumping the waste over the side of the landfill onto an existing bench. This method will allow for grading on the top and sides of the landfill without interfering with disposal operations.

We also met with Mr. Floyd Drew and members of his construction company and discussed in detail the various grading operations to be performed. We instructed Mr. Drew to grade the site of the landfill beside the regulator chamber to a 2 to 1 slope, to construct the haul road leading to the top of the landfill and to construct an access road along the drainage ditch for access to the regulator chamber and the storm pipe. We also instructed Mr. Drew on the construction of a rock check dam in the vicinity of the Number 1 monitoring well. All of the runoff from the top of existing site will be directed toward this rock check. We then advised Mr. Drew as to the correction of erosion in the area along the river where a borehole was dug to determine soil characteristics. We advised the contractor as to the responsibilities of the various parties. Specifically, MCI will provide instruction to the contractor as to what needs to be done; however, the methods for perfoming this work are the sole responsibility of the contractor, as well as safety to his personnel and equipment.

We staked the approximate location of the storm pipe running underneath the landfill, and advised the contractor and Jim Book that no filling should take place within 100 feet of this line. We understand that the contractor will begin work on this site tomorrow, and our representative, Mr. Monte McDonald, will be on site to assist in laying out as appropriate the work to be performed. The contractor advised us that he has estimated approximately 50 days will be required to complete the work as described to him.

CFP:kss

cc: Mr. John Watson
Mr. Jim Book
Mr. Monte McDonald

UNITED STATES PIPE AND FOUNDRY COMPANY

Birmingham, Alabama
August 13, 1987

To: Messrs. W. A. Berry
J. B. Dockery

From: M. C. Keel

SUBJECT: BAGHOUSE DUST SOLIDIFICATION - CHATTANOOGA PLANTS

Copies to: Messrs. W. E. Fleck
C. N. Codding
J. R. Walker
D. C. Wallace
D. M. Paden
D. Gram
J. Pikciunas
J. Smallwood
M. W. Burnham

ENVIRONMENTAL SERVICE
AUG 1 5 1987

On Thursday, August 6, 1987, a meeting was held in the Chattanooga Fittings Plant Conference Room. In attendance were Messrs. W. A. Berry, J. B. Dockery, J. R. Walker, D. C. Wallace, J. Smallwood, J. Pikciunas, D. Gram, M. W. Burnham, W. Rogers, and the writer.

Mr. Walker opened the meeting by stating that since the project schedule has not been finalized with the Environmental Protection Agency (EPA) or the State of Tennessee, Engineering Services is beginning work in order to be capable of meeting construction requirements. He also stated that our management wants one solidification system for both the Valve and Fittings and the Soil Pipe Plants, but that this will have to be approved by State authorities.

Mr. Wallace then reviewed the environmental regulations relevant to baghouse dust in Tennessee, as follows:

- The State administers the Resource Conservation and Recovery Act (RCRA) in Tennessee.

- The State of Tennessee has allowed U. S. Pipe the fossil fuel exemption for hazardous waste, thereby classifying baghouse dust as a "special waste".

- The EPA is pressuring Tennessee to not allow U. S. Pipe the fossil fuel exemption, and may ultimately be successful.

- U. S. Pipe Management has decided to install a single solidification system for both the Chattanooga cupola baghouses instead of storing baghouse dust in a monofill.

- The installation of a totally enclosed solidification system eliminates the need for permitting, which is both cumbersome and costly.

The writer then reviewed the solidification process and the equipment which it requires. The problems which have been experienced with the Bessemer conveying system were also discussed. Mr. Walker stated that even though improvements are being made at Bessemer, the conveying and mixing system is going to require frequent attention and periodic maintenance. Mr. Berry said that MacCawber pneumatic conveying systems work very well and should be considered. Mr. Walker said that they will be evaluated.

* The project schedule was then reviewed. This schedule showed the earliest possible start-up which could be met, which was late May. Mr. Berry suggested that the project be delayed to start up immediately after vacation shutdown, if possible. Mr. Wallace said that this could probably be negotiated. When?

Mr. Berry asked if a non-enclosed system could be approved in Chattanooga, since Tennessee considers the fossil fuel exemption applicable to baghouse dust. Mr. Wallace said he doubted that it could be approved, but that we could approach the State authorities with a plan for one solidification system for both the Valve and Fittings and Soil Pipe Plants, with neither system being totally enclosed. Mr. Wallace said that for a system to be approved by the EPA it must be a "pipeline" concept, where the dust is never released until it is mixed. As a result, a building is probably not sufficient for the system to be considered totally enclosed.

Mr. Walker stated that the final configuration of the solidification systems for the Chattanooga Plants is uncertain. In order to be prepared for the worst possibility, Engineering will begin development work on Bessemer-type solidification systems at both Chattanooga Valve and Fittings and Chattanooga Soil Pipe Plants. If it is determined through negotiations that less expensive systems are acceptable, the necessary changes will be made prior to submittal of AFE's.

The meeting was adjourned.

M. C. Keel

M. C. Keel

MCK/sd

* Talked with Mike Keel on 10-16-87:
They are going to perform pilot study on different type of conveying equipment either @ Bess. or NBM. Feel that it will be end of Dec. 86 before it can be evaluated. In this case, feel he can have system installed at Chatt. by Oct. 1, 88!

ISOCURE!
3-4-97

June 4, 1987

Chuck Priddy
(615) 966-9788

Sub: Current status - Chatt. Landfill

1. MCI can have revised const. & oper. plans ready approx. mid July.
2. As part of plans, they will have to address disposal of Cup. B.H. dust & three spec. wastes
   To include time sch. for inst. of solifix! Try Inst. beginning Apr. 1, 88 @ CVF!
3. Steve Baxter sees a "problem" during interim between approval of landfill plans & inst. of solifix since the permit will specify exactly what types of waste can be placed on landfill
4. At present time, Steve owes me a phone call concerning the "interim period" and a "Registered letter" requesting submission of landfill plans within 45 days!

Note: Discussed all above with Chuck Priddy on June 8, 87!
6-8-87

They were in CVF plant week of June 1 getting details on 72" drain and San. Sewer line on river bank. Chuck is concerned that some of the sewer manholes may be covered over with "sand". Chuck will discuss possibility of using composite data on special wastes with Wayne McCoy in effort to get approval from City landfill for their disposal. He indicated that he would like to get our plans submitted before ~~new~~ State's new regs on San. landfills are issued! They are proceeding with work on our plans!

MWPS006675

Jim 3910

May 19, 87

Sub: Disposal plans - three "special" wastes @ CVF
(in addition to Cup. B.H. dust)

1.* Waste isocure sand - 15 tons per week (3TPD)

Cup. BH Dr.
1.3 to 2TPD

Get MCI to obtain necessary approval from City and State to dispose of this waste at Summit Landfill!

*Rest of iso. sand winds up in green sand sys. and eventually disch. as waste sys. sand at rate ≅ 585 tons/wk ≅ 117TPD

2. Brass Foundry Grinding Dust - 400#/day - "Problem"
" " Melting " - 60#/day

Primary alloys present in Brass:

Copper, Zinc, Lead, & Tin, + other trace metals

Get the above dusts tested for:
Fe, Mn, Ca, Mg, Si, Al, Cd, Cr, Pb, Zn, Cu, Ni, Sn
(Discussed with Jim Smallwood on 5-19-87!)

May 15, 87

Sub: Landfill @ Chatt. - Telecon with Steve Baxter

Had talked to Steve on May 14, 87, to discuss an acceptable time frame for installation of Solifix process. In conversation today, he advised that he would send us Reg. letter requesting submission of plans within 45 days (+12 for Reg. letter ≅ 57 days total). After their receipt of appl., they will go to Nashville for a meeting of Permit Review Committee, which will include Tom Fiesler. A problem arises since the permit appl. must specify what wastes will be disposed of and if we list treated cupola B.H. dust, then during the "interim" between permit approval and completion of Solifix installation, we will have no place to dispose of cup. B.H. dust! It is Steve's opinion that the application should also address disposal of other three special wastes at time of submittal! He suggested that we submit some analytical data on "fixed" BH dust (Bess)

*Steve will discuss the problem of the "interim" period with folks in Nashville and call me back next week.

(As of 6-4-87, Steve has not contacted me!)

MWPS006677

5-13-87

Sub: Telecon with Chuck Priddy of MCI

Chuck had a discussion with Steve Baxter late last week and found that static sample results confirmed those we had obtained. Steve agreed that the good results indicate that a cover over the landfill is not needed. Therefore MCI will proceed with their final design of the landfill using no cover and at max. slopes of 2/1. Chuck advised that based upon their work load it would be at least 60 days (July 13) before they would submit final plans. We will make a trip to Chatt. to accurately locate 72" drain on their drawings.

⊛ As part of these final plans they need to address the three special wastes + Cupola BHdust, and suggest a time frame for their resolution. Chuck suggested that I may desire to discuss the schedule with Steve Baxter in light of situation at Beco and see if we can obtain a variance for special wastes until solifix can be installed. Discuss with Bill Fleck for necessary guidance!

(Cont.)

MWPS006678

Don Wallace did discuss a time frame for Solifix process at Chitt. plants by phone with Bill Flech this date. Mr. Flech prefers waiting till summer shutdown of 1988, however, would not object to spring of 88, nor fall of 1987 if it were necessary.

3-13-87

Sub: Chatt. Landfill - MCI letter of 3-6-87

Item 3 of MCI letter:

1. Need a time schedule on solifix system for both CVF & CSP! Discuss with Bill Fleck tech. meeting 5-14-87 Look @ installing "one"

2. Other "three" special wastes:

a. Waste issue sand - 15 tons/week
Get permission to haul to City or County landfill! High "phenol"

b. Brass Fdy grinding dust - 400#/day Lead > 5 ppm

c. Brass Fdy melting dust - 60#/day

develop some means of getting these wastes into solifix system, maybe into storage tks, or add them at mixer on weekends!

Item 4 of MCI letter:

Check out with Bill Fleck

Solifix schedule at Dess & NBM:

Dess init. completely June 1, 87?

NBM init. sch. for Oct. 1 thru Feb. 15, 88

MWPS006680

MCI
Consulting Engineers, Inc.

10628 Dutchtown Road, P.O. Box 23010
Knoxville, Tennessee 37933-1010
615 966-9788

Engineering, Planning, Landscape Architecture

Copies to: WE Fleck
Jim Smallwood

March 6, 1987

ENVIRONMENTAL SERVICE
MAR 12 1987

Mr. John Watson
U.S. Pipe and Foundry Co.
3300 First Avenue, North
Birmingham, AL 35202

RE: Proposed Landfill, Chattanooga Foundry; MCI #2282220

Dear John:

As requested, we have prepared a status report for the above referenced project.

1. We have reviewed the Tennessee Division of Solid Waste Management's (TDSWM) letter of February 4 regarding vegetative cover for the landfill site. We recommend the use of a combination of bermuda grass and common lespedeza for cover, as bermuda has been seen growing on several areas of your landfill site and lespedeza will add nitrogen fixing bacteria; we can show this on the resubmittal to the state using the methods suggested.

2. We understand the sampling and analysis of the stormwater pipe discharge is planned for the first day there is "effluent", but no "influent" flow, with TDSWM coordination. As we have discussed, the presence of contaminants that may be attributable to the landfill may affect TDSWM's position on the need for a impervious cap over the landfill. We will also need to locate this pipe in the field.

3. Enclosed is a memo from Wayne McCoy regarding the disposal of various "special wastes." We will need to address the disposal of these wastes in our operational plan. Besides the option of placing these wastes in a sanitary landfill, could they be incorporated with the cupola baghouse dust for solidification? Also, please let us know how the solidified baghouse dust will be disposed of and when this system is scheduled to go on line.

4. We have discussed TDSWM's unwillingness to allow 1½:1 side slopes on the landfill. We estimate that decreasing these slopes to the allowable 2:1 will reduce the estimated "life" of the landfill from 26 to 21 years, based on a disposal volume of 30,000 cubic yards per year. Please advise if this is acceptable.
OK Per Bill Fleck on 4-1-87

5. Notes on our meeting with the State last October indicate that TDSWM might not require rip-rap to the 100-year flood plain. TVA has advised us that the maximum expected velocity at the bank is 6½ feet per second, which will probably require placement of some rip-rap.

Upon the disposition of Item 2 of this letter, we should be ready to begin modifications to the plans and operations manual. We will submit a status report to TDSWM using any comments you may have regarding this letter. If you have any questions or need additional information at this time, please let me know.

Sincerely,

MCI CONSULTING ENGINEERS, INC.

Charles F. Priddy, Jr., P.E.
Senior Environmental Engineer

CFP:mg

Enclosure

cc: Wayne McCoy

MEMO

TO: Chuck Priddy, MCI, Knoxville

FROM: V. Wayne Mccoy

DATE: February 3, 1987

SUBJECT: United States Pipe and Foundry Company

I have reviewed the notes from my telephone conversations of Sept. 5 and Sept. 12, 1986, with Steve Baxter relative to the following wastes:

Brass Foundry Grinding Dust – 400#/day - lead > 5ppm
Brass Foundry Melting Dust - 60#/day
Waste Isocure Sand - 15 Tons/year

My notes reflect that the TDSWM (as per Baxter) would entertain special waste applications to take the above wastes to an approved sanitary landfill; in this case the Summit Landfill in Chattanooga. He did not say the applications would be approved but indicated that such is certainly a viable alternative that could be explored.

If John Watson desires, we could certainly further pursue this avenue for these three waste streams.

If you have any questions relative to this issue, please advise. I will pursue this avenue as per the desires of you and John Watson.

Wayne

VWM/cm

STATE OF TENNESSEE
DEPARTMENT OF HEALTH AND ENVIRONMENT
SOUTHEAST REGIONAL OFFICE
2501 MILNE STREET
CHATTANOOGA, TENNESSEE 37406-3399

RECEIVED
FEB 1987
M. C. I.

February 2, 1987

Mr. John H. Watson
U.S. Pipe and Foundry Company
3300 First Avenue, North
Birmingham, Alabama 35202

Dear Mr. Watson:

Enclosed are the soil test results and recommendations as determined by the University of Tennessee Agricultural Extension Service for U.S. Pipe's solid waste disposal site. We will be referring to this report in our review and evaluation of this site.

If you have any questions, please feel free to call me at 624-9921.

Sincerely,

Janet Dutto

Janet Dutto
Environmental Engineer
Division of Solid Waste Management

JD:pph
Enclosure

cc: Jim Smallwood, U.S. Pipe and Foundry Co.
Chuck Priddy, MCI
Wayne McCoy, EDGE
Division of Solid Waste Management, Nashville
Bob Jerardi, Hamilton County Health Department

Agricultural Extension Service
University of Tennessee Institute of Agriculture

P. O. Box 1071
Knoxville, Tennessee 37901-1071

January 19, 1987

Mr. J.T. Haralson
Asst. Ext. Agent
110 Dayton Blvd.
Chattanooga, TN 37405

Dear Tim:

The establishment and maintenance of a permanent, erosion resistant ground cover at the U.S. Pipe Foundry location will be a challenging project. Enclosed, please find two publications which may be of value.

Based on the soil test report, the two samples you submitted contain high levels of phosphorus and medium to high levels of potassium (levels adequate for ground cover growth). Due to the high pH (01=pH 8.4, 02=pH 7.9), no limestone application was recommended. As you know, the availability of mineral elements in soil is greatly influenced by pH. Between a soil pH of 6.0 and 6.5, the essential soil elements are adequately available for optimal turfgrass growth. A sulfur application prior to planting may be required to reduce alkalinity and the potential for severe imbalances in nutrient availability.

Additional factors to consider regarding the dump site material include 1) heavy metal and 2) sodium content, and 3) salinity. Heavy metals (i.e. copper, nickel, lead,...) may interfere with normal, internal plant processes when toxic levels exist in soils.

Generally, sodium is considered as it relates to soil physical and chemical properties. Adverse physical and chemical conditions may exist in soils high in exchangeable sodium. Sodic soils may be reclaimed by replacing exchangeable sodium with calcium or magnesium and removing sodium by leaching. Gypsum ($CaSO_4$-$2H_2O$) may be used to remove exchangeable sodium from soil and replace it with calcium. The resultant soil is more friable and water infiltration and percolation rates increase.

The Agricultural Extension Service offers its programs to all eligible persons regardless of race, color, national origin, sex, or handicap and is an Equal Opportunity Employer.

THE UNIVERSITY OF TENNESSEE, THE U.S. DEPARTMENT OF AGRICULTURE, AND COUNTY GOVERNMENTS COOPERATING

One effect of a high soil salt concentration is to produce water stress which may cause the plant to wilt and/or die. If the salinity level is less than 1.0 mmhos/cm (determined by soluble salts test) the effect of soluble salts is negligible. A soluble salts level greater than 2.0 mmhos/cm may limit the selection of adapted plant species. Bermudagrasses are moderately tolerant of soluble salts. Soluble salts testing is now available at the University of Tennessee Diagnostic Laboratory, Nashville.

Several plant species may be adapted to the U.S. Pipe Foundry site (refer to pg. 4 in Revegetation and beautification of roadsides in Tennessee). Typically, species selection is influenced by planting date. A common bermudagrass plus annual lespedeza seed mixture may be seeded from April 15 to June 15, a tall fescue plus white clover mixture, February 15 to April 15 and August 15 to October 15.

Bermudagrass, a warm season, perennial sod-forming grass deserves consideration. Common bermudagrass spreads by both above ground (stolons) and below ground (rhizomes) runners and provides excellent erosion control when properly managed. Common bermudagrass can be seeded, sprigged (sprigs are individual plants or pieces of plants from which new plants develop which may be placed 4 to 6 inches apart in furrows 2 to 3 inches deep spaced on 6 to 12 inch centers), stolonized (sprigs uniformly broadcast over the soil surface - a disk is used to partially incorporate sprigs following stolonizing), plugged or sodded. Sodding is recommended on areas prone to erosion including extreme slopes, waterways and critical areas which may experience water moving at a high velocity.

Hydromulching (hydraulic broadcasting of seed and mulch over the soil surface) has been used effectively for ground cover establishment on steep slopes where seedbed preparation and use of conventional equipment is not possible. A seed mixture containing 67 percent (by weight) hulled bermudagrass and 33 percent annual lespedeza planted from

April 15 to June 15 at a rate of 21 pounds per acre may provide adequate erosion control. Annual lespedeza in combination with bermudagrass will provide temporary cover until bermudagrass becomes well established. Use of a mulch is recommended to absorb and retain moisture, reduce soil erosion and hold seed in place.

Tall fescue, a cool season, perennial bunch grass may be established in spring, late summer or early fall. Periodic fertilization and mowing are required to maintain adequate cover (tall fescue does not spread by rhizomes or stolons). A seed mixture containing 90 percent (by weight) tall fescue and 10 percent white clover has been recommended for revegetation of roadsides in Tennessee. Serecia lespedeza and crownvetch have also been used effectively (pg. 8 - Revegetation and beautification of roadsides in Tennessee).

Reducing steepness and length of slopes will make plant establishment and maintenance easier and prevent land slides. Thirty pounds of nitrogen, phosphate and potash per acre (200 lbs. 15-15-15 fertilizer/acre) should be broadcast and incorporated prior to planting bermudagrass or tall fescue. If bermudagrass is established prior to July 1, 44 lbs. nitrogen per acre (approximately 100 lbs. urea/acre or 125 lbs. ammonium nitrate/acre) should be applied six weeks after planting. Two-hundred-fifty pounds of 15-15-15 fertilizer (or equivalent) should be applied to bermudagrass each spring (May 1 to May 15). Spring plantings of tall fescue should be refertilized in the early fall (500 lbs. 6-12-12/acre or its equivalent). Refertilize fall plantings of tall fescue in the early spring (April 1-15). Tall fescue should be fertilized each spring (April 1-15) with 250 lbs. of 15-15-15 per acre to maintain cover.

Immediately after planting, the area should be irrigated frequently to maintain adequate moisture in the upper 1 to 2 inches of soil (630 gallons/1000 ft^2 is equivalent to a 1 inch rainfall). If possible, water should be applied slowly to prevent seed movement and reduce runoff. After developing plants have become well established, the practice

of light, daily applications of water can be discontinued. More water should be applied less frequently to increase rooting depth.

Due to the limited information available regarding response of several plant species to the material generated at the U.S. Pipe Foundry, I agree with John Jared and suggest that a small area be established for observation and evaluation before a major capital expenditure for the establishment of a vegetative canopy over the entire site.

Please don't hesitate to call if I may be of further assistance.

Sincerely,

Tom Samples

Tom Samples
Assistant Professor
Ornamental Horticulture and
Landscape Design

Enclosures

gi

Agricultural Extension Service
University of Tennessee Institute of Agriculture

TO: HARALSON, JOHN TIMOTHY
ASST. EXTENSION AGENT
1110 DAYTON BLVD.
CHATTANOOGA, TENNESSEE 37405

DATE: 11/07/86
COUNTY: HAMILTON
LAB NO: 65661

P. O. Box [illegible]
Nashville, TN 37222-0019

SAMPLE INFORMATION				SOIL TEST RESULTS										RECOMMENDATIONS		
				Pounds Per Acre And Ratings*										Pounds Per Acre		
Sample Number	CROP	Water pH	Buffer pH	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**	Limestone (tons/Acre)	N Nitrogen	P_2O_5 Phosphate	K_2O Potas
01	Grass Pasture est-renov.	8.4		68 H	190 H								0	30	30	30
	Grass Pasture maintenance	8.4		68 H	190 H								0	30-60	0	(
02	Crown Vetch	7.9		36 H	160 M								0	0-15	30	(
	Crown Vetch maintenance	7.9		36 H	160 M								0	0	0	

Grass pasture est.-renov. notes:

Each pasture sample has two recommendations. The first should be used for new crops or to renovate an existing cr The second should be used for maintenance of an existing crop. For future maintenance of the new or renovated cro use the second recommendation and omit the lime.

If renovation involves the addition of legumes to grass pastures, the nitrogen should be omitted.

Grass pasture maintenance notes:

Apply recommended amounts of phosphate and potash in one application anytime during the year. For extra growth stockpiling in the fall, apply nitrogen August 15 to September 15 and from March 1 to March 30, if additional gr is needed in the spring. If additional growth is only needed during one season, apply nitrogen for that season

If urea is the nitrogen source, especially for fall topdressing, some loss of nitrogen may occur if applied to soils followed by three or more days of rapidly drying conditions without rainfall.

Crown Vetch establishment notes:

Each crown vetch sample has two recommendations. The first should be used for new crops or to renovate an ex crop. The second should be used for maintenance of an existing crop. For future maintenance of the new or r crop, use the second recommendation and omit the lime.

*Ratings: Indicates relative availability of nutrients to plants: (L) = Low; (M) = Medium; (H) = High; (V) = Very High; (D) = Deficient; (S) = Suffic
**PPM = Parts Per Million — If you have questions about these recommendations, contact your Extension office.

MWPS006689

Agricultural Extension Service
University of Tennessee Institute of Agriculture

SOIL TEST REPORT

TO: HARALSON, JOHN TIMOTHY
(page 2, cont'd)

DATE:
COUNTY:
LAB NO:

FROM: John R. Jared
John R. Jared
Professor
Plant & Soil Science
P. O. Box 110019
Nashville, TN 37222-0019

SAMPLE INFORMATION				SOIL TEST RESULTS										RECOMMENDATIONS		
				Pounds Per Acre And Ratings*										Pounds Per Acre		
Sample Number	CROP	Water pH	Buffer pH	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**	Lime-stone Tons/Acre	N Nitrogen	P_2O_5 Phosphate	K_2O Potash
	Crown Vetch maintenance notes:															
	Apply recommended amounts of phosphate and potash in one application anytime during the year.															

*Ratings: Indicates relative availability of nutrients to plants: (L) = Low; (M) = Medium; (H) = High; (V) = Very High; (D) = Deficient; (S) = Sufficient
**PPM = Parts Per Million If you have questions about these recommendations

MWPS006690

Agricultural Extension Service
University of Tennessee Institute of Agriculture

SOIL TEST REPORT

TO: HARALSON, JOHN TIMOTHY
ASST. EXTENSION AGENT
1110 DAYTON BLVD.
CHATTANOOGA, TENNESSEE 37405

DATE: 11/07/86
COUNTY: HAMILTON
LAB NO: 65661

FROM: John R. Jared
John R. Jared
Professor
Plant & Soil Science
P. O. Box 110019
Nashville, TN 37222-0019

SAMPLE INFORMATION				SOIL TEST RESULTS										RECOMMENDATIONS		
				Pounds Per Acre And Ratings*										Pounds Per Acre		
Sample Number	CROP	Water pH	Buffer pH	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**	Limestone Tons/Acre	N Nitrogen	P_2O_5 Phosphate	K_2O Potash
01	Grass Pasture est-renov.	8.4		68 H	190 H								0	30	30	30
	Grass Pasture maintenance	8.4		68 H	190 H								0	30-60	0	0
02	Crown Vetch	7.9		36 H	160 M								0	0-15	30	60
	Crown Vetch maintenance	7.9		36 H	160 M								0	0	0	30

The two samples you submitted to the Soil Testing Laboratory contain medium to high levels of potassium and high levels of phosphorus. Such levels would certainly be sufficient for grass or ground cover growth. However, water pH readings are higher than necessary and could perhaps cause problems. This is especially true for sample 01. Such high pH values could cause severe nutrient imbalances.

I would suggest that only a small area be established for observation before too many dollars are invested.

Sincerely,

/S/ John R. Jared
John R. Jared
Professor
Plant and Soil Science

JRJ:Mjw

cc: Debbie Brakefield

MWPS006691

*Ratings: Indicates relative availability of nutrients to plants: (L) = Low; (M) = Medium; (H) = High; (V) = Very High; (R) = [illegible]
**PPM = Parts Per Million

Sep. 19, 1986

Sub: Chatt. Plants - Telecon with Wayne McCoy - MCI

Wayne called to advise me that he hasn't gotten to 1st base with Steve Baxter on backing off the special waste issue. As for Brass fdy. dusts, Steve says lead values of 2.5 and 3 are too close to EP std. for disposal on bank of Tenn. river. Wayne has seen a DSWM interoffice memo which gives a phenol value of 15 ppm (tot. phenol in waste - not leachate) as an upper limit for inert waste. Therefore he suggested that we retest the three special wastes in question and see if the data improves. If it does, we will perform additional tests for confirmation. Discussed with Jim Smallwood today and he will get samples of following to Tech. Sub. Assoc. for testing shown:

28 PPM 1. Brass Fdy. grinding B.H. dust - E.P. tox test - Lead only

4.2 PPM 2. " " melting " " - " " " " "

180 PPM 3. Waste incine ash - Check for total phenol (not leach)

Steve & Wayne discussed the possibility of hauling these "special wastes" to the Summit landfill, a local mine site which provides daily cover and is away from the River. Would require both State & Summit approval! It is an option

Aug. 11, 1986

Sub: Comments on Janet Dutton's letter of July 31, 1986!

Letter item #1: {Treat as special waste?

a. Cup. B.H. Dust - no argument on this one!

b. Brass Fdy grinding BH Dust - K(b)

Leached lead at 3.1 PPM vs. 5 std on EP tox test!

Note: This is a small vol. waste and could be mixed with higher vol. waste for dilution!

"Quantity": _____

c. Brass Fdy. melting B.H. dust - K(c)

Leached lead at 2.5 PPM vs. 5 std. on EP tox test!

Note: This is also likely a small vol. waste and could be mixed with higher vol. waste for dilution!

"Quantity": _____

d. Waste isocure sand -

Phenol "leached" at 16 PPM. There is no std. for phenol on existing EP Tox test, however, EPA's new proposed ext. procedure (tox. charact. leaching procedure - TCLP) proposed a std. of 14.4 PPM! I assume this is why they object to it!

☆ Note: No! The core sand samples were tested directly for phenol and they were not "leached" sampled! ∴ It is unlikely that the leachate values would cause any problems

"Quantity": _____

Note: Let MCI to estimate cost of disposal of these "special waste" in a section of landfill designed to be "monofill" state!

CHATTANOOGA VALVE & FITTINGS PLANT

Sources and Types of Waste For Disposal in "Permitted" Landfill

	Source	Code*		Waste Type
A.	Cupola Area	6	(a)	Cupola baghouse dust
		5a	(b)	Cupola slag
		7	(c)	Coke breeze
		7	(d)	Bottom drop coke
		1	(e)	Used refractories
B.	Electric Furnaces (3)	8	(a)	Ductile treating baghouse dust
	(Holding only-not melting)	5b	(b)	Desulfurizing ladle slag
		5a	(c)	Slag from treating, pouring ladles
		1	(d)	Used refractories (from furnaces & ladles)
C.	#9 Unit	2	(a)	Wet collector sludge
	(Green sand system)	2&3a	(b)	Recycling spillover sand
		2	(c)	Apron conveyor baghouse dust
		2	(d)	Waste binder additives (seacoal, bentonite, woodflour)
		-	(e)	Spilled iron
D.	#3 Cleaning Shed	4c	(a)	Blast Cleaner baghouse dust
		4a	(b)	Grinding booths rotoclone dust
		4b	(c)	Steel shot (spent)
E.	#1 Cleaning Shed	4c	(a)	Cabinet cleaner baghouse dust
		4a	(b)	Swing grinder rotoclone dust
		4b	(c)	Steel shot (spent)
F.	#2 Cleaning Shed	4c	(a)	Blast cleaner baghouse dust
		4a	(b)	Grinding booths rotoclone dust
		4b	(c)	Spent steel shot
G.	Coreroom	3b	(a)	Airset, Shell & Isocure scrap cores & sand
		3b	(b)	Airset cores - waste sand and scrap cores
H.	#10 Unit (Air set system)	2&3a		Waste mold & core sand
I.	#4 Unit (green sand system)	2&3a		Waste mold & core sand
J.	Cement Lining	9	(a)	Waste cement mortar
		10	(b)	Paint spray booth residues
K.	Valve Plant, Brass	4c	(a)	Shot blast baghouse dust
	(Foundry Area)	4a	(b)	Grinder booth baghouse dust
		2	(c)	Melting & pouring loop baghouse dust
		2&3a	(d)	Waste molding & core sand
		10	(e)	Paint booth residues

	Source	Code*		Waste Type
L.	Demolition Debris (General Plant Areas)	1	(a)	Scrap refractories
		-	(b)	Concrete, old paving (asphaltic) excavated soil (may include anything found) - This area is all fill material!
M.	Sand Reclamation System	2		Resin and sand fines from #4 & #10 units -

* Note: Waste Classification Code - see attch. "A"

CHATTANOOGA SOIL PIPE

Sources and Types of Waste For Disposal in "Permitted" Landfill

Source	Code*		Waste Type
A. Finishing Area	4c	a.	Cabinet Cleaner Baghouse Dust
	4c	b.	5'-0 Cleaner Dust
	4c	c.	Barrel Cleaner Dust
	4b	d.	Spent Shot
	4a	e.	Grinding Station Dust
B. Disamatic	2	a.	Sand Spill
	-	b.	Spilled Iron
	2	c.	Waste Binder Dust (Seacoal, bentonite, woodflour)
	3a	d.	Core Butts
C. Core Room	3b	a.	Waste Core Sand
	3b	b.	Core Sand Dust
D. Cupola Area	6	a.	Cupola Baghouse Dust
	5a	b.	Cupola Slag
	1	c.	Used Refractories
	7	d.	Coke Breeze
	7	e.	Bottom Drop Coke
E. 5 Foot Pipe Run	2	a.	Wet Collector Sludge
	2	b.	Waste Core & Molding Sand
F. Shell Sand Coating System	3b	a.	Shell Sand Baghouse Dust
	3b	b.	Sand, Shell
	3b	c.	Waste Sand
G. Demolition Debris (General Plant Areas)	-	a.	Concrete
	-	b.	Excavated Soil
H. Permanent Mold Pipe Dept.	11		Process Wastewater Treatment Drying Bed Sludge

*Note: Waste Classification Code - see attch. "A"

Classification of Foundry Wastes

1. Used refractories (cupola and ladle linings).

2. System Sand (molding and including core sand dilution).
   (This includes binder additives and dust collected during handling.)

3. Core Sand:
   a. Core butts - that which doesn't enter system sand.
   b. Core sweepings and broken cores.

4. Cleaning room waste:
   a. Grinding dust (abrasives and metal).
   b. Spent steel shot.
   c. Blast cleaner dust (dust from system and core sand).

5. Slag:
   a. Cupola plus holding and pouring ladle slag.
   b. Desulfurizing ladle slag (spent calcium carbide slag).
   c. Melting of non-ferrous metals.

6. Cupola baghouse dust (collected particulates including coke ash).

7. Coke (fines and cupola bottom drop).

8. Ductile treating baghouse dust.

9. Cement lining wastes (waste cement mortar).
   (Portland cement plus sand.)

10. Paint wastes.

11. Process wastewater treatment sludge.

"Attch. A"

FILE
File

UNITED STATES PIPE AND FOUNDRY COMPANY

GENERAL OFFICE
3300 FIRST AVENUE NORTH • BIRMINGHAM, ALABAMA 35202

June 18, 1985

Mr. Steve Baxter, Environmental Consultant
Tennessee Department of Health and Environment
Division of Solid Waste Management
2501 Milne Street
Chattanooga, Tennessee 37406

Re: Chattanooga Plants Landfill

Dear Mr. Baxter:

As a result of the monitoring well data submitted to you with our May 2, 1985 letter, and your request that additional samples be taken because of your concern over the TOC value in the downgradient well, we are hereby submitting the attached data. Both samples were collected from the downgradient well (#1) and were obtained on May 20 and May 28, 1985.

Should you have any questions on the above, please let me know.

Yours truly,

John H. Watson

John H. Watson
Principal Environmental Engineer

JHW/js

Encls.

bc: Mr. W. E. Fleck with attachment
Mr. C. N. Codding "
Mr. W. A. Berry "
Mr. J. B. Dockery "
Mr. J. Smallwood "

MWPS006698

MCI
Consulting Engineers, Inc.

10628 Dutchtown Road, P.O. Box 23010
Knoxville, Tennessee 37933-1010
615 966-9788

Engineering, Planning, Landscape Architecture

June 11, 1985

ENVIRONMENTAL SERVICE
JUN 17 1985

Mr. John Watson
U.S. Pipe & Foundry Company
P.O. Box 10406
Birmingham, AL 35202

Dear Mr. Watson:

Enclosed are the analytic results for the two samples collected from Well 1 at the Chattanooga facility's landfill. As you can see, the Total Organic Carbon (TOC) decreased from the initial level of 278 mg/l, but is still very high. Two possibilities came to mind while I was thinking about these three sets of analyses. First, the initial April 24 sampling may have signaled the passage of a plume. The lower TOC values could reflect decreased recharge and subsequent leaching, owing to operational and drainage improvements at the landfill. Second, the higher April 24 TOC value could have occurred in response to rapid flushing from rainfall, resulting in increasing an already high TOC content. Additional samplings (two or three) should establish whether the TOC is declining or remaining constant.

MCI is available to perform these additional samplings, should you so desire. Please contact me if you have any questions about the analyses.

Sincerely,

MCI CONSULTING ENGINEERS, INC.

Becky Darrell

Sarah B. Darrell
Hydrogeologist

SBD:ms

Enclosures

TECHNICAL LABORATORIES, INC.

515 CHEROKEE BLVD.
CHATTANOOGA, TENNESSEE 37405

MARTIN H. DAVIS
President

615/265-4533

ACCOUNT NO. 1896-001 **DATE** JUNE 03, 1985

RECEIVED FROM MCI CONSULTING ENGINEERS, INC., P. O. BOX 23010, KNOXVILLE, TENNESSEE 37933
MS. SARAH B. DARRELL

RECEIVED DATE 05/20/85

MATERIAL WATER

MARKED U. S. PIPE & FOUNDRY, WELL NO. 1, PURCHASE ORDER NO. 2281820

LABORATORY NO. 228,680

Soluble Phenols mg/l	0.016
Soluble Total Organic Carbon mg/l	180
Soluble pH	7.0
Soluble Cadmium mg/l	0.004
Soluble Lead mg/l	0.012
Soluble Iron mg/l	0.19

TECHNICAL LABORATORIES, INC.

Martin H. Davis

MARTIN H. DAVIS
President

ibc

U.S. PIPE & FOUNDRY
CHATTANOOGA, TN
PRE-SAMPLING EVACUATION RECORD
WELL NO. 1

Date	Depth to Water (ft.)	Well Volume (gal.)*	Bails Removed	Temp °C	pH	Cond. µmhos/cm.	Comments
5-20-85	6.8	17.0; 89 bails	1	15.5	6.81	2,190	Slight sulfur odor, slightly turbid with reddish-brown color. No film.
			49	15.1	6.87	2,180	Turbid, grayish-brown. Strong sulfur odor, no film.
			50	15.1	6.91	2,360	Same as above.

* Includes the sand pack in the well volume calculations.

MWPS006701

TECHNICAL LABORATORIES, INC.

515 CHEROKEE BLVD.
CHATTANOOGA, TENNESSEE 37405

MARTIN H. DAVIS
President

615/265-4533

ACCOUNT NO. 1896-001 **DATE** JUNE 03, 1985

RECEIVED FROM MCI CONSULTING ENGINEERS, INC., P. O. BOX 23010, KNOXVILLE, TENNESSEE 37933
MS. SARAH B. DARRELL

RECEIVED DATE 05/28/85

MATERIAL WATER

MARKED U.S. PIPE & FOUNDRY, WELL NO. 1, PURCHASE ORDER NO. 2281820

LABORATORY NO. 228,924

Soluble Phenols mg/l	0.020
Soluble Total Organic Carbon mg/l	160
Soluble pH	7.1
Soluble Cadmium mg/l	0.002
Soluble Lead mg/l	0.010
Soluble Iron mg/l	0.21

TECHNICAL LABORATORIES, INC.

Martin H. Davis

MARTIN H. DAVIS
President

ibc

U.S. PIPE & FOUNDRY
CHATTANOOGA, TN
PRE-SAMPLING EVACUATION RECORD
WELL NO. 1

Date	Depth to Water (ft.)	Well Volume (gal.)*	Bails Removed	Temp °C	pH	Cond. µmhos/cm.	Comments
5-28-85	6.7	1.8; 10	35	Unable to obtain due to adverse weather conditions.			Slightly turbid with sulfur odor. No film.

* Follows new EPA protocol whereby well volume is calculated by casing volume only, and does not include sand pack.

MCI
Consulting Engineers, Inc.

10628 Dutchtown Road, P.O. Box 23010
Knoxville, Tennessee 37933-1010
615 966-9788

Engineering, Planning, Landscape Architecture

May 15, 1985

Mr. John Watson
U.S. Pipe & Foundry Company
P.O. Box 10406
Birmingham, AL 35202

Dear Mr. Watson:

As we discussed in our telephone conversation this morning, MCI Consulting Engineers would be pleased to conduct the additional sampling for the downgradient well at the Chattanooga plant's landfill. Two samplings will be conducted on May 20 and May 27, with the possibility of additional samplings being dependent on the analytic results.

At your request, I spoke with Mr. Lewis Cain with Technical Laboratory Associates in Chattanooga. Their cost for the full set of parameters (pH, phenols, TOC, cadmium, lead, and iron) will be $103.50, compared to $125.35 for IT Laboratory in Knoxville. These figures include the 15 percent subcontractor charge, as specified on the Purchase Order. Additionally, Mr. Cain said a normal turnaround time for analytic results would be four days. I will ask that the lab call me when the results are ready, so that I can provide you with the data as soon as possible. Verbal results will be followed with a copy of the analytic sheet and the results of field parameters tested during the pre-sampling evacuation.

Billing will be under the Purchase Order CT-47-1084, dated October 30, 1984, as we discussed.

I am looking forward to performing this additional work for U.S. Pipe and Foundry. MCI appreciates this additional opportunity to be of service to your company.

Sincerely,

MCI CONSULTING ENGINEERS, INC.

Becky Darrell

Sarah B. Darrell
Hydrogeologist

SBD:jll

File

MCI
Consulting Engineers, Inc.

10628 Dutchtown Road, P.O. Box 23010
Knoxville, Tennessee 37933-1010
615 966-9788

Engineering, Planning, Landscape Architecture

January 21, 1986

ENVIRONMENTAL SERVICE
JAN 24 1986

Mr. John Watson
U.S. Pipe & Foundry Company
P.O. Box 10406
Birmingham, AL 35202

RE: Results of TOC Analyses for
Ground Water Samples at
Chattanooga Facility;
MCI #2293410

Dear Mr. Watson:

I had hoped that when I called you with the results of the TOC analyses, it would be good news. However, that wasn't the case when we talked on January 20. Although it is puzzling, I do think natural processes, such as bacteria, are at least partially responsible. At your direction per our conversation, we will not pursue a determination for the anomalous TOC in the downgradient well, as shown on the enclosed analytic sheet.

Good luck in your dealings with the TDSWM.

Sincerely,

MCI CONSULTING ENGINEERS, INC.

Becky Darrell

Sarah B. Darrell
Senior Hydrogeologist

SBD:ms

Enclosure

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615-588-6401

RECEIVED
JAN 20 1986
M. C. I.

CERTIFICATE OF ANALYSIS

TO: MCI Environmental Engineers
ATTN: Becky Darryl
P. O. Box 23020
Knoxville, TN 37933-1010

DATE REPORTED: January 17, 1986
PROJECT CODE: MCI 21600
ORDER NUMBER:

Sample Description: Two (2) well water samples received December 9, 1985

Concentration units are mg/liter (ppm)

	Total Organic Carbon
U.S. Pipe, Well #1	220.
U.S. Pipe, Well #2	10.

Sworn to and subscribed before me this 17th day of January, 1986
My commission expires January 16, 1988

Janice E. Stennett
Notary Public

Alyce R. Moore
Approved by

Laboratory Manager
Title

Accredited by the American Association for Laboratory Accreditation in the chemical field of testing, as listed in the current AALA Directory of Accredited Laboratories

93-9-85

MWPS006706

FILE

UNITED STATES PIPE AND FOUNDRY COMPANY

GENERAL OFFICE
3300 FIRST AVENUE NORTH • BIRMINGHAM, ALABAMA 35202

January 14, 1986

Mr. Steve Baxter, Environmental Consultant
Tennessee Department of Health and Environment
Division of Solid Waste Management
2501 Milne Street
Chattanooga, Tennessee 37406

Re: Chattanooga Plants Landfill

Dear Steve:

Per your request, we are submitting the attached analytical data resulting from your sampling of our two groundwater monitoring wells on December 9, 1985. When you receive the data from the State lab on your portion of the split samples, we would appreciate being given a copy of the results. Based upon our review of the attached, it would appear that the landfill is having little impact upon the groundwater beneath it. Should you have any questions, please let me know.

Sincerely,

John H. Watson

John H. Watson
Principal Environmental Engineer

JHW/js

Encl.

bc: Mr. W. E. Fleck
Mr. C. N. Codding
Mr. W. A. Berry
Mr. J. B. Dockery
Mr. J. Smallwood

MCI
Consulting Engineers, Inc.

10628 Dutchtown Road, P.O. Box 23010
Knoxville, Tennessee 37933-1010
615 966-9788

Engineering, Planning, Landscape Architecture

January 9, 1986

ENVIRONMENTAL SERVICE

JAN 13 1986

Mr. John Watson
U.S. Pipe & Foundry Company
P.O. Box 10406
Birmingham, AL 35202

RE: Analytic Results of Ground Water Samples At Chattanooga Facility; MCI #2293410

Dear Mr. Watson:

As we discussed this morning, enclosed are the analytic results for the ground water samples from the monitoring wells at the Chattanooga landfill. As you may recall from our discussions and my correspondence with you in December, TDSWM wanted analyses of all the organic compounds mentioned in the safety data sheets. However, Jim Childress did agree that formaldehyde, cyanide, phenols, and cresol would be acceptable indicators in lieu of the specific compounds, for which the laboratory did not have standards (specifically, phenol formaldehyde polymers and polymeric isocyanate). Because the laboratory had no standards for triethylamine and hexamethylenetetramine, the samples were not analyzed for these compounds. Mr. Childress had indicated that he did not know whether the State laboratory could analyze for all the compounds he had requested.

As you can see from the data, the downgradient well (U.S. Pipe #1) is essentially clean of all the compounds of concern except formaldehyde. Metals, phenols, cyanide, cresol, extractables, and volatiles were all either not detected or were present at very low levels. Although there is no enforceable standard for phenols, EPA has suggested a criterion of 3.5 mg/l, based on toxicity data. For taste and odor control, the EPA suggests a criterion of 0.3 mg/l for phenols. With a value of 0.03 mg/l, the downgradient well is far below even the more stringent (taste and odor) standard for phenols. There is also no enforceable standard for formaldehyde, but the EPA criterion for health effects is 0.04 mg/l. Thus, of all the parameters tested, the formaldehyde level poses the potential for the most concern.

The upgradient well (U.S. Pipe #2) shows some contamination with the lead concentration at the drinking water limit of 0.05 mg/l. Toluene is also present in a very low concentration of less than 10 μg/l. The EPA's suggested criterion for toluene based on toxicity data is 14.3 mg/l.

The presence of formaldehyde alone, of the indicator compounds tested, indicates that only this compound is leaching with a detectable effect from the wastes. The presence of toluene and an elevated lead level in the upgradient well suggests that the ground water contains some contamination before it flows beneath the landfill.

The laboratory will be able to run TOCs on both wells with a turnaround of analytic results in approximately two weeks. The cost will be $32.00 per sample. I will send you the results as soon as it comes in.

I am very interested in the response that the DSWM will have concerning the analytic results. If you have any questions, please don't hesitate to call me.

Sincerely,

MCI CONSULTING ENGINEERS, INC.

Becky Darrell

Sarah B. Darrell
Senior Hydrogeologist

SBD:ms

Enclosures

INTERNATIONAL TECHNOLOGY CORPORATION

RECEIVED
JAN 1 1986
M. C. I.

ANALYTICAL SERVICES

5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615-588-6401

CERTIFICATE OF ANALYSIS

TO: MCI Consulting Engineers
ATTN: Sarah B. Danell
P. O. Box 23010
Knoxville, TN 37933-1010

DATE REPORTED: December 31, 1985
PROJECT CODE: MCI 21437
ORDER NUMBER: Quotation #51206J01

Sample Description: Two (2) water samples received December 9, 1985

Concentration units are mg/liter (ppm)

	D.G. U.S. Pipe Well #1	Up G. U.S. Pipe Well #2
Phenols	0.03	<0.01
Formaldehyde	0.45	0.05
Cyanide	<0.01	<0.01
Lead	<0.01	0.05
Iron	21.	29.
Cadmium	<0.001	<0.001

Sworn to and subscribed before me this 31st
day of December, 1985
My commission expires January 16, 1988

Notary Public

Approved by

Laboratory Director
Title

Accredited by the American Association for Laboratory Accreditation in the chemical field of testing, as listed in the current AALA Directory of Accredited Laboratories

93-9-85

MWPS006710

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615-588-6401

CERTIFICATE OF ANALYSIS

TO: MCI Consulting Engineers
ATTN: Sarah B. Danell
P. O. Box 23010
Knoxville, TN 37933-1010

DATE REPORTED: December 31, 1985
PROJECT CODE: MCI 21437
ORDER NUMBER: Quotation #51206J01

Sample Description: Two (2) water samples received December 9, 1985

Concentration units are µg/liter (ppb)

	Aroclor 1242 and/or 1016	Aroclor 1254	Aroclor 1260	Total Aroclors
U.S. Pipe Well #1	<0.1	<0.3	<0.3	<0.3
U.S. Pipe Well #2	<0.1	<0.3	<0.3	<0.3

Sworn to and subscribed before me this 31st
day of December, 1985
My commission expires January 16, 1988

Notary Public

Approved by

Laboratory Director
Title

Accredited by the American Association for Laboratory Accreditation in the chemical field of testing, as listed in the current AALA Directory of Accredited Laboratories

93-9-85

MWPS006711

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615-588-6401

CERTIFICATE OF ANALYSIS

TO: MCI Consulting Engineers
ATTN: Sarah B. Danell
P. O. Box 23010
Knoxville, TN 37933-1010

DATE REPORTED: December 31, 1985
PROJECT CODE: MCI 21437
ORDER NUMBER: Quotation #51206J01

Sample Description: U.S. Pipe Well #1 DG

BASE-NEUTRAL EXTRACTABLE ORGANICS - PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppb)	Compound	Concentration (ppb)
acenaphthene	ND	dimethylphthalate	ND
acenaphthylene	ND	di-n-butylphthalate	ND
anthracene	ND	2,4-dinitrotoluene	ND
benzidine	ND	2,6-dinitrotoluene	ND
benzo(a)anthracene	ND	di-n-octylphthalate	ND
benzo(a)pyrene	ND	1,2-diphenylhydrazine[1]	ND
3,4-benzofluoranthene and/or		fluoranthene	ND
benzo(k)fluoranthene[3]	ND	fluorene	ND
benzo(ghi)perylene	ND	hexachlorobenzene	ND
bis(2-chloroethoxy)methane	ND	hexachlorobutadiene	ND
bis(2-chloroethyl)ether	ND	hexachlorocyclopentadiene	ND
bis(2-chloroisopropyl)ether	ND	hexachloroethane	ND
bis(2-ethylhexyl)phthalate	ND	indeno(1,2,3-cd)pyrene	ND
4-bromophenyl phenyl ether	ND	isophorone	ND
butyl benzylphthalate	ND	naphthalene	ND
2-chloronaphthalene	ND	nitrobenzene	ND
4-chloro-phenyl phenyl ether	ND	N-nitrosodimethylamine	ND
chrysene	ND	N-nitrosodi-n-propylamine	ND
dibenzo(a,h)anthracene	ND	N-nitrosodiphenylamine[2]	ND
1,2-dichlorobenzene	ND	phenanthrene	ND
1,3-dichlorobenzene	ND	pyrene	ND
1,4-dichlorobenzene	ND	1,2,4-trichlorobenzene	ND
3,3'-dichlorobenzidine	ND		
diethylphthalate	ND		

Remarks: ND = Not detected.
<10. = Detected but at a level less than 10. ppb (parts per billion).
[1] Detected as azobenzene [2] Detected as diphenylamine [3] Isomeric Pairs

Sworn to and subscribed before me this 31st
day of December, 1985
My commission expires January 16, 1988

Notary Public

Approved by Jack R. Hall
Laboratory Director
Title

AALA Accredited by the American Association for Laboratory Accreditation in the chemical field of testing, as listed in the current AALA Directory of Accredited Laboratories

93-9-85

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615-588-6401

CERTIFICATE OF ANALYSIS

TO: MCI Consulting Engineers
ATTN: Sarah B. Danell
P. O. Box 23010
Knoxville, TN 37933-1010

DATE REPORTED: December 31, 1985
PROJECT CODE: MCI 21437
ORDER NUMBER: Quotation #51206J01

Sample Description: U.S. Pipe Well #1

ACID EXTRACTABLE ORGANICS - PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppb)	Compound	Concentration (ppb)
2-chlorophenol	ND	4-nitrophenol	ND
2,4-dichlorophenol	ND	p-chloro-m-cresol	ND
2,4-dimethylphenol	ND	pentachlorophenol	ND
4,6-dinitro-O-cresol	ND	phenol	ND
2,4-dinitrophenol	ND	2,4,6-trichlorophenol	ND
2-nitrophenol	ND	cresol	ND

Remarks: ND = Not detected.
<10. = Detected but at a level less than 10. ppb (parts per billion).

Sworn to and subscribed before me this 31st
day of December, 1985
My commission expires January 16, 1988

Notary Public

Approved by

Laboratory Director
Title

Accredited by the American Association for Laboratory Accreditation in the chemical field of testing, as listed in the current AALA Directory of Accredited Laboratories

93-9-85

MWPS006713

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615-588-6401

CERTIFICATE OF ANALYSIS

TO: MCI Consulting Engineers
ATTN: Sarah B. Danell
P. O. Box 23010
Knoxville, TN 37933-1010

DATE REPORTED: December 31, 1985
PROJECT CODE: MCI 21437
ORDER NUMBER: Quotation #51206J01

Sample Description: U.S. Pipe Well #1 - D.G.

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppb)	Compound	Concentration (ppb)
acrolein	ND	1,1-dichloroethene	ND
acrylonitrile	ND	trans-1,2-dichloroethene	ND
benzene	ND	1,2-dichloropropane	ND
bromodichloromethane	ND	cis-1,3-dichloropropene	ND
bromoform	ND	trans-1,3-dichloropropene	ND
bromomethane	ND	ethyl benzene	ND
carbon tetrachloride	ND	methylene chloride	ND
chlorobenzene	ND	1,1,2,2-tetrachloroethane	ND
chloroethane	ND	tetrachloroethene	ND
2-chloroethylvinyl ether	ND	toluene	ND
chloroform	ND	1,1,1-trichloroethane	ND
chloromethane	ND	1,1,2-trichloroethane	ND
dibromochloromethane	ND	trichloroethene	ND
1,1-dichloroethane	ND	vinyl chloride	ND
1,2-dichloroethane	ND		

Remarks: ND = Not detected.
<10. = Detected but at a level less than the quantitation limit. (Numerical value is the quantitation limit.)

Sworn to and subscribed before me this 31st
day of December, 1985
My commission expires January 16, 1988

Notary Public

Approved by

Laboratory Director
Title

Accredited by the American Association for Laboratory Accreditation in the chemical field of testing, as listed in the current AALA Directory of Accredited Laboratories

93-9-85

MWPS006714

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615-588-6401

CERTIFICATE OF ANALYSIS

TO: MCI Consulting Engineers
ATTN: Sarah B. Danell
P. O. Box 23010
Knoxville, TN 37933-1010

DATE REPORTED: December 31, 1985
PROJECT CODE: MCI 21437
ORDER NUMBER: Quotation #51206J01

Sample Description: U.S. Pipe Well #2 U.G.

BASE-NEUTRAL EXTRACTABLE ORGANICS - PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppb)	Compound	Concentration (ppb)
acenaphthene	ND	dimethylphthalate	ND
acenaphthylene	ND	di-n-butylphthalate	ND
anthracene	ND	2,4-dinitrotoluene	ND
benzidine	ND	2,6-dinitrotoluene	ND
benzo(a)anthracene	ND	di-n-octylphthalate	<10.
benzo(a)pyrene	ND	1,2-diphenylhydrazine[1]	ND
3,4-benzofluoranthene and/or benzo(k)fluoranthene[3]	ND	fluoranthene	ND
benzo(ghi)perylene	ND	fluorene	ND
bis(2-chloroethoxy)methane	ND	hexachlorobenzene	ND
bis(2-chloroethyl)ether	ND	hexachlorobutadiene	ND
bis(2-chloroisopropyl)ether	ND	hexachlorocyclopentadiene	ND
bis(2-ethylhexyl)phthalate	ND	hexachloroethane	ND
4-bromophenyl phenyl ether	ND	indeno(1,2,3-cd)pyrene	ND
butyl benzylphthalate	ND	isophorone	ND
2-chloronaphthalene	ND	naphthalene	ND
4-chloro-phenyl phenyl ether	ND	nitrobenzene	ND
chrysene	ND	N-nitrosodimethylamine	ND
dibenzo(a,h)anthracene	ND	N-nitrosodi-n-propylamine	ND
1,2-dichlorobenzene	ND	N-nitrosodiphenylamine[2]	ND
1,3-dichlorobenzene	ND	phenanthrene	ND
1,4-dichlorobenzene	ND	pyrene	ND
3,3'-dichlorobenzidine	ND	1,2,4-trichlorobenzene	ND
diethylphthalate	ND		

Remarks: ND = Not detected.
<10. = Detected but at a level less than 10. ppb (parts per billion).
[1] Detected as azobenzene [2] Detected as diphenylamine [3] Isomeric Pairs

Sworn to and subscribed before me this 31st day of December, 1985
My commission expires January 16, 1988

Notary Public

Approved by

Laboratory Director
Title

Accredited by the American Association for Laboratory Accreditation in the chemical field of testing, as listed in the current AALA Directory of Accredited Laboratories

93-9-85

MWPS006715

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615-588-6401

CERTIFICATE OF ANALYSIS

TO: MCI Consulting Engineers
ATTN: Sarah B. Danell
P. O. Box 23010
Knoxville, TN 37933-1010

DATE REPORTED: December 31, 1985
PROJECT CODE: MCI 21437
ORDER NUMBER: Quotation #51206J01

Sample Description: U.S. Pipe Well #2

ACID EXTRACTABLE ORGANICS - PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppb)	Compound	Concentration (ppb)
2-chlorophenol	ND	4-nitrophenol	ND
2,4-dichlorophenol	ND	p-chloro-m-cresol	ND
2,4-dimethylphenol	ND	pentachlorophenol	ND
4,6-dinitro-O-cresol	ND	phenol	ND
2,4-dinitrophenol	ND	2,4,6-trichlorophenol	ND
2-nitrophenol	ND	cresol	ND

Remarks: ND = Not detected.
<10. = Detected but at a level less than 10. ppb (parts per billion).

Sworn to and subscribed before me this 31st
day of December, 1985
My commission expires January 16, 1988

Notary Public

Approved by

Laboratory Director
Title

Accredited by the American Association for Laboratory Accreditation in the chemical field of testing, as listed in the current AALA Directory of Accredited Laboratories

93-9-85

MWPS006716

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615-588-6401

CERTIFICATE OF ANALYSIS

TO: MCI Consulting Engineers
ATTN: Sarah B. Danell
P. O. Box 23010
Knoxville, TN 37933-1010

DATE REPORTED: December 31, 1985
PROJECT CODE: MCI 21437
ORDER NUMBER: Quotation #51206J01

Sample Description: U.S. Pipe Well #2 U.G

VOLATILE ORGANIC PRIORITY POLLUTANT ANALYSIS

Compound	Concentration (ppb)	Compound	Concentration (ppb)
acrolein	ND	1,1-dichloroethene	ND
acrylonitrile	ND	trans-1,2-dichloroethene	ND
benzene	ND	1,2-dichloropropane	ND
bromodichloromethane	ND	cis-1,3-dichloropropene	ND
bromoform	ND	trans-1,3-dichloropropene	ND
bromomethane	ND	ethyl benzene	ND
carbon tetrachloride	ND	methylene chloride	ND
chlorobenzene	ND	1,1,2,2-tetrachloroethane	ND
chloroethane	ND	tetrachloroethene	ND
2-chloroethylvinyl ether	ND	toluene	<10.
chloroform	ND	1,1,1-trichloroethane	ND
chloromethane	ND	1,1,2-trichloroethane	ND
dibromochloromethane	ND	trichloroethene	ND
1,1-dichloroethane	ND	vinyl chloride	ND
1,2-dichloroethane	ND		

Remarks: ND = Not detected.
<10. = Detected but at a level less than the quantitation limit. (Numerical value is the quantitation limit.)

Sworn to and subscribed before me this 31st
day of December, 1985
My commission expires January 16, 1988

Notary Public

Approved by

Laboratory Director
Title

Accredited by the American Association for Laboratory Accreditation in the chemical field of testing, as listed in the current AALA Directory of Accredited Laboratories

93-9-85

MWPS006717

File

UNITED STATES PIPE AND FOUNDRY COMPANY

CHATTANOOGA VALVE & FITTINGS PLANT
P.O. BOX 311
CHATTANOOGA, TENNESSEE 37401

January 8, 1990

Mr. James D. Levine
Powell Goldstein Frazier & Murphy
Suite 1050
400 Perimeter Center Terrace
Atlanta, GA 30346

Dear Jim:

Enclosed are the ground water lab reports that we have in our records. If you have any further questions, please feel free to call me at (615) 752-3910.

Very truly yours,

James L. Smallwood
Plant Engineer

JLS:tr

Enclosures

cc: Mr. John Watson

JAN 11 1990

MWPS006718

TECHNICAL LABORATORIES, INC.

515 CHEROKEE BLVD.
CHATTANOOGA, TENNESSEE 37405
615/265-4533

MARTIN H. DAVIS
President

ACCOUNT NO. 1183-001 **DATE** NOVEMBER 12, 1987

RECEIVED FROM U. S. PIPE & FOUNDRY, SOIL PIPE DIVISION, P. O. BOX 6129,
MR. JIM BOOK CHATTANOOGA, TENNESSEE 37401

RECEIVED DATE 10/27/87

MATERIAL GROUND WATER

MARKED WELL NO. 1, 10/27/87

LABORATORY NO. 261,304

Total Cadmium mg/l	0.009
Cyanide mg/l	0.01
Formaldehyde mg/l	0.1
Total Iron mg/l	15
Total Lead mg/l	0.14
Phenols mg/l	0.020
Toluene mg/l	<0.0001
Total Organic Carbon mg/l	210

TECHNICAL LABORATORIES, INC.

Martin H. Davis

MARTIN H. DAVIS
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JAN 16 1990

TECHNICAL LABORATORIES, INC.

515 CHEROKEE BLVD.
MARTIN H. DAVIS
President
CHATTANOOGA, TENNESSEE 37405
615/265-4533

ACCOUNT NO. 1183-001 **DATE** NOVEMBER 12, 1987

RECEIVED FROM U. S. PIPE & FOUNDRY, SOIL PIPE DIVISION, P. O. BOX 6129,
MR. JIM BOOK CHATTANOOGA, TENNESSEE 37401

RECEIVED DATE 10/27/87

MATERIAL GROUND WATER

MARKED WELL NO. 2, 10/27/87

LABORATORY NO. 261,305

Total Cadmium mg/l	0.007
Cyanide mg/l	0.03
Formaldehyde mg/l	0.1
Total Iron mg/l	34
Total Lead mg/l	0.22
Phenols mg/l	0.007
Toluene mg/l	<0.0001
Total Organic Carbon mg/l	35

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515 CHEROKEE BLVD.

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CHATTANOOGA, TENNESSEE 37405

615/265-4533

ACCOUNT NO. 1183-001 **DATE** NOVEMBER 12, 1987

RECEIVED FROM U. S. PIPE & FOUNDRY, SOIL PIPE DIVISION, P. O. BOX 6129, CHATTANOOGA, TENNESSEE 37401
MR. JIM BOOK

RECEIVED DATE 10/27/87

MATERIAL SURFACE WATER

MARKED OUTFALL, 10/27/87

LABORATORY NO. 261,306

Total Cadmium mg/l	0.001
Cyanide mg/l	0.01
Formaldehyde mg/l	<0.1
Total Iron mg/l	2.1
Total Lead mg/l	0.061
Phenols mg/l	0.007
Toluene mg/l	0.0010
Total Organic Carbon mg/l	44

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515 CHEROKEE BLVD.
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615/265-4533

MARTIN H. DAVIS
President

ACCOUNT NO. 1183-001 **DATE** APRIL 06, 1988

RECEIVED FROM U. S. PIPE & FOUNDRY, SOIL PIPE DIVISION, P. O. BOX 6129,
MR. JIM BOOK CHATTANOOGA, TENNESSEE 37401

RECEIVED DATE 03/08/88

MATERIAL GROUND WATER

MARKED SAMPLE GW-1, TAKEN BY MONTE MCDONALD, 03/08/88, 9:00 AM

LABORATORY NO. 265,711

pH	7.1
Total Iron mg/l	16
Total Alkalinity (as CaCO3) mg/l	1,220
Total Acidity (as CaCO3) mg/l	22
Total Cadmium mg/l	0.015
Cyanide mg/l	<0.01
Formaldehyde mg/l	<1
Total Lead mg/l	0.001
Phenols mg/l	0.025
Toluene mg/l	0.0001
Total Organic Carbon mg/l	290

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CHATTANOOGA, TENNESSEE 37405

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President

615/265-4533

ACCOUNT NO. 1183-001 **DATE** APRIL 06, 1988

RECEIVED FROM U. S. PIPE & FOUNDRY, SOIL PIPE DIVISION, P. O. BOX 6129,
MR. JIM BOOK CHATTANOOGA, TENNESSEE 37401

RECEIVED DATE 03/08/88

MATERIAL GROUND WATER

MARKED SAMPLE GW-2, TAKEN BY MONTE MCDONALD, 03/08/88, 9:30 AM

LABORATORY NO. 265,712

pH	6.8
Total Iron mg/1	18
Total Alkalinity (as CaCO3) mg/1	264
Total Acidity (as CaCO3) mg/1	70
Total Cadmium mg/1	0.001
Cyanide mg/1	<0.01
Formaldehyde mg/1	<1
Total Lead mg/1	0.001
Phenols mg/1	0.001
Toluene mg/1	0.0001
Total Organic Carbon mg/1	54

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CHATTANOOGA, TENNESSEE 37405

615/265-4533

ACCOUNT NO. 1183-001 **DATE** APRIL 06, 1988

RECEIVED FROM U. S. PIPE & FOUNDRY, SOIL PIPE DIVISION, P. O. BOX 6129,
MR. JIM BOOK CHATTANOOGA, TENNESSEE 37401

RECEIVED DATE 03/08/88

MATERIAL GROUND WATER

MARKED OUTFALL, TAKEN BY MONTE MCDONALD, 03/08/88, 8:45 AM

LABORATORY NO. 265,713

pH	7.1
Total Iron mg/l	2.4
Total Alkalinity (as CaCO3) mg/l	257
Total Acidity (as CaCO3) mg/l	40
Total Cadmium mg/l	<0.001
Cyanide mg/l	<0.01
Formaldehyde mg/l	<1
Total Lead mg/l	0.001
Phenols mg/l	0.074
Toluene mg/l	0.0002
Total Organic Carbon mg/l	35

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CHATTANOOGA, TENNESSEE 37405

615/265-4533

ACCOUNT NO. 1183-001 **DATE** MAY 18, 1988

RECEIVED FROM U. S. PIPE & FOUNDRY, SOIL PIPE DIVISION, P. O. BOX 6129,
MR. JIM BOOK CHATTANOOGA, TENNESSEE 37401

RECEIVED DATE 05/04/88

MATERIAL GROUND WATER

MARKED GROUNDWATER MONITORING WELL, GW-1, TAKEN BY MONTE MCDONALD, 05/04/88, 10:40 AM

LABORATORY NO. 268,054

pH	6.8
Total Iron mg/l	19
Total Alkalinity (as CaCO3) mg/l	1,260
Total Acidity (as CaCO3) mg/l	303
Total Cadmium mg/l	0.004
Cyanide mg/l	<0.01
Formaldehyde mg/l	<1
Total Lead mg/l	0.071
Phenols mg/l	0.021
Toluene mg/l	0.0001
Total Organic Carbon mg/l	290

TECHNICAL LABORATORIES, INC.

Martin H. Davis

MARTIN H. DAVIS
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cc: MR. MONTE C. MCDONALD
P. O. BOX 22879
KNOXVILLE, TENNESSEE 37933-0879

TECHNICAL LABORATORIES, INC.

515 CHEROKEE BLVD.
CHATTANOOGA, TENNESSEE 37405
615/265-4533

MARTIN H. DAVIS
President

ACCOUNT NO. 1183-001 **DATE** MAY 18, 1988

RECEIVED FROM U. S. PIPE & FOUNDRY, SOIL PIPE DIVISION, P. O. BOX 6129,
MR. JIM BOOK CHATTANOOGA, TENNESSEE 37401

RECEIVED DATE 05/04/88

MATERIAL GROUND WATER

MARKED GROUNDWATER MONITORING WELL, GW-2, TAKEN BY MONTE MCDONALD, 05/04/88, 11:45 AM

LABORATORY NO. 268,055

pH	6.6
Total Iron mg/l	72
Total Alkalinity (as CaCO3) mg/l	249
Total Acidity (as CaCO3) mg/l	112
Total Cadmium mg/l	0.007
Cyanide mg/l	<0.01
Formaldehyde mg/l	<1
Total Lead mg/l	0.099
Phenols mg/l	0.001
Toluene mg/l	0.0001
Total Organic Carbon mg/l	35

TECHNICAL LABORATORIES, INC.

Martin H. Davis

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515 CHEROKEE BLVD.

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President

CHATTANOOGA, TENNESSEE 37405

615/265-4533

MAY 23 1988

ACCOUNT NO. 1183-001 **DATE** MAY 18, 1988

RECEIVED FROM U. S. PIPE & FOUNDRY, SOIL PIPE DIVISION, P. O. BOX 6129,
MR. JIM BOOK CHATTANOOGA, TENNESSEE 37401

RECEIVED DATE 05/04/88

MATERIAL GROUND WATER

MARKED OUTFALL, GW-3, TAKEN BY MONTE MCDONALD, 05/04/88, 10:20 AM

LABORATORY NO. 268,056

pH	7.0
Total Iron mg/l	1.8
Total Alkalinity (as CaCO3) mg/l	266
Total Acidity (as CaCO3) mg/l	55
Total Cadmium mg/l	0.003
Cyanide mg/l	<0.01
Formaldehyde mg/l	<1
Total Lead mg/l	0.048
Phenols mg/l	0.002
Toluene mg/l	0.0001
Total Organic Carbon mg/l	8

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515 CHEROKEE BLVD.

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CHATTANOOGA, TENNESSEE 37405

615/265-4533

ACCOUNT NO. 1183-001 **DATE** AUGUST 05, 1988

RECEIVED FROM U. S. PIPE & FOUNDRY, SOIL PIPE DIVISION, P. O. BOX 6129,
MR. JIM BOOK CHATTANOOGA, TENNESSEE 37401

RECEIVED DATE 07/19/88

MATERIAL GROUND WATER

MARKED GW-1, SAMPLED BY MONTE MCDONALD, 07/19/88

LABORATORY NO. 271,202

pH	7.1
Total Iron mg/l	14
Total Alkalinity (as CaCO3) mg/l	1,230
Total Acidity (as CaCO3) mg/l	199
Total Cadmium mg/l	0.001
Cyanide mg/l	<0.01
Formaldehyde mg/l	<1
Total Lead mg/l	0.015
Phenols mg/l	0.008
Toluene mg/l	0.0002
Total Organic Carbon mg/l	15

TECHNICAL LABORATORIES, INC.

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TECHNICAL LABORATORIES, INC.

515 CHEROKEE BLVD.
MARTIN H. DAVIS
President
CHATTANOOGA, TENNESSEE 37405
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ACCOUNT NO. 1183-001 **DATE** AUGUST 05, 1988

RECEIVED FROM U. S. PIPE & FOUNDRY, SOIL PIPE DIVISION, P. O. BOX 6129,
MR. JIM BOOK CHATTANOOGA, TENNESSEE 37401

RECEIVED DATE 07/19/88

MATERIAL GROUND WATER

MARKED OUTFALL, GW-3, SAMPLED BY MONTE MCDONALD, 07/19/88

LABORATORY NO. 271,204

pH	7.1
Total Iron mg/l	4.1
Total Alkalinity (as CaCO3) mg/l	239
Total Acidity (as CaCO3) mg/l	38
Total Cadmium mg/l	0.001
Cyanide mg/l	0.01
Formaldehyde mg/l	<1
Total Lead mg/l	0.014
Phenols mg/l	0.010
Toluene mg/l	0.013
Total Organic Carbon mg/l	10

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ACCOUNT NO. 1183-001 **DATE** AUGUST 05, 1988

RECEIVED FROM U. S. PIPE & FOUNDRY, SOIL PIPE DIVISION, P. O. BOX 6129,
MR. JIM BOOK CHATTANOOGA, TENNESSEE 37401

RECEIVED DATE 07/19/88

MATERIAL GROUND WATER

MARKED GW-2, SAMPLED BY MONTE MCDONALD, 07/19/88

LABORATORY NO. 271,203

pH	6.6
Total Iron mg/l	33
Total Alkalinity (as CaCO3) mg/l	209
Total Acidity (as CaCO3) mg/l	102
Total Cadmium mg/l	0.005
Cyanide mg/l	0.01
Formaldehyde mg/l	<1
Total Lead mg/l	0.063
Phenols mg/l	0.002
Toluene mg/l	0.0002
Total Organic Carbon mg/l	12

TECHNICAL LABORATORIES, INC.

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TECHNICAL LABORATORIES, INC.

515 CHEROKEE BLVD.
CHATTANOOGA, TENNESSEE 37405

MARTIN H. DAVIS
President

615/265-4533

ACCOUNT NO. 1183-001 **DATE** NOVEMBER 23, 1988

RECEIVED FROM U. S. PIPE & FOUNDRY, SOIL PIPE DIVISION, P. O. BOX 6129,
MR. JIM BOOK CHATTANOOGA, TENNESSEE 37401

RECEIVED DATE 09/27/88

MATERIAL GROUND WATER

MARKED GROUNDWATER MONITORING WELL, GM-1, TAKEN BY MONTE MCDONALD, 09/27/88, 9:00 AM

LABORATORY NO. 274,116

pH	6.1
Total Iron mg/l	31
Total Alkalinity (as CaCO3) mg/l	164
Total Acidity (as CaCO3) mg/l	12
Total Cadmium mg/l	0.020
Cyanide mg/l	<0.01
Formaldehyde mg/l	<1
Total Lead mg/l	0.10
Phenols mg/l	<0.001
Toluene mg/l	<0.0005
Total Organic Carbon mg/l	44

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CHATTANOOGA, TENNESSEE 37405

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ACCOUNT NO. 1183-001 **DATE** NOVEMBER 23, 1988

RECEIVED FROM U. S. PIPE & FOUNDRY, SOIL PIPE DIVISION, P. O. BOX 6129,
MR. DARYL TUTTLE CHATTANOOGA, TENNESSEE 37401

RECEIVED DATE 09/27/88

MATERIAL GROUND WATER

MARKED GROUNDWATER MONITORING WELL, GW-2, SAMPLED BY MONTE MCDONALD, 09/27/88, 10:00 AM

LABORATORY NO. 274,117

pH	6.8
Total Iron mg/l	21
Total Alkalinity (as CaCO3) mg/l	1,170
Total Acidity (as CaCO3) mg/l	34
Total Cadmium mg/l	0.011
Cyanide mg/l	<0.01
Formaldehyde mg/l	<1
Total Lead mg/l	0.079
Phenols mg/l	0.040
Toluene mg/l	<0.0005
Total Organic Carbon mg/l	26

TECHNICAL LABORATORIES, INC.

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515 CHEROKEE BLVD.
CHATTANOOGA, TENNESSEE 37405

MARTIN H. DAVIS
President

615/265-4533

ACCOUNT NO. 1183-001 **DATE** FEBRUARY 10, 1989

RECEIVED FROM U. S. PIPE & FOUNDRY, SOIL PIPE DIVISION, P. O. BOX 6129,
MR. JIM BOOK CHATTANOOGA, TENNESSEE 37401

RECEIVED DATE 01/04/89

MATERIAL GROUND WATER

MARKED GROUNDWATER MONITORING WELL, GW-1, TAKEN BY MONTE MCDONALD, 01/04/89, 8:40 AM

LABORATORY NO. 277,766

pH	6.5
Total Iron mg/l	0.31 ?
Total Alkalinity (as CaCO3) mg/l	173
Total Acidity (as CaCO3) mg/l	151
Total Cadmium mg/l	<0.001
Cyanide mg/l	<0.01
Formaldehyde mg/l	<1
Total Lead mg/l	0.015
Phenols mg/l	0.001
Toluene mg/l	<0.0005
Total Organic Carbon mg/l	11

TECHNICAL LABORATORIES, INC.

Martin H. Davis

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cc: Mr. Monte C. McDonald
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TECHNICAL LABORATORIES, INC.

515 CHEROKEE BLVD.
CHATTANOOGA, TENNESSEE 37405

MARTIN H. DAVIS
President

615/265-4533

ACCOUNT NO. 1183-001 **DATE** FEBRUARY 10, 1989

RECEIVED FROM U. S. PIPE & FOUNDRY, SOIL PIPE DIVISION, P. O. BOX 6129,
MR. JIM BOOK CHATTANOOGA, TENNESSEE 37401

RECEIVED DATE 01/04/89

MATERIAL GROUND WATER

MARKED GROUNDWATER MONITORING WELL, GM-2, TAKEN BY MONTE MCDONALD, 01/04/89, 9:20 AM

LABORATORY NO. 277,767

pH	6.9
Total Iron mg/1	0.31
Total Alkalinity (as CaCO3) mg/1	1,174
Total Acidity (as CaCO3) mg/1	303
Total Cadmium mg/1	<0.001
Cyanide mg/1	<0.01
Formaldehyde mg/1	<1
Total Lead mg/1	0.006
Phenols mg/1	0.009
Toluene mg/1	0.0012
Total Organic Carbon mg/1	8

TECHNICAL LABORATORIES, INC.

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cc: Mr. Monte C. McDonald
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Knoxville, Tennessee 37933-0879

TECHNICAL LABORATORIES, INC.

515 CHEROKEE BLVD.
CHATTANOOGA, TENNESSEE 37405

MARTIN H. DAVIS
President

615/265-4533

ACCOUNT NO. 1183-001 **DATE** FEBRUARY 10, 1989

RECEIVED FROM U. S. PIPE & FOUNDRY, SOIL PIPE DIVISION, P. O. BOX 6129,
MR. JIM BOOK CHATTANOOGA, TENNESSEE 37401

RECEIVED DATE 01/04/89

MATERIAL GROUND WATER

MARKED OUTFALL, GW-3, TAKEN BY MONTE MCDONALD, 01/04/89, 10:00 AM

LABORATORY NO. 277,768

pH	7.1
Total Iron mg/l	0.28
Total Alkalinity (as CaCO3) mg/l	173
Total Acidity (as CaCO3) mg/l	44
Total Cadmium mg/l	<0.001
Cyanide mg/l	<0.01
Formaldehyde mg/l	<1
Total Lead mg/l	0.003
Phenols mg/l	0.001
Toluene mg/l	<0.0005
Total Organic Carbon mg/l	12

TECHNICAL LABORATORIES, INC.

Martin H. Davis

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President

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Knoxville, Tennessee 37933-0879

RECEIVED
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TECHNICAL LABORATORIES, INC.

515 CHEROKEE BLVD.
CHATTANOOGA, TENNESSEE 37405

MARTIN H. DAVIS
President

615/265-4533

ACCOUNT NO. 1183-001 **DATE** APRIL 28, 1989

RECEIVED FROM U. S. PIPE & FOUNDRY, SOIL PIPE DIVISION, P. O. BOX 6129,
MR. JIM BOOK CHATTANOOGA, TENNESSEE 37401

RECEIVED DATE 04/06/89

MATERIAL GROUND WATER

MARKED OUTFALL, GW-2, TAKEN BY MONTE MCDONALD, 04/06/89, 12:45 PM

LABORATORY NO. 281,441

pH	7.2
Total Iron mg/1	8.2
Total Alkalinity (as CaCO3) mg/1	1,070
Total Acidity (as CaCO3) mg/1	204
Total Cadmium mg/1	0.10
Cyanide mg/1	<0.01
Formaldehyde mg/1	<1
Total Lead mg/1	0.032
Phenols mg/1	0.007
Toluene mg/1	0.0007
Total Organic Carbon mg/1	550

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ACCOUNT NO. 1183-001 **DATE** APRIL 28, 1989

RECEIVED FROM U. S. PIPE & FOUNDRY, SOIL PIPE DIVISION, P. O. BOX 6129,
MR. JIM BOOK CHATTANOOGA, TENNESSEE 37401

RECEIVED DATE 04/06/89

MATERIAL GROUND WATER

MARKED OUTFALL, GW-1, TAKEN BY MONTE MCDONALD, 04/06/89, 12:45 PM

LABORATORY NO. 281,440

pH	7.0
Total Iron mg/1	21
Total Alkalinity (as CaCO3) mg/1	172
Total Acidity (as CaCO3) mg/1	41
Total Cadmium mg/1	0.022
Cyanide mg/1	0.01
Formaldehyde mg/1	<1
Total Lead mg/1	0.030
Phenols mg/1	0.001
Toluene mg/1	0.0010
Total Organic Carbon mg/1	29

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515 CHEROKEE BLVD.
CHATTANOOGA, TENNESSEE 37405
615/265-4533

MARTIN H. DAVIS
President

ACCOUNT NO. 1183-001 **DATE** JANUARY 11, 1990

RECEIVED FROM U. S. PIPE & FOUNDRY, SOIL PIPE DIVISION, P. O. BOX 6129, CHATTANOOGA, TENNESSEE 37401
MR. JIM BOOK

RECEIVED DATE 08/09/89

MATERIAL GROUND WATER

MARKED GROUNDWATER MONITORING WELL, GW-1, TAKEN BY MONTE MCDONALD, 08/09/89, 9:45 AM

LABORATORY NO. 286,669

pH	7.1
Total Iron mg/l	6.6
Total Alkalinity (as CaCO3) mg/l	895
Total Acidity (as CaCO3) mg/l	14
Total Cadmium mg/l	<0.001
Cyanide mg/l	<0.01
Formaldehyde mg/l	<1
Total Lead mg/l	0.004
Phenols mg/l	0.016
Toluene mg/l	1.8
Total Organic Carbon mg/l	70

TECHNICAL LABORATORIES, INC.

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TECHNICAL LABORATORIES, INC.

515 CHEROKEE BLVD.
CHATTANOOGA, TENNESSEE 37405
615/265-4533

MARTIN H. DAVIS
President

ACCOUNT NO. 1183-001 **DATE** JANUARY 11, 1990

RECEIVED FROM U. S. PIPE & FOUNDRY, SOIL PIPE DIVISION, P. O. BOX 6129,
MR. JIM BOOK CHATTANOOGA, TENNESSEE 37401

RECEIVED DATE 08/09/89

MATERIAL GROUND WATER

MARKED GROUNDWATER MONITORING WELL, GW-2, TAKEN BY MONTE MCDONALD, 08/09/89, 9:00 AM

LABORATORY NO. 286,670

pH	6.8
Total Iron mg/1	23
Total Alkalinity (as CaCO3) mg/1	169
Total Acidity (as CaCO3) mg/1	5
Total Cadmium mg/1	<0.001
Cyanide mg/1	<0.01
Formaldehyde mg/1	<1
Total Lead mg/1	0.038
Phenols mg/1	<0.001
Toluene mg/1	0.25
Total Organic Carbon mg/1	10

TECHNICAL LABORATORIES, INC.

Martin H. Davis

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TECHNICAL LABORATORIES, INC.

515 CHEROKEE BLVD.
CHATTANOOGA, TENNESSEE 37405

MARTIN H. DAVIS
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615/265-4533

ACCOUNT NO. 1183-001 **DATE** JANUARY 11, 1990

RECEIVED FROM U. S. PIPE & FOUNDRY, SOIL PIPE DIVISION, P. O. BOX 6129,
MR. JIM BOOK CHATTANOOGA, TENNESSEE 37401

RECEIVED DATE 10/05/89

MATERIAL GROUND WATER

MARKED GROUNDWATER MONITORING WELL, GM-1, TAKEN BY MONTE MCDONALD, 10/05/89, 12:45 PM

LABORATORY NO. 288,963

pH	7.1
Total Iron mg/1	32
Total Alkalinity (as CaCO3) mg/1	736
Total Acidity (as CaCO3) mg/1	123
Total Cadmium mg/1	0.003
Cyanide mg/1	0.01
Formaldehyde mg/1	<1
Total Lead mg/1	0.040
Phenols mg/1	0.008
Toluene mg/1	2.1
Total Organic Carbon mg/1	40

TECHNICAL LABORATORIES, INC.

Martin H. Davis

MARTIN H. DAVIS
President
cc: Mr. Monte C. McDonald
P. O. Box 22897
Knoxville, Tennessee 37933-0897

TECHNICAL LABORATORIES, INC.

515 CHEROKEE BLVD.
CHATTANOOGA, TENNESSEE 37405

MARTIN H. DAVIS
President

615/265-4533

ACCOUNT NO. 1183-001 **DATE** JANUARY 11, 1990

RECEIVED FROM U. S. PIPE & FOUNDRY, SOIL PIPE DIVISION, P. O. BOX 6129,
MR. JIM BOOK CHATTANOOGA, TENNESSEE 37401

RECEIVED DATE 10/05/89

MATERIAL GROUND WATER

MARKED GROUNDWATER MONITORING WELL, GM-2, SAMPLED BY MONTE MCDONALD, 10/05/89, 1:30 AM

LABORATORY NO. 288,964

pH	6.7
Total Iron mg/1	14
Total Alkalinity (as CaCO3) mg/1	180
Total Acidity (as CaCO3) mg/1	104
Total Cadmium mg/1	0.011
Cyanide mg/1	<0.01
Formaldehyde mg/1	<1
Total Lead mg/1	0.005
Phenols mg/1	0.005
Toluene mg/1	0.84
Total Organic Carbon mg/1	16

TECHNICAL LABORATORIES, INC.

Martin H. Davis

MARTIN H. DAVIS
President
cc: Mr. Monte C. McDonald
P. O. Box 22897
Knoxville, Tennessee 37933-0897

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

Received March 17, 88
Insp. of June 2, 87

4WD-RCRA

Copies to: W. E. Fleck
H. G. Reynolds
D. C. Wallace

Mr. Don Montgomery
US Pipe & Foundry
P.O. Box 6129
Chattanooga, Tennessee 37401

Dear Mr. Montgomery:

Thank you for participating in the survey conducted by Environmental Protection Agency (EPA) Region IV of the EP toxicity of baghouse dust from iron foundries. Enclosed is a copy of the report containing the results of the effort involving your facility. Please note that the sampling results indicate that the emissions from your facility were EP Toxic and therefore subject to regulation under the Resource Conservation and Recovery Act.

If you have any questions, please contact Mr. Tom Tiesler at (615) 741-3424. Thank you for your cooperation.

Sincerely yours,

James H. Scarbrough, P.E.
Chief, RCRA Branch
Waste Management Division

Enclosure

cc: Mr. Tom Tiesler - TDHE

Note: 3-21-88 Test data on EP Tox. testing of Cupola Baghouse dust from CSP which was sampled June 2, 1987!

Note: 8-17-89 Based upon Compliance Order dated July 21, 89, EPA indicates this letter was dated March 15, 1988 (no date shown) and it does cover sampling at CSP on June 2, 1987!

FINAL REPORT
DETERMINATION OF REGULATORY STATUS OF
IRON FOUNDRIES
U.S. PIPE & FOUNDRY
CHATTANOOGA, TENNESSEE

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Waste Programs Enforcement
Washington, D.C. 20460

Work Assignment No.	:	233
EPA Region	:	IV
Contract No.	:	68-01-7331
CDM Federal Programs Corporation Document No.	:	T233-R04-FR-BDVZ-2
Prepared By	:	Lee Wan & Associates, Inc.
Work Assignment Project Manager	:	Bijoy Ghosh
Telephone Number	:	(404) 244-0827
Primary Contact	:	Doyle Brittain
Telephone Number	:	(404) 347-7603
Date Prepared	:	October 19, 1987

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2.0	Sampling Visit	5
3.0	Results and Discussion	6
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	Appendix I - Analytical Results	

EXECUTIVE SUMMARY

A sampling team from Lee Wan & Associates, Inc. (LWA) conducted a sampling visit to U.S. Pipe & Foundry, Chattanooga, Tennessee, on June 2, 1987, through the TES III Work Assignment No. 233. The LWA sampling team collected representative samples of baghouse dust at two locations within the facility: Hopper No. 9 and Hopper No. 13. In addition, a sample was collected at an off-site landfill, where baghouse dust is disposed of daily along with other wastes generated at the facility. Based on the results obtained from the EP Toxicity Test, performed on the samples by U.S. Testing Company, Inc., Hoboken, New Jersey, the samples collected at Hopper No. 9 and Hopper No. 13 exhibited the characteristic of EP toxicity.

MWPS006745

1.0 INTRODUCTION

Lee Wan & Associates, Inc. (LWA) has received and accepted Work Assignment No. 233, entitled, "Determination of Regulatory Status of Iron Foundries", from CDM Federal Programs Corporation (CDM FPC) under the TES III Contract (EPA Contract No.: 68-01-7331). The purpose of this work assignment, as indicated by its title, is to determine the regulatory status of iron foundries, especially of the dust which collects in the particulate collection systems, viz., baghouses.

To fulfill the requirements of this work assignment, LWA is in the process of completing the following tasks:

- Collection of baghouse dust samples from iron foundries, which are located in EPA Region IV and are not regulated under RCRA.

- Shipment of the baghouse dust samples, together with appropriate chain-of-custody records, to U.S. Testing Company, Inc., Hoboken, New Jersey, for the analysis (EP toxicity - lead, chromium, and cadmium).

- Identification of the iron foundries from which baghouse dust samples that exhibited characteristic of EP toxicity were collected.

These findings shall be reported by LWA to CDM FPC and EPA through draft and final reports.

A description of the LWA's sampling visit to U.S. Pipe & Foundry, Chattanooga, Tennessee, is presented in this report. Also, included in this report are a brief description of the foundry processes, the analytical results obtained from analysis of the baghouse dust samples, and a discussion of the analytical results.

MWPS006746

1.1 Foundry Process

The production of ferrous castings in iron and steel foundries involves melting specified ferrous metal in a furnace, then pouring it into a mold normally constructed with sand. The ferrous segments can be broken down into two groupings: iron castings which have a carbon content varying from 1.5 percent to 5 percent, and steel castings which have a carbon content of less that 1.5 percent.

Iron and steel foundries use similar mold-making and core-making practices. The sands utilized for making molds in iron and steel foundries are different; in steel foundries the molds are made from 99.9 percent pure silica sand, as the steel castings are poured at approximately 1,600°C, whereas in iron foundries silica sand of a lesser purity than 99.9 percent is used, as the gray iron castings are poured at approximately 1,500°C. In an iron foundry, iron scrap, steel scrap, or pig iron is melted in either a cupola furnace, an induction furnace, or an electric-arc furnace, whereas the types of furnaces utilized in a steel foundry include induction and electric-arc furnaces.

Particulate emissions occur from various processes in an iron and steel foundry, viz., raw material input, handling and transfer, melting and casting, finishing, mold and core preparation, and waste handling. Emissions may be created by the handling of the sand-coated scrap. The sand, separated from the cooled casting, is normally recycled back to the muller where additives and moisture are added. As indicated by the data in Table 1, lead, which is on the EP Toxicity List (40 CFR 261.24), is present in the uncontrolled particulate emissions. In addition, iron foundries melting primarily low-quality domestic and auto scrap emit up to four times as much submicrometer dust per ton of metal melted as foundries melting higher quality scrap. Electrostatic precipitators (ESPs), baghouses, and wet scrubbers are used for cupola exhaust cleaning. The particulate retained in the baghouses may contain lead in concentrations greater than the maximum allowable EP toxicity concentration for lead (5 mg/L).

MWPS006747

Table 1. Lead Content (kg/ton of metal melted) in Uncontrolled Particulate Emissions from Various Foundry Cupola Operations.

FOUNDRY	LEAD (kg/ton of metal melted)
A	0.07 ± 0.06
B	0.13 ± 0.10
C	0.39 ± 0.11
D	0.16 ± 0.07
E	0.61 ± 0.08
F	0.16 ± 0.04

Source: Modified from "Handbook of Air Pollution Technology", Seymour Calvert and Harold M. Englund (eds.), John Wiley & Sons, 1984, pp. 587-593.

MWPS006748

U.S. Pipe & Foundry, located in Chattanooga, Tennessee, is a gray iron foundry (SIC Code: 3321). In this iron foundry, baghouses are used for cupola exhaust cleaning. The dust which collects in the baghouses is loaded into dump trucks and disposed of at an off-site landfill. In addition to baghouse dust, the landfill receives other wastes from the iron foundry. In general, these wastes are sands from sand preparation, extraneous cast metals from cleaning of castings, dust and sand from shakeout of castings, and spent refractory materials. No!

MWPS006749

2.0 SAMPLING VISIT

A sampling visit to U.S. Pipe & Foundry, Chattanooga, Tennessee, was conducted on June 2, 1987. Prior to the sampling visit, LWA had prepared a Quality Assurance Project Plan (QAPP) and a Health & Safety Plan (HSP). Requisite approvals were obtained by LWA from appropriate offices on the QAPP (CDM FPC and EPA) and the HSP (CDM FPC) before the initiation of the sampling visit.

During the sampling visit, which lasted from 1:30 p.m. to 2:45 p.m. on June 2, 1987, the following individuals were present:

S. Bijoy Ghosh	LWA
Leon Tzou	LWA
Don Montgomery	U.S. Pipe & Foundry

Messrs. S. Bijoy Ghosh and Leon Tzou were members of the LWA sampling team and Mr. Don Montgomery was present as the facility representative.

The sampling visit was initiated with a meeting, during which, the objectives and procedures of the sampling and analysis were explained and discussed with the facility representative. After the meeting, samples of baghouse dust were collected from Hopper No. 9 and Hopper No. 13. In addition, a sample was collected from the off-site landfill where the baghouse dust is disposed of along with other wastes from the facility. The procedures utilized for collecting representative samples were in accordance with the procedures included in the "Engineering Support Branch, Standard Operating Procedures and Quality Assurance Manual, EPA Region IV, Athens, GA, April, 1986 (Section 4: Sampling Procedures)". LWA offered to split samples with U.S. Pipe & Foundry, and Mr. Montgomery accepted the split samples.

The samples of baghouse dust, together with appropriate chain-of-custody records, were shipped to U.S. Testing Company, Inc., Hoboken, New Jersey, by an overnight delivery service. The analyses requested were EP toxicity - lead, chromium, and cadmium. The analytical laboratory analyzed the samples and the results, together with a discussion, are presented in Section 3.0 of this report.

3.0 RESULTS AND DISCUSSION

The results of the EP Toxicity Test (40 CFR 261, Appendix II) are tabulated in Table 2. The EP toxicity extract of the samples was analyzed for lead, cadmium, hexavalent chromium, and total chromium. The analytical data, as supplied to LWA by U.S. Testing Company, Inc., are included in Appendix I.

Table 2. The concentrations of lead, cadmium, and chromium in the EP toxicity extract of the samples that were collected at U.S. Pipe & Foundry, Chattanooga, Tennessee.

EP Tox Data CSP

Sampling Station (Sample Tag No.)	Lead (mg/L) 5	Cadmium (mg/L) 1	Total Chromium (mg/L) 5
Hopper No. 9 (1-00918)	34.39	2.46	<0.01
Hopper No. 13 (1-00914)	60.52	3.82	<0.01
Landfill (1-00912)	0.06	0.02	<0.01

As per 40 CFR 261.24, if either lead, cadmium, or chromium are present in the EP toxicity extract of a solid waste, at concentrations greater than or equal to 5.0 mg/L, 1.0 mg/L, and 5.0 mg/L, respectively, the solid waste exhibits the characteristic of EP toxicity. An evaluation of the data tabulated in Table 2 indicates that samples collected from the Hopper No. 9 and Hopper No. 13 exhibit the characteristic of EP toxicity. The sample collected from the landfill does not exhibit the characteristic of EP toxicity. As the concentration of both total chromium and hexavalent chromium were below detectectable limits in the EP toxicity extracts, only the concentrations of total chromium are represented in Table 2. The samples collected from Hopper No. 9 and Hopper No. 13 were representative of the dust collected in baghouses, and as indicated by the results, the dust collected within the baghouses is characterized as hazardous waste by the characteristic of EP toxicity.

4.0 CONCLUSIONS

Based on the analytical results, it was concluded that the samples collected from Hopper No. 9 and Hopper No. 13 at U.S. Pipe & Foundry exhibited the characteristic of EP toxicity.

APPENDIX I

ANALYTICAL RESULTS

United States Testing Company, Inc.
Chemical Services Division
1415 PARK AVENUE • HOBOKEN, NEW JERSEY 07030 • 201-792-2400

REPORT OF TEST
June 16, 1987

CLIENT:
Camp, Dresser & McKee
7611 Little River Turnpike
Suite 104
Annandale, VA 22003
Attn: Sara Landtiser

NUMBER
75205

SUBJECT:
Three (3) sediment samples identified as:

Landfill, Baghouse #13 and Baghouse #9, submitted on 6/3/87

AUTHORIZATION:

Subcontract # TESK-AL-233-01

PURPOSE:

Analyze samples for EP Toxicity-
(Cadmium, Chromium, Hexavalent Chromium and Lead)

PROCEDURE:

Samples were analyzed in accordance with the following methods:

"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," USEPA, Office of Solid Waste and Emergency Response, Washington DC, July 1983 SW-846, 2nd edition

RESULTS:

See attached

SIGNED FOR THE COMPANY

BY
Maryann Gambino

Page 1 of

sm

Laboratories in: New York • Chicago • Los Angeles • Tulsa • Memphis • Philadelphia • Richland

UNITED STATES TESTING COMPANY, INC. REPORTS AND LETTERS ARE FOR THE EXCLUSIVE USE OF THE CLIENT TO WHOM THEY ARE ADDRESSED AND THEY AND THE NAME OF T UNITED STATES TESTING COMPANY, INC., OR ITS SEALS OR INSIGNIA ARE NOT TO BE USED UNDER ANY CIRCUMSTANCES IN ADVERTISING TO THE GENERAL PUBLIC AND THEIR CO COMMUNICATION TO ANY OTHERS OR THE USE OF THE NAME OF UNITED STATES TESTING COMPANY, INC MUST RECEIVE OUR PRIOR WRITTEN APPROVAL. OUR REPORTS APPLY ONLY TO T STANDARDS OR PROCEDURES IDENTIFIED, TO THE TESTS CONDUCTED, AND TO THE SAMPLE(S) TESTED AND/OR INSPECTIONS MADE UNLESS OTHERWISE SPECIFIED. THE TEST AND/ INSPECTION RESULTS ARE NOT INDICATIVE OR REPRESENTATIVE OF THE QUALITIES OF THE LOT FROM WHICH THE SAMPLE WAS TAKEN OR OF APPARENTLY IDENTICAL OR SIMILAR PRO UCTS AND NOTHING CONTAINED IN OUR REPORTS SHALL BE DEEMED TO IMPLY OR MEAN THAT UNITED STATES TESTING COMPANY, INC. CONDUCTS ANY QUALITY CONTROL PROGRAM F THE CLIENT TO WHOM THE REPORT IS ISSUED. SAMPLES NOT DESTROYED IN TESTING ARE RETAINED A MAXIMUM OF THIRTY DAYS.

Form 231

CDM
7611 Little River Turnpike
Suite 104
Annapolis, VA 22003

Date 6/16/87

COVER PAGE
INORGANIC ANALYSES DATA PACKAGE

Lab Name U S Testing Case No. 75205
SOW No. 784 Q.C. Report No. 205

Sample Numbers

CDM No.	Lab ID No.	CDM No.	Lab ID No.
Landfill	75205-1		
Baghouse#13	-2		
Baghouse#9	-3		

Comments:

ICP Interelement and background corrections applied? Yes ✓ No ___.
If yes, corrections applied before ✓ or after ___ generation of raw data.

Footnotes:

NR - not required by contract at this time
Form I:
Value - If the result is a value greater than or equal to the instrument detection limit but less than the contract required detection limit, report the value in brackets (i.e., [10]). Indicate the analytical method used with P (for ICP/Flame AA) or F (for furnace).
U - Indicates element was analyzed for but not detected. Report with the detection limit value (e.g., 10U).
E - Indicates a value estimated or not reported due to the presence of interference. Explanatory note included on cover page.
S - Indicates value determined by Method of Standard Addition.
R - Indicates spike sample recovery is not within control limits.
* - Indicates duplicate analysis is not within control limits.
+ - Indicates the correlation coefficient for method of standard addition is less than 0.995

Form I

CDM
7611 Little River Turnpike
Suite 104
Annapolis, VA 22003

Sample No. "Landfill"

Date 6/15/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME US Testing

CASE NO. 75205

SOW NO. 784

LAB SAMPLE ID. NO. 75205-1

QC REPORT NO. 205

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water ____ Soil ____ Sludge ____ Other EP Tox

ug/L or mg/kg dry weight (Circle One)

1.	Hexavalent Chromium	1.0 U		13.	Magnesium
2.	Antimony			14.	Manganese
3.	Arsenic			15.	Mercury
4.	Barium			16.	Nickel
5.	Beryllium			17.	Potassium
6.	Cadmium	24.	P	18.	Selenium
7.	Calcium			19.	Silver
8.	Chromium	3.6 U	P	20.	Sodium
9.	Cobalt			21.	Thallium
10.	Copper			22.	Tin
11.	Iron			23.	Vanadium
12.	Lead	64.	P	24.	Zinc

Cyanide ____ Percent Solids (%) ____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: ____

Lab Manager [signature]

Form I

CDM
7611 Little River Turnpike
Suite 104
Annapolis, VA 22003

Sample No. "Bag house #13"

Date 6/15/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME U S Testing

CASE NO. 75205

SOW NO. 784

LAB SAMPLE ID. NO. 75205-2

QC REPORT NO. 205

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water ____ Soil ____ Sludge ____ Other EP TOX

(ug/L) or mg/kg dry weight (Circle One)

1.	Hexavalent Chromium	1.0 U		13.	Magnesium
2.	Antimony			14.	Manganese
3.	Arsenic			15.	Mercury
4.	Barium			16.	Nickel
5.	Beryllium			17.	Potassium
6.	Cadmium	3820	P	18.	Selenium
7.	Calcium			19.	Silver
8.	Chromium	3.6 U	P	20.	Sodium
9.	Cobalt			21.	Thallium
10.	Copper			22.	Tin
11.	Iron			23.	Vanadium
12.	Lead	60520	P	24.	Zinc

Cyanide ____ Percent Solids (%) ____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: ____

Lab Manager [signature]

Form I

CDM
7611 Little River Turnpike
Suite 104
Annapolis, VA 22003

Sample No. "Baghouse #1"

Date 6/15/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME U S Testing CASE NO. 75205

SOW NO. 784

LAB SAMPLE ID. NO. 75205-3 QC REPORT NO. 205

Elements Identified and Measured

Concentration: Low X Medium ____

Matrix: Water ____ Soil ____ Sludge ____ Other EP TOX

ug/L or mg/kg dry weight (Circle One)

1.	Hexavalent Chromium 1.0 U	13.	Magnesium
2.	Antimony	14.	Manganese
3.	Arsenic	15.	Mercury
4.	Barium	16.	Nickel
5.	Beryllium	17.	Potassium
6.	Cadmium 2460 P	18.	Selenium
7.	Calcium	19.	Silver
8.	Chromium 3.6 U P	20.	Sodium
9.	Cobalt	21.	Thallium
10.	Copper	22.	Tin
11.	Iron	23.	Vanadium
12.	Lead 34390 P	24.	Zinc
	Cyanide		Percent Solids (%)

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager [signature]

Form II

Q. C. Report No. 205

INITIAL AND CONTINUING CALIBRATION VERIFICATION[3]

LAB NAME US Testing

CASE NO. 75205

SOW NO. 154

DATE 6/16/87

UNITS ug/L

Compound	Initial Calib.[1]			Continuing Calibration[2]					
Metals[4]:	True Value	Found	%R	True Value	Found	%R	Found	%R	Method[4]
1. Aluminum	4500			10000					P
2. Antimony	900			2500					P
3. Arsenic	40.9			50					F
4. Barium	1200			2500					P
5. Beryllium	2500			500					P
6. Cadmium	130	129	99.3	2500	2553	102.1			P
7. Calcium	75000			2500					P
8. Chromium	800	788	98.5	2500	2484	99.4			P
9. Cobalt	800			2500					P
10. Copper	500			2500					P
11. Iron	800			2500					P
12. Lead	1200	1312	109.3	2500	2546	101.8			F
13. Magnesium	5000			25000					P
14. Manganese	750			2500					P
15. Mercury									COLD VAPOR
16. Nickel	800			2500					P
17. Potassium	15000			25000					P
18. Selenium	86.4			50					F
19. Silver	300			500					P
20. Sodium	15000			25000					P
21. Thallium	95.2			50					F
22. Tin									F
23. Vanadium	2500			2500					P
24. Zinc	800			2500					P
Other:									
Hexavalent Cr	25	24	96.0	25	25	100.0			
Cyanide									WET METH

[1] Initial Calibration Source EPA [2] Continuing Calibration Source AA STD

[3] Control Limits: Mercury and Tin 80-120; All Other Compounds 90-110

[4] Indicate Analytical Method Used: P - ICP/Flame AA; F - Furnace

Form III

Q. C. Report No. 205

BLANKS

LAB NAME U.S Testing

CASE NO. 75205

DATE 6/16/87

UNITS ug/l

Matrix EP TOX

Preparation Compound	Initial Calibration Blank Value	Continuing Calibration Blank Value 1	2	3	4	Preparation Blank 1	2
Metals:							
1. Aluminum							
2. Antimony							
3. Arsenic							
4. Barium							
5. Beryllium							
6. Cadmium	2.3U	2.3U					
7. Calcium							
8. Chromium	3.6U	3.6U					
9. Cobalt							
10. Copper							
11. Iron							
12. Lead	50U	50U					
13. Magnesium							
14. Manganese							
15. Mercury							
16. Nickel							
17. Potassium							
18. Selenium							
19. Silver							
20. Sodium							
21. Thallium							
22. Tin							
23. Vanadium							
24. Zinc							
Other:							
Hexavalent Cr	1.0U	1.0U					
Cyanide							

MWPS006760

Form IV

Q. C. Report No. 205

ICP INTERFERENCE CHECK SAMPLE

LAB NAME US Testing

DATE 6/16/87

CASE NO. 75205

Check Sample I.D. ICIP Inte

Check Sample Source EPA

Units ug/l

Compound	Control Limits[1] Mean	Control Limits[1] Std. Dev.	True[2]	Initial Observed	%R	Final Observed	%R
Metals:							
1. Aluminum			503000				
2. Antimony							
3. Arsenic							
4. Barium			472				
5. Beryllium			456				
6. Cadmium			964	992	102.9	1045	108.
7. Calcium			499000				
8. Chromium			985	911	92.4	954	96.
9. Cobalt			478				
10. Copper			509				
11. Iron			198000				
12. Lead			4630	5040	108.9	5278	114.
13. Magnesium			497000				
14. Manganese			522				
15. Mercury							
16. Nickel			913				
17. Potassium							
18. Selenium							
19. Silver			986				
20. Sodium							
21. Thallium							
22. Tin							
23. Vanadium			471				
24. Zinc			948				
Other:							

1 Mean value based on n = _____.

2 True value of EPA ICP Interference Check Sample or contractor standard.

MWPS006761

Form VI

Q. C. Report No. 205

DUPLICATES

LAB NAME U S Testing

DATE 6/16/87

CASE NO. 75205

CDM Sample No. Baghouse #13

Lab Sample ID No. 75205-2

Units µg/l

Matrix Water

Compound	Control Limit[1]	Sample(S)	Duplicate(D)	RPD[2]
Metals:				
1. Aluminum				
2. Antimony				
3. Arsenic				
4. Barium				
5. Beryllium				
6. Cadmium		3820	3860	1.0
7. Calcium				
8. Chromium		3.6U	3.6U	NC
9. Cobalt				
10. Copper				
11. Iron				
12. Lead		60500	61020	0.9
13. Magnesium				
14. Manganese				
15. Mercury				
16. Nickel				
17. Potassium				
18. Selenium				
19. Silver				
20. Sodium				
21. Thallium				
22. Tin				
23. Vanadium				
24. Zinc				
Other:				
Hexavalent Cr		1.0U	1.0U	NC
Cyanide				

* Out of Control

[1] To be added at a later date.

[2] RPD = [|S - D|/((S + D)/2)] x 100

NC - Non calculable RPD due to value(s) less than CRDL

TITLE Hexavalent Cr.

6/15/87

Standard Methods p# 187

Sample	Abs	Conc. (ug/L Cr⁺⁶)
std 1 (0.0)	.000	—
std 2 (10.0)	.078	—
std 3 (25.0)	.213	—
std 4 (50.0)	.431	—
std 5 (75.0)	.657	—
Blank	-.001	<1.0 ug/L
Stand (25.0)	.209	24.4
75205-1	.000	<1.0
-2	-.001	<1.0
-2 dup	-.002	<1.0
-3	.000	<1.0
75212-1	.000	<1.0
-2	.000	<1.0
-2 dup	-.001	<1.0
-3	.000	<1.0
Blank	.000	<1.0
Stand (25.0)	.215	25.1

SCIENTIFIC INDEX PRODUCTS C

SIGNATURE [illegible] DATE 6/[illegible]

DISCLOSED TO AND UNDERSTOOD BY | DATE | WITNESS | DATE

MWPS006763

ACT NAME : EPA TIME:16-JUN-87 13:14 STANDARD NAME : BLANK

	I.S.	AL	SB	BA	BE	CD	CA	CR	CO	CU
EXP# 1	1000	3.520	-.0220	.0125	.0020	.0070	1.909	.0070	.0050	.0140
EXP# 2	1000	3.503	.0030	.0070	.0010	-.0010	1.893	.0020	-.0080	.0030
EXP# 3	1000	3.519	.0040	.0095	.0020	-.0170	1.911	.0070	.0100	.0060
AVERAGE	1000	3.514	-.0050	.0097	.0017	-.0037	1.904	.0053	.0023	.0077

	H-FE	L-FE	PB	MG	MN	NI	AG	NA	V	ZN
EXP# 1	3.964	.1010	6.039	2.866	.0310	.0090	-.0365	3.433	1.212	.1145
EXP# 2	3.944	.0960	6.043	2.858	.0310	.0085	-.0485	3.447	1.199	.1120
EXP# 3	3.947	.0960	6.023	2.865	.0310	.0065	-.0405	3.438	1.207	.1140
AVERAGE	3.952	.0977	6.035	2.863	.0310	.0080	-.0418	3.439	1.206	.1135

	AS	SE	K
EXP# 1	4.269	3.616	.7500
EXP# 2	4.344	3.516	.7440
EXP# 3	4.338	3.533	.7510
AVERAGE	4.317	3.555	.7483

ACT NAME : EPA TIME:16-JUN-87 13:16 STANDARD NAME : 12 M

	I.S.	SB	BA	BE	CD	CR	CU	PB	NI	AG
EXP# 1	1000	32.90	35.96	2.263	67.58	10.58	6.536	39.16	8.938	4.148
EXP# 2	1000	32.63	35.50	2.243	67.50	10.57	6.448	39.32	8.892	4.141
EXP# 3	1000	32.96	35.83	2.267	68.05	10.64	6.517	39.54	8.914	4.171
AVERAGE	1000	32.83	35.77	2.258	67.71	10.59	6.500	39.34	8.914	4.153

	ZN	AS	SE
EXP# 1	61.62	36.01	8.183
EXP# 2	61.61	35.91	8.141
EXP# 3	62.05	36.03	8.170
AVERAGE	61.76	35.98	8.165

ACT NAME : EPA TIME : 16-JUN-87 13:21
BLANK

	I.S.	AL	SB	BA	BE	CD	CA	CR	CO	CU
EXP# 1	1000	<.0000	.0000	.0009	.0002	.0026	<.0000	.0011	<.0000	<.0000
EXP# 2	1000	<.0000	.0096	.0010	.0001	.0020	<.0000	<.0000	.0003	<.0000
EXP# 3	1000	<.0000	<.0000	.0005	.0001	.0020	<.0000	<.0000	.0009	.0003
AVERAGE	1000	<.0000	.0016	.0008	.0001	.0022	<.0000	.0002	.0003	<.0000

	H-FE	L-FE	PB	MG	MN	NI	AG	NA	V	ZN
EXP# 1	<5.000	<.0000	.0247	<.0000	.0000	.0028	.0010	.0079	<.0000	<.0000
EXP# 2	<5.000	<.0000	.0282	<.0000	.0000	<.0000	.0009	.0103	<.0000	<.0000
EXP# 3	<5.000	<.0000	.0284	<.0000	.0000	.0017	.0002	.0072	<.0000	<.0000
AVERAGE	<5.000	<.0000	.0271	<.0000	.0000	.0012	.0007	.0085	<.0000	<.0000

	AS	SE	K
EXP# 1	.0173	.0197	<.0000
EXP# 2	.0039	.0221	<.0000
EXP# 3	.0010	.0174	<.0000
AVERAGE	.0074	.0198	<.0000

ACT NAME : EPA TIME : 16-JUN-87 13:26
WP 475-5

	I.S.	AL	SB	BA	BE	CD	CA	CR	CO	CU
EXP# 1	1000	4.948	.0213	.2436	2.409	.1277	<.0000	.7863	.8212	.4987
EXP# 2	1000	4.918	.0378	.2422	2.402	.1293	<.0000	.7867	.8264	.4972
EXP# 3	1000	4.926	.0245	.2431	2.424	.1294	<.0000	.7908	.8295	.5003
AVERAGE	1000	4.930	.0279	.2430	2.412	.1288	<.0000	.7880	.8257	.4987

	H-FE	L-FE	PB	MG	MN	NI	AG	NA	V	ZN
EXP# 1	<5.000	.8124	1.299	.0257	.7489	.8018	<.0000	1.914	2.550	.8201
EXP# 2	<5.000	.8119	1.310	.0324	.7466	.8012	<.0000	1.870	2.544	.8207
EXP# 3	<5.000	.8164	1.327	.0324	.7522	.8133	<.0000	1.864	2.561	.8219
AVERAGE	<5.000	.8136	1.312	.0301	.7492	.8055	<.0000	1.883	2.552	.8209

	AS	SE	K
EXP# 1	.6608	.3233	.2094
EXP# 2	.6532	.3388	.2158
EXP# 3	.6763	.3403	.2030
AVERAGE	.6634	.3341	.2094

ACT NAME : EPA TIME : 16-JUN-87 13:30
ICP INTERCHECK

	I.S.	AL	SB	BA	BE	CD	CA	CR	CO	CU
EXP# 1	1000	521.1	.1323	.4692	.4602	1.002	505.2	.9204	.5032	.5401
EXP# 2	1000	517.2	.1127	.4656	.4540	.9915	498.9	.9108	.5003	.5402
EXP# 3	1000	513.3	.1288	.4642	.4496	.9814	494.1	.9004	.4998	.5395
AVERAGE	1000	517.2	.1246	.4663	.4546	.9916	499.4	.9105	.5011	.5400

	H-FE	L-FE	PB	MG	MN	NI	AG	NA	V	ZN
EXP# 1	184.3	183.8	5.083	482.4	.4736	.8918	.9792	.1148	.5002	.9924
EXP# 2	182.1	181.8	5.050	478.5	.4689	.8791	.9729	.1178	.4954	.9821
EXP# 3	181.1	180.3	4.985	475.4	.4661	.8946	.9682	.1135	.4903	.9799
AVERAGE	182.5	182.0	5.039	478.8	.4695	.8885	.9734	.1154	.4953	.9848

ACT NAME : EPA TIME : 16-JUN-87 13:30
ICP INTERCHECK

	AS	SE	K
EXP# 1	2.093	.5469	.0556
EXP# 2	2.063	.5221	.0620
EXP# 3	2.060	.5541	.0427
AVERAGE	2.072	.5411	.0534

ACT NAME : EPA TIME : 16-JUN-87 13:34
75205-1

	I.S.	AL	SB	BA	BE	CD	CA	CR	CO	CU
EXP# 1	1000	.6281	<.0000	.2682	.0015	.0250	60.55	<.0000	.0329	.0040
EXP# 2	1000	.3897	<.0000	.2704	<.0000	.0232	59.86	<.0000	.0336	.0032
EXP# 3	1000	.2319	<.0000	.2705	.0006	.0235	60.29	<.0000	.0331	.0070
AVERAGE	1000	.4166	<.0000	.2697	.0006	.0239	60.24	<.0000	.0332	.0047

	H-FE	L-FE	PB	MG	MN	NI	AG	NA	V	ZN
EXP# 1	283.3	273.4	.0555	10.76	8.546	.0611	<.0000	11.94	<.0000	.1051
EXP# 2	284.5	274.8	.0664	10.60	8.553	.0589	<.0000	11.71	<.0000	.1049
EXP# 3	285.5	275.0	.0710	10.46	8.563	.0681	<.0000	12.26	<.0000	.1053
AVERAGE	284.4	274.4	.0643	10.61	8.554	.0627	<.0000	11.97	<.0000	.1051

	AS	SE	K
EXP# 1	.0659	.0852	2.934
EXP# 2	.0537	.0758	2.876
EXP# 3	.0652	.1062	2.991
AVERAGE	.0616	.0891	2.934

ACT NAME : EPA TIME : 16-JUN-87 13:39
75205-2

	I.S.	AL	SB	BA	BE	CD	CA	CR	CO	CU
EXP# 1	1000	38.09	.3397	.1474	.0032	3.862	238.7	<.0000	.0062	2.681
EXP# 2	1000	38.34	.3306	.1472	.0032	3.815	236.8	<.0000	.0060	2.706
EXP# 3	1000	38.18	.3349	.1465	.0032	3.789	235.6	<.0000	.0036	2.685
AVERAGE	1000	38.20	.3351	.1470	.0032	3.822	237.0	<.0000	.0053	2.691

	H-FE	L-FE	PB	MG	MN	NI	AG	NA	V	ZN
EXP# 1	<5.000	.6897	60.56	43.12	61.29	.1886	.0032	223.7	.0035	<.0000
EXP# 2	<5.000	.5130	60.49	42.97	60.69	.1914	.0056	241.7	.0031	<.0000
EXP# 3	<5.000	.4304	60.52	42.84	60.38	.1850	.0029	242.4	.0040	<.0000
AVERAGE	<5.000	.5444	60.52	42.98	60.78	.1883	.0039	235.9	.0035	<.0000

	AS	SE	K
EXP# 1	.4297	.4900	174.7
EXP# 2	.4414	.4797	190.3
EXP# 3	.4300	.4825	190.9
AVERAGE	.4337	.4841	185.3

ACT NAME : EPA TIME : 16-JUN-87 13:43
75205-2 DUP

	I.S.	AL	SB	BA	BE	CD	CA	CR	CO	CU
EXP# 1	1000	37.34	.3417	.1439	.0032	3.852	237.0	<.0000	.0060	2.632
EXP# 2	1000	37.20	.3240	.1435	.0032	3.842	236.1	<.0000	.0052	2.621
EXP# 3	1000	37.77	.3399	.1444	.0037	3.876	237.7	<.0000	.0054	2.652
AVERAGE	1000	37.44	.3352	.1439	.0034	3.857	236.9	<.0000	.0056	2.635

ACT NAME : EPA TIME : 16-JUN-87 13:43
75205-2 DUP

	H-FE	L-FE	PB	MG	MN	NI	AG	NA	V	ZN
EXP# 1	<5.000	.3910	60.94	42.49	60.59	.1931	.0050	223.0	.0068	<.0000
EXP# 2	<5.000	.3840	60.73	42.35	60.35	.1813	.0020	222.0	.0060	<.0000
EXP# 3	<5.000-	.3858	61.38	42.70	60.69	.1906	.0038	240.6	.0065	<.0000
AVERAGE	<5.000	.3869	61.02	42.52	60.54	.1883	.0036	228.5	.0064	<.0000

	AS	SE	K
EXP# 1	.4617	.5064	175.4
EXP# 2	.4635	.5113	174.7
EXP# 3	.4607	.5206	191.0
AVERAGE	.4620	.5128	180.4

ACT NAME : EPA TIME : 16-JUN-87 13:47
75205-3

	I.S.	AL	SB	BA	BE	CD	CA	CR	CO	CU
EXP# 1	1000	21.60	.1115	.0289	.0010	2.444	410.8	<.0000	.0165	1.569
EXP# 2	1000	21.89	.1214	.0292	.0006	2.460	415.0	<.0000	.0181	1.589
EXP# 3	1000	21.59	.1150	.0292	.0010	2.476	416.2	<.0000	.0173	1.570
AVERAGE	1000	21.69	.1159	.0291	.0008	2.460	414.0	<.0000	.0173	1.576

	H-FE	L-FE	PB	MG	MN	NI	AG	NA	V	ZN
EXP# 1	<5.000	.4000	34.16	32.89	30.06	.1440	<.0000	147.7	.0075	396.6
EXP# 2	<5.000	.4065	34.46	33.23	30.29	.1390	.0008	154.5	.0073	396.6
EXP# 3	<5.000	.3860	34.53	33.08	30.35	.1466	<.0000	141.7	.0078	396.6
AVERAGE	<5.000	.3975	34.39	33.07	30.23	.1432	<.0000	148.0	.0075	396.6

	AS	SE	K
EXP# 1	.1946	.2180	118.0
EXP# 2	.1882	.2033	124.6
EXP# 3	.2138	.2282	113.0
AVERAGE	.1989	.2165	118.6

ACT NAME : EPA TIME : 16-JUN-87 13:51
75212-1

	I.S.	AL	SB	BA	BE	CD	CA	CR	CO	CU
EXP# 1	1000	.1853	.0713	.5831	.0001	.0067	95.48	<.0000	.0124	.0242
EXP# 2	1000	.1635	.0836	.5793	<.0000	.0050	94.82	<.0000	.0113	.0196
EXP# 3	1000	.1592	.0582	.5793	.0001	.0033	94.17	<.0000	.0102	.0119
AVERAGE	1000	.1693	.0710	.5806	<.0000	.0050	94.82	<.0000	.0113	.0185

	H-FE	L-FE	PB	MG	MN	NI	AG	NA	V	ZN
EXP# 1	<5.000	.0693	1.041	242.3	.0631	<.0000	<.0000	111.3	.0145	.5804
EXP# 2	<5.000	.0631	.7979	240.7	.0340	.0100	<.0000	108.4	.0157	.3489
EXP# 3	<5.000	.0621	.5649	240.1	.0161	<.0000	<.0000	113.6	.0156	.1900
AVERAGE	<5.000	.0648	.8011	241.0	.0378	.0005	<.0000	111.1	.0153	.3731

	AS	SE	K
EXP# 1	.1955	.2178	14.64
EXP# 2	.2071	.2060	14.23
EXP# 3	.1898	.2090	15.07
AVERAGE	.1975	.2109	14.65

ACT NAME : EPA TIME : 16-JUN-87 14:22
BLANK

	I.S.	AL	SB	BA	BE	CD	CA	CR	CO	CU
EXP# 1	1000	.0368	.0032	.0003	<.0000	.0003	.0699	.0009	.0016	.0034
EXP# 2	1000	.0309	.0005	.0003	<.0000	.0005	.0653	.0009	.0003	.0003
EXP# 3	1000	.0350	<.0000	.0004	<.0000	.0006	.0652	.0009	.0017	.0018
AVERAGE	1000	.0342	.0010	.0003	<.0000	.0005	.0668	.0009	.0012	.0018

	H-FE	L-FE	PB	MG	MN	NI	AG	NA	V	ZN
EXP# 1	<5.000	.0210	.0146	.0477	<.0000	.0011	.0018	.0513	.0041	.0020
EXP# 2	<5.000	.0147	.0287	.0368	<.0000	.0011	.0008	.0507	.0039	.0018
EXP# 3	<5.000	.0153	.0292	.0416	<.0000	.0017	.0003	.0503	.0043	.0019
AVERAGE	<5.000	.0170	.0242	.0420	<.0000	.0013	.0010	.0508	.0041	.0019

	AS	SE	K
EXP# 1	.0165	<.0000	.1958
EXP# 2	.0148	<.0000	.1707
EXP# 3	.0147	.0179	.1607
AVERAGE	.0153	.0038	.1758

ACT NAME : EPA TIME : 16-JUN-87 14:27
CC STD

	I.S.	AL	SB	BA	BE	CD	CA	CR	CO	CU
EXP# 1	1000	10.26	2.555	2.460	.5285	2.561	23.97	2.484	2.521	2.449
EXP# 2	1000	10.45	2.583	2.503	.5352	2.567	24.04	2.498	2.531	2.501
EXP# 3	1000	10.38	2.563	2.476	.5275	2.531	23.83	2.470	2.519	2.476
AVERAGE	1000	10.36	2.567	2.480	.5304	2.553	23.95	2.484	2.523	2.475

	H-FE	L-FE	PB	MG	MN	NI	AG	NA	V	ZN
EXP# 1	<5.000	2.513	2.558	25.86	2.452	2.497	.4860	23.26	2.499	2.521
EXP# 2	<5.000	2.527	2.546	26.17	2.468	2.522	.4894	24.47	2.523	2.539
EXP# 3	<5.000	2.500	2.534	25.94	2.426	2.497	.4882	24.61	2.496	2.510
AVERAGE	<5.000	2.513	2.546	25.99	2.449	2.505	.4879	24.11	2.506	2.523

	AS	SE	K
EXP# 1	2.645	.5761	23.69
EXP# 2	2.641	.5732	24.86
EXP# 3	2.591	.5722	25.10
AVERAGE	2.625	.5738	24.55

ACT NAME : EPA TIME : 16-JUN-87 14:31

ICAP INTER CK.

	I.S.	AL	SB	BA	BE	CD	CA	CR	CO	CU
EXP# 1	1000	527.1	.1262	.4790	.4754	1.043	530.6	.9559	.5120	.5530
EXP# 2	1000	522.0	.1257	.4761	.4716	1.045	527.4	.9559	.5144	.5514
EXP# 3	1000	523.4	.1233	.4809	.4759	1.047	527.7	.9511	.5137	.5546
AVERAGE	1000	524.2	.1250	.4787	.4743	1.045	528.5	.9543	.5134	.5530

	H-FE	L-FE	PB	MG	MN	NI	AG	NA	V	ZN
EXP# 1	198.3	187.5	5.273	494.9	.4923	.9395	1.010	.0893	.5057	1.022
EXP# 2	197.6	186.4	5.291	491.6	.4908	.9274	1.003	.0945	.5050	1.017
EXP# 3	198.1	187.0	5.268	492.3	.4927	.9366	1.003	.0893	.5094	1.016
AVERAGE	198.0	187.0	5.278	492.9	.4919	.9345	1.005	.0910	.5067	1.018

	AS	SE	K
EXP# 1	2.822	.7671	.2009
EXP# 2	2.823	.7610	.2410
EXP# 3	2.839	.7375	.1707
AVERAGE	2.828	.7552	.2042

RECEIPT FOR ~~SAMPLES~~

WAN TECHNOLOGIES, INCORPORATED
A Lee Wan Company

Page 1 of ___

The Wan Center
3342 International Park Drive, S.E.
Atlanta, Georgia 30316
(404) 244-0827

PROJ. NO.	PROJECT NAME	Name of Facility/Site
	Iron Foundry, Baghouse	U.S. Pipe & Foundry

SAMPLERS: (signature) Leon Tzou / S. Bijoy Ghosh

Facility/Site Location: Chattanooga, TN

Split Samples: ✓ Offered ✓ Accepted ( ) Declined

STA. NO	DATE	TIME	COMP	GRAB	SPLIT SAMPLES	TAG NUMBERS	STATION DESCRIPTION	NO. OF CONTAINERS	REMARKS
1	6/2	1:40p	✓			1-00912	Landfill	1	
1	6/2	1:40p	✓		✓	1-00913	Landfill	1	
2	6/2	2:05p	✓			1-00914	Baghouse #13	1	
2	6/2	2:05p	✓		✓	1-00915	Baghouse #13	1	
2	6/2	2:05p	✓			1-00916	Baghouse #13	1	Dup.
2	6/2	2:05p	✓		✓	1-00917	Baghouse #13	1	Dup.
3	6/2	2:10p	✓			1-00918	Baghouse #9	1	
3	6/2	2:10p	✓		✓	1-00919	Baghouse #9	1	

Transferred by: (Signature)	Received/Declined by: (Signature)	Telephone
Leon Tzou / S. Bijoy Ghosh.	Alan W. Montgomery	615-752-3738
Date: June 2, 1987 — Time: 2:30 PM	Title: Plant Engineer — Date: 6-2-87 — Time: 2:40 PM	

Distribution: Original to Coordinator Field Files: Copy to Facility/Site Representative

NO: 1- 0101

MWPS006770

WAN TECHNOLOGIES, Incorporated
A Lee Wan Company

CHAIN OF CUSTODY RECORD

The Wan Center
3342 International Park Drive, S.E.
Atlanta, Georgia 30316
(404) 244-0827

Page 1 of 1

Water/Wastewater	Sed/Sludge	Waste	Air	Misc

PROJECT NAME: Baghouse, Iron Foundry

SAMPLERS (Signature): [signature] / SBGhosh

STA NO	DATE	TIME	STATION LOCATION						REMARKS TAG NUMBER
1	4/2/87	1:40p	Landfill		1				1-00912
2	4/2/87	2:05p	Baghouse #13		2				1-00914, 1-00916
3	4/2/87	2:10p	Baghouse #9		1				1-00918

Relinquished by (Signature)	DATE TIME	Received by (Signature)	Relinquished by (Signature)	DATE TIME	Received by (Signature)	Remarks
Leon Teon Bijoy Ghosh	4/2/87 6:00pm	[signature]				
Relinquished by (Signature)	DATE TIME	Received by (Signature)	Relinquished by (Signature)	DATE TIME	Received by (Signature)	

DISTRIBUTION: [illegible]

NO: [illegible] 102

MWPS006771

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

MAR 15 1988

4WD-RCRA

Mr. James Book
US Pipe and Valve
P.O. Box 311
Chattanooga, Tennessee 37401

Dear Mr. Book:

Thank you for participating in the survey conducted by Environmental Protection Agency (EPA) Region IV of the EP toxicity of baghouse dust from iron foundries. Enclosed is a copy of the report containing the results of the effort involving your facility. Please note that the sampling results indicate that the emissions from your facility were EP Toxic and therefore subject to regulation under the Resource Conservation and Recovery Act.

If you have any questions, please contact Mr. Tom Tiesler at (615) 488-3424. Thank you for your cooperation.

Sincerely yours,

James H. Scarbrough, P.E.
Chief, RCRA Branch
Waste Management Division

Enclosure

cc: Mr. Tom Tiesler - TDHE

EXECUTIVE SUMMARY

A sampling team from Lee Wan & Associates, Inc. (LWA) conducted a sampling visit to U.S. Pipe & Valve Co., Chattanooga, Tennessee, on June 4, 1987, through the TES III Work Assignment No. 233. The LWA sampling team collected representative samples of baghouse dust at three locations within the facility: Cupola Baghouse, D.I. Baghouse, and Peak of Conveyor. Based on the results obtained from the EP Toxicity Test, performed on the samples by U.S. Testing Company, Inc., Hoboken, New Jersey, the samples collected at the Cupola Baghouse exhibited the characteristic of EP toxicity.

MWPS006773

1.0 INTRODUCTION

Lee Wan & Associates, Inc. (LWA) has received and accepted Work Assignment No. 233, entitled, "Determination of Regulatory Status of Iron Foundries", from CDM Federal Programs Corporation (CDM FPC) under the TES III Contract (EPA Contract No.: 68-01-7331). The purpose of this work assignment, as indicated by its title, is to determine the regulatory status of iron foundries, especially of the dust which collects in the particulate collection systems, viz., baghouses.

To fulfill the requirements of this work assignment, LWA is in the process of completing the following tasks:

- Collection of baghouse dust samples from iron foundries, which are located in EPA Region IV and are not regulated under RCRA.

- Shipment of the baghouse dust samples, together with appropriate chain-of-custody records, to U.S. Testing Company, Inc., Hoboken, New Jersey, for the analysis (EP toxicity - lead, chromium, and cadmium).

- Identification of the iron foundries from which baghouse dust samples that exhibited characteristic of EP toxicity were collected.

These findings shall be reported by LWA to CDM FPC and EPA through draft and final reports.

A description of the LWA's sampling visit to U.S. Pipe & Valve Co., Chattanooga, Tennessee, is presented in this report. Also, included in this report are a brief description of the foundry processes, the analytical results obtained from analysis of the baghouse dust samples, and a discussion of the analytical results.

MWPS006774

1.1 Foundry Process

The production of ferrous castings in iron and steel foundries involves melting specified ferrous metal in a furnace, then pouring it into a mold normally constructed with sand. The ferrous segments can be broken down into two groupings: iron castings which have a carbon content varying from 1.5 percent to 5 percent, and steel castings which have a carbon content of less that 1.5 percent.

Iron and steel foundries use similar mold-making and core-making practices. The sands utilized for making molds in iron and steel foundries are different; in steel foundries the molds are made from 99.9 percent pure silica sand, as the steel castings are poured at approximately 1,600°C, whereas in iron foundries silica sand of a lesser purity than 99.9 percent is used, as the gray iron castings are poured at approximately 1,500°C. In an iron foundry, iron scrap, steel scrap, or pig iron is melted in either a cupola furnace, an induction furnace, or an electric-arc furnace, whereas the types of furnaces utilized in a steel foundry include induction and electric-arc furnaces.

Particulate emissions occur from various processes in an iron and steel foundry, viz., raw material input, handling and transfer, melting and casting, finishing, mold and core preparation, and waste handling. Emissions may be created by the handling of the sand-coated scrap. The sand, separated from the cooled casting, is normally recycled back to the muller where additives and moisture are added. As indicated by the data in Table 1, lead, which is on the EP Toxicity List (40 CFR 261.24), is present in the uncontrolled particulate emissions. In addition, iron foundries melting primarily low-quality domestic and auto scrap emit up to four times as much submicrometer dust per ton of metal melted as foundries melting higher quality scrap. Electrostatic precipitators (ESPs), baghouses, and wet scrubbers are used for cupola exhaust cleaning. The particulate retained in the baghouses may contain lead in concentrations greater than the maximum allowable EP toxicity concentration for lead (5 mg/L).

MWPS006775

Table 1. Lead Content (kg/ton of metal melted) in Uncontrolled Particulate Emissions from Various Foundry Cupola Operations.

FOUNDRY	LEAD (kg/ton of metal melted)
A	0.07 ± 0.06
B	0.13 ± 0.10
C	0.39 ± 0.11
D	0.16 ± 0.07
E	0.61 ± 0.08
F	0.16 ± 0.04

Source: Modified from "Handbook of Air Pollution Technology", Seymour Calvert and Harold M. Englund (eds.), John Wiley & Sons, 1984, pp. 587-593.

MWPS006776

U.S. Pipe & Valve Co., located in Chattanooga, Tennessee, is a gray iron foundry (SIC Code: 3321). In this iron foundry, baghouses are used for cupola exhaust cleaning. The dust which collects in the baghouses is loaded into dump trucks and disposed of at an off-site landfill. In addition to baghouse dust, the landfill receives other wastes from the iron foundry. In general, these wastes are sands from sand preparation, extraneous cast metals from cleaning of castings, dust and sand from shakeout of castings, and spent refractory materials. In addition to the iron foundry, the facility operates a brass foundry at the same location.

MWPS006777

2.0 SAMPLING VISIT

A sampling visit to U.S. Pipe & Valve Co., Chattanooga, Tennessee, was conducted on June 4, 1987. Prior to the sampling visit, LWA had prepared a Quality Assurance Project Plan (QAPP) and a Health & Safety Plan (HSP). Requisite approvals were obtained by LWA from appropriate offices on the QAPP (CDM FPC and EPA) and the HSP (CDM FPC) before the initiation of the sampling visit.

During the sampling visit, which lasted from 12:50 p.m. to 2:00 p.m. on June 4, 1987, the following individuals were present:

S. Bijoy Ghosh	LWA
Leon Tzou	LWA
James Book	U.S. Pipe & Valve Co.

Messrs. S. Bijoy Ghosh and Leon Tzou were members of the LWA sampling team and Mr. James Book was present as the facility representative.

The sampling visit was initiated with a meeting, during which, the objectives and procedures of the sampling and analysis were explained and discussed with the facility representative. After the meeting, samples of baghouse dust were collected at D.I. Baghouse, Cupola Baghouse, and Peak of Conveyor (baghouse utilized for dust collection from metal grinding operations). The procedures utilized for collecting representative samples were in accordance with the procedures included in the "Engineering Support Branch, Standard Operating Procedures and Quality Assurance Manual, EPA Region IV, Athens, GA, April, 1986 (Section 4: Sampling Procedures)". LWA offered to split samples with U.S. Pipe & Valve Co., and Mr. Book accepted the split samples.

The samples of baghouse dust, together with appropriate chain-of-custody records, were shipped to U.S. Testing Company, Inc., Hoboken, New Jersey, by an overnight delivery service. The analyses requested were EP toxicity - lead, chromium, and cadmium. The analytical laboratory analyzed the samples and the results, together with a discussion, are presented in Section 3.0 of this report.

MWPS006778

3.0 RESULTS AND DISCUSSION

The results of the EP Toxicity Test (40 CFR 261, Appendix II) are tabulated in Table 2. The EP toxicity extract of the samples was analyzed for lead, cadmium, hexavalent chromium, and total chromium. The analytical data, as supplied to LWA by U.S. Testing Company, Inc., are included in Appendix I.

Table 2. The concentrations of lead, cadmium, and chromium in the EP toxicity extract of the samples that were collected at U.S. Pipe & Valve Co., Chattanooga, Tennessee.

Sampling Station (Sample Tag No.)	Lead (mg/L)	Cadmium (mg/L)	Total Chromium (mg/L)
D.I. Baghouse (1-00920)	0.80	0.005	<0.01
Cupola Baghouse (1-00922)	36.90	11.00	<0.01
Peak of Conveyor (1-00926)	0.55	0.17	<0.01

As per 40 CFR 261.24, if either lead, cadmium, or chromium are present in the EP toxicity extract of a solid waste, at concentrations greater than or equal to 5.0 mg/L, 1.0 mg/L, and 5.0 mg/L, respectively, the solid waste exhibits the characteristic of EP toxicity. An evaluation of the data tabulated in Table 2 indicates that sample collected from the Cupola Baghouse exhibits the characteristic of EP toxicity. As expected, the samples collected from D.I. Baghouse and Peak of Conveyor do not exhibit the characteristic of EP toxicity because the dust collected in these baghouses is generated from sand preparation and grinding operations. The concentration of both hexavalent chromium and total chromium in the EP toxicity extracts were below detectable limits; thus, only the concentrations of total chromium are presented in Table 2.

MWPS006779

4.0 CONCLUSIONS

Based on the analytical results, it was concluded that the sample of baghouse dust collected from the Cupola Baghouse at U.S. Pipe & Valve Co. exhibited the characteristic of EP toxicity.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

ENVIRONMENTAL SERVICE

MAY 15 1987

MAY 20 1987

4WD-WC

RECEIVED

MAY 18 1987

Plant Engineering

Mr. Jim Moore
U.S. Pipe - Valve and Fittings Plant
P.O. Box 311
Chattanooga, Tennessee 37401

Re: Waste Sampling Investigation - U.S. Pipe-Valve and Fittings Plant - CVF
Chattanooga, Tennessee (TND980316301)

Inspection of Apr. 30, 1986

Dear Mr. Moore:

Enclosed please find results for the sampling done by the U.S. Environmental Protection Agency (EPA) in April, 1986. We apologize for sending this report late, the report was inadvertently filed before the report copy was sent out.

The report indicates that hazardous waste is generated from the baghouse operation and disposed on-site. Due to this practice the facility is subject to all interim status requirements under 40 CFR 265 and Tennessee Rule 1200-1-11-.05. A copy of the report was sent to the State of Tennessee. As the State is authorized, they are responsible for taking an appropriate enforcement action to achieve compliance and assessment of penalties.

If you have any questions, please do not hesitate to contact Doyle Brittain of my staff at 404/347-7603.

Sincerely yours,

Allan E. Antley

Allan E. Antley, Chief
Waste Compliance Section

Copies to:
Bill Fleck
Bill Vines - Knox.

Enclosure

cc: Tom Tiesler, Director
TN Division of Solid Waste Management

Steve Baxter, Director
Chattanooga Field Office

cc: John Watson
5/19/87

MWPS006781

EPA

WASTE SAMPLING INVESTIGATION
U. S. PIPE - VALVE & FITTINGS PLANT
CHATTANOOGA, TENNESSEE
EPA ID NO. TND980316301
ESD PROJECT NO. 86-248
APRIL 1986

AUTHOR: BRUCE FERGUSON

U. S. ENVIRONMENTAL PROTECTION AGENCY
REGION IV
ENVIRONMENTAL SERVICES DIVISION
COLLEGE STATION ROAD
ATHENS, GEORGIA 30613

U.S. Environmental Protection Agency
Environmental Services Division
College Station Road
Athens, Georgia 30613

MWPS006782

U. S. PIPE - VALVE & FITTINGS PLANT
CHATTANOOGA, TENNESSEE
EPA ID NO. TND980316301
ESD PROJECT NO. 86-248

INTRODUCTION

Bruce Ferguson and Jack Snider, US-EPA, Region IV, Environmental Servies Division (ESD), Hazardous Waste Section (HWS), conducted a waste sampling investigation at the U. S. Pipe - Valve and Fittings Plant, Chattanooga, Tennessee (Figure 1) on April 30, 1986. The investigation was conducted at the request of the US-EPA, Region IV, Residuals Management Branch. Jim Moore, Project Engineer, U. S. Pipe, accompanied EPA personnel during the sampling and accepted split samples for the facility.

The purpose of this investigation was to verify data on EP Toxicity analyses which have been submitted by the facility to the state and EPA.

BACKGROUND

The U. S. Pipe - Valve and Fittings plant manufactures high pressure pipe fittings, gate valves and fire hydrants. Ash dust from the melting furnace is collected in a cupola, mixed with sand and other waste materials and is disposed of in the nearby landfill shared with the U. S. Pipe - Soil Pipe Plant. EP Toxicity data submitted by the facility during the last few years have varied above and below the maximum concentration limits (MCL) for cadmium and lead.

SUMMARY

The EP Toxicity MCL for cadmium was exceeded in the "baghouse dust (VF-1)" and the landfill sample (VF-2). The EP Toxicity concentration for lead was at the MCL in the dust sample and was above the MCL for the landfill sample. An evaluation of the total metals data for the two samples does not indicate any significant relationship, although a few of the values are comparable.

METHODOLOGY

The baghouse dust had been emptied from the cupola hopper and placed in a temporary on-site waste storage area just prior to our arrival. The dust sample (VF-1) was collectd from this area before any mixing with other wastes. The landfill sample (VF-2) was taken from an area of recently disposed baghouse dust in the nearby landfill shared with the U. S. Pipe - Soil Pipe Plant. Samples were collected and handled in accordance with the Engineering Support Branch Standard Operating Procedures and Quality Assurance Manual (April 1986). The samples were analyzed in accordance with the Analytical Support Branch Operations and Quality Control Manual (June 1985).

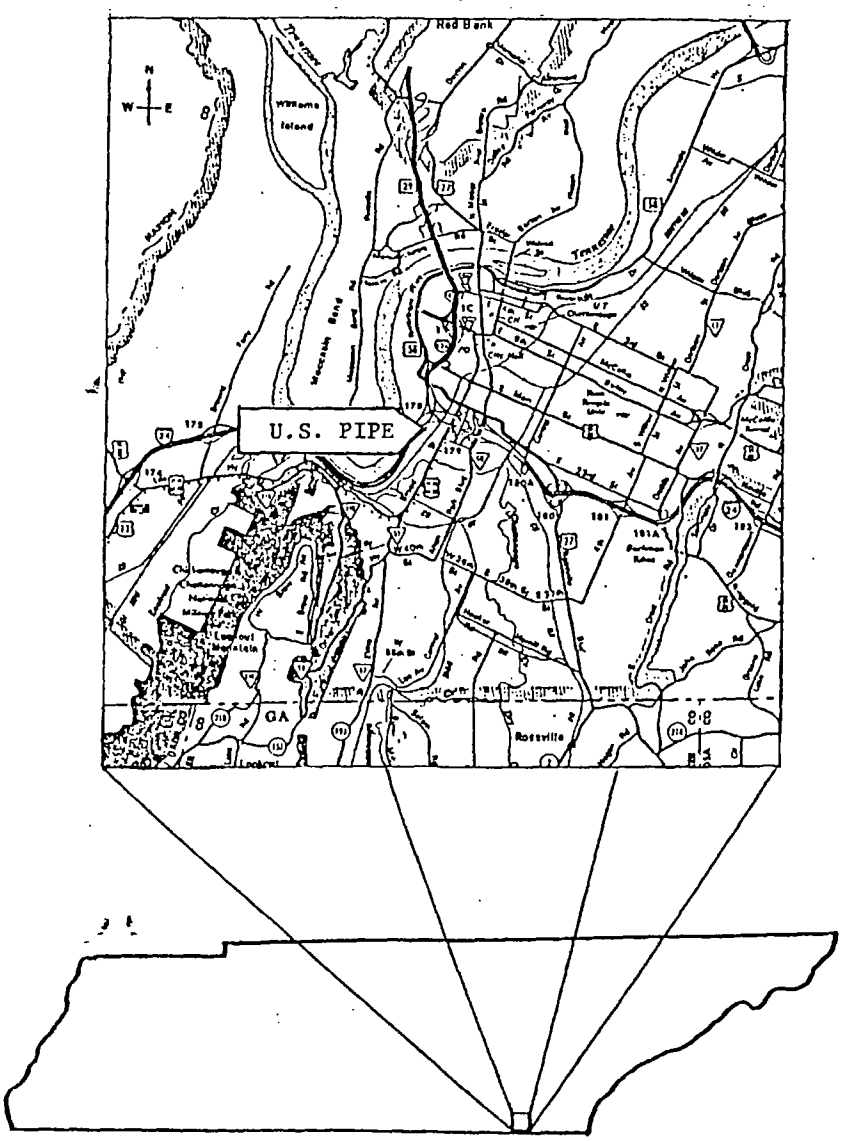

FIGURE 1
FACILITY LOCATION MAP
U.S. PIPE - VALVE & FITTING PLANT
CHATTANOOGA, TENNESSEE

RESULTS

A summary of the analytical results for the baghouse dust sample (VF-1) and the landfill sample (VF-2) is given in Tables 1 and 2. The EP Toxicity MCL of 5.0 mg/l for lead was exceeded in sample VF-2 (7.7 mg/l). The lead concentration in sample VF-1 was at the 5.0 mg/l limit. The EP Toxicity MCL of 1.0 mg/l for cadmium was exceeded in both samples VF-1 (4.0 mg/l) and VF-2 (1.3 mg/l). Total metals analyses indicate the presence of ten metals in the dust sample with concentrations ranging from an estimated value of 1.1 mg/kg mercury to 110,000 mg/kg iron. Twelve metals were detected in the landfill sample with concentrations ranging from an estimated value of 1.3 mg/kg zirconium to 95,000 mg/kg zinc.

TABLE 1
E.P. TOXICITY
mg/l

PARAMETER	E.P TOXICITY Max. Conc. Limit	BAGHOUSE DUST VF-1	LANDFILL VF-2
Barium	100.0	0.34	0.22
Cadmium	1.0	4.0	1.3
Lead	5.0	5.0	7.7

TABLE 2
METALS
mg/kg

CVF

PARAMETER	BAGHOUSE DUST VF-1	LANDFILL VF-2
Cadmium	500 – 4	220
Copper	1,200	980
Lead	9,900 – 5	33,000
Zinc	95,000	95,000
Mercury	1.1J	7,200
Aluminum	10,000	18,000
Calcium	47,000	5,800
Magnesium	7,000	57,000
Iron	110,000	57,000
Manganese	8,900	–
Chromium	–	360
Yttrium	–	51,000
Zirconium	–	1.3J

J = Estimated value

APPENDIX

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-FSO,REG IV
ATHENS GEORGIA

07/01/86

EP TOXICITY
DATA REPORTING SHEET
WASTE

SAMPLE NO.: 86C12139 SAMPLE TYPE: SLUDGE

PROJECT NO.: 86-248 PROGRAM ELEMENT: RCRA
SOURCE: U.S.PIPE-VALVE & FITTINGS PLANT
CITY: CHATTANOOGA STATE: TN

STATION I.D.: VF-1
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 04/30/86 0825
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: B. FERGUSON RECEIVED FROM: B. FERGUSON
SAMPLE REC'D: DATE/TIME 04/30/86 1518 REC'D BY: L. ADAMS
SEALED: YES
CHEMIST: MAW
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: DLC SAMPLE DATA VERIFIED BY: MAW

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	PARAMETER
0.10U	MG/L	ARSENIC
0.34	MG/L	BARIUM
4.0	MG/L	CADMIUM
0.010U	MG/L	CHROMIUM
5.0	MG/L	LEAD
NA	MG/L	MERCURY
0.50U	MG/L	SELENIUM
0.010U	MG/L	SILVER
1.6	MG/L	NICKEL
NA	MG/L	ENDRIN
NA	MG/L	LINDANE
NA	MG/L	METHOXYCHLOR
NA	MG/L	TOXAPHENE
NA	MG/L	2,4-D
NA	MG/L	2,4,5-TP (SILVEX)

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.

MWPS006788

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

06/24/86

METALS
DATA REPORTING SHEET
WASTE

SAMPLE NO.: 86C12139 SAMPLE TYPE: SLUDGE

PROJECT NO.: 86-248 PROGRAM ELEMENT: RCRA
SOURCE: U.S.PIPE-VALVE & FITTINGS PLANT
CITY: CHATTANOOGA STATE: TN

STATION I.D.: VF-1
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 04/30/86 0825
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: B. FERGUSON RECEIVED FROM: B. FERGUSON
SAMPLE REC'D: DATE/TIME 04/30/86 1518 REC'D BY: L. ADAMS
SEALED: YES

CHEMIST: MAW
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: DLC SAMPLE DATA VERIFIED BY: MAW

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	ELEMENT
400U	MG/KG	SILVER
1200U	MG/KG	ARSENIC
NA	MG/KG	BORON
800U	MG/KG	BARIUM
400U	MG/KG	BERYLLIUM
500	MG/KG	CADMIUM
NA	MG/KG	COBALT
400U	MG/KG	CHROMIUM
1700	MG/KG	COPPER
800U	MG/KG	MOLYBDENUM
800U	MG/KG	NICKEL
9900	MG/KG	LEAD
1200U	MG/KG	ANTIMONY
1600U	MG/KG	SELENIUM
4000U	MG/KG	TIN
400U	MG/KG	STRONTIUM
1600U	MG/KG	TELLURIUM
NA	MG/KG	TITANIUM
NA	MG/KG	THALLIUM
400U	MG/KG	VANADIUM
400U	MG/KG	YTTRIUM
95000	MG/KG	ZINC
NA	MG/KG	ZIRCONIUM
1.1J	MG/KG	MERCURY
10000	MG/KG	ALUMINUM
8900	MG/KG	MANGANESE
47000	MG/KG	CALCIUM
7000	MG/KG	MAGNESIUM
110000	MG/KG	IRON
400000	MG/KG	SODIUM
NA	MG/KG	POTASSIUM
0.2	%	MOISTURE

****

FOOTNOTES
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MWPS006789

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

07/01/86

EP TOXICITY
DATA REPORTING SHEET
WASTE

SAMPLE NO.: 86C17140 SAMPLE TYPE: SLUDGE

PROJECT NO.: 86-248 PROGRAM ELEMENT: RCRA
SOURCE: U.S.PIPE-VALVE & FITTINGS PLANT
CITY: CHATTANOOGA STATE: TN

STATION I.D.: VF-2
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 04/30/86 0845
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: B. FERGUSON RECEIVED FROM: B. FERGUSON
SAMPLE REC'D: DATE/TIME 04/30/86 1518 REC'D BY: L. ADAMS
SEALED: YES
CHEMIST: MAW
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: DLC SAMPLE DATA VERIFIED BY: MAW

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	PARAMETER
0.050U	MG/L	ARSENIC
0.22	MG/L	BARIUM
1.3	MG/L	CADMIUM
0.010U	MG/L	CHROMIUM
7.7	MG/L	LEAD
NA	MG/L	MERCURY
0.20U	MG/L	SELENIUM
0.010U	MG/L	SILVER
0.71	MG/L	NICKEL
NA	MG/L	ENDRIN
NA	MG/L	LINDANE
NA	MG/L	METHOXYCHLOR
NA	MG/L	TOXAPHENE
NA	MG/L	2,4-D
NA	MG/L	2,4,5-TP (SILVEX)

****

FOOTNOTES
*A=AVERAGE VALUE *NA=NOT ANALYZED *NAI=INTERFERENCES
*J=ESTIMATED VALUE *N=PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
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*L=ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U=MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

06/24/86

METALS
DATA REPORTING SHEET
WASTE

SAMPLE NO.: 86C12140 SAMPLE TYPE: SLUDGE

PROJECT NO.: 86-248 PROGRAM ELEMENT: RCRA
SOURCE: U.S.PIPE-VALVE & FITTINGS PLANT
CITY: CHATTANOOGA STATE: TN

STATION I.D.: VF-2
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 04/30/86 0845
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: B. FERGUSON RECEIVED FROM: B. FERGUSON
SAMPLE REC'D: DATE/TIME 04/30/86 1518 REC'D BY: L. ADAMS
SEALED: YES

CHEMIST: MAW
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: DLC SAMPLE DATA VERIFIED BY: MAW

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	ELEMENT
200U	MG/KG	SILVER
600U	MG/KG	ARSENIC
NA	MG/KG	BORON
400U	MG/KG	BARIUM
200U	MG/KG	BERYLLIUM
220	MG/KG	CADMIUM
NA	MG/KG	COBALT
360	MG/KG	CHROMIUM
980	MG/KG	COPPER
400U	MG/KG	MOLYBDENUM
400U	MG/KG	NICKEL
33000	MG/KG	LEAD
600U	MG/KG	ANTIMONY
800U	MG/KG	SELENIUM
2000U	MG/KG	TIN
200U	MG/KG	STRONTIUM
800U	MG/KG	TELLURIUM
NA	MG/KG	TITANIUM
NA	MG/KG	THALLIUM
200U	MG/KG	VANADIUM
51000	MG/KG	YTTRIUM
95000	MG/KG	ZINC
1.3J	MG/KG	ZIRCONIUM
7200	MG/KG	MERCURY
18000	MG/KG	ALUMINUM
200000U	MG/KG	MANGANESE
5800	MG/KG	CALCIUM
57000	MG/KG	MAGNESIUM
57000	MG/KG	IRON
200000U	MG/KG	SODIUM
NA	MG/KG	POTASSIUM
0.7	%	MOISTURE

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM DETECTION LIMIT.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

MAY 15 1987

4WD-WC

ENVIRONMENTAL SERVICE
MAY 20 1987

Mr. Don Montgomery
U.S. Pipe
1000 W. 19th Street
Chattanooga, Tennessee 37901

Re: Waste Sampling Investigation - U.S. Pipe-Soil Pipe Plant - CSP
Chattanooga, Tennessee (TND074893777)

Inspection of April 30, 1986

Dear Mr. Montgomery:

Enclosed please find results for the sampling done by the U.S. Environmental Protection Agency (EPA) in April, 1986. We apologize for sending this report late, the report was inadvertently filed before the report copy was sent out.

The report indicates that hazardous waste is generated from the baghouse operation and disposed on-site. Due to this practice the facility is subject to all interim status requirements under 40 CFR 265 and Tennessee Rule 1200-1-11-.05. A copy of the report was sent to the State of Tennessee. As the State is authorized, they are responsible for taking an appropriate enforcement action to achieve compliance and assessment of penalties.

If you have any questions, please do not hesitate to contact Doyle Brittain of my staff at 404/347-7603.

Sincerely yours,

Allan E. Antley

Allan E. Antley, Chief
Waste Compliance Section

Copies to:
Bill Fleck
Bill Vines - Knox.

Enclosure

cc: TN State Director

MWPS006792

EPA

WASTE SAMPLING INVESTIGATION
U. S. PIPE - SOIL PIPE PLANT
CHATTANOOGA, TENNESSEE
EPA ID NO. TND074893777
ESD PROJECT NO. 86-254
APRIL 1986

AUTHOR: BRUCE FERGUSON

U. S. ENVIRONMENTAL PROTECTION AGENCY
REGION IV
ENVIRONMENTAL SERVICES DIVISION
COLLEGE STATION ROAD
ATHENS, GEORGIA 30613

U.S. Environmental Protection Agency
Environmental Services Division
College Station Road
Athens, Georgia 30613

MWPS006793

U. S. PIPE - SOIL PIPE PLANT
CHATTANOOGA, TENNESSEE
EPA ID NO. TND07489377 7
ESD PROJECT NO. 86-254

INTRODUCTION

Bruce Ferguson and Jack Snider, US-EPA, Region IV, Environmental Services Division (ESD), Hazardous Waste Section (HWS), conducted a waste sampling investigation at the U. S. Pipe - Soil Pipe Plant, Chattanooga, Tennessee (Figure 1) on April 30, 1986. This investigation was conducted at the request of the US-EPA, Region IV, Residuals Management Branch. Don Montgomery, Plant Engineer, accompanied EPA personnel during the sampling of the baghouse dust and accepted a split sample for U. S. Pipe.

The purpose of this investigation was to verify data for EP toxicity analyses of baghouse dust which have been submitted by the facility to the state and EPA. Results of analyses have varied above and below the maximum concentration limit for lead and exceeded the limit for cadmium.

BACKGROUND

U. S. Pipe is a Jim Walters Company facility which manufactures soil pipe and fittings from recycled scrap metals. The pipe is produced in 5 and 10 foot lenths in diameters from 2 to 15 inches. The ash dust from the furnace is collected and disposed of in an on-site landfill which is also used by the U. S. Pipe - Valve and Fittings Plant.

SUMMARY

Concentrations for lead and chromium exceeded the E.P. toxicity limits for these parameters in both the baghouse dust (SP-1) and landfill (VF-2) samples. A comparison of the total metals data between samples SP-1 and VF-2 does not indicate any significant relationship, although a few of the values are comparable.

METHODOLOGY

The baghouse dust sample (SP-1) was collected from a small residual pile under a precipitator hopper, which resulted from emptying the hopper a few hours earlier. The sample was analyzed for E.P. toxicity and total metals. Data from these analyses are in the appendix. Since this facility shares a common landfill with the U. S. Pipe - Valve and Fitting Plant, results of analyses of the landfill sample (VF-2) collected earlier the same day are included in this report. Samples were collected and handled in accordance with the Engineering Support Branch Standard Operating Procedures/Quality Assurance Manual (April 1986). The samples were analyzed in accordance with the Analytical Support Branch Operations and Quality Control Manual (June 1985).

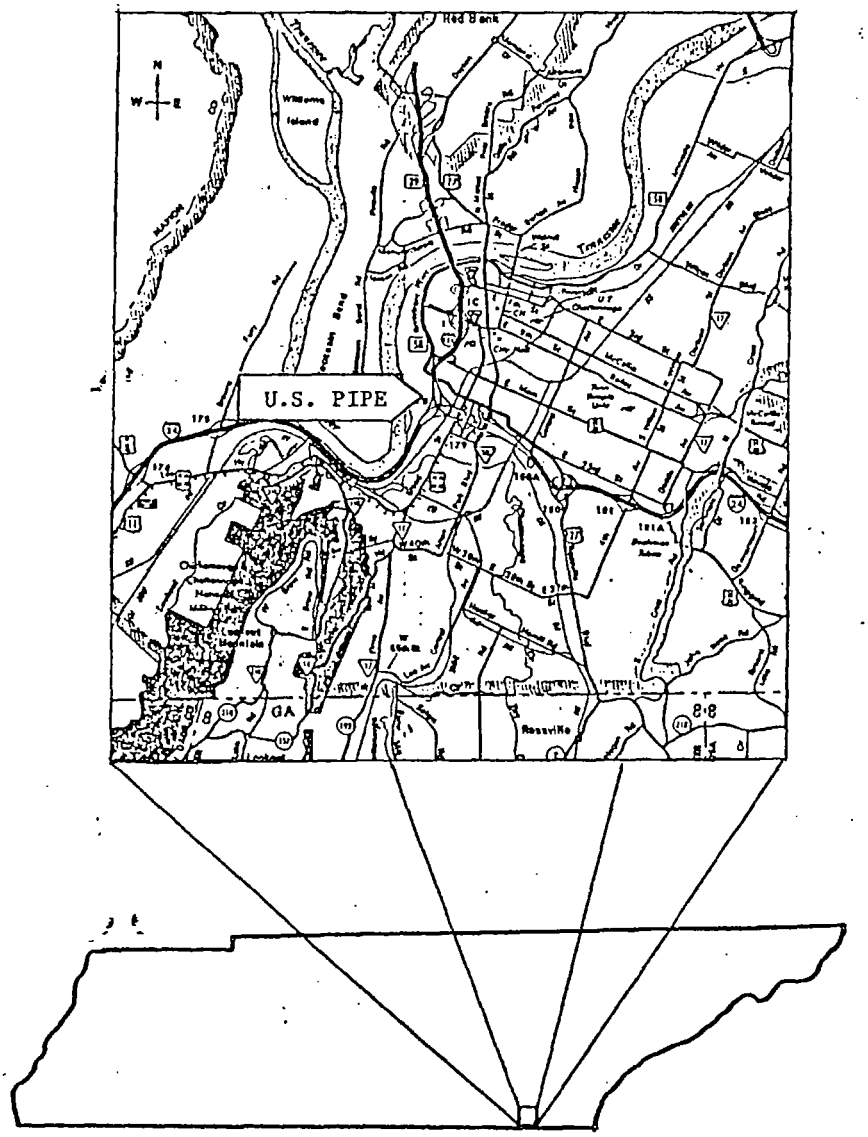

FIGURE 1
FACILITY LOCATION MAP
U.S. PIPE - SOIL PIPE PLANT
CHATTANOOGA, TENNESSEE

RESULTS

A summary of the analytical results for the baghouse dust sample (SP-1) and the landfill sample (VF-2) is given in Tables 1 and 2. The E.P. toxicity limit of 5.0 mg/l for lead was exceeded in samples SP-1 (37.0 mg/l) and VF-2 (7.7 mg/l). The E.P. toxicity limit of 1.0 mg/l for cadmium was exceeded in samples SP-1 (1.6 mg/l) and VF-2 (1.3 mg/l). Twelve metals were detected in the dust samples collected and analyzed for total metals concentrations, with concentrations ranging from 1.3 mg/kg mercury to 49,000 mg/kg iron. Twelve metals were detected in the landfill sample with concentrations ranging from an estimated value of 1.3 mg/kg mercury to 95,000 mg/kg zinc.

TABLE 1
E.P. TOXICITY
(mg/l)

Parameter	E.P. Toxicity Max. Conc. Limit	Baghouse Dust (SP-1)	Landfill (VF-2)
Barium	100.0	0.48	0.22
Cadmium	1.0	1.60	1.30
Lead	5.0	37.00	7.70

TABLE 2
METALS
(mg/kg)

Parameter	Baghouse Dust (SP-1)	EP Tox	Landfill (VF-2)
Cadmium	260	1.6	220
Chromium	480		360
Copper	1,100		980
Lead	41,000	37	33,000
Zinc	66,000		95,000
Mercury	1.3		7,200
Aluminum	6,000		18,000
Calcium	22,000		5,800
Magnesium	7,000		57,000
Iron	49,000		57,000
Barium	380		—
Manganese	22,000		--
Yttrium	--		51,000
Zicronium	--		1.3J

J = Estimated Value.

APPENDIX

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-FSD,REG IV
ATHENS GEORGIA

07/01/86

EP TOXICITY
DATA REPORTING SHEET
WASTE

SAMPLE NO.: 86C12138 SAMPLE TYPE: SLUDGE

PROJECT NO.: 86-254 PROGRAM ELEMENT: RCRA
SOURCE: U.S.PIPE-SOIL PIPE PLANT
CITY: CHATTANOOGA STATE: TN

STATION I.D.: SP-1
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 04/30/86 1025
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: B. FERGUSON RECEIVED FROM: B. FERGUSON
SAMPLE REC'D: DATE/TIME 04/30/86 1518 REC'D BY: L. ADAMS
SEALED: YES
CHEMIST: MAW
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: DLC SAMPLE DATA VERIFIED BY: MAW

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	PARAMETER
0.30U	MG/L	ARSENIC
0.48	MG/L	BARIUM
1.6	MG/L	CADMIUM
0.10U	MG/L	CHROMIUM
37	MG/L	LEAD
NA	MG/L	MERCURY
0.40U	MG/L	SELENIUM
0.10U	MG/L	SILVER
0.20U	MG/L	NICKEL
NA	MG/L	ENDRIN
NA	MG/L	LINDANE
NA	MG/L	METHOXYCHLOR
NA	MG/L	TOXAPHENE
NA	MG/L	2,4-D
NA	MG/L	2,4,5-TP (SILVEX)

****

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS THE MINIMUN QUANTITATION LIMIT.

MWPS006799

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

06/20/86

METALS
DATA REPORTING SHEET
WASTE

SAMPLE NO.: 86C12138 SAMPLE TYPE: SLUDGE

PROJECT NO.: 86-254 PROGRAM ELEMENT: RCRA
SOURCE: U.S.PIPE-SOIL PIPE PLANT
CITY: CHATTANOOGA STATE: TN

STATION I.D.: SP-1
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 04/30/86 1025
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: B. FERGUSON RECEIVED FROM: B. FERGUSON
SAMPLE REC'D: DATE/TIME 04/30/86 1518 REC'D BY: L. ADAMS
SEALED: YES

CHEMIST: MAW
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: DLC SAMPLE DATA VERIFIED BY: MAW

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	ELEMENT
200U	MG/KG	SILVER
600U	MG/KG	ARSENIC
NA	MG/KG	BORON
380	MG/KG	BARIUM
200U	MG/KG	BERYLLIUM
260	MG/KG	CADMIUM
NA	MG/KG	COBALT
480	MG/KG	CHROMIUM
1100	MG/KG	COPPER
400U	MG/KG	MOLYBDENUM
400U	MG/KG	NICKEL
41000	MG/KG	LEAD
600U	MG/KG	ANTIMONY
800U	MG/KG	SELENIUM
2000U	MG/KG	TIN
200U	MG/KG	STRONTIUM
800U	MG/KG	TELLURIUM
NA	MG/KG	TITANIUM
NA	MG/KG	THALLIUM
200U	MG/KG	VANADIUM
200U	MG/KG	YTTRIUM
66000	MG/KG	ZINC
NA	MG/KG	ZIRCONIUM
1.3	MG/KG	MERCURY
6100	MG/KG	ALUMINUM
22000	MG/KG	MANGANESE
22000	MG/KG	CALCIUM
7000	MG/KG	MAGNESIUM
49000	MG/KG	IRON
2000U	MG/KG	SODIUM
NA	MG/KG	POTASSIUM
0.1	%	MOISTURE

****

FOOTNOTES
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*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

07/01/86

EP TOXICITY
DATA REPORTING SHEET
WASTE

SAMPLE NO.: 86C17140 SAMPLE TYPE: SLUDGE

PROJECT NO.: 86-248 PROGRAM ELEMENT: RCRA
SOURCE: U.S.PIPE-VALVE & FITTINGS PLANT
CITY: CHATTANOOGA STATE: TN

STATION I.D.: VF-2
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 04/30/86 0845
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: B. FERGUSON RECEIVED FROM: B. FERGUSON
SAMPLE REC'D: DATE/TIME 04/30/86 1518 REC'D BY: L. ADAMS
SEALED: YES
CHEMIST: MAW
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: DLC SAMPLE DATA VERIFIED BY: MAW

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	PARAMETER
0.050U	MG/L	ARSENIC
0.22	MG/L	BARIUM
1.3	MG/L	CADMIUM
0.010U	MG/L	CHROMIUM
7.7	MG/L	LEAD
NA	MG/L	MERCURY
0.20U	MG/L	SELENIUM
0.010U	MG/L	SILVER
0.71	MG/L	NICKEL
NA	MG/L	ENDRIN
NA	MG/L	LINDANE
NA	MG/L	METHOXYCHLOR
NA	MG/L	TOXAPHENE
NA	MG/L	2,4-D
NA	MG/L	2,4,5-TP (SILVEX)

****

FOOTNOTES
*A=AVERAGE VALUE *NA=NOT ANALYZED *NAI-INTERFERENCES
*J=ESTIMATED VALUE *N=PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K=ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
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*U=MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD,REG IV
ATHENS GEORGIA

06/24/86

METALS
DATA REPORTING SHEET
WASTE

SAMPLE NO.: 86C12140 SAMPLE TYPE: SLUDGE

PROJECT NO.: 86-248 PROGRAM ELEMENT: RCRA
SOURCE: U.S.PIPE-VALVE & FITTINGS PLANT
CITY: CHATTANOOGA STATE: TN

STATION I.D.: VF-2
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 04/30/86 0845
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: B. FERGUSON RECEIVED FROM: B. FERGUSON
SAMPLE REC'D: DATE/TIME 04/30/86 1518 REC'D BY: L. ADAMS
SEALED: YES

CHEMIST: MAW
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: DLC SAMPLE DATA VERIFIED BY: MAW

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	ELEMENT
200U	MG/KG	SILVER
600U	MG/KG	ARSENIC
NA	MG/KG	BORON
400U	MG/KG	BARIUM
200U	MG/KG	BERYLLIUM
220	MG/KG	CADMIUM
NA	MG/KG	COBALT
360	MG/KG	CHROMIUM
980	MG/KG	COPPER
400U	MG/KG	MOLYBDENUM
400U	MG/KG	NICKEL
33000	MG/KG	LEAD
600U	MG/KG	ANTIMONY
800U	MG/KG	SELENIUM
2000U	MG/KG	TIN
200U	MG/KG	STRONTIUM
800U	MG/KG	TELLURIUM
NA	MG/KG	TITANIUM
NA	MG/KG	THALLIUM
200U	MG/KG	VANADIUM
51000	MG/KG	YTTRIUM
95000	MG/KG	ZINC
1.3J	MG/KG	ZIRCONIUM
7200	MG/KG	MERCURY
18000	MG/KG	ALUMINUM
20000U	MG/KG	MANGANESE
5800	MG/KG	CALCIUM
57000	MG/KG	MAGNESIUM
57000	MG/KG	IRON
20000U	MG/KG	SODIUM
NA	MG/KG	POTASSIUM
0.7	%	MOISTURE

****

FOOTNOTES
*A=AVERAGE VALUE *NA=NOT ANALYZED *NAI=INTERFERENCES
*J=ESTIMATED VALUE *N=PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
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ENVIRONMENTAL SERVICE

JUL 30 1984

TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT

Bureau of Environment
T.E.R.R.A. BUILDING
150 NINTH AVENUE, NORTH
NASHVILLE, TENNESSEE 37203

CERTIFIED MAIL # P 672 905 956
RETURN RECEIPT REQUESTED

July 25, 1984

Mr. J. B. Dockery
U. S. Pipe and Foundry
Soil Pipe Plant
1000 West 19th Street
P.O. Box 6129
Chattanooga, TN 37401

Dear Mr. Dockery:

This office has been studying the regulatory status of U. S. Pipe and Foundry as it relates to its management of hazardous waste. Of particular concern by this office is a valid interpretation of the regulations and a uniform application of the regulations to U. S. Pipe and Foundry and "similar industries." Our staff has examined a portion of the regulations that provide an exemption from certain regulations for some wastes which are generated primarily from the combustion of coal or other fossil fuels. After careful review it is determined that the exemption is intended to apply to only those waste generated by the utility industry.

U. S. Pipe and Foundry has determined that the cupola baghouse dust does meet the e.p. toxic characteristic of a hazardous waste. In consideration of the above, this office has determined that the cupola baghouse dust does have to be managed as a hazardous waste. The dust, then, will not be approved for disposal in the solid waste landfill being developed on-site by U. S. Pipe and Foundry but will have to be handled by approved hazardous waste facilities. U. S. Pipe and Foundry may apply for a permit for the proposed landfill for the disposal of foundry sands; however, any other waste streams would have to have prior written approval for disposal at the site.

On December 19, 1983 representatives of U. S. Pipe and Foundry attended a show cause meeting with the Division of Solid Waste Management. Regulatory violations were discussed which included failure to make a hazardous waste determination, failure to notify the Department as a hazardous waste generator, and the operation of an unauthorized solid waste disposal facility. Please be advised that enforcement will continue in this matter. Further, U. S. Pipe and Foundry must begin the proper management of the cupola baghouse dust within thirty (30) days of the receipt of this letter. (By Aug. 25)

Rec. July 26 @ CV&F

According to Gene Blair of Wheland Fdy, they received a similar letter shortly after we rec. this! He advised me that State requested EPA's interpretation on B.H. dust and obtained a very short letter stating that the "fossil fuel" exemption was not applicable!

MWPS006803

If there are any questions concerning this correspondence, please contact this office at (615) 741-3424.

Sincerely,

Tom Tiesler

Tom Tiesler, Director
Division of Solid Waste Management

TT/DR/ca/5-8

cc: Chattanooga Field Office, SWM
John H. Watson
Sam Goodson, plant engineer
Hamilton County Health Department
W. E. Fleck

TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT
Bureau of Environment
T.E.R.R.A. BUILDING
150 NINTH AVENUE, NORTH
NASHVILLE, TENNESSEE 37203

Certified Mail # P672 905 955
Return Receipt Requested

July 25, 1984

ENVIRONMENTAL SERVICE
AUG 15 1984

Mr. W. A. Berry
U. S. Pipe and Foundry
Valve and Fittings Plant
2701 Chestnut Street
P. O. Box 317
Chattanooga, TN 37401

Dear Mr. Berry:

This office has been studying the regulatory status of U. S. Pipe and Foundry as it relates to its management of hazardous waste. Of particular concern by this office is a valid interpretation of the regulations and a uniform application of the regulations to U. S. Pipe and Foundry and similar industries. Our staff has examined a portion of the regulations that provide an exemption from certain regulations for some wastes which are generated primarily from the combination of coal or other fossil fuels. After careful review it is determined that the exemption is intended to apply to only those waste generated by the utility industry.

U. S. Pipe and Foundry has determined that the cupola baghouse dust does meet the e.p. toxic characteristic of a hazardous waste. In consideration of the above, this office has determined that the cupola baghouse dust does have to be managed as a hazardous waste. The dust, then, will not be approved for disposal in the solid waste landfill being developed on-site by U. S. Pipe and Foundry but will have to be handled by approved hazardous waste facilities. U. S. Pipe and Foundry may apply for a permit for the proposed landfill for the disposal of foundry sands; however, any other waste streams would have to have prior written approval for disposal at the site.

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If there are any questions concerning this correspondence, please contact this office at (615) 741-3424.

Sincerely,

Tom Tiesler, Director
Division of Solid Waste Management

TT/DR/lag 5/7

cc: Chattanooga Field Office, SWM
John H. Watson
Jim Smallwood, plant engineer
Hamilton County Health Department
W. E. Fleck

Rec. 9-17-84
Env. Services

Certified Mail #P672 905 911
Return Receipt Requested

TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT
Bureau of Environment
T.E.R.R.A. BUILDING
150 NINTH AVENUE, NORTH
NASHVILLE, TENNESSEE 37203

September 11, 1984

Mr. Wayne Berry
United States Pipe and Foundry Company
P. O. Box 31
Chattanooga, TN 37401

Dear Mr. Berry:

This letter will address the Tennessee Division of Solid Waste Management's position on the interpretation of Rule 1200-1-11-.02(1)(d)3(ii)(I) of the Rules Governing Hazardous Waste Management in Tennessee. This rule addresses hazardous wastes which are exempt from certain regulations and which are generated primarily from the combustion of coal or other fossil fuels.

My letter to you dated July 25, 1984 advised you that the above referenced exemption did not apply to U.S. Pipe and Foundry but did apply only to those wastes generated by the utility industry. That position was supported by guidance from EPA Region IV. This letter will acknowledge that the Tennessee Division of Solid Waste Management is reversing its position to that which was originally stated to U.S. Pipe and Foundry which acknowledges that the above referenced exemption does apply to the baghouse dust generated by the company. This position is consistent with the August 16, 1984 interpretation by the EPA Headquarters (a copy is enclosed).

Given this position you may wish to consider the withdrawal of U.S. Pipe and Foundry's petition for a declaratory order as to the validity or the applicability of Rule 1200-1-11-.02(1)(d)3(ii)(I). If the petition is not withdrawn, a hearing for the same will be scheduled before the Tennessee Solid Waste Disposal Control Board. Done Sep. 24

Please be advised that the company is still alleged to have violated the Tennessee Hazardous Waste Management Act by failing to make a hazardous waste determination for a waste stream and subsequently failing to notify the Department as a generator of hazardous waste. Enforcement will continue regarding this matter.

Sincerely,

Tom Tiesler

Tom Tiesler, Director
Division of Solid Waste Management

TT/bec/d-2

cc: Chattanooga Field Office, SWM
Hamilton County Health Dept.
Jim Scarbrough, EPA Region IV
William D. Vines, III
John Watson
Jim Dockery

AUG

OFFICE OF
SOLID WASTE AND EMERGENCY R

Mr. Tom Tiesler, Director
Division of Solid Waste Management
Bureau of Environmental Services
Department of Public Health
150 9th Avenue, North
Nashville, Tennessee 37203

Separate copy TDH
Separate copy JMA
Separate copy BWM
" " WPV

Dear Tom:

At the request of Liz Cottingham in Congressman Leath's office, I am writing to clarify §261.4(b)(4) of the RCRA hazardous waste regulations. This section codifies a Congressional exemption that was enacted in the 1980 RCRA Amendments. The amendment (see RCRA Sec. 3001(b)(3)(A)(i)) removes fly ash waste, bottom ash waste, slag waste, and flue gas emission control waste generated primarily from the combustion of coal or other fossil fuels from control under RCRA Subtitle C until at least six months after a study under RCRA Section 8002(n) is submitted to Congress. Other applicable provisions of Federal and State laws, including RCRA Subtitle D, remain in effect.

While EPA's study under RCRA Section 8002(n) to date has concentrated on waste generated by coal-fired electric utility power plants, the Congressional exemption is not limited to these plants, in our opinion. Fly ash, bottom ash, slag and flue gas dust and sludges from the combustion of coal, oil, or natural gas from any source would also be exempted temporarily from RCRA Subtitle C control.

Sincerely,

John P. Lehman

John P. Lehman
Director
Waste Management and
Economics Division

cc: Liz Cottingham
John Skinner
Fred Lindsey
Bruce Weddle
Martha Kittel
Tom Devine-Region IV

MAY
5-2-84

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

BWM

APR 24 1984

(Separate copy) TDH

(Separate copy) TTT

AW-RM

Mr. Tom Tiesler, Director
Division of Solid Waste Management
Tennessee Department of Health and
Environment
T.E.R.R.A. Building
150th 9 Avenue North
Nashville, Tennessee 37201

Dear Mr. Tiesler:

This is in response to your letter of April 2, 1984, concerning the exemption for fly ash waste in 40 CFR §261.4(b)(4). After review of the legislative history it is clear that Congress intended this exemption to apply only to fossil fuel fly ash generated by the utility industry, it would not affect the regulatory status of your cast-iron pipe facility. If the waste is hazardous by listing or characteristic, it should be regulated as a hazardous waste.

If you have any questions or comments on this guidance, please call Bill Gallagher of my staff at (404) 881-3016.

Sincerely yours,

James H. Scarbrough, Chief
Residuals Management Branch

MWPS006810

Certified Mail #P672 905 934
Return Receipt Requested

TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT
Bureau of Environment
T.E.R.R.A. BUILDING
150 NINTH AVENUE, NORTH
NASHVILLE, TENNESSEE 37203

September 11, 1984

Mr. Jim Dockery
United States Pipe and Foundry Co.
P. O. Box 6129Chattanooga, TN 37401

Dear Mr. Dockery:

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Sincerely,

Tom Tiesler

Tom Tiesler, Director
Division of Solid Waste Management

TT/bec/d-2

cc: Chattanooga Field Office, SWM
Hamilton County Health Dept.
Jim Scarbrough, EPA Region IV
William D. Vines, III
John Watson
Wayne Berry

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

AUG

J T T
EPA files

AUG 13 1981

OFFICE OF
SOLID WASTE AND EMERGENCY RE

Mr. Tom Tiesler, Director
Division of Solid Waste Management
Bureau of Environmental Services
Department of Public Health
150 9th Avenue, North
Nashville, Tennessee 37203

Separate copy TDH
Separate copy JMA
Separate copy BWM
" " WFV

Dear Tom:

At the request of Liz Cottingham in Congressman Leath's office, I am writing to clarify §261.4(b)(4) of the RCRA hazardous waste regulations. This section codifies a Congressional exemption that was enacted in the 1980 RCRA Amendments. The amendment (see RCRA Sec. 3001(b)(3)(A)(i)) removes fly ash waste, bottom ash waste, slag waste, and flue gas emission control waste generated primarily from the combustion of coal or other fossil fuels from control under RCRA Subtitle C until at least six months after a study under RCRA Section 8002(n) is submitted to Congress. Other applicable provisions of Federal and State laws, including RCRA Subtitle D, remain in effect.

While EPA's study under RCRA Section 8002(n) to date has concentrated on waste generated by coal-fired electric utility power plants, the Congressional exemption is not limited to these plants, in our opinion. Fly ash, bottom ash, slag and flue gas dust and sludges from the combustion of coal, oil, or natural gas from any source would also be exempted temporarily from RCRA Subtitle C control.

Sincerely,

John P. Lehman

John P. Lehman
Director
Waste Management and
Economics Division

cc: Liz Cottingham
John Skinner
Fred Lindsey
Bruce Weddle
Martha Kittel
Tom Devine-Region IV

MWPS006813

MAY
5-2-84

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

BWM

APR 24 1984

(Separate copy) TDH

(Separate copy) TTT

AW-RM

Mr. Tom Tiesler, Director
Division of Solid Waste Management
Tennessee Department of Health and
Environment
T.E.R.R.A. Building
150th 9 Avenue North
Nashville, Tennessee 37201

Dear Mr. Tiesler:

This is in response to your letter of April 2, 1984, concerning the exemption for fly ash waste in 40 CFR §261.4(b)(4). After review of the legislative history it is clear that Congress intended this exemption to apply only to fossil fuel fly ash generated by the utility industry, it would not affect the regulatory status of your cast-iron pipe facility. If the waste is hazardous by listing or characteristic, it should be regulated as a hazardous waste.

If you have any questions or comments on this guidance, please call Bill Gallagher of my staff at (404) 881-3016.

Sincerely yours,

James H. Scarbrough, Chief
Residuals Management Branch

TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT

OFFICE CORRESPONDENCE

FROM	TO	DATE

DATE: October 1, 1985

TO: Members, Tennessee Solid Waste Disposal Control Board

FROM: Dwight Hinch TDH

SUBJECT: Application of the "Fossil Fuel Exemption" to Cupola Foundry Wastes

→ EPA letter of Dec. 28, 1984 - attached!

It appears that the most significant issue concerning tomorrow's rulemaking is the subject regulatory application. Representatives of U.S. Pipe and Foundry, Wheland Foundry, and the Tennessee Manufacturers and Taxpayers Association will apparently be present to present their arguments directly to you. I have sent you previously their written comments. I also sent you earlier a copy of a letter we sent to EPA requesting their assistance at this meeting. This letter also explained our position. I just realized, however, that I have not sent you a copy of the final policy statement from EPA that triggered this rulemaking and the resulting comments. I am therefore attaching a copy of that correspondence.

Please be advised that Bill Gallagher of EPA's Residuals Management Branch in Atlanta is scheduled to attend the 10/2/85 meeting.

DH/ah/2-29

Enclosures

FROM	DATE

TO

PH-0001
SR 3/77

MWPS006815

JAN 03

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

1-3-85

JTT

EPA files

DEC 28 1984

WM-RM

(Separate copy) TDH 1-2

(Separate copy) JMA 1-8

WFV

BWM

(Separate copy) MSB

file 33-137

file 33-138

Mr. Tom Tiesler, Director
Division of Solid Waste Management
Tennessee Department of
Health and Environment
T.E.R.R.A. Building
150 9th Avenue, North
Nashville, Tennessee 37203

Dear Mr. ~~Tiesler~~ Tom

I have enclosed a letter to you concerning the "fossil fuel exemption" at 40 CFR 261.4(b)(4), as it applies to two (2) facilities in Tennessee. Additionaly, I have enclosed a copy of a memo from John Skinner, Director, the Office of Solid Waste in EPA headquarters. He concures with my letter to you.

If you have any questions, please contact Bill Gallagher of my staff at (404) 881-4298.

Sincerely yours,

Allan E. Antley for

James H. Scarbrough, P.E., Chief
Residuals Management Branch
Waste Management Division

Enclosures (2)

cc: All State Directors

ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET
ATLANTA, GEORGIA

AW-RM

DEC 28 1984

Mr. Tom Tiesler, Director
Division of Solid Waste Management
Tennessee Department of Health and
Environment
T.E.R.R.A. Building
150 9th Avenue, North
Nashville, Tennessee 37203

Dear Mr. Tiesler:

It has come to my attention that there is some confusion about how the Environmental Protection Agency's (EPA) exclusion for "Fly ash waste, bottom ash waste, slag waste and flue gas emission control waste generated from the combustion of coal or other fossil fuels.", 40 CFR § 261.4(b)(4), should be applied to several facilities in your state.

It is still the EPA position that the foundry process emission control waste from United States Pipe and Foundry's facility and Wheland Foundry's facility in Chattanooga are not excluded from regulation as a hazardous waste by the exclusion at 40 CFR § 261.4(b)(4).

My letter of April 24, 1984, stated the exclusion only applies to the utility industry. After further discussion with EPA Headquarters, we have modified our position. While the exemption is not limited to the utility industry, it is limited to emission control wastes from the combustion of fossil fuels or mixtures of fossil fuels and other fuels.

As stated in the February 18, 1981, memo from then Deputy Assistant Administrator for Solid Waste, Steffen W. Plehn, "...EPA interprets this exclusion language to mean that the following solid wastes are not hazardous wastes:

(a) Fly ash, bottom ash, boiler slag and flue gas emission control wastes resulting from (1) the combustion solely of coal, oil, or natural gas, (2) the combustion of any mixture of these fossil fuels, or (3) the combustion of any mixture of coal and other fuels, up to a 50 percent mixture of such other fuels...."

The emphasis here is on the word fuels. The emission control wastes from those foundries are from a mixture of fossil fuel and metals from the melting of scrap metal, not from the combustion of a mixture of fossil fuels and other fuels.

The question at United States Pipe and Foundry and at Wheland Foundry is whether the flue gas emission control dust waste generated at a foundry operation using a coke/coal-fired cupola furnace to melt scrap metal is exempt from regulation by virtue of this exclusion. Our conclusion is that the waste is not exempt.

If the emission control waste from these foundries is EP Toxic, or is hazardous due to any other of the characteristics, the waste would be subject to full regulation as a characteristic waste, including regulation as a sludge for purposes of the 40 CFR §261.6(b) recycling provisions.

The August 16, 1984 letter you received from John P. Lehman, Director of the Waste Management and Economics Division of the Office of Solid Waste in EPA Headquarters is correct in as much as he answered the question he was asked. However, he was not given all the facts of the specific situation at the United States Pipe and Foundry facility. Therefore, his response does not apply to that facility. In the future, I suggest that you and your staff consult with the Region before contacting EPA Headquarters to insure that interpretations are correct and consistent based on all the facts of a specific situation.

If you have any questions, please contact Bill Gallagher of my staff at (404) 881-3016.

Sincerely yours,

James H. Scarbrough, Chief
Residuals Management Branch

Enclosures

cc: Dwight Hinch TN DHE
John P. Lehman, EPA, OSW
John Heffelfinger, EPA, OSW

WPS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

20 NOV 1984

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

MEMORANDUM

SUBJECT: Applicability of the Fossil Fuel Combustion Exemption (§261.4(b)(4)) to Two Foundries in Tennessee

FROM: John H. Skinner, Director
Office of Solid Waste (WH-562)

TO: James H. Scarbrough, Chief
Residuals Management Branch
Region IV

You wrote to me on September 28, 1984, requesting our comments on the accuracy of a regulatory interpretation that you plan to provide to the State of Tennessee. The issue is whether flue gas emission control dust waste generated at a foundry using a coke/coal-fired cupola furnace to melt scrap metal is exempt from regulation as a hazardous waste by virtue of the fossil fuel combustion waste exclusion contained in Section 261.4(b)(4) of the hazardous waste management regulations.

As you are aware, Bill Gallagher, of your staff, has discussed this issue on numerous occasions with John Heffelfinger, of the Office of Solid Waste. Your letter to Mr. Tom Tiesler, of the Tennessee Department of Health and the Environment, is an accurate presentation of OSW policy on this issue. I have attached a copy of your draft letter, noting minor revisions that are needed for accuracy in certain quotations and citations. Mr. Heffelfinger has discussed these changes with Mr. Gallagher.

I agree that Mr. Tiesler should not rely on the August 16, 1984, letter from John Lehman as a final interpretation in this matter. Mr. Lehman was responding to a request from Congressman Leath's office as to whether the fossil fuel combustion waste exclusion is limited to utility waste. The subtle points on which your interpretation is founded, e.g., the use of scrap metal in the process, were not discussed at that time. While Mr. Lehman's letter is accurate, it does not address the facts as they exist at the facilities in question.

Attachments

cc: Regional Waste Management Division
Directors, Regions I-X (w/attachments)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

33-137

33-138

AW-RM

Mr. Tom Tiesler, Director
Division of Solid Waste Management
Tennessee Department of Health and
Environment
T.E.R.R.A. Building
150 9th Avenue, North
Nashville, Tennessee 37203

Dear Mr. Tiesler:

It has come to my attention that there is some confusion about how the Environmental Protection Agency's (EPA) exclusion for "Fly ash waste, bottom ash waste, slag waste and flue gas emission control ~~dust~~ waste generated from the combustion of coal or other fossil fuels.", 40 CFR § 261.4(b)(4), should be applied to several facilities in your state.

It is still the EPA position that the foundry process emission control waste from United States Pipe and Foundry's facility and Wheland Foundry's facility in Chattanooga are not excluded from regulation as a hazardous waste by the exclusion at 40 CFR § 261.4(b)(4).

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The emphasis here is on the word fuels. The emission control wastes from these foundries are from a mixture of fossil fuel and metals from the melting of scrap metal, not from the combustion of a mixture of fossil fuels and other fuels.

MWPS006820

The question at United States Pipe and Foundry and at Wheland Foundry is whether the flue gas emission control dust waste generated at a foundry operation using a coke/coal-fired cupola furnace to melt scrap metal is exempt from regulation by virtue of this exclusion. Our conclusion is that the waste is not exempt.

If the emission control waste from these foundries is EP Toxic, or is hazardous due to any other of the characteristics, the waste would be subject to full regulation as a characteristic waste, including regulation as a sludge for purposes of the 40 CFR §261.6(b) recycling provisions.

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If you have any questions, please contact Bill Gallagher of my staff at (404) 881-3016.

Sincerely yours,

James H. Scarbrough, Chief
Residuals Management Branch

Enclosures

cc: Dwight Hinch TN DHE
John P. Lehman, EPA, OSW
John Heffelfinger, EPA, OSW

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

AUG 16 1984

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

Mr. Tom Tiesler, Director
Division of Solid Waste Management
Bureau of Environmental Services
Department of Public Health
150 9th Avenue, North
Nashville, Tennessee 37203

Dear Tom:

At the request of Liz Cottingham in Congressman Leath's office, I am writing to clarify §261.4(b)(4) of the RCRA hazardous waste regulations. This section codifies a Congressional exemption that was enacted in the 1980 RCRA Amendments. The amendment (see RCRA Sec. 3001(b)(3)(A)(i)) removes fly ash waste, bottom ash waste, slag waste, and flue gas emission control waste generated primarily from the combustion of coal or other fossil fuels from control under RCRA Subtitle C until at least six months after a study under RCRA Section 8002(n) is submitted to Congress. Other applicable provisions of Federal and State laws, including RCRA Subtitle D, remain in effect.

While EPA's study under RCRA Section 8002(n) to date has concentrated on waste generated by coal-fired electric utility power plants, the Congressional exemption is not limited to these plants, in our opinion. Fly ash, bottom ash, slag and flue gas dust and sludges from the combustion of coal, oil, or natural gas from any source would also be exempted temporarily from RCRA Subtitle C control.

Sincerely,

John P. Lehman

John P. Lehman
Director
Waste Management and
Economics Division

cc: Liz Cottingham
John Skinner
Fred Lindsey
Bruce Weddle
Martha Kittel
Tom Devine-Region IV

BUTLER, VINES, BABB AND THREADGILL
ATTORNEYS AT LAW
SUITE 810, FIRST AMERICAN CENTER
POST OFFICE BOX 2649
KNOXVILLE, TENNESSEE 37901-2649

T. WARREN BUTLER
WILLIAM D. VINES III
DENNIS L. BABB
JOHN Q. THREADGILL
WAYNE CHRISTESON
MARTIN L. ELLIS
JAMES C. WRIGHT
ALICE M. WOODY
G. KEVIN HARDIN
STEVEN BOYD JOHNSON

AREA CODE 615
TELEPHONE 637-3531

ENVIRONMENTAL SERVICE

January 17, 1986

JAN 21 198

Mr. Jack E. Ravan
Regional Administrator
United States Environmental
Protection Agency - Region IV
345 Courtland Street
Atlanta, Georgia 30365

RE: U.S. Pipe & Foundry Company - Chattanooga, Tennessee 37401

Dear Mr. Ravan:

U.S. Pipe & Foundry Company is in receipt of your letter of October 25, 1985, addressed to Mr. John Watson, an environmental engineer for the company. This matter has been referred to this firm for response. Pursuant to my phone conference with Gregory Beatty, U.S. Pipe & Foundry Company was granted additional time within which to respond, and I have enclosed a copy of my letter to Mr. Beatty pertaining to this granting of additional time. We certainly appreciate this cooperation on behalf of the Agency.

It should first be pointed out that U.S. Pipe & Foundry Company denies the statement contained in the October 25 correspondence from EPA that U.S. Pipe is "operating a hazardous waste management facility subject to the generator requirements under 40 CFR, Part 262" in Chattanooga, Tennessee.

40 CFR, Section 261.3, provides that a solid waste is a hazardous waste if "it is not excluded from regulation as a hazardous waste under Section 261.4(b)." Under that rule, the following is exempt:

> fly ash waste, bottom ash waste, slag waste, and flue gas emission control waste generated primarily from the combustion of coal or other fossil fuels.

The exemption above stated clearly applies to the material in question at U.S. Pipe & Foundry Company in Chattanooga. The

COPY

material questioned is fly ash and also flue gas emission control waste generated primarily from the combustion of coal or other fossil fuel. The cupola at U.S. Pipe & Foundry Company in Chattanooga uses coke (a product of coal), which clearly is a fossil fuel.

As you know, pursuant to a memorandum of understanding, the enforcement agency in Tennessee has been the Division of Solid Waste Management of the Tennessee Department of Health and Environment. This Division, both through its staff and board, has affirmatively decided and determined that this flue gas emission control waste from U.S. Pipe & Foundry Company in Chattanooga is within the exclusion. I have enclosed a copy of the October 11, 1985 letter from the Director of Tennessee's Department, Mr. Tom Tiesler, to Mr. Jim Scarbrough of EPA in Atlanta, wherein Mr. Tiesler sets forth that the above-mentioned exclusion clearly applies to U.S. Pipe & Foundry. Furthermore, this correspondence sets forth that the Tennessee Director is confident that through normal permitting actions under the Solid Waste Management laws and regulations there can be adequate protection of human health and the environment.

Your correspondence requested results of tests pertaining to characteristics of E.P. toxicity according to the methods set forth in subpart C of 40 CFR 261. As set forth in the letter of October 11, 1985, from Director Tiesler to Chief Scarbrough, this information has previously been supplied to the Division of Solid Waste Management, Tennessee Department of Health and Environment, and by this Department to Chief Scarbrough. We are, however, enclosing additional copies of this data which is requested. Additionally, we are enclosing certain ground water data from well monitoring devices at this facility. This submission is made without waiving any objection to the use of such tests.

The E.P. toxicity test is appropriate for sanitary landfills and not monofills. In fact, the aforementioned test was specifically designed ... "to simulate the leeching a waste will undergo if disposed of in an improperly designed <u>sanitary landfill</u>." The Company represents that all of its material in question herein is placed in a monofill landfill specifically designed for the purpose of receiving these materials. Therefore, there is no sanitary landfill involved to which the E.P. toxicity test would be appropriate. The fact that such tests are not appropriate is readily demonstrated by the results of the ground water monitoring wells which establish that there is no significant increase in lead or cadmium from this monofill.

Furthermore, the materials as actually deposited in the monofill landfill are thoroughly mixed, due to a reclamation process, and will therefore pass all E.P. toxicity tests. The actual deposit in the monofill is not a hazardous waste, as defined under the applicable acts and regulations, even considering E.P. toxicity tests.

More recent test data should be available shortly and will be submitted. However, in no way should any submission be considered as an admission by U.S. Pipe & Foundry Company that it operates a hazardous waste management facility, subject to the generator requirements of 40 CFR, Part 262. As stated above, this Company strongly denies this and this submission is in no way a waiver of any argument, right or remedy it has in this regard.

I would be more than happy to discuss this matter in further detail, should there be any question or other information that is needed.

Very truly yours,

James C. Wright

dbh

Enclosures

cc: Mr. John Watson
Mr. Gerre Reynolds

File

March 28, 1984

Mr. Steve Baxter, Environmental Consultant
Tennessee Department of Health and Environment
Division of Solid Waste Management
2501 Milne Street
Chattanooga, Tennessee 37406

Re: Construction and Operation Plans for Chattanooga Landfill

Dear Mr. Baxter:

Please find attached five sets of the subject plans and construction drawings for your review and approval. Also attached to this cover letter are the analytical results of distilled water leachate tests performed on three sets of baghouse dust samples. Should you have any questions on the above, please let me know.

Yours very truly,

J H Watson

J. H. Watson
Principal Environmental Engineer

JHW/js

cc: Mr. Frank Victory

bc: Messrs. W. E. Fleck
C.N. Codding
W. A. Berry
J. B. Dockery
D. C. Wallace

IT CORPORATION

IT ANALYTICAL SERVICES

STEWART LABORATORIES DIVISION
5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615-588-6401

CERTIFICATE OF ANALYSIS

RECEIVED
MAR 5 1984
M. C. I.

TO: MCI Environmental Engineers
Rt. 33 McBride Lane
Knoxville, TN 37922

DATE REPORTED: February 29, 1984
PROJECT CODE: MCI 17561
ORDER NUMBER:

Sample Description: Two (2) dust samples received February 17, 1984

Concentration units are mg/liter (ppm) in the extract (Distilled H_2O)

	Valve Plant CVF, 2/16	Soil Pipe Plant CSP, 2/16	Std
Cadmium	13.	3.	1
Lead	4.	3.9	5
Liquid to Solid Ratio (vol.)	0	0	
Original Weight (solids)	50 grams	50 grams	
Final Volume (extract)	1000 ml	1000 ml	

Sample extracted in accordance with "EP Toxicity Test - Extraction Procedure", Federal Register, Vol. 45, No. 98, p. 33127-33128.

Sworn to and subscribed before me this 29th
day of February, 1984
My commission expires April 25, 1984
Teresa E. Sparks
Notary Public

Alyn R. Moore
Title: Laboratory Manager
Approved By

Accredited by the American Association for Laboratory Accreditation in the chemical field of testing, as listed in the current AALA Directory of Accredited Laboratories

MWPS006827

IT CORPORATION

IT ANALYTICAL SERVICES

STEWART LABORATORIES DIVISION
5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615-588-6401

CERTIFICATE OF ANALYSIS

TO: MCI Environmental Engineers
ATTN: Randy Ferguson
Rt. 33 McBride Lane
Knoxville, TN 37922

DATE REPORTED: March 2, 1984
PROJECT CODE: MCI 17525
ORDER NUMBER:

Sample Description: Two (2) dust samples received February 10, 1984

Concentration units are mg/liter (ppm) in the extract (Distilled H_2O)

	CVF, 2-10-84 #6 of 21	CSP, 2-10-84 #3 of 15	Std
Cadmium	14.	3.	1
Lead	3.9 ✓	3.8 ✓	5

Liquid to Solid Ratio (vol.)	0		0	
Original Weight (solids)	50	grams	50	grams
Final Volume (extract)	1000	ml	1000	ml

Sample extracted for 24 hours with distilled water.

Sworn to and subscribed before me this 2nd
day of March, 1984
My commission expires April 25, 1984
Theresa H. Sparks
Notary Public

Alyce L. Moore
Title: Laboratory Manager
Approved By

AALA Accredited by the American Association for Laboratory Accreditation in the chemical field of testing, as listed in the current AALA Directory of Accredited Laboratories

MWPS006828

IT CORPORATION

IT ANALYTICAL SERVICES

STEWART LABORATORIES DIVISION
5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615-588-6401

CERTIFICATE OF ANALYSIS

TO: MCI Environmental Engineers
ATTN: Randy Ferguson
Rt. 33 McBride Lane
Knoxville, TN 37922

DATE REPORTED: March 2, 1984
PROJECT CODE: MCI 17499
ORDER NUMBER:

Sample Description: Two (2) dust samples received February 7, 1984

Concentration units are mg/liter (ppm) in the extract (Distilled H_2O)

	CSP, 2-3-84	CVF, 2-3-84	Std.
Cadmium	2.3	8.0	1
Lead	1.57 ✓	0.81 ✓	5

Liquid to Solid Ratio (vol.)	0	0
Original Weight (solids)	50 grams	50 grams
Final Volume (extract)	1000 ml	1000 ml

Sample extracted for 24 hours with distilled water.

Sworn to and subscribed before me this 2nd
day of March, 1984
My commission expires April 25, 1984
Teresa A. Sparks
Notary Public

Alyce R. Moore
Title: Laboratory Manager
Approved By

Accredited by the American Association for Laboratory Accreditation in the chemical field of testing, as listed in the current AALA Directory of Accredited Laboratories

MWPS006829

IT CORPORATION

IT ANALYTICAL SERVICES

STEWART LABORATORIES DIVISION

March 2, 1984

RECEIVED
MAR 9 1984
M. C. I.

MCI Engironmental Engineers
ATTN: Mr. Randy Ferguson
Route 33, McBride Lane
Knoxville, TN 37922

Dear Randy:

This letter will serve as a followup to our conversation with Jim Downing on this date, concerning the type of leachage analyzed and reported on our project codes MCI 17525 and MCI 17499, for samples marked C.S.P., 2/03/84, C.V.&F., 2/03/84, CVF, 2/10/84 #6 of 21, and CSP 2/10/84, #3 of 15. Samples were prepared by extracting with distilled water for 24-hours. The EP Toxicity Extraction Procedure was followed in all aspects except pH adjustment. Enclosed please find corrected certificates of analysis to this effect.

I hope this will clarify the situation. If you have any further questions, please contact me.

Sincerely,
IT ANALYTICAL SERVICES

Barry A. Stephenson
General Manager

enc.

BAS/ts

UNITED STATES PIPE AND FOUNDRY COMPANY
3300 FIRST AVENUE NORTH 35222
POST OFFICE BOX 10406
BIRMINGHAM, ALABAMA 35202

May 4, 1990

James C. Wright, Esq.
Butler, Vines, Babb & Threadgill
Suite 810
First American Center
Knoxville, Tennessee 37901-2649

Re: Chattanooga Plants Test Data

Dear Jim:

Per your request of May 3, 1990, please find attached copies of the following analytical data separated by my designated code numbers:

Code #1 - All ground water monitoring tests
Code #2 - All landfill tests
Code #3 - All cupola baghouse dust tests
Code #4 - All "mixed" waste tests

Please note that, in several cases, the attached data although separated by code covers at least two of the above "coded" data items. Jim, after going back through these files again, I'm positive that you probably already have 99.44% of this data in your present files. Please guard these with your life!

Very truly yours,

UNITED STATES PIPE AND FOUNDRY COMPANY

John H. Watson

John H. Watson
Principal Environmental Engineer

JHW/js

Encls. Received 1:30 PM 5-4-90

BUTLER, VINES, BABB AND THREADGILL
ATTORNEYS AT LAW
SUITE 810, FIRST AMERICAN CENTER
POST OFFICE BOX 2649
KNOXVILLE, TENNESSEE 37901-2649

T. WARREN BUTLER
WILLIAM D. VINES III
DENNIS L. BABB
JOHN O. THREADGILL
MARTIN L. ELLIS
RONALD C. KOKSAL
JAMES C. WRIGHT
BRUCE A. ANDERSON
G. KEVIN HARDIN
STEVEN BOYD JOHNSON
BRIAN C. QUIST
EDWARD U. BABB

AREA CODE 615
TELEPHONE 637-3531
FACSIMILE
615-637-3385

May 3, 1990

FAX (205) 254-7494

John H. Watson
U. S. Pipe & Foundry
3300 First Avenue, North
Birmingham, AL 35202

Dear Mr. Watson:

Pursuant to our phone conversation, I appreciate very much your effort and thank you for making sure that we have all ground water monitoring tests, landfill tests, baghouse tests, and mixed waste tests.

Best regards,

Paula

Paula Thomas
Legal Assistant to James C. Wright

pwt/5507

BUTLER, VINES, BABB AND THREADGILL
ATTORNEYS AT LAW
SUITE 810, FIRST AMERICAN CENTER
POST OFFICE BOX 2649
KNOXVILLE, TENNESSEE 37901-2649

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JAMES C. WRIGHT
ALICE M. WOODY
G. KEVIN HARDIN
STEVEN BOYD JOHNSON

AREA CODE 615
TELEPHONE 637-3531

January 14, 1985

ENVIRONMENTAL SERVICE
JAN 17 1985

Mr. Tom Tiesler
Director
Division of Solid Waste Management
Tennessee Department of Health
and Environment
T.E.R.R.A. Building
150 9th Avenue North
Nashville, TN 37203

RE: United States Pipe & Foundry Company

Dear Mr. Tiesler:

This will confirm my conversations with Mr. Victory of your office on Friday, January 11, and Monday, January 14. We represent United States Pipe & Foundry Company with regard to the issues involving the baghouse dust from the foundry.

This is a very perplexing matter to the company, and I know that your office would also like to see this matter resolved to everyone's satisfaction. To that end, we request an informal meeting with you at your convenience so that we can discuss this matter and, hopefully, come to some agreement. We are assured by folks at United States Pipe that they are willing to attempt to cooperate and try to put this matter to rest.

We are faced with a letter written by Mr. Steve Baxter indicating a deadline date of January 18, 1985. We would sincerely request that this deadline not be enforced for at least the time until we have a chance to meet. I understand that our competitors are under no deadline.

COPY

Many thanks for your cooperation.

Very truly yours,

James C. Wright

ljd

Copies to:
W. E. Peck ✓
Wayne Berry ✓
Jim Dockery ✓
H. G. Reynolds ✓
W. D. Vines ✓

ENVIRONMENTAL SERVICE
DEC 17 1984

ENVIRONMENTAL SERVICE
DEC 18 1984

STATE OF TENNESSEE
DEPARTMENT OF PUBLIC HEALTH
SOUTHEAST REGIONAL OFFICE
2501 MILNE STREET
CHATTANOOGA, TENNESSEE 37406-3399

December 14, 1984

CERTIFIED MAIL NO. 7955040
RETURN RECEIPT REQUESTED

Mr. John H. Watson
Environmental Engineer
U.S. Pipe and Foundry Company
3300 First Avenue, North
Birmingham, Alabama 35202

Re: Notice of Violation under the Tennessee Solid Waste Disposal Act
Unregistered Solid Waste Disposal Site
U.S. Pipe and Foundry Company
Chattanooga, Tennessee

Dear Mr. Watson:

The Tennessee Solid Waste Disposal Act, TCA, section 68-31-106 (Registration of Facilities), states, in part, that "No solid waste processing facility or disposal facility or site in any political subdivision of the state of Tennessee shall be operated or maintained by any person unless he has registered with the commissioner or board in the name of such person for the specified facility or site. All registrations of solid waste processing or disposal facilities or sites not located on the site of generation of the waste shall be with the board. All other registrations, including those of persons who dispose of only their own wastes on their own land, except as set out in section 68-31-110, shall be with the commissioner."

The solid waste disposal site located in Chattanooga at 1000 West 19 Street is currently being operated by U.S. Pipe and Foundry Company in violation of the aforementioned Act. Industrial wastes from both U.S. Pipe plants (i.e., Soil Pipe and Valve Fittings) in Chattanooga are being disposed of at the site. Per your March 28, 1984, submittal, these wastes consist of foundry sands, bag house dust, demolition debris, wastewater treatment sludge, cupola slag, and sand castings.

At this date, the Division of Solid Waste Management (DSWM) has not required closure of the site or pursued any of the civil/criminal penalties available under sections 68-31-112 through 68-31-117 of the Act. We have justified this position on the basis of your good faith efforts in seeking registration and the fact that "no serious environmental damage has been confirmed."

If this enforcement posture is to be maintained, U.S. Pipe and Foundry Company must comply with the following:

Mr. John H. Watson
U.S. Pipe and Foundry Company
December 12, 1984
14

(1) No bag house dust shall be disposed of at the site after January 18, 1984.5 Pursuant to this date, the waste material must be taken to an EPA or state-approved solid waste or hazardous waste disposal facility.

Please reference correspondence from this office dated October 16, 1984. You were advised therein that DSWM would not approve the dust for disposal on-site due to its potential for leaching significant concentrations of lead and cadmium. The letter also directed U.S. Pipe and Foundry Company to immediately find an alternative method of disposal which is acceptable to the department.

As late as December 7, 1984, you advised me by phone that the material was still being disposed of on-site.

(2) If the site is to remain open for disposal of any waste, U.S. Pipe and Foundry must continue its good faith efforts to obtain registration. The groundwater monitoring system referenced in my October 16 letter must be installed and sampled with 30 days of approval by the division geologist. Not approved as of Jan 9, 85!

(3) Only non-hazardous, non-putrescible, solid wastes shall be disposed of at the site during the registration process. All other wastes must be disposed of at an EPA or state-approved solid waste or hazardous waste disposal facility.

If you have any questions concerning this matter, please feel free to call me at 615/624-9921.

Cordially yours,

Steve Baxter

Steve Baxter
Environmental Consultant
Division of Solid Waste Management

SB/tc

cc: Division of Solid Waste Management, Nashville

FILE

UNITED STATES PIPE AND FOUNDRY COMPANY

GENERAL OFFICE
3300 FIRST AVENUE NORTH • BIRMINGHAM, ALABAMA 35202

August 13, 1985

Mr. Tom Tiesler, Director
Division of Solid Waste Management
Tennessee Department of Health and Environment
Customs House
701 Broadway
Nashville, Tennessee 37219

Re: Chattanooga Plants

Dear Mr. Tiesler:

In accordance with item 1 of your letter dated July 19, 1985, this letter is being submitted to provide the requested documentation that our cupola baghouse dust qualifies for the "fossil fuel" exemption under your Rule 1200-1-11-.02(1)(d)3(ii)(I).

The cupola baghouse dust produced at our Chattanooga plants is not only "fly ash," it is also "flue gas emission control waste generated primarily from the combustion of coal or other fossil fuels." In our case, it is "other fossil fuels," specifically coke, which is produced from coal. A typical analysis of the seven major constituents in utility boiler fly ash and our coke ash is compared to our plants' cupola baghouse dust in the table below:

Constituent	TVA Fly Ash	Coke Ash	Cupola Baghouse Dust CSP	Cupola Baghouse Dust CVF
	%	%	%	%
Silicon dioxide	49.4	45	40.8	17.9
Aluminum oxide	28	24.75	6.9	14.9
Iron oxide	10.8	12.1	7.8	14
Manganese oxide	0.3	-	3.8	1.4
Calcium oxide	1.51	1.69	2	4.5
Magnesium oxide	1.38	1.33	2.3	0.32
Carbon	2.6	-	5	13
Total	94	84.9	68.6	66

Mr. Tom Tiesler, Director
Division of Solid Waste Management

August 13, 1985

Based upon the above, it would appear that from a chemical analysis standpoint, 66 to 68.6% of the cupola baghouse dust is attributable to the identical constituents in the coke ash, which happens to be very similar to fly ash from a TVA utility boiler.

When looked at from a material balance standpoint, the percentage attributable to coke ash may be even higher, as follows:

1. Our coke is 6.5% ash.
2. In our melting operations, the coke ratio is 7 to 1, which means seven tons of metal is charged for each ton of coke. This translates into 286# of coke per ton of metal charged.
3. Therefore, coke ash present in the charge is 286# times 6.5%, or 18.6# ash per ton of metal.
4. The quantity of cupola baghouse dust generated is based upon an emission factor (EPA's AP-42) of 17# per ton of metal charged.
5. Therefore, the coke ash potentially available for dust generation is approximately 109% of the cupola baghouse dust actually generated.

In summary, although we do not actually believe that 100% of the cupola baghouse dust is a result of the ash present in the coke, we do feel that the true value may lie somewhere between 66 and 100%. However, we do know for a fact that practically 100% of the cupola baghouse dust is a direct result of the combustion of a fossil fuel, since without the combustion process, only that fine particulate matter already present in the charge would be collected in the baghouse.

We trust that the above satisfies your request; however, should you have any questions, please let me know.

Yours truly,

John H. Watson
Principal Environmental Engineer

JHW/js

cc: Mr. Steve Baxter

bc: Messrs. W. E. Fleck, C. N. Codding, W. A. Berry, J. B. Dockery, H. G. Reynolds, W. D. Vines-Knoxville

MWPS006839-MWPS006840

Bates Numbers Intentionally Not Used

Copies to: W.E. Fleck
H.G. Reynolds
Bill Vines - Knoxville
Wayne Berry
Jim Dockery

CERTIFIED MAIL #P169 142 059
RETURN RECEIPT REQUESTED

TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT
CUSTOMS HOUSE
701 BROADWAY
NASHVILLE, TENNESSEE 37219-5403

July 19, 1985

ENVIRONMENTAL SERVICE
JUL 22 1985
2:30 PM

Mr. John Watson
Environmental Engineer
U. S.Pipe and Foundry
3300 First Avenue, North
Birmingham, Alabama 35202

Dear Mr. Watson:

On February 15, 1985 Mr. Bill Vines, Mr. Jim Wright, and you representing U. S. Pipe and Foundry (USPF) met with Mr. Frank Victory, Mr. Doye Rowland, Mr. Steve Baxter, and me representing the Division of Solid Waste Management (SWM). The subject of the meeting was USPF's management of baghouse dust generated by the company and the request for relief of the notice of violation which requires that the USPF cease on-site disposal of the baghouse dust by January 19, 1985 and to dispose of the waste at an authorized facility.

The dust is a waste generated from an air pollution control device. The dust is reported to exhibit the characteristics of E. P. Toxicity and is therefore a hazardous waste. It is understood that it is USPF's position that the waste is generated primarily from the combustion of fossil fuels and that the company does claim the exemption from certain hazardous waste regulations under Rule 1200-1-11-.02(1)(d)3(ii)(I). At the February 15, 1985 meeting, it was requested that USPF furnish documentation to the Division of SWM supporting the company's position that the waste is generated primarily from the combustion of fossil fuels. Provided that USPF can demonstrate the above stated position, the dust would be a hazardous waste excluded from certain regulatory requirements, but it would remain subject to requirements for making a hazardous waste determination and notification. The dust then could, upon approval, be managed as a "special waste" under the Solid Waste Act. USPF needs an approved solid waste disposal site for its current disposal activity and is currently pursuing a permit.

After consideration of the above facts, the Division has determined that the following enforcement actions are appropriate:

1. The Division does require USPF to submit documentation of its claimed exclusion at Rule 1200-1-11-.02(1)(d)3ii(I) at its earliest opportunity,

2. The December 14, 1984 notice of violation by the SWM, Chattanooga Field Office will remain effective,

3. The SWM Field Office may exercise its option to submit an enforcement request relative to the "baghouse dust" disposal at an unathorized site while the USPF pursues a permit for its site,

4. In the event of said request, the Division may consider the use of enforcement discretion, if determined to be appropriate, provided USPF continues to make substanial progress toward obtaining a permit for its on-site solid waste disposal facility or conducts other approved waste management of the baghouse dust.

5. In the event USPF does not comply with hazardous waste regulations or make substancial progress as outlined above, the Division would take appropriate enforcement action.

This letter will also serve to notify you that this Department does propose to amend its regulations governing hazardous waste management by changing the language in Rule 1200-1-11-.02(1)(d)3(ii)(I). The Department proposes to strike the * word "primarily" from the above referenced rule which will effectively make the rule read consistently with the interpretation and application of the respective E.P.A. regulations. The impact on USPF is that, upon the effect of the proposed rule change, it would not qualify for the currently claimed exemption. A public rulemaking hearing will be held to receive public comment August 21 in Room 16 at the Legislative Plaza in Nashville, Tennessee.

Any work toward permitting of an on-site disposal facility should be done in consideration of the proposed rule change referenced above, and further, in consideration of the "Early Enactment Provisions for RCRA Reauthorization". For your convenience I am enclosing portions of the "Early Enactment Provisions for RCRA Reauthorization" and from "RCRA", as amended by the Hazardous and Solid Waste Amendments of 1984.

You will need to maintain a close communication with Steve Baxter at our Chattanooga Field Office while striving to acheive and maintain regulatory compliance. If you have any questions concerning this correspondence, please contact me or Steve Baxter.

Sincerely,

Tom Tiesler

Tom Tiesler, Director
Division of Solid Waste Management

TT/DR/lag Betty/2

cc: Steve Baxter
Hamilton County Health Department

* Note: Do not understand how this will change the exemption nor its application to us. If they intend to be consistent with EPA interpretations of the rules, then its time to spring the "mixture rule exemption" on them!

such variance or extension is in effect, such hazardous waste may be disposed of in a landfill or surface impoundment only f such facility is in compliance with the requirements of subsection (o).

"(i) PUBLICATION OF DETERMINATION.—If the Administrator determines that a method of land disposal will be protective of human health and the environment, he shall promptly publish in the Federal Register notice of such determination, together with an explanation of the basis for such determination.

"(j) STORAGE OF HAZARDOUS WASTE PROHIBITED FROM LAND DISPOSAL.—In the case of any hazardous waste which is prohibited from one or more methods of land disposal under this section (or under regulations promulgated by the Administrator under any provision of this section) the storage of such hazardous waste is prohibited unless such storage is solely for the purpose of the accumulation of such quantities of hazardous wastes as are necessary to facilitate proper recovery, treatment or disposal.

"(k) DEFINITION OF LAND DISPOSAL.—For the purposes of this section, the term 'land disposal', when used with respect to a specified hazardous waste, shall be deemed to include, but not be limited to, any placement of such hazardous waste in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, salt bed formation, or underground mine or cave.

"(l) BAN ON DUST SUPPRESSION.—The use of waste or used oil or other material, which is contaminated or mixed with dioxin any other hazardous waste identified or listed under section 3001 (other than a waste identified solely on the basis of ignitability), for dust suppression or road treatment is prohibited.

"(m) TREATMENT STANDARDS FOR WASTES SUBJECT TO LAND DISPOSAL PROHIBITION.—

"(1) Simultaneously with the promulgation of regulations under subsection (d), (e), (f), or (g) prohibiting one or more methods of land disposal of a particular hazardous waste, and as appropriate thereafter, the Administrator shall, after notice and an opportunity for hearings and after consultation with appropriate Federal and State agencies, promulgate regulations specifying those levels or methods of treatment, if any, which substantially diminish the toxicity of the waste or substantially reduce the likelihood of migration of hazardous constituents from the waste so that short-term and long-term threats to human health and the environment are minimized.

"(2) If such hazardous waste has been treated to the level or by a method specified in regulations promulgated under this subsection, such waste or residue thereof shall not be subject to any prohibition promulgated under subsection (d), (e), (f), or (g) and may be disposed of in a land disposal facility which meets the requirements of this subtitle. Any regulation promulgated under this subsection for a particular hazardous waste shall become effective on the same date as any applicable prohibition promulgated under subsection (d), (e), (f), or (g).

"(n) AIR EMISSIONS.—Not later than 30 months after the date of enactment of the Hazardous and Solid Waste Amendments of 1984, the Administrator shall promulgate such regulations for the monitoring and control of air emissions at "hazardous waste" treatment, storage, and disposal facilities, including but not limited to open tanks, surface impoundments, and landfills, as may be necessary to protect human health and the environment.

"(o) MINIMUM TECHNOLOGICAL REQUIREMENTS.—

"(1) The regulations under subsection (a) of this subsection shall be revised from time to time to take into account improvements in the technology of control and measurement. At a minimum, such regulations shall require, and a permit issued pursuant to a section 3005(c) after the date of enactment of the Hazardous and Solid Waste Amendments of 1984 by the Administrator or a State shall require—

"(A) for each new landfill or surface impoundment, each new landfill or surface impoundment unit at an existing facility, each replacement of an existing land or surface impoundment unit, and each lateral expansion of an existing landfill or surface impoundment unit, for which an application for a final determination regarding issuance of a permit under section 3005(c) is received after the date of enactment of the Hazardous and Solid Waste Amendments of 1984—

"(i) the installation of two or more liners and a leachate collection system above (in the case of a landfill) and between such liners; and

"(ii) ground water monitoring; and

"(B) for each incinator which receives a permit under section 3005(c) after the date of enactment of the Hazardous and Solid Waste Amendments of 1984, the attainment of the minimum destruction and removal efficiency required by regulations in effect on June 24, 1982.

The requirements of this paragraph shall apply with respect to all waste received after the issurance of the permit.

"(2) Paragraph (1)(A)(i) shall not apply if the owner or operator demonstrates to the Administrator, and the Administrator finds for such landfill or surface impoundment, that alternative design and operating practices, together with location characteristics, will prevent the migration of any hazardous constituents into the ground water or surface water at least as effectively as such liners and leachate collection systems.

"(3) The double-liner requirement set forth in paragraph (1)(A)(i) may be waived by the Administrator for any monofill, if— Key

"(A) such monofill contains only "hazardous wastes" from foundry furnace emission controls or metal casting molding sand,

"(B) such wastes do not contain constituents which would render the wastes hazardous for reasons other than the Extraction Procedure ("EP") toxicity characteristics set forth in regulations under this subtitle, and

"(iii) such monofill meets the same requirements as are applicable in the case of a waiver under section 3005(j) (2) or (4).

"(4)(A) Not later than 30 months after the date of enactment of the Hazardous and Solid Waste Amendments of 1984, the Administrator shall promulgate standards requiring that new landfill units, surface impoundment units, waste piles, underground tanks and land treatment units for the storage, treatment, or disposal of hazardous waste identified or listed under section 3001 shall be required to utilized approved leak detection systems.

"(B) For the purposes of subparagraph (A)—

"(i) the term 'approved leak detection system' means a system or technology which the Administrator determines to be capable of detecting leaks of hazardous constituents at the earliest practicable time; and

"(ii) the term 'new units' means units on which construction commences after the date of promulgation or regulations under this paragraph.

"(5)(A) The Administrator shall promulgate regulations or issue guidance documents implementing the requirements of paragraph (1)(A) within 2 years after the date of the enactment of the Hazardous and Solid Waste Amendments of 1984.

"(B) Until the effective date of such regulations or guidance documents, the requirement for the installation of two or more liners may be

satisfied by the installation of a top liner designed, operated, and constructed of materials to prevent the migration of any constituent into such liner during the period such facility remains in operation (including any post-closure monitoring period), and a lower liner designed, operated and constructed to prevent the migration of any constituent through such liner during such period. For the purpose of the preceding sentence, a lower liner shall be deemed to satisfy such requirement if it is constructed of at least a 3-foot thick layer or recompacted clay or other natural material with a permeability of no more than 1×10^{-1} centimeter per second.

"(6) Any permit under section 3005 which is issued for a landfill located within the State of Alabama shall require the installation of two or more liners and a leachate collection system above and between such liners, notwithstanding any other provision of this Act.

"(8) In addition to the requirements set forth in this subsection, the regulations referred to in paragraph (1) shall specify criteria for the acceptable location of new and existing treatment, storage, or disposal facilities as necessary to protect human health and the environment. Within 18 months after the enactment of the Hazardous and Solid Waste Amendments of 1984, the Administrator shall publish guidance criteria identifying areas of vulnerable hydrogeology".

"(p) GROUND WATER MONITORING.—The standards under this section concerning ground water monitoring which are applicable to surface impoundments, waste piles, land treatment units, and landfills shall apply to such a facility whether or not—

"(1) the facility is located above the seasonal high water table;

"(2) two liners and a leachate collection system have been installed at the facility; or

"(3) the owner or operator inspects the liner (or liners) which has been installed at the facility.

This subsection shall not be construed to affect other exemptions or waivers from such standards provided in regulations in affect on the date of enactment of the Hazardous and Solid Waste Amendments of 1984 or as may be provided in revisions to those regulations, to the extent consistent with this subsection. The Administrator is authorized on a case-by-case basis to exempt from ground water monitoring requirements under this section (including subsection (o)) any engineered structure which the Administrator finds does not receive or contain liquid waste (nor waste containing free liquids), is designed and operated to exclude liquid from precipitation or other runoff, utilizes multiple leak detection systems within the outer layer of containment, and provides for continuing operating and maintenance of these leak detection systems during the operating period, closure, and the period required for post-closure, and for which the Administrator concludes on the basis of such findings that there is a reasonable certainty hazardous constituents will not migrate beyond the outer layer or containment prior to the end of the period required for post-closure monitoring".

"(q) HAZARDOUS WASTE USED AS FUEL.—

"(1) Not later than two years after the date of the enactment of the the Hazardous and Solid Waste Amendments of 1984, and after notice and opportunity for public hearing, the Administrator shall promulgate regulations establishing such—

"(A) standards applicable to the owners and operators of facilities which produce a fuel—

"(i) from any hazardous waste identified or listed under section 3001, or

"(ii) from any hazardous waste identified or listed under

EARLY ENACTMENT PROVISIONS

RCRA REAUTHORIZATION

Permits and State Programs Division
Office of Solid Waste
U.S. Environmental Protection Agency

February 1985

MWPS006846

I. PERMIT PROGRAM PROVISIONS

A. MINIMUM TECHNOLOGICAL STANDARDS

1. Permitted Facilities (§202) *

a. Coverage:

- o New landfills or surface impoundments;
- o New units and replacements and lateral expansions of existing units at existing landfills or surface impoundments

b. Requirement:

- o Permits for landfills and surface impoundments issued after the date of enactment require double liners with leachate collection above (for landfills) and between the liners, and ground-water monitoring for new units, and replacements and expansions of existing units receiving wastes after issuance of the permit.
- o Provisions are effective immediately. The Act gives EPA two years to promulgate regulations or guidance.
- o Until EPA promulgates regulations or guidance, facilities can satisfy the double liner requirements by installing a synthetic/clay liner system that meets certain specifications outlined in the statute.

c. Waivers/Variances:

- o A variance from the requirement for two or more liners and a leachate collection system is provided where the owner or operator can demonstrate that alternative design and operating practices, together with location characteristics, are at least as effective in preventing migration of hazardous constituents to ground water and surface water. (This variance is not available to land disposal facilities in Alabama.)
- o Double-liner and leachate collection requirements can be waived for monofills that contain only hazardous wastes from foundry furnace emission controls or metal casting molding sand as long as these wastes do not contain constituents which would render the wastes hazardous for reasons other than the EP toxicity characteristic. The monofill must meet additional conditions specified in the statute. (This variance is not available to land disposal facilities in Alabama.)

d. EPA Headquarters Contact:

- o Bob Tonnetti, Land Disposal Branch, WMED, OSW - Technical Requirements (382-4654).

---

* Also see Section I.A.2 on minimum technological standards for interim status facilities.

MWPS006847

Copy to: Jim Smallwood ✓

STATE OF TENNESSEE
DEPARTMENT OF PUBLIC HEALTH
SOUTHEAST REGIONAL OFFICE
2501 MILNE STREET
CHATTANOOGA, TENNESSEE 37406

CERTIFIED MAIL #7995058
RETURN RECEIPT REQUESTED

May 16, 1985

ENVIRONMENTAL SERVICE MAY 20 1985

ENVIRONMENTAL SERVICE MAY 1985

Mr. John H. Watson
Environmental Engineer
U.S. Pipe and Foundry Company
3300 First Avenue, North
Birmingham, Alabama 35202

Re: Notice of Violation Under the Tennessee Hazardous Waste Management Act
U.S. Pipe and Foundry Company
Valve and Fittings Plant
TND-98-031-6301

Dear Mr. Watson:

I am writing in response to your May 2, 1985 submittal wherein the lead dross waste was identified as hazardous for the characteristic of EP toxicity (~~D006~~ D008).

Since the Tennessee Hazardous Waste Regulations became effective, this material has been managed in violation of Rules 1200-1-11-.03(3)(a)1 [i.e., failure to manifest], 1200-1-11-.03(1)(c)3 [i.e., offering waste to an unauthorized TSDF], and 1200-1-11-.07(1)(b)1(ii) [i.e., storing without a permit] of the Regulations promulgated under authority of the aforementioned Act.

Even though the waste was reclaimed, it did not qualify for the Resource Recovery Exclusion of Rule 1200-1-11-.02(1)(f)1, since a formal written petition had not been submitted to and approved by the Commissioner. Likewise, the small Quantity Generator Exclusion of Rule 1200-1-11-.02(1)(e)2 was non-applicable to your situation since R. Lavin and Sons, Inc. was not a facility identified in Rule 1200-1-11-.02(1)(e)7(iii).

Due to the nature of these violations, a time table for correction is inappropriate. However, we do expect you to take the necessary measures to insure that such violations do not re-occur in the future. *

If you have any questions concerning this letter, please feel free to call me at (615) 624-9921.

*Note: A "petition for exclusion" was filed on May 23, 85. If granted, we can continue current practice without being in violation of their regs!

MWPS006848

Cordially yours,

Steve Baxter

Steve Baxter
Environmental Specialist
Division of Solid Waste Management

cc: Dr. Frank Failing, Hamilton County Health Department
Division of Solid Waste Management, Nashville

FILE

UNITED STATES PIPE AND FOUNDRY COMPANY

GENERAL OFFICE
3300 FIRST AVENUE NORTH • BIRMINGHAM, ALABAMA 35202

May 2, 1985

Mr. Steve Baxter, Environmental Consultant
Tennessee Department of Health and Environment
Division of Solid Waste Management
2501 Milne Street
Chattanooga, Tennessee 37406

Re: Valve and Fittings Plant
TND-98-031-6301

Dear Mr. Baxter:

In accordance with our phone conversation today, please find attached the following:

1. The requested analytical data on our recently completed monitoring wells which were sampled on April 24, 1985. The down-gradient well data is labeled MCI-1 and the up-gradient well as MCI-2.

2. The EP Toxicity test results on the dross from the lead melting pot (Brass Foundry), as required by your notice of violation dated April 9, 1985.

As for item 1 above, it is our opinion that the sampling results are excellent, particularly with respect to lead and cadmium. With respect to item 2 above, the dross from the lead melting pot is indeed EP toxic for lead. However, as we discussed, this material is being reclaimed and we qualify as a "small quantity generator" (SQG). Since March 6, 1978, we have shipped 13,491# to R. Lavin & Sons, Inc. in Chicago, Illinois for conversion to a brass alloy and obtained a credit toward the purchase of brass alloys from the same firm. The 13,491# total averages out to 1927# per year (less than 2200) and 161# per month (less than 220). Based upon the above, we should also qualify for exclusion from full regulation in accordance with Rule 1200-1-11-.02 (1)(e)7. In our conversation, you advised that we would have to file a

Mr. Steve Baxter May 2, 1985

petition for exclusion of reclaimed waste in accordance with Rule 1200-1-11-.01(3)(d); however, the rule cited above [.02(1)(e)7] would appear to require that the petition be filed by R. Lavin & Sons, Inc. Therefore, would you please clarify who is to file the petition and outline exactly what needs to be done so that we can stay in compliance with the Tennessee regulations. Note: Now clarified! We are to file!

Should you have any questions on the above, please let me know.

Yours truly,

John H. Watson

John H. Watson
Principal Environmental Engineer

JHW/js

Encls.

- - - - - - - - - - -

bc: Mr. W. E. Fleck with attachments
Mr. C. N. Codding "
Mr. W. A. Berry "
Mr. H. G. Reynolds "
Mr. J. Smallwood "

NOTE: To remain excluded from full regulation under the State's hazardous waste regulations, we must insure that we comply with the following: (1) store less than 2200# of the lead dross on site, (2) generate less than 220# in any one month, and (3) generate less than 2200# in a calendar year!

81-410

April 24, 85

Sub: CV&F Plant - Brass Fdy - Dross from lead melting pot

1. EP toxicity test made to determine if it was a haz. waste in accordance with Steve Baxter's inspection on April 3, 1985

2. Test results: Waste is EP tox. haz. waste for lead only (Lead was 38 PPM vs. std. of 5 PPM for EP toxicity)
∴ It is a haz. waste

3. Baxter's letter of Apr. 9, 85 says "violation" must be corrected by May 6, 1985!

Note: Based upon a review of the regulations, it would appear that the only violation was the failure to test the waste for a haz. determination. That has now been done!

4. Since our cupola B.H. dust is currently exempt, it is very likely we are a SQG (< 2200#/month of dross)

Since B.H. dust is exempt, it doesn't have to be included in quantity generated to determine status as SQG!
(See attch. review of current Fed. & State regs!)
∴ As long as cupola B.H. dust is exempt, we are a SQG under State & Fed. regs

5. Both Fed. & State regs. allow accumulation and storage of up to 2200# on site while remaining exempt from regulation!

6. Under the Tenn. reg, in order for the haz. waste of a SQG be excluded from full regulation, the generator must:

√(1) Make a haz. waste determination (i.e. the EP tox. test)

(2) Store total of < 2200# on site

(3) If hauled off-site, must be taken to a

MWPS006852

1200-1-11-.01(3)

Article [illegible] 12)
Tom Yates - Nashville
02-10

6. (Cont.)

(3)(Cont.) - State approved haz. waste or solid waste landfill or sent to a legitimate reclaimer. The State regs. indicate we can dispose of in City permitted landfill up to 220#/month without obtaining special written approval of the Dept. of SWM or City!

(4) submit notification to State if we generate more than 220# in any one month

(5) submit an annual report if we generate more than 2200# in a Cal. year.

Conclusion:

1. Determine total amount stored in plant, and hopefully it will be less than 2200#

2. Determine total amount generated on a monthly and yearly basis.

3. We can dispose of 220#/month in City Landfill or ship it off site to a reclaimer!

Data on disposal of lead dross per Jim Smallwood on 5-1-85:

1. Since March 6, 1978, dross has been shipped to R. Lavin & Sons, Chicago Ill. for reclamation. We are given credit toward purchase of copper alloys!
2. Quantities shipped:

1978 - 470#	
79 - 2317#	
80 - 0	Tot. 13,491#
81 - 1629#	Avg. 1927#/yr.
82 - 0	
83 - 3772#	Avg. 161#/mo.
84 - 5303#	

Note: We should qualify as a SQG and be excluded from full regulation if we "now" store < 2200# on site, gen. < 220# in any month & < 2200# in a Cal. year!

MWPS006853

Small Quantity Generator

1. SQG – Between 220 and 2200#/month (Federal)
   State of Tenn Def. – SQG – < 2200#/mo.!

2. Can we be classified as a SQG if we generate only "exempted" waste in quant. > 2200#/mo. (Bill doubt!) Yes!
   What about reg. of haz. waste @ generation rates < 220#/month? (Our lead data is likely < 220#/month)

3. See summary of RCRA 1984 amendments dated 12-14-84 (paper clip)
   Item 10 – Manifest & destination req. for SQG's! EPA draft rule states following:

   SQG's must either

   (1) TSD @ fac. with interim status or RCRA permit
   (2) TSD @ fac. auth. by state to manage mun. or ind. solid waste
   → (3) store no more than 2200# on site
   (4) recycle the waste

   The regs'tns remain in effect until EPA promulgates new state appl. to SQG's or until March 31, 86, whichever occurs first

4. Fossil fuel exemption 261.4(b)(4) in Fed. Reg.
   Sect. 261.4(b) begins by stating "The following solid wastes are not haz. wastes" and then goes on to list those that are exempted!

5. Fossil fuel exemption under Tenn. Regs: Rule 1200-1-11-.02(1)(d)3(i)(I. Sect. 3 titled "Haz. wastes which are exempted from certain regulations"; i.e. not subject to requirements of rules .03 thru .07 except for haz. waste determination of .03(1)(b) and gen. not. reqt of .03(2)

MWPS006854

6. SQG under Tenn. Regs: Rule 1200-1-11-.02(1)(e)

(1) If gen. < 2200#/month

☆ See item #4 on page .02-9 of Tenn. regs, part (iii) which states: "In determining the quantity of haz. waste he generates, a gen. need not include (iii) haz. waste identified in subpart (d)3(ii) of this paragraph!

Our unwanted cupola B.H. dust is included in (d) 3(ii)!

(2) A SQG may accumulate haz. waste on site up to total of 2200# and still remain exempt from regulation!

(3) In order for the haz waste of a SQG be excluded from full regulation, the generator must:

(a) Make a haz. waste determination!

(b) store total of < 2200# on site

(c) If hauled off-site, must go to State approv. haz. waste or solid waste landfill! Can be sent to a recycler or reclaimer (legitimate output)

* Note: Regs indicate we can dispose of in city's permitted landfill up to 220# per month without obtaining special written approval of the Dept. or operator of landfill!

(d) Notification is req'd if SQG generates more than 220# in a calendar month.

(e) Subject to annual reporting req't if we gen. more than 2200# in a Cal. year!

Note: (item (a) thru (e) listed under 7 on page .02-10 of Tenn. reg!)

MWPS006855

TO. JIM 1500K

ENVIRONMENTAL SERVICE
MAY - 2 1985

TI 29185

LEAD DROSS SHIPPED TO R. LAVIN & SONS, INC.
FOR CONVERSION TO 85-5-5-5 BRASS
ALLOY OR CREDIT APPLIED TO CONVERSION.

3-5-84	1,891	LBS	LEAD	DROSS.	1984
6-29-84	446	"	"	"	~~5303 LB~~
9-21-84	1,075	"	"	"	
3-5-84	1,891	"	"	"	
4-12-83	3,772	"	"	"	1983 3,772 LB
11-18-81	1,629	"	"	"	1981 1,629 LB
10-26-79	293	"	"	"	~~2,317 LB~~
7-27-79	2,024	"	"	"	
3-6-78	470	"	"	"	470
				7 YR)	~~13,491~~
				AVG/YR	1,927.28

4/10/84 346 LBS LEAD SPUTTER

TO:

R. LAVIN & SONS INC. - Are they "permitted" by State
~~CHICAGO~~ ILL 60623 of Ill as reclaimers or disposers?
CHICAGO

*Note: According to EPA's final regs on what recycled materials are solid & hazardous wastes under RCRA (FR of Jan. 4, 1985) spent materials (including drosses) as well as scrap metal are "wastes" even though they may be recycled thru reclamation!

MWPS006856

Watson

Copies to: W. E. Fleck
W. A. Berry
H. G. Reynolds
Jim Smallwood

STATE OF TENNESSEE
DEPARTMENT OF PUBLIC HEALTH
SOUTHEAST REGIONAL OFFICE
2501 MILNE STREET
CHATTANOOGA, TENNESSEE 37406-3399

April 9, 1985

CERTIFIED MAIL #7955020
RETURN RECEIPT REQUESTED

Mr. John H. Watson, Environmental Engineer
U. S. Pipe and Foundry Company
3300 First Avenue, North
Birmingham, Alabama 35202

Re: Notice of Violation Under The
Tennessee Hazardous Waste
Management Act
U.S. Pipe and Foundry Company
Valve And Fittings Plant
TND-98-031-6301

Dear Mr. Watson:

This letter confirms the observations and/or recommendations which were made during the Hazardous Waste Generator Inspection concerning your facility on April 3, 1985. The enclosed inspection Report details a violation which was noted during this inspection.

The aforementioned violation must be corrected no later than May 6, 1985. A follow-up inspection will be scheduled between May 6 and May 21, to verify the corrective action taken.

If you have any questions concerning the contents of this letter or the enclosed inspection Report, please contact me at (615) 624-9921.

Cordially yours,

Steve Baxter

Steve Baxter
Environmental Specialist
Division of Solid Waste Management
Southeast Regional Office

SB:pph
Enclosure

cc: Dr. Frank Failing, Hamilton County Health Department
Division of Solid Waste Management, Nashville

INSPECTION REPORT

1. Site/Operation Inspected:

U.S. Pipe and Foundry Company
Valve and Fittings Plant
TND-98-031-6301
2701 Chestnut Street
P.O. Box 311
Chattanooga, TN 37401

2. Primary Contact:

Mr. John H. Watson, Environmental Engineer
U.S. Pipe and Foundry Company
3300 First Avenue, North
Birmingham, Alabama 35202
205/254-7435

3. Date and Time of Inspection:

April 3, 1985
10:30 a.m. - 12:30 p.m.

4. Report Prepared By:

Steve Baxter, Environmental Consultant
Tennessee Dept. of Health and Environment
Division of Solid Waste Management
2501 Milne Street
Chattanooga, Tennessee 37406
(615) 624-9921

5. Names and Affiliations of Other Inspection Participants:

Jim Childress, DSWM
Jim Book, U.S. Pipe and Foundry Company
Jim Smallwood, U.S. Pipe and Foundry Company

6. Purpose of Inspection:

To evaluate the facility's compliance with the applicable generator requirements of the Rules Governing Hazardous Waste Management In Tennessee.

7. Facility Description:

Nature of Business:

Manufacture of custom iron pipe and fittings

Hazardous Waste Generated: (Exempted)

Emission control dust from cupola furnaces utilizing coke as fuel (D006) (D008)

Facility Status: Generator

At the time of the inspection, the baghouse dust was considered exempt from the Regulations (except for Notification) by authority of Rule 1200-1-11-.02 (1)(d)3(ii)(I). The States' position concerning this exemption and how it pertained to U.S. Pipe and Foundry Company was outlined in Tom Tieslers' letter of September 11, 1984, to Mr. Jim Dockery.

8. Inspection Findings:

Rule 1200-1-11.03(1)(b) requires persons who generate a waste, to determine if that waste is a hazardous waste. (0010)

At the time of the inspection, U.S. Pipe and Foundry Company had failed to conduct such a determination on the dross removed from the lead melting pot.

SIGNED Steve Burton

DATED April 9, 1985

UNITED STATES PIPE AND FOUNDRY COMPANY

January 18, 1994

TO: Mr. Jim Smallwood ADDRESS: CVF

FROM: John H. Watson ADDRESS: General Office

SUBJECT: Use of Inert Waste Landfill near Trenton, Georgia for Disposal of Waste Foundry Sand

COPIES TO:

As a result of your recent request, I obtained a complete amended copy of Georgia's Solid Waste Management Regulations (Chapter 391-3-4 as amended June 27, 1993) and reviewed it in conjunction with the letters and attachments you provided relative to the above subject. For your information, please find enclosed marked-up copies of several applicable sections of the amended regulations.

Jim, based upon a review of the above, it is my conclusion that neither U. S. Pipe nor Wheland can adequately meet the requirements and exclusions necessary to utilize Ms. Massengale's site near Trenton for the disposal of waste foundry sands. That conclusion is based upon the following reasoning:

1. Ms. Massengale's site would operate under a "Permit By Rule" specific to an "inert waste landfill" operation. See Sections 391-3-4-.06(1) and 3(c) on pages 29 and 31 of the enclosed. Item 28 on page 5 of the enclosure defines an "Inert Waste Landfill" and specifies exactly what materials may be placed in it. This definition specifically excludes "industrial waste", which is defined in item 27 on page 4 of the enclosure. Waste foundry sand meets the definition of "industrial waste" and is thus excluded from being an "Inert Waste"!

2. The state's December 28, 1993 letter to Wheland makes reference to the fact that, if foundry sand can meet the definition of a "recovered material" (see Section 391-3-4-.04(7) on page 20), it would be exempt from their solid waste regulations. However, please note that for a "recovered material" to be exempt from regulation, it "must be feasibly used, reused, or recycled", a term defined in Section 391-3-4-.04(7)(f) on page 21 of enclosure. Unfortunately, item .04(7)(f)4 on page 21 appears to kill the exemption for "use of inherently waste-like materials as fill material". Therefore, I do not see how waste foundry sand could be classified as "recovered material."

Should you have any questions on the above, please let me know.

John H. Watson

John H. Watson

JHW/js

Encl.

2. is on the National Priorities List (NPL), as found in appendix B to 40 CFR, Part 300.

(b) any municipal solid waste landfill or landfill unit that is receiving solid waste as of April 9, 1994 and meets the following two conditions:

1. disposed of 100 tons or less per day of solid waste between October 9, 1991 and October 9, 1992, and disposes of no more than an average of 100 TPD of solid waste each month between October 9, 1993 and April 9, 1994(or other dates consistent with Federal standards and as may be approved by the Director), and;

2. is not on the National Priorities List (NPL), as found in appendix B to 40 CFR, Part 300.

(c) Waste placement in existing units must be consistent with past operating practices or modified practices to ensure good management.

(20) "Generator" means any person in Georgia or in any other state who creates solid waste.

(21) "Garbage" means food waste including waste accumulations of animal or vegetable matter used or intended for use as food, or that attends the preparation, use, cooking, dealing in or storing of meat, fish, fowl, fruit or vegetables.

(22) "Groundwater" means water below the land surface in a zone of saturation.

(23) "Hazardous Waste" means any solid waste which has been defined as a hazardous waste in regulations promulgated by the Board of Natural Resources, Chapter 391-3-11.

(24) "Household waste" means any solid waste (including garbage, trash, and sanitary waste in septic tanks) derived from households (including single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas).

(25) "Host Local Government" means the host county or other local host governmental jurisdiction within whose boundaries a municipal solid waste disposal facility is located.

(26) "Industrial Furnace" means a device as defined in Chapter 391-3-11, the Rules for Hazardous Waste Management.

(27) "Industrial Waste" means solid waste generated by manufacturing or industrial processes that is not a hazardous waste regulated under the Hazardous Waste Management Act and regulations promulgated by the Board of Natural Resources, Chapter 391-3-11.

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Such waste includes, but is not limited to, wastes resulting from the following manufacturing processes: Electric power generation; fertilizer/agricultural chemicals; food and related products/by-products; inorganic chemicals; iron and steel manufacturing; leather and leather products, nonferrous metals manufacturing/foundries; organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay, and concrete products; textile manufacturing; transportation equipment; and water treatment. This term does not include mining waste or oil and gas waste.

(28) "Inert Waste Landfill" means a disposal facility accepting only wastes that will not or are not likely to cause production of leachate of environmental concern. Such wastes are limited to earth and earth-like products, concrete, cured asphalt, rock, bricks, yard trimmings, stumps, limbs, and leaves. This definition excludes industrial and demolition waste not specifically listed above.

(29) "Lateral expansion" means a horizontal expansion of the waste boundaries of an existing MSWLF unit or landfill unit.

(30) "Leachate" means a liquid that has passed through or emerged from solid waste and contains soluble, suspended, or miscible materials removed from such wastes.

(31) "Landfill Unit" means an area of land on which or an excavation in which solid waste is placed for permanent disposal and which is not a land application unit, surface impoundment, injection well, or compost pile. Permanent disposal requires the placement of daily, intermediate, and/or final earth, synthetic, or a combination of earth and synthetic cover over the solid waste.

(32) "Leachate Collection System" means a system at a landfill for collection of the leachate which may percolate through the waste and into the soils surrounding the landfill.

(33) "Liner" means a continuous layer of natural or man-made materials, beneath or on the sides of a disposal site or disposal site cell which restricts the downward or lateral escape of solid waste, solid waste constituents, or leachate.

(34) "Liquid Waste" means any waste material that is determined to contain "free liquids" as defined by Method 9095 (Paint Filter Liquids Test), as described in "Test Methods for the Evaluation of Solid Wastes, Physical/Chemical Methods" (EPA Pub. No. SW-846).

(35) "Materials Recovery Facility" means a solid waste handling facility that provides for the extraction from solid waste of recoverable materials, materials suitable for use as a fuel or soil amendment, or any combination of such materials.

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be prohibited, and that a proposal for disposal of such waste, with supporting data as may be deemed necessary, be submitted by the generator of such waste for consideration of approval by the Division. The prohibition of such waste shall continue in effect until an acceptable procedure for processing or disposal has been developed and approved.

(b) The following solid wastes are specifically prohibited from disposal at solid waste disposal facilities in Georgia:

1. lead acid batteries;

2. liquid waste in landfills, except as allowed in (9) below;

3. regulated quantities of hazardous waste as defined in Rules promulgated by the Board of Natural Resources, Chapter 391-3-11;

4. radioactive waste as defined in Rules promulgated by the Board of Natural Resources, Chapter 391-3-9, Radioactive Waste Material Disposal; and

5. polychlorinated biphenyls (PCB) waste as defined in 40 CFR, Part 761.

(c) Any generator who disposes of a prohibited waste or person who accepts for disposal a prohibited waste shall be deemed to be in violation of these Rules.

(7) Recovered Materials: ← 391-3-4-.04(7)

(a) Recovered materials and recovered materials processing facilities are excluded from regulation as solid wastes and solid waste handling facilities. To be considered exempt from regulation, the material must have a known use, reuse, or recycling potential; must be feasibly used, reused, or recycled; and must have been diverted or removed from the solid waste stream for sale, use, reuse, or recycling, whether or not requiring subsequent separation and processing.

(b) Materials accumulated speculatively are solid waste and must comply with all applicable provisions of these regulations.

(c) A recovered material is not accumulated speculatively if the person accumulating it can show that there is a known use, reuse, or recycling potential for the material, that the material can be feasibly sold, used, reused, or recycled and that during the preceding 90 days the amount of material that is recycled, sold, used, or reused equals at least 60 percent by weight or volume of the material received during that 90 day period and 60 percent by weight or volume of all material previously received and not recyled, sold, used, or reused and carried forward into that 90 day period.

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(d) Proof of recycling, sale, use, or reuse shall be provided in the form of bills of sale, or other records showing adequate proof of movement of the material in question to a recognized recycling facility or for proper use or reuse from the accumulation point. In addition, proof must be provided that there is a known market or disposition for the recovered material. Persons claiming that they are owners or operators of recovered materials processing facilities must show that they have the necessary equipment to do so.

(e) A recovered material is "sold" if the generator of the recovered material or the person who recovered the material from the solid waste stream received consideration or compensation for the material because of its inherent value.

(f) A recovered material is "used, reused or recycled" if it is either:

1. Employed as an ingredient (including use as an intermediate) in a process to make a product (for example, utilizing old newspaper to make new paper products) or

2. Employed in the same or different fashion as its original intended purpose without physically changing its composition (for example, use of old automobiles for spare parts or donation of clothing or furniture to charitable organizations) or

3. Employed in a particular function or application as an effective substitute for a commercial product (for example, utilizing shredded tires in asphalt or utilizing refuse derived fuel as a substitute for fuel oil, natural gas, coal, or wood in a boiler or industrial furnace) as long as such substitution does not pose a threat to human health or the environment and so long as the facility is not a solid waste thermal treatment facility.

*4. A material <u>is not</u> "used, reused or recycled" when it is applied to or placed on or in the land in a manner that constitutes disposal which, in the opinion of the Director, may pose a threat to human health and the environment (<u>for example</u>, utilizing soil containing levels of hazardous constituents, as listed in Chapter 391-3-11, 40 CFR Part 261, Appendix VIII for fill material when those levels are greater than the background levels in the area to be filled, land applying sludge in excess of generally accepted agricultural practices <u>or</u> use of inherently waste-like materials as fill material).

(8) Asbestos Containing Waste.

(a) Collection.

1. Vehicles used for the transportation of containerized asbestos waste shall have an enclosed carrying compartment or utilize a covering sufficient to contain the transported waste,

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fill;

7. Sorption and attenuation capacity: for landfills, the sorptive characteristics of an earth material and its ability to absorb contaminants shall be determined; and

8. Distance to surface water: municipal solid waste landfills shall not be situated within two miles upgradient of any surface water intake for a public drinking water source unless engineering modifications such as liners and leachate collection systems and groundwater monitoring systems are provided.

(2) Construction/Demolition waste landfills must comply with the siting criteria specified in "Criteria for Performing Site Acceptability Studies for Solid Waste Landfills in Georgia", Circular 14, Appendix B.

(3) Industrial waste landfills permitted to receive only a single type industrial waste (monofil) or receive only a single industry's waste, must comply with the siting criteria specified in "Criteria for Performing Site Acceptability Studies for Solid Waste Landfills in Georgia", Circular 14, Appendix A. Commercial industrial waste landfills must meet the same siting criteria as municipal solid waste landfills.

(4) A site assessment report addressing the criteria listed above shall be prepared by a geologist registered in Georgia or a geotechnical engineer registered in Georgia and submitted to the Division for review at the time of submitting a permit application. The site assessment report shall be prepared in accordance with Circular 14, 1991, as published by the Georgia Geologic Survey, Georgia Environmental Protection Division.

(5) Monitoring wells and borings shall be constructed by a driller having a valid and current bond with the Water Well Standards Advisory Council.

Authority O.C.G.A. Section 12-8-20 et seq., as amended.

391-3-4-.06 Permit by Rule for Collection, Transportation, Processing, and Disposal. Amended.

(1) Permit-by-Rule. Notwithstanding any other provision of these Rules, collection operations, transfer station operations, "inert waste landfill" operations, waste processing and thermal treatment operations, and wastewater treatment and pretreatment plant sludge disposal operations shall be deemed to have a solid waste handling permit if the conditions in paragraph (2) are met and the conditions in paragraph (3), for that particular category of operation are met.

(2) Notification. Within 30 days of commencing solid waste

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handling activities which are covered under a permit-by-Rule, notification must be made to the Director of such activity. Notification shall be made on such forms as are provided by the Director. Persons failing to notify the Director of such activities shall be deemed to be operating without a permit.

(3) Categories of Operations:

(a) Collection Operations.

1. Vehicle construction: vehicles or containers used for the collection and transportation of garbage and similar putrescible wastes, or mixtures containing such wastes, shall be covered, substantially leakproof, durable, and of easily cleanable construction.

2. Vehicle maintenance: solid waste collection and transportation vehicles shall be cleaned frequently and shall be maintained in good repair.

3. Littering and spillage: vehicles or containers used for the collection and transportation of solid waste shall be loaded and moved in such manner that the contents will not fall, leak or spill therefrom and shall be covered when necessary to prevent blowing of material from the vehicle.

4. No regulated quantities of hazardous wastes may be collected and transported except in accordance with the provisions of the Georgia Hazardous Waste Management Act, O.C.G.A. 12-8-60 et seq.

5. Local ordinances: it is the responsibility of the collector to comply with all local rules, regulations, and ordinances pertaining to operation of solid waste collection systems.

6. All wastewater from cleaning of vehicles must be handled in a manner which meets all applicable environmental laws and regulations.

7. All collected solid waste must be deposited only in a permitted solid waste handling facility authorized to receive the applicable waste types.

8. After July 1, 1992, municipal solid waste may not be transported from a jurisdiction to a municipal solid waste disposal facility located in another county unless the jurisdiction generating the waste is actively involved in and has a strategy for meeting the State-wide goal of waste reduction by July 1, 1996.

(b) Transfer Station Operations:

1. Solid Waste shall be confined to the interior of transfer stations, and not allowed to scatter to the outside. Waste shall

not be allowed to accumulate, and floors shall be kept clean and well drained.

2. Sewage solids shall be excluded from transfer stations.

3. Dust, odors and similar conditions resulting from transfer operations shall be controlled at all times.

4. Rodents, insects and other such pests shall be controlled.

5. Any contaminated runoff from washwater shall be discharged to a wastewater treatment system and, before final release, shall be treated in a manner approved by the Division.

6. Hazardous Waste: no person owning or operating a transfer station shall cause, suffer, allow, or permit the handling of regulated quantities of hazardous waste.

(c) Inert Waste Landfill Operations: ← 391-3-4-.06(3)(c)

1. Only waste that will not or is not likely to produce leachate of environmental concern may be disposed of in an inert waste landfill. Only earth and earth-like products, concrete, cured asphalt, rock, bricks, yard trimmings, and land clearing debris such as stumps, limbs and leaves, are acceptable for disposal in an inert waste landfill. *

2. Materials placed in inert waste landfills shall be spread in layers and compacted to the least practical volume.

3. A uniform compacted layer of clean earth cover no less than one (1) foot in depth shall be placed over all exposed inert waste material at least monthly.

4. The inert waste landfill site shall be graded and drained to minimize runoff onto the landfill surface, to prevent erosion and to drain water from the surface of the landfill.

5. Access to inert waste landfills shall be limited to authorized entrances which shall be closed when the site is not in operation.

6. Suitable means shall be provided to prevent and control fires. Stockpiled soil is considered to be the most satisfactory fire fighting material.

7. A uniform compacted layer of final cover not less than two (2) feet in depth and a vegetative cover shall be placed over the final lift not later than one month following final placement of inert waste within that lift.

8. Notice of final closure must be provided to the Director

* This definition excludes "industrial waste" not specifically listed!

within 30 days of receiving the final load of waste. Any site not receiving waste for in excess of 180 days shall be deemed abandoned and in violation of these Rules unless properly closed. Notice of closure must include the date of final waste receipt and an accurate legal description of the boundaries of the landfill.

9. All deeds for real property which have been used for landfilling shall include notice of the landfill operations, the date the landfill operation commenced and terminated, an accurate legal description of the actual location of the landfill, and a description of the type of solid wastes which have been deposited in the landfill. Concurrent with the submission of notice of final closure to the Director, the owner or operator must submit to the Director confirmation that the information required in this section has been noticed on the property deed.

10. All wastes received at the landfill must be measured and reported as required by Rule 391-3-4-.17.

11. All other applicable federal, state, and local laws, rules, and ordinances, including erosion and sediment control, and any applicable federal wetlands permits, must be fully complied with prior to commencement of landfilling operations.

(d) On-site Waste Processing and Thermal Treatment Operations:

1. For purposes of this Rule, "On-site Processing or Thermal Treatment Facility" shall mean a facility that processes or thermally treats, no less than 75 percent, by weight, solid waste generated at the permit-by-Rule facility location or facilities owned by the same person who owns the property containing the permit-by-Rule facility. On-site facilities may include fixed or mobile facilities either owned or under contract with the solid waste generator of 75 percent of the solid waste so long as the solid waste generator maintains legal control of the solid waste while at the permit-by-Rule facility.

2. Capacity: the on-site waste processing and thermal treatment technology facility shall be adequate in size and capacity to manage the projected volume of solid waste and residue generated.

3. Residue: on-site thermal treatment technology facilities shall be designed in such a manner to expedite the routine sampling of bottom and fly ash. Temperature and combustion time shall be sufficient to produce a satisfactory residue, essentially free of odors and unstable organic matter,and such residue shall be promptly deposited in a municipal solid waste landfill having a liner and leachate collection system and operated and maintained as provided herein, handled in such other manner as may be approved by the Division, or if shown by testing to be hazardous, handled in accordance with the provisions of the Georgia Hazardous Waste Management Act, O.C.G.A. 12-8-60, et seq. Residue from thermal

Georgia Department of Natural Resources
205 Butler Street, S.E., Floyd Towers East, Atlanta, Georgia 30334
Joe D. Tanner, Commissioner
Harold F. Reheis, Director
Environmental Protection Division

Mr. Jim Smallwood
from. Jean Massengale

December 28, 1993

SUBJECT: Foundry Sand By-Products

Dear Mr. Bowers:

This is in response to your December 3, 1993 letter requesting authorization to beneficially use spent foundry sand as backfill on property owned by Ms. Gene Massengale north of Trenton in Dade County, Georgia.

The Rules for Solid Waste Management define Recovered Materials as "those materials which have known use, reuse, or recycling potential; can be feasibly used, or reused or recycled; and have been diverted or removed from the solid waste stream for sale, use, reuse, or recycling whether or not requiring subsequent separation and processing."

* You should carefully review Chapter 391-3-4-.04(7) of the rules which provide guidance in determining if a material can be considered a recovered material and as such be exempt from regulations.

* Two sections of the rules were amended effective June 27, 1993. Chapter 391-3-4-.04(7)(c) requires that at least 60 percent of material accumulated must be recycled, sold, used, or reused within a 90 day period. Chapter 391-3-4-.04(f)4, prohibits the use or reuse of a material containing levels of hazardous constituents, as listed in Chapter 391-3-11, 40 CFR Part 261, Appendix VIII for fill materials when those levels are greater than the background levels in the area to be filled. See pages 20 & 21

"Provided Wheland Foundry can meet the requirements of Chapter 391-3-4-.04(7)," EPD has no objection to your utilizing the foundry sand as a recovered material as backfill on this property. You will be expected to maintain records to demonstrate that you are complying with the above referenced rules. These records must be available to EPD upon our request.

If you have questions regarding this matter please contact me at (404)362-2692.

Sincerely,

Harold C. Gillespie
Unit Coordinator
Industrial Solid Waste Unit
(404)362-2692

HCG/dh/LetBowers.Jr
cc: James W. Dunbar
Clark Reynolds
Ms. Jean Massengale
File (Ind)

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Requested copy from Mr. Gillespies office afternoon 1-12-94 (ASAP)

RULES OF
GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
CHAPTER 391-3-4 SOLID WASTE MANAGEMENT

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Effective Date: June 27, 1993
As Amended: October 1, 1993

(3) Upon submission of an application to the Division for any municipal solid waste disposal facility for which a permit (other than a permit-by-Rule) is required, the applicant, within fifteen (15) days of the submission of said application, shall take the following actions:

(a) Publish public notice of the application in a newspaper of general circulation serving the host county if the proposed facility or expanded facility is to serve no more than one county;

(b) Publish public notice of the application in a newspaper of general circulation serving each affected county if the proposed facility or expanded facility is to serve more than one county;

(c) Provide written notice of the permit application to the governing body of each affected county in (a) or (b) above; to the governing body of each local government within (a) or (b) above; and to the regional development center;

(d) Request that the public notice outlined herein to be displayed prominently in the courthouse of each county notified in (c) above.

(e) Upon notification by the Division that a proposed facility is suitable for the intended purpose, the host local government shall initiate a local notification and negotiation process as required in O.C.G.A. 12-8-32.

(4) The governing authority of the county or municipality will hold a public hearing not less than two weeks prior to the issuance of any permit, and notice of such hearing shall be posted at the proposed site and advertised in a newspaper of general circulation serving the county or counties in which the proposed activity will be conducted, at least thirty (30) days prior to such hearing. A typed copy of the hearing transcript shall be submitted to the Division.

(5) Whenever the Director issues, denies, revokes, suspends, or transfers a permit or approves a major modification of a permit for a municipal solid waste disposal facility, he shall notify the legal organ and the chief elected official of the host local government in which the facility is located or is proposed to be located.

Authority O.C.G.A. Section 12-8-20 et seq., as amended.

391-3-4-.04 General. Amended.

(1) No person shall engage in solid waste handling in a manner which will be conducive to insect and rodent infestation or the harboring and feeding of wild dogs or other animals; impair the air quality; impair the quality of the ground or surface waters; impair

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the quality of the environment; or likely create other hazards to the public health, safety, or well-being as may be determined by the Director.

(2) Provisions of these Rules apply to all persons presently engaged in solid waste handling as well as all persons proposing to engage in solid waste handling.

(3) Exemptions: provisions of these Rules shall not apply to any individual disposing of solid wastes originating from his own residence onto land or facilities owned by him when disposal of such wastes does not thereby adversely affect the public health. These Rules shall not apply to any individual, corporation, partnership, or cooperative disposing of livestock feeding facility waste from facilities with a total capacity of up to 1,000 cattle or 5,000 swine. Provided that if such individual, corporation, partnership, or cooperative shall provide an approved waste disposal system which is capable of properly disposing of the run-off from a "ten year storm" such individual, corporation, partnership or cooperative shall be further exempt regardless of total per head capacity. Nothing in these Rules shall limit the right of any person to use poultry or other animal manure for fertilizer.

(4) Prohibited Acts:

(a) Burning: no solid waste may be burned at a solid waste handling facility, except by thermal treatment technology facility approved by the Division.

(b) Scavenging: no person owning or operating a solid waste handling facility shall cause, suffer, allow or permit scavenging at such site.

(c) Open Dump: no solid waste may be disposed of by any person in an open dump, nor may any person cause, suffer, allow or permit open dumping on his property.

(5) The owner or occupant of any premises, office, business establishment, institution, industry, or similar facilities shall be responsible for the collection and transportation of all solid waste accumulated at the premises, office, business establishment, institution, or similar facility to a solid waste handling facility operating in compliance with these Rules unless arrangements have been made for such service with a collector operating in compliance with these Rules.

(6) Prohibited Wastes Disposal:

(a) If, because of unusual physical or chemical properties, or geological or hydrological conditions, or for other reasons, the Division finds that solid waste should not be accepted at a solid waste handling facility, the Division may require that such waste

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be prohibited, and that a proposal for disposal of such waste, with supporting data as may be deemed necessary, be submitted by the generator of such waste for consideration of approval by the Division. The prohibition of such waste shall continue in effect until an acceptable procedure for processing or disposal has been developed and approved.

(b) The following solid wastes are specifically prohibited from disposal at solid waste disposal facilities in Georgia:

1. lead acid batteries;

2. liquid waste in landfills, except as allowed in (9) below;

3. regulated quantities of hazardous waste as defined in Rules promulgated by the Board of Natural Resources, Chapter 391-3-11;

4. radioactive waste as defined in Rules promulgated by the Board of Natural Resources, Chapter 391-3-9, Radioactive Waste Material Disposal; and

5. polychlorinated biphenyls (PCB) waste as defined in 40 CFR, Part 761.

(c) Any generator who disposes of a prohibited waste or person who accepts for disposal a prohibited waste shall be deemed to be in violation of these Rules.

(7) Recovered Materials:

(a) Recovered materials and recovered materials processing facilities are excluded from regulation as solid wastes and solid waste handling facilities. To be considered exempt from regulation, the material must have a known use, reuse, or recycling potential; must be feasibly used, reused, or recycled; and must have been diverted or removed from the solid waste stream for sale, use, reuse, or recycling, whether or not requiring subsequent separation and processing.

(b) Materials accumulated speculatively are solid waste and must comply with all applicable provisions of these regulations.

(c) A recovered material is not accumulated speculatively if the person accumulating it can show that there is a known use, reuse, or recycling potential for the material, that the material can be feasibly sold, used, reused, or recycled and that during the preceding 90 days the amount of material that is recycled, sold, used, or reused equals at least 60 percent by weight or volume of the material received during that 90 day period and 60 percent by weight or volume of all material previously received and not recyled, sold, used, or reused and carried forward into that 90 day period.

(d) Proof of recycling, sale, use, or reuse shall be provided in the form of bills of sale, or other records showing adequate proof of movement of the material in question to a recognized recycling facility or for proper use or reuse from the accumulation point. In addition, proof must be provided that there is a known market or disposition for the recovered material. Persons claiming that they are owners or operators of recovered materials processing facilities must show that they have the necessary equipment to do so.

(e) A recovered material is "sold" if the generator of the recovered material or the person who recovered the material from the solid waste stream received consideration or compensation for the material because of its inherent value.

(f) A recovered material is "used, reused or recycled" if it is either:

1. Employed as an ingredient (including use as an intermediate) in a process to make a product (for example, utilizing old newspaper to make new paper products) or

2. Employed in the same or different fashion as its original intended purpose without physically changing its composition (for example, use of old automobiles for spare parts or donation of clothing or furniture to charitable organizations) or

3. Employed in a particular function or application as an effective substitute for a commercial product (for example, utilizing shredded tires in asphalt or utilizing refuse derived fuel as a substitute for fuel oil, natural gas, coal, or wood in a boiler or industrial furnace) as long as such substitution does not pose a threat to human health or the environment and so long as the facility is not a solid waste thermal treatment facility.

4. A material is not "used, reused or recycled" when it is applied to or placed on or in the land in a manner that constitutes disposal which, in the opinion of the Director, may pose a threat to human health and the environment (for example, utilizing soil containing levels of hazardous constituents, as listed in Chapter 391-3-11, 40 CFR Part 261, Appendix VIII for fill material when those levels are greater than the background levels in the area to be filled, land applying sludge in excess of generally accepted agricultural practices or use of inherently waste-like materials as fill material).

(8) Asbestos Containing Waste.

(a) Collection.

1. Vehicles used for the transportation of containerized asbestos waste shall have an enclosed carrying compartment or utilize a covering sufficient to contain the transported waste,

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prevent damage to containers, and prevent release or spillage from the vehicle.

2. Vehicles used to reduce waste volume by compaction shall not be used.

3. Vacuum trucks used to transport waste slurry must be constructed and operated to ensure that liquids do not leak from the truck.

(b) Disposal.

1. Asbestos containing waste is to be disposed of only in a permitted landfill or other facility authorized by the Division for acceptance of asbestos containing waste.

2. Asbestos containing waste shall be sealed in leak-proof containers labeled with: "Caution - Contains Asbestos Fibers - Avoid Opening or Breaking Container - Breathing Asbestos is Hazardous to Your Health."

3. Asbestos containing waste shall be disposed of in such a manner as not to destroy the integrity of the asbestos containing materials containers prior to the placement of cover material. This waste shall be completely covered immediately after deposition with a minimum of six (6) inches of non-asbestos material.

(9) Liquid Waste Restrictions at Landfills.

(a) Bulk or noncontainerized liquid waste may not be placed in MSWLF units unless:

1. The waste is household waste other than septic waste; or

2. The waste is leachate or gas condensate derived from the MSWLF unit and the MSWLF unit, whether it is a new or existing MSWLF or lateral expansion, is designed with a composite liner and leachate collection system as described in paragraph (1)(d) of Rule 391-3-4-.07. The owner or operator must place the demonstration in the operating record and notify the Director that it has been placed in the operating record.

(b) Containers holding liquid waste may not be placed in a MSWLF unit unless:

1. The container is a small container similar in size to that normally found in household waste;

2. The container is designed to hold liquids for use other than storage; or

3. The waste is household waste.

be submitted by the generator of such waste for consideration of approval by the Division. The prohibition of such waste shall continue in effect until an acceptable procedure for processing or disposal has been developed and approved.

(b) The following solid wastes are specifically prohibited from disposal at solid waste disposal facilities in Georgia:

1. lead acid batteries;

2. liquid waste in landfills, except as allowed in (9) below;

3. regulated quantities of hazardous waste as defined in Rules promulgated by the Board of Natural Resources, Chapter 391-3-11.

4. radioactive waste as defined in rules promulgated by the Board of Natural Resources, Chapter 391-3-9, Radioactive Waste Material Disposal.

(c) Any generator who disposes of a prohibited waste or person who accepts for disposal a prohibited waste shall be deemed to be in violation of these Rules.

(7) Recovered Materials:

(a) Recovered materials and recovered materials processing facilities are excluded from regulation as solid wastes and solid waste handling facilities. To be considered exempt from regulation, the material must have a known use, reuse, or recycling potential; must be feasibly used, reused, or recycled; and must have been diverted or removed from the solid waste stream for sale, use, reuse, or recycling, whether or not requiring subsequent separation and processing.

(b) Materials accumulated speculatively are solid waste and must comply with all applicable provisions of these regulations.

(c) A recovered material is not accumulated speculatively if the person accumulating it can show that there is a known use, reuse, or recycling potential for the material, that the material can be feasibly sold, used, reused, or recycled and during the preceding twelve months the amount of material that is recycled, sold, used, or reused equals at least 60 percent by weight or volume of the material received.

(d) Proof of recycling, sale, use, or reuse shall be provided in the form of bills of sale, or other records showing adequate proof of movement of the material in question to a recognized recycling facility or for proper use or reuse from the accumulation point. In addition, proof must be provided that there is a known market or disposition for the recovered material. Persons claiming that they are owners or operators of recovered materials processing facilities must show that they have the necessary equipment to do so.

(e) A recovered material is "sold" if the generator of the recovered material or the person who recovered the material from the solid waste stream received consideration or compensation for the material because of its inherent value.

(f) A recovered material is "used, reused or recycled" if it is either:

1. Employed as an ingredient (including use as an intermediate) in a process to make a product (for example, utilizing old newspaper to make new paper products); or

2. Employed in the same or different fashion as its original intended purpose without physically changing its composition (for example, use of old automobiles for spare parts or donation of clothing or furniture to charitable organizations); or

3. Employed in a particular function or application as an effective substitute for a commercial product (for example, utilizing shredded tires in asphalt or utilizing refuse derived fuel as a substitute for fuel oil, natural gas, coal, or wood in a boiler or industrial furnace) as long as such substitution does not pose a threat to human health or the environment and so long as the facility is not a solid waste thermal treatment facility.

4. A material is not "used, reused or recycled" when it is applied to or placed on or in the land in a manner that constitutes disposal which, in the opinion of the Director, may pose a threat to human health and the environment (for example, utilizing soil containing any hazardous constituents, as listed in Chapter 391-3-11, 40 CFR Part 261, Appendix VIII for fill material, land applying sludge in excess of generally accepted agricultural practices or use of inherently waste-like materials as fill material).

(8) Asbestos Containing Waste.

(a) Collection.

1. Vehicles used for the transportation of containerized asbestos waste shall have an enclosed carrying compartment or utilize a covering sufficient to contain the transported waste, prevent damage to containers, and prevent release or spillage from the vehicle.

2. Vehicles used to reduce waste volume by compaction shall not be used.

3. Vacuum trucks used to transport waste slurry must be constructed and operated to ensure that liquids do not leak from the truck.

(b) Disposal.

1. Asbestos containing waste is to be disposed of only in a permitted landfill or other facility authorized by the Division for acceptance of asbestos containing waste.

2. Asbestos containing waste shall be sealed in leak-proof containers labeled with: "Caution — Contains Asbestos Fibers — Avoid Opening or Breaking Container — Breathing Asbestos is Hazardous to Your Health."

3. Asbestos containing waste shall be disposed of in such a manner as not to destroy the integrity of the asbestos containing materials containers prior to the placement of cover material. This waste shall be completely covered immediately after deposition with a minimum of six (6) inches of non-asbestos material.

(9) Liquid Waste Restrictions at Landfills.

(a) No liquid waste, either bulk or containerized, shall be placed in a landfill unless containerized in a container of one (1) gallon capacity or less. No generator may discard in excess of four (4) gallons of liquids in containers.

(b) If liquid waste is demonstrated nonhazardous and is admixed with a bladeable material to render it nonliquid, it is acceptable for disposal at a landfill with the concurrence of the landfill operator.

(c) Gas condensate and recirculated leachate disposal at municipal solid waste landfills may be approved on a case-by-case basis by the Director if sufficient evidence is provided to the Director to warrant such disposal. In no case shall such disposal be allowed unless the site has a liner and leachate collection system.

391-3-4-.05 Criteria for Siting. Amended.

(1) The following criteria must be met for a site proposed as a solid waste handling facility:

(a) Zoning. The site must conform to all local zoning/land use ordinances. Written verification must be submitted to the Division by the applicant demonstrating that the proposed site complies with local zoning and land use ordinances, if any. This

Copy of Permit

Georgia Department of Natural Resources
Georgia Environmental Protection Division
Land Protection Branch
Solid Waste Permitting Program
4244 International Parkway, Suite 104
Atlanta, Georgia 30354
Phone (404) 362-2692
Fax (404) 362-2654

November 18, 1993

Ms. Jean Massengale
Route 1, Box 158A
Trenton, Georgia 30752

G. O. ENG.
Watson
JAN 1 3 1994
RECEIVED

SUBJECT: Notification of Permit by Rule Operation
Inert Landfill, Dade County
PBR-041-01 IL

Dear Ms. Massengale:

The Solid Waste Permitting Program has received your notification for an inert waste landfill located at 158A Harris Road, Trenton, Georgia. Your inert waste landfill operation shall be deemed to have a solid waste handling permit by rule if it complies with Section 391-3-4-.06(3)(c): P31

√1. Only waste that will not or is not likely to produce leachate of environmental concern may be disposed of in an inert waste landfill. Only earth and earth-like products, concrete, cured asphalt, rock, bricks, yard trash, and land clearing debris such as stumps, limbs and leaves, are acceptable for disposal in an inert waste landfill.

√2. Materials placed in inert waste landfills shall be spread in layers and compacted to the least practical volume.

√3. A uniform compacted layer of clean earth cover no less than one (1) foot in depth shall be placed over all exposed inert waste material at least monthly.

√4. The inert waste landfill site shall be graded and drained to minimize runoff onto the landfill surface, to prevent erosion and to drain water from the surface of the landfill.

√5. Access to inert waste landfills shall be limited to authorized entrances which shall be closed when the site is not in operation.

√6. Suitable means shall be provided to prevent and control fires. Stockpiled soil is considered to be the most satisfactory fire fighting material.

√7. A uniform compacted layer of final cover not less than two (2) feet in depth and a vegetative cover shall be placed over the final lift not later than one month following final placement of inert waste within that lift.

See 8 thru 11 on page 1151:0509 of BNA regs!

5. Local Ordinances: it is the responsibility of the collector to comply with all local rules, regulations, and ordinances pertaining to operation of solid waste collection systems.

6. All wastewater from cleaning of vehicles must be handled in a manner which meets all applicable environmental laws and regulations.

7. All collected solid waste must be deposited only in a permitted solid waste handling facility authorized to receive the applicable waste types.

8. After July 1, 1992, municipal solid waste may not be transported from a jurisdiction to a municipal solid waste disposal facility located in another county unless the jurisdiction generating the waste is actively involved in and has a strategy for meeting the State-wide goal of waste reduction by July 1, 1996.

(c) Transfer Stations:

1. Solid Waste shall be confined to the interior of transfer stations, and not allowed to scatter to the outside. Waste shall not be allowed to accumulate, and floors shall be kept clean and well drained.

2. Sewage solids shall be excluded from transfer stations.

3. Dust, odors and similar conditions resulting from transfer operations shall be controlled at all times.

4. Rodents, insects and other such pests shall be controlled.

5. Any contaminated runoff from washwater shall be discharged to a wastewater treatment system and, before final release, shall be treated in a manner approved by the Division.

6. Hazardous Waste: no person owning or operating a transfer station shall cause, suffer, allow, or permit the handling of regulated quantities of hazardous waste.

(d) Inert Waste Landfill Operation:

✓1. Only waste that will not or is not likely to produce leachate of environmental concern may be disposed of in an inert waste landfill. Only earth and earth-like products, concrete, cured asphalt, rock, bricks, yard trash, and land clearing debris such as stumps, limbs and leaves, are acceptable for disposal in an inert waste landfill. *

✓2. Materials placed in inert waste landfills shall be spread in layers and compacted to the least practical volume.

✓3. A uniform compacted layer of clean earth cover no less than one (1) foot in depth shall be placed over all exposed inert waste material at least monthly.

✓4. The inert waste landfill site shall be graded and drained to minimize runoff onto the landfill surface, to prevent erosion and to drain water from the surface of the landfill.

✓5. Access to inert waste landfills shall be limited to authorized entrances which shall be closed when the site is not in operation.

✓6. Suitable means shall be provided to prevent and control fires. Stockpiled soil is considered to be the most satisfactory fire fighting material.

✓7. A uniform compacted layer of final cover not less than two (2) feet in depth and a vegetative cover shall be placed over the final lift not later than one month following final placement of inert waste within that lift.

8. Notice of final closure must be provided to the Director within 30 days of receiving the final load of waste. Any site not receiving waste for in excess of 180 days shall be deemed abandoned and in violation of these Rules unless properly closed. Notice of closure must include the date of final waste receipt and an accurate legal description of the boundaries of the landfill.

9. All deeds for real property which have been used for landfilling shall include notice of the landfill operations, the date the landfill operation commenced and terminated, an accurate legal description of the actual location of the landfill, and a description of the type of solid wastes which have been deposited in the landfill. Concurrent with the submission of notice of final closure to the Director, the owner or operator must submit to the Director confirmation that the information required in this section has been noticed on the property deed.

10. All wastes received at the landfill must be measured and reported as required by Rule. 17.

11. All other applicable federal, state, and local laws, rules, and ordinances, including erosion and sediment control, and any applicable federal wetlands permits, must be fully complied with prior to commencement of landfilling operations.

391-3-4-.07 Landfill Design and Operations. Amended.

(1) All landfills must be designed by a professional engineer registered to practice in Georgia and designed in accordance with the following criteria:

(a) Site Limitations: the site must be designed in such a manner as to comply with the specific site limitations issued by the Division as a part of a site approval.

(b) Buffers: Facilities which have submitted a permit application to the Division prior to July 1, 1991 must provide a minimum 100 foot buffer between the property line and the waste disposal boundary. All other facilities must provide a minimum 200 foot buffer between the waste disposal boundary and the property line, and a minimum 500 foot buffer between the waste disposal boundary and any occupied dwelling and the dwelling's operational private, domestic water supply well in existence on the date of permit application. The 500 foot buffer may be reduced if the current owner of the dwelling provides a written waiver consenting to the waste disposal boundary being closer than 500 feet. The waste disposal boundary is defined as the limit of all waste disposal areas, appurtenances, and ancillary activities (including but not limited to internal access roads and drainage control devices). No land disturbing activities are to take place in these buffers, except for construction of groundwater monitoring wells and access roads for direct ingress or egress, unless otherwise specified in a facility landscaping plan or corrective action plan approved by the Division.

(c) Site survey control shall be provided to ensure the operation will be on permitted lands. Survey control will be accomplished through use of permanent, accessible benchmarks, survey control stakes, and/or boundary markers which designate and/or delineate all permitted areas. Survey control shall be as indicated on the design and operational plan. Where necessary for construction or operational purposes, vertical as well as horizontal survey control will be established and maintained to delineate fill boundaries, buffers, and property boundaries.

(d) Liners and Leachate Collection Systems: If a liner and leachate collection system are required, the liner and leachate collection system must, at a minimum, be designed and installed in accordance with the Division's "Municipal Solid Waste Landfill Liner Design System Criteria, September 1991". The liner and leachate collection system must be designed and

* See 391-3-4-.01(20) – The definition of "inert waste" specifically excludes industrial & demolition waste not listed here!

RULES OF
GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
CHAPTER 391-3-4. SOLID WASTE MANAGEMENT

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Effective Date: June 27, 1993
As Amended: October 1, 1993

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JAN 17 1994
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391-3-4-.01 Definitions. Amended.

(1) "Active Life" means the period of operation beginning with the initial receipt of solid waste and ending at completion of closure activities.

(2) "Active Portion" means that part of a solid waste handling facility or landfill unit that has received or is receiving wastes and that has not been closed.

(3) "Aquifer" means a geological formation, group of formations, or portion of a formation capable of yielding significant quantities of ground water to wells or springs.

(4) "Affected County" means, in addition to the county in which a facility is or is proposed to be located, each county contiguous to the host county and each county and municipality within a county that has a written agreement with the facility to dispose of solid waste.

(5) "Asbestos-Containing Waste" means any solid waste containing more than 1 percent, by weight, of naturally occurring hydrated mineral silicates separable into commercially used fibers, specifically the asbestiform varieties of serpentine, chrysotile, cummingtonite-grunerite, amosite, riebeckite, crocidolite, anthophyllite, tremolite, and actinolite ,using the method specified in Appendix A, Subpart F, 40 CFR Part 763, Section 1.

(6) "Baling" means a volume reduction technique whereby solid waste is compressed into bales.

(7) "Biomedical Waste" means any solid waste which contains pathological waste, biological waste, cultures, and stocks of infectious agents and associated biologicals, contaminated animal carcasses (body parts, their bedding, and other wastes from such animals), chemotherapy waste, discarded medical equipment and parts, not including expendable supplies and materials, which have not been decontaminated, as further defined in Rule 391-3-4-.15.

(8) "Boiler" means a device as defined in Chapter 391-3-11, the Rules for Hazardous Waste Management.

(9) "Certificate" means a document issued by a college or university of the University System of Georgia or other organization approved by the Director, stating that the operator has met the requirements of the Board for the specified operator classification of the certification program.

(10) "Closure" means a procedure approved by the Division which provides for the cessation of waste receipt at a solid waste disposal site and for the securing of the site in preparation for post-closure.

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(11) "Collector" means the person or persons as defined herein who, under agreements, verbal or written, with or without compensation does the work of collecting and/or transporting solid wastes from industries, offices, retail outlets, businesses, institutions, and/or similar locations, or from residential dwellings, provided however, that this definition shall not include an individual collecting and/or transporting waste from his own single family dwelling unit.

(12) "Commercial solid waste" means all types of solid waste generated by stores, offices, restaurants, warehouses, and other nonmanufacturing activities, excluding residential and industrial wastes.

(13) "Composting" means the controlled biological decomposition of organic matter into a stable, odor free humus.

(14) "Construction/Demolition Waste" means waste building materials and rubble resulting from construction, remodeling, repair, and demolition operations on pavements, houses, commercial buildings and other structures. Such wastes include, but are not limited to asbestos containing waste, wood, bricks, metal, concrete, wall board, paper, cardboard, inert waste landfill material, and other nonputrescible wastes which have a low potential for groundwater contamination.

(15) "Detected" means statistically significant evidence of contamination has been determined to exist by using methods specified in Rule 391-3-4-.14.

(16) "Director" means the Director of the Environmental Protection Division of the Department of Natural Resources.

(17) "Disposal Facility" means any facility or location where the final disposition of solid waste occurs and includes, but is not limited to, landfilling and solid waste thermal treatment technology facilities.

(18) "Division" means the Environmental Protection Division of the Department of Natural Resources.

(19) "Existing MSWLF or landfill unit" means:

(a) any municipal solid waste landfill or landfill unit that is receiving solid waste as of October 9, 1993 and meets either of the following two conditions:

1. disposed of over 100 tons per day (TPD) of solid waste between October 9, 1991 and October 9, 1992 (or other dates consistent with Federal standards and as may be approved by the Director), or;

2. is on the National Priorities List (NPL), as found in appendix B to 40 CFR, Part 300.

(b) any municipal solid waste landfill or landfill unit that is receiving solid waste as of April 9, 1994 and meets the following two conditions:

1. disposed of 100 tons or less per day of solid waste between October 9, 1991 and October 9, 1992, and disposes of no more than an average of 100 TPD of solid waste each month between October 9, 1993 and April 9, 1994(or other dates consistent with Federal standards and as may be approved by the Director), and;

2. is not on the National Priorities List (NPL), as found in appendix B to 40 CFR, Part 300.

(c) Waste placement in existing units must be consistent with past operating practices or modified practices to ensure good management.

(20) "Generator" means any person in Georgia or in any other state who creates solid waste.

(21) "Garbage" means food waste including waste accumulations of animal or vegetable matter used or intended for use as food, or that attends the preparation, use, cooking, dealing in or storing of meat, fish, fowl, fruit or vegetables.

(22) "Groundwater" means water below the land surface in a zone of saturation.

(23) "Hazardous Waste" means any solid waste which has been defined as a hazardous waste in regulations promulgated by the Board of Natural Resources, Chapter 391-3-11.

(24) "Household waste" means any solid waste (including garbage, trash, and sanitary waste in septic tanks) derived from households (including single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas).

(25) "Host Local Government" means the host county or other local host governmental jurisdiction within whose boundaries a municipal solid waste disposal facility is located.

(26) "Industrial Furnace" means a device as defined in Chapter 391-3-11, the Rules for Hazardous Waste Management.

(27) "Industrial Waste" means solid waste generated by manufacturing or industrial processes that is not a hazardous waste regulated under the Hazardous Waste Management Act and regulations promulgated by the Board of Natural Resources, Chapter 391-3-11.

Such waste includes, but is not limited to, wastes resulting from the following manufacturing processes: Electric power generation; fertilizer/agricultural chemicals; food and related products/by-products; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals manufacturing/foundries; organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay, and concrete products; textile manufacturing; transportation equipment; and water treatment. This term does not include mining waste or oil and gas waste.

(28) "Inert Waste Landfill" means a disposal facility accepting only wastes that will not or are not likely to cause production of leachate of environmental concern. Such wastes are limited to earth and earth-like products, concrete, cured asphalt, rock, bricks, yard trimmings, stumps, limbs, and leaves. This definition excludes industrial and demolition waste not specifically listed above.

(29) "Lateral expansion" means a horizontal expansion of the waste boundaries of an existing MSWLF unit or landfill unit.

(30) "Leachate" means a liquid that has passed through or emerged from solid waste and contains soluble, suspended, or miscible materials removed from such wastes.

(31) "Landfill Unit" means an area of land on which or an excavation in which solid waste is placed for permanent disposal and which is not a land application unit, surface impoundment, injection well, or compost pile. Permanent disposal requires the placement of daily, intermediate, and/or final earth, synthetic, or a combination of earth and synthetic cover over the solid waste.

(32) "Leachate Collection System" means a system at a landfill for collection of the leachate which may percolate through the waste and into the soils surrounding the landfill.

(33) "Liner" means a continuous layer of natural or man-made materials, beneath or on the sides of a disposal site or disposal site cell which restricts the downward or lateral escape of solid waste, solid waste constituents, or leachate.

(34) "Liquid Waste" means any waste material that is determined to contain "free liquids" as defined by Method 9095 (Paint Filter Liquids Test), as described in "Test Methods for the Evaluation of Solid Wastes, Physical/Chemical Methods" (EPA Pub. No. SW-846).

(35) "Materials Recovery Facility" means a solid waste handling facility that provides for the extraction from solid waste of recoverable materials, materials suitable for use as a fuel or soil amendment, or any combination of such materials.

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(36) "Monofill" means a method of solid waste disposal that involves the landfilling of one waste type or wastes having very similar characteristics in a segregated trench or area which is physically separated from dissimilar or incompatible waste.

(37) "Municipal Solid Waste" means any solid waste derived from households, including garbage, trash, and sanitary waste in septic tanks and means solid waste from single-family and multifamily residences, hotels and motels, bunkhouses, campgrounds, picnic grounds, and day use recreation areas. The term includes yard trimmings and commercial solid waste, but does not include solid waste from mining, agricultural, or silvicultural operations or industrial processes or operations.

(38) "Municipal Solid Waste Landfill (MSWLF) Unit" means a discrete area of land or an excavation that receives household waste, and that is not a land application unit, surface impoundment, injection well, or waste pile, as those terms are defined under 40 CFR Part 257.2. A MSWLF unit also may receive other types of solid waste, such as commercial solid waste, nonhazardous sludge, small quantity generator waste and industrial solid waste. Such a landfill may be publicly or privately owned. A MSWLF unit may be a new MSWLF unit, an existing MSWLF unit or a lateral expansion.

(39) "Municipal Solid Waste Disposal Facility" means any facility or location where the final deposition of any amount of municipal solid waste occurs, whether or not mixed with or including commercial or industrial solid waste, and includes, but is not limited to, municipal solid waste landfills and solid waste thermal treatment technology facilities.

(40) "Municipal Solid Waste Disposal Facility Operator" means the operator certified in accordance with Rule 391-3-4-.18 and stationed on the site who is in responsible charge of and has direct supervision of the daily field operations of a municipal solid waste disposal facility to ensure that the facility operates in compliance with the permit.

(41) "Municipal Solid Waste Landfill" means a disposal facility where any amount of municipal solid waste, whether or not mixed with or including commercial waste, industrial waste, nonhazardous sludges, or small quantity generator hazardous wastes, is disposed of by means of placing an approved cover thereon.

(42) "New MSWLF Unit" means any municipal solid waste landfill unit that has not received waste prior to October 9, 1993.

(43) "Open Burning" means the combustion of solid waste without:

a. Control of combustion air to maintain adequate temperature for efficient combustion;

b. Containment of the combustion reaction in an enclosed device to provide sufficient residence time and mixing for complete combustion; and

c. Control of the emission of the combustion products.

(44) "Open Dump" means a disposal facility at which solid waste from one or more sources is left to decompose, burn or to otherwise create a threat to human health or the environment.

(45) "Operating Record" means written records including, but not limited to, permit applications, monitoring reports, inspection reports, and other demonstrations of compliance with this Chapter, which records are kept on file at the facility or at an alternative location as approved by the Division.

(46) "Operator" means the person(s) responsible for the overall operation of a facility or part of a facility.

(47) "Owner" means the person(s) who owns a facility or part of a facility.

(48) "Person" means the State of Georgia or any other state or any agency or institution thereof, and any municipality, county, political subdivision, public or private corporation, solid waste authority, special district empowered to engage in solid waste management activities, individual, partnership, association or other entity in Georgia or any other state. This term also includes any officer or governing or managing body of any municipality, political subdivision, solid waste authority, special district empowered to engage in solid waste activities, or public or private corporation in Georgia or any other state. This term also includes employees, departments, and agencies of the federal government.

(49) "Post-closure" means a procedure approved by the Division to provide for long-term financial assurance, monitoring, and maintenance of a solid waste disposal facility to protect human health and the environment.

(50) "Private Industry Solid Waste Disposal Facility" means a disposal facility which is operated exclusively by and for a private solid waste generator for the purpose of accepting solid waste generated exclusively by said private solid waste generator.

(51) "Processing Operation" means any method, system or other treatment designed to change the physical form or chemical content of solid waste and includes all aspects of its management (administration, personnel, land, equipment, buildings and other elements).

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(52) "Putrescible Wastes" means wastes that are capable of being quickly decomposed by microorganisms. Examples of putrescible wastes include but are not necessarily limited to kitchen wastes, animal manure, offal, hatchery and poultry processing plant wastes, dead animals, garbage and wastes which are contaminated by such wastes.

(53) "Run-off" means any rainwater, leachate, or other liquid that drains over land from any part of a facility.

(54) "Run-on" means any rainwater, leachate, or other liquid that drains over land onto any part of a facility.

(55) "Recovered Materials" means those materials which have known use, reuse, or recycling potential; can be feasibly used, reused or recycled; and have been diverted or removed from the solid waste stream for sale, use, reuse, or recycling, whether or not requiring subsequent separation and processing.

(56) "Recovered Materials Processing Facility" means a facility engaged solely in the storage, processing, and resale or reuse of recovered materials. Such term shall not include a solid waste handling facility; provided, however, any solid waste generated by such facility shall be subject to all applicable laws and regulations relating to such solid waste.

(57) "Recycling" means any process by which materials which would otherwise become solid waste are collected, separated, or processed and reused or returned to use in the form of raw materials or products.

(58) "Regional Landfill or Regional Solid Waste Disposal Facility" means a facility owned by a county, municipality, or special district empowered to engage in solid waste management activities, or any combination thereof, which serves two or more or any combination of counties, municipalities, or special solid waste districts.

(59) "Relevant Point of Compliance" is a vertical surface located at the hydraulically downgradient limit of the waste management unit boundary that extends down into the uppermost aquifer underlying the facility. This point will be specified by the Director and shall be no more that 150 meters from the waste management unit boundary and shall be located on land owned by the owner of the landfill unit. The downgradient monitoring system must be installed at this point, and monitoring conducted to ensure that the concentration values listed in Table 1 of Rule 391-3-4-.07 will not be exceeded in the uppermost aquifer.

(60) "Saturated Zone" means that part of the earth's crust in which all voids are filled with water.

(61) "Scavenge" means the unpermitted removal of solid waste from a solid waste handling facility.

(62) "Shredding" means the process by which solid waste is cut or torn into small pieces for final disposal or further processing.

(63) "Significant Groundwater Recharge Areas" means any area as designated on Hydrologic Atlas 18 Most Significant Ground-Water Recharge Areas of Georgia, 1989, as published by the Georgia Geologic Survey, Environmental Protection Division, Georgia Department of Natural Resources, unless an applicant for a solid waste handling permit or other interested party can demonstrate to the satisfaction of the Director that an area designated on Hydrologic Atlas 18 is or is not, in fact, a significant groundwater recharge area.

(64) "Sludge" means any solid, semi-solid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility exclusive of the treated effluent from a wastewater treatment plant.

(65) "Solid Waste" means any garbage or refuse; sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility; and other discarded material including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations and from community activities, but does not include recovered materials; solid or dissolved materials in domestic sewage; solid or dissolved materials in irrigation return flows or industrial discharges that are point sources subject to permit under 33 U.S.C. Section 1342, or source, special nuclear, or by-product material as defined by the federal Atomic Energy Act of 1954, as amended (68 Stat. 923).

(66) "Solid Waste Handling" means the storage, collection, transportation, treatment, utilization, processing, or disposal of solid waste, or any combination of such activities.

(67) "Solid Waste Handling Facility" means any facility, the primary purpose of which is the storage, collection, transportation, treatment, utilization, processing, or disposal, or any combination thereof, of solid waste.

(68) "Solid Waste Handling Permit" means written authorization granted to a person by the Director to engage in solid waste handling.

(69) "Solid Waste Management Act" or the "Act", wherever referred to in these Rules, means the Georgia Comprehensive Solid Waste Management Act, O.C.G.A. 12-8-20, et seq.

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(70) "Solid Waste Thermal Treatment Technology" means any solid waste handling facility, the purpose of which is to reduce the amount of solid waste to be disposed of through a process of combustion, with or without the process of waste to energy.

(71) "Tire" means a continuous solid or pneumatic rubber covering designed for encircling the wheel of a motor vehicle and which is neither attached to the motor vehicle nor a part of the motor vehicle as original equipment.

(72) "Transfer Station" means a facility used to transfer solid waste from one transportation vehicle to another for transportation to a disposal facility or processing operation.

(73) "Uppermost Aquifer" means the geologic formation nearest the natural ground surface that is an aquifer, as well as lower aquifers that are hydraulically interconnected with this aquifer within the solid waste handling facility's property boundary.

(74) "Vertical Expansion" means the expansion of a landfill beyond the approved maximum final elevations and within the approved waste management boundaries of the existing permit.

(75) "Waste Management Unit Boundary" means a vertical surface located at the hydraulically downgradient limit of the unit. This vertical surface extends down into the uppermost aquifer.

(76) "Waste-to-Energy Facility" means a solid waste handling facility that provides for the extraction and utilization of energy from municipal solid waste through a process of combustion.

(77) "Yard Trimmings" means leaves, brush, grass, clippings, shrub and tree prunings, discarded Christmas trees, nursery and greenhouse vegetative residuals, and vegetative matter resulting from landscaping development and maintenance other than mining, agricultural, and silvacultural operations.

Authority O.C.G.A. Section 12-8-20 et seq., as amended.

391-3-4-.02 Solid Waste Handling Permits. Amended.

(1) Permits Required: no person shall engage in solid waste handling or construct or operate a solid waste handling facility, except those individuals exempted from the provisions of the Georgia Comprehensive Solid Waste Management Act, under the provisions of O.C.G.A. 12-8-30.10 or O.C.G.A. 12-8-40 or those individuals who have a permit-by-Rule under Rule 391-3-4-.06, without first obtaining a permit from the Director authorizing such activity.

(2) Solid Waste Handling Permit: the Director may issue permits for solid waste handling provided the application is judged

complete and meets the requirements of the Georgia Comprehensive Solid Waste Management Act and these Rules. Solid Waste Handling Permits shall be required for, but are not limited to, persons engaged in the collection, transportation, treatment, utilization, storage, processing, or disposal of solid wastes, or any combination thereof, except as exempted by O.C.G.A. 12-8-30.10 and O.C.G.A. 12-8-40 and these Rules and shall be required for the construction or operation of all solid waste handling facilities, except as exempted by O.C.G.A. 12-8-30.10 or O.C.G.A. 12-8-40 and these Rules.

(3) Modification or Revocation of Permits for Cause: the Director may modify or revoke any permit issued pursuant to O.C.G.A. 12-8-24 if the holder of the permit is found to be in violation of any of the permit conditions, or if the holder of the permit fails to perform such activity in accordance with the approved plan; or if such activity creates a threat to human health or the environment. In the event of modification or revocation of a permit, the Director shall serve written notice of such action on the permit holder and shall set forth in such notice the reason for such action.

(4) Permit Modifications at the Request of the Permittee: all modifications of existing solid waste handling permits shall be classified as follows:

(a) Major modifications include those changes which substantially alter the design of the facility, management practices, the types of wastes being handled, or the method of waste handling, and due to the nature of the changes, would likely have an impact on the ability of the facility to adequately protect human health and the environment. Major modifications therefore require closer review and public input than minor modifications. Major modifications shall include, but are not limited to, the following:

1. A modification which involves a vertical expansion of an existing landfill.

2. A modification which involves a lateral expansion of an existing landfill which is allowed by the most current, unexpired letter of site suitability.

3. A modification which adds a new solid waste handling process. This shall include but not be limited to the addition of an air curtain destructor, a materials recovery facility, a baling operation, a shredding operation, a municipal solid waste or sewage sludge composting operation, or a liquid solidification operation.

4. A modification which involves the change of a site suitability requirement which could have impacted the original siting of the facility.

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5. Any other modification which the Director, in the exercise of his discretion, determines to meet the criteria set forth in Section (4)(a) of this Rule.

(b) Minor modifications include changes that do not substantially alter the permit conditions, that do not reduce the capacity of the facility to protect human health or the environment, or that enable a permittee to respond in a timely manner to common variations in the type and quantities of wastes managed, technological advancements, or changes necessary to comply with new Rules where these changes can be implemented without substantially changing design specifications or management practices in the permit. Minor modifications shall include, but are not limited to, the following:

1. Changing the name of a facility.

2. A modification which involves a change in administrative and operational information and maintenance of operational records.

3. A modification which involves a change in the sequence of operation.

4. A modification which involves the relocation of access roads.

5. A modification which adds scales.

6. A modification which adds or deletes on-site structures.

7. A modification which involves the addition of or a change to a groundwater or surface water monitoring system.

8. A modification which involves the addition of or a change to a landfill gas monitoring system.

9. A modification which involves the addition or deletion of a permit-by-Rule facility.

10. A modification which involves the deletion of any solid waste handling facility.

11. A modification which involves the deletion of permitted capacity or acreage.

12. A modification which involves the addition of or a change to an erosion and sedimentation control system.

13. A modification which involves the addition of or a change to a closure or post-closure plan.

14. A modification which involves the addition of or a change

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to a method of leachate handling and/or treatment.

15. A modification which involves the addition of or a change to a quality assurance plan.

16. A modification which involves the change of any compliance schedule which is part of the permit.

17. A modification which involves the addition of a corrective action plan.

18. A modification which involves a change in ownership, or in the case of a corporation of over five (5) percent of the stock in a corporation holding a permit, but does not involve the transfer of the permit.

19. A modification which involves the addition of acreage for the purpose of installing monitoring systems or installing structures for mitigating environmental impacts, where the original permitted acreage provides insufficient area to complete required improvements. This modification request must be accompanied by a site assessment report as required by paragraph (4) of Rule 391-3-4-.05.

20. A modification which involves the addition of or change in a clay or synthetic liner and leachate collection system to a landfill unit holding a valid solid waste handling permit, if it does not require other significant site redesign.

(c) All modifications of solid waste handling permits which are major modifications shall be subject to the following requirements:

1. Submission of a completed application for a permit modification.

2. Submission of supporting documents which accompany the application for a permit modification which describe the exact change to be made to the permit conditions and supporting documents referenced by the permit and which explain why the change is needed.

3. Submission of a revised design for the requested change.

4. Submission of written verification by the applicant, as required by Rule 391-3-4-.05(1)(a), that the facility, as proposed to be modified, conforms to all local zoning/land use ordinances, if any.

5. Except for Private Industry Solid Waste Disposal Facilities, after July 1, 1992, submission of written verification by the applicant that the facility, as proposed to be modified, is consistent with the local or regional solid waste management plans

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and that the host jurisdiction and the jurisdictions generating solid waste destined to the facility can demonstrate that they are actively involved in and have a strategy for meeting the State-wide goal of waste reduction by July 1, 1996. The verification shall consist of letters from the host jurisdiction and generating jurisdictions verifying consistency with the approved local solid waste plan.

6. Submission of written verification that a public hearing was held by the governing authority of the county or municipality in which the solid waste facility requesting the modification is located, not less than two weeks prior to granting approval of the modification. Submission of written verification that notice of such hearing was posted at the site of such facility and advertised in a newspaper of general circulation serving the county or counties in which the facility is located at least thirty (30) days prior to such hearing. A typed transcript of the hearing must be provided to the Division.

7. Any application for a solid waste disposal facility vertical expansion shall meet the criteria as established in O.C.G.A. 12-8-24 (e)(3). Any operation of a vertical expansion shall be in accordance with conditions set forth in the modified permit. Conditions to be included in any such modified permit shall, at a minimum, include the following:

a. A minimum 100 foot buffer shall be provided between the property line and the waste disposal boundary established by the vertical expansion.

b. Site survey control shall be provided to ensure compliance with the approved permit modification.

c. Erosion and sedimentation control devices shall be installed, rehabilitated, and maintained as appropriate to control all surface runoff and sediments from disturbed areas.

d. All areas exposed for more than three (3) months shall be vegetated.

e. Closure plans, post-closure plans, and appropriate financial responsibility shall be maintained and updated as provided for in the approved permit modification.

f. All other conditions of the existing permit not in conflict with conditions a. through e. above.

8. With the exception of major modifications granted under (c)7. of this Rule, all major modifications shall meet the siting and design standards applicable to new permit applications in effect on the date the modification is approved.

(d) All modifications of solid waste handling permits which are minor modifications shall be subject to the following requirements:

1. Submission of a written request by the permit holder which requests a minor modification.

2. Submission of supporting documents which accompany the written modification request which describe the exact change to be made to the permit conditions and supporting documents referenced by the permit and which explain why the change is needed.

3. If applicable, submission of a revised design for the requested change.

4. For a modification involving a change in ownership covered in (4)(b)18. above, documentation must be provided to insure compliance with (8)(a) below.

5. Requests for minor modifications shall be deemed approved by the Division 45 days after receipt of a complete request for modification unless, prior to that date, the Division notifies the permit holder that the request for modification is denied or is incomplete, provided however, that requests for the following minor modifications shall be approved only upon written notification from the Division: a surface or groundwater monitoring plan; leachate collection, handling or treatment system; liner systems; methane gas monitoring, collection, or treatment systems; closure or post-closure plans; or a change involving the addition of permitted acreage to allow for the installation and/or operation of environmental monitoring systems. Where a minor modification is deemed approved after 45 days without comment from the Division, the permit holder is not relieved of compliance with any applicable performance and/or design standard as provided for in these Rules or the Act.

(5) Transfer of Permits: permits are not transferrable from one site or facility to another. Permits are transferable from one person to another provided a new permit application is completed by the proposed permittee, and the proposed permittee agrees to abide by all the permit conditions or outstanding orders in effect at the time of the requested transfer. Prior to the transfer of the permit, the new permittee must demonstrate compliance with Rule 391-3-4-.13. Until such time as this is demonstrated, the original permittee shall be fully responsible for financial responsibility for the facility. Unless notified otherwise by the Director, within 45 days of receipt by the Division of a properly completed request for transfer of the permit, the permit transfer shall stand approved.

(6) Applications for permits and major permit modifications under O.C.G.A. 12-8-24 shall be on forms as may be prescribed and furnished from time to time by the Division and shall be accompa-

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nied by all pertinent information as the Division may require.

(7) Material submitted shall be complete and accurate.

(8) Application for a permit or for the transfer of a permit shall contain, but shall not be limited to, the following:

(a) A sworn statement that the applicant and owner or operator, if different than applicant, for a permit or, in the case of a corporation, partnership, or association, an officer, Director, manager, or shareholder of five percent or more of stock or financial interest in said corporation, partnership, or association:

1. Has not intentionally misrepresented or concealed any material fact in the application submitted to the Director;

2. Is not attempting to obtain the permit by misrepresentation or concealment;

3. Has not been finally convicted in the State of Georgia or any federal court of any felony involving moral turpitude within three years immediately preceding the application for a permit;

4. Has not been convicted of any violations of any environmental laws punishable as a felony in any state or federal court within five years preceding the application for a permit;

5. Has not knowingly, willfully, and consistently violated the prohibitions specified in O.C.G.A. 12-8-30.7; and

6. Has not been adjudicated in contempt of any court order enforcing any federal environmental laws or any environmental laws of the State of Georgia within five years preceding the application for a permit.

(b) For a permit application, a statement that the applicant either owns the property on which the facility is to be located or had the permission of the owner to use the property for solid waste handling.

(c) For a permit application, in the case of a regional landfill or a landfill serving more than one county, a list of the areas to be served.

(d) For a permit application, written verification of zoning compliance as required by Rule 391-3-4-.05 paragraph (1)(a).

(e) For a permit application, a site assessment as required by Rule 391-3-4-.05.

(9) Applications for permits will be reviewed together with such

other information as may be necessary to ascertain the effect of such solid waste handling upon air, water, and land resources and human health. Conditions under which the handling will be permitted will be specified in the permit issued.

(10) Except for Private Industry Solid Waste Disposal Facilities, after July 1, 1992, each applicant for a permit shall provide verification that the facility is consistent with the local or regional solid waste management plans and that the host jurisdiction and the jurisdictions generating solid waste destined to the facility can demonstrate that they are actively involved in and have a strategy for meeting the State-wide goal of waste reduction by July 1, 1996. The verification shall consist of letters from the host jurisdiction and generating jurisdictions verifying consistency with the approved local solid waste plans.

Authority O.C.G.A. Section 12-8-20 et seq., as amended.

391-3-4-.03 Public Participation.

(1) Any city, county, group of counties, or authority beginning a process to select a site for a municipal solid waste disposal facility shall first call a public meeting as described herein:

(a) Notice of such meeting shall be published at least once per week for two weeks immediately preceding the public meeting in a newspaper of general circulation serving such municipality or county.

(b) Where such proposed facility will serve a regional solid waste management authority established pursuant to O.C.G.A. 12-8-53, the notice procedure outlined in (a) above shall be followed in each jurisdiction participating in such authority.

(c) The purpose of the public meeting shall be to discuss the waste management needs of the local government or region and to describe the siting process to be followed.

(2) The governing authority of any county or municipality taking action resulting in a municipal solid waste disposal facility siting decision shall notify the public as follows:

(a) Cause to be published in a newspaper of general circulation serving such city or county at least once per week for two weeks immediately preceding the date of such meeting, notice of the meeting at which the siting decision is to be made.

(b) Such notice shall state the time, place, and purpose of the meeting.

(c) The meeting shall be conducted by the governing authority taking the action.

(3) Upon submission of an application to the Division for any municipal solid waste disposal facility for which a permit (other than a permit-by-Rule) is required, the applicant, within fifteen (15) days of the submission of said application, shall take the following actions:

(a) Publish public notice of the application in a newspaper of general circulation serving the host county if the proposed facility or expanded facility is to serve no more than one county;

(b) Publish public notice of the application in a newspaper of general circulation serving each affected county if the proposed facility or expanded facility is to serve more than one county;

(c) Provide written notice of the permit application to the governing body of each affected county in (a) or (b) above; to the governing body of each local government within (a) or (b) above; and to the regional development center;

(d) Request that the public notice outlined herein to be displayed prominently in the courthouse of each county notified in (c) above.

(e) Upon notification by the Division that a proposed facility is suitable for the intended purpose, the host local government shall initiate a local notification and negotiation process as required in O.C.G.A. 12-8-32.

(4) The governing authority of the county or municipality will hold a public hearing not less than two weeks prior to the issuance of any permit, and notice of such hearing shall be posted at the proposed site and advertised in a newspaper of general circulation serving the county or counties in which the proposed activity will be conducted, at least thirty (30) days prior to such hearing. A typed copy of the hearing transcript shall be submitted to the Division.

(5) Whenever the Director issues, denies, revokes, suspends, or transfers a permit or approves a major modification of a permit for a municipal solid waste disposal facility, he shall notify the legal organ and the chief elected official of the host local government in which the facility is located or is proposed to be located.

Authority O.C.G.A. Section 12-8-20 et seq., as amended.

391-3-4-.04 General. Amended.

(1) No person shall engage in solid waste handling in a manner which will be conducive to insect and rodent infestation or the harboring and feeding of wild dogs or other animals; impair the air quality; impair the quality of the ground or surface waters; impair

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the quality of the environment; or likely create other hazards to the public health, safety, or well-being as may be determined by the Director.

(2) Provisions of these Rules apply to all persons presently engaged in solid waste handling as well as all persons proposing to engage in solid waste handling.

(3) Exemptions: provisions of these Rules shall not apply to any individual disposing of solid wastes originating from his own residence onto land or facilities owned by him when disposal of such wastes does not thereby adversely affect the public health. These Rules shall not apply to any individual, corporation, partnership, or cooperative disposing of livestock feeding facility waste from facilities with a total capacity of up to 1,000 cattle or 5,000 swine. Provided that if such individual, corporation, partnership, or cooperative shall provide an approved waste disposal system which is capable of properly disposing of the run-off from a "ten year storm" such individual, corporation, partnership or cooperative shall be further exempt regardless of total per head capacity. Nothing in these Rules shall limit the right of any person to use poultry or other animal manure for fertilizer.

(4) Prohibited Acts:

(a) Burning: no solid waste may be burned at a solid waste handling facility, except by thermal treatment technology facility approved by the Division.

(b) Scavenging: no person owning or operating a solid waste handling facility shall cause, suffer, allow or permit scavenging at such site.

(c) Open Dump: no solid waste may be disposed of by any person in an open dump, nor may any person cause, suffer, allow or permit open dumping on his property.

(5) The owner or occupant of any premises, office, business establishment, institution, industry, or similar facilities shall be responsible for the collection and transportation of all solid waste accumulated at the premises, office, business establishment, institution, or similar facility to a solid waste handling facility operating in compliance with these Rules unless arrangements have been made for such service with a collector operating in compliance with these Rules.

(6) Prohibited Wastes Disposal:

(a) If, because of unusual physical or chemical properties, or geological or hydrological conditions, or for other reasons, the Division finds that solid waste should not be accepted at a solid waste handling facility, the Division may require that such waste

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be prohibited, and that a proposal for disposal of such waste, with supporting data as may be deemed necessary, be submitted by the generator of such waste for consideration of approval by the Division. The prohibition of such waste shall continue in effect until an acceptable procedure for processing or disposal has been developed and approved.

(b) The following solid wastes are specifically prohibited from disposal at solid waste disposal facilities in Georgia:

1. lead acid batteries;

2. liquid waste in landfills, except as allowed in (9) below;

3. regulated quantities of hazardous waste as defined in Rules promulgated by the Board of Natural Resources, Chapter 391-3-11;

4. radioactive waste as defined in Rules promulgated by the Board of Natural Resources, Chapter 391-3-9, Radioactive Waste Material Disposal; and

5. polychlorinated biphenyls (PCB) waste as defined in 40 CFR, Part 761.

(c) Any generator who disposes of a prohibited waste or person who accepts for disposal a prohibited waste shall be deemed to be in violation of these Rules.

(7) Recovered Materials:

(a) Recovered materials and recovered materials processing facilities are excluded from regulation as solid wastes and solid waste handling facilities. To be considered exempt from regulation, the material must have a known use, reuse, or recycling potential; must be feasibly used, reused, or recycled; and must have been diverted or removed from the solid waste stream for sale, use, reuse, or recycling, whether or not requiring subsequent separation and processing.

(b) Materials accumulated speculatively are solid waste and must comply with all applicable provisions of these regulations.

(c) A recovered material is not accumulated speculatively if the person accumulating it can show that there is a known use, reuse, or recycling potential for the material, that the material can be feasibly sold, used, reused, or recycled and that during the preceding 90 days the amount of material that is recycled, sold, used, or reused equals at least 60 percent by weight or volume of the material received during that 90 day period and 60 percent by weight or volume of all material previously received and not recyled, sold, used, or reused and carried forward into that 90 day period.

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(d) Proof of recycling, sale, use, or reuse shall be provided in the form of bills of sale, or other records showing adequate proof of movement of the material in question to a recognized recycling facility or for proper use or reuse from the accumulation point. In addition, proof must be provided that there is a known market or disposition for the recovered material. Persons claiming that they are owners or operators of recovered materials processing facilities must show that they have the necessary equipment to do so.

(e) A recovered material is "sold" if the generator of the recovered material or the person who recovered the material from the solid waste stream received consideration or compensation for the material because of its inherent value.

(f) A recovered material is "used, reused or recycled" if it is either:

1. Employed as an ingredient (including use as an intermediate) in a process to make a product (for example, utilizing old newspaper to make new paper products) or

2. Employed in the same or different fashion as its original intended purpose without physically changing its composition (for example, use of old automobiles for spare parts or donation of clothing or furniture to charitable organizations) or

3. Employed in a particular function or application as an effective substitute for a commercial product (for example, utilizing shredded tires in asphalt or utilizing refuse derived fuel as a substitute for fuel oil, natural gas, coal, or wood in a boiler or industrial furnace) as long as such substitution does not pose a threat to human health or the environment and so long as the facility is not a solid waste thermal treatment facility.

4. A material is not "used, reused or recycled" when it is applied to or placed on or in the land in a manner that constitutes disposal which, in the opinion of the Director, may pose a threat to human health and the environment (for example, utilizing soil containing levels of hazardous constituents, as listed in Chapter 391-3-11, 40 CFR Part 261, Appendix VIII for fill material when those levels are greater than the background levels in the area to be filled, land applying sludge in excess of generally accepted agricultural practices or use of inherently waste-like materials as fill material).

(8) Asbestos Containing Waste.

(a) Collection.

1. Vehicles used for the transportation of containerized asbestos waste shall have an enclosed carrying compartment or utilize a covering sufficient to contain the transported waste,

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prevent damage to containers, and prevent release or spillage from the vehicle.

2. Vehicles used to reduce waste volume by compaction shall not be used.

3. Vacuum trucks used to transport waste slurry must be constructed and operated to ensure that liquids do not leak from the truck.

(b) Disposal.

1. Asbestos containing waste is to be disposed of only in a permitted landfill or other facility authorized by the Division for acceptance of asbestos containing waste.

2. Asbestos containing waste shall be sealed in leak-proof containers labeled with: "Caution - Contains Asbestos Fibers - Avoid Opening or Breaking Container - Breathing Asbestos is Hazardous to Your Health."

3. Asbestos containing waste shall be disposed of in such a manner as not to destroy the integrity of the asbestos containing materials containers prior to the placement of cover material. This waste shall be completely covered immediately after deposition with a minimum of six (6) inches of non-asbestos material.

(9) Liquid Waste Restrictions at Landfills.

(a) Bulk or noncontainerized liquid waste may not be placed in MSWLF units unless:

1. The waste is household waste other than septic waste; or

2. The waste is leachate or gas condensate derived from the MSWLF unit and the MSWLF unit, whether it is a new or existing MSWLF or lateral expansion, is designed with a composite liner and leachate collection system as described in paragraph (1)(d) of Rule 391-3-4-.07. The owner or operator must place the demonstration in the operating record and notify the Director that it has been placed in the operating record.

(b) Containers holding liquid waste may not be placed in a MSWLF unit unless:

1. The container is a small container similar in size to that normally found in household waste;

2. The container is designed to hold liquids for use other than storage; or

3. The waste is household waste.

(c) For purposes of this section:

1. "Liquid waste" means any waste material that is determined to contain "free liquids" as defined by Method 9095 (Paint Filter Liquids Test), as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods" (EPA Pub. No. SW-846).

2. "Gas condensate" means the liquid generated as a result of gas recovery process(es) at the landfill unit.

(10) Variances, waivers, and alternative compliance schedules which may be granted under these Rules, Chapter 391-3-4, may not allow a requirement or compliance schedule which is less stringent than those found in 40 CFR, Part 258, as amended, 56 Fed. Reg. 51016-51039 October 9, 1991.

(11) Compliance with the Rules for Solid Waste Management, Chapter 391-3-4, does not relieve any person from complying with all other applicable local, state, or federal rules or statutes.

Authority O.C.G.A. Section 12-8-20 et seq., as amended.

391-3-4-.05. Criteria for Siting.

(1) The following criteria must be met for a site proposed as a solid waste handling facility:

(a) Zoning. The site must conform to all local zoning/land use ordinances. Written verification must be submitted to the Division by the applicant demonstrating that the proposed site complies with local zoning and land use ordinances, if any. This verification shall include a letter from the local governmental authority stating that the proposed site complies with local zoning or land use ordinances, if any. This verification shall be provided at the time of submission of a permit application and reaffirmed by the governmental authority prior to permit issuance.

(b) Disposal Facility Siting Decision. Whenever any county, municipality group of counties, or authority begins a process to select a site for a municipal solid waste disposal facility, documentation shall be submitted which demonstrates compliance with O.C.G.A. 12-8-26(a), and whenever the governing authority of any county or municipality takes action resulting in a publicly or privately owned municipal solid waste disposal facility siting decision, documentation shall be submitted which demonstrates compliance with O.C.G.A. 12-8-26(b).

(c) Airport Safety:

1. New MSWLF units or lateral expansions of existing units shall not be located within 10,000 feet (3,048 meters) of any public-use or private-use airport runway end used by turbojet

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aircraft or within 5,000 feet (1,524 meters) of any public-use or private-use airport runway end used by only piston-type aircraft.

2. Owners or operators of existing MSWLF units, that are located within 10,000 feet (3,048 meters) of any public-use or private-use airport runway end used by turbojet aircraft or within 5,000 feet (1,524 meters) of any public-use or private-use airport runway end used by only piston-type aircraft must demonstrate that the units are designed and operated so that the MSWLF units do not pose a bird hazard to aircraft.

3. Owners or operators proposing to site new MSWLF units and lateral expansions within a five-mile radius of any public-use or private-use airport runway end used by turbojet or piston-type aircraft must notify the affected airport and the Federal Aviation Administration (FAA).

4. The owner or operator must place the demonstration in paragraph 2. of this section in the operating record and notify the Director that it has been placed in the operating record not later than October 1, 1993.

5. For purposes of this section:

a. "Public-use airport" means an airport open to the public without prior permission and without restrictions within the physical capacities of available facilities.

b. "Private-use airport" means an airport that is not open to the public and which may not be used without prior permission of the airport owner and which has restrictions other than the physical capacities of available facilities and such airport is shown on the Sectional Aeronautical Charts published by the U. S. Department of Commerce for Atlanta, Jacksonville, or New Orleans, which charts are dated at least one year prior to the submission of a MSWLF permit or major permit modification application.

c. "Bird hazard" means an increase in the likelihood of bird/aircraft collisions that may cause damage to the aircraft or injury to its occupants.

(d) Floodplains. A solid waste handling facility located in the 100-year floodplain shall not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in a washout of solid waste so as to pose a hazard to human health and the environment. The owner or operator must place a demonstration of compliance in the operating record and notify the Director that it has been placed in the operating record.

1. For purposes of this section:

a. "Floodplain" means the lowland and relatively flat areas adjoining inland and coastal waters, including flood-prone areas of offshore islands, that are inundated by the 100-year flood.

b. "100-year flood" means a flood that has a 1-percent or greater chance of recurring in any given year or a flood of a magnitude equalled or exceeded once in 100 years on the average over a significantly long period.

c. "Washout" means the carrying away of solid waste by waters of the base flood.

(e) Wetlands. A solid waste handling facility shall not be located in wetlands, as defined by the U. S. Corps of Engineers, unless evidence is provided to the Director, by the applicant, that use of such wetlands has been permitted or otherwise authorized under all other applicable state and federal laws and rules. The owner or operator must place a demonstration of compliance in the operating record and notify the Director that it has been placed in the operating record.

(f) Fault Areas.

1. New landfill units and lateral expansions of existing landfills shall not be located within 200 feet (60 meters) of a fault that has had displacement in Holocene time unless the owner or operator demonstrates to the Director that an alternative setback distance of less than 200 feet (60 meters) will prevent damage to the structural integrity of the landfill unit and will be protective of human health and the environment.

2. For the purposes of this section:

a. "Fault" means a fracture or a zone of fractures in any material along which strata on one side have been displaced with respect to that on the other side.

b. "Displacement" means the relative movement of any two sides of a fault measured in any direction.

c. "Holocene" means the most recent epoch of the Quaternary period, extending from the end of the Pleistocene Epoch to the present.

(g) Seismic Impact Zones.

1. New landfill units and lateral expansions shall not be located in seismic impact zones, unless the owner or operator demonstrates to the Director that all containment structures, including liners, leachate collection systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site. The owner

or operator must place the demonstration in the operating record and notify the Director that it has been placed in the operating record.

2. For the purposes of this section:

a. Seismic impact zone means an area with a ten percent or greater probability that the maximum horizontal acceleration in lithified earth material, expressed as a percentage of the earth's gravitational pull will exceed 0.10g in 250 years.

b. Maximum horizontal acceleration in lithified earth material means the maximum expected horizontal acceleration depicted on a seismic hazard map, with a 90 percent or greater probability that the acceleration will not be exceeded in 250 years, or the maximum expected horizontal acceleration based on a site-specific seismic risk assessment.

c. Lithified earth material means all rock, including all naturally occurring and naturally formed aggregates or masses of minerals or small particles of older rock that formed by crystallization of magma or by induration of loose sediments. This term does not include man-made materials, such as fill, concrete, and asphalt, or unconsolidated earth materials, soil, or regolith lying at or near the earth surface.

(h) Unstable areas.

1. Owners or operators of new landfill units, existing landfill units, and lateral expansions located in an unstable area must demonstrate that engineering measures have been incorporated into the landfill unit's design to ensure that the integrity of the structural components of the landfill unit will not be disrupted. The owner or operator must place the demonstration in the operating record and notify the Director that it has been placed in the operating record. The owner or operator must consider the following factors, at a minimum, when determining whether an area is unstable:

a. On-site or local soil conditions that may result in significant differential settling;

b. On-site or local geologic or geomorphologic features; and

c. On-site or local human-made features or events (both surface and subsurface).

2. For the purposes of this section:

a. "Unstable area" means a location that is susceptible to natural or human-induced events or forces capable of impairing the integrity of some or all of the landfill structural components

responsible for preventing releases from a landfill. Unstable areas can include poor foundation conditions, areas susceptible to mass movements, and karst terrains.

b. "Structural components" means liners, leachate collection systems, final covers, run-on/run-off systems, and any other component used in the construction and operation of the landfill that is necessary for protection of human health and the environment.

c. "Poor foundation conditions" means those areas where features exist which indicate that a natural or man-induced event may result in inadequate foundation support for the structural components of an landfill unit.

d. "Areas susceptible to mass movement" mean those areas of influence (i.e., areas characterized as having an active or substantial possibility of mass movement) where the movement of earth material at, beneath, or adjacent to the landfill unit, because of natural or man-induced events, results in the downslope transport of soil and rock material by means of gravitational influence. Areas of mass movement include, but are not limited to, landslides, avalanches, debris slides and flows, soil fluction, block sliding, and rock fall.

e. "Karst terrains" means areas where karst topography, with its characteristic surface and subterranean features, is developed as the result of dissolution of limestone, dolomite, or other soluble rock. Characteristic physiographic features present in karst terrains include, but are not limited to, sinkholes, sinking streams, caves, large springs, and blind valleys.

(i) Closure of existing municipal solid waste landfill units:

1. Existing MSWLF units that cannot make the demonstration specified in section (c), pertaining to airports, section (d), pertaining to floodplains, or section (h), pertaining to unstable areas, must close by October 9, 1996 in accordance with Rule 391-3-4-.11 and conduct post-closure care activities in accordance with Rule 391-3-4-.12.

2. The deadline for closure required by subparagraph 1. of this paragraph may be extended up to two years if the owner or operator demonstrates to the Director that:

a. There is no available alternative disposal capacity; and

b. There is no immediate threat to human health and the environment.

(j) Significant Groundwater Recharge Areas. A new municipal solid waste landfill or lateral expansion of an existing municipal

solid waste landfill shall not have any part of such site located within two miles of any area that has been designated by the Director as a significant groundwater recharge area unless such municipal solid waste landfill will have a liner and leachate collection system. In the case of a regional landfill which accepts solid waste generated outside the counties or special districts constituting the region or a municipal solid waste landfill which accepts solid waste generated outside the county in which the landfill is located, no part of such site shall be within any area that has been designated as a significant groundwater recharge area.

(k) Hydrological Assessment. A hydrological site investigation shall be conducted with the following factors, as a minimum, evaluated:

1. Distance to nearest point of public or private drinking water supply: all public water supply wells or surface water intakes within two miles and private (domestic) water supply wells within one-half mile of a landfill must be identified;

2. Depth to the uppermost aquifer: for landfills, the thickness and nature of the unsaturated zone and its ability for natural contamination control must be evaluated;

3. Uppermost aquifer gradient: for landfills, the direction and rate of flow of groundwater shall be determined in order to properly evaluate the potential for contamination at a specific site. Measurements of water levels in site exploratory borings and the preparation of water table maps are required. Borings to water are required to estimate the configuration and gradient of the uppermost aquifer;

4. Topographic setting: features which shall be provided include, but are not limited to, all upstream and downstream drainage areas affecting or affected by the proposed site, floodplains, gullies, karst conditions, wetlands, unstable soils and percent slope;

5. Geologic setting: for landfills, the depth to bedrock, the type of bedrock and the amount of fracturing and jointing in the bedrock shall be determined. In limestone or dolostone regions, karst terrain shall not be used for waste disposal. This consideration does not preclude the siting of landfills in limestone terrains, but rather is intended to prevent landfills from being sited in or adjacent to sinkholes, provided, however, that the demonstration required by section (h) has been made.

6. Hydraulic conductivity: evaluation of landfill sites shall take into consideration the hydraulic conductivity of the surface material in which the wastes are to be buried, as well as the hydraulic conductivity of the subsurface materials underlying the

fill;

7. Sorption and attenuation capacity: for landfills, the sorptive characteristics of an earth material and its ability to absorb contaminants shall be determined; and

8. Distance to surface water: municipal solid waste landfills shall not be situated within two miles upgradient of any surface water intake for a public drinking water source unless engineering modifications such as liners and leachate collection systems and groundwater monitoring systems are provided.

(2) Construction/Demolition waste landfills must comply with the siting criteria specified in "Criteria for Performing Site Acceptability Studies for Solid Waste Landfills in Georgia", Circular 14, Appendix B.

(3) Industrial waste landfills permitted to receive only a single type industrial waste (monofill) or receive only a single industry's waste, must comply with the siting criteria specified in "Criteria for Performing Site Acceptability Studies for Solid Waste Landfills in Georgia", Circular 14, Appendix A. Commercial industrial waste landfills must meet the same siting criteria as municipal solid waste landfills.

(4) A site assessment report addressing the criteria listed above shall be prepared by a geologist registered in Georgia or a geotechnical engineer registered in Georgia and submitted to the Division for review at the time of submitting a permit application. The site assessment report shall be prepared in accordance with Circular 14, 1991, as published by the Georgia Geologic Survey, Georgia Environmental Protection Division.

(5) Monitoring wells and borings shall be constructed by a driller having a valid and current bond with the Water Well Standards Advisory Council.

Authority O.C.G.A. Section 12-8-20, et seq., as amended.

391-3-4-.06 Permit by Rule for Collection, Transportation, Processing, and Disposal. Amended.

(1) Permit-by-Rule. Notwithstanding any other provision of these Rules, collection operations, transfer station operations, inert waste landfill operations, waste processing and thermal treatment operations, and wastewater treatment and pretreatment plant sludge disposal operations shall be deemed to have a solid waste handling permit if the conditions in paragraph (2) are met and the conditions in paragraph (3), for that particular category of operation are met.

(2) Notification. Within 30 days of commencing solid waste

handling activities which are covered under a permit-by-Rule, notification must be made to the Director of such activity. Notification shall be made on such forms as are provided by the Director. Persons failing to notify the Director of such activities shall be deemed to be operating without a permit.

(3) Categories of Operations:

(a) Collection Operations.

1. Vehicle construction: vehicles or containers used for the collection and transportation of garbage and similar putrescible wastes, or mixtures containing such wastes, shall be covered, substantially leakproof, durable, and of easily cleanable construction.

2. Vehicle maintenance: solid waste collection and transportation vehicles shall be cleaned frequently and shall be maintained in good repair.

3. Littering and spillage: vehicles or containers used for the collection and transportation of solid waste shall be loaded and moved in such manner that the contents will not fall, leak or spill therefrom and shall be covered when necessary to prevent blowing of material from the vehicle.

4. No regulated quantities of hazardous wastes may be collected and transported except in accordance with the provisions of the Georgia Hazardous Waste Management Act, O.C.G.A. 12-8-60 et seq.

5. Local ordinances: it is the responsibility of the collector to comply with all local rules, regulations, and ordinances pertaining to operation of solid waste collection systems.

6. All wastewater from cleaning of vehicles must be handled in a manner which meets all applicable environmental laws and regulations.

7. All collected solid waste must be deposited only in a permitted solid waste handling facility authorized to receive the applicable waste types.

8. After July 1, 1992, municipal solid waste may not be transported from a jurisdiction to a municipal solid waste disposal facility located in another county unless the jurisdiction generating the waste is actively involved in and has a strategy for meeting the State-wide goal of waste reduction by July 1, 1996.

(b) Transfer Station Operations:

1. Solid Waste shall be confined to the interior of transfer stations, and not allowed to scatter to the outside. Waste shall

not be allowed to accumulate, and floors shall be kept clean and well drained.

2. Sewage solids shall be excluded from transfer stations.

3. Dust, odors and similar conditions resulting from transfer operations shall be controlled at all times.

4. Rodents, insects and other such pests shall be controlled.

5. Any contaminated runoff from washwater shall be discharged to a wastewater treatment system and, before final release, shall be treated in a manner approved by the Division.

6. Hazardous Waste: no person owning or operating a transfer station shall cause, suffer, allow, or permit the handling of regulated quantities of hazardous waste.

(c) Inert Waste Landfill Operations:

1. Only waste that will not or is not likely to produce leachate of environmental concern may be disposed of in an inert waste landfill. Only earth and earth-like products, concrete, cured asphalt, rock, bricks, yard trimmings, and land clearing debris such as stumps, limbs and leaves, are acceptable for disposal in an inert waste landfill.

2. Materials placed in inert waste landfills shall be spread in layers and compacted to the least practical volume.

3. A uniform compacted layer of clean earth cover no less than one (1) foot in depth shall be placed over all exposed inert waste material at least monthly.

4. The inert waste landfill site shall be graded and drained to minimize runoff onto the landfill surface, to prevent erosion and to drain water from the surface of the landfill.

5. Access to inert waste landfills shall be limited to authorized entrances which shall be closed when the site is not in operation.

6. Suitable means shall be provided to prevent and control fires. Stockpiled soil is considered to be the most satisfactory fire fighting material.

7. A uniform compacted layer of final cover not less than two (2) feet in depth and a vegetative cover shall be placed over the final lift not later than one month following final placement of inert waste within that lift.

8. Notice of final closure must be provided to the Director

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within 30 days of receiving the final load of waste. Any site not receiving waste for in excess of 180 days shall be deemed abandoned and in violation of these Rules unless properly closed. Notice of closure must include the date of final waste receipt and an accurate legal description of the boundaries of the landfill.

9. All deeds for real property which have been used for landfilling shall include notice of the landfill operations, the date the landfill operation commenced and terminated, an accurate legal description of the actual location of the landfill, and a description of the type of solid wastes which have been deposited in the landfill. Concurrent with the submission of notice of final closure to the Director, the owner or operator must submit to the Director confirmation that the information required in this section has been noticed on the property deed.

10. All wastes received at the landfill must be measured and reported as required by Rule 391-3-4-.17.

11. All other applicable federal, state, and local laws, rules, and ordinances, including erosion and sediment control, and any applicable federal wetlands permits, must be fully complied with prior to commencement of landfilling operations.

(d) On-site Waste Processing and Thermal Treatment Operations:

1. For purposes of this Rule, "On-site Processing or Thermal Treatment Facility" shall mean a facility that processes or thermally treats, no less than 75 percent, by weight, solid waste generated at the permit-by-Rule facility location or facilities owned by the same person who owns the property containing the permit-by-Rule facility. On-site facilities may include fixed or mobile facilities either owned or under contract with the solid waste generator of 75 percent of the solid waste so long as the solid waste generator maintains legal control of the solid waste while at the permit-by-Rule facility.

2. Capacity: the on-site waste processing and thermal treatment technology facility shall be adequate in size and capacity to manage the projected volume of solid waste and residue generated.

3. Residue: on-site thermal treatment technology facilities shall be designed in such a manner to expedite the routine sampling of bottom and fly ash. Temperature and combustion time shall be sufficient to produce a satisfactory residue, essentially free of odors and unstable organic matter, and such residue shall be promptly deposited in a municipal solid waste landfill having a liner and leachate collection system and operated and maintained as provided herein, handled in such other manner as may be approved by the Division, or if shown by testing to be hazardous, handled in accordance with the provisions of the Georgia Hazardous Waste Management Act, O.C.G.A. 12-8-60, et seq. Residue from thermal

treatment technology facilities that burn only biomedical wastes may be deposited in any permitted municipal solid waste landfill. Residue from the burning of any wastes, other than biomedical wastes, must, if landfilled, be placed in landfills having liners and leachate collection systems unless the Division grants an exemption.

4. Storage: the areas for storing wastes prior to processing must be clearly defined and the maximum capacity specified. No waste may be stored in excess of the designated capacity.

5. Disposal of waste: treated waste from on-site processing facilities and any material not sold or used, reused, or recycled must be disposed in a permitted disposal facility.

6. Air quality: on-site processing and thermal treatment technology facilities shall be designed and operated in such manner as to meet any air quality standards of the Division.

7. Wastewater: on-site processing and thermal treatment technology facilities shall be designed so that any wastewater generated will be discharged to a wastewater treatment system and, before final release, will be treated in a manner approved by the Division.

8. Fire protection: on-site processing and thermal treatment technology facility designs shall provide for fire control equipment placed near the storage and charging area, and elsewhere as needed.

9. Supervision: operation and management of on-site thermal treatment technology facilities shall be under the direct supervision and control of an operator who is present at all times of operation and is qualified in thermal treatment technology management by training, education or experience. Operation and management of on-site processing facilities shall be under the supervision and control of a responsible individual properly trained in the operation of such facilities at all times during operation.

10. Prohibited waste: no lead acid batteries, radioactive waste, or regulated quantities of hazardous waste or polychlorinated biphenyls may be accepted. The operator must have a plan for excluding these wastes.

11. Cleanliness and sanitation: on-site processing and thermal treatment technology facilities shall be maintained in a clean and sanitary condition. Solid waste shall be confined to the designated storage area.

12. Record keeping: accurate written, daily records by actual weight or by the methods approved in accordance with O.C.G.A. 12-8-31-.1(g) shall be kept of all waste processed or disposed at the

on-site processing and thermal treatment technology facility. Such records shall include the source of the waste, by facility name and location. Copies of such records shall be maintained for a period of at least three (3) years and shall be submitted to the Division quarterly on such forms as prescribed by the Division.

13. Local ordinances: it is the responsibility of the operator of on-site processing and thermal treatment technology facilities to comply with all local rules, regulations, and ordinances pertaining to operation of these facilities and all other applicable federal and state laws and rules.

14. All facilities handling biomedical waste must, in addition to this Rule, meet any requirements of Rule 391-3-4-.15.

(e) Wastewater Treatment or Pretreatment Plant Sludge Disposal:

1. All wastewater treatment or pretreatment plant sludges that are not beneficially used, reused, or recycled in accordance with Rule 391-3-4-.04 or that are not disposed of by landfilling in accordance with Rule 391-3-4-.07, must be handled in accordance with an approval or a permit issued by the Division under authority of the Georgia Water Quality Control Act, O.C.G.A. 12-5-20, et seq. or the Georgia Air Quality Act, O.C.G.A. 12-9-1 et seq.

Authority O.C.G.A. Section 12-8-20 et seq., as amended.

391-3-4-.07 Landfill Design and Operations. Amended.

(1) All landfills must be designed by a professional engineer registered to practice in Georgia and designed in accordance with the following criteria:

(a) Site limitations: the landfill must be designed in such a manner as to comply with the specific site limitations issued by the Division as a part of a site approval.

(b) Buffers: facilities which have submitted a permit application to the Division prior to July 1, 1991 must provide a minimum 100 foot buffer between the property line and the waste disposal boundary. All other facilities must provide a minimum 200 foot buffer between the waste disposal boundary and the property line, and a minimum 500 foot buffer between the waste disposal boundary and any occupied dwelling and the dwelling's operational private, domestic water supply well in existence on the date of permit application. The 500 foot buffer may be reduced if the current owner of the dwelling provides a written waiver consenting to the waste disposal boundary being closer than 500 feet. The waste disposal boundary is defined as the limit of all waste disposal areas, appurtenances, and ancillary activities (including but not limited to internal access roads and drainage control devices). No land disturbing activities are to take place in these buffers, except for construction of groundwater monitoring wells and access

roads for direct ingress or egress, unless otherwise specified in a facility design and operation plan or corrective action plan approved by the Division.

(c) Site survey control shall be provided to ensure the operation will be on permitted lands. Survey control will be accomplished through use of permanent, accessible benchmarks, survey control stakes, and/or boundary markers which designate and/or delineate all permitted areas. Survey control shall be as indicated on the design and operational plan. Where necessary for construction or operational purposes, vertical as well as horizontal survey control will be established and maintained to delineate fill boundaries, buffers, and property boundaries.

(d) Liners and Leachate Collection Systems: new MSWLF units and lateral expansions shall be constructed with liners and leachate collection systems. The liner and leachate collection system must ensure that the concentration values listed in Table 1 will not be exceeded in the uppermost aquifer at the relevant point of compliance. The liner and leachate collection system must be designed and installed under the supervision of a professional engineer registered to practice in Georgia who shall certify the installation.

TABLE 1

Chemical	MCL (mg/l)
Arsenic	0.05
Barium	1.0
Benzene	0.005
Cadmium	0.01
Carbon tetrachloride	0.005
Chromium (hexavalent)	0.05
2,4-Dichlorophenoxy acetic acid	0.1
1,4-Dichlorobenzene	0.075
1,2-Dichloroethane	0.005
1,1-Dichloroethylene	0.007
Endrin	0.0002
Fluoride	4
Lindane	0.004
Lead	0.05
Mercury	0.002
Methoxychlor	0.1
Nitrate	10
Selenium	0.01
Silver	0.05
Toxaphene	0.005
1,1,1-Trichloromethane	0.2
Trichloroethylene	0.005
2,4,5-Trichlorophenoxy acetic acid	0.01
Vinyl Chloride	0.002

1. If the MSWLF is located in an area of higher pollution susceptibility, as defined by Hydrologic Atlas #20, A Pollution Susceptibility Map of Georgia, or in a significant ground water recharge area as designated by Hydrologic Atlas #18, the liner and leachate collection system must, at a minimum, be designed with:

a. a composite liner, as defined in paragraph c. of this section and a leachate collection system that is designed and constructed to maintain less than a 30-cm depth of leachate over the liner.

b. at least a five foot separation between the synthetic liner and the seasonal high ground water elevation.

c. For purposes of this section, "composite liner" means a system consisting of two components; the upper component must consist of a minimum 30-mil flexible membrane liner (FML), and the lower component must consist of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than 1×10^{-7} cm/sec. FML components consisting of High Density Polyethylene (HDPE) shall be at least 60-mil thick. The FML component must be installed in direct and uniform contact with the compacted soil component.

2. The relevant point of compliance shall be no more than 150 meters from the waste management unit boundary and shall be located on land owned by the owner of the MSWLF unit. In determining the relevant point of compliance, the Division shall consider at least the following factors:

a. The hydrogeologic characteristics of the facility and surrounding land;

b. The volume and physical and chemical characteristics of the leachate;

c. The quantity, quality, and direction, of flow of ground water;

d. The proximity and withdrawal rate of the ground-water users;

e. The availability of alternative drinking water supplies;

f. The existing quality of the ground water, including other sources of contamination and their cumulative impacts on the ground water and whether groundwater is currently used or reasonably expected to be used for drinking water;

g. Public health, safety, and welfare effects; and

h. Practicable capability of the owner or operator.

3. For MSWLF units not located in significant ground water recharge areas or areas of higher pollution susceptibility, liners and leachate collection systems may meet a design standard other than that specified in paragraph (1)(d) 1. of this Rule, so long as such design ensures that the concentration values listed in Table 1 of this Rule will not be exceeded in the uppermost aquifer at the relevant point of compliance. The factors listed in subparagraph 2. above for determining the relevant point of compliance, shall also be used in determining the suitability of the liner and leachate collection system design.

(e) Erosion and Sedimentation Control: all surface runoff from disturbed areas must be controlled by the use of appropriate erosion and sedimentation control measures or devices. Sediment basins must be designed to handle both the hydraulic loading for the 25 year, 24-hour storm and the sediment loading from the drainage basin for the life of the site. Runoff from the facility must be designed for flow through permanent sediment control impoundments which are designed to assure discharges meeting the requirements of O.C.G.A. 12-7-6(18).

(f) Vegetation: the plan must call for the vegetation of any disturbed area that will remain exposed for more than three (3) months. Vegetation of final cover must take place within two (2) weeks after final cover placement.

(g) Sequence of Filling: the plan must define a sequence of filling showing a detailed progression of filling the entire site that minimizes any problems with drainage and all weather access roads to the working face.

(h) Limited Access: a gate or other barrier shall be maintained at potential vehicular access points to block unauthorized access to the site when an operator is not on duty. A fence or other suitable barrier must be provided around the site, including impoundments, leachate collection and treatment systems and gas venting and processing facilities, sufficient to prevent unauthorized access.

(i) Final Grading: the grade of final slopes shall be designed to:

1. insure permanent slope stability;

2. control erosion due to rapid water velocity and other factors;

3. allow compaction, seeding, and vegetation of cover material placed on the slopes;

4. minimize percolation of precipitation into final cover and provide diversion of surface runoff from disposal area; and

5. meet the final closure requirements of Rule 391-3-4-.11.

6. the grade of the final surface of the facility may not be less than 3 percent nor greater than 33 percent.

(j) Access Roads: access roads shall be designed to provide for the orderly egress and ingress of vehicular traffic when the facility is in operation, including during inclement weather.

(k) Fire Protection: the disposal site must be designed to prevent and minimize the potential for fire or explosion. A minimum supply of one day of cover material must be maintained within 200 feet of the working face for fire fighting purposes, unless other acceptable means have been provided and approved by the Director.

(l) Ground water and Surface water Monitoring Plan: the design must provide for a groundwater monitoring plan in accordance with the requirements for GroundWater Monitoring and Corrective Action as provided in Rule 391-3-4-.14. A surface water monitoring plan which will determine the impact of the facility on all adjacent surface waters must also be included.

(m) Closure Criteria: the design must provide for proper closure in accordance with Rule 391-3-4-.11.

(n) Post-Closure Care: the design must provide for post-closure care in accordance with Rule 391-3-4-.12.

(o) Financial Responsibility: the design must provide for financial responsibility in accordance with Rule 391-3-4-.13.

(2) Construction Certification: upon receipt of a final and effective solid waste handling permit, construction may commence in accordance with the approved design and operational plan and permit conditions. Prior to receipt of solid waste, the Division must be provided with written certification by a professional engineer licensed to practice in Georgia, that the facility has been constructed in accordance with the approved permit. Unless notified otherwise by the Division, within 15 days of receipt by the Division of the written certification, the facility owner or operator may commence disposal of solid waste. This process shall be repeated for each subsequent major construction phase, including but not limited to, new cells or trenches, additional monitoring wells, sediment ponds, leachate treatment systems, modifications adding a new solid waste handling process, and application of final cover.

(3) Any person engaged in the operation of landfills shall comply with the following performance requirements:

(a) Air Criteria.

1. Owners or operators of all MSWLFs must ensure that the units not violate any applicable requirements developed under a State Implementation Plan (SIP) approved or promulgated by the U. S. Environmental Protection Agency pursuant to Section 110 of the Clean Air Act, as amended.

2. Open burning of solid waste, except for the infrequent burning of agricultural wastes, silvicultural wastes, landclearing debris, diseased trees, or debris from emergency cleanup operations, is prohibited at all MSWLF units.

(b) Unloading: solid waste unloading shall be restricted to the working face of the operation in such manner that waste may be easily incorporated into the landfill with available equipment.

(c) Procedures for excluding receipt of prohibited wastes:

1. Not later than October 1, 1993, owners or operators of all landfills must implement a program at the facility for detecting and preventing the disposal of regulated quantities of hazardous wastes as defined in the Rules for Hazardous Waste Management, Chapter 391-3-11, polychlorinated biphenyls (PCB) wastes as defined in 40 CFR, Part 761, and other wastes prohibited by Rule 391-3-4-.04, or the facility's permit. This program must include, at a minimum:

a. random inspections of incoming loads unless the owner or operator takes other steps to ensure that incoming loads do not contain prohibited wastes;

b. records of any inspections;

c. training of facility personnel to recognize prohibited wastes; and

d. notification of the Director if a prohibited waste is discovered at the facility.

2. The procedures must be made a part of the operating record.

(d) Spreading and Compaction: solid waste shall be spread in uniform layers and compacted to its smallest practical volume before covering with earth.

(e) Daily Cover:

1. Except as provided in paragraph 2. of this section, the owner or operator of all MSWLF units must cover disposed solid waste with six inches of earthen material at the end of each operating day, or at more frequent intervals if necessary, to control disease vectors, fires, odors, blowing litter, and scavenging.

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2. Alternative materials (such as foams or tarps) of an alternative thickness (other than at least six inches of earthen material) may be approved by the Director if the owner or operator demonstrates that the alternative material and thickness control disease vectors, fires, odors, blowing litter, and scavenging without presenting a threat to human health and the environment.

(f) Disease Vector Control.

1. Owners or operators of all MSWLF units must prevent or control on-site populations of disease vectors using techniques appropriate for the protection of human health and environment.

2. For purposes of this Rule, "disease vectors" means any rodents, flies, mosquitoes, or other animals, including insects, capable of transmitting disease to humans.

(g) Intermediate Cover: a uniform compacted layer of clean earth cover not less than one (1) foot in depth shall be placed over each portion of any intermediate lift following completion of that lift.

(h) Explosive Gases Control.

1. Owners or operators of all MSWLF units must ensure that:

a. The concentration of methane gas generated by the facility does not exceed 25 percent of the lower explosive limit for methane in facility structures (excluding gas control or recovery system components); and

b. The concentration of methane gas does not exceed the lower explosive limit for methane at the facility property boundary.

2. Owners or operators of all MSWLF units must implement a routine methane monitoring program to ensure that the standards of this section are met.

a. The type and frequency of monitoring must be determined based on the following factors:

(i) Soil conditions;

(ii) The hydrogeologic conditions surrounding the facility;

(iii) The hydraulic conditions surrounding the facility;

(iv) The location of facility structures and property boundaries.

b. The minimum frequency of monitoring must be quarterly.

3. If methane gas levels exceeding the limits specified in this section are detected, the owner or operator must:

a. Immediately take all necessary steps to ensure protection of human health and notify the Director;

b. Within seven days of detection, place in the operating record the methane gas levels detected and a description of the steps taken to protect human health; and

c. Within 60 days of detection, implement a remediation plan for the methane gas releases, place a copy of the plan in the operating record, and notify the Director that the plan has been implemented. The plan shall describe the nature and extent of the problem and the proposed remedy.

4. For purposes of this section, lower explosive limit means the lowest percent by volume of a mixture of explosive gases in air that will propagate a flame at 25°C and atmospheric pressure.

(i) Run-on/Run-off Control.

1. Owners or operators of all MSWLF units must design, construct, and maintain:

a. A run-on control system to prevent flow onto the active portion of the landfill during the peak discharge from a 25-year storm;

b. A run-off control system from the active portion of the landfill to collect and control at least the water volume resulting from a 24-hour, 25-year storm.

2. Run-off from the active portion of the landfill unit must be handled in accordance with section (j) of this Rule.

(j) Surface water requirements; MSWLF units shall not:

1. Cause a discharge of pollutants into waters of the state or the United States, including wetlands, that violates any requirements of the Clean Water Act, including, but not limited to, the National Pollutant Discharge Elimination system (NPDES) requirements pursuant to section 402;

2. Cause the discharge of a nonpoint source of pollution to waters of the state or the United States, including wetlands, that violates any requirement of an area-wide or State-wide water quality management plan that has been approved under section 208 or 319 of the Clean Water Act, as amended.

(k) Continuity of Operation: all-weather access roads shall be provided to the working face of the disposal operation and provi-

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sions shall be made for prompt equipment repair or replacement when needed.

(l) Environmental Protection: the landfill shall be operated in such manner as to prevent air, land, or water pollution, and public health hazards.

(m) Prohibited Waste: no liquids, except as allowed in Rule .04(9), lead acid batteries, radioactive waste, or regulated quantities of hazardous waste may be accepted. The operator must have a plan for excluding these wastes.

(n) Supervision: the disposal facility shall be under the supervision of an operator who is present at all times during operation and who is properly trained in the operation of landfills and the implementation of Design and Operational Plans and who, if the facility is a municipal solid waste disposal facility, is certified in accordance with O.C.G.A. 12-8-24.1 and these Rules.

(o) Limited Access: access to landfills shall be limited to authorized entrances which shall be closed when the site is not in operation. Owners and operators of all landfills must control public access and prevent unauthorized vehicular traffic and illegal dumping of wastes by using artificial barriers, natural barriers, or both, as appropriate to protect human health and the environment.

(p) Litter Control: scattering of wastes by wind shall be controlled by fencing or other barriers and the entire site shall be inspected daily and all litter removed.

(q) Fire Protection: suitable measures to control fires that may start shall be provided. Stockpiled soil is considered to be the most satisfactory fire fighting material.

(r) Erosion and Sedimentation Control: all erosion and sedimentation control measures or facilities, whether temporary or permanent, shall be continuously maintained by the operator so as to be effective. Runoff from the facility must be directed to permanent sediment control impoundments which are designed to assure discharges meeting the requirements of O.C.G.A. 12-7-6(18). Erosion and sedimentation control measures and facilities will be employed prior to and concurrent with clearing, grading, overburden removal, access or other land disturbing activities for preparation of the site for landfilling. Immediate measures must be implemented to establish vegetation on disturbed exposed soil which will not be a part of the waste disposal area or which will remain exposed for more than three (3) months.

(s) Information Posted: signs shall be posted at the entrance to landfills indicating the days and hours of operation.

(t) Prohibited Acts: the landfill shall be operated and maintained to prevent open burning, scavenging, and the open dumping of wastes.

(u) Recordkeeping Requirements.

1. Not later than October 1, 1993, the owner or operator of a MSWLF unit must record and retain near the facility in an operating record or in an alternative location approved by the Director the following information as it becomes available:

a. Any location restriction demonstration required under Rule 391-3-4-.05;

b. Inspection records, training procedures, and notification procedures required in section (c) of this Rule;

c. Gas monitoring results from monitoring and any remediation plans required by paragraph (h) of this section;

d. Any MSWLF unit design documentation for placement of leachate or gas condensate in a MSWLF unit as required under paragraph (9) of Rule 391-3-4-.04;

e. Any demonstration, certification, finding, monitoring, testing, or analytical data required by Rule 391-3-4-.14;

f. Closure and post-closure care plans and any monitoring, testing, or analytical data as required by Rule 391-3-4-.11 and Rule 391-3-4-.12; and

g. Any cost estimates and financial assurance documentation required by Rule 391-3-4-.13.

2. The owner/operator must notify the Director when the documents from paragraph 1. of this section have been placed or added to the operating record, and all information contained in the operating record must be furnished on request to the Director or be made available at all reasonable times for inspection by the Director.

3. The Director can set alternative schedules for recordkeeping and notification requirements as specified in paragraphs 1. and 2. of this section, except for the notification requirements in Rule 391-3-4-.05(1)(c), Airport Safety, and Rule 391-3-4-.14 (30)(a) 3., Assessment Monitoring.

(v) Ground and Surface Water Monitoring: all water monitoring points shall be sampled in accordance with the approved plans or with any directive issued by the Division. Analytical results must be submitted to the Division in accordance with the approved time schedules. It shall be the responsibility of the facility owner or

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operator to promptly report any exceedance of established standards. All monitoring reports must be accompanied by a statement certifying, for those constituents which have established standards, that established standards have been complied with or certifying noncompliance.

(w) Survey Control: survey control shall be provided by the owner and/or operator as indicated on the approved design and operational plan. Site survey control shall be provided to ensure the operation will be on permitted lands. Survey control will be accomplished through use of permanent, accessible benchmarks, survey control stakes, and/or boundary markers which designate and/or delineate all permitted areas. Where necessary for construction or operational purposes, vertical as well as horizontal survey control will be established and maintained to delineate fill boundaries, buffers, structural designs, and property boundaries.

(x) Additional Stipulations: notwithstanding the above, additional stipulations for owning or operating a landfill may be imposed by the Director as deemed necessary to carry out the purposes of O.C.G.A. 12-8-20, et seq.

(4) Other Disposal Operations.

(a) Industrial Waste Disposal Facilities: industrial waste disposal facilities permitted to receive only a single type industrial waste (monofil) or receive only a single industry's waste may be given a variance by the Director from installing liners and leachate collection systems, applying daily cover, installing ground water and surface water monitoring systems and monitoring for methane gas if the applicant can demonstrate to the satisfaction of the Director that the waste to be disposed of would not cause ground or surface water contamination, cause odors or be attractive to disease vectors or birds or generate methane gas. Unless a variance is granted, the applicant must demonstrate compliance with all applicable provisions of this Rule. Disposal facilities accepting wastes from more than one industrial source, unless the facility is a monofil, must meet all standards applicable to municipal solid waste landfills in Chapter 391-3-4.

(b) Construction/Demolition Facilities: disposal facilities permitted to receive only construction and demolition wastes ,unless such waste includes household waste, may be given a variance by the Director from installing liners and leachate collection systems, applying daily cover, installing ground water and surface water monitoring systems and monitoring for methane gas if the applicant can demonstrate to the satisfaction of the Director that the waste to be disposed of would not cause ground or surface water contamination, cause odors or be attractive to disease vectors or birds or generate methane gas. Unless a variance is granted, the applicant must demonstrate compliance with all applicable provisions of this Rule. All other provisions of

Chapter 391-3-4 applicable to municipal solid waste landfills must be met however, because construction/demolition waste is classified as municipal solid waste.

(c) Construction and operation of a solid waste handling facility for which specific rules have not been developed is prohibited unless same are consistent with the policies and intent of O.C.G.A. 12-8-20, et seq., and are permitted by the Director.

Authority O.C.G.A. Section 12-8-20 et seq., as amended.

391-3-4-.08 Solid Waste Thermal Treatment Operations. Amended.

(1) Except as otherwise noted in (2) below, any person engaged in thermal treatment technology of solid waste, in addition to the requirements of O.C.G.A. 12-8-24(i) relating to Federal New Source Performance Standards, shall comply with the following requirements:

(a) Design Criteria: a design and operational plan prepared as a part of the permit application must be prepared by a professional engineer registered in Georgia and must include, but is not limited to, the following criteria:

1. Capacity: the thermal treatment technology facility shall be adequate in size and capacity to manage the projected incoming solid waste and residue volumes.

2. Storage Time: the facility shall provide for a minimum storage capacity of not less than three (3) times the daily capacity of the thermal treatment technology equipment. No waste shall be stored in excess of the permitted capacity.

3. Types of Waste: the application must include the sources, types and weight or volumes of solid waste to be processed, including data on the moisture content of the waste, and information concerning special environmental pollution or handling problems that may be created by the solid waste.

4. Residue Analysis: the facility shall be designed in such a manner as to provide for such devices to expedite the routine sampling of bottom and fly ash.

5. Air Quality: the facility shall be designed in such manner as to meet any air quality standards of the Division.

6. Wastewater: the facility shall be designed so that any wastewater generated will be discharged to a wastewater treatment system and, before final release, will be treated in a manner approved by the Division.

7. Fire Protection: facility design shall provide for fire

control equipment placed near the storage and charging area, and elsewhere as needed, and additional fire fighting equipment shall be made available for emergencies.

8. Residue Acceptability: the facility shall provide for sufficient temperature and combustion times to produce a residue essentially free of odors and unstable organic matter.

(b) Construction Certification: upon receipt of a final and effective solid waste handling permit, construction may commence in accordance with the approved design and operational plan and permit conditions. Prior to the receipt of solid waste, the Division must be provided with written certification, by a professional engineer licensed to practice in Georgia, that the facility has been constructed in accordance with the approved permit. Unless notified otherwise by the Division within 15 days of receipt by the Division of the written certification, the facility owner or operator may commence disposal of solid waste.

(c) All persons owning or operating thermal treatment technology facilities shall comply with the following performance requirements:

1. Supervision: operation and management of thermal treatment technology facilities shall be under the direct supervision and control of an operator who is present at all times of operation and is qualified in thermal treatment technology management by training, education or experience and who, after July 1, 1992, is certified in accordance with O.C.G.A. 12-8-24.1 and these Rules.

2. Residue: temperature and combustion time shall be sufficient to produce a satisfactory residue, essentially free of odors and unstable organic matter, and such residue shall be promptly deposited in a municipal solid waste landfill having a liner and leachate collection system and operated and maintained as provided herein, handled in such other manner as may be approved by the Division, or if shown by testing to be hazardous, handled in accordance with the provisions of the Georgia Hazardous Waste Management Act, O.C.G.A. 12-8-60, et seq.

3. Waste Water: waste water shall be discharged into a waste water treatment system and, before final release, shall be treated in a manner approved by the Division.

4. Information Posted: signs shall be posted at the entrance to the plant indicating the days and hours of operation. Access to the plant shall be limited to those times when authorized personnel are on duty.

5. Cleanliness and Sanitation: plants shall be maintained in a clean and sanitary condition. Solid waste shall be confined to the unloading area, which shall be maintained free of dust and

nuisances. Accumulations of putrescible materials and rubbish shall be controlled in a manner so as to minimize odors and prevent infestation by insects or rodents, and insect and rodent control measures shall be applied as needed. Sanitary facilities shall be provided for employees and shall be kept clean and in good repair.

6. Fire Control: fire control equipment shall be available near the storage area and charging area, and elsewhere as needed, and additional fire fighting equipment shall be made available for emergencies.

7. Sampling Requirements: sampling of ash residues must be conducted at frequencies and in such a manner as prescribed below:

(i) Prior to the initial disposal of ash or residue from a facility.

(ii) At a minimum, monthly for the first six (6) months of operations at the facility, and annually during the remaining life of the facility.

(iii) A sampling and analysis plan shall be submitted to, and approved by, the Director.

(iv) Fly ash and bottom ash shall be sampled and analyzed separately.

8. Prohibited Waste: no lead acid batteries, radioactive waste, or regulated quantities of hazardous waste may be accepted. The operator must have a plan for excluding these wastes.

9. Record Keeping: accurate written, daily records by actual weight or by the methods approved in accordance with O.C.G.A. 12-8-31.1(g) shall be kept of all waste received at the thermal treatment facility. Copies of such records shall be maintained for a period of at least three (3) years and shall be made available to the Division upon request.

10. Additional Stipulations: notwithstanding the above, additional stipulations for owning or operating a thermal treatment facility may be imposed by the Director as deemed necessary to carry out the purposes of O.C.G.A. 12-8-20, et seq.

(2) Any person engaged in the operation of an Air Curtain Destructor (ACD) shall comply with the following requirements: for purposes of these Rules, an "Air Curtain Destructor" means a forced air pit thermal treatment technology for the burning of wood wastes.

(a) Design Criteria: a design and operational plan prepared as a part of the permit application must be prepared by a professional engineer registered in Georgia and must include, but is not limited

to, the following criteria:

1. Location: the ACD must be at least 500 feet from any occupied dwelling. This distance may be increased or decreased on a site-specific basis at the discretion of the Division.

2. Storage: areas for storing wastes prior to treatment must be clearly defined and maximum capacity specified.

3. Types of Waste: only wood wastes consisting of trees, logs, brush, stumps relatively free of soil, and natural wood products free of wood preserving chemicals, paints, and other contaminants may be burned. Fallen leaves, sawdust, other densely packed wood wastes, and paper (any type) may not be burned.

4. Air Quality: the facility shall be designed in such a manner as to meet applicable air quality standards of the Division. No smoke emissions exceeding 20 percent opacity may be produced during operation except for a specified ignition period.

5. Disposal of Ash and Residue: ash and residue shall be removed from the facility, handled as a recovered material or and disposed in a permitted facility.

6. Fire Protection: facility design shall provide for fire control equipment placed near the storage and ACD area. Additional fire fighting equipment shall be made available for emergencies.

(b) Construction Certification: upon receipt of a final and effective solid waste handling permit, construction may commence in accordance with the approved design and operational plan and permit conditions. Prior to the receipt of solid waste, the Division must be provided with written certification, by a professional engineer licensed to practice in Georgia, that the facility has been constructed in accordance with the approved permit. Unless notified otherwise by the Division within 15 days of receipt by the Division of the written certification, the facility owner or operator may commence disposal of solid waste.

(c) All persons owning or operating an air curtain destructor shall comply with the following performance requirements:

1. Supervision: operation and management of air curtain destructors shall be under the direct supervision and control of an operator who is present at all times of operation and is qualified in air curtain destructor management by training, education or experience and who, after July 1, 1992 is certified in accordance with O.C.G.A. 12-8-24.1 and these Rules.

2. Residue: temperature and combustion time shall be sufficient to produce a satisfactory residue, and such residue shall be promptly deposited in a landfill operated and maintained as

provided herein or handled in such other manner as may be allowed by these Rules. Ashes may not be allowed to build up on the combustion pit to higher than one-third the pit depth or to the point where combustion is impeded, whichever comes first.

3. Access: facility access shall be restricted to prohibit unauthorized storage or disposal of wastes and to prevent injury during ACD operation.

4. Inspection and Maintenance: the ACD and all operating appurtenances must be routinely inspected and adequately maintained to ensure proper working order. Storage areas must be inspected and maintained to exclude unauthorized wastes and minimize any fire hazard.

(d) Effective April 1, 1994, no ACD may burn any household waste or yard trimmings.

Authority O.C.G.A. Section 12-8-20 et seq., as amended.

391-3-4-.09. Shredding, Baling, Materials Recovery Facilities and Other Processing Operations.

(1) Any person engaged in shredding, baling, or the recovery of materials from solid waste shall comply with the following requirements:

(a) Design Standards: a design and operational plan prepared by a professional engineer registered to practice in Georgia and proposed as a part of the permit application must include, but is not limited to, the following standards:

1. Capacity. The facility shall be adequate in size and capacity to manage the projected incoming solid waste and residue volumes.

2. Baling Equipment. The equipment must be capable of producing a relatively uniform bale size and shape which can be easily handled by equipment at the baling facility. The bales must have sufficient stability to withstand transportation to the disposal site and handling necessary to position them for final disposal.

3. Storage Time. The facility shall provide for a minimum storage capacity of not less than three (3) times the daily capacity of the shredding, baling or materials recovery equipment. No waste shall be stored in excess of the permitted capacity.

4. Types of Waste. The application must include the sources, types, and weight of solid waste to be processed, and information concerning special environmental pollution or handling problems that may be created by the solid waste.

5. Air Quality. The facility shall be designed in such a manner as to meet any air quality standards of the Division.

6. Wastewater. Any wastewater generated by the facility shall be discharged to a wastewater treatment system and, before final release, shall be treated in a manner approved by the Division.

7. Fire Protection. Facility design shall provide for fire control equipment placed near the storage area and elsewhere as needed, and additional fire fighting equipment shall be made available for emergencies.

8. Disposal of Waste. Shredded and baled waste and any material not sold or used, reused, or recycled as recovered material must be disposed in a permitted facility.

(b) Construction Certification: upon receipt of a final and effective solid waste handling permit, construction may commence in accordance with the approved design and operational plan and permit conditions. Prior to receipt of solid waste, the Division must be provided with written certification, by a professional engineer licensed to practice in Georgia, that the facility has been constructed in accordance with the approved permit. Unless notified otherwise by the Division within 15 days of receipt by the Division of the written certification, the facility owner or operator may commence processing of solid waste.

(c) Performance Standards. All persons owning or operating shredding, baling or materials recovery facilities shall comply with the following requirements:

1. Supervision. Operation and management of the facility shall be under the supervision and control of a responsible individual properly trained in the operation of such facilities at all times during operation.

2. Shredding Plant Residue. The shredded material shall be deposited in a municipal solid waste landfill or handled in such a manner as may be approved by the Division.

3. Bales. The baling operation shall be controlled to produce a uniform bale size and shape which can be easily handled by equipment at the baling facility and at the disposal facility. The bales must have sufficient stability to withstand transportation to the disposal facility and handling necessary to position them for final disposal. Baled solid waste shall be deposited in a municipal solid waste landfill or handled in such other manner as may be approved by the Division.

4. Wastewater. Wastewater shall be discharged to a wastewater treatment system and, before final release, shall be treated in a manner approved by the Division.

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5. Air Quality. Atmospheric emissions shall be controlled so as not to exceed air quality standards of the Division.

6. Information Posted. Signs shall be posted at the entrance to the plant indicating the days and hours of operation. Access to the plant shall be limited to those times when authorized personnel are on duty.

7. Cleanliness and Sanitation. Facilities shall be maintained in a clean and sanitary condition. Solid waste shall be confined to the unloading area, which shall be maintained free of dust and nuisances. Accumulations of putrescible materials and rubbish shall be controlled in a manner so as to minimize odors and prevent infestation by insects or rodents, and insect and rodent control measures shall be applied as needed. Sanitary facilities shall be provided for employees and shall be kept clean and in good repair.

(2) Construction and operation of solid waste processing facilities for which specific rules have not been developed are prohibited unless same are consistent with the policies and intent of O.C.G.A. 12-8-20, et seq., and are permitted by the Director.

Authority O.C.G.A. Section 12-8-20 et seq., as amended.

391-3-4-.10. Reserved.

391-3-4-.11. Closure Criteria. Amended.

(1) 40 CFR Part 258, Subpart F, Section 258.60, as amended, 56 Fed. Reg. 51028-51029 (October 9, 1991) is hereby incorporated by reference, except that it shall be effective upon adoption by the Board and filing with the Secretary of State and except as described below.

(2) This Rule shall be applicable to all solid waste handling facilities.

(3) A copy of the closure plan required by paragraph (1) of this Rule must be submitted as part of the application for a permit, or in the case of existing sites, within 180 days of being directed to do so by the Director, provided, however, that all owners or operators of existing municipal solid waste landfills must submit a plan not later than October 1, 1993.

(4) Notice of final closure must be provided to the Director within 30 days of receiving the final load of waste. Any site not receiving waste for in excess of 180 days, unless otherwise approved by the Division, shall be deemed closed and in violation of these Rules unless properly closed. Notice of closure must include the date of final waste receipt and an accurate legal description of the boundaries of the landfill.

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(5) All deeds for real property which have been used for landfilling shall include notice of the landfill operations, the date the landfill operation commenced and terminated, an accurate legal description of the actual location of the landfill, and a description of the type of solid wastes which have been deposited in the landfill. Concurrent with the submission of notice of final closure to the Director, the owner or operator must submit to the Director confirmation that the information required in this section has been noticed on the property deed.

(6) The owner or operator must close the solid waste disposal facility in accordance with a closure plan approved by the Division. Upon completing all requirements specified to close the facility outlined in the closure plan, the owner or operator must provide the Division with a certification signed by a registered professional engineer, registered in the state of Georgia, to verify that compliance with the closure requirements have been satisfied.

(7) The closure certification as provided for in paragraph (6) of this Rule must be completed on forms provided by the Division. If certification is accepted by the Division, the Director will issue the Closure Certificate and establish the beginning of the post-closure care period.

Authority O.C.G.A. Section 12-8-20 et seq., as amended.

391-3-4-.12. Post-Closure Care. Amended.

(1) 40 CFR, Part 258, Subpart F, Section 258.61, as amended, 56 Fed. Reg. 51028-51029 (October 9, 1991) is hereby incorporated by reference, except that it shall be effective upon adoption by the Board and filing with the Secretary of State and except as described below.

(2) The owner and/or operator of all landfills must conduct post-closure care for at least thirty (30) years after the Director has authorized the Closure Certificate, provided however, that the Director may reduce the post-closure care period to 5 years for those facilities which are not contaminating groundwater and which cease to accept solid waste prior to being classified as an "existing MSWLF or landfill unit", as defined in Rule .01. The Director may extend the post-closure care period where necessary to adequately protect human health and the environment.

(3) The owner and/or operator shall be responsible for conducting all monitoring activities. At any time the monitoring results indicate exceeding of established standards or indicate a threat to human health or the environment, the owner and/or operator shall notify the Division within 5 days of such determination and shall provide a plan for remediation within 30 days of such notice. The plan shall be submitted to the Director for approval. Unless

notified otherwise by the Division within 30 days of receipt of a complete plan, the plan shall stand approved. Upon approval, the owner and/or operator shall implement the approved plan.

(4) Post-closure use of property must never be allowed to disturb the integrity of the final cover, liner(s), or any other components of the containment system, or the function of the monitoring systems, unless the Division determines that the activities are necessary to meet the requirements of this Chapter.

(5) If the owner and/or operator or any subsequent owner or operator of the land upon which a landfill is located wishes to remove wastes and waste residues, the liner, if any, or contaminated soils, the owner or operator must request and receive written approval from the Division.

(6) A copy of the post-closure care plan required under paragraph (1) of this Rule must be submitted as part of the permit application, or in the case of existing sites, within 180 days of being directed to do so by the Director, provided, however, that all owners of operators of existing municipal solid waste landfills must submit an approvable post-closure plan not later than October 1, 1993.

Authority O.C.G.A. Section 12-8-20 et seq., as amended.

391-3-4-.13. Financial Responsibility. Amended.

(1) The requirements of this Rule apply to all owners and/or operators of solid waste processing, treatment, storage or disposal facilities other than permit-by-Rule facilities.

(2) 40 CFR Part 258, Subpart G as amended, 56 Fed. Reg. 51029-51032 (October 9, 1991) is hereby incorporated by reference, except that it shall be effective upon adoption by the Board and filing with the Secretary of State, other than financial assurance for cities, counties, and authorities, which provisions shall be effective as provided for in 40 CFR Part 258, Subpart G.

Authority O.C.G.A. Section 12-8-20 et seq., as amended.

391-3-4-.14. Groundwater Monitoring and Corrective Action. Amended.

(1) Applicability. All permits and modifications of permits for MSWLF units issued after the effective date of this Rule require the installation of a groundwater monitoring system. All existing MSWLF units not now having a groundwater monitoring system, and failing to make the demonstration required in section (2) shall incorporate a groundwater monitoring system into the site design and shall install the system within 270 days of being notified to do so by the Division, provided, however, that such systems must be

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installed not later than October 1, 1994. Such groundwater monitoring and, if needed, corrective action shall be conducted in accordance with this Rule. Industrial solid waste landfills and construction/demolition waste landfills must also meet the requirements of this Rule unless otherwise exempted by the Division.

(2) Groundwater monitoring requirements under paragraphs (8) through (50) of this Rule may be suspended by the Director for a MSWLF unit if the owner or operator can demonstrate that there is no potential for migration of hazardous constituents from that MSWLF unit to the uppermost aquifer during the active life of the unit and the post-closure care period. This demonstration must be certified by a professional geologist registered to practice in Georgia, or a professional geotechnical engineer registered to practice in Georgia and the demonstration approved by the Director, and must be based upon:

(a) Site-specific field collected measurements, sampling, and analysis of physical, chemical, and biological processes affecting contaminant fate and transport, and

(b) Contaminant fate and transport predictions that maximize contaminant migration and consider impacts on human health and the environment.

(3) New MSWLF units must be in compliance with the groundwater monitoring requirements specified in this Rule before waste may be placed in the unit.

(4) When referenced in this Rule, Appendix I and Appendix II constituents shall refer to those constituents as listed in Appendix I and II of 40 CFR Part 258, Subpart E, as amended, 56 Fed. Reg. 51032-51039 (October 9, 1991), which are hereby incorporated by reference.

(5) Once established at a MSWLF unit, groundwater monitoring shall be conducted throughout the active life and post-closure care period of that MSWLF unit as specified in Rule 391-3-4-.12.

(6) A qualified groundwater scientist is a professional geologist or geotechnical engineer registered to practice in Georgia.

(7) The Director may approve alternative schedules for demonstrating compliance with paragraph (11)(b) pertaining to notification of placement of certification in operating record; paragraph (23)(a) pertaining to notification that statistically significant increase (SSI) notice is in operating record; paragraph (23)(b) and (c), pertaining to an assessment monitoring program; paragraph (25), pertaining to sampling and analyzing Appendix II constituents; paragraph (27)(a) pertaining to placement of notice (Appendix II constituents detected) in record and notification of notice in record; paragraph (27)(b) pertaining to sampling for Appendix I and

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II to this Rule; paragraph (30) pertaining to notification (and placement of notice in record) of SSI above groundwater protection standard; paragraphs (30)(a) and (34) pertaining to assessment of corrective measures; paragraph (38) pertaining to selection of remedy and notification of placement in record; paragraph (46)(d) pertaining to notification of placement in record (alternative corrective action measures); and paragraph (49) pertaining to notification of placement in record (certification of remedy completed).

(8) Groundwater Monitoring Systems. A groundwater monitoring system must be installed that consists of a sufficient number of wells, installed at appropriate locations and depths, to yield groundwater samples from the uppermost aquifer that:

(a) Represent the quality of background groundwater that has not been affected by leakage from a unit. A determination of background quality may include sampling of wells that are not hydraulically upgradient of the waste management area where:

1. Hydrogeologic conditions do not allow the owner or operator to determine what wells are hydraulically upgradient; or

2. Sampling at other wells will provide an indication of background groundwater quality that is as representative or more representative than that provided by the upgradient wells; and

(b) Represent the quality of groundwater passing the relevant point of compliance specified by the Director under Rule 391-3-4-.07. The downgradient monitoring system must be installed at the relevant point of compliance specified by the Director under this Rule. When physical obstacles preclude installation of groundwater monitoring wells at the relevant point of compliance at existing units, the downgradient monitoring system may be installed at the closest practicable distance hydraulically downgradient from the relevant point of compliance specified by the Director under Rule 391-3-4-.07 that ensures detection of groundwater contamination in the uppermost aquifer.

(9) The Director may approve a multi-unit groundwater monitoring system instead of separate groundwater monitoring systems for each MSWLF unit when the facility has several units, provided the multi-unit groundwater monitoring system meets the requirement of paragraph (8) of this Rule and will be as protective of human health and the environment as individual monitoring systems for each MSWLF unit, based on the following factors:

(a) Number, spacing, and orientation of the MSWLF units;

(b) Subsurface and Surface Hydrogeologic setting;

(c) Site history;

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(d) Engineering design of the MSWLF units, and

(e) Type of waste accepted at the MSWLF units.

(10) Monitoring wells must be cased in a manner that maintains the integrity of the monitoring well borehole and prevents inter-aquifer migration of fluids. This casing must be screened or perforated and packed with gravel or sand, where necessary, to enable collection of groundwater samples. The annular space (i.e., the space between the borehole and well casing) above the sampling depth must be sealed to prevent contamination of samples and the groundwater.

(a) The owner or operator must notify the Director that the design, installation, development, and decommission of any monitoring wells, piezometers and other measurement, sampling, and analytical devices documentation has been placed in the operating record; and

(b) The monitoring wells, piezometers, and other measurement, sampling, and analytical devices must be operated and maintained so that they perform to design specifications throughout the life of the monitoring program. Monitoring wells and piezometers shall be constructed by drillers having a valid and current bond with the Water Wells Standards Advisory Council.

(11) The number, spacing, and depths of monitoring systems shall be:

(a) Determined based upon site-specific technical information that must include thorough characterization of:

1. Aquifer thickness, groundwater flow rate, groundwater flow direction including seasonal and temporal fluctuations in groundwater flow; and

2. Saturated and unsaturated geologic units and fill materials overlying the uppermost aquifer, materials comprising the uppermost aquifer, and materials comprising the confining unit defining the lower boundary of the uppermost aquifer; including, but not limited to: thicknesses, stratigraphy, lithology, hydraulic conductivities, porosities and effective porosities.

(b) Certified by a professional geologist, a professional geotechnical engineer registered to practice in Georgia. Within 14 days of this certification, the owner or operator must notify the Director that the certification has been placed in the operating record.

(12) Groundwater Sampling and Analysis Requirements. The groundwater monitoring program must include consistent sampling and analysis procedures that are designed to ensure monitoring results

that provide an accurate representation of groundwater quality at the background and downgradient wells installed in compliance with paragraph (8) of this Rule. The owner or operator must notify the Director that the sampling and analysis program documentation has been placed in the operating record and the program must include procedures and techniques for:

(a) Sample collection;

(b) Sample preservation and shipment;

(c) Analytical procedures;

(d) Chain of custody control; and

(e) Quality assurance and quality control.

(13) The groundwater monitoring program must include sampling and analytical methods that are appropriate for groundwater sampling and that accurately measure hazardous constituents and other monitoring parameters in groundwater samples. Groundwater samples are not normally field-filtered prior to laboratory analysis. If samples are filtered, then both filtered and unfiltered samples shall be collected and submitted to the laboratory for analysis.

(14) The sampling procedures and frequency must be protective of human health and the environment.

(15) Groundwater elevations must be measured in each well immediately prior to purging, each time groundwater is sampled. The owner or operator must determine the rate and direction of groundwater flow each time groundwater is sampled. Groundwater elevations in wells which monitor the same waste management area must be measured within a period of time short enough to avoid temporal variations in groundwater flow which could preclude accurate determination of groundwater flow rate and direction.

(16) The owner or operator must establish background groundwater quality in a hydraulically upgradient or background well(s) for each of the monitoring parameters or constituents required in the particular groundwater monitoring program that applies to the MSWLF unit, as determined under paragraph (21) or (24) of this Rule. Background groundwater quality may be established at wells that are not located hydraulically upgradient from the MSWLF unit if it meets the requirements of paragraph (8)(a) of this Rule.

(17) The number of samples collected to establish groundwater quality data must be consistent with the appropriate statistical procedures determined pursuant to paragraph (18) of this Rule. The sampling procedures shall be those specified in paragraph (22) for detection monitoring, paragraphs (24) and (27) for assessment

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monitoring, and paragraph (35) for corrective action.

(18) The owner or operator must specify in the operating record one of the following statistical methods to be used in evaluating groundwater monitoring data for each hazardous constituent. The statistical test chosen shall be conducted separately for each hazardous constituent in each well.

(a) A parametric analysis of variance (ANOVA) followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's mean and the background mean levels for each constituent.

(b) An analysis of variance (ANOVA) based on ranks followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's median and the background median levels for each constituent.

(c) A tolerance or prediction interval procedure in which an interval for each constituent is established from the distribution of the background data, and the level of each constituent in each compliance well is compared to the upper tolerance or prediction limit.

(d) A control chart approach that gives control limits for each constituent.

(e) Another statistical test method that meets the performance standards of paragraph (19) of this Rule. The owner or operator must place a justification for this alternative in the operating record and notify the Director of the use of this alternative test. The justification must demonstrate that the alternative method meets the performance standards of paragraph (19) of this Rule.

(19) Any statistical method chosen under paragraph (18) of this Rule shall comply with the following performance standards, as appropriate:

(a) The statistical method used to evaluate groundwater monitoring data shall be appropriate for the distribution of chemical parameters or hazardous constituents. If the distribution of the chemical parameters or hazardous constituents is shown by the owner or operator to be inappropriate for a normal theory test, then the data should be transformed or a distribution-free theory test should be used. If the distributions for the constituents differ, more than one statistical method may be needed.

(b) If an individual well comparison procedure is used to compare an individual compliance well constituent concentration with background constituent concentrations or a groundwater

protection standard, the test shall be done at a Type I error level no less than 0.01 for each testing period. If a multiple comparisons procedure is used, the Type I experiment wise error rate for each testing period shall be no less than 0.05; however, the Type I error of no less than 0.01 for individual well comparisons must be maintained. This performance standard does not apply to tolerance intervals, prediction intervals, or control charts.

(c) If a control chart approach is used to evaluate groundwater monitoring data, the specific type of control chart and its associated parameter values shall be protective of human health and the environment. The parameters shall be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern.

(d) If a tolerance interval or a predictional interval is used to evaluate groundwater monitoring data, the levels of confidence and, for tolerance intervals, the percentage of the population that the interval must contain, shall be protective of human health and the environment. These parameters shall be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern.

(e) The statistical method shall account for data below the limit of detection with one or more statistical procedures that are protective of human health and the environment. Any practical quantitation limit (pql) that is used in the statistical method shall be the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility.

(f) If necessary, the statistical method shall include procedures to control or correct for seasonal and spatial variability as well as temporal correlation in the data.

(20) The owner or operator must determine whether or not there is a statistically significant increase over background values for each parameter or constituent required in the particular groundwater monitoring program that applies to the MSWLF unit, as determined in paragraphs (21) or (24) of this Rule.

(a) In determining whether a statistically significant increase has occurred, the owner or operator must compare the groundwater quality of each parameter or constituent at each monitoring well designated pursuant to paragraph (8)(b) of this Rule to the background value of that constituent, according to the statistical procedures and performance standards specified under paragraphs (18) and (19) of this Rule.

(b) Within a reasonable period of time after completing sampling and analysis, the owner or operator must determine whether there has been a statistically significant increase over background at each monitoring well.

(21) Detection Monitoring. Detection monitoring is required at MSWLF units at all groundwater monitoring wells defined in paragraphs (8)(a) and (b) of this Rule. At a minimum, a detection monitoring program must include the monitoring for the constituents listed in Appendix I of this Rule.

(a) The Director may delete any of the Appendix I monitoring parameters for a MSWLF unit if it can be shown that the removed constituents are not reasonably expected to be contained in or derived from the waste contained in the unit.

(b) The Director may establish an alternative list of inorganic indicator parameters for a MSWLF unit, in lieu of some or all of the heavy metals (constituents 1-15 in Appendix I to this Rule), if the alternative parameters provide a reliable indication of inorganic releases from the MSWLF unit to the ground water. In determining alternative parameters, the Director shall consider the following factors:

1. The types, quantities, and concentrations of constituents in wastes managed at the MSWLF unit;

2. The mobility, stability, and persistence of waste constituents or their reaction products in the unsaturated zone beneath the MSWLF unit;

3. The detectability of indicator parameters, waste constituents, and reaction products in the groundwater; and

4. The concentration or values and coefficients of variation of monitoring parameters or constituents in the groundwater background.

(22) The monitoring frequency for all constituents listed in Appendix I to this Rule, or in the alternative list approved in accordance with paragraph (21)(b) of this Rule, shall be at least semiannual during the active life of the facility (including closure) and the post-closure care period. A minimum of four independent samples from each well (background and downgradient) must be collected and analyzed for the Appendix I constituents, or the alternative list approved in accordance with paragraph (21)(b) of this Rule, during the first semiannual sampling event. At least one sample from each well (background and downgradient) must be collected and analyzed during subsequent semiannual sampling events. The Director may specify an appropriate alternative frequency for repeated sampling and analysis for Appendix I constituents, or the alternative list approved in accordance with

paragraph (21)(b) of this Rule, during the active life (including closure) and the post-closure care period. The alternative frequency during the active life (including closure) shall be no less than annual. The alternative frequency shall be based on consideration of the following factors:

(a) Lithology of the aquifer and unsaturated zone;

(b) Hydraulic conductivity of the aquifer and unsaturated zone;

(c) Groundwater flow rates;

(d) Minimum distance between upgradient edge of the MSWLF unit and downgradient monitoring well screen (minimum distance of travel); and

(e) Resource value of the aquifer.

(23) If the owner or operator determines, pursuant to paragraph (18) of this Rule, that there is a statistically significant increase over background for one or more of the constituents listed in Appendix I to this Rule, or in the alternative list approved in accordance with paragraph (21)(b) of this Rule, at any monitoring well at the boundary specified under paragraph (8)(b) of this Rule, the owner or operator:

(a) Must, within 14 days of this finding, place a notice in the operating record indicating which constituents have shown statistically significant changes from background levels, and notify the Director that this notice was placed in the operating record; and

(b) Must establish an assessment monitoring program meeting the requirements of paragraphs (20) through (33) of this Rule within 90 days except as provided for in paragraph (23)(c) of this Rule.

(c) The owner/operator may demonstrate that a source other than a MSWLF unit caused the contamination or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. A report documenting this demonstration must be certified by a qualified groundwater scientist or approved by the Director and be placed in the operating record. If a successful demonstration is made and documented, the owner or operator may continue detection monitoring as specified in paragraphs (22) and (23) of this Rule. If, after 90 days, a successful demonstration is not made, the owner or operator must initiate an assessment monitoring program as required in paragraphs (24) through (33) of this Rule.

(24) Assessment Monitoring Program. Assessment monitoring is required whenever a statistically significant increase over background has been detected for one or more of the constituents listed in Appendix I or in the alternative list approved in

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accordance with paragraph (21)(b) of this Rule.

(25) Within 90 days of triggering an assessment monitoring program, and annually thereafter, the owner or operator must sample and analyze the groundwater for all constituents identified in Appendix II of this Rule. A minimum of one sample from each downgradient well must be collected and analyzed during each sampling event. For any constituent detected in the downgradient wells as the result of the complete Appendix II analysis, a minimum of four independent samples from each well (background and downgradient) must be collected and analyzed to establish background for the new constituents. The Director may specify an appropriate subset of wells to be sampled and analyzed for Appendix II constituents during assessment monitoring. The Director may delete any of the Appendix II monitoring parameters for a MSWLF unit if it can be shown that the removed constituents are not reasonably expected to be in or derived from the waste contained in the unit.

(26) The Director may specify an appropriate alternate frequency for repeated sampling and analysis for the full set of Appendix II constituents required by paragraph (25) of this Rule, during the active life (including closure) and post-closure care of the unit considering the following factors:

(a) Lithology of the aquifer and unsaturated zone;

(b) Hydraulic conductivity of the aquifer and unsaturated zone;

(c) Groundwater flow rates;

(d) Minimum distance between upgradient edge of the MSWLF unit and downgradient monitoring well screen (minimum distance of travel);

(e) Resource value of the aquifer; and

(f) Nature (fate and transport) of any constituents detected in response to this Rule.

(27) After obtaining the results from the initial or subsequent sampling events required in paragraph (25) of this Rule, the owner or operator must:

(a) Within 14 days, place a notice in the operating record identifying the Appendix II constituents that have been detected and notify the Director that this notice has been placed in the operating record;

(b) Within 90 days, and on at least a semiannual basis thereafter, resample all wells specified by paragraph (8) of this Rule, conduct analyses for all constituents in Appendix I to this Rule or in the alternative list approved in accordance with paragraph

(21)(b) of this Rule and for those constituents in Appendix II to this Rule that are detected in response to paragraph (25) of this Rule, and record their concentrations in the facility operating record. At least one sample from each well (background and downgradient) must be collected and analyzed during these sampling events. The Director may specify an alternative monitoring frequency during the active life (including closure) and the post-closure care period for the constituents referred to in this paragraph. The alternative frequency for Appendix I constituents, or the alternative list approved in accordance with paragraph (21)(b) of this Rule during the active life (including closure) shall be no less than annual. The alternative frequency shall be based on consideration of the factors specified in paragraph (26) of this Rule;

(c) Establish background concentrations for any constituents detected pursuant to paragraph (25) or (27)(b) of this Rule; and

(d) Establish groundwater protection standards for all constituents detected pursuant to paragraph (25) or (27) of this Rule. The groundwater protection standards shall be established in accordance with paragraph (31) or (32) of this Rule.

(28) If the concentrations of all Appendix II constituents are shown to be at or below background values, using the statistical procedures in paragraph (18) of this Rule, for two consecutive sampling events, the owner or operator must notify the Director of this finding and may return to detection monitoring.

(29) If the concentrations of any Appendix II constituents are above background values, but all concentrations are below the groundwater protection standard established under paragraphs (31) or (32) of this Rule, using the statistical procedures in paragraph (18) of this Rule, the owner or operator must continue assessment monitoring in accordance with this section.

(30) If one or more Appendix II constituents are detected at statistically significant levels above the groundwater protection standard established under paragraph (31) or (32) of this Rule in any sampling event, the owner or operator must, within 14 days of this finding, place a notice in the operating record identifying the Appendix II constituents that have exceeded the groundwater protection standard and notify the Director and all appropriate local government officials that the notice has been placed in the operating record. The owner or operator also:

(a) 1. Must characterize the nature and extent of the release by installing additional monitoring wells as necessary;

2. If the point of compliance is not at the facility boundary, the owner/operator must install at least one additional monitoring well at the facility boundary in the direction of contaminant

migration and sample this well in accordance with paragraph (27)(b) of this Rule;

3. Must notify all persons who own the land or reside on the land that directly overlies any part of the plume of contamination if contaminants have migrated off-site if indicated by sampling of wells in accordance with paragraph (30(a) of this Rule; and

4. Must initiate an assessment of corrective measures as required by paragraphs (34) through (37) of this Rule within 90 days; or

(b) May demonstrate that a source other than a MSWLF unit caused the contamination, or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. A report documenting this demonstration must be certified by a qualified groundwater scientist or approved by the Director and placed in the operating record. If a successful demonstration is made the owner or operator must continue monitoring in accordance with the assessment monitoring program pursuant to paragraphs (24) through (33) of this Rule and may return to detection monitoring if the Appendix II constituents are at or below background as specified in paragraph (28) of this ule. Until a successful demonstration is made, the owner or operator must comply with paragraph (30)(a) and (b), including initiating an assessment of corrective measures.

(31) The owner or operator must establish a groundwater protection standard for each Appendix II constituent detected in the groundwater. The groundwater protection standard shall be:

(a) For constituents for which a maximum contaminant level (MCL) has been promulgated under section 1412 of the Safe Drinking Water Act (codified) under 40 CFR part 141, the MCL for that constituent;

(b) For constituents for which MCLs have not been promulgated, the background concentration for the constituent established from wells in accordance with paragraph (8)(a) of this Rule; or

(c) For constituents for which the background level is higher than the MCL identified under paragraph (31)(a) of this Rule or health based levels identified under paragraph (32)(a) of this Rule, the background concentration.

(32) The Director may establish an alternative groundwater protection standard for constituents for which MCLs have not been established. These groundwater protection standards shall be appropriate health based levels that satisfy the following criteria:

(a) The level is derived in a manner consistent with applicable state and federal guidelines for assessing the health risks of

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environmental pollutants (51 Fed. Reg. 33992, 34006, 34014, 34028, September 24, 1986).

(b) The level is based on scientifically valid studies conducted in accordance with the Toxic Substances Control Act Good Laboratory Practice Standards (40 CFR part 792) or equivalent;

(c) For carcinogens, the level represents a concentration associated with an excess lifetime cancer risk level (due to continuous lifetime exposure) within the 1×10^{-4} to 1×10^{-6} range; and

(d) For systemic toxicants, the level represents a concentration to which the human population (including sensitive subgroups) could be exposed to on a daily basis that is likely to be without appreciable risk of deleterious effects during a lifetime. For purposes of this paragraph, systemic toxicants include toxic chemicals that cause effects other than cancer or mutation.

(33) In establishing groundwater protection standards under paragraph (32) of this rule, the Director may consider the following:

(a) Multiple contaminants in the groundwater;

(b) Exposure threats to sensitive environmental receptors; and

(c) Other site-specific exposure or potential exposure to groundwater.

(34) Assessment of Corrective Measures. Within 90 days of finding that any of the constituents listed in Appendix II have been detected at a statistically significant level exceeding the groundwater protection standards defined in paragraph (31) or (32) of this Rule, the owner or operator must initiate an assessment of corrective measures. Such an assessment must be completed within a reasonable period of time.

(35) The owner or operator must continue to monitor in accordance with the assessment monitoring program as specified in paragraphs (24) through (33) of this Rule.

(36) The assessment shall include an analysis of the effectiveness of potential corrective measures in meeting all of the requirements and objectives of the remedy as described in paragraphs (38) through (43) of this Rule addressing at least the following:

(a) The performance, reliability, ease of implementation, and potential impacts of appropriate potential remedies, including safety impacts, cross-media impacts, and control of exposure to any residual contamination;

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(b) The time required to begin and complete the remedy;

(c) The costs of remedy implementation; and

(d) Other environmental or public health requirements that may substantially affect implementation of the remedy(s).

(e) Local, state or federal permit requirements.

(37) The owner or operator must discuss the results of the corrective measures assessment, prior to the selection of remedy, in a public meeting with interested and affected parties.

(38) Selection of Remedy. Based on the results of the corrective measures assessment conducted under paragraphs (34) through (37) of this Rule, the owner or operator must select a remedy that, at a minimum, meets the standards listed in paragraph (39) of this rule. The owner or operator must notify the Director, within 14 days of selecting a remedy, that a report describing the selected remedy has been placed in the operating record and how it meets the standards in paragraph (39) of this Rule.

(39) Remedies must:

(a) Be protective of human health and the environment;

(b) Attain the groundwater protection standard as specified pursuant to paragraph (31) or (32) of this Rule.

(c) Control the source(s) of releases so as to reduce or eliminate, to the maximum extent practicable, further releases of Appendix II constituents into the environment that may pose a threat to human health or the environment; and

(d) Comply with standards for management of wastes as specified in paragraph (47) of this Rule.

(40) In selecting a remedy that meets the standards of paragraph (31) of this rule, the owner or operator shall consider the following evaluation factors:

(a) The long- and short-term effectiveness and protectiveness of the potential remedy(s), along with the degree of certainty that the remedy will prove successful based on consideration of the following:

1. Magnitude of reduction of existing risks;

2. Magnitude of residual risks in terms of likelihood of further releases due to waste remaining following implementation of a remedy;

3. The type and degree of long-term management required, including monitoring, operation, and maintenance;

4. Short-term risks that might be posed to the community, workers, or the environment during implementation of such a remedy, including potential threats to human health and the environment associated with excavation, transportation, and redisposal or containment;

5. Time until full protection is achieved;

6. Potential for exposure of humans and environmental receptors to remaining wastes, considering the potential threat to human health and the environment associated with excavation, transportation, redisposal, or containment;

7. Long-term reliability of the engineering and institutional controls; and

8. Potential need for replacement of the remedy.

(b) The effectiveness of the remedy in controlling the source to reduce further releases, based on consideration of the following factors:

1. The extent to which containment practices will reduce further releases;

2. The extent to which treatment technologies may be used.

(c) The ease or difficulty of implementing a potential remedy(s) based on consideration of the following types of factors:

1. Degree of difficulty associated with constructing the technology;

2. Expected operational reliability of the technologies;

3. Need to coordinate with and obtain necessary approvals and permits from other agencies;

4. Availability of necessary equipment and specialists; and

5. Available capacity and location of needed treatment, storage, and disposal services.

(d) Practicable capability of the owner or operator, including a consideration of the technical and economic capability.

(e) The degree to which community concerns are addressed by a potential remedy(s).

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(41) The owner or operator shall specify as part of the selected remedy a schedule(s) for initiating and completing remedial activities. Such a schedule must require the initiation of remedial activities within a reasonable period of time taking into consideration the factors set forth in paragraphs (41)(a through h) of this rule. The owner or operator must consider the following factors in determining the schedule of remedial activities:

(a) Extent and nature of contamination;

(b) Practical capabilities of remedial technologies in achieving compliance with groundwater protection standards established in paragraph (31) or (32) of this Rule and other objectives of the remedy;

(c) Availability of treatment or disposal capacity for wastes managed during implementation of the remedy;

(d) Desirability of utilizing technologies that are not currently available, but which may offer significant advantages over already available technologies in terms of effectiveness, reliability, safety, or ability to achieve remedial objectives;

(e) Potential risks to human health and the environment from exposure to contamination prior to completion of the remedy;

(f) Resource value of the aquifer including:

1. Current and future uses;

2. Proximity and withdrawal rate of users;

3. Groundwater quantity and quality;

4. The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituent;

5. The hydrogeologic characteristic of the facility and surrounding land;

6. Groundwater removal and treatment costs; and

7. The cost and availability of alternative water supplies.

(g) Practicable capability of the owner or operator.

(h) Other relevant factors.

(42) The Director may determine that remediation of a release of an Appendix II constituent from a MSWLF unit is not necessary if the owner or operator demonstrates to the satisfaction of the Director that:

(a) The groundwater is additionally contaminated by substances that have originated from a source other than a MSWLF unit and those substances are present in concentrations such that cleanup of the release from the MSWLF unit would provide no significant reduction in risk to actual or potential receptors; or

(b) The constituent(s) is present in groundwater that:

1. Is not currently or reasonably expected to be a source of drinking water; and

2. Is not hydraulically connected with waters to which the hazardous constituents are migrating or are likely to migrate in a concentration(s) that would exceed the groundwater protection standards established under paragraph (31) or (32) of this Rule; or

(c) Remediation of the release(s) is technically impracticable; or

(d) Remediation results in unacceptable cross-media impacts.

(43) A determination by the Director pursuant to paragraph (42) of this rule shall not affect the authority of the state to require the owner or operator to undertake source control measures or other measures that may be necessary to eliminate or minimize further releases to the groundwater, to prevent exposure to the groundwater, or to remediate the groundwater to concentrations that are technically practicable and significantly reduce threats to human health or the environment.

(44) Implementation of the Corrective Action Program. Based on the schedule established under paragraph (41) of this Rule for initiation and completion of remedial activities, the owner/operator must:

(a) Establish and implement a corrective action groundwater monitoring program that:

1. At a minimum, meets the requirements of an assessment monitoring program under paragraphs (24) through (33) of this Rule;

2. Indicates the effectiveness of the corrective action remedy; and

3. Demonstrates compliance with groundwater protection standard pursuant to paragraph (48) of this Rule.

(b) Implement the corrective action remedy selected under paragraphs (38) through (43) of this Rule; and

(c) Take any interim measures necessary to ensure the protection of human health and the environment. Interim measures should, to

the greatest extent practicable, be consistent with the objectives of and contribute to the performance of any remedy that may be required pursuant to paragraphs (38) through (43) of this rule. The following factors must be considered by an owner or operator in determining whether interim measures are necessary:

1. Time required to develop and implement a final remedy;

2. Actual or potential exposure of nearby populations or environmental receptors to hazardous constituents;

3. Actual or potential contamination of drinking water supplies or sensitive ecosystems;

4. Further degradation of the groundwater that may occur if remedial action is not initiated expeditiously;

5. Weather conditions that may cause hazardous constituents to migrate or be released;

6. Risks of fire or explosion, or potential for exposure to hazardous constituents as a result of an accident or failure of a container or handling system; and

7. Other situations that may pose threats to human health and the environment.

(45) An owner or operator may determine, based on information developed after implementation of the remedy has begun or other information, that compliance with requirements of paragraph (31) of this rule are not being achieved through the remedy selected. In such cases, the owner or operator must implement other methods or techniques that could practicably achieve compliance with the requirements, unless the owner or operator makes the determination under paragraph (46) of this Rule.

(46) If the owner or operator determines that compliance with requirements under paragraph (31) of this Rule cannot be practically achieved with any currently available methods, the owner or operator must:

(a) Obtain certification of a qualified groundwater scientist or approval by the Director that compliance with requirements under paragraph (31) of this Rule cannot be practically achieved with any currently available methods;

(b) Implement alternate measures to control exposure of humans or the environment to residual contamination, as necessary to protect human health and the environment; and

(c) Implement alternate measures for control of the sources of contamination, or for removal or decontamination of equipment,

units, devices, or structures that are:

1. Technically practicable; and

2. Consistent with the overall objective of the remedy.

(d) Notify the Director within 14 days that a report justifying the alternative measures prior to implementing the alternative measures has been placed in the operating record.

(47) All solid wastes that are managed pursuant to a remedy required in paragraphs (38) through (43) of this Rule, or an interim measure required in paragraph (44)(c) of this Rule, shall be managed in a manner:

(a) That is protective of human health and the environment; and

(b) That complies with applicable state Solid and Hazardous Waste Management Rules and federal Solid and Hazardous Waste Management Rules.

(48) Remedies selected pursuant to paragraphs (38) through (43) of this rule shall be considered complete when:

(a) The owner or operator complies with the groundwater protection standards established under paragraph (31) or (32) of this Rule at all points within the plume of contamination that lie beyond the groundwater monitoring well system established under paragraph (8) of this Rule.

(b) Compliance with the groundwater protection standards established in paragraph (30) or (31) of this rule has been achieved by demonstrating that concentrations of Appendix II constituents have not exceeded the groundwater protection standard(s) for a period of three consecutive years using the statistical procedures and performance standards in paragraphs (18) and (19) of this Rule. The Director may specify an alternative length of time during which the owner or operator must demonstrate that concentrations of Appendix II constituents have not exceeded the groundwater protection standard(s) taking into consideration:

1. Extent and concentration of the release(s);

2. Behavior characteristics of the hazardous constituents in the groundwater;

3. Accuracy of monitoring or modeling techniques, including any seasonal, meteorological, or other environmental variabilities that may affect the accuracy; and

4. Characteristics of the groundwater.

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(c) All actions required to complete the remedy have been satisfied.

(49) Upon completion of the remedy, the owner or operator must notify the Director within 14 days that a certification that the remedy has been completed in compliance with the requirements of paragraph (48) of this Rule has been placed in the operating record. The certification must be signed by the owner or operator and by a professional geologist, geotechnical or professional engineer registered to practice in Georgia and approved by the Director.

(50) When, upon completion of the certification, the owner or operator determines that the corrective action remedy has been completed in accordance with the requirements in paragraph (48) of this Rule, the owner or operator shall be released from the requirements for financial assurance for corrective action under Rule .13.

Authority O.C.G.A. Section 12-8-20 et seq., as amended.

391-3-4-.15. Biomedical Waste. Amended.

(1) All persons subject to regulation under Rule .15 shall, in addition to the requirements of Rule .15, handle biomedical waste in accordance with the provisions of O.C.G.A. 12-8-20, et seq., and the Rules for Solid Waste Management, Chapter 391-3-4 applicable to solid waste.

(2) Biomedical waste shall mean and include the following:

(a) Pathological waste, which means all recognizable human tissues and body parts except teeth which are removed during surgery, obstetrical procedures, autopsy, and laboratory procedures.

(b) Biological waste, which means blood and blood products, exudates, secretions, suctionings, and other body fluids which contains free liquids and cannot be or are not directly discarded into a municipal sewer system.

(c) Cultures and stocks of infectious agents and associated biologicals including cultures from medical and pathological laboratories, cultures and stocks of infectious agents from research and industrial laboratories, wastes from the production of biologicals, discarded live and attenuated vaccines, and culture dishes and devices used to transfer, inoculate, and mix cultures.

(d) Contaminated animal carcasses, body parts, their bedding, and other wastes from such animals which are infected with or which have been exposed to infectious agents, capable of causing disease in man.

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(e) Sharps, which means any discarded article that may cause punctures or cuts. Such waste includes, but is not limited to, items such as needles, IV tubing and syringes with needles attached, and scalpel blades.

(f) Chemotherapy waste, which means any disposable material which has come in contact with cytotoxic/antineoplastic agents (agents toxic to cells) and/or antineoplastic agents (agents that inhibit or prevent the growth and spread of tumors or malignant cells) during the preparation, handling, and administration of such agents. Such waste includes, but is not limited to, masks, gloves, gowns, empty IV tubing bags and vials, and other contaminated materials. The above waste must first be classified as empty which means such quantity that it is not subject to other federal or state waste management regulations prior to being handled as biomedical waste.

(g) Discarded medical equipment and parts, excluding expendable supplies and materials included in paragraphs (a) through (f) of this Rule, which have not been decontaminated, and that were in contact with infectious agents.

(3) Generation of Biomedical Waste.

(a) Unless otherwise exempted, Rule 391-3-4-.15 shall apply to all persons generating or handling biomedical waste, including but not limited to: ambulatory service centers, blood banks, clinics, county health departments, dental offices, funeral homes, health maintenance organizations (HMOs), hospitals, laboratories, medical buildings, physicians offices, veterinary offices, research and manufacturing facilities, nursing homes, and biomedical waste transportation, storage, treatment, and disposal facilities.

(b) Partial exemption: facilities which generate less than 100 pounds per month of biomedical waste shall be exempt from all provisions of Rule 391-3-4-.15 except that they shall comply fully with the provisions of Rule 391-3-4-.15 (4)(a), (4)(b), (4)(b)1., (4)(b)2., (4)(c), (6)(c), and (7)(b). For purposes of this Rule, a facility is defined as one or more persons generating biomedical waste who share common waste management services including, but not limited to, bulk storage containers.

(c) Total exemption: in no case shall a person be a generator of biomedical waste if those wastes are generated from single-family residential premises or a single-family dwelling unit in the self-care and treatment of family members living in those premises or units and disposed of as residential solid waste. Home health care organizations or physicians treating patients in a home are not exempt unless otherwise exempted in (b) above.

(d) All requirements of this Rule shall apply to persons or facilities who generate 100 pounds or more of biomedical waste per

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month.

(4) Storage and Containment of Biomedical Waste.

(a) Containment of biomedical waste shall be in a manner and location which affords protection from animals, rain and wind, does not provide a breeding place or a food source for insects and rodents, and minimizes exposure to the public.

(b) Biomedical waste shall be segregated by separate containment from other waste at the point of origin.

1. Biomedical waste, except for sharps, shall be placed in containers which are impervious to moisture and have a strength sufficient to preclude ripping, tearing, or bursting under normal conditions of use. The containers shall be securely closed so as to prevent leakage or expulsion of solid or liquid wastes during storage, handling, or transport.

2. Sharps shall be contained for storage, transportation, treatment and subsequent disposal in leakproof, rigid, puncture-resistant containers which are taped closed or tightly lidded to preclude loss of contents.

(c) Rigid containers of discarded sharps and all other disposable containers used for containment of biomedical waste shall be red or orange in color or clearly identified with the universal biohazard symbol or clearly marked with the word "Biohazard".

(d) Biomedical waste contained in disposable containers as prescribed above, shall be placed for storage, handling, or transport in disposable or reusable pails, cartons, boxes, drums, dumpsters, or portable bins. The containment system shall have a tight fitting cover and be kept clean and in good repair. The containers may be of any color and shall be conspicuously labeled with the universal biohazard symbol and the word "Biohazard" on the sides so as to be readily visible from any lateral direction when the container is upright.

1. Reusable containers used for shipment of biomedical waste shall be thoroughly washed and decontaminated each time they are emptied.

2. Reusable pails, drums, dumpsters or bins used for containment of biomedical waste shall not be used for other purposes except after being decontaminated by procedures as described in (4)(d)1. above and after the universal biohazard symbol and word "Biohazard" are removed.

(5) Transfer of Biomedical Waste to Off-Site Treatment or Disposal Facilities.

(a) Any generator of biomedical waste shall transfer custody of the waste only to a collector who is operating under authority of these Rules.

(b) Biomedical waste shall not be transported in the same vehicle with other solid waste unless the biomedical waste is contained in a separate, fully enclosed leakproof container within the vehicle compartment or unless all of the waste is to be treated as biomedical waste in accordance with the requirements of these Rules.

(c) Biomedical waste shall be delivered for storage, including intermediate transfer, and treatment only to a facility or location for which there is a valid and appropriate operating permit as set forth in these Rules.

(d) Surfaces of transport vehicles that have contacted spilled or leaked biomedical waste shall be decontaminated.

(e) Equipment used to transport waste from the generator to the off-site treatment or disposal facility may not destroy the integrity of the container.

(f) Vehicles used for the transport of biomedical waste shall not be used for transportation of food or food products.

(6) Treatment of Biomedical Waste.

(a) If treated in accordance with the following procedures, the waste shall no longer be considered biomedical waste and may be combined and handled with regular solid waste. Biomedical waste shall be treated by one of the following methods prior to disposal at a permitted solid waste disposal facility.

1. Incineration in a thermal treatment technology facility which provides complete combustion of waste to render it non-pathogenic.

(i) Biomedical waste thermal treatment technology facilities shall be capable of maintaining a minimum temperature in the primary chamber sufficient to destroy infectious agents and produce a residue essentially free of odors and unstable organic matter. If chemotherapy wastes are incinerated, the facility must be capable of maintaining a minimum of 1,800 degrees Fahrenheit in the secondary combustion chamber and a minimum residence time of two seconds.

(ii) Atmospheric emissions shall be controlled so as not to exceed air quality standards of the Division.

2. Decontamination by heating with steam under pressure (auto-clave) so as to render the biomedical waste noninfectious.

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(i) A recording thermometer shall be used during each complete cycle to ensure the attainment of a temperature of 121 degrees Centigrade (250 degrees Fahrenheit) for one-half hour or longer in order to achieve decontamination of the entire load.

(ii) Monitoring of the steam sterilization process shall be required in order to confirm the attainment of decontamination.

(iii) Monitoring may be through the use of biological indicators or other methods as approved by the Director. Indicators used to ensure the attainment of the proper temperature during steam sterilization shall be placed at the point of the load where the rate of thermal penetration is at a minimum.

3. Other methods as may be approved by the Director.

(b) Fluid or semisolid waste specified in (2)(b) of this rule may be discharged to a sewage treatment system that provides secondary treatment of waste if approved by the agency responsible for the operation of the sewage treatment system.

(c) Biomedical wastes consisting of recognizable human anatomical remains shall not be disposed of by landfilling.

(d) Chemotherapy waste, as defined in (2)(f), shall be treated at a permitted thermal treatment technology facility or other facility approved by the Director. Steam decontamination may not be used for treatment of chemotherapy waste.

(e) All facilities treating regulated quantities of biomedical waste must, at a minimum, comply with the above criteria. Commercial biomedical waste treatment facilities may not construct or operate a biomedical waste treatment facility without first obtaining a solid waste handling permit under these Rules. On-site biomedical waste treatment facilities are required to obtain a solid waste permit-by-Rule, and must comply with the provisions of paragraph (6)(a)-(d) of this Rule, in addition to Rule 391-3-4-.06. For purposes of this Rule, "Commercial biomedical waste treatment facility" means a facility which accepts over 25 percent of its biomedical waste from other, off-site, facilities, which are not owned by the facility owning the treatment or disposal facility, generally for a fee.

(7) Disposal of Biomedical Waste.

(a) Biomedical wastes treated in accordance with the provisions in Rule 391-3-4-.15,(6) shall be properly disposed of at a facility permitted under the authority of these Rules unless otherwise approved by the Director.

(b) Biomedical waste from generators of less than 100 pounds per month shall be properly disposed of at a municipal solid waste

landfill or treatment facility permitted under authority of these Rules or other facilities approved by the Director.

(c) The disposal of untreated biomedical waste, from generators of more than 100 pounds per month, by landfilling is prohibited.

Authority O.C.G.A. Section 12-8-20 et seq., as amended.

391-3-4-.16. Composting. Amended.

(1) Composting is a desirable means of reducing the amount of solid waste destined for disposal and, as such, shall be regulated in the following manner:

(a) Yard trimmings composting operations are excluded from regulation as solid wastes handling facilities. To be considered exempt from regulation, yard trimmings must be kept separate from solid waste and must be converted to a useable compost or mulch product.

(b) Any person involved in the composting of solid waste or special solid waste, other than yard trimmings as provided in paragraph (a) above or covered by a permit-by-Rule, shall comply with the following permit requirements:

1. Design Standards: a design and operation plan prepared by a professional engineer registered to practice in Georgia and proposed as a part of the permit application must include, but is not limited to, the following standards:

a. Capacity. The facility shall be adequate in size and capacity to manage the projected incoming solid waste and residue volumes.

b. Equipment. The equipment must be capable of producing a compost or mulch that is nonpathogenic, free of offensive odors, biologically and chemically stable, and free of injurious components or particles.

c. Storage Time. The facility shall provide for a minimum storage capacity of at least three (3) times the daily capacity of the composting equipment. No incoming material shall be stored in excess of the permitted capacity.

d. Types of Waste. The application must include the sources, types, and weight or volumes of solid waste to be processed, including data on the moisture content of the waste, and information concerning special environmental pollution or handling problems that may be created by the solid waste.

e. Air Quality. The facility shall be designed in such a manner as to meet any air quality standards of the Division.

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f. Wastewater. Any wastewater generated by the facility shall be discharged to a wastewater treatment system and, before final release, shall be treated in a manner approved by the Division.

g. Fire Protection. Facility design shall provide for fire control equipment placed near the storage and charging area and elsewhere as needed, and additional fire fighting equipment shall be made available for emergencies.

h. Disposal of Surplus Compost. Any composted material not sold or otherwise beneficially reused must be disposed in a manner approved by the Division.

2. Performance Standards: all persons owning and/or operating composting facilities shall comply with the following requirements:

a. Supervision. Operation and management of the facility shall be under the supervision and control of a responsible operator properly trained in the operation of such facilities at all times during operation. This operator shall be present at all times during operation of this facility.

b. Compost. The compost resulting from composting operations shall be nonpathogenic, free of offensive odors, biologically and chemically stable, and free of injurious components or particles and able to sustain plant growth. Rejects generated by the composting process shall be disposed of in accordance with these rules.

c. Information Posted. Signs shall be posted at the entrance to the facility indicating the days and hours of operation. Access to the facility shall be limited to those times when authorized personnel are on duty.

d. Cleanliness and Sanitation. Composting facilities shall be maintained in a clean and sanitary condition. Solid waste shall be confined to the unloading area, which shall be maintained free of dust. Accumulations of putrescible materials and rubbish shall be controlled in a manner so as to minimize odors and prevent infestation by insects or rodents. Insect and rodent control measures shall be applied as needed. Sanitary facilities shall be provided for employees and shall be kept clean and in good repair.

Authority O.C.G.A. Section 12-8-20 et seq., as amended.

391-3-4-.17. Measuring and Reporting Requirements.

(1) Reporting the quantities of solid waste managed:

(a) Persons holding a municipal solid waste disposal permit, including permits-by-rule, shall report to the Director the total amount, in tons, of solid waste disposed of quarterly. Reports

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shall be filed by the 30th day after the beginning of each calendar quarter, covering the reporting period for the preceding quarter.

(b) The reports shall contain, at a minimum, which cities and counties are served by the disposal facility and the total number of tons of solid waste received from each jurisdiction served during the reporting period. The required data shall be submitted on such forms as may be prescribed by the Director.

(2) Measurement Methods:

(a) Where disposal facilities do not have scales at the disposal facility, or through contractual or other arrangements, do not weigh all municipal solid waste destined for the facility, the owner and/or operator shall require each type of commercial vehicle utilizing the facility to be weighed with such frequency that an accurate conversion from cubic yards to tons can be made for each commercial vehicle type not weighed.

(b) Where such systems of estimating the weight are utilized, the owner or operator must prepare and submit to the Director for approval, a description of such systems for all existing sites. New disposal facilities must include this information as part of the permit application.

(3) Reporting remaining capacity of the site.

(a) On July 1 of each year, persons holding a municipal solid waste landfill permit shall report to the Director the remaining capacity of the facility.

(b) The remaining capacity shall be determined in cubic yards and the determination shall be certified by a professional engineer, registered in the State of Georgia.

(c) The rate of filling shall be determined and provided along with an estimated completion date for the facility.

(4) Waste Disposal Surcharge.

(a) After July 1, 1992, owners or operators of any solid waste disposal facility, other than an inert waste landfill as defined in these rules or a private industry solid waste disposal facility, shall assess and collect, on behalf of the division from each disposer of waste, a surcharge of $0.50 per ton on solid waste disposed. Surcharges assessed and collected on behalf of the division shall be paid to the division on July 1, 1993, for the period July 1, 1992, through December 31, 1992. All subsequent payments shall be due on the first day of July of each year for the preceding calendar year.

(b) The surcharge required by paragraph (4)(a) of this rule,

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shall be calculated based on the reports required by paragraph (1) of this rule and in accordance with actual weights received or other approved methods provided for in paragraph (2) of this rule.

(c) Notice of State Surcharge: The Division shall prepare at least two press releases, for statewide distribution, during the period July 1, 1992 to June 30, 1993, advertising the $0.50 per ton surcharge. Such press releases shall at a minimum explain:

1. the statutory requirement for such a surcharge,

2. the intended purpose of the surcharge,

3. how the surcharge is to be collected, and

4. how and whom to contact for further information.

The Division will also provide to the Association County Commissioners of Georgia, the Georgia Municipal Association, the National Solid Waste Management Association, the Regional Development Centers, the Solid Waste Association of North America, and other interested organizations or persons, articles and materials as those organizations may choose to use in making available to their members information on the surcharge.

Authority O.C.G.A. Section 12-8-20 et seq., as amended.

391-3-4-.18 Operator Certification. Amended.

(1) Applicability: this Rule applies to all operators of municipal solid waste landfills, municipal solid waste thermal treatment technology facilities, and employees of the Department of Natural Resources who inspect these facilities.

(a) After July 1, 1992, no person shall perform the duties of a municipal solid waste disposal facility operator without being duly certified under this Rule.

(b) After July 1, 1992, no municipal solid waste disposal facility shall be operated in Georgia unless the operator is certified under this Rule.

(c) After July 1, 1992, all inspectors of municipal solid waste disposal facilities shall be certified to inspect the same.

(2) Certificates:

(a) Any certificate granted under this Section shall be renewable every five years.

(b) The Division shall approve all examinations and courses to be used in determining the knowledge, ability, and judgment of

applicants for certification under this Rule. Such courses and examinations shall be given at least twice annually.

(c) A Certified Landfill Operator or Inspector must meet the following minimum qualifications:

1. Graduate of high school or an accredited GED program, and have worked at a landfill in Georgia for at least six months. Prior to July 1, 1994, persons who lack the required high school or GED preparation and possess an equivalent level of math and literacy skills, may substitute five years experience as a landfill operator or manager in Georgia for the required high school or GED program; or

2. To conduct landfill inspections, be employed by the Georgia Department of Natural Resources and required by their job descriptions to conduct landfill inspections; and

3. Must have successfully completed the Landfill Certification Training Course and examination endorsed by the Division.

(d) Upon application, a certificate may be issued without examination, in a comparable classification, to any person who holds a certificate in any state, territory, or possession of the United States or any country, provided that the requirements for certification of operators under which the person's certificate was issued do not conflict with this Rule and are of a standard not lower than that specified by this Rule; and provided further that reciprocal privileges are granted to certified operators of this State.

(e) The Director may investigate the actions of any operator and may revoke or suspend the certificate of an operator, following a hearing conducted in accordance with Chapter 13 of Title 50, the "Georgia Administrative Procedure Act", when it is found that the operator has practiced fraud or deception; that reasonable care, judgment, or the application of his knowledge or ability was not used in the performance of his duties; or that the operator is incompetent or unable to perform his duties properly.

(f) The Director shall include, as a condition in a permit issued, a requirement that the municipal solid waste disposal facility operator be duly certified in accordance with this Rule.

Authority O.C.G.A. Section 12-8-20 et seq., as amended.

391-3-4-.19 Scrap Tire Management. Amended.

(1) Applicability.

(a) Scrap tire handling shall be regulated from the point of generation through disposal. The provisions of this Rule shall

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apply to all persons presently engaged in or proposing to be engaged in the retail sale of new replacement tires and/or handling of scrap tires.

(b) All persons subject to regulation under this Rule shall, in addition to the requirements of Rule .19, handle scrap tires in accordance with the provisions of O.C.G.A. 12-8-20, et seq., and the Rules for Solid Waste Management, Chapter 391-3-4, applicable to solid waste.

(2) Definitions.

For the purpose of this Rule;

(a) "End user" means the last person who uses the scrap tires, chips, crumb rubber, or similar materials to make a product with economic value or in the case of energy recovery, the person who utilizes the heat content or other forms of energy from the incineration or pyrolysis of waste tires, chips or similar materials.

(b) "Financial Assurance" means a mechanism designed to demonstrate that funds will be available to ensure compliance with statutory/regulatory and permit requirements of scrap tire carriers. The financial mechanisms must be either performance bonds or letters of credit.

(c) "Manifest" means a form or document used for identifying the quantity and composition and the origin, routing, and destination of scrap tires during transportation from the point of generation, through any intermediate points, to an end user, processor, or disposer approved by the Division.

(d) "Mixed Tires" means a heterogeneous group of tires consisting of "used", "retreadable casings", and "scrap tires".

(e) "Retreadable Casing" means a tire which has the quality and soundness of the tire structure to accept a retread or repair and provide additional service and is destined for retreading.

(f) "Retail Tire Dealer" means a person actively engaged in the business of selling new replacement tires. Retail tire dealers may also be, but are not limited to, manufacturers, wholesalers, and others who sell new replacement tires to the ultimate consumer.

(g) "Scrap Tire" means a tire that is no longer suitable for its original intended purpose because of wear, damage, or defect.

(h) "Scrap Tire Carrier" means any person engaged in picking up or transporting scrap tires not otherwise exempted in this Rule for the purpose of removal to a scrap tire processor, end user, or disposal facility.

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(i) "Scrap Tire Generator" means any person who generates scrap tires. Generators may include, but are not limited to, retail tire dealers, retreaders, scrap tire processors, automobile dealers, private company vehicle maintenance shops, garages, service stations, and city, county, and state governments.

(j) "Scrap Tire Processing" means any method, system, or other treatment designed to change the physical form, size, or chemical content of scrap tires and includes all aspects of its management (administration, personnel, land, equipment, buildings, and other elements). Processing includes, but is not limited to, shredding, baling, recycling, or sorting of scrap tires.

(k) "Scrap Tire Processor" means any person who is approved by the Division to receive scrap tires from scrap tire generators or scrap tire carriers for the purpose of scrap tire processing.

(l) "Scrap Tire Sorter" means any person, other than the original scrap tire generator, who handles mixed tires by separating used tires and retreadable casings from scrap tires.

(m) "Tire Retreader" means any person actively engaged in the business of retreading scrap tires by scarifying the surface to remove the old surface tread and attaching a new tread to make a usable tire.

(n) "Ultimate Consumer" means the last person who receives and uses a new replacement tire. Ultimate consumers may be, but are not limited to:

1. an individual consumer;

2. a leasing company purchasing tires from retail dealers for their vehicle fleet;

3. a private company purchasing tires from retail dealers for their vehicle fleet; or

4. a governmental agency purchasing tires from retail dealers for their vehicle fleet.

(o) "Used Tire" means a tire which has a minimum of 2/32" of road tread and which is still suitable for its original purpose. It must be inventoried and marketed in substantially the same fashion as a new tire, the dealer must be able to provide satisfactory evidence to the Division that a market exists, and that the used tires are, in fact, being marketed.

(3) Retail Tire Dealers

(a) Beginning July 1, 1992, a tire management fee is imposed upon the retail sale of all new replacement tires in this state of

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$1.00 per tire sold. The fee shall be collected by retail dealers at the time the retail dealer sells a new replacement tire to the ultimate consumer; provided, however, that a Georgia tire distributor who sells tires to retail dealers must collect such fees from any retail dealer who does not have a valid scrap tire generator identification number issued by the Division.

1. New replacement tires include, but are not limited to, automobile, truck, heavy equipment, motor bike, boat and other trailers, aircraft, and recreational vehicles.

2. Local and state governments are not exempt from the fee.

3. The fee shall not be imposed on the sale of:

(i) tires with a rim size less than 12" (inches);

(ii) tires from any device moved exclusively by human power; or

(iii) tires used exclusively for agricultural purposes, except farm truck tires.

(b) Retail dealers must keep accurate records and report to the Division quarterly on the number of new replacement tires sold.

(c) The fees and reports on sales shall be remitted to the Division on a quarterly basis on forms as prescribed by the Director. The first remittance shall be due on October 30, 1992, and shall cover the period July 1, 1992 through September 30, 1992. Subsequent reports and fees shall be filed by the 30th day of April, July, October, and January of each year, covering the period for the preceding quarter.

(d) In collecting, reporting, and paying the fees due under this section, each distributor or retailer shall be allowed the following deductions, but only if the amount due was not delinquent at the time of payment:

1. a deduction of three percent of the first $3,000.00 of the total amount of all fees reported due on such report; and

2. a deduction of one-half of one percent of that portion exceeding $3,000.00 of the total amount of all fees reported on such report.

(4) Scrap Tire Generators

(a) After July 1, 1992, any person who generates scrap tires shall have a Scrap Tire Generator Identification Number (ID #) issued by the Division. The ID # shall be used on scrap tire shipment manifests. Separate ID numbers shall be required for generators having multiple generation locations.

(b) Generators shall initiate a manifest to transport scrap tires from the point of generation to an end user or to a scrap tire processing or disposal facility approved by the Division. The manifest shall include the following information:

1. name and ID # of the generator;

2. number or total tons (accurate to within 10 percent of actual number) of scrap tires to be transported;

3. name and permit number of the scrap tire carrier;

4. date of transport; and

5. destination of scrap tires.

(c) If a generator chooses to use tons of tires rather than actual numbers of tires on the manifest for passenger and truck tires, the following conversion factor must be used:

Passenger Tires: 2000 lb. (one ton) = 100 tires, @ 20 lb/tire;

Truck Tires: 2000 lb. (one ton) = 20 tires, @ 100 lb/tire.

(d) Unless otherwise approved in writing by the Division, generators shall assure that any person collecting and transporting their scrap tires hold a valid Scrap Tire Carrier Permit issued by the Division, provided, however, that a person who generates less than 100 tires per month and who transport only their own scrap tires to approved end users, processors, recyclers, or disposers are not required to have a Scrap Tire Carrier Permit, but must comply with all other provisions required of generators and scrap tire carriers.

(e) Generators shall maintain receipts (copies of the completed manifest) for a period of three (3) years.

(f) A generator shall report to the Division any carrier who fails to return a properly completed manifest to the generator within 30 days of scrap tire pickup as provided for in paragraph (5)(f) of this rule. Such report shall be filed within 30 days of failure of the carrier to comply.

(g) Generators may choose to determine whether a tire, because of wear, damage, or defect, is not suitable for classification as a "used tire", or "retreadable casing" as defined in these Rules. However, if a generator fails to sort or delineate which tires are "used", "retreadable casings", or "scrap tires", then all tires transported shall be considered scrap tires and must be thusly indicated on the shipment manifest.

(5) Scrap Tire Carriers

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(a) Unless otherwise exempted, after July 1, 1992, any person collecting or transporting scrap tires shall have a Scrap Tire Carrier Permit issued by the Division. No permit shall be issued unless the financial assurance, as provided for in paragraph (5)(d) of this rule, has been submitted and approved by the Division.

(b) A separate Permit and financial assurance instrument shall be required for each scrap tire Carrier business location.

(c) A Carrier shall transport scrap tires, properly manifested, only to an end user, recycler, processor, sorter, or disposer approved or permitted by the Division.

(d) The permitted Carrier shall maintain financial assurance in the form of a Performance Bond or letter of credit, using forms provided by the Division, according to the following criteria:

(1) $5,000.00 for carriers transporting up to 500 scrap tires per month.

(2) $10,000.00 for carriers transporting more than 500 scrap tires per month.

(e) The permitted Carrier shall report quarterly to the Division the number of scrap tires transported and the manner of their disposition. The first reporting period shall be January 1, 1993 through March 30, 1993, and quarterly thereafter. Reports shall be filed by the 1st day of May, August, October, and February, covering the reporting period for the preceding quarter.

(f) It shall be the responsibility of the Carrier to return a completed copy of the manifest to the scrap tire generator, no later than 30 days from the date on which the carrier took possession of the scrap tires, which shall be indicated on the manifest.

(g) The following persons shall not be required to have a Scrap Tire Carrier Permit:

1. Generators who transport scrap tires only between their own branch office locations;

2. Persons carrying only used tires or retreadable casings;

3. A tire retailer or tire retreader transporting tires to or from a customer's place of operation or between branch offices of the tire retailer or tire retreader;

4. A municipal solid waste collector holding a valid solid waste collection permit under authority of this part whose primary business is the collection of municipal solid waste;

5. A private individual transporting the individual's own scrap

tires to a processor, permitted disposal facility, or other facility approved by the Division;

6. A company transporting the company's own tires to a processor or for proper disposal, which company is not in the tire handling business; for example, a soft drink bottler who transports scrap tires generated by the bottler's own vehicle maintenance shop, or a company in the tire handling business who transports only their own scrap tires and which company generates less than 100 scrap tires per month.

(i) For the purpose of this paragraph, "tire handling business" means persons whose income is at least partially derived from the sale, processing, transporting, or disposal of tires.

(ii) Persons who generate less than 100 scrap tires per month and are exempt from having a Carrier Permit under this section are still required to comply with other applicable provisions of this Rule, except that the generator shall not be required to report quarterly as provided in paragraph (5)(e) of this rule.

7. Other persons, as approved by the Division, on a one time or temporary basis, as needed to further the intent of O.C.G.A. 12-8-20, et seq., that scrap tires be reused or recycled rather than disposed.

(6) Scrap Tire Storage

(a) No person may store more than 100 scrap tires anywhere in this state. Any persons storing in excess of 100 scrap tires shall be deemed to be in violation of the Act and these rules.

(b) Paragraph (6)(a) of this rule shall not apply to:

1. A solid waste disposal site permitted by the division if the permit authorizes the storage of scrap tires prior to their disposal;

2. A tire retailer with not more than 3,000 scrap tires in storage, if such retailer submits the returns required under paragraph (3) of this Rule;

3. A tire retreader with not more than 3,000 scrap tires in storage so long as the scrap tires are of the type the retreader is actively retreading; and

4. An auto salvage yard with not more than 500 scrap tires in storage;

5. A scrap tire processor approved by the division so long as the number of scrap tires in storage do not exceed the quantity approved by the division.

(7) Criteria for Approved Processing, Sorting, and Disposal Facilities

(a) Processing Operations: processing shall include, but is not limited to, shredding, chopping, chipping, baling, splitting and sorting operations; and pyrolysis, microwave, and cryogenic operations. Scrap Tire Processing Facilities must meet the following requirements to be approved by the Division:

1. Scrap tires staged indoors will be managed under conditions that meet those in "The Standard for Storage of Rubber Tires", NFPA 231D-1986 edition, published by the National Fire Protection Association, Battery March Park, Quincy, Massachusetts.

2. All scrap tire processing or disposal facilities which stage scrap tires or processed tires outdoors must comply with the following standards:

(i) An outdoor scrap tire pile or processed tire pile will have no greater than the following maximum dimensions:

(I) Width: 50 feet;

(II) Area: 10,000 square feet; and

(III) Height: 15 feet.

(ii) A 50-foot wide fire lane will be placed around the perimeter of each scrap tire pile. Access to the fire lane for emergency vehicles must be unobstructed at all times. In the event of fire, the owner or operator shall, upon receipt of notification of a fire, immediately take all necessary steps to control and extinquish the fire, including all oil and other residue created by the fire.

(iii) The owner or operator will control mosquitoes and rodents so as to protect the public health and welfare.

3. Processors staging scrap tires indoors or outdoors must meet the following standards:

(i) No operations involving the use of open flames will conducted within 25 feet of a scrap tire pile.

(ii) An approach and access road to the scrap tire processing facility will be kept passable for any motor vehicle at all times.

(iii) Access to the facility will be controlled through the use of fences, gates, or other means.

(iv) An attendant will be present when the scrap tire processing facility is open for business if the facility receives tires from

persons other than the operator of the facility.

(v) The facility will be bermed or given other adequate protection to keep liquid runoff from a potential tire fire from entering waters of the state.

(vi) Fire protection services for the facility will be assured through notification to local fire protection authorities. A fire safety survey will be conducted.

(vii) Communication equipment will be maintained at the scrap tire processing facility to assure that the facility operator can contact local fire protection authorities in case of a fire.

(viii) The scrap tire processing facility will be kept free of long grass, underbrush and other potentially flammable vegetation at all times.

(ix) The operator of the facility will prepare and keep at the facility an emergency preparedness manual. The manual will be updated at least once annually or upon changes in operations at the site. The manual will contain the following elements:

(I) A list of names and numbers of persons to be contacted in the event of a fire, flood or other emergency;

(II) A list of the emergency response equipment at the facility, its location, and how it should be used in the event of a fire or other emergency; and

(III) A description of the procedures that should be followed in the event of a fire, including procedures to contain and dispose of the oily material generated by the combustion of large numbers of tires.

4. Any residuals from scrap tire processing must be managed so as to be contained on-site and must be controlled and disposed of in a permitted solid waste handling facility or be properly recycled.

5. A scrap tire processing facility may not accept any scrap tires for processing if it has reached its approved or permitted staging limit. At least 75 percent of both the scrap and processed tires that are accumulated by the scrap tire processing facility each calendar quarter and 75 percent by weight or volume of all scrap tires previously received and not recycled, reused or properly disposed during the preceeding calendar quarter must be processed and removed from the facility for disposal or recycling from the facility during the quarter or disposed of in a permitted solid waste handling facility.

6. The owner or operator of a scrap tire processing facility

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will record and maintain for three years records that will be available for inspection by the division during normal business hours and will include the following information regarding their activities:

i. For all scrap tires received and processed tires shipped from the facility, the name and scrap tire carrier permit number of the scrap tire carrier who accepted the scrap or processed tires for transport and the quantity of scrap or processed tires shipped with that carrier; and the place where the scrap or processed tires were deposited;

ii. For all scrap and processed tires received at the facility, the name and scrap tire carrier permit number of the carrier who delivered the scrap or processed tires to the facility, and the quantity or weight of scrap tires or processed tires received from that carrier, and, if more than five scrap tires were delivered by a person who is not a scrap tire carrier, the number of tires delivered and the person's name, address and telephone number; and

iii. For all scrap tires removed for reuse or recapping, the quantity and type removed and the name and location of the user receiving the tires.

7. Owners and operators of scrap tire processing facilities shall submit to the division a quarterly report that summarizes the information collected under paragraph 6 above by the 30th day of the following quarter. The report will be submitted to the division on such forms provided by the division. At a minimum, the following information will be included:

(i) The facility name, address and permit or ID number;

(ii) The quarter covered by the report;

(iii) The total quantity of scrap or processed tires received at the facility during the period covered by the report;

(iv) The total quantity of scrap tires, processed tires, tire residuals, and saleable used tires shipped from the facility during the period covered by the report;

(v) The net of scrap or processed tires remaining on site.

8. Processors must show that they have the necessary operable equipment in place to process scrap tires prior to receiving scrap tires for processing.

(b) Sorting Operations:

1. Persons engaged in sorting mixed tires into separate groups (used tires, retreadable casing tires, scrap tires) must meet the

requirements of paragraph (7)(a) of this Rule. However, in lieu of the 75 percent recycled, used or reused provision, the person sorting mixed tires shall:

(i) Hold no more than 3000 mixed tires prior to sorting; and

(ii) Hold no more than 3000 scrap tires for consolidated transport to their final destination.

2. Persons engaged in sorting mixed tires shall further:

(i) Obtain a Scrap Tire Generator Identification Number issued by the Division; and

(ii) Assure that the scrap tires are transported to a scrap tire end user, or recycler, processor, or disposal facility approved by the Division; and

(iii) Comply with all other provisions applicable to scrap tire generators and processors.

(c) Disposal Operations: All solid waste disposal facilities (landfills and thermal treatment technology facilities) having a valid Solid Waste Handling Permit issued by the Director are approved to receive scrap tires except as provided in O.C.G.A. 12-8-40-.1(b).

(8) Reuse and Recycling of Scrap Tires: For purposes of this Rule, the following criteria will be used to determine if scrap tires are being reused or recycled:

(a) The scrap tires or processed scrap tires must have a known use, reuse, or recycling potential; must be feasibly used, reused, or recycled; and must have been diverted or removed from the solid waste stream for sale, use, reuse, or recycling whether or not requiring subsequent separation and processing.

(b) Scrap tires or processed scrap tires are not accumulated speculatively if the person accumulating them can show there is a known use, reuse, or recycling potential for them, that they can be feasibly sold, used, reused, or recycled, and during the preceding 90 days, the amount of scrap tires or processed scrap tires recycled, sold, used, or reused equals at least 75 percent by weight or volume of the tires received during the 90 day period.

(c) Proof of recycling, sale, use, or reuse shall be provided in the form of bills of sale, or other records showing adequate proof of movement of the scrap tires in question to a recognized recycling facility or for proper use or reuse from the accumulation point. Proof must be provided that there is a known market or disposition for the scrap tires or processed scrap tires and must show that they have the necessary equipment to do so, prior to

MWPS006969

receiving scrap tires for processing.

(d) A scrap tire is "sold" if the generator of the scrap tire or the person who processed the scrap tire received consideration or compensation for the material because of its inherent value.

(e) A scrap tire is "used, reused, or recycled" if it is either:

1. Employed as an ingredient (including use as an intermediate) in a process to make a product (for example, utilizing crumb rubber to make rubber-asphalt);

2. Employed in a particular function or application as an effective substitute for a commercial product (for example, utilizing shredded tires as a substitute for fuel oil, natural gas, coal, or wood in a boiler or industrial furnace) as long as such substitution does not pose a threat to human health or the environment, and so long as the facility is not a solid waste thermal treatment technology facility or utilizing shredded tires as a soil amendment, aggregate, etc.

3. Reused for its original intended purpose as a used tire or reused for other purposes approved by the Division, such as playground equipment, offshore reefs, erosion control, etc.

Authority O.C.G.A. Section 12-8-20 et seq., as amended.

391-3-4-.20 Enforcement.

The administration and enforcement of these Rules shall be in accordance with the Georgia Comprehensive Solid Waste Management Act, O.C.G.A. 12-8-20, et seq., the Executive Reorganization Act of 1972, O.C.G.A. 12-2-1, et seq., and the Georgia Administrative Procedure Act, O.C.G.A. 50-13-1, et seq.

Authority O.C.G.A. Section 12-8-20 et seq., as amended.

ec\f:\93SWRUL.lst

MWPS006970

WASTE ANALYSIS PLAN - ADDENDUM

United States Pipe and Foundry Company, Inc.
Chattanooga Valve and Fittings Plant
Post Office Box 311
Chattanooga, Tennessee 37041-0311

October 1, 1999

Preface

This Waste Analysis Plan (WAP) Addendum has been prepared in order to address Section III of the *Hazardous Waste Inspection Report* included with the Tennessee Department of Environment and Conservation (TDEC) correspondence dated September 24, 1999 (attached herewith for reference).

TDEC Comment:

> *Required Action:*
> *Please clarify in writing to the DSWM which treatment levels you are using when evaluating if your solidified baghouse dust meets treatment standards for land disposal. The DSWM requires this information be incorporated into U.S. Pipe's waste analysis plan.*

U.S. Pipe Response:

The analytical testing referred to in Sections II.A, IV.B, and V. of the subject WAP will be performed with appropriate detection limits (not to exceed 0.75 mg/l for TCLP lead and 0.11 mg/l for TCLP cadmium) in order to demonstrate compliance with the LDR requirements as stipulated in Rule 1200-1-11-.10.

This document is to be bound with and incorporated in the WAP.

DRAFT

DRAFT

ATTACHMENT

TDEC Correspondence Dated September 24, 1999

ENVIRONMENTAL ASSISTANCE CENTER
TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
540 McCALLIE AVENUE, SUITE 550
CHATTANOOGA, TENNESSEE 37402
PHONE (423) 634-5745 STATEWIDE 1-888-891-8332 FAX (423) 634-6389

September 24, 1999

CERTIFIED MAIL
Return Receipt Requested
Z 145 379 605

Mr. James L. Smallwood
Plant Engineer
United States Pipe & Foundry Company
Chattanooga Valve & Fittings Plant
P. O. Box 311
Chattanooga, Tennessee 37401

RE: **NOTICE OF VIOLATION** under the
Tennessee Hazardous Waste Management Act
T.C.A. 68-212-101 et. seq.
United States Pipe & Foundry Company
TND #98-031-6301
Hamilton County
File #33-138

Dear Mr. Smallwood:

On June 22, 1999, the Division of Solid Waste Management (DSWM) conducted a Compliance Evaluation Inspection (CEI) under the Tennessee Hazardous Waste Management Act at U. S. Pipe. Several violations of the Tennessee Hazardous Waste Management Regulations were cited as a result of the CEI. U. S. Pipe is required to immediately correct all violations. **You have until October 12, 1999 to complete and submit the required documentation**. The attached inspection report details the inspection findings. Please pay close attention to the Comments section of the enclosed inspection report

Please be aware that. T.C.A. 68-212-114 of the Tennessee Hazardous Waste Management Act states in part that:

> Any person who violates or fails to comply with any provision of this part, any order of the Board or Commissioner, the terms or standards adopted pursuant to this part shall be subject to a civil penalty of up to fifty thousand dollars ($50,000) per day for each day of violation.

If you have any questions or need any clarifications, please feel free to call me at (423) 634-5759.

Sincerely,

Lynne M. Koby

Lynne M. Koby, P.G.
Geologist III
Division of Solid Waste Management
Chattanooga Field Office

LMK:lk

cc: Jeanneanne Gettle, USEPA Region IV, Atlanta, GA
Ruby Watters, DSWM, Central Office
File#33-138, Chattanooga EAC

HAZARDOUS WASTE INSPECTION REPORT

SITE/ PHYSICAL LOCATION:
United States Pipe & Foundry Company
Chattanooga Valve & Fittings Plant
2701 Chestnut Street
P.O. Box 311
Chattanooga, Tennessee 37401
TND #98-031-6301
Hamilton County

PRIMARY CONTACT(S):
Mr. James W. Book, Project Engineer
United States Pipe and Foundry Company
Chattanooga Valve and Fittings Plant
P. O. Box 311
2701 Chestnut Street
Chattanooga, Tennessee 37409
423/752 – 3911

DATE/TIME OF INSPECTION:
June 22, 1999
9:30 a.m.

INSPECTION PARTICIPANTS
James "Jim" Book, Project Engineer, U. S. Pipe
Lynne Koby, DSWM, Chattanooga EAC

REPORT PREPARED BY:
Lynne M. Koby
Tennessee Department of Environment and Conservation
Division of Solid Waste Management (DSWM)
Chattanooga Environmental Assistance Center (EAC)
Suite 550, 540 McCallie Avenue
Chattanooga, Tennessee 37402-2013
423/ 634 - 5769

PURPOSE OF INSPECTION:
This inspection was conducted to evaluate U. S. Pipe's compliance with the applicable requirements of the Rules and Regulations promulgated pursuant to the Tennessee Hazardous Waste Management Act T.C.A. 68-212-301 et seq. and the Tennessee Hazardous Waste Reduction Act T.C.A. 68-212-301 et seq.

FACILITY DESCRIPTION:

Nature of Business:

U. S. Pipe casts various types of iron valves and joint fittings.

Types of Hazardous Wastes Generated:

Waste Stream #1 – cupola baghouse dust (D006, D008) generated as emission control dust from the iron foundry cupola furnace. This cupola is a coke fired furnace. For 1998, the total generation rate was reported as 499, 462 kg.

Waste Stream #6 – waste paint (D001) generated when a fire occurred in the asphalt dip tank. This waste stream was not generated in 1998.

Waste Stream #9 – asphalt paint & water (F003, F005) generated from clean up of the asphalt paint dip area where paint drips off of the parts. This waste stream was not generated in 1998.

Waste Stream #10 – citrus cleaner & asphalt paint (D001) generated from clean up of the asphalt paint dip area. This waste stream was not generated in 1998.

Waste Stream #13 – asphalt paint & solvents (D001, F003, F005) generated from cleanup of the asphalt paint dip area. This waste stream was not generated in 1998.

Waste Stream #15 – waste paint (D001, F003) generated from the disposal of old material and obsolete inventory. This waste stream was not generated in 1998.

Waste Stream #16 – waste scrubber waters (D002) generated from the wet scrubber for the core cure area emissions. This waste stream was not generated in 1998. However, Manifest #12641 (dated 5/5/99) recorded a shipment of 7, 280 lbs. of this waste scrubber water which is contaminated with triethylolamine.

Inspection Status:

U. S. Pipe was inspected as a Large Quantity Generator for 1998 and 1999. U. S. Pipe was also inspected as a Used Oil Generator.

INSPECTION FINDINGS:

U. S. Pipe uses coke to heat their cupola for melting iron. Only one baghouse is attached to the cupola. The largest waste stream is waste stream #1 – cupola baghouse dust. U. S. Pipe treats all the baghouse dust onsite then disposes of it as a solid waste in their onsite landfill. This landfill has yet to receive a permit from the DSWM. The last CEI at this facility was on 6/20/95. At one time, U. S. Pipe had two unpermitted disposal units for storing and mixing hazardous waste baghouse dust and

foundry sand. One of these unpermitted disposal/ treatment areas was located at their old soil pipe plant. The other unpermitted disposal/ treatment area was located at the Valve and Fittings plant. U. S. Pipe has completed closure activities for these disposal/ treatment areas. A letter of no further action from EPA Region IV was received by U. S Pipe for these unpermited areas. U. S. Pipe has since sold the old soil pipe plant property to Southern Foundry.

Birmingham Industrial Plating and Cleaners were cleaning out the Solifix treatment system tank at the time of the inspection. According to facility personnel, any baghouse dust removed during the tank cleanout would be treated in the onsite Solifix system. During the week of 6/28/99, the baghouse was to be dismantled for maintenance work. According to facility representatives, any baghouse dust generated from maintenance on the baghouse would be treated in the Solifix system.

On average, the ratio of treatment chemicals for the baghouse dust is: 800 lbs. dust, 400 lbs. cement, 5 gallons Solifix fix, and 20 to 50 gallons water. The treated baghouse dust is tested semi-annually (as per the Waste Analysis Plan) to confirm it meets the Land Disposal Restrictions (LDR) for this type of waste.

The core curing system generates another wastestream. TEA (triethylamine) gas is used to cure the casting cores. Sulfuric acid is used in the TEA emissions air scrubber. This scrubber water is shipped offsite for disposal as either a hazardous waste or nonhazardous waste depending on the pH. For example, on June, 11,1998, 30, 495 gallons of scrubber water (comprised of sulfuric acid contaminated with TEA) was shipped offsite as a nonhazardous waste. However, on May5, 1999, 7, 280 pounds of scrubber water were shipped as a hazardous waste (hazardous waste code D002).

Between the pattern shop and I-24 is a drum shed that held product drums. No hazardous waste containers were noted in this area at the time of the inspection.

The used oil storage tank is located near the outside wash area. The wash area is for cleaning equipment and vehicles used in the facility. An oil/water separator removes the oil from the wash water. The oil is pumped from the oil/water separator into the used oil tank. This tank was labeled "used oil".

Currently, the cast iron valves and fittings are coated inside with cement then dipped into dip tanks containing asphalt paint. Two of these dip tanks are used to coat the valves and fittings. Facility representatives stated that periodically the dip tanks are cleaned out and the liquid paint is shipped offsite for disposal as a hazardous waste (D001). Currently, U. S. Pipe is experimenting with a new coating system called Fusion Bond Epoxy (a U. S. Pipe developed system) and hope to eventually phase out use of the asphalt paint.

In the yard near the cement cleaning building was noted a plastic covered pile of dirty sand. Facility representatives stated that this material was nonhazardous and consisted of sand and asphalt paint from cleaning up around the asphalt paint dip tanks. The DSWM obtained a copy of the Material Safety Data Sheet for the asphalt paint to support U. S. Pipe's nonhazardous determination for the waste. Facility representatives stated that sometimes petroleum naphtha is used to thin the asphalt paint prior to use.

Paperwork reviewed included summary sheets, contingency plan, most recent analyticals for the treated baghouse dust, facility operation logs, and manifests. The operation logs documented that the hazardous waste storage tank was emptied in a less than 90 day time period and that inspections of the system were performed. Training records for the designated emergency coordinators and the Solifix treatment system operator were not on file. The waste analysis plan for the baghouse dust could not be found in the facility files.

VIOLATIONS:

During this compliance evaluation, the following violations of the Tennessee Hazardous Waste Management Regulations were identified:

I. **Rule 1200-1-11-. 03(4)(e) states:**

1. For purposes of this subparagraph, except as used in part 5, the term "accumulate" shall refer to both the storage and treatment of hazardous wastes generated on-site. For purposes of part 5 of the subparagraph, the term "accumulate" shall refer only to collecting or gathering together.

2. Except as provided in parts 6, 7 and 8 of this subparagraph, a generator may accumulate hazardous waste on-site for 90 days or less without a permit or without having interim status, provided that:

   (iv) The generator complies with the requirements for owners or operators in parts (2)(f)1, 3, and 4, subparagraph (2)(g), and paragraphs (3) and (4) of Rule 1200-1-11-.05 and with subpart (1)(g)1(iv) of Rule 1200-1-11-.10.

Rule 1200-1-11-.05(2)(g)5. states

Training records on current personnel must be kept until closure of the facility. Training records on former employees must be kept for at least three years from the date the employee last worked at the facility. Personnel training records may accompany personnel transferred within the same company.

Violation:

At the time of the CEI, U. S. Pipe did not have on file training records for the following individuals: Lester Williams, Jim Smallwood, and Jim Book. These individuals were designated as the Emergency Coordinators for U. S. Pipe.

Training records for the operator of the Solifix treatment system, Virgil Oldham, could not be located.

Action Taken:
U. S. Pipe must immediately train the designated emergency coordinators and all operators of the Solifix treatment system to be familiar with the contingency plan and all procedures related to hazardous waste management. Documentation must be kept on file to document that these individuals have met the training requirements.

II. **Rule 1200-1-11-.03(1)(a)3.** states:
A generator who treats, stores, or disposes of hazardous waste on-site must only comply with the following portions of this Rule with respect to that waste: subparagraph (1)(b) for determining whether or not he has a hazardous waste, paragraph (2) for notifying and subparagraph (c) of this paragraph for obtaining an installation identification number, subparagraph (4)(e) for accumulation of hazardous waste, parts (5)(a)3 and 4 for recordkeeping, subparagraph (5)(b) for annual reporting, and subparagraph (5)(e) for additional reporting; and if applicable, Rule 1200-1-11-.02(1)(d)2(ii)(II) for farmers.

(Note: A generator who treats, stores, or disposes of hazardous waste on-site must comply with the applicable standards and permit requirements set forth in Rules 1200-1-11-.05, .06, .07, .09 and .10.).

Rule 1200-1-11-.10(1)(g)1.(v.) states:
If a generator is managing and treating prohibited waste in tanks, containers, or containment buildings regulated under Rule 1200-1-11-.03(4)(e), and is treating such waste in such tanks, containers, or containment buildings to meet applicable LDR treatment standards found at subparagraph (3)(a) of this Rule, the generator must develop and follow a written waste analysis plan which describes the procedures they will carry out to comply with the treatment standards. (Generators treating hazardous debris under the alternative treatment standards of Table 1, subparagraph (3)(f) of this Rule, however, are not subject to these waste analysis requirements.) The plan must be kept on site in the generator's records, and the following requirements must be met:

(I) The waste analysis plan must be based on a detailed chemical and physical analysis of a representative sample of the prohibited waste(s) being treated, and contain all information necessary to treat the waste(s) in accordance with the requirements of this Rule, including the selected testing frequency.

(II) Such plan must be kept in the facility's on-site files and made available to inspectors.

(III) Wastes shipped off-site pursuant to this subpart must comply with the notification requirements of subpart (iii) of this part.

Violation:
Facility personnel were unable to find a waste analysis plan for their baghouse dust in the facility files.

Action Taken:
U. S. Pipe provided the DSWM with a copy of their waste analysis plan on September 15, 1999. The original waste analysis plan should be on file at U. S. Pipe.

III. Required Action:
Please clarify in writing to the DSWM which treatment levels you are using when evaluating if your solidified baghouse dust meets treatment standards for land disposal. The DSWM requires this information be incorporated into U. S. Pipe's waste analysis plan.

Comments/ Recommendations:

a) U. S. Pipe is in the process of finding alternative uses for the waste scrubber acid. Superior Chemical is evaluating recovering the TEA from this acid for reuse.

Signed Lynne M. Koby Dated 9/24/99
Lynne M. Koby, Professional Geologist
Division of Solid Waste Management
Chattanooga Field Office

Reviewed Janet I. Dutto Dated 9/24/99
Janet I. Dutto, Section Chief
Division of Solid Waste Management
Chattanooga Field Office

Approved Guy M Moose by Dutto Dated 9/24/99
Guy M. Moose, Manager
Division of Solid Waste Management
Chattanooga Field Office

CT 222A. Rev. 5/97

UNITED STATES PIPE AND FOUNDRY COMPANY
2701 CHESTNUT STREET
CHATTANOOGA, TENNESSEE 37408

FACSIMILE TRANSMISSION

TO: FIRM NAME:

ATTENTION: Ben Noble

FAX NUMBER:

FROM: Jim Smallwood

SPECIAL INSTRUCTIONS:

NUMBER OF PAGES TO FOLLOW: 8

DATE: 9-27-99

OUR TELEPHONE NUMBER: (423) 752-3910

OUR FAX NUMBER: (423) 752-3927

9/28/99

TO : Jim Smallwood
FROM : Ben Noble

Total No. of Pages : 7

Jim,

I will be out of the office until Friday. However, I wanted to send some additional information in regards to the NOV. First, our written response to the NOV is straight forward, brief, and, I believe, can be done in-house. Our response to the waste analysis plan (WAP) comment will be to write a brief addendum stating that the semi-annual TCLP analyses will be performed using a detection limit less than or equal to the LDR treatment standards (as opposed to the less stringent limits used for the identification of a hazardous waste). The response to the training comment is slightly more ~~amb~~ ambiguous:

1) Do training records exist for personnel noted that could not be located during the inspection?
2) I have attached documents related to training from N. B'ham. This material attached is for their landfill, as opposed to your Solofix system, but it addresses the same requirements (different states, but both cover the 40 CFR 265.16)
3) We may want to write a brief addendum to the Contingency Plan to include a general outline of the training (similar to what's attached).
4) We need to get everyone stipulated in NOV up-to-date training (with appropriate documentation; refer to attached sign-in form) ASAP considering tight time-frame of responding to NOV. There is no reason the training cannot be done in-house.

I'll call you Fri. morning. I apologize for this note being hand written but my hard drive crashed this morning!

cc: DCW

MWPS006982

equipped with fire extinguishers and two-way radios will be available to heavy equipment operators. Because the landfill is an open area, special aisle space to allow for the unobstructed movement of personnel, fire protection equipment, or decontamination equipment is not applicable.

K. Traffic and Vehicle Information

Up to the time of closure, foundry wastes, including treated (stabilized) baghouse dust, were transported to the landfill in trucks. Disposal of untreated baghouse dust was discontinued in 1988, when the facility began using "a totally enclosed treatment facility," per ADEM Administrative Code 335-14-1-.02(1). Because the treated dust was no longer classified as hazardous, the disposal of hazardous materials in the landfill was effectively ended. Upon completion of closure activities in 1988, transportation of all materials onto the Waste Management Area was discontinued.

L. Personnel Training Program

A copy of the facility's personnel training manual for those employees directly involved with the post-closure activities of the landfill is included as Attachment 8. Training will conform to the requirements of ADEM Administrative Code 335-14-5-.02(7)(a-e).

At a minimum, this training will include:

1. For employees newly assigned to one of the positions stipulated in Attachment 3 of the Personnel Training Manual (Attachment 8), the training will include four hours of classroom instruction on (Attachment 1 of Attachment 8):
   - Introduction to facility and the types of wastes handled at the facility;
   - Alabama Hazardous Waste Management Regulations;
   - Emergency and contingency procedures; and
   - Record keeping.

2. Annual refresher for employees that have completethe initial training described above will include one hour of classroom instruction and one hour of on-the-job training to address:
   - Implementation of Contingency Plan;
   - Emergency equipment; and
   - Emergency response procedures,
     a. Notification,
     b. Identification and assessment of emergency, and
     c. Control procedures.

~~**M. Contingency Plan and Emergency Procedures**~~

~~The facility's contingency plan and emergency procedures to be utilized are included in the personnel training manual included as Attachment 8.~~

Gallet & ASSOCIATES

MWPS006984

ATTACHMENT 1 – Training Outline

Training Outline for Positions Related

Hazardous Waste Management

I. Introductory Classroom Training
   A. Background Information
      1. Instructor's Qualifications
      2. Purpose of class
   B. Resource Conservation and Recovery Act (RCRA) 1976
      1. Define Hazardous Waste
         a. ignitable
         b. reactive
         c. toxic
         d. corrosive
         e. listed wastes
      2. Open Dumping Prohibited
      3. Regulation of Treatment, Storage and Disposal (TSD) Facilities
      4. "Cradle To Grave" Management (labels and manifests)
      5. Training for Workers Handling Hazardous Wastes
   C. Toxicity of Lead and Cadmium in Baghouse Dust
   D. Alabama Hazardous Waste Management Regulations
      1. Requires classroom or on the job training
      2. Director must be qualified
      3. Training must include emergency procedures, equipment and systems
      4. Timing of Training
         a. Within 6 months of hire
         b. When assigned to a new position
         c. When assigned to a new facility
         d. If trainig incomplete, supervision required
         e. Annual refresher training
   E. Emergency/Contingency Procedures
      1. Procedures for using, inspecting, repairing and replacing facility emergency and monitoring equipment
      2. Key parameters for automatic waste feed cut-off systems
      3. Communication systems
      4. Fires or explosions
         a. Call 911, emergency coordinator
         b. Evacuate if needed
      5. Response to groundwater contamination
         a. This is meant for large scale, acute groundwater contamination.
      6. Shutdown of operations

7. What type of emergencies?
    a. Landfill integrity
        1. Call emergency coordinator
        2. Emergency coordinator will contact ADEM and/or U.S. E.P.A.
    b. Release of baghouse dust
        1. Contact emergency coordinator
        2. Contact ADEM and/or U.S. E.P.A. (if needed)
        3. Evacuate non-essential personnel
        4. Use dust masks or half-mask APR's
        5. Vacuum, drum all dust

F. Record Keeping
1. Job title and name of employee who does work related to hazardous waste

2. Written job description (for each position)
    a. Education requirements
    b. Skills needed
    c. Responsibilities
3. Training description
    a. Must be written
    b. Introductory and continued
    c. Training records must be kept (detailing the training)
        1. Must keep until facility closes for current employers
        2. For three years after termination

II. Continued Training
A. Any New Information Related to Hazardous Waste Management as Needed
B. Annual Refresher Training
1. All information included in Section I
2. Any new information as needed

ATTENDANCE RECORD
HAZARDOUS WASTE LANDFILL TRAINING
NORTH BIRMINGHAM PIPE PLANT
UNITED STATES PIPE AND FOUNDRY COMPANY

The individuals listed below completed four hours of classroom training designed to fulfill the requirements of the Part B Permit Application for Post-Closure Care of the U.S. Pipe & Foundry North Birmingham Plant Landfill, revised 7/7/97. The focus of the training is stipulated in Section II.L and Attachment 8 of the Part B Permit Application.

Printed Name	Signature	Date

Instructor:

Lindsay R. Hill, C.I.H. - Environmental Education and Consulting Company

TRANSMISSION RESULT REPORT (SEP 28 '99 08:48AM)

US PIPE ENGINEERING 205 254 7405

(AUTO)

THE FOLLOWING FILE(S) ERASED

FILE	FILE TYPE	OPTION	TEL NO.	PAGE	RESULT
009	MEMORY TX		CHATTANOOGA FITTINGS	07/07	OK

ERRORS

1) HANG UP OR LINE FAIL 2) BUSY 3) NO ANSWER 4) NO FACSIMILE CONNECTION

9/28/99

TO : JIM SMALLWOOD

FROM : BEN NOBLE

TOTAL NO. OF PAGES : 7

JIM,

I WILL BE OUT OF THE OFFICE UNTIL FRIDAY. HOWEVER, I WANTED TO SEND SOME ADDITIONAL INFORMATION IN REGARDS TO THE NOV. FIRST, OUR WRITTEN RESPONSE TO THE NOV IS STRAIGHT FORWARD, BRIEF, AND, I BELIEVE, CAN BE DONE IN-HOUSE. OUR RESPONSE TO THE WASTE ANALYSIS PLAN (WAP) COMMENT WILL BE TO WRITE A BRIEF ADDENDUM STATING THAT THE SEMI-ANNUAL TCLP ANALYSES WILL BE PERFORMED USING A DETECTION LIMIT LESS THAN OR EQUAL TO THE LDR TREATMENT STANDARDS (AS OPPOSED TO THE LESS STRINGENT LIMITS USED FOR THE IDENTIFICATION OF A HAZARDOUS WASTE). THE RESPONSE

MWPS006989

Southeast Industrial Byproducts Beneficial Use Summit
Foundry Sand Beneficial Reuse

November 2003

Ricky M. King
Director of Safety & Environmental Affairs
Lodge Manufacturing Company

MWPS006990

History

- On May 11, 1995, the American Foundry Society Tennessee Chapter Environmental Committee met with the State of Tennessee Department of Environment to present a case for the beneficial reuse of spent foundry sand.
- The Committee represented 35 Foundries from the State of Tennessee and met in the main TDEC office in Nashville.

The Plan

- It was the intent of the committee to explain the purpose and goals of the Committee to the State:

1. Solid waste disposal advantages: Reuse, Reclaim, Recycle instead of disposal;
2. Education on advantages of beneficial reuse: Replace currently used materials with benefits to both consumer and generator.
3. Consistency and fairness in regulatory actions, such the as the policy developed for coal ash.
4. Information dissemination.

Policy Development

- The project was presented as a mutual effort as the Environmental Committee offered whatever assistance was necessary.
- Ohio and Wisconsin Beneficial Reuse Information and the UT CIS Economic Impact and Spent Foundry Sand Studies were provided as background for formulation of the policy.
- The Division developed a policy using the Committee's input and comments.
- The goal was to develop a mutually agreeable and workable policy.

MWPS006993

Advantages of Reuse

- Recycling instead of landfilling;
- Reduction of landfill space required;
- Cost reduction to generator disposal costs;
- Cost advantages to the buyer;
- Easily accessible material;
- Can help the community;
- An alternative to destruction of nature.

The American Foundry Society Environmental Committee

- Jim Book & Jim Smallwood, U.S. Pipe & Foundry
- Lennis J. Chambers & Terry Pippin Vestal Mfg
- Steve Conner, Camden Castings
- Karen M. Dunegan, Eureka Foundry
- Ricky M. King, Lodge Manufacturing Company
- Bob Lenier, American Magotteaux
- Don Pfeiffer, Teksid Aluminum Foundry
- Gary Phillips & John Troxler, Mueller Company
- Ben Nixon & George Paquett, Powermatic Div.
- Larry Bowers & Daryl Tuttle, Wheland Foundry

MWPS006995

35 Tennessee Foundries

- Teksid Aluminum
- Wabash Alloys
- Camden Castings
- Clarksville Foundry
- Perfection Moulders
- John Bouchard & Sons
- General Aluminum Mfg.
- Harris Metals Co.
- Memphis Machine Works
- Chattanooga Pattern & Foundry
- J & W Castings
- Doehler-Jarvis (Now Greeneville Castings)
- Mikes Foundry (Closed)
- Southern Casting Co.
- Vestal Mfg.
- Tellico Culvert Co.
- Allied Dealers Supply Co.
- Cleveland Foundry

35 Tennessee Foundries

- Rossville Aluminum Castings
- Powermatic Division, Devlieg Bullard
- American Magotteaux
- Continental Foundry
- Acheson Foundry
- Cedar Grove Foundry
- Southern Centrifugal (MetalTek)
- Eureka Foundry
- Mueller Company
- Accucast
- U.S. Pipe
- Kingsport Foundry
- Wheland Foundry (Closed)
- Frayser Aluminum Casting
- Clinch River Castings
- Lodge Manufacturing Co.

MWPS006997

TDEC Representatives

TDEC Attendance

- Don Dils, Commissioner
- Wayne Scharber, Deputy Commissioner for Environment
- Ken Bunting, Administrator of Land & Air Programs
- Jim Haynes, Administrator of Water Programs
- Tom Tiesler, Director of Solid Waste Management Div.
- Paul Davis, Director of Water Pollution Control Division
- John Walton, Director of Air Pollution Control Division
- Clint Willer, Director of Superfund Division
- Chuck Head, Director of Underground Storage Tanks

MWPS006998

TDEC\DSWM

Division of Solid Waste Management

- Tom Tielser, Director
- Glen Pugh
- Doyle Rowland
- Frank Victory

UT Center for Industrial Services

- A Spent Foundry Sand Study was requested by the AFS Environmental Committee in January 1995 with the intent to find beneficial reuses for spent foundry sand.

  Reported by Albert U. Tieche, Solid Waste Program Coordinator. Report Date: 3/14/95. Presentation included:

1. The Economic Impact of the Foundry Industry on the Tennessee Economy
2. Spent Foundry Sand Study

UT CIS Spent Foundry Sand Study

Survey Results from six of thirty-five foundries:

- Spent Foundry Sand…….219,000Tons/year
- Slag……..40,750 Tons/year
- Treated Bag House Dust...11,400 Tons/year
- Core Butts*……..48 Tons/year

**Most Core Butts produced are not separated from spent sand and therefore included in the spent sand totals.*

UT CIS Study Recommendations

- Composting or mixing to create a topsoil amendment;
- Construction fill;
- Roadbed construction;
- Asphalt filler;
- Concrete filler.

UT CIS Study Disposal Cost Survey

- The tipping fees for disposal in a Class I landfill... are typically $20-$30/ton range, plus transportation cost. Disposal in a Class 2 industry owned landfill has no tipping fee, but transportation & handling can be assumed at $5/ton.
- Disposal Cost Range of Surveyed Industries:
  - $ 5/ton = $1,095,000/year
  - $20/ton = $4,380,000/year
  - $30/ton = $6,570,000/year
  - $40/ton = $8,760,000/year

Sustainable Industry: Metal Casting Industry Profile

Prepared for the Industry Sector Policy Division, Office of Policy, U.S. EPA, 8/98

- The domestic metal casting industry includes about 2,800 facilities, employing 223,000 people in 1995. *(in 2003 AFS report: 2,620 foundries)*.
- The majority of facilities are quite small … 30 to 40% have less than 20 employees.
- Ferrous foundries spent nearly three times as much on environmental controls (as a percentage of total costs) as the overall average for manufacturing.

Sustainable Industry:
Metal Casting Industry Profile

Prepared for the Industry Sector Policy Division, Office of Policy, U.S. EPA, 8/98

- Green sand casting is the most widely used casting process, accounting for between 70 & 90% of all U.S. castings. Green sand consists of 85 to 90% silica, olivine, or zircon sand; 4-10% bentonite clay; 2-10% carbon-based materials that burn off when the molten metal is added; and 2-5% water.

MWPS007005

Sustainable Industry: Metal Casting Industry Profile

Prepared for the Industry Sector Policy Division, Office of Policy, U.S. EPA, 8/98

Waste Characterization

Due to the fundamental difference in their processes, foundries and die casting generally have distinct waste stream characterizations:

- Foundries using sand molds and cores generate spent sand waste that can account for as much as 56 to 90 % of the total waste streams of the facilities as cited by U.S. EPA's Metal Casting Industry Sector Notebook. Approximately 2% of the spent sand may be hazardous.

MWPS007006

Sustainable Industry: Metal Casting Industry Profile

Prepared for the Industry Sector Policy Division, Office of Policy, U.S. EPA, 8/98

- Reducing and Reclaiming waste sand. Although most foundry sand is reused, substantial waste quantities are still generated. As foundries account for waste disposal costs in evaluating the cost-effectiveness of various casting methods, methods like lost-foam casting will become increasingly attractive. Non-hazardous waste sand often can be recycled for use in construction materials.

MWPS007007

Tennessee Department of Environment & Conservation Division of Solid Waste Management

Beneficial Use of Nontoxic Spent Foundry Sand Policy

Approved April 22, 1996 by

Tom Tiesler, Director

Division of Solid Waste Management

MWPS007008

Policy Purpose

- This policy was developed by the Tennessee Division of Solid Waste Management (the Division) to facilitate the beneficial use of nontoxic spent foundry sand in a manner that is protective of the public health and environment.

Policy Purpose

- Generators of spent foundry sand are encouraged to actively explore and implement economically feasible alternatives to reduce the volume and toxicity of foundry sand produced, as well as on-site recycling, or recovery, before evaluating potential beneficial uses.

Policy Scope

- This policy sets forth beneficial uses of nontoxic spent foundry sand from iron and aluminum foundries. It describes notification requirements, lists uses which do not require Division review or approval, lists examples of uses which require project specific Division review, and outlines record keeping requirements.

Policy Applicability

- This policy applies to nontoxic spent sand from iron and aluminum foundries used or proposed to be used for a particular beneficial purpose in lieu of a competing raw material or finished product. This policy does not apply to waste disposal of indiscriminate dumping/filling.

Initial Documentation Required

- For a beneficial reuse of foundry sand to be covered by this policy, the foundry which generates the sand must provide documentation to the division that the sand is "nontoxic" and has been "processed for reuse". For the purposes of this policy, "nontoxic" means that the foundry sand is non-hazardous and contains chemical constituents in concentrations equal to or less than those outlined in Table I.

Initial Documentation Required

- Also, for the purposes of this policy, "processed for reuse" means that the sand has been subjected to a process by which metal and trash are removed. Metal or trash removal is not required provided the foundry can demonstrate that these materials are not present in their sand in significant quantities.

Initial Documentation Required

- For uses outlined in Part V, items A through E of this policy, initial documentation is not required. However, if the foundry wishes to be covered by this policy, demonstration must be submitted to the appropriate field office. Initial documentation is required for the small construction projects in part V, item F.

Uses Not Requiring Division Review

The following uses do not require prior Division review or approval

A. Manufacturing another product:

- The use as a raw material in manufacturing another final product, including, but not limited to, grout, cement, flowable fill, lightweight aggregate, concrete block, bricks, asphalt, roofing materials, plastics, paint, glass, fiberglass, ornamental ceramics and other non-land applications, or as a substitute for a product (e.g., blasting grit), excluding soil products.

Uses Not Requiring Division Review

The following uses do not require prior Division review or approval

B. <u>Stabilization/solidification of other waste (for disposal):</u>

- The use as a stabilization/solidification agent, singly or in combination with other additives or agents, for other wastes which will be disposed of at an approved disposal facility.

Uses Not Requiring Division Review

The following uses do not require prior Division review or approval:

C. Use in a composting process

The use in a composting process when the process is performed in accordance with applicable composting regulations. This term does not include the use as a post-composing additive for land application.

Uses Not Requiring Division Review

The following uses do not require prior Division review or approval

D. <u>Daily cover/final cover at landfill:</u>

- Uses as daily cover/final cover at a solid waste landfill, meeting all technical requirements for daily cover/final cover and approved by a permit. The amount of daily cover/final cover shall not exceed the amount under an approved permit.

Uses Not Requiring Division Review

The following uses do not require prior Division review or approval

E. Landfill liner protective layer:

- Use as a protective layer for landfill liners as part of an approved permit for the landfill.

Uses Not Requiring Division Review

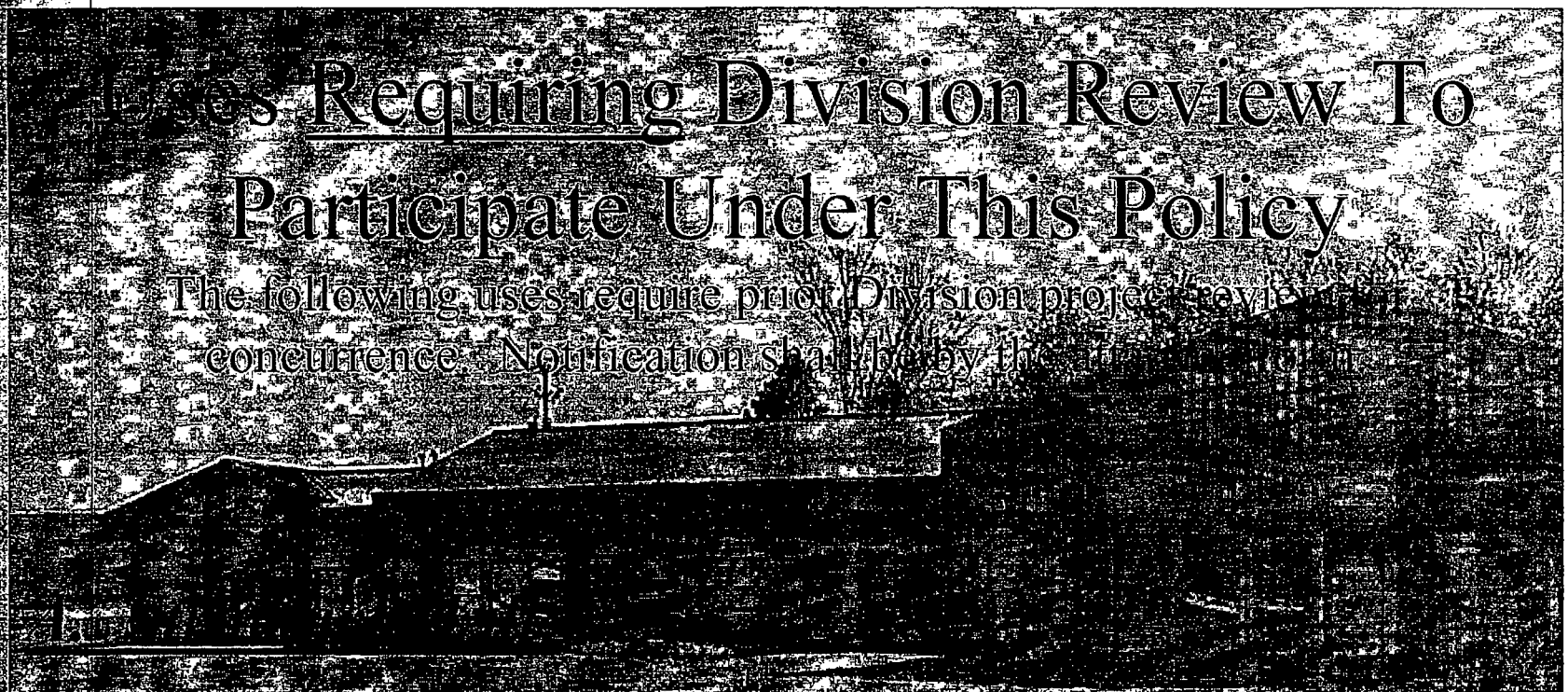
The following uses do not require prior Division review or approval

F. Small Construction Projects:

- Uses outline in Part VI of this policy when the amount used for any single project does not exceed 200 tons and is stabilized. The project must not impact steams, wetlands, or other waters of the State. For small construction projects to be covered under this policy, the generator must provide the "initial documentation" to the Division.

Uses Requiring Division Review To Participate Under This Policy

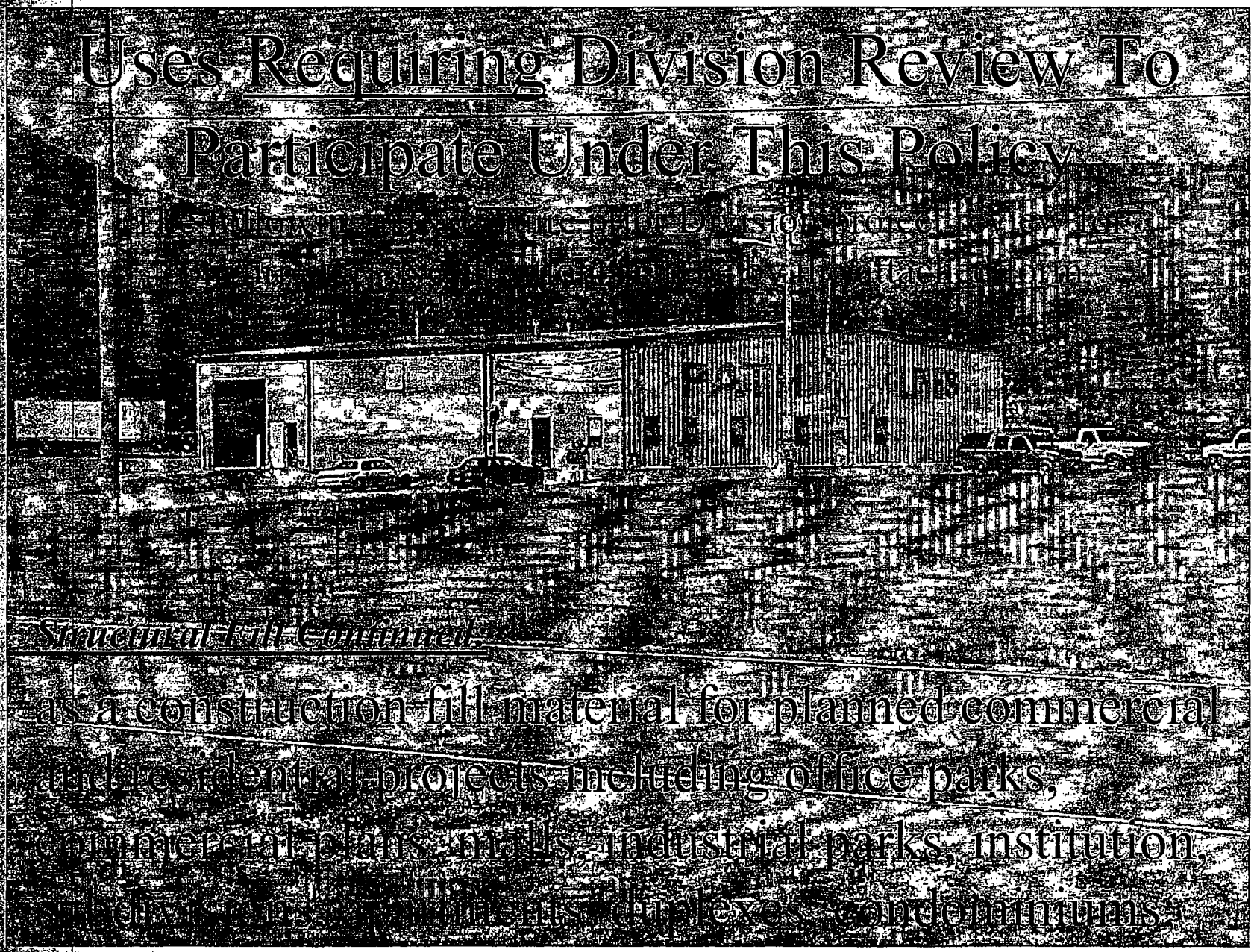
The following uses require prior Division project review [illegible] concurrence. Notification shall be by the [illegible]



- An engineered use of nontoxic spent foundry sand structural fills for the following: Building or equipme supportive base or foundation; foundation backfill, construction material for road bases and subbase, overpasses, embankments, parking lots, dams, retaini walls, dikes, levees.

Uses Requiring Division Review To Participate Under This Policy

The following [illegible] Division project review for [illegible] attached form.



Structural Fill Continued:

as a construction fill material for planned commercial and residential projects including office parks, commercial plans, malls, industrial parks, institution, subdivisions, apartments, duplexes, condominiums,

Uses Requiring Division Review To Participate Under This Policy

The following [illegible] require prior Division project review for concurrence. Notification shall be by the attached form.

Structural Fill Continued

[illegible] as bedding and backfill material for sanitary sewer lines and other [illegible] Note that all above [illegible] final surface grade of the [illegible] completed [illegible] Specifically [illegible] by the Division.

Uses Requiring Division Review To Participate Under This Policy

The following uses require prior Division project review for concurrence. Notification shall be by the attached form.

B. Mines/Strip Mine Projects:

Uses as fill in abandoned or closed mines or strip mine areas where the plans for which are approved by the Federal Office of Surface Mines and the TN Division of Water Pollution Control as appropriate.

Uses Requiring Division Review To Participate Under This Policy

The following uses require prior Division project review for concurrence. Notification shall be by the attached form.

C. *Other Uses:*

- The Director may approve other uses on an individual basis if they are consistent with this policy and protective of human health and the environment.
- *In 1999, Lodge and the Sequatchie Valley Golf Course submitted a proposal with assistance for UTCIS to the State's Innovative Technology for Solid Waste and Recovered Materials Management.*

Record Keeping Requirements

Each foundry subject to this policy must maintain the following records:

1. The amount of sand used;
2. The nature, purpose, and the location of projects;
3. Chemical analysis documenting the "nontoxic" nature of their sand)such analysis must be completed every two years or whenever process changes occur which may affect composition of the sand whichever is more frequent);
4. Any written approval/concurrence by DSWM where required for participation under this policy.

Table I

Maximum Concentration Limits for Nontoxic Foundry Sand

Constituent	TCLP Limits	Total Limits
Barium	20.00	NA
Cadmium	0.05	NA
Chromium	1.00	NA
Copper	13.00**	NA
Cyanide	2.00*	NA
Formaldehyde	NA	300.00
Lead	0.50	NA
Mercury	0.02	NA
Nickel	1.00	NA
Phenol	15.00	NA
Selenium	0.50	NA

Table I

Maximum Concentration Limits for Nontoxic Foundry Sand

TCLP Limits are generally 10 times D.W.S.

*Use modified TCLP extraction test, refer to ASTM Water Leaching Method

** Copper is an MCLG in federal D.W.S.

NA = Not Applicable

Table I

Maximum Concentration Limits for Nontoxic Foundry Sand

- Footnote: For the purposes of this policy, "nontoxic" means that the foundry sand is non-hazardous and contains chemical constituents in concentrations equal to or less than those outlined in Table I. The toxic constituents leaching procedure (TCLP) refers to the leaching procedure test as provided at RCRA 40 CFR 261.24. These TCLP limits in this policy are generally 10 times the drinking water standard.

Problems Encountered

- Education of contractors is needed. Some builders want the product the same day they request it. Projects over 200 tons require TDEC approval and may take a few days.
- Not all projects can be approved due to location, design or other problems.
- Adjacent states and some localities may have special restrictions on fill materials.
- Composting regulations may be a deterrent.
- To load or not to load…..to haul or not to haul.

Tennessee Pollution Prevention Partnership Success Story

- Beneficial Reuse of Foundry Sand/Marion County Landfill, completed March, 2003.
- Marion County Landfill permitted the use of spent foundry sand for the construction of lined cells.
- The County contracted a local contractor to screen, haul and place 9,225 cubic yards of sand to create a 12 inch protective cover over the landfill liner.
- Marion County saved $190,311.75 by using the recycled material compared to using other fill material. Lodge gained landfill space.

Env. Sen. - File Copy
CVF

HAZARDOUS MATERIALS CONTINGENCY PLAN -- SOLIFIX PROCESS TREATMENT SYSTEM

February 17, 1992
(Revised June 19, 1992)

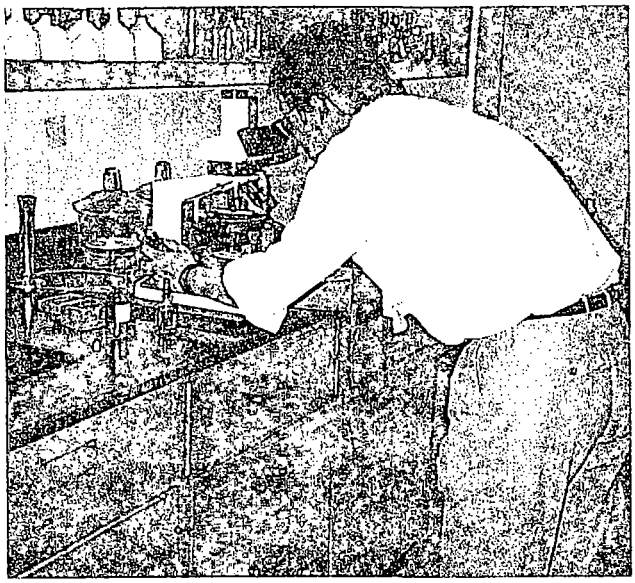
Prepared For:

U.S. Pipe and Foundry Company
Valve and Fittings Plant
2701 Chestnut Street
P.O. Box 311
Chattanooga, TN 37401

Environmental Management
& Engineering, Inc.

MWPS007033

Specialists in Environmental Management



Environmental Management & Engineering (EME) is composed of a group of highly skilled professional environmental scientists, engineers, and businessmen dedicated to providing high quality basic and specialized consulting services. We take great care to insure that this operating philosophy permeates everything we do. Each member of our core group is a leader in his field whose reputation is that of handling tough assignments. These technical experts provide the foundation for a cost effective multi-disciplinary approach capable of handling complex projects in today's difficult business and regulatory climate, from concept to completion.

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- Project Planning & Management
- Acquisition of Permits & Licenses
- General Regulatory Compliance Assistance
- Environmental Audits/Reviews and Impact Studies
- Risk & Liability Assessments
- Industrial Hygiene, OSHA, Safety & Right-to-Know Programs
- Asbestos Survey, Analysis & Abatement
- Hazardous/Toxic Waste Management
- Evaluations & Closure of Surface Impoundments
- Mitigation/Reclamation Technologies
- Geotechnical & Groundwater Services
- Underground Storage Tank Testing, Removal, & Remediation
- Laboratory Services

February 17, 1992
(Revised June 19, 1992)

HAZARDOUS MATERIALS CONTINGENCY PLAN – SOLIFIX PROCESS TREATMENT SYSTEM

U. S. Pipe Facility
Chattanooga, Tennessee

Prepared For:

U.S. Pipe and Foundry Company
Valve and Fittings Plant
2701 Chestnut Street
P.O. Box 311
Chattanooga, TN 37401

Prepared By:

Environmental Management &
Engineering, Inc.
437 Industrial Lane
Birmingham, Alabama 35211
Project No. USP-89-0410

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437 Industrial Lane Post Office Box 19866 Birmingham, AL 35219 (205) 940-7700
5715 Northwest Central Drive Suite 104 Houston, TX 77092 (713) 939-7028

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HAZARDOUS MATERIALS CONTINGENCY PLAN – SOLIFIX PROCESS TREATMENT SYSTEM

U. S. Pipe & Foundry
Chattanooga, Tennessee

February 17, 1992
(Revised June 19, 1992)

I. Introduction

A. Chemical Hazards of Baghouse Dust

Minor variations in the chemical composition of the dust occur as a result of the type of scrap metal being melted. Heavy metal (lead and cadmium) dust is formed from the cupola melting operations and becomes part of the dirt normally found in the melt scrap. Lead and cadmium are classified as toxic or poisonous substances, so employees should be aware of the possible harmful effects.

In dust form, cadmium and lead are toxic by inhalation and ingestion. Both lead and cadmium are carcinogens. Exposure may effect the central nervous system, lungs, and the kidneys. Exposure should be limited as set by OSHA standards because lead is a cumulative poison.

OSHA sets the exposure levels. The exposure level under which most people can work consistently for 8 hours a day, (day after day) with no harmful effects is called the Threshold Limit Value (TLV). The exposure limit OSHA allows is called the Permissible Exposure Limit (PEL). The PEL may be a time weighed average (TWA) or a ceiling limit (CL). A TWA is determined by taking the concentration or amount of material to which a person is exposed and averaging it over the total exposure time (generally a workday). The CL is the excursion limit placed on fast acting substances that limits all exposures below that limit. The TWA concentration and "peak" exposures must be less that the CL. The exposure limits are shown in Table 1.

TABLE 1

LEAD AND CADMIUM EXPOSURE LIMITS

COMPOUND	TLV	PEL TWA	PEL CL
Cadmium	0.05 mg/m3 of air	200 μg/m3	600 μg/m3
Lead	0.05 mg/m3 of air	$<$100 μg/m3	*

* No ceiling level stated.

MWPS007040

B. The Resource Conservation and Recovery Act - RCRA

The Resource Conservation and Recovery Act (RCRA) of 1976 was the first comprehensive federal effort to address the problem of hazardous waste disposal.

RCRA regulates facilities involved in the treatment, storage, and disposal of hazardous waste. RCRA maintains a "cradle to grave" management of hazardous waste by requiring all hazardous waste to be identified and labeled by the generator and by requiring a hazardous waste manifest document. A hazardous waste manifest document is used to track all hazardous waste from its generator to its ultimate disposal. RCRA requires that all workers handling hazardous waste be adequately trained. RCRA defines or categorizes hazardous waste as Ignitable, Corrosive, Reactive, Toxic, or as Listed Waste.

- Ignitable waste include liquids with flashpoints of less than 140°. An ignitable waste may be a flammable liquid, gas or solid (e.g. gasoline, acetylene, and white phosphorous).
- Corrosive waste include acids and bases (e.g. sulfuric acid, caustic soda) which are capable of damaging human tissue.
- Reactive wastes are unstable wastes which may react violently with air or water to produce an explosion or toxic gases. A reactive waste may also be shock sensitive (e.g. picric acid).
- Toxic waste is poisonous waste which is not easily broken down in the environment and may tend to bioaccumulate in living things. Toxics include E.P. (Extraction Procedure) metals (e.g. cadmium and lead), pesticides, and extremely poisonous waste.
- Listed waste is any substance listed as a hazardous waste by the EPA.

MWPS007041

As cadmium and lead were found in significant concentrations in the baghouse dust, the dust is regulated under RCRA standards. The OSHA standards promulgated to address the critical concerns for health and safety of personnel involved in hazardous waste clean-up can be found in 29 CFR 1910.120.

II. Facility Description

A. Description of Cupola Baghouse Dust

Dust from cupola melting operations (baghouse dust) is formed by metal vaporization, reaction with air within the cupola and deposition on condensed nuclei. Tramp metals, such as zinc, lead and cadmium, are highly volatile at the temperatures of molten iron and, therefore, become part of the dust along with dirt normally found in melt scrap. These dust particles are usually spherical and extremely fine, generally ranging in size from 10-20 microns. Minor variations in the chemical composition of the dust occur as a result of the type of scrap metal being melted.

The dust produced at the U.S. Pipe & Foundry Chattanooga Plant ranges in size from 15-20 microns. A chemical breakdown, shown in metal oxides, can be seen in Figure 1.

Depending on the scrap being melted, the dust can be slightly EP toxic for lead and cadmium.

FIGURE 1 - GENERAL CHEMICAL ANALYSIS OF CHATTANOOGA VALVE & FITTINGS PLANT CUPOLA BAGHOUSE DUST

TECHNICAL LABORATORIES, INC.

515 CHEROKEE BLVD.
CHATTANOOGA, TENNESSEE 37405
615/265-4533

MARTIN H. DAVIS
President

ENVIRONMENTAL SERVICE
SEP 4 1984

ACCOUNT NO. 1182-001 **DATE** AUGUST 30, 1984

RECEIVED FROM U. S. PIPE & FOUNDRY COMPANY, P. O. BOX 311, CHATTANOOGA, TENNESSEE 37401
MR. JIM MOORE

RECEIVED DATE 08/03/84

MATERIAL BAG HOUSE DUST - CVIF

MARKED PURCHASE ORDER NO. CT-45-983

LABORATORY NO. 218,653

Ferric Oxide (Fe_2O_3)	14.0	%	
Manganese Oxide (MnO)	1.4	%	
Calcium Oxide (CaO)	4.5	%	
Magnesium Oxide (MgO)	0.32	%	
Silicon Dioxide (SiO_2)	17.9	%	
Aluminum Oxide (Al_2O_3)	14.9	%	
Cadmium Oxide (CdO)	0.10	%	
Chromium Oxide (CrO)	0.041	%	
Lead (as PbO)	4.2	%	
Zinc Oxide (ZnO)	29.7	%	
Copper Oxide (CuO)	0.28	%	
Nickel Oxide (NiO)	0.018	%	
Organics (Volatiles @ 1100 °F)	13.0	%	Tot. = 100.4%
Density	185.5	lbs/cubic foot	
Bulk Density	22.8	lbs/cubic foot	

TECHNICAL LABORATORIES, INC.

Martin H. Davis

MARTIN H. DAVIS
President

cc: Mr. John Watson
U. S. Pipe & Foundry Company
P. O. Box 10406
Birmingham, AL 35202

B. Description of Solifix Process Treatment System (SPTS)

1. General Information

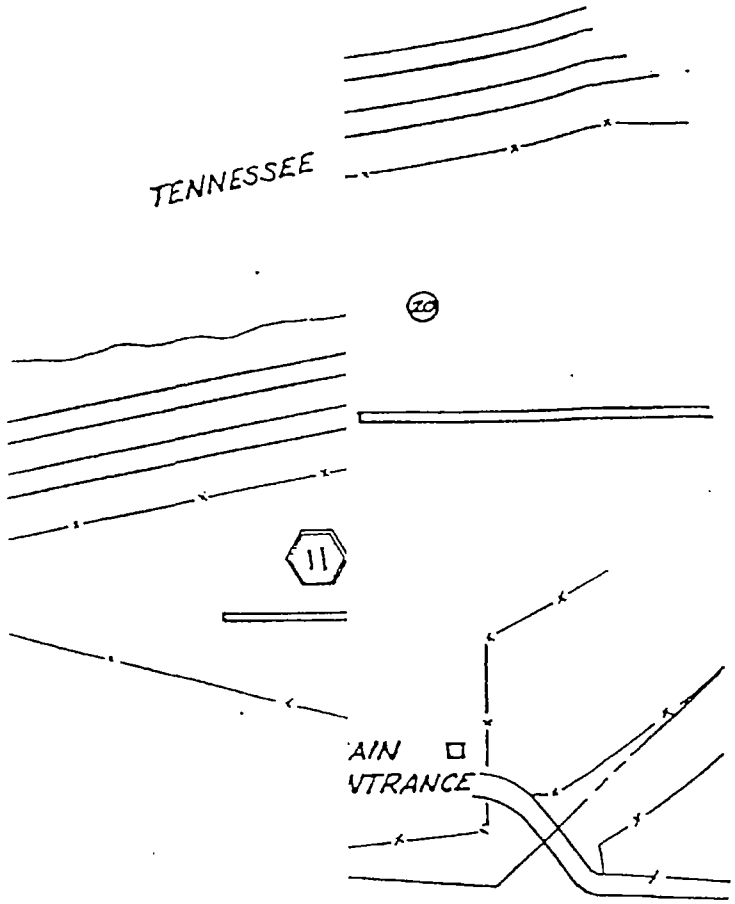
Included herein is a brief overview of the Solifix "totally enclosed" equipment package in use at the U.S. Pipe and Foundry Company Chattanooga facility (Figure 2) as well as a brief description of the Solifix Process. These descriptions and explanations are not meant to be all inclusive but rather to provide an accurate overview of the Solifix Process and the "totally enclosed" equipment design.

The U.S. EPA has designated cupola baghouse dust as characteristic hazardous waste under RCRA. The hazardous constituents for which it is EP Toxic are lead and cadmium. Characteristic hazardous wastes are subject to rather strict requirements under RCRA for handling, treatment, or disposal and disposal is becoming considerably more expensive and difficult since the volume of baghouse dust generated at a facility can vary greatly from a few tons to 50 or more tons per day.

On-site treatment that provides conversion of baghouse dust from a hazardous to a non-hazardous material is not only a very reliable approach but also very attractive from the standpoint of reducing bulk hazardous waste destined for landfilling in Treatment, Storage and Disposal (TSD) facilities.

2. Solifix Process Equipment Design

The Solifix Process Equipment is designed to the specific project in question and specific waste stream to be treated. The equipment is designed to eliminate fugitive emissions that might occur during the



1. MELTING
2. SHELL CORES, ISOCURE CORES
3. SPECTROCHEMICAL LAB
4. SAND-PHYSICAL TEST LAB
5. NO. 9 UNIT
6. PATTERN STORAGE-NO. 9 UNIT
7. SHAKEOUT CONVEYOR-NO. 9 UNIT
8. MOLTEN IRON HOLDING BUILDING
9. NO. 1 & 3 CLEANING SHED
10. NO. 4 UNIT
11. OIL SAND CORE ROOM
12. SHAKEOUT-NO. 4 UNIT
13. NO. 10 AIRSET MOLDING UNIT
14. NO. 2 CLEANING SHED
15. MACHINE SHOP

Environmental Management & Engineering, Inc. Birmingham, AL Houston, TX	
Description: FIGURE 2. FACILITY PLOT PLAN U.S. PIPE - CHATTANOOGA FACILITY	
Date: 2/17/92	Project No. USP-89-0410
Drawn by: NA	Scale: NA

handling, transfer, and blending of the subject baghouse dust by utilizing sealed couplings and joints, etc., creating an efficient system that meets the "totally enclosed" exclusion under RCRA. Totally enclosed pneumatic or screw augering systems are used to transfer the dust to the Solifix mixing/batching system where mixing occurs in a sealed unit.

The basic components of the system are as follows:

Baghouse Dust Transfer System -- Baghouse dust from the baghouse hoppers is conveyed to the partitioned (2) master storage silo by means of a dense phase pneumatic/screw auger system.

Solifix Reagent Silos -- The Solifix dry reagent is loaded pneumatically into the storage silo.

Screw Augering System -- Both the baghouse dust and the dry Solifix reagent are screw augered into the mixing/batching unit. The augers operate only in one direction and therefore act as a very effective one-way valve system for accurate conveyance of material to the mixing/batching unit.

Mixing/Batching Unit -- A one cubic yard variable speed ribbon mixer is used in this system. The unit can produce one (1) cubic yard of mixed material every 10-12 minutes and is somewhat oversized for the job to allow for fluctuations in mixing load/time constraints and schedule changes. Mixing duration and speed is accurately controlled as described below.

Solifix Injection -- The concentrated Solifix Liquid Reagent is stored in a 2000 gallon tank and accurately metered directly into the mixing/batching unit by way of a perforated injection bar running along the inside top of the unit. The Solifix concentrate is diluted with a prescribed amount of water in a mixing tank prior to injection to achieve the right formulation.

Mixing Control System -- The entire mixing/batching operation is electronically controlled (with manual backup). The control panel adjacent to the mixing/batching unit controls the dry baghouse dust augering system, the Solifix Injection system and the mixing speed and duration. The mixing/batching unit rests on a sensitive electro/ mechanical digital scale weighing system that ensures very accurate component feed and uniform batch mixtures.

Solifix Solidification Sequence

a. Pneumatic conveyance of baghouse dust into the storage silo.

b. Controlled screw augering of dry Solifix reagent into the mixing/batching unit.

c. Controlled screw augering of the baghouse dust into the mixing/batching unit.

d. Short duration mixing of dust components.

e. Injection of Solifix liquid component into the mixing/batching unit.

f. Final timed mixing of all components.

g. Discharge of the mixed materials into a storage bin.

After mixing, the Solifix treated baghouse dust is discharged from the mixer as a fairly stiff slurry for easy handling. The hydraulically activated discharge chute allows controlled flow of the slurry into the receiving vehicle. The rapid curing time of the Solifix Process allows for expeditious disposal of the treated dust as a solid rather than a hazardous waste. Using this procedure, a clean state treatment program can be maintained which alleviates employee exposure to any baghouse dust materials. Nothing leaves the mixing/batching unit prior to treatment. Considering this, employee protective gear can be limited to standard safety equipment, i.e., boots, gloves, goggles, etc., for they are essentially working in a non-hazardous environment. Backup safety/emergency equipment such as dust mask, fire extinguisher (for electrical system), etc., are always kept close at hand. In the unlikely event of a piping rupture of the pneumatic dust transport system, the entire system can quickly be shut down by means of a master control switch on the control panel. In short, the System operator has complete control to handle any eventualities that would occur. It should be pointed out that the possibility of these type events occurring is extremely remote, particularly with regard to the transfer system rupturing since it operates at very low intermittent pressures during transfer only.

Employee training on the operation and maintenance of the Solifix Process Equipment and handling of the treated baghouse dust actually begins during system installation so that plant personnel not only understand but participate directly in installation as part of the learning process. Once installed, three to five days are spent in the operational mode acclimating plant personnel to the system and how it is to be serviced and operated, including the proper handling of treated baghouse dust. Written instructional information/maintenance manuals are provided and reviewed during this period.

3. Solifix Treatment Process Description

The Solifix Process is the culmination of some five years of experimentation and testing of various combinations of chemicals and stabilization mixtures. Initial studies were directed specifically at solving waste management problems in the iron and steel industry. From this base of knowledge, the process was expanded to encompass certain organic waste streams as well. The result is a process wherein general inorganic and certain organic waste materials can be chemically stabilized into a format of very low molecular solubility that demonstrates negligible leaching and allows stabilized waste streams to pass the battery of EPA leachate procedures. This creates an environmentally safe material for disposal.

In inorganic waste streams, the Solifix additive catalyses and participates in a cross-linking of inorganic particles of a matrix through a phased series of reactions that are thoroughly distributed over particulate surfaces. This results in a reduction in the coefficient of permeability and reduces the matrix plasticity index while increasing internal strength. Depending on the waste stream to be stabilized and combination of compounds used in the Solifix additive, one can vary the physical state of the stabilized material from a rather loose granular nature to one of a dense hardened nature of high compressive strength that often exceeds 2000 psi. In most cases, there is no significant increase in volume, merely an increase in weight. In some cases, there is even a reduction in volume depending on the waste material in question. With regard to baghouse dust, the primary objective of the Solifix Process is to chemically fix the offending heavy metals so that they are extremely resistant to leaching even under the accelerated forced leaching of the Multiple Extraction Procedure (MEP) in which stabilized samples are crushed to 100 mesh prior to MEP leaching. However, emphasis is also placed on reducing permeability of

the stabilized material to further ensure that if leaching does occur it is in trace amounts only.

The Solifix Process uses a modified pozzolanic reaction as the core around which other reactions are catalyzed to chemically fix waste materials. The result is a phased chemical reaction that in part parallels standard pozzolanic reactions but deviates distinctly from it in its ability to chemically bind metal ions in a fashion that renders them basically insoluble. The pH of the reaction swings considerably and must be controlled for the reaction to be completed. This is done by careful manipulation of organic/inorganic acids, alkaline reagents and the water/solids ratios.

C. Normal/Routine Operations

1. General Information

Melting operations occur for 8-10 hours/day, five days per week for most of the year (averaging 240-250 days of operation per year).

Approximately 3-4 tons of fine particulate material (baghouse dust) is generated per day of melting operation.

2. Personal Protection, Safety and Decontamination Activities

A considerable amount of thought and experience, based on similar installations, has gone into the design and operational procedures for U.S. Pipe Chattanooga Solifix treatment equipment. These include but are not limited to the following:

a. **Waste Handling Considerations**

Since the baghouse dust is transferred by a totally enclosed dense phase pneumatic system into a holding silo and then to the sealed mixing unit by way of totally enclosed screw augers, there is literally no opportunity for untreated baghouse dust to be discharged into the surrounding environment. In essence, the baghouse dust will not see the light of day until it has been treated and rendered non-hazardous. In the unlikely event that a rupture/leak occurs in the Solifix Process Equipment, any baghouse dust discharged will be cleaned up, utilizing the available shovels, buckets, and vacuum cleaner. Following cleanup, the dust will be returned to the storage silo and the equipment will be decontaminated with water. The collected rinse water will be recycled by its placement in the mixing unit. The above will be accomplished following safety procedures designed to account for any level of toxicity that may exist.

b. **Waste Containment Structure**

In order to ensure that any baghouse dust accidently discharged to the environment is cleaned up, the Solifix Process treatment equipment is installed on a bermed concrete pad sloped to a concrete sump.

c. **Personnel Exposure**

Personnel exposure to untreated baghouse dust will be kept to a minimum with the totally enclosed design of the Solifix Process equipment. However, as part of the facility safety/ training

program, all employees directly associated with the Solifix stabilization activity will receive training on proper personal protection clothing and dust masks. Further, all workers directly associated with operation of the equipment are currently monitored/trained in accordance with current OSHA lead standards.

D. **Recordkeeping and Reporting Requirements**

U. S. Pipe will maintain at the facility a written operating record. This record will include:

- A description of the SPTS with a map showing its location.
- Analyses of the cupola baghouse dust.
- Records of contingency plan implementation.
- Inspection records.

The inspection records will be retained for at least three (3) years from the date of inspection.

All of the records and plans to be maintained will be furnished upon request, and made available at reasonable times for inspection, by any duly authorized officer, employee, or representative of the U.S. EPA or Tennessee Department of Environment and Conservation.

E. Security

1. Security Procedures and Equipment

In addition to the general security provisions of fencing, gates, and guards discussed below, several other features contribute to the safety and security of the facility. Guards, operators and maintenance personnel are equipped with hand-held two-way radios to report upset conditions immediately. In addition to the two-way radios carried by these personnel, an internal telephone system is provided with phones located in many of the plant areas.

Employees are required to clock-in or show identification when reporting for work, and visitors and contractors entering the plant must sign a log sheet (Figure 3) and obtain a visitor pass.

2. 24-Hour Surveillance System

Security at U. S. Pipe is maintained by a staff of trained security guards, who primarily monitor entry and exit from the facility and provide security measures within the plant premises. Guards normally work an 8-hour shift.

3. Barrier and Means to Control Entry

The entire U. S. Pipe facility is enclosed within a chain-link security fence. The fence has only one traffic/personnel gate which is guarded 24 hours a day.

FIGURE 3

DATE _____

PICKUP & DELIVERY – VALVE & FITTINGS PLANT

U. S. PIPE AND FOUNDRY COMPANY

CHESTNUT STREET, CHATTANOOGA, TN.

TO BE COMPLETED BY VISTORS		TO BE COMPLETED BY GUARD				
NAME	REPRESENTING	AUTH'D BY	PICKUP	DELIVERY	TIME IN	TIME OUT
					:	:
					:	:
					:	:
					:	:
					:	:
					:	:
					:	:
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4. Warning Signs

Signs which are legible from a distance of 25 feet are posted at the location of the SPTS. These signs bear the legend: "Danger Unauthorized Personnel Keep Out". In addition, the baghouse dust storage silo and the treatment tank are posted with warning signs bearing the following legends:

a. On storage silo - "Hazardous Waste Storage Tank"

b. On treatment tank (mixer) - "Hazardous Waste"

F. Inspections

1. General Inspection Requirements

Regular inspections will be conducted at the facility for equipment malfunctions, structural deterioration, operator errors, and discharges that could cause or lead to the release of hazardous waste constituents and adversely affect the environment or threaten human health.

a. Types of Problems

Table 2 presents the schedule for inspecting safety and emergency equipment, security devices and decontamination equipment. The items listed in the table are considered important because of their role in preventing, detecting, or responding to environmental or human health hazards. Provided with each item is a list of problems normally encountered.

b. Frequency of Inspection

Table 2 also provides the inspection frequency for each item.

TABLE 2

INSPECTION SCHEDULE

Area/Treatment	Specific Item	Types of Problems	Frequency of Inspection
Solifix Process Treatment Systems	Storage Silo	Cracks or leaks	Each operating day of the "SPTS"
	Silo/Auger Seals	Cracks or leaks	Each operating day of the "SPTS"
	Pneumatic System Pipe/Joints	Cracks or leaks	Each operating day of the "SPTS"
	Mixer door seals	Cracks or leaks	Each operating day of the "SPTS"
	Pneumatic Pressure System	Cracks or leaks	Each operating day of the "SPTS"
	Control Panel	Incorrect mixture ratios	Weekly
	Weigh Batching System	Inaccurate weighing of batch materials	Weekly
	Treatment/Mixer Body	Cracks or leaks	Weekly
	Storage Silo and Screw Auger Feed System	Leaks in scales, joints or couplings	Weekly
	Silo Aeration Pads	Lack of integrity	Each operating day of the "SPTS"
	Silo/Weigh Batcher Fittings	Cracks or leaks	Each operating day of the "SPTS"
	System Electrical Supply Box	Electrical malfunction	Each operating day of the "SPTS"
	Sump	Cracks or leaks	Monthly
Safety and Emergency Equipment	Protective eyeglasses	Broken or Low Quantity	Monthly
	Disposable dust respirators	Low quantity or out of stock	Monthly
	Decontamination facility	Cracks or leaks Incorrect drainage	Monthly
	Communication Systems	Power failure or broken equipment	Monthly
	Drums	Leak or low quantity	Monthly
	Brooms	Poor condition or low quantity	
	HEPA Vacuum	Not working properly	Monthly
	Vacuum bag (spare)	Low quantity	Monthly
	HEPA Filter (spare)	Low quantity	Monthly
	Shovels	Low quantity	Monthly
	Buckets	Low quantity	Monthly
	55 gallon plastic bags	Low quantity	Monthly
	Tyvek Coveralls	Low quantity	Monthly
	Rain Suits (Pants & Jacket)	Low quantity	Monthly
	Boots (rubber)	Low quantity	Monthly
	Hard Hats	Low quantity	Monthly
	Gloves (latex/Hycron)	Low quantity	Monthly
Security Devices	Facility Fence	Corrosion, damage to fence	Monthly
	Entrance gates	Corrosion, damage to fence	Monthly
	Warning Signs	Damage or missing	Monthly
	Two-way Radio	Transmitter or receiver Low battery	Monthly

2. Specific SPTS Inspection Requirements

The subject treatment equipment will be inspected on a regular schedule that will be often enough to identify problems in time to correct them before they harm human health or the environment. These inspections are designed for and will serve a dual purpose - for general equipment operational maintenance and for leak/spill detection or situations that could lead to such. An inspection schedule log for the Solifix Process equipment that is designed to reflect the above is presented in Figure 4. The frequency of inspection places emphasis on inspection of areas key to the treatment process such as seals and joints, and the equipment control panel which functions to closely regulate batch mixtures. All inspection activity will be carefully recorded in the log which will be kept for a minimum of three (3) years. The frequency of inspection will be such that at least weekly inspections will be in the following areas:

a. Control Panel -- to ensure that mixture ratio controls are functioning properly.

b. Weigh Batching System -- to ensure that the load cells are working properly in providing accurate weight of batch materials.

c. Mixer Body -- to ensure that the integrity of the mixer and associated steel components are maintained thus providing a leak proof container. Internal components/body of the mixer will also be visually inspected to detect any existing wear points, cracks, etc., that could lead to leakage.

d. Storage Silo & Screw Auger Feed System -- to ensure that all seals, joints, and couplings are sealed and maintained in a non-leaking condition.

FIGURE 4 SOLIFIX PROCESS TREATMENT SYSTEM INSPECTION SCHEDULE
(1 OF 5) INSPECTION ITEMS

INSPECTOR	DATE	TIME	STORAGE SILO	SILO/ AUGER SEALS	PNEUMATIC SYSTEM PIPE/ JOINTS	SILO AERATION PADS	SILO/WEIGH BATCHER FITTINGS	STORAGE SILO/ SCREW AUGER FEED SYSTEM	SUMP	PROBLEM DISCUSSION

Integrity Measurement Scale

1. Secure/minimum wear area
2. Potential problem/detectable wear area
3. Detectable problem/problem wear area

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FIGURE 4 SOLIFIX PROCESS TREATMENT SYSTEM INSPECTION SCHEDULE
(2 OF 5) INSPECTION ITEMS

INSPECTOR	DATE	TIME	MIXER DOOR SEALS	PNEUMATIC PRESSURE SYSTEM	WEIGH BATCHING CALIBRATION	CONTROL PANEL FUNCTIONS	SYSTEM ELECTRICAL SUPPLY BOX	MIXER BODY	PROBLEM DISCUSSION

Integrity Measurement Scale

1. Secure/minimum wear area
2. Potential problem/detectable wear area
3. Detectable problem/problem wear area

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FIGURE 4 SOLIFIX PROCESS TREATMENT SYSTEM INSPECTION SCHEDULE
(3 OF 5) INSPECTION ITEMS

INSPECTOR	DATE	TIME	PROTECTIVE EYEGLASSES	DISPOSABLE RESPIRATORS	DECON FACILITY	COMMUNICATION SYSTEMS	GLOVES (LAYTEX/HYCRON)	PROBLEM DISCUSSION

Integrity Measurement Scale

1. Secure/minimum wear area
2. Potential problem/detectable wear area
3. Detectable problem/problem wear area

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FIGURE 4 SOLIFIX PROCESS TREATMENT SYSTEM INSPECTION SCHEDULE
(4 OF 5) INSPECTION ITEMS

INSPECTOR	DATE	TIME	DRUMS	BROOMS	HEPA VACUUM	SHOVELS	2-WAY RADIOS	FACILITY FENCE	ENTRANCE GATES	WARNING SIGNS	PROBLEM DISCUSSION

Integrity Measurement Scale

1. Secure/minimum wear area
2. Potential problem/detectable wear area
3. Detectable problem/problem wear area

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FIGURE 4 SOLIFIX PROCESS TREATMENT SYSTEM INSPECTION SCHEDULE
(5 OF 5) INSPECTION ITEMS

INSPECTOR	DATE	TIME	HARD HATS	BOOTS (RUBBER)	BUCKETS	55 GALLON PLASTIC BAGS	TYVEK COVERALLS	RAIN SUITS (PANTS & JACKETS)	VACUUM BAG SPARE	HEPA FILTER SPARE	PROBLEM

Integrity Measurement Scale

1. Secure/minimum wear area
2. Potential problem/detectable wear area
3. Detectable problem/problem wear area

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TABLE 3

MINIMUM ON-HAND QUANTITIES OF SAFETY AND PROTECTIVE EQUIPMENT

Item	Minimum Quantity
Two-way Radio	1
HEPA Vacuum	1
HEPA Filter (spare)	1
Vacuum Bag (spare)	1
Shovels	2
Broom	1
Buckets	2
Plastic Bag (55 gallon)	5
Tyvek Coveralls	5
Rain Suits (Pants and Jackets)	5 pair
Boots (Rubber)	2 pair
Gloves (latex/Hycron)	5 pair
Hard Hats	5
Disposable Dust Respirators	5
Eye Protection	5 pair
Drums (55 gallon)	3

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Should any areas of potential system failure be detected, immediate action will be taken to minimize and correct the problems. Any spills or leaks of untreated baghouse dust will be promptly cleaned up as per the on-site facility spill contingency plan. The spilled material will be recycled through the treatment system to render it non-hazardous.

3. **Remedial Action**

If inspections reveal that non-emergency maintenance is needed, they will be completed as soon as possible to preclude further damage and reduce the need for emergency repairs. If a hazard is imminent or has already occurred during the course of an inspection or any time between inspections, remedial action will be taken immediately. U.S. Pipe & Foundry Company will notify the appropriate authorities per the Contingency Plan and initiate remedial actions. In the event of an emergency involving the release of hazardous constituents to the environment, efforts will be directed towards containing the hazard, removing it, and subsequently decontaminating the affected area. Refer to the Contingency Plan for further details.

4. **Inspection Log**

Results of each inspection will be recorded on inspection log sheets entitled "Periodic Inspection Forms" (Figure 5). This form is intended for management to serve as a summary of potential or existing problems.

Information requested on the forms includes the inspectors name, date and time of inspection, item of inspection, typical problems encountered, status of the item, observations, and the date and nature of repairs and remedial actions. Typical problems encountered with each item of

FIGURE 5
PERIODIC INSPECTION FORM

U.S. Pipe and Foundry Company
Chattanooga Facility

Inspector's Name:_____

Date:_____Time:_____

Date of Last Inspection:_____

Circle or Write in Appropriate Response

1.	Potential or detectable problem with silo integrity?	Yes_____	No_____
2.	Detectable wear or potential problems with silo/auger seals?	Yes_____	No_____
3.	Are pneumatic system pipe joints secure?	Yes_____	No_____
4.	Potential problems with silo/weigh batcher fittings?	Yes_____	No_____
5.	Detectable wear on mixer door seals?	Yes_____	No_____
6.	Potential problems with pneumatic pressure system?	Yes_____	No_____
7.	Lack of integrity in the mixer body?	Yes_____	No_____
8.	Any leaks in the feed system?	Yes_____	No_____
9.	Potential problems with silo aeration pads?	Yes_____	No_____
10.	Potential problems with weight batching calibration?	Yes_____	No_____
11.	Correct functioning of digital control panel functions?	Yes_____	No_____
12.	Malfunction/potential problem of system electrical box?	Yes_____	No_____
13.	Are there sufficient quantities of all types of safety and emergency equipment in good repair?	Yes_____	No_____
14.	Damage or vandalism to security signs or fence?	Yes_____	No_____
15.	Are there any existing environmental or human health hazards?	Yes_____	No_____

Any major adverse changes in these items could result in a potential hazard to human health or the environment and should be reported to the Environmental Coordinator or Plant Engineer for further evaluation. Adverse conditions noted in these items should be described (extent, location, volume, observations, and the nature of remedial actions) in the space below or on additional sheets. A sketch showing locations of any adverse conditions should be attached.

Inspection Category	Comments
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

inspection are provided on the form to serve as a reminder to the inspector and to ensure a complete inspection. The inspector is required to check the status of each item and indicate whether any adverse changes have occurred. If the status of a particular item is adverse, appropriate and complete information is recorded, including date and nature of repairs and remedial actions.

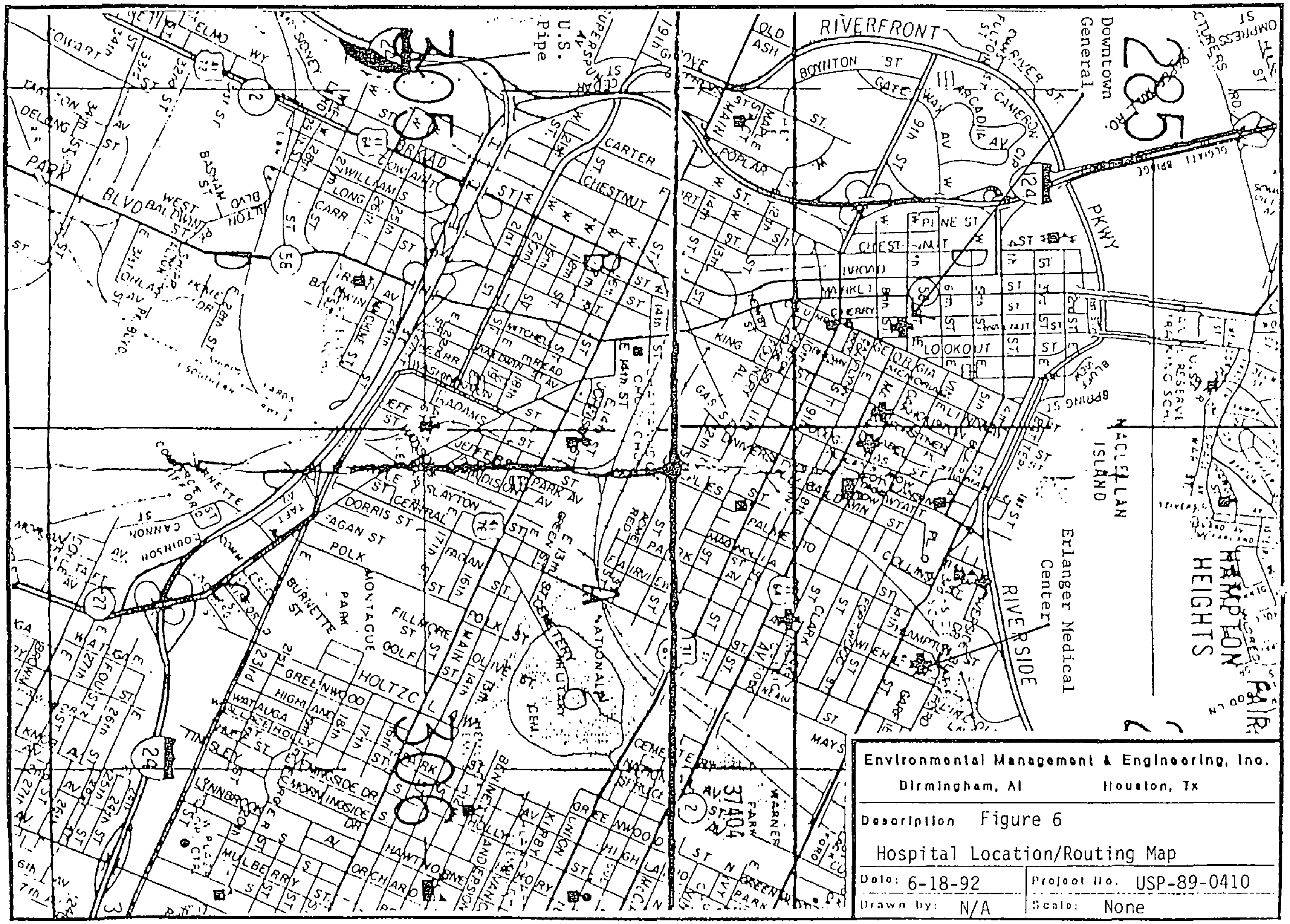
After an inspection, each log sheet will be filed in the binder to provide a case history of the site. The Inspection Log Book will always be kept with the Inspection Schedule in the Plant Engineer's office. As required, records of inspections will be kept for a minimum of three (3) years from the date of inspection.

III. Emergency Procedures and Contingency Plans

A. General Information

This information is submitted in accordance with the requirements of 40 CFR 265 Subpart D and Tennessee Regulations Rule 1200-1-11-.03(4)(e)2(iv) for the U. S. Pipe and Foundry Company, Chattanooga Plant located at 2701 Chestnut St., P.O. Box 311, Chattanooga, TN 37401. U.S. Pipe is primarily a manufacturer of cast iron valves, fittings, and fire hydrants.

As an added precaution, the two closest hospitals, Downtown General Hospital and Erlanger Medical Center have been notified in writing about the remote possibility of human contamination with baghouse dust. A copy of the chemical analysis of baghouse dust was also sent to both hospitals. It has been confirmed with Ms. Pat Sylvester, Head Nurse, Downtown General Hospital and Mr. Bob Thomas, Director of Risk Management, Erlanger Medical Center that both hospitals will accept patients contaminated with baghouse dust. A city map which shows the routing from the foundry to both hospitals is found in Figure 6. Both hospitals have been sent a copy of this contingency plan.



Environmental Management & Engineering, Inc.
Birmingham, Al — Houston, Tx

Description: Figure 6

Hospital Location/Routing Map

Date: 6-18-92	Project No. USP-89-0410
Drawn by: N/A	Scale: None

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Mr. Jim Smallwood is the Plant Engineer and can be reached at (615) 752-3910 between 8 a.m. to 5 p.m. on weekdays. Mr. Smallwood is also the primary Emergency Coordinator at the facility. Other Emergency Coordinators are listed in Table 4.

U. S. Pipe has installed a SPTS for cupola baghouse dust which is slightly EP toxic for lead and cadmium. This facility does not pose a threat of fire or explosion so a special emergency plan is not required.

There is however a potential for the release of waste material during the operational activity which could threaten the environment. Consequently, this contingency plan is directed toward minimizing the hazards to the environment from a sudden or non-sudden release of the hazardous constituents to the air or surface water.

B. Emergency Coordinator

If an emergency situation develops at the facility, the discoverer should contact an emergency coordinator listed in Table 4. Mr. Jim Smallwood, plant engineer and primary Emergency Coordinator, should be contacted first. If he is not available, the others should be called (in order listed) until someone is reached. The primary Emergency Coordinator and alternates have complete authority to commit all resources of the company in the event of an emergency. Table 5 lists the organizations that should be contacted by the Emergency Coordinator in the event of an emergency.

TABLE 4

EMERGENCY COORDINATORS (E.C.)

Name	Title	Work Phone No.	Home Phone No.
Jim Smallwood	Plant Engineer	(615) 752-3910	(b) (6)
Jim Book	Project Engineer	(615) 752-3911	
Paul Allen	Storage & Yard Supervisor	(615) 752-3920	

TABLE 5

EMERGENCY CONTACTS

Emergency	Organization/Agency	Emergency Phone No.
Hazardous Materials Release	Tennessee Emergency Management Agency	800-262-3300 or 615-741-0001
Hazardous Materials Release	U.S. EPA Region IV	404-347-4727
Hazardous Materials Release	National Emergency Response Center	800-424-8802
Hazardous Waste or Materials Questions	Tennessee Department of Environment and Conservation	615-624-9921
Chemical or Poison Information	Chemtrec	800-424-9300

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C. Implementation of the Contingency Plan

The decision to implement the contingency plan depends upon whether or not an imminent or actual incident could result in a release of the waste material to the environment. The purpose of this section is to provide guidance to the emergency coordinator in making this decision by providing decision-making criteria.

The contingency plan will be implemented in the following situations:

- Failure or rupture of the Cupola baghouse dust holding tank.
- Failure or rupture of the Cupola baghouse dust conveying or mixing system.

D. Emergency Response Procedures

1. General Procedures

Emergency response activities are based upon the need to define, address and mitigate the problem at hand. Defining the situation consists of assessing the hazard and its degree of risk. Subsequently, the proper equipment and techniques may be selected and applied to controlling the emergency, with continued evaluation leading toward complete mitigation.

In the event that a potential emergency occurs, a U.S. Pipe and Foundry Company employee observing the event must determine whether or not the problem may be corrected quickly and easily. If the problem is simple, such as a tipped chemical container, it should be corrected before the emergency coordinator is notified. However, the employee should never become involved without first contacting another employee about the

situation. If the incident is such that there is obviously no simple solution, the Emergency Coordinator (or his designee) should be immediately notified.

If the primary Emergency Coordinator can not be reached, other Emergency Coordinators should then be contacted. The Emergency Coordinators should be called in the order listed until someone is reached. The list will be kept up to date at all times. At least one of the persons listed will be on plant premises or on call at all times.

In general, the following procedures serve as appropriate guidelines for dealing with emergency situations:

- Keep unnecessary people away.
- Isolate hazard area and deny entry.
- Wear protective breathing apparatus and special protective clothing.
- See Contingency Plan guidelines for further information.
- Emergency Response organizations are listed in Table 5, Page 32.

2. Notification

In the event of an emergency situation the Emergency Coordinator will normally be notified first. If a release has already occurred or is imminent the Tennessee Emergency Management Agency and the National Response Center will also be notified. Telephone numbers for these agencies and listed in Table 5, Page 32.

3. Emergency Coordinator Responsibilities

The emergency coordinator will assess possible hazards, both direct and indirect, to the environment. He will identify the character, source, amount and extent of the release or potential release. The initial identification method will be to utilize visual analysis of the material and its location with respect to the release or potential release. In addition he will:

- Provide for treatment, storage, or disposal of contaminated soil, surface water, or equipment.

- Ensure that emergency equipment is clean and operable before resuming normal operations.

- Notify the U.S. EPA Regional Administrator and the Tennessee Department of Environment and Conservation (Table 5, Page 32) (before resuming operations) that any wastes that may be incompatible with the released materials will not be treated, stored or disposed of in the affected area until cleanup is complete.

- Notify the U.S. EPA Regional Administrator and appropriate state authorities that the facility is back in compliance before operations are resumed in the affected areas of the facility.

- Record the operations, time, date and details of any incident that required implementing the contingency plan.

E. Emergency Equipment

General emergency equipment available at the U. S. Pipe Chattanooga Plant include: first aid kits, fire extinguishers, stretchers, shovels, buckets, and a vacuum cleaner. The characteristics of cupola baghouse dust do not include ignitability and as such does not pose a fire hazard.

In the event, that a leak occurs in the Solifix process equipment, protective clothing and equipment will be provided to protect employees during emergency operations, these include at a minimum:

- Two-way radios
- Hard Hats
- Eye Protection
- Gloves (Latex/Hycron)
- Tyvek Coveralls
- Rain Suits (Pants & Jackets)
- Boots (Rubber)
- Disposable Dust Respirators

In addition, any baghouse dust discharged will be cleaned up, utilizing the available shovels, buckets, and vacuum cleaner. Following cleanup, the dust will be returned to the storage silo and the equipment will be decontaminated with water. The collected rinse water will be recycled by its placement in the mixing unit. The above will be accomplished following safety procedures designed to account for any level of toxicity that may exist.

F. Coordination Agreements and Evacuation Plan

Should an emergency necessitate that a "hazard area" be isolated from vehicular and pedestrian traffic, the emergency coordinator or his designee will establish secure perimeters. First, a warning consisting of 3 short blasts of the compressed air whistle will be sounded within the plant which employees will recognize as a predetermined signal to evacuate to the assembly area. The assembly area is located just west of the isocure/shell core building. If necessary, the emergency

coordinator can also use information provided by the National Response Center and the Tennessee Emergency Management Agency to expedite evacuation procedures.

G. Required Reports

As required by 40 CFR 265.56 (J), any emergency event that requires implementing the contingency plan will be reported in writing within 15 days to the Tennessee Department of Environment and Conservation Regional Administrator. A reporting form for emergency events is shown in Figure 7. The correct address where the form is to be sent, is on the form.

H. Amendments to the Contingency Plan

The contingency plan will be revised, and immediately amended if necessary, whenever:

- applicable regulations are revised.
- the plan fails in an emergency.
- the facility changes its response procedures.
- the facility changes in a way that materially increases the potential for fire, explosion or release of hazardous waste constituents. This may be, for example, change in design, construction, operation or plant maintenance.
- the list of emergency coordinators changes.
- the type and/or location of emergency equipment changes.
- the arrangements with local authorities change.

FIGURE 7
REPORTING FORM FOR EMERGENCY EVENTS

Name, address, and phone number of owner or operator

Name, address, and phone number of facility

Date, time, and type of incident (e.g., releases, fire)

Name and quantity of material(s) involved

Extent of injuries (if any)

Assessment of actual or potential hazards to human health or the environment (if applicable)

Estimated quantity and disposition of material recovered from the incident

Send to: Tennessee Department of Environment & Conservation
Division of Solid Hazardous Waste Management
2501 Milne Street
Chattanooga, TN 37406
Attention: Regional Director

IV. Summary of RCRA Regulations Under Subtitle C

- RCRA regulates generators and facilities involved in the treatment, storage, and disposal of hazardous waste.

- RCRA maintains a "cradle to grave" management of hazardous waste by: (1) requiring all hazardous waste to be identified and labeled by the generator (2) requiring a hazardous waste manifest document for off-site disposal.

- RCRA requires that all workers handling hazardous waste be adequately trained.

- RCRA defines or categorizes hazardous waste as ignitable, corrosive, reactive, toxic, or as listed waste.

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The following is a brief list of the types of industries and organizations utilizing our services:

- Foundry, Iron & Steel
- Energy Related – Oil, Natural Gas & Coal
- Chemical & Petrochemical
- Heavy & Light Manufacturing
- Commercial Developers
- Financial Institutions
- Mining Industries
- And Many Others

Sol J. Mandel
Chemical/Safety Specialist

Environmental Management & Engineering, Inc.

Houston Office:
5715 N.W. Central Dr.
Suite 104
Houston, TX 77092
(713) 939-7028
(713) 939-7029 Fax

Main Office:
437 Industrial Lane
Post Office Box 19866
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(205) 940-7700
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MWPS007079

Environmental Management & Engineering, Inc.
437 Industrial Lane Post Office Box 19866 Birmingham, AL 35219 (205) 939-0700
Telefax (205) 939-0770
Specialist in Environmental, Engineering, and Related Business Services

U.S. PIPE AND FOUNDRY COMPANY
INDUSTRIAL LANDFILL
CHATTANOOGA, TENNESSEE
MCI-83-592

Prepared by:

MCI/Consulting Engineers, Inc.
P.O. Box 23010
10628 Dutchtown Road
Knoxville, Tennessee 37933

March 7, 1984

MCI/ CONSULTING ENGINEERS, INC.
P. O. Box 23010
10628 Dutchtown Road
Knoxville, Tennessee 37933-1010
Telephone (615) 966-9788

Corporate Headquarters:
Nashville, Tennessee

Branch Offices:
Knoxville, Tennessee
Denver, Colorado
Huntsville, Alabama

March 7, 1984

Mr. John Watson #7434
U.S. Pipe and Foundry Co.
P.O. Box 10406
Birmingham, AL 35202

RE: Preliminary Construction Plans and Operational Report; U.S. Pipe and Foundry Industrial Landfill; Chattanooga, Tennessee; MCI-83-592

Dear John:

We have completed the preliminary construction drawings and operational report for the subject landfill. Accordingly, we have enclosed three copies of the plans for your review and distribution. As discussed with you on March 5, 1984, we have provided U.S. Pipe and Foundry with construction plans that attempt to maximize the volume available for waste disposal within the confines of the subject site. Please notify us as soon as possible if you have any modifications to the plans.

In accordance with our discussions in Birmingham on January 18, 1984, we have addressed disposal of all wastes generated at the Chattanooga facilities (excluding sanitary waste) in the operational report. According to Steve Baxter of the Division of Solid Waste Management (DSWM), the geologic report prepared by the DSWM, classifying the site as suitable, is invalid if wastes other than foundry sand are placed in the landfill. As referenced in our letter of January 19, 1984, the DSWM has tentatively approved the site for disposal of foundry sand only. Accordingly, the DSWM may not approve these plans on this basis.

We have collected three sets of baghouse dust samples from the Chattanooga plants. The results of the distilled water leach tests for the three sets of analyses are enclosed.

Please call Felon or me if you have any questions.

Sincerely,

MCI/CONSULTING ENGINEERS, INC.

R. Randolph Ferguson
Project Engineer

RRF:jll

Enclosure

cc: Jim Smallwood

IT CORPORATION

IT ANALYTICAL SERVICES

STEWART LABORATORIES DIVISION
5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615-588-6401

CERTIFICATE OF ANALYSIS

TO: MCI Environmental Engineers
ATTN: Randy Ferguson
Rt. 33 McBride Lane
Knoxville, TN 37922

DATE REPORTED: March 2, 1984
PROJECT CODE: MCI 17499
ORDER NUMBER:

Sample Description: Two (2) dust samples received February 7, 1984

Concentration units are mg/liter (ppm) in the extract

	CSP, 2-3-84	CVF, 2-3-84
Cadmium (1.0)	2.3	8.0
Lead (5.0)	1.57	0.81

Liquid to Solid Ratio (vol.)	0	0
Original Weight (solids)	50 grams	50 grams
Final Volume (extract)	1000 ml	1000 ml

Sample extracted for 24 hours with distilled water.

Sworn to and subscribed before me this 2nd
day of March, 1984
My commission expires April 25, 1984
Teresa G. Sparks
Notary Public

Alyce R. Moore
Title: Laboratory Manager
Approved By

Accredited by the American Association for Laboratory Accreditation in the chemical field of testing, as listed in the current AALA Directory of Accredited Laboratories

IT CORPORATION

IT ANALYTICAL SERVICES

STEWART LABORATORIES DIVISION
5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615-588-6401

CERTIFICATE OF ANALYSIS

TO: MCI Environmental Engineers
ATTN: Randy Ferguson
Rt. 33 McBride Lane
Knoxville, TN 37922

DATE REPORTED: March 2, 1984
PROJECT CODE: MCI 17525
ORDER NUMBER:

Sample Description: Two (2) dust samples received February 10, 1984

Concentration units are mg/liter (ppm) in the extract

	CVF, 2-10-84 #6 of 21	CSP, 2-10-84 #3 of 15
Cadmium (1.0)	14.	3.
Lead (5.0)	3.9	3.8

Liquid to Solid Ratio (vol.)	0	0
Original Weight (solids)	50 grams	50 grams
Final Volume (extract)	1000 ml	1000 ml

Sample extracted for 24 hours with distilled water.

Sworn to and subscribed before me this 2nd
day of March, 1984
My commission expires April 25, 1984
Teresa G. Sparks
Notary Public

Alyce R. Moore
Title: Laboratory Manager
Approved By

Accredited by the American Association for Laboratory Accreditation in the chemical field of testing, as listed in the current AALA Directory of Accredited Laboratories

IT CORPORATION

IT ANALYTICAL SERVICES

STEWART LABORATORIES DIVISION
5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615-588-6401

CERTIFICATE OF ANALYSIS

RECEIVED
MAR 5 1984
M. C. I.

TO: MCI Environmental Engineers
Rt. 33 McBride Lane
Knoxville, TN 37922

DATE REPORTED: February 29, 1984
PROJECT CODE: MCI 17561
ORDER NUMBER:

Sample Description: Two (2) dust samples received February 17, 1984

Concentration units are mg/liter (ppm) in the extract

	Valve Plant CVF, 2/16	Soil Pipe Plant CSP, 2/16
Cadmium (1.0)	13.	3.
Lead (5.0)	4.	3.9
Liquid to Solid Ratio (vol.)	0	0
Original Weight (solids)	50 grams	50 grams
Final Volume (extract)	1000 ml	1000 ml

Sample extracted in accordance with "EP Toxicity Test - Extraction Procedure", Federal Register, Vol. 45, No. 98, p. 33127-33128.

Sworn to and subscribed before me this 29th
day of February, 1984
My commission expires April 25, 1984
Teresa E. Sparks
Notary Public

Alyce R. Moore
Title: Laboratory Manager
Approved By

Accredited by the American Association for Laboratory Accreditation in the chemical field of testing, as listed in the current AALA Directory of Accredited Laboratories

MWPS007085

IT CORPORATION

IT ANALYTICAL SERVICES

STEWART LABORATORIES DIVISION

March 2, 1984

RECEIVED
MAR 6 1984
M. C. I.

MCI Engironmental Engineers
ATTN: Mr. Randy Ferguson
Route 33, McBride Lane
Knoxville, TN 37922

Dear Randy:

This letter will serve as a followup to our conversation with Jim Downing on this date, concerning the type of leachage analyzed and reported on our project codes MCI 17525 and MCI 17499, for samples marked C.S.P., 2/03/84, C.V.&F., 2/03/84, CVF, 2/10/84 #6 of 21, and CSP 2/10/84, #3 of 15. Samples were prepared by extracting with distilled water for 24-hours. The EP Toxicity Extraction Procedure was followed in all aspects except pH adjustment. Enclosed please find corrected certificates of analysis to this effect.

I hope this will clarify the situation. If you have any further questions, please contact me.

Sincerely,
IT ANALYTICAL SERVICES

Barry A. Stephenson
General Manager

enc.

BAS/ts

Subsidiary of IT Corporation
IT Analytical Services • 5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615-588-6401

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1.0 BACKGROUND INFORMATION

U.S. Pipe and Foundry Company operates two foundries in Chattanooga, Tennessee. Foundry sand, cupola slag, cupola baghouse dust, dried sludge and demolition wastes generated at the Soil Pipe plant and the adjacent Valve and Fitting plant have been disposed on plant property along the Tennessee River (Nickajack Lake) for over 30 years. The Tennessee Department of Health and Environment, Division of Solid Waste Management (DSWM), conducted a geologic evaluation of the existing disposal site on June 8, 1983. Based on the results of their investigation, the DSWM classified the site geologically suitable for disposal of foundry sands, and requested that U.S. Pipe submit construction and operating plans for continued operation of the site. Accordingly, this manual was developed for registration of the existing U.S. Pipe and Foundry landfill in fulfillment of the "1983 Regulations Governing Solid Waste Disposal in Tennessee".

2.0 DESCRIPTION OF OPERATION

Based on records provided by U.S. Pipe and Foundry, the total annual waste generated from both plants and disposed in the existing landfill consists of approximately 48,250 tons. Using an average waste density of 120 pounds per cubic foot (3240 pounds per cubic yard), the approximate yearly waste disposal volume is 30,000 cubic yards. The types of waste currently disposed are listed as follows:

Waste Type	Percent of Total
Foundry sand	79
Cupola slag	14
Dried wastewater sludge	1.2
Cupola baghouse dust	1.5
General plant demolition debris	4.3
TOTAL	100

The DSWM has presently approved the site for disposal of foundry sand only. The cupola baghouse dust is generated primarily from combustion of fossil fuels. This dust, which contributes 1.5% of the total waste stream, contains levels of lead and cadmium greater than the allowable limits set forth by E.P. Toxicity testing for hazardous waste determinations; however, wastes generated during combustion of fossil fuels are exempt from the hazardous waste regulations. Accordingly, the DSWM will rule whether the cupola baghouse dust may be ultimately disposed within the subject landfill. The DSWM will also determine if analytical testing is required for the additional components of the waste stream.

3.0 SITE CONDITIONS

The landfill is located in Chattanooga along the east bank of the Tennessee River at mile 461.5, at north latitude 35°01'53" and west longitude 85°19'24". The proposed landfill comprises approximately 23 acres consisting of the existing 18.4 acre landfill area and 4.5 acres of presently undeveloped area located south of the existing landfill.

The property is owned by U.S. Pipe and Foundry. A location map (1" = 400') is provided in Appendix I.

Based on information provided by the Tennessee Valley Authority (TVA), the elevation of the 100-year flood at the site is 656 feet mean sea level (msl). TVA maintains floodway easement rights to elevation 636 msl. Based on conversations with representatives of each agency, no permits are required by TVA, the City of Chattanooga, or the Corps of Engineers for filling in the 100-year floodplain above elevation 636 msl provided that no structures are constructed. This information was obtained from the following individuals:

Treasure Rogers, Jr., TVA, Cleveland, Floodplain Management Branch

Richard Tomshack, TVA, Chattanooga, Division of Land Management

John Case, Corps of Engineers, Nashville, Regulatory Functions Branch

Fred Brunker, Chattanooga Planning Commission

Tom Scott, Chattanooga City Engineer

Roy McCollum, Chattanooga Building Inspector

A letter from Mr. Treasure Rogers of TVA to Mr. Bill Krispin of the DSWM and letters confirming our conversations with the remaining individuals are provided in Appendix II.

3.1 Preliminary Regulatory Approval

Site and subsurface conditions have been described previously in reports prepared by the DSWM. Basically, the site was approved for disposal of foundry sand generated at the Chattanooga facilities. Restrictions for use are outlined in a letter from the DSWM dated August 9, 1983. A copy of the letter is provided in Appendix II.

4.0 CONSTRUCTION AND OPERATION

The landfill will be used for disposal of waste generated at the Chattanooga facilities only. Further, the landfill will be constructed in a planned sequence, thereby allowing U.S. Pipe to reclaim (establish vegetative growth) disturbed areas as construction progresses. Outslopes will be constructed at the specified slopes provided in the construction plans. Geologic Associates, Inc. (GA) performed a geotechnical engineering study, which includes a detailed stability analysis of the outslope material, in order to evaluate the suitability of existing slopes and to recommend safe slopes and specific operating criteria for continued landfilling. A copy of GA's report is provided in Appendix III.

The landfill is presently being mined for retrieval of scrap iron by an outside contractor. The iron is sold back to U.S. Pipe for subsequent reuse. In order to continue this process, the contractor will be

required to follow the progression of disposal operations. Upon completion of mining and reshaping operations within each area, all finished surfaces will be seeded and mulched at the first appropriate growing season.

4.1 Fill Operations

The landfill will be divided into two operational areas: the existing landfill and the undeveloped area located immediately south of the existing landfill. The undeveloped area will be constructed following completion of the existing landfill. Details for construction of each phase are provided in the Construction Plans, included as an attachment to this report.

4.2 Cover and Final Grading

Based on the composition of the majority of the wastes disposed, daily and final cover will not be required. However, cupola baghouse dust, wastewater sludge, and demolition wastes will be covered with foundry sand. The site will be graded in accordance with the final contours shown on Sheet 1 of the plans.

The exterior limits of the site will be constructed to final grade as landfilling progresses upward. Sand castings will be placed near the outslopes for added stability, while demolition debris,

sludge and dust will be placed near the center of the fill. Wastes will be placed in lifts no thicker than 18 inches and compacted with the hauling and spreading equipment. In order to achieve added stability, outslopes will be shaped at a slightly steeper inclination than designed and compacted. The slopes should then be graded to their design configuration and immediately seeded and mulched. In this manner, wastes difficult to compact can be removed to prevent surficial sloughing of material. A detailed description of the outslope construction procedures is included in the appended report prepared by Geologic Associates, Inc. (see Appendix III).

4.3 Access Roads

Roads providing access to the landfill will be constructed of compacted slag and gravel. The roads will be maintained to provide all-weather access into the site and to safely accommodate truck traffic using the site. Only in-plant roads are used to transport material to the landfill.

5.0 OPERATING EQUIPMENT

U.S. Pipe uses a Caterpillar 920 front-end loader to spread and grade the waste and to construct berms. This machinery is available on a

full-time basis. In the event of equipment breakdown, U.S. Pipe will use similar plant equipment or obtain suitable rental equipment.

6.0 PROJECTED REFUSE AND COVER VOLUMES

Based on our calculations, a total volume of approximately 774,000 cubic yards is available for disposal of industrial waste from the Chattanooga facilities. The undeveloped area located south of the existing fill represents approximately 70,000 cubic yards of this volume. Based on a yearly disposal volume of 30,000 cubic yards, the site could be used by U.S. Pipe for approximately 26 years.

7.0 DRAINAGE FACILITIES

Drainage features have been designed to direct rainfall runoff away from the disposal areas and into the proposed sediment pond. To reduce ponding, all wastes should be deposited in a manner promoting positive drainage toward the impoundment. Silt fences and timely vegetative establishment will be used to prevent sediment from washing off site in areas that will not drain to the proposed basin.

The drainage facilities have been designed to accommodate a peak runoff flow resulting from a 10-year, 24-hour storm. Calculations for the design of these drainage and sediment control facilities are provided in

Appendix IV. See Sheets 2, 6 and 7 of the construction plans for details of the drainage and sediment control facilities.

8.0 ADMINISTRATIVE GUIDELINES

8.1 Supervision of Operation

The landfill is operated under the supervision of the Supervisor of Stores and Yard. The supervisor should verify that the site is operated in a safe and environmentally sound manner. The supervisor will be thoroughly familiar with the landfill construction plans and will be able to familiarize any operator with the plans.

8.2 Accident Prevention and Safety

The supervisor has an obligation to maintain safe and secure working conditions for all landfill personnel. This obligation includes that plant safety rules are written, published and given to each employee. First aid supplies for treatment of routine minor injuries will be provided at the site.

8.3 Landfill Records and Reports

Records of the activity at the landfill are maintained by the supervisor. Activity records are retained at the plant.

8.4 Landfill Sign

A sign will be provided at the main entrance to the landfill for identification of acceptable wastes. The sign will state that no sanitary or hazardous waste will be accepted.

8.5 Site Access and Control

A chain link fence and the Tennessee River completely enclose the site. Access to the site is from plant property only.

8.6 On-Site Structures

Landfill operating personnel will use existing plant structures for heat and toilet facilities. There are no permanent or portable structures within the landfill property.

8.7 Future Planning

By May 1 of each year, U.S. Pipe will file an estimate of the remaining acreage of the landfill with the DSWM. This report will include the original usable acreage of the site and the remaining unused portion at the time of the report.

8.8 Landfill Closure

An inspection of the entire site shall be conducted by a representative of the DSWM before the site is closed. Any necessary corrective work shall be performed before the closure project is accepted. Arrangements satisfactory to the DSWM shall be made for repair of all cracked, eroded, and uneven areas in the surface during the year following closure of the fill. Upon completion, the landfill site shall be recorded with the Register of Deeds as a former landfill site.

9.0 ENVIRONMENTAL CONSIDERATIONS

9.1 Dust Control

Grass will be planted over finished areas to minimize blowing dust. Water will be applied to the roads during abnormally dry conditions as needed to control excessive dust.

9.2 Blowing Litter

Putrescible trash (litter) is not disposed in the landfill.

9.3 Open Burning

No refuse will be burned at the landfill site. In the event accidental fires occur, the fire will be extinguished by smothering or by plant fire protection personnel.

9.4 Salvaging

Salvaging operations are conducted in a controlled manner for retrieval of reusable scrap iron. No scavenging will be allowed at the landfill site by private individuals.

9.5 Special Waste Handling

No special wastes other than the wastes approved for disposal by the DSWM will be accepted at the landfill.

9.6 Vector Control

Putrescible waste is not disposed in the landfill.

9.7 Odor Control

Due to the nature of the wastes disposed, no odor problems are anticipated.

9.8 Unauthorized Dumping

Unauthorized dumping will not be allowed.

9.9 Domestic Animals

Domestic animal access to the site is controlled by the chain link fence and the river enclosing the site. No domestic animals will be disposed at the site.

9.10 Contamination Control

As stated in the landfill regulations (Rule 1200-1-7-.06(3)16), "There shall be no contamination of ground or surface waters resulting from deposited solid wastes or their products of decomposition, nor hazard or nuisance caused by gases or other products generated by the biologically or chemically active wastes. Should any liquids or gases which might contaminate ground or surface water or create a hazard or nuisance be released from a registered industrial landfill, then those measures necessary to

eliminate the contamination or nuisance shall be initiated immediately by the registrant. All gaseous or liquid waste discharges shall comply with the existing 'Water Quality Control Act of 1971' (T.C.A. 70-324, et seq.) and the provisions of the 'Tennessee Air Quality Act' (TCA. 53-3408, et seq.). Prior approval should be received from the DSWM before initiating control procedures which require alteration of the approved operating plan."

10.0 MONITORING REQUIREMENTS

The sediment pond will be used for monitoring of phenols and any other parameters deemed necessary by the DSWM. Monitoring will be conducted on a quarterly basis.

11.0 REVEGETATION OPERATIONS

After each portion of the landfill is completed to final grade, the area will be immediately seeded and mulched in accordance with specifications similar to those provided on Sheet 7 of the Construction Plans.

RECEIVED
AUG 30 1983
Plant Engineering

STATE OF TENNESSEE
DEPARTMENT OF PUBLIC HEALTH
SOUTHEAST REGIONAL OFFICE
2501 MILNE STREET
CHATTANOOGA, TENNESSEE 37406

August 9, 1983

CERTIFIED MAIL
234 7955263

Mr. John H. Watson
Environmental Engineer
U. S. Pipe and Foundry Company
3300 First Avenue, North
Birmingham, Alabama 35202

Re: Geologic Approval - Foundry Sand Disposal Site
U. S. Pipe and Foundry Company
Chattanooga

Dear Mr. Watson:

This office has completed the geologic evaluation of an existing on-site foundry sand disposal area proposed for registration by U. S. Pipe and Foundry Company. The site, located on the east side of the Tennessee River at mile 461.5, was visited by Mr. Bill Krispin, staff geologist, on June 8, 1983.

Based on Mr. Krispin's evaluation, the site is considered geologically suitable, with certain restrictions, for disposal of the company's non-hazardous, foundry sand waste. (See enclosed geologic evaluation.)

In order to proceed with site registration, you must now submit detailed site construction and operational plans to this office for review. The plans must be designed to conform with the enclosed geologic restrictions as well as the requirements outlined in Mike Apple's memo dated July 28, 1983, which is also enclosed. Generally, such plans contain a manual outlining daily operational procedures, a plan review of the operation on a scale of one inch equals one hundred feet and cross sections of the site.

The above referenced plans must be submitted to this office within sixty (60) days of receipt of this writing.

If you have questions or need further assistance, please feel free to call me at 615/624-9921.

Cordially yours,

Steve Baxter

Steve Baxter
Environmental Consultant
Division of Solid Waste Management

SB/ss

enclosures

cc: Mike Apple, Division of Solid Waste Management, Nashville
Becky Harris, Division of Solid Waste Management, Nashville

MWPS007102

TENNESSEE DEPARTMENT OF PUBLIC HEALTH

OFFICE CORRESPONDENCE

FROM	TO	DATE
SWM	Reg.	

DATE: July 28, 1983

TO: Regional Offices

FROM: J. M. Apple (Thru J. T. Tiesler)

SUBJECT: Foundary Sands

In the past several months the proper disposal of foundary sand has been an unresolved problem. The primary concern is that although the material is by definition a "solid waste" the volumes to be disposed, the generally inert characteristics (phenols being an exception), and the desirability as fill material has created a void in the Divisions permitting process. Therefore, the following guidance was drafted.

Potential problems:

1) Phenol release to the environment.
2) Siltation problems and general fill stabilization.
2) Final grade.

Fill requirements:

1) Material defined as non hazardous (i.e. E P Toxicity).
2) Phenols less than 15 ppm.
3) Fill not in ground or surface waters of the State (including floodplain unless proper permits obtained).
4) Vegetative stabilization of surface upon fill to final grade.

"Plan requirements"

1) Plan and profile of existing and final grade.
2) Fill sequence - objective of bringing areas to final grade as soon as possible.
3) Silt pond design to control runoff of entire site with quarterly. monitoring for phenols and any other parameters deemed necessary by review of casting process.

The above guidance is general and is to be used at the discretion of the field office manager. Requirements are at a minimum and may be expanded as necessary.

JMA/dlc 4-6

FROM	DATE
JMA	
TO	
JTT	

PH 0001

MWPS007103

STATE OF TENNESSEE
DEPARTMENT OF PUBLIC HEALTH
CORDELL HULL BUILDING
NASHVILLE, TENNESSEE 37219

July 27, 1983

Hamilton County

Subject: Geologic evaluation of a foundry sand disposal site for US Pipe and Foundry in Hamilton county.

Date of Visit: June 8, 1983

Category: Industrial

Applicant: US Pipe and Foundry

Site Description

Facility: Existing

Waste Types: Foundry Sands

Location: Chattanooga Quadrangle (105-SE)
The site is located on the east side of the Tennessee River at mile 461.5.
Latitude: 35° 01' 55" Longitude: 85° 19' 25"

Topography: Most of the area has been filled with foundry sands so the natural topography has been changed. The area to the south of the sand is a very gentle, almost flat area. The sands are an estimated 30 feet or more in depth. Old sand areas are used for storage and parking facilities. The active disposal area is currently being mined to recover metal from the sands.

The slopes of the sand, near the river, are steep to very steep with an abundance of vegetation growing on them.

Geologic Setting

Bedrock: Mississippian age Fort Payne chert

Lithology: The Fort Payne is limestone and dolomite, highly siliceous, gray, fine to coarse grained, weathers to thick chert ledges. At the base is the Maury shale, a thin pale green shale.

Beaneath the Fort Payne is the Chattanooga shale which is shale,

brownish black, bituminous and fissle.

Because of the location, next to the river, the surface geology might consist of some alluvial material.

Structure: The beds should be dipping to the southeast. The area has undergone some faulting so the beds might be fractured. The Rockwood formation has been thrust over the Fort Payne chert.

(Geologic Map and Mineral Resources Summary of the Chattanooga Quadrangle, Tennessee.)

Unconsolidated Material: The Fort Payne is usually deeply weathered and consists of a rubble of chert in a silty clay soil. Any alluvium present will be poorly sorted and consist of sands, silts, clays and gravel.

The Soil Survey of Hamilton County lists the soil present as being the Huntington silt loam. It is derived from alluvium washed largely from soils underlain by limestone and exhibits a high water table.

Hydrology

Runoff Directions: Drainage from the sand will be to the west and east.

Receiving Stream: The site will drain to the Tennessee River. The small amount of runoff that flows to the east will enter a culvert beneath the sand and flow to the Tennessee River.

Flooding: The site is in the floodplain of the Tennessee River. According to the Environmental Geology of Hamilton County, Tennessee (Sitterly and Wilson, 1978), the site is within the 100 year flood boundary. Also, the following flood information has been provided by the Tennessee Valley Authority:

	Elevations	
Mile	100-Year Flood	Structure Profile
461.0	655.5	668.0
462.0	656.0	668.0

Other Surface Water Data: Older maps of the area show part of the site once contained backup water from the Tennessee River.

Ground Water: Ground water in the area should be shallow and will likely be affected by the river. Shallow ground water should be found in the alluvium and/or residuum. Ground water movement should be towards the river. Deeper water will be round in the Fort Payne (limestone and dolomite) and will probably be moving in a southeasterly direction.

No seeps were evident at the base of the sand.

Previous Investigation: During the Open Dump Inventory, the Division of Solid Waste Management reviewed this site. The site was found in noncompliance in the categories of floodplain and surface water discharge and put on a compliance schedule.

A 11/20/81 letter from this Division said the E P Toxicity test and the Phenol analysis indicated the waste does not pose a hazardous problem.

Recommendations

The site is only marginally suitable for use due to the flooding, shallow water and the soil and rock type present. However, due to the nature of the waste (foundry sands), the site presently being used as well as the area south of the sand is suitable for disposal. There are, however, some restrictions which must be placed on the site.

1) The site is only for the disposal of foundry sands. Some of the area contains demolition waste, trash, 55 gallon drums and ash.

2) No water should be allowed to pond on any portion of the site.

3) The site is to be properly stabilized to ensure against erosion and siltation and against possible washout due to flooding.

4) The Tennessee Valley Authority has flood easement rights in the area and they must be contacted for the proper permits, if necessary, for the filling a floodplain.

   Also, the City of Chattanooga must be contacted for permits, requirements, etc. the city might have in regards to filling a floodplain.

Recommendations concerning the suitability of the site may be changed upon review of additional information.

William Krispin
Geologist
Division of Solid Waste Management

WK/pas

Hamilton County
US Pipe and Foundry
Chattanooga Quadrangle (105-SE)
Foundry Sand Disposal
Location and boundaries are approximate.
Site
TENNESSEE
RIVER
MOCCASIN
BEND
Moccasin Bend Gun Club
Moccasin Bend Psychiatric Hospital
Pumping station
Lookout Mtn Tunnel
Cravens Yards (L & N)
Mile 460
Mile 465
Mile 0
Drive-in theater
Shops Yards
Substation
Chemical
Charles A Bell School
Clifton Hills
Alton Park
Montague Park
National Guard Armory
St Elmo
Lookout Jr High Sch
Alton Park Jr High Sch
Chattanooga
Creek
WILDLIFE REFUGE
Gaging station
Pipeline
(FORT OGLETHORPE 106-NE)

TENNESSEE VALLEY AUTHORITY
Cleveland, Tennessee 37311
66 Mouse Creek Road

July 22, 1983

Mr. Bill Krispin
Tennessee Department of Health & Environment
Division of Solid Waste Management
701 Broadway, B-30
Nashville, Tennessee 37203

Dear Bill:

This responds to your request for flood hazard information on property located on the right overbank of the Tennessee River between river miles 461.0 and 462.0. Listed below are the 100-year flood and Tennessee Valley Authority (TVA) Structure Profile elevation at the subject miles.

	Elevations	
Miles	100-Year Flood	Structure Profile
461.0	655.5	668.0
462.0	656.0	668.0

The TVA Structure Profile is a contour established by TVA which marks the elevation below which structures or any other forms of development that are subject to significant damage are prohibited on all lands which TVA either owns or has certain landrights. The profile was developed to avoid increasing the flood damage potential in areas affected by reservoir operations. According to our Office of Natural Resources (ONR), TVA has flood easement rights on some properties located on the east overbank. I would suggest that you contact Greg McKibben of ONR to ascertain information on the specific site with which you are concerned. Mr. McKibben can be reached by telephone at (615)745-1783.

Enclosed is a reproduced portion of the Floodway Flood Boundary Map (panel 20) prepared for Chattanooga, Tennessee. Shown thereon are the limits of the 100-year floodplain floodway, and floodway fringe. No development involving fill material is permitted within the floodway. Development requiring the use of fill material and structures are permitted within the floodway fringe. We would recommend that you contact Don Young of the Chattanooga Building Inspector's office to ascertain specific local building requirements. Mr. Young can be reached by telephone at (615)757-5105. Also enclosed for your information is a reproduced portion of the TVA Quadrangle Map (number 105-SE).

MWPS007109

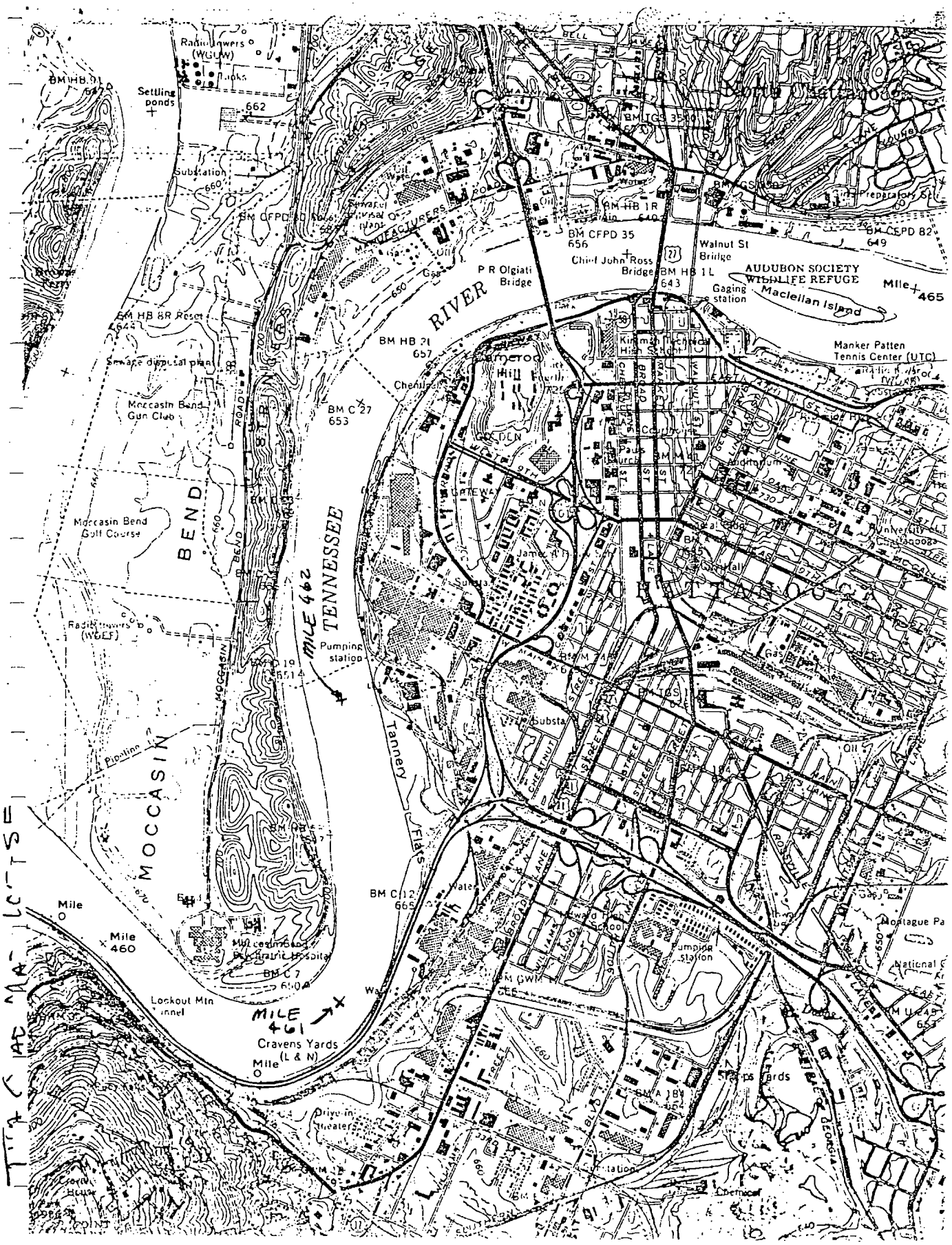
If I can be of further assistance feel free to call on me.

Sincerely,

Treasure

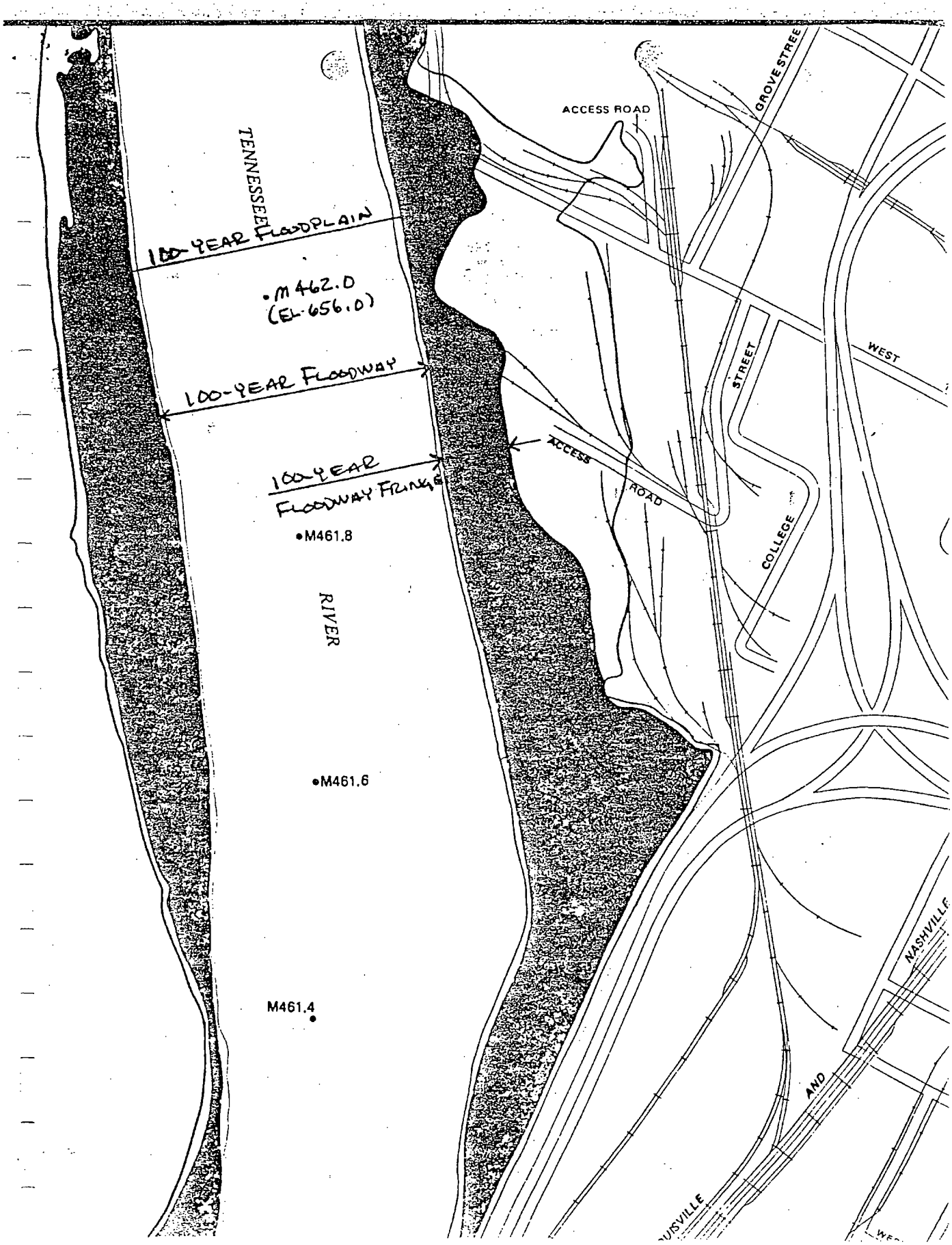
Treasure H. Rogers, Jr.
Floodplain Specialist
Floodplain Management Branch

Enclosures
cc (Enclosures):
Mr. Don Young
Chattanooga Building Inspection Office
Room 44, City Hall
Chattanooga, TN 37402



Radio towers (WGOW)
Settling ponds
Substation
BM HB 8R Reset
Sewage disposal plant
Moccasin Bend Gun Club
Moccasin Bend Golf Course
Radio towers (WDEF)
MOCCASIN BEND
TENNESSEE RIVER
MILE 462
Pumping station
Tannery Flats
Pipeline
Mile 460
Lookout Mtn Tunnel
MILE 461
Cravens Yards (L & N)
Mile
Drive-in theater
P R Olgiati Bridge
Chief John Ross Bridge
Walnut St Bridge
AUDUBON SOCIETY WILDLIFE REFUGE
Gaging station
Maclellan Island
Mile 465
Manker Patten Tennis Center (UTC)
Kirkman Technical High School
Pumping station
Montague Pa
National
Stamps Yards
Substation
Chemical

MWPS007111


TENNESSEE
RIVER
100-YEAR FLOODPLAIN
•M462.0
(EL-656.0)
100-YEAR FLOODWAY
100-YEAR
FLOODWAY FRINGE
•M461.8
•M461.6
M461.4
ACCESS ROAD
ACCESS
ROAD
GROVE STREET
WEST
STREET
COLLEGE
NASHVILLE
AND

MWPS007112

APPROXIMATE SCALE

500 0 500 FEET

KEY TO MAP

500-Year Flood Boundary

100-Year Flood Boundary

FLOODWAY FRINGE

FLOODWAY

100-Year Flood Boundary

500-Year Flood Boundary

Approximate 100-Year Flood Boundary

Cross Section Line A — A

Elevation Reference Mark RM7

River Mile • M1.5

NATIONAL FLOOD INSURANCE PROGRAM

FLOODWAY

FLOOD BOUNDARY AND FLOODWAY MAP

CITY OF

CHATTANOOGA, TENNESSEE

HAMILTON COUNTY

PANEL 20 OF 30

(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
470072 0020 A

EFFECTIVE DATE:
SEPTEMBER 3, 1980

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
FEDERAL INSURANCE ADMINISTRATION

NOTES TO USER

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Insurance Administration.

This map was prepared to support minimum flood plain management regulations; it may not show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

For adjoining map panels, see separately printed Index To Map Panels.

MWPS007113

MCI/ CONSULTING ENGINEERS, INC.

P. O. Box 23010
10628 Dutchtown Road
Knoxville, Tennessee 37933-1010
Telephone (615) 966-9788

Corporate Headquarters:
Nashville, Tennessee

Branch Offices:
Knoxville, Tennessee
Denver, Colorado
Huntsville, Alabama

March 7, 1984

Mr. Fred Brunker
Chattanooga Planning Commission
200 Mayfield Annex
123 East 8th Street
Chattanooga, TN 37402

RE: U.S. Pipe and Foundry Company
Industrial Landfill; MCI-83-592

Dear Mr. Brunker:

On January 10, 1984, I called to determine if any Planning Commission approvals would be required relative to filling within a Flood Hazard Zone. You advised that there were no restrictions or approvals required for filling within the Flood Hazard Zone, which is defined as the 100-year flood, if no fill were placed within the designated floodway. MCI has proceeded with design of the facility with all fill to be placed above the TVA flowage easement. We, therefore, will not be applying for any Planning Commission approval.

Please contact me as soon as possible if you are not in agreement with the above.

Sincerely,

MCI/CONSULTING ENGINEERS, INC.

Marvin H. Bowers

Marvin H. Bowers, P.E.
Senior Civil Engineer

MHB:jll

MCI/CONSULTING ENGINEERS, INC.

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10628 Dutchtown Road
Knoxville, Tennessee 37933-1010
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Corporate Headquarters:
Nashville, Tennessee

Branch Offices:
Knoxville, Tennessee
Denver, Colorado
Huntsville, Alabama

March 7, 1984

Mr. Roy McCollum
Building Inspector
City of Chattanooga
Inspection Division
Room 44, City Hall
Chattanooga, TN 37402

RE: U.S. Pipe and Foundry Company
Industrial Landfill; MCI-83-592

Dear Mr. McCollum:

This is to confirm our conversation of January 10, 1984 concerning construction of the referenced facility within the flood hazard zone of the Tennessee River. You advised that your office would be involved only if structures were to be constructed in this area. There will be no structures constructed as a part of the project and there will therefore be no further coordination with the Building Inspection Department.

Please contact me as soon as possible if you do not agree with the above summary of our discussion.

Sincerely,

MCI/CONSULTING ENGINEERS, INC.

Marvin H. Bowers, P.E.
Senior Civil Engineer

MHB:jll

MCI/CONSULTING ENGINEERS, INC.
P. O. Box 23010
10628 Dutchtown Road
Knoxville, Tennessee 37933-1010
Telephone (615) 966-9788

Corporate Headquarters:
Nashville, Tennessee

Branch Offices:
Knoxville, Tennessee
Denver, Colorado
Huntsville, Alabama

March 7, 1984

Mr. John Case
U.S. Corps of Engineers
Regulatory Branch
P.O. Box 1070
Nashville, TN 37202

RE: U.S. Pipe and Foundry Company
Industrial Landfill; MCI-83-592

Dear Mr. Case:

On January 10, 1984, I called to determine if a Corps of Engineers, 404 permit would be required for the referenced project. You advised that the permit would be required only if fill were discharged below ordinary high water of the Tennessee River. MCI has proceeded with design of the facility with all fill to be placed above the TVA flowage easement. The 404 permit should therefore not apply to the project and no application is planned.

Please contact me as soon as possible if you are not in agreement with the above.

Sincerely,

MCI/CONSULTING ENGINEERS, INC.

Marvin H. Bowers, P.E.
Senior Civil Engineer

MHB:jll

MCI/CONSULTING ENGINEERS, INC.

P. O. Box 23010
10628 Dutchtown Road
Knoxville, Tennessee 37933-1010
Telephone (615) 966-9788

Corporate Headquarters:
Nashville, Tennessee

Branch Offices:
Knoxville, Tennessee
Denver, Colorado
Huntsville, Alabama

March 7, 1984

Mr. Richard Tomshack
Tennessee Valley Authority
464 Lupton Building
Division of Land Management
Chattanooga, TN 37401

RE: U.S. Pipe and Foundry Company
Industrial Landfill; MCI-83-592

Dear Mr. Tomshack:

On January 17, 1984, I called to determine if a TVA Section 26A approval would be required for the referenced project. You advised that TVA maintained a flowage easement for the Tennessee River to Elevation 636 M.S.L. in the vicinity of the project and that no 26A approval would be required if all fill was placed above that contour. MCI has therefore proceeded with design based on all fill being placed above Elevation 636 M.S.L. and will not make application for section 26A approval.

Please contact me as soon as possible if you are not in agreement with the above.

Sincerely,

MCI/CONSULTING ENGINEERS, INC.

Marvin H. Bowers, P.E.
Senior Civil Engineer

MHB:jll

MCI/CONSULTING ENGINEERS, INC.

P. O. Box 23010
10628 Dutchtown Road
Knoxville, Tennessee 37933-1010
Telephone (615) 966-9788

Corporate Headquarters:
Nashville, Tennessee

Branch Offices:
Knoxville, Tennessee
Denver, Colorado
Huntsville, Alabama

March 7, 1984

Mr. Tom Scott
City of Chattanooga
Engineering Department
Room 26, City Hall
10th and Newby Street
Chattanooga, TN 37401

RE: U.S. Pipe and Foundry Company
Industrial Landfill; MCI-83-592

Dear Mr. Scott:

On January 10, 1984, I called to determine if there were any City of Chattanooga restrictions on filling adjacent to the Tennessee River at an elevation lower than the 100-year flood but above the designated floodway. You advised that there were no City restrictions, providing no habitable structures were constructed, but that the project should comply with Tennessee Division of Health and Environment requirements for sediment control.

MCI has proceeded with design of the facility with all fill to be placed above the TVA flowage easement, with no structures, and in compliance with TDHE sediment control requirements. Please contact me as soon as possible if you are not in agreement with the above.

Sincerely,

MCI/CONSULTING ENGINEERS, INC.

Marvin H. Bowers, P.E.
Senior Civil Engineer

MHB:jll

GEOTECHNICAL STUDY
U.S. PIPE INDUSTRIAL LANDFILL
CHATTANOOGA, TENNESSEE
GA FILE 83-0417K

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Exploration and Testing..... Page 2

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Design Considerations..... Page 3

Stability of Existing Waste Fill..... Page 3 - 5

Comments and Recommendations..... Pages 5 - 7

REPORT LIMITATIONS..... Section I

LABORATORY TEST RESULTS..... Section II

DRAWINGS..... Section III

March 2, 1984

MCI/Consulting Engineers, Inc.
P.O. Box 20301
Knoxville, Tennessee 37933

Attn: Mr. Marvin Bowers

RE: Geotechnical Study
U.S. Pipe Industrial Landfill
Chattanooga, Tennessee
GA File 83-0417K

Gentlemen:

With reference to the above project, we have completed a modest geotechnical study and presented herewith are the data, our comments and recommendations. The purpose of this study is to assess the factors of safety against instability of the waste fill as it presently exists, and to propose a stable final configuration. Important information regarding the limitations of geotechnical studies is included as Section I.

SITE CONDITIONS

As shown by the Plan (Section III), the site being used by U.S. Pipe for their landfilling operations consists of more than 22 acres within the southernmost parcel of U.S. Pipe property. The site is located within the corporate limits of Chattanooga, Tennessee and is bounded on the east by Interstate Highway 24 and on the west by the Tennessee River. The location map included on the Plan shows the site's location with regard to nearby topographic and cultural features.

Presently, waste has been disposed within the northern three-fourths of the site. As shown on the appended Profiles, the crest of the waste fill ranges from about elevation 695 feet at the southern end of the waste pile to approximately elevation 655 feet at the northern end. The outslope on the west end of the site has an inclination of about 1.5 horizontal to 1 vertical, where it rests on the bank of the Tennessee

MWPS007122

River (normal pool elevation is about 634 feet). Surface drainage in the area of the waste fill is fair to poor with the majority of the surface runoff flowing toward the river.

The southern one-fourth of the site is covered by dense vegetation and has a surface elevation ranging from 640 to 645 feet. Surface drainage in this undisturbed and unfilled area is good and toward the river.

EXPLORATION AND TESTING

Seven holes were drilled in conformance with ASTM D 1586 (Standard Penetration Test and Split-Barrel Sampling of Soils). In conjunction with this drilling, relatively undisturbed Shelby tube samples (ASTM D 1587) were recovered from selected borings. The locations of these borings and the depths at which the samples were obtained are shown on the Plan and Profiles (Section III).

The soil and waste samples were visually classified by members of our professional staff. Representative samples were tested for grain size distribution, Atterberg limits, unit weight determinations and triaxial compressive strength. Results of the laboratory testing are included in Section II. The soil samples not consumed during testing will remain on file at our Knoxville office for a period of six months, after which time they will be discarded unless we are instructed otherwise.

SUBSURFACE CONDITIONS

The fill, which consists of sand castings (i.e., sandstone-like fragments ranging in size from gravel to boulders), glass, sand, clay, bentonite, and debris, ranges in thickness from approximately 20 feet to 60 feet and is primarily medium dense to dense. Overall, the waste has a relatively high shear strength and a moderately high coefficient of permeability. Beneath the fill, at an average elevation of 635 feet, the borings encountered alluvial soil consisting of brown, silty, sandy, clay. The alluvial soil has a consistency which ranges from soft to

stiff and extends to at least the bottom of our borings. Beneath the waste fill where the alluvium has consolidated to a stiff consistency, it possesses a relatively high shear strength.

Ground water was generally found to coincide with the level of the Tennessee River. Considering the permeability of the fill, we expect that the ground water will respond rapidly to fluctuations in the river level.

DESIGN CONSIDERATIONS

We have reviewed the drawings showing the existing site configuration and the preliminary drawings showing the proposed fill configuration as it will exist upon abandonment. Accordingly, the existing fill and the proposed final fill must be analyzed for potential slope instability during three conditions: (1) steady state seepage; (2) rapid drawdown; and (3) dynamic (earthquake) loading. Phreatic levels within the fill, as measured during the past few months, are used in our assessment of stability during steady state seepage conditions. In our analysis of the rapid drawdown condition, we have used the 100-year flood elevation of 656 feet (as estimated by the Tennessee Valley Authority) for the Tennessee River. Finally, the site is situated in earthquake zone 2 (moderate risk) and an earthquake acceleration factor of 0.1 was used in our pseudo-static analysis.

The following analyses and recommendations are based on the preceding design considerations. Any changes in the slope configuration or waste composition and consistency will require our review of the recommendations.

STABILITY OF EXISTING WASTE FILL

A stability analysis was performed for the critical section of the existing fill using effective strength parameters as determined during the triaxial testing of undisturbed samples of waste and alluvial soil.

Results of the laboratory testing of the waste indicate that it has an effective cohesion of 900 PSF and an effective angle of internal friction of 35°. However, in the stability analyses, we conservatively used an effective cohesion of 100 PSF and an effective angle of internal friction of 35°. For the alluvial soil, the measured effective cohesion of 0 PSF and effective angle of internal friction of 33° were used in the analysis of the existing fill. The stability analysis was performed with the aid of a digital computer using the Janbu circular arc analysis. The computer program used is entitled STABL and was developed during the Joint Highway Research Project HRP-7906 by Purdue University and the Indiana State Highway Commission.

As previously described, the outslope of the waste fill near the river exists at an inclination of about 1.5 horizontal to 1 vertical. Table 1 contains a summary of the factors of safety against instability as calculated for the critical slope on the western face of the waste fill.

TABLE 1

Results of Stability Analysis for Existing Slope Configuration

Condition	Minimum Factor of Safety
Steady State Seepage	1.4
Rapid Drawdown	1.0
Dynamic (Earthquake) Loading	1.1

As shown in the above table, the existing slope will be at a condition near failure during rapid drawdown. Consequently, modifications to this existing slope will be required before the remaining portions of the fill are constructed. Details of the recommended modifications to the existing slope and our assessment of the factor of safety for the

proposed final configuration of the waste fill are included in the following section.

COMMENTS AND RECOMMENDATIONS

Raising Existing Fill

As shown on Sheet 3, Section III, and on your proposed plan of the final waste configuration, we recommend that a bench be excavated into the existing slope of the fill near the river. This bench should be 25 feet wide and should be excavated to an elevation of about 660 feet. Above the bench, the slope should be cut at an inclination of 2 horizontal to 1 vertical. Based on our recommendations, you have designed the slope above the existing fill using inclinations of 2 horizontal to 1 vertical on the west side near the river and 1.5 horizontal to 1 vertical on the east side of the fill away from the river.

Table 2 summarizes the factors of safety for the proposed final configurations as described above and as shown on our Sheet 3, Section III.

TABLE 2

Condition	Minimum Factor of Safety
Steady State Seepage	1.5
Rapid Drawdown	1.2
Dynamic (Earthquake) Loading	1.2

The locations of the critical failure surfaces along with the respective minimum factors of safety are included in Section III.

In placing the additional waste fill, we recommend that debris be placed toward the center of the fill and that only the sand castings waste be placed near the outslopes. Moreover, the waste should be placed in maximum 18 inch thick lifts and it should be compacted with the hauling

and spreading equipment. The ditches and the crest of the pile should be sloped to drain to reduce the possibility for water to pond.

Although the analyses indicate that the mass stability of the proposed fill will meet accepted standards, special provisions will be required to reduce the potential for shallow failure on the outslopes. Specifically, as shown on Sheet 4, the slopes should be constructed at a slightly steeper inclination than designed, and special effort should be made to compact the waste near the outslope as the fill is being constructed. Periodically, the slopes should be graded (excavated) to their design configuration. In this manner, the waste on the outermost portion of the slope which is difficult to compact can be removed as the fill is being constructed rather than allowing surficial sloughs of poorly compacted material to occur.

Southern Extension of Waste Fill

Before the waste fill is extended to the southern part of the site, the area should be cleared and grubbed. Afterwards, the area to receive fill should be proofrolled using the loaded waste hauling equipment. Soft or otherwise deleterious material (organics, etc.) so delineated should be excavated to stable ground. As an alternative, filter fabric can be placed above soft areas and the waste can be placed on the filter fabric for stabilization purposes. Further, if seeps are found to be issuing from areas to receive fill, rockfill drains wrapped in filter fabric (see Sheet 4) should be installed to collect the water and to discharge it beyond the toe of the proposed fill. Fill placement procedures should follow those as described in the previous section.

Scour Protection

Scour of waste at the toe of the existing fill and at the toe of the proposed extension by the Tennessee River could have a detrimental effect on the stability of the fill. Therefore, the outslopes should be routinely inspected at periodic intervals and following high river

stages. Scour of the waste encountered during these inspections should be repaired immediately. If practical, the larger sand castings (i.e. boulders) should be placed along the toe of the waste fill near the river to serve as rip rap protection from the Tennessee River.

Geologic Associates, Inc., appreciates this opportunity to be of service to you on this project. If you have any questions, please feel free to contact the writers.

Respectfully submitted,

GEOLOGIC ASSOCIATES, INC.

T. L. Primm
Staff Engineer

Barry K. Thacker, P.E.
Tennessee Registration #14410

TLP/BKT/bf

SECTION I

IMPORTANT INFORMATION
ABOUT YOUR
GEOTECHNICAL ENGINEERING REPORT

More construction problems are caused by site subsurface conditions than any other factor. As troublesome as subsurface problems can be, their frequency and extent have been lessened considerably in recent years, thanks to the Association of Soil and Foundation Engineers (ASFE).

When ASFE was founded in 1969, subsurface problems were frequently being resolved through lawsuits. In fact, the situation had grown to such alarming proportions that consulting geotechnical engineers had the worst professional liability record of all design professionals. By 1980, ASFE-*member consulting soil and foundation engineers had the best professional liability record.* This dramatic turn-about can be attributed directly to client acceptance of problem-solving programs and materials developed by ASFE for its members' application. *This acceptance was gained because clients perceived the* ASFE *approach to be in their own best interests.* Disputes benefit only those who earn their living from others' disagreements.

The following suggestions and observations are offered to help you reduce the geotechnical-related delays, cost-overruns and other costly headaches that can occur during a construction project.

A GEOTECHNICAL ENGINEERING REPORT IS BASED ON A UNIQUE SET OF PROJECT-SPECIFIC FACTORS

A geotechnical engineering report is based on a subsurface exploration plan designed to incorporate a unique set of project-specific factors. These typically include: the general nature of the structure involved, its size and configuration; the location of the structure on the site and its orientation; physical concomitants such as access roads, parking lots, and underground utilities, and the level of additional risk which the client assumed by virtue of limitations imposed upon the exploratory program. To help avoid costly problems, consult the geotechnical engineer to determine how any factors which change subsequent to the date of his report may affect his recommendations.

Unless your consulting geotechnical engineer indicates otherwise, *your geotechnical engineering report should not be used:*

- When the nature of the proposed structure is changed, for example, if an office building will be erected instead of a parking garage, or if a refrigerated warehouse will be built instead of an unrefrigerated one;
- when the size or configuration of the proposed structure is altered;
- when the location or orientation of the proposed structure is modified;
- when there is a change of ownership, or
- for application to an adjacent site.

A geotechnical engineer cannot accept responsibility for problems which may develop if he is not consulted after factors considered in his report's development have changed.

MOST GEOTECHNICAL "FINDINGS" ARE PROFESSIONAL ESTIMATES

Site exploration identifies actual subsurface conditions *only at those points where samples are taken, when they* are taken. Data derived through sampling and subsequent laboratory testing are extrapolated by the geotechnical engineer who then renders an opinion about overall subsurface conditions, their likely reaction to proposed construction activity, and appropriate foundation design. Even under optimal circumstances actual conditions may differ from those opined to exist, because no geotechnical engineer, no matter how qualified, and no subsurface exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock and time. For example, the actual interface between materials may be far more gradual or abrupt than the report indicates, and actual conditions in areas not sampled may differ from predictions. *Nothing can be done to prevent the unanticipated, but steps can be taken to help minimize their impact.* For this reason, *most experienced owners retain their geotechnical consultant through the construction stage,* to identify variances, conduct additional tests which may be needed, and to recommend solutions to problems encountered on site.

SUBSURFACE CONDITIONS CAN CHANGE

Subsurface conditions may be modified by constantly-changing natural forces. Because a geotechnical engineering report is based on conditions which existed at the time of subsurface exploration, *construction decisions should not be based on a geotechnical engineering report whose adequacy may have been affected by time.* Speak with the geotechnical consultant to learn if additional tests are advisable before construction starts.

Construction operations at or adjacent to the site and natural events such as floods, earthquakes or groundwater fluctuations may also affect subsurface conditions and, thus, the continuing adequacy of a geotechnical report. The geotechnical engineer should be kept apprised of any such events, and should be consulted to determine if additional tests are necessary.

A GEOTECHNICAL ENGINEERING REPORT IS SUBJECT TO MISINTERPRETATION

Costly problems can occur when other design professionals develop their plans based on misinterpretations of a geotechnical engineering report. To help avoid these problems, the geotechnical engineer should be retained to work with other appropriate design professionals to explain relevant geotechnical findings and to review the adequacy

of their plans and specifications relative to geotechnical issues.

BORING LOGS SHOULD NOT BE SEPARATED FROM THE ENGINEERING REPORT

Final boring logs are developed by the geotechnical engineer based upon his interpretation of field logs (assembled by site personnel) and laboratory evaluation of field samples. Only final boring logs customarily are included in geotechnical engineering reports. *These logs should not under any circumstances be redrawn* for inclusion in architectural or other design drawings, because drafters may commit errors or omissions in the transfer process. Although photographic reproduction eliminates this problem, it does nothing to minimize the possibility of contractors misinterpretating the logs during bid preparation. When this occurs, delays, disputes and unanticipated costs are the all-too-frequent result.

To minimize the likelihood of boring log misinterpretation, *give contractors ready access to the complete geotechnical engineering report*. Those who do not provide such access may proceed under the *mistaken* impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing the best available information to contractors helps prevent costly construction problems and the adversarial attitudes which aggravate them to disproportionate scale.

READ RESPONSIBILITY CLAUSES CLOSELY

Because geotechnical engineering is based extensively on judgement and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against geotechnical consultants. To help prevent this problem, geotechnical engineers have developed model clauses for use in written transmittals. These are *not* exculpatory clauses designed to foist the geotechnical engineer's liabilities onto someone else. Rather, they are definitive clauses which identify where the geotechnical engineer's responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your geotechnical engineering report, and you are encouraged to read them closely. Your geotechnical engineer will be pleased to give full and frank answers to your questions.

OTHER STEPS YOU CAN TAKE TO REDUCE RISK

Your consulting geotechnical engineer will be pleased to discuss other techniques which can be employed to mitigate risk. In addition, the Association of Soil and Foundation Engineers has developed a variety of materials which may be beneficial. Contact ASFE for a complimentary copy of its publications directory.

Published by

ASFE

ASSOCIATION OF SOIL AND FOUNDATION ENGINEERS

8811 Colesville Road/Suite 225
Silver Spring, Maryland 20910
301/565-2733

SECTION II

SUMMARY OF LABORATORY TEST RESULTS

Project U.S. Pipe Landfill
Project No. 83-0417 K
Date March 1, 1984

Hole No.	Sample No.	SAMPLE TYPE*	Depth (ft)	Natural Moisture (%)	UNIT WEIGHT (PCF) WET	UNIT WEIGHT (PCF) DRY	Atterberg Limits Liquid Limit (%)	Atterberg Limits Plasticity Index (%)	UNIFIED SOIL CLASSIFICATION	TRIAXIAL SHEAR TEST ANGLE OF INTERNAL FRICTION, φ	TRIAXIAL SHEAR TEST COHESION C (PSF)	OTHER TESTS **	Soil Description
1	1	ST	48.5-50.5	31.1	117.2	89.4				**	**		SILT,sandy,micaceous,brown
2	1	ST	18.5-20.0	15.6	120.1	104.1	40	17	CL	**	**		CLAY,silty,black,with slag
2	10	SS	43.5-45.0	26.1									SAND,silty,black,with slag
4	5	SS	18.5-20.0	30.9			40	12	ML				SILT,clayey,very sandy,slightly micaceous, greyish-brown
5	4	SS	13.5-15.0	32.0			30	7	CL/ML			*** S	CLAY,silty,slightly sandy,micaceous grey
5	5	SS	20.5-22.0	32.3					SP/SM			S	SAND,slightly silty,micaceous,greyish brown
7	1	ST	18.5-20.5	31.5	121.1	92.4	44	16	CL/ML	**	**		CLAY,silty,micaceous,brown

* ST—SHELBY TUBE SAMPLE, SS—SPLIT SPOON SAMPLE, B—BAG SAMPLE
** TEST RESULTS REPORTED ON OTHER SHEETS:
C—CONSOLIDATION
S—SIEVE OR GRAIN SIZE ANALYSIS
U—UNCONFINED COMPRESSION TEST
D—DIRECT SHEAR TEST
T—TRIAXIAL TEST

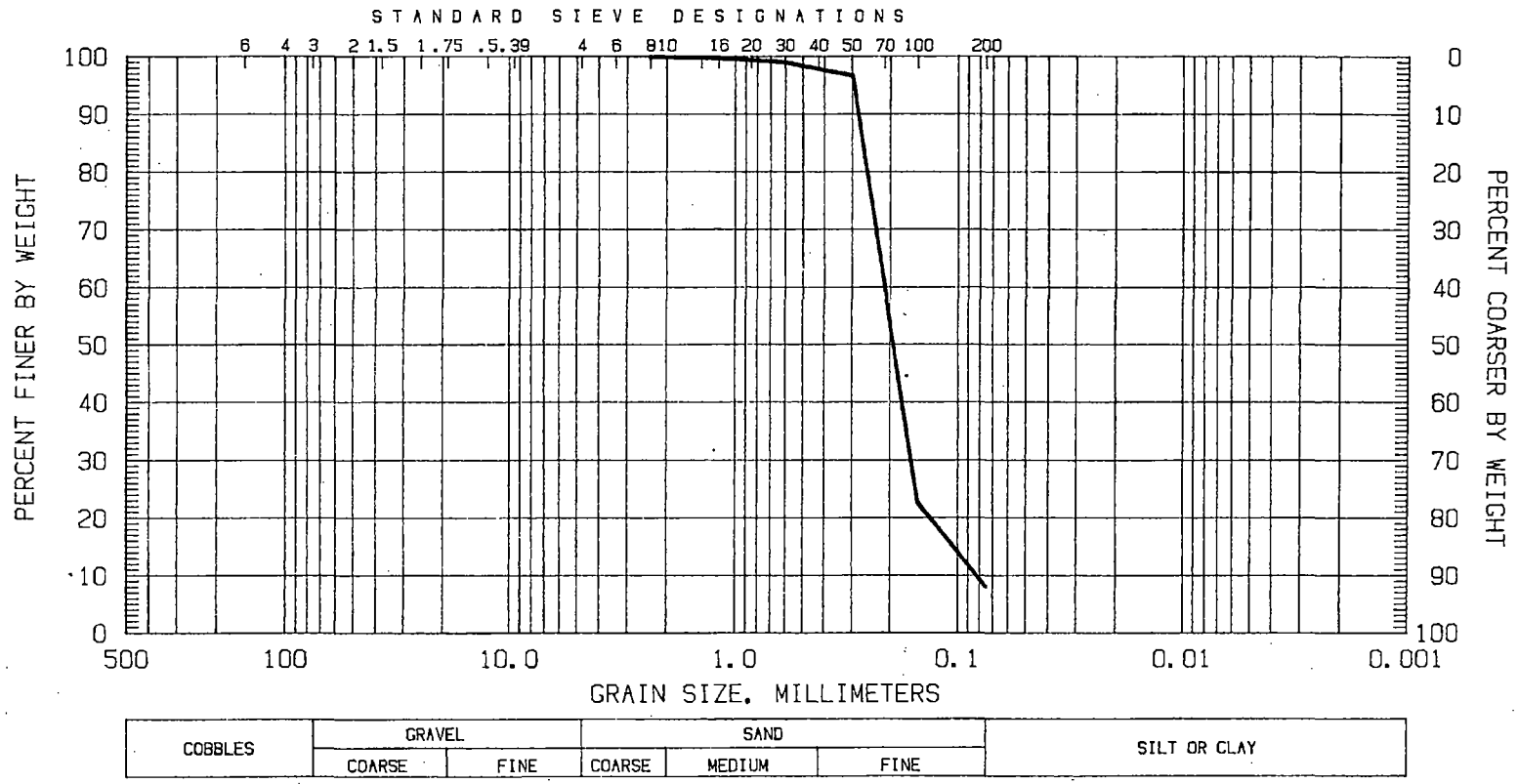
*** Sieve analysis indicates 66.7% passing #200 sieve

DATA CHECKED BY: tlp

GEOLOGIC ASSOCIATES, INC

MWPS007133

GRAIN SIZE ANALYSIS



PROJECT NO.: 83-0417
U.S. PIPE
MCI CONSULTING ENGINEERS
JANUARY 12, 1984
BORING: 5 SAMPLE: 5
DEPTH: 20.5-22.0 FT

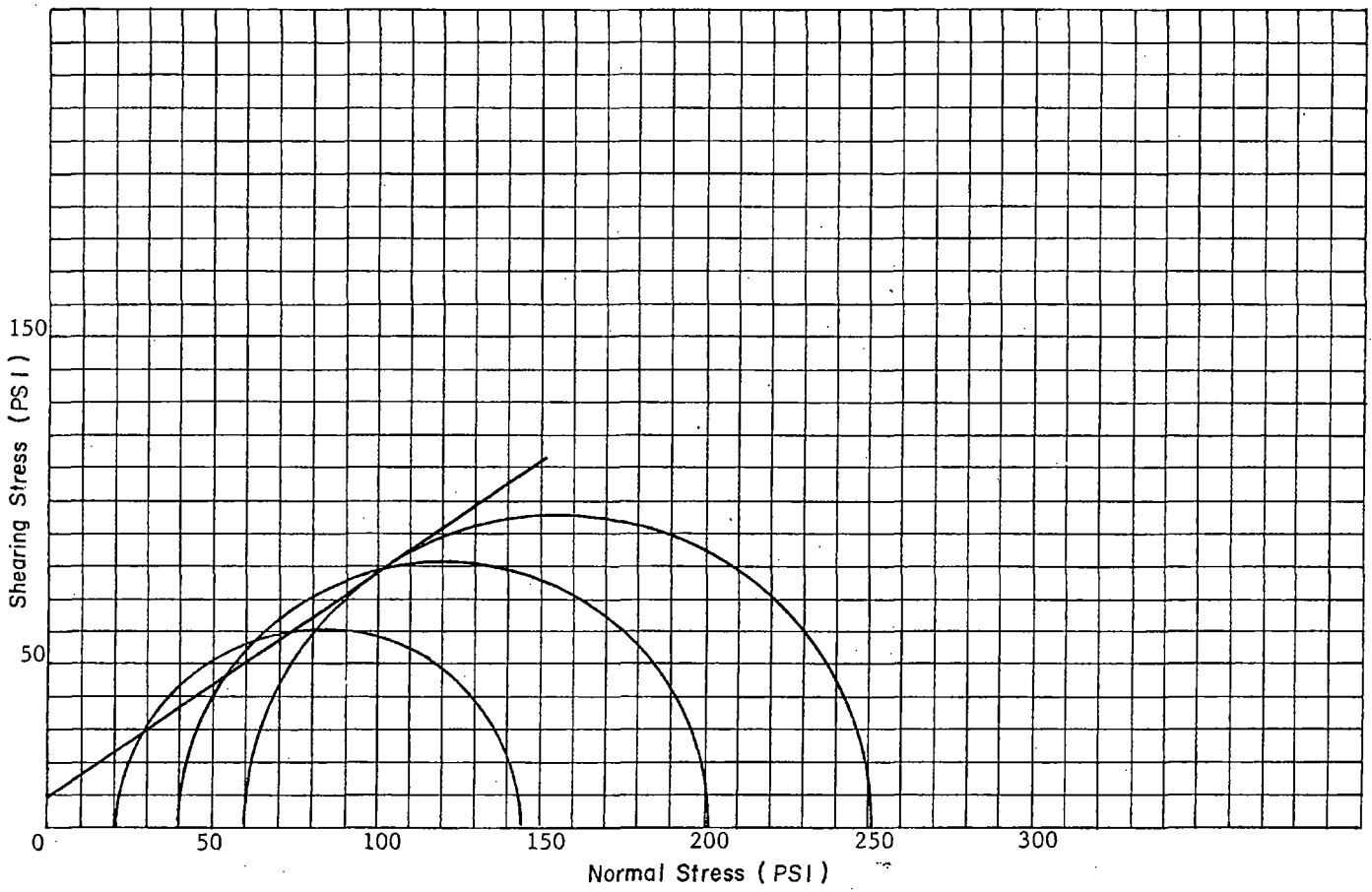
SAND, slightly silty, micaceous, grayish-brown
NATURAL MOISTURE CONTENT= 32.3 %
REMARKS: USC=SP/SM

GEOLOGIC ASSOCIATES, INC.

MWPS007134

MOHR DIAGRAMS — ϕ

CONSOLIDATED–DRAINED TRIAXIAL COMPRESSION TEST (CD)



COHESION (c) 9 PSI

ANGLE OF INTERNAL FRICTION (ϕ) 35°

PROJECT U.S. Pipe Stability Analysis

HOLE 2 SAMPLE WASTE

CONSOLIDATED-DRAINED TRIAXIAL COMPRESSION TEST (CD)

Client Mining Consultants, Inc.

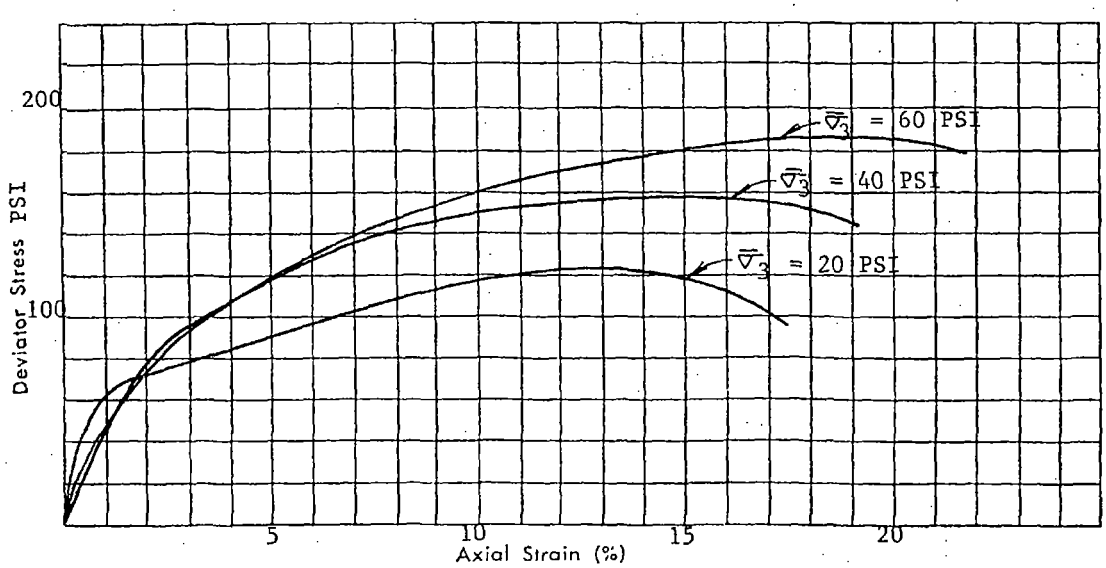
Project U.S. Pipe Landfill

Project No. 83-0417 DATE February, 1984

Sample Description Waste Material

INITIAL SAMPLE PROPERTIES

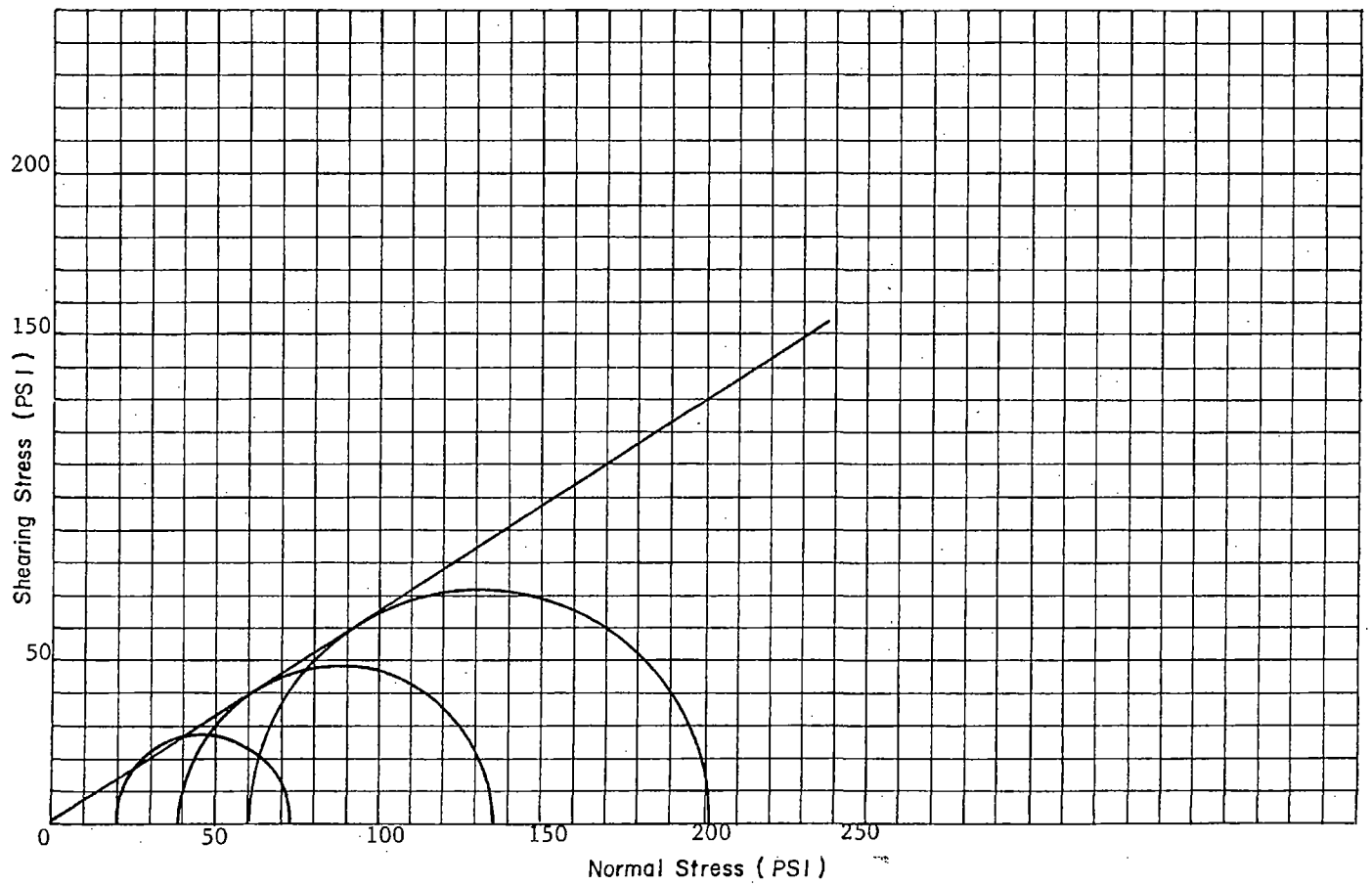
Property	Test 1	Test 2	Test 3
Boring No./Sample No.	2/St-1	2/St-1	Remolded Sample
Depth	18.0'-20.0'	18.0'-20.0'	
Consolidation Pressure PSI	20	40	60
Dry Unit Weight, PCF	97.9	110.3	105.1
Moisture Content, %	18.4	12.7	14.1
Volume, cu. ft.	.0223	.0214	.0199
Void Ratio	0.696	0.505	0.579
Saturation, %	70.4	67.0	64.8
Specific Gravity	2.66	2.66	2.66



STRESS — STRAIN CURVES

MOHR DIAGRAMS — Φ

CONSOLIDATED-DRAINED TRIAXIAL COMPRESSION TEST (CD)



COHESION (c) 0 P.S.I.

ANGLE OF INTERNAL FRICTION (ϕ) 33°

PROJECT U.S. Pipe Stability Analysis

HOLE 1 & 7 SAMPLE Alluvium

CONSOLIDATED-DRAINED TRIAXIAL COMPRESSION TEST (CD)

Client Mining Consultants, Inc.

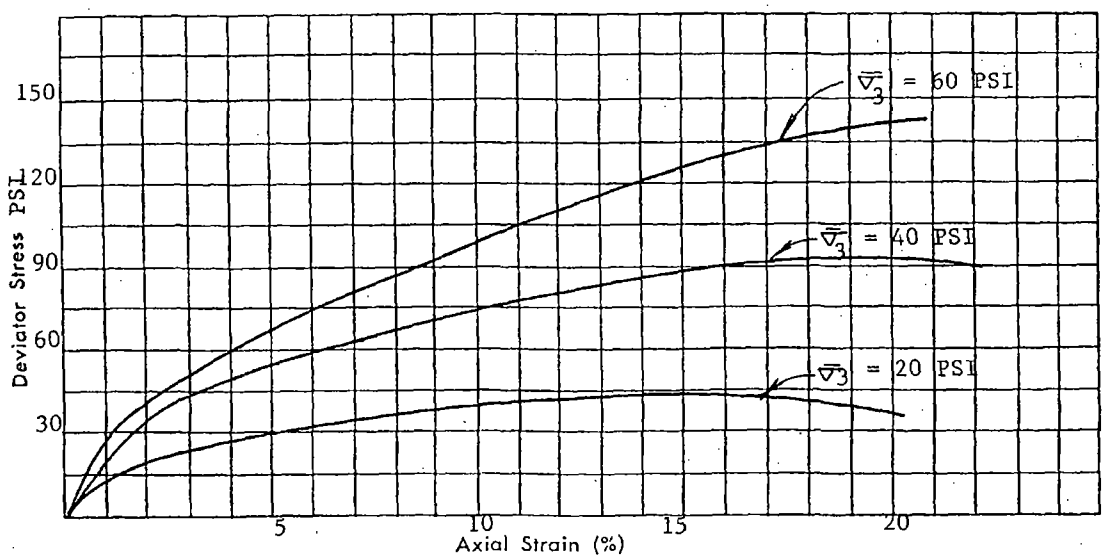
Project U.S. Pipe Landfill

Project No. 83-0417 DATE February, 1984

Sample Description Alluvial Soil

INITIAL SAMPLE PROPERTIES

Property	Test 1	Test 2	Test 3
Boring No./Sample No.	7/St-1	7/St-1	1/St-1
Depth	18.5'-20.5'	18.5'-20.5'	48.5'-50.5'
Consolidation Pressure PSI	20	40	60
Dry Unit Weight, PCF	100.1	84.8	89.4
Moisture Content, %	25.5	37.6	31.1
Volume, cu. ft.	.01998	.0203	.0201
Void Ratio	.696	1.00	.871
Saturation, %	99.7	1.00	95.8
Specific Gravity	2.72	2.72	2.68



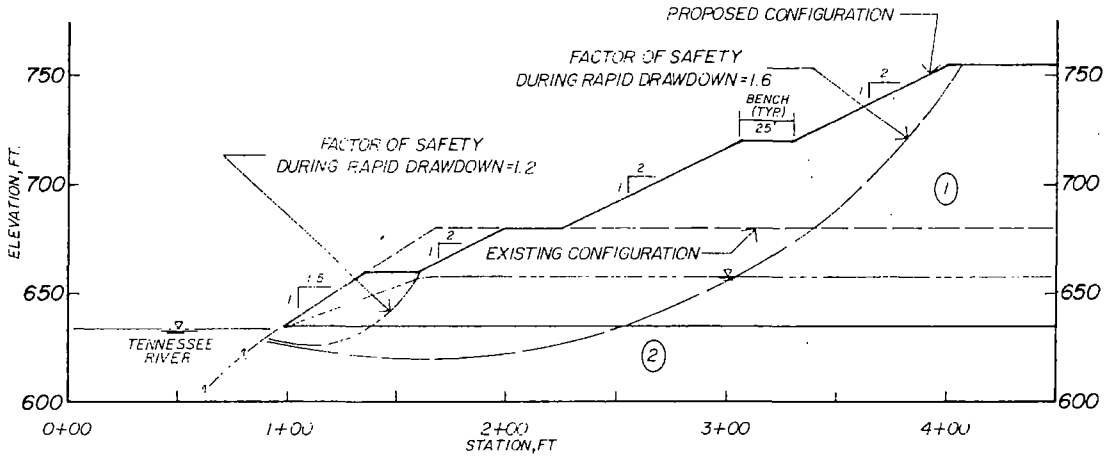
STRESS — STRAIN CURVES

SECTION III

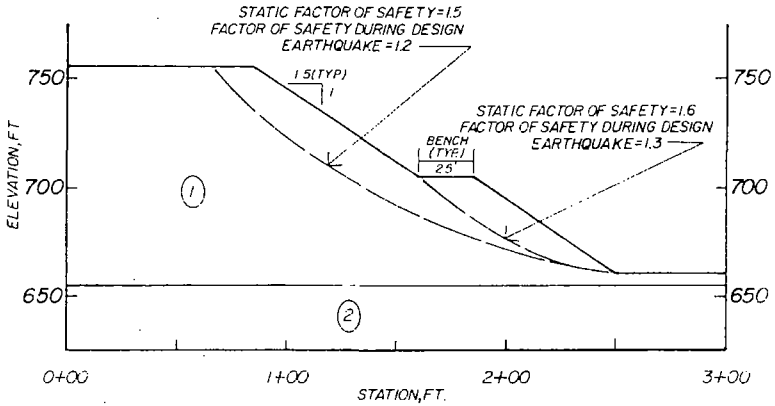
MWPS007140

SOIL/WASTE PARAMETERS

(1)	WASTE FILL	
	MOIST UNIT WEIGHT	120 p.c.f.
	SATURATED UNIT WEIGHT	125 p.c.f.
	EFFECTIVE COHESION	100 p.s.f.
	EFFECTIVE ANGLE OF INTERNAL FRICTION	35°
(2)	ALLUVIAL	
	MOIST UNIT WEIGHT	120 p.c.f.
	SATURATED UNIT WEIGHT	125 p.c.f.
	EFFECTIVE COHESION	0 p.s.f.
	EFFECTIVE ANGLE OF INTERNAL FRICTION	33°



SECTION Y-Y



SECTION X-X

DATE	REVISIONS	BY

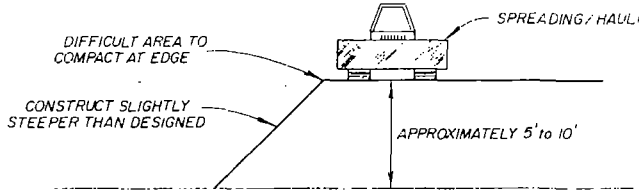
STABILITY ANALYSIS
U.S. PIPE LANDFILL

CHATTANOOGA, TENNESSEE

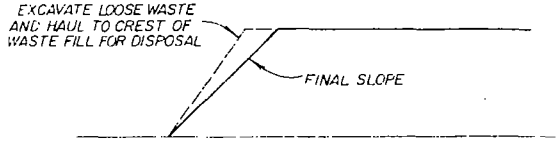
PREPARED FOR:
MCI, CONSULTING ENGINEERS

GEOLOGIC ASSOCIATES, INC.
FRANKLIN, TENN. KNOXVILLE, TENN.

DR D. WATSON	SCALE 1" = 50'	PROJ 82-0417A
CKD T.L.P.	DATE 2-22-84	SHEET 3 OF 4
RVD B.K.T.		

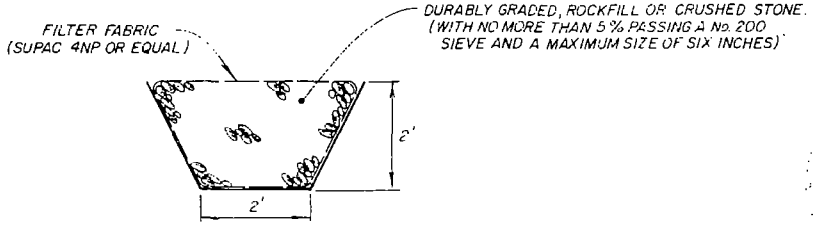


STEP 1



STEP 2

SLOPE PREPARATION DETAIL



DRAIN DETAIL

DATE	REVISIONS	BY

DETAILS
U.S. PIPE LANDFILL

CHATTANOOGA, TENNESSEE

PREPARED FOR:
MCI, CONSULTING ENGINEERS

GEOLOGIC ASSOCIATES, INC.
FRANKLIN, TENN — KNOXVILLE, TENN.

DR D WATSON	SCALE NO SCALE	PROJ. 83-0417K
CKD T.L.P.		
RVD B K T	DATE 2-22-84	SHEET 4 OF 4

MWPS007141

TABLE 1

U.S. PIPE AND FOUNDRY COMPANY
INDUSTRIAL LANDFILL

Drainage Ditch Design

Drainage Ditch	Total Area (Ac.)	Curve[1] Number	Qp[2] (cfs)	Length (ft.)	Top Elev.	Bottom Elev.	Slope (ft/ft)	Side Slope (H:V)	Depth[3] (ft.)	Capacity[4] (cfs)	Velocity (fps)	Material
1	3.01	80	12.0	740	663	660	0.004	2:1	1.9	13.6	1.9	Grass
2	1.26	80	5.0	840	694	663	0.037	3:1	0.8	6.4	3.3	Grass/Enkamat
3	6.78	80	27.0	300	705	664	0.137	2:1	1.3	28.8	8.5	Grass/Enkamat
4	5.23	80	22.0	760	716	704	0.007	2:1	2.1	23.4	2.7	Grass
5	1.12	80	4.5	440	733	704	0.041	3:1	0.7	4.7	3.2	Grass/Enkamat
6	2.83	80	11.5	860	722	716	0.007	3:1	1.4	12.4	2.1	Grass
7	1.04	80	4.0	450	673	664	0.029	3:1	0.7	4.0	2.7	Grass
8	0.35	80	4.0	320	660	659	0.003	2:1	1.3	4.3	1.3	Grass
9	3.77	80	15.5	1400	687	673	0.010	3:1	1.5	17.8	2.6	Grass
10	3.83	80	15.5	130	673	659	0.108	3:1	1.0	19.8	6.6	Grass/Enkamat
11	0.67	80	4.0	400	660	656	0.010	3:1	0.9	4.6	1.9	Grass
12	0.60	80	4.0	400	660	656	0.010	3:1	0.9	4.6	1.9	Grass
13	0.74	80	4.0	430	660	656	0.009	3:1	0.9	4.3	1.8	Grass
14	1.43	80	6.0	120	656	632	0.200	3:1	0.5	6.4	8.5	Rip-rap
15	0.61	80	4.0	380	660	656	0.011	3:1	0.9	4.6	1.9	Grass
16	0.79	80	4.0	60	656	637	0.317	3:1	0.5	7.4	9.9	Rip-rap
17	0.24	80	4.0	160	659	656	0.019	3:1	0.8	4.6	2.4	Grass
18	0.96	80	4.0	60	656	632	0.400	3:1	0.4	5.0	10.4	Rip-rap
19	1.00	80	4.0	240	672	648	0.100	3:1	0.6	4.9	4.5	Grass/Enkamat
20	2.0	80	8.0	310	648	644	0.012	2:1	1.3	8.5	2.5	Grass
21	0.32	80	4.0	150	647	644	0.020	2:1	0.9	4.1	2.6	Grass
22	2.27	80	9.0	730	647	637	0.013	2:1	1.4	10.9	2.8	Grass
23	3.06	80	12.2	100	637	632	0.050	3:1	0.9	15.2	6.3	Rip-rap

NOTES:

(1) Hydrologic Group B, without conservation treatment.
(2) 10 year - 24 hour storm = 5.2 inches.
(3) Add 0.3 feet freeboard
(4) N = 0.045 for grass and N = 0.03 for rip-rap

TABLE 2

U.S. PIPE AND FOUNDRY COMPANY
INDUSTRIAL LANDFILL

Culvert Design

Culvert No.	Required Capacity (cfs)	Ditch No.	Diameter (inches)	Hw (ft)	Material	Length (ft.)
1	43.0	D1, D3, D7	36	4.0	C.M.P.	120
2	31.0	D3, D7	30	3.5	C.M.P.	35
3	26.5	D4, D5	30	3.5	C.M.P.	35
4	19.5	D10	27	3.25	C.M.P.	40
5	15.5	D9	24	3.0	C.M.P.	50
6	4.0	D11, D17	12	2.0	C.M.P.	30
7	6.0	D12, D13	15	2.25	C.M.P.	30
8	12.6	D20, D21	21	2.75	C.M.P.	30
9	11.5	D6	21	2.75	C.M.P.	40

NOTE: Design as per nomograph for headwater depth for corrugated metal pipe culverts with inlet control.

U. S. Pipe
Industrial Landfill
Sediment Pond Calculations

Total drainage area to Sediment Pond = 15.0 acres

Use hydrologic soil Group B - Erosion and Sediment Control Handbook for Urban Areas and Construction Sites in Tennessee by SCS.

"Soils having moderate infiltration rates when thoroughly wetted. These consist chiefly of moderatley deep to deep, moderately well to well drained soils with moderately fine to moderately coarse textures. These soils have a moderate rate of water transmission."

For cultivated - without conservation treatment

$CN = 81$ (assumes no cover, worst case)

$$CN = \frac{1000}{10+s} \qquad Q = \frac{(P - 0.2(s))^2}{P + 0.8\ (s)}$$

$$81 = \frac{1000}{10+s} \qquad Q = \frac{(5.2 - .2\ (2.35))^2}{5.2 + .8\ (2.35)}$$

$$10 + s = \frac{1000}{81} \qquad Q = \frac{22.37}{7.08}$$

$$s = 12.35 - 10 \qquad Q = 3.16 \text{ in.}$$

$$s = 2.35$$

$$\text{Runoff volume} = 3.16 \text{ in.} \times \frac{1 \text{ ft.}}{12 \text{ in.}} \times 15 \text{ ac.} \times 43{,}560 \frac{\text{sf.}}{\text{ac.}}$$

$$= 172{,}062 \text{ cubic feet}$$

Sediment volume at 0.1 ac. - ft. per disturbed ac.

Volume = 0.1 ac - ft/ac x 15 ac.
= 1.5 ac - ft
= 65,340

Total volume required = 172,062 cu. ft.
+ 65,340 cu. ft.
237,402 cu. ft.

Total volume available as designed = 237,560cf

10 yr. Peak stage = El. 659
Depth in spillway = 1 ft.
Spillway Invert El. 658
Depth = 8 ft.
Pond Bottom El. 650 ft.

10 yr. Peak stage = El. 659
Feeboard = 2 ft.
Top of Berm El. 661

Spillway size by
Broad crested weir formula

$Q = CLH^{1.5}$

C = 3.087
H = 1
Q = 62.5 cfs

$62.5 = 3.087\ (L)\ (1)^{1.5}$
L = 20.2 ft.
use 20 ft.

Sediment clean out elevation:
Sediment volume = 65,340 cu. ft.
clean at 60% volume = x .60
39,204 cu. ft.

Bottom area $= \frac{420 \times 95}{2} = 19{,}950$ s.f.

Allowed sediment depth $= \frac{39{,}204}{19{,}950}$

= 1.97 ft.
= 2 ft.

Pond Bottom = El. 650
Sediment Depth = 2 ft.
Clean out at El. 652 ft.

Use for invert elevation of trickle tube