I-1 Closure Plan (40 CFR 122.25(a)(13)

CLOSURE PLAN
for
Hazardous Waste Surface Impoundment
William C. Meredith Company, Inc.
East Point, Georgia

INTRODUCTION

W.C. Meredith Co., Inc., a wood preserving facility using pentachlorophenol and creosote, is located on a 28 acre plot, in East Point, Fulton County, Georgia. The site is bordered by Empire Avenue on the North, Lawrence Street on the East, Southern Wood Piedmont Company on the West and South.

Woodtreating operations began in 1927, prior to which this site was undeveloped woodland owned by the Central of Georgia Railroad.

The woodtreating process consists of a three cylinder operation in which steam is utilized as a pre-treatment preparation of white poles. In this process steam becomes contaminated with pentachlorophenol and creosote residues, and when removed from treating cylinders, is condensed and placed in the surface impoundment. The surface impoundment, containing the steam condensate, has been classified as a hazardous waste storage facility, due to the presence of listed hazardous waste K001 residues.

Since the impoundment will no longer be needed after January 1986, due to plant alterations to close loop the treating waste water system, it is the intention of W.C.

Meredith Co. to close the surface impoundment.

Perspective and Goals of Closure

The basic goal of closure of W.C. Meredith Company's surface impoundment is to treat in situ the existing hazardous waste constituents to such extent that there will be no further danger to human health or to the environment and to request final delisting of remaining detoxified soil.

The purpose of the closure plan is to show how the removal of the hazardous waste will be accomplished using an In Situ Biological Oxidation Detoxification System (ISBODS).

The entire process takes place within the existing boundaries of the surface impoundment so that closure with delisted residue in place is effected. All water and sludges are physically isolated at one end of the surface impoundment by use of a turbidity wall and clay dike. Treating cells are then constructed in the clean area of the surface impoundment. Each treating cell is lined with a 40 mil polythylene liner. The cells initially are then filled with clean make-up water, and the aerator/agitator is set in place. At this time, the ISBODS is in place, and sludge from the surface impoundment is put into the system. The ISBODS consists of a mixing cell, and oxygen transfer cell, and a polishing cell. Sludge is introduced initially into the mixing cell where sludge solubilization takes place. Then mutant bacteria, micronutrients, emulsifer, co-metabolite, and pH adjustment chemicals are added. After one week, the supernatant is pumped into the oxygen transfer cell where the majority of

degradation occurs. Upon reduction to appropriate levels, the batch is then transferred to the polishing cell for final oxidation. Once the process begins, each week supernatant from the oxygen transfer cell is pumped to the polishing cell, the supernatant from the mixing cell is pumped to the oxygen transfer cell and a new batch of sludge is added to the mixing cell from the surface impoundment. Final residues are placed in a clean area of the surface impoundment for final certification for delisting. All water is treated during the course of the project in the ISBODS with final treated water pumped through the plant biological sewer pretreatment system (PBSPS) and released to the local POTW.

The following closure plan will explain in detail the closure steps.

I-1a Closure Performance Standard (40 CFR 264.111)

This closure plan utilizing treatment in situ was designed to ensure that the facility will not require further maintenance and controls, minimizes or eliminates threats to human health and the environment, avoids escape of hazardous waste or hazardous waste decomposition products to the ground or surface waters or to the atmosphere and cleans up existing contaminated ground water. If there is evidence of any spills or leaks, samples will be taken and analyzed to determine the extent of contamination in the soil and if necessary, in ground water. Any contaminated

soil will be excavated and placed in the ISBODS in the closure area. Contaminated ground water will be pumped to the mixing cell for use as make-up water and treated in the ISBODS. Water remaining at the completion of closure will be treated in the PBSPS and discharged to the POTW. The entire site will be regraded subsequent to closure to prevent erosion.

The following sections discuss in detail efforts to be made at W.C. Meredith to satisfy the closure performance standard.

I-1b Partial and Final Closure Activities

Partial closure of the surface impoundment is not planned. Final closure activities on the surface impoundment will start in January 1986. Our procedures for final closure of the surface impoundment, including waste detoxification, ground water detoxification, and clean-up and decontamination activities, are described in Section I-1f(4) of the closure plan. Any modifications to our existing facility equipment, structures, instruments or procedures related to the management of the facility will result in W.C. Meredith updating and revising the closure plan accordingly. At maximum we expect the operation to consist of storage of 5000 cubic yards of K001 and contaminated soil in the surface impoundment during the life of the facility and 586,000 gallons of contaminated ground water contained in plume of the 1st aquifier down gradient from the surface impoundment.

Section I-1c of the closure plan describes the maximum inventory of wastes in storage at any given time during the operating life of the surface impoundment. W.C. Meredith will secure permission to recycle its wastes and to biologically treat the K001 sludge, contaminated soil and recovered contaminated ground water in lined treatment cells of the ISBODS.

I-1c Maximum Waste Inventory

The maximum inventory of wastes in storage at any given time during the operating life of the W.C. Meredith surface impoundment is 5000 cubic yards estimated K001 sludge, contaminated soil and contaminated waste water emulsion from wood preserving using pentachlorophenol and creosote. There is an estimated 586,000 gallons of contaminated ground water in the 1st aquifier. The maximum make-up of the constituents of the K001 in storage would be approximately 500 cubic yards of a pentachlorophenol/diesel oil/water emulsion (PDWE), 2000 cubic yards of creosote bottom sludge and 2500 cubic yards of contaminated soil. The creosote quantity is higher since it separates and settles to the bottom of the impoundment. The pentachlorophenol solution floats to the top of the surface impoundment and is recycled continuously leaving the PDWE on top of the creosote sludge.

I-1d Decontamination of Equipment

Following waste detoxification, all piping to and from the surface impoundment including ground water recovery

piping will be disconnected, dismantled and decontaminated using a 20% solution of hydrogen peroxide. The work will be supervised and performed using qualified W.C. Meredith personnel. Personnel will be equipped with chemical resistant cover-alls, head protection, neoprenecoated gloves and boots resistant to pentachlorophenol and creosote. Full face respirators with pesticide vapor filter cartridges that seal directly to the mask will be used. Same will be employed in the event of any spills resulting from pipe drainage during the disconnection and dismantling process. A 55 gallon steel recovery drum located at the dismantling area will be used for temporary storage when pipes are drained. Since contact of creosote and diesel oil by an open flame will cause combustion, extreme caution will be taken to utilize non-sparking tools and equipment during all clean-up and decontamination activities. Strict supervision will include provision for no open flames, hot surfaces, or smoking to be present in and surrounding the work areas. The pipe lines which transport the waste from the surface impoundment, from ground water recovery wells, the recycling filter and chemical storage tanks will be dismantled. Pumps, used to recover the ground water and pumps used to pump the wastes to the recycling tanks and valves will be disconnected. The pipes, valves, and pumps will be steamed in 20% Hydrogen peroxide solutions to remove and detoxify the residues. All decontamination of

pipes and pumps, hoses and hand tools will be done in the existing steaming tank in the tank field. All contaminated wash waters, generated as a result of the steam-cleaning process, will be pumped into the PBSPS for detoxification prior to discharge to the POTW. Any minor residual sludge will be treated in the ISBODS and then the treating cell liners rinsed with a 20% hydrogen peroxide solution. Soils in the facility that are contaminated by the waste storage will be detoxified in the ISBODS with bacteria that have been developed for degrading hydrocarbons and chlorine. Soil borings taken after removal of visible contaminated soil will be transported to a laboratory with GC/MS and atomic absorption capabilities. If contamination is found in the soil, those areas will be excavated and biologically treated in the ISBODS until an acceptable low toxic contamination level (see detection levels for soil and sediment phase figure 30A1) is determined in the remaining soil by additional soil sample analysis.

Prior to leaving the site undergoing decontamination, decontamination of personnel protective clothing will be conducted by removing all bulk material from the boots and spraying, washing, and scrubbing with detergent solution all outside protective clothing material as well as exposed skin surfaces (i.e.,

K001 PARAMETERS	POTW Detection Limit Water Phase (mg/l)	Detection Limit Soil/ Sediment Phase (ppm dry)
2-chlorophenol		10
phenol	15	10
2,4-dimethylphenol		10
2,4,6-trichlorophenol		20
p-chloro-m-cresol		10
tetrachlorophenol		10
2,4-dinitrophenol		10
pentachlorophenol	15	10
naphthalene		10
acenaphthene		10
phenanthrene + anthracene		20
fluoranthene		20
chrysene + benz(a)anthracene		20
benzo(b)fluoranthene + benzo(k)fluoranthere		20
benzo(a)pyrene		20
indeno(1,2,3-cd)pyrene + dibenzo(a,h)anthracene		20
carbazole		20
oil & grease	100	

FIGURE 30A1

facial area). This decontamination will be done in the concrete diked area in front of the wood treating cylinders. Resulting solution will be detoxified by pumping to the PBSPS and discharged to the POTW.

Sampling and Analysis Methods for Decontaminating Equipment

Equipment - all equipment will be hand scrapped of sludge and steamed in a 20% hydrogen peroxide solution in the steaming tank for 6 hours. Upon completion all equipment containing visible contamination will continue to be steamed until a clean appearance is observed. Clean steamed equipment will be placed in empty 55 gallon drums with clean water and 25 pounds of soda ash and steam agitated for 5 hours. The drum cleaning procedure will be done inside the enclosed concrete diked areas in front of the woodtreating cylinders. The remaining cleaning water left in the drums will be dumped to the dike sump and pumped to the PBSPS and then to the POTW. The drums will be steamed out after completion. The process of steam boiling water in combination with hydrogen peroxide and soda ash cleans equipment contaminated with woodtreating chemicals down to bare metal by removing the contamination into the cleaning water.

Soil - All soil (1) surrounding and under the surface impoundment, (2) surrounding contaminated ground water monitoring wells, and (3) in areas of the corrective action plan surrounding the treating plant

that is visually contaminated will be excavated by backhoe or bulldozer one foot deep and placed into the treating cells of the ISBODS.

After the first foot of soil is removed, soil core samples 3 feet deep will be taken in the excavated areas on a grid at points 50 feet on centers. Soil samples will be tested at each one foot interval for the parameter indicator naphthalene. Once it has been determined at what excavation level that the naphthalene content is within stated detection levels, then Appendix VIII constituents that were statistically higher than the background monitoring well MW1 will be run on the soil at that level. If samples are higher than the detection levels listed on Figure 30A1 for the sediment phase then additional soil will be excavated and placed in the ISBODS for treatment. Resampling and analysis will be done after each excavation. Upon certification by the operator and the independent certified engineer that the soil has been decontaminated in the surface impoundment excavation areas to the stated detection limits for sediment in Figure 30A1, the excavated areas will be filled with dirt, capped with a 2 foot compacted clay cap bottom layer, a 1 foot drainage middle cap layer and a 2 foot top soil vegetation layer and fenced in.

I-1e Schedule for Closure

Within 30 days after acceptance of the closure plan by Georgia EPD, the final closure activities will be initiated. Completion of closure activities will be within 730 days of this occurrence. Following the completion of closure W.C. Meredith Co. will take ground water monitoring samples semi-annually for three years from the containment wells to assure that the ground water has remained clean prior to filing for delisting of low level K001 constituents left in place.

All financial calculations are based on a closure date in the year 1986. The Georgia EPD will be notified by W.C. Meredith 180 days before beginning final closure. The proposed schedule for closure is shown in Figure 30. Final closure will be supervised and certified by a professional engineer, in addition to the owner or operator. The professional engineer will inspect the closure site daily during initial treating cell construction and final sampling and closure and on a monthly basis during treating periods.

I-1e(1) Time Allowed for Closure

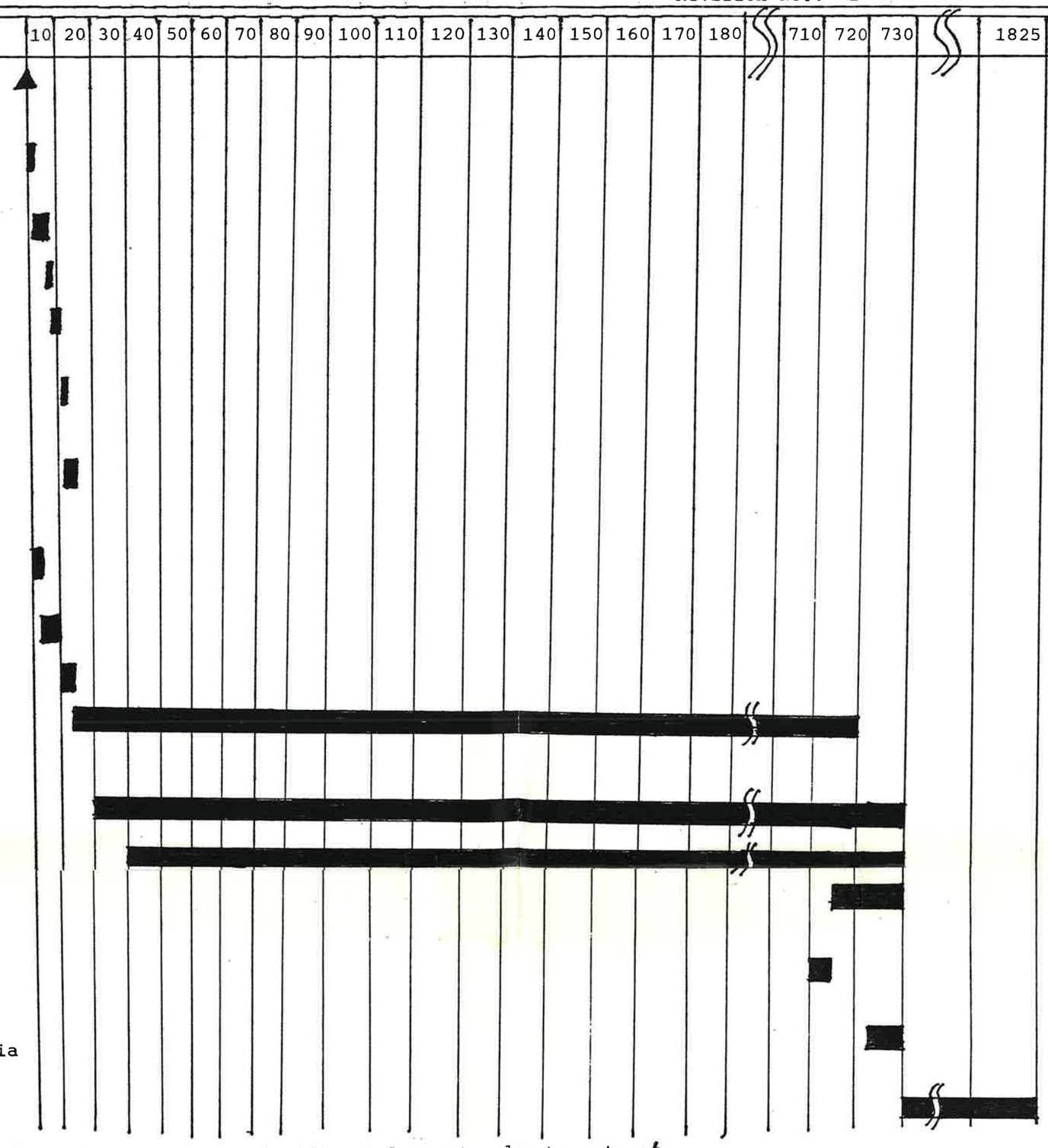
A schedule of closure activities for Meredith Company employees and Hazardous Waste Cleanup Contractor employees and a time line chart of activities is shown in Figure 30. All waste will be treated, detoxified and laboratory data

FIGURE 30. Anticipated Closure Schedule

Date: November 1, 1985
Revision No.: 2

I

Activity*	Days
Receipt of Georgia EPD approval to close surface impoundment	
1. Blank off all lines, pumps drains, blowdowns leading to impoundment	
2. Skim pentachlorophenol from impoundment to use tank	
3. Suck floating emulsion from impoundment to vacuum truck	
4. Filter Press emulsion sludge, reclaim pentachlorophenol to use tank	
5. Remove remaining pentachlorophenol and oil from impoundment with floating weir skimmer pump	
6. Pump waste water to plant biological treatment system (PBSPS) then to sanitary sewer	
7A1. Remove in ground API oil separator and prepare treating cell locations	
7A2. Construction of treating cells	
7A3-5. Installation of liners and aerator/agitators	
7B/C. Addition and treatment of impoundment water, K001 sludge, contaminated soils and contaminated ground water	
7D. Decontaminate facility soil and equipment	
7E. Site sampling and analysis	
8. Backfill, contour, cap and seed impoundment areas	
9. Bore two new containment monitoring wells and sample	
10. Completion of closure certification submwttal to Gerogia EPD.	
11. Sample monitoring wells for 3 years for delinting	



*All times assume no significant lost time due to rain etc.

for soil and residue submitted in the 730 days requested for closure activities. The biological process chosen is a known and proven technique used daily in W.C. Meredith Company PBSPS, in commercial waste treatment plants and POTW's for detoxifying hydrocarbons. The bacteria are cultured for treating chlorine compounds and aeromatic ploynuclear hydrocarbon compounds. Ground water sampling and monitoring will take 3 years after closure. Delisting of residue left in place will be requested after the ground water monitoring is complete so that final clean closure can be accepted.

I-1e(1)(a) Extensions for Closure Time (40 CFR 264.113(a) and 264.113(b))

W.C. Meredith Company will require an initial 550 day extension for closure time. We request that the Director of Georgia EPD grant an initial 550 day extension for treating waste and closure. The extension is necessitated due to the time needed for the biological degradation of the K001 constituents and the financial impossibility of paying for the closure in the shorter period of time. If it becomes necessary during closure activities to further extend the closure period, W.C. Meredith Co. will request a further extension not to exceed 3 years maximum. During the extended period of closure, W.C. Meredith Company will continue to take all steps to prevent threats to human health and the

environment. Ground water monitoring and delisting of residue left in place to accomplish clean closure will require 3 years after closure of the site is complete.

I-1f Inventory Disposal, Removal and Decontamination of Equipment

The waste inventory in the W.C. Meredith Company surface impoundment will be handled with the following methods, equipment, and materials.

1. Surface floating pentachlorophenol/diesel oil solution that has separated by gravity from the PDWE is removed with floating weir skimmer pump and recycled back to wood treating usage tank. No decontamination of the pump and hose is required since it is in continuous plant use for recycling pentachlorophenol from waste water.

2. The PDWE is pulled with the floating boom to one end then sucked up with a vacuum truck and discharged into the plant filter press for recycling. Pentachlorophenol pressed out is returned to the plant wood treating usage tank for reuse. Waste water that separates out is returned to the PBSPS. Emulsion sludge solids scraped from filter press leaves with a hoe and put into open top 55 gallon drums to be transported to ISBODS for detoxification and eventual delisting. No decontamination of the filter press and hoe are necessary since they are in continuous plant use for recycling pentachlorophenol. The 55 gallon drum will be decontaminated by steaming in a 20% hydrogen

peroxide solution to oxidize and detoxify contamination. Used decontamination solution to be treated in the PBSPS.

3. Contaminated surface impoundment waste water, free liquids, including any rain water accumulated during the closure process and the contaminated ground water from the first aquifer needing detoxification will be treated and detoxified through the ISBODS with final treatment in the PBSPS and then discharged to the POTW. Categorical POTW discharge limits on phenol, pentachlorophenol and oil and grease must be met. No decontamination of the PBSPS is required since all toxics are degraded in the process and the equipment is certified as meeting the requirements of tanks in a diked containment area and the equipment remains in continuous plant use for waste water treatment. The decontamination of the treating cell liners will be done by washing in a 20% hydrogen peroxide solution to detoxify any residual left on the liner. The wash solution will be pumped to the PBSPS then to the POTW. The liner will be used to hold the residue wastes for capping in place and eventual delisting.

4. K001 bottom sludge waste will be sucked up from the bottom of the surface impoundment with a vacuum truck and pumped into the ISBODS for biological oxidizing treatment utilizing mutant bacteria in an aerated water media. The aerator will be decontaminated and detoxified by steaming the agitator in a 20% hydrogen peroxide solution.

The waste cleaning solution will be pumped to the PBSPS then discharged to the POTW. Decontamination of the cell liners was discussed in the last section #3. The vacuum truck will be steamed out and rinsed down with a 20% hydrogen peroxide solution to oxidize and detoxify any residues. Steaming water and rinse solution will be pumped to the PBSPS then to the POTW. Solid particulate matter that drops out after the treatment of the sludge (called the sediment phase) will have statistically representative samples taken, analyzed and the data submitted for delisting. The residue solids will be placed in the lined treating cells and capped with clay for further protection.

5. Contaminated soil surrounding and under the surface impoundment area, and contaminated soil in the treating plant areas addressed in the corrective action plan, will be excavated with a backhoe or drag line if necessary and placed into the ISBODS for detoxification biologically with mutant bacteria in the aerated water media. Treating water will be pumped to the PBSPS and then to the POTW at the completion of soil decontamination. Decontamination of liners and aerators was discussed in #3 and #4 above. Dragline and backhoe buckets will be steamed off and rinsed with a 20% hydrogen peroxide solution for detoxification inside the lined treating cells. Steaming and

rinsing solution will be pumped to the PBSPS then to the POTW. Statistically representative soil core samples of the remaining soil left in place in the excavation areas will be taken after excavation of the visually contaminated soil and of the sediment phase in the treating cells during soil and sludge treatment and analyzed for constituents of K001. See Figure 30A1 for detection limits of the soil/sediment phase that will be met for a delisting request. An independent laboratory will analyze the samples of all final soil left in place and the remaining sediment phase samples prior to delisting request. Treated soil residue and sediment phase solids will be placed into the empty treating cell liner and capped with a clay cap for further protection of the environment.

Auxiliary Equipment used for Detoxification, Removal and Decontamination of Equipment

Equipment	Ownership
Agitators/aerators	Contractor
Bulldozer	Contractor
Sludge Pump	Contractor
Protective Clothing	Disposable
Pressure Pump	Contractor
Dragline	Contractor
Backhoe	Contractor
Vacuum Truck	Contractor
Filter Press	W.C. Meredith Co.
Skimmer Pump	W.C. Meredith Co.
Boom	W.C. Meredith Co.
Plant Biological Sewer Pretreatment System (PBSPS)	W.C. Meredith Co.
Ground Water Pump	W.C. Meredith Co.

Materials	Ownership
Mutant Bacteria (Polybac Corp.)	Expendable
Micronutrients (Polybac Corp. or equivalent)	Expendable
Emulsifier (Polybac Corp.)	Expendable
Co-Metacolite (MoTec, Inc.)	Expendable

I-1f(1) Closure of Containers

There are no wastes stored in containers at W.C. Meredith Co. therefore this section is not applicable.

I-1f(2) Closure of Tanks

Hazardous waste is not stored in tanks at W.C. Meredith Co. therefore this section is not applicable. Tanks used to store and pretreat waste water for discharge to the POTW will be certified that they are structurally sound and non leaking by a registered engineer.

I-1f(3) Closure of Waste Pile

Hazardous waste is not stored in waste piles at W.C. Meredith Co., therefore this section is not applicable.

I-1f(4) Closure of Surface Impoundment

The following procedures will be taken to accomplish the closure of the surface impoundment.

CLOSURE PLAN FOR SURFACE IMPOUNDMENT UTILIZING TOXIN REMOVAL BY BIODEGRADATION WITH RESIDUE LEFT IN PLACE

Ownership and location of facility

EPA Facility ID Number: GAD003323805
Owner's or Operator's Name: W.C. Meredith Co., Inc.
Address and Phone Number: P.O. Box 90456
East Point, Georgia 30364
(404) 767-2621
Facility Address: 2335 Lawrence St.
East Point, Ga. 30344
(404) 767-2621

Surface Impoundment Conditions

A) Size - Elliptical approximately 120 feet long, 100 feet wide, 15 feet deep in center (area = .216 acres = 9400 sq. feet) (volume = 2500 cu. yards) (total facility contaminated soil = 2500 cubic yards) (contaminated ground water in first aquifer estimate = 586,000 gallons)

B) Construction - Man made earthen depression. Containment walls and dike are red clay fill. A steel entrainment oil separator is located opposite the processing equipment. A 12 gallon per minute 1 inch pump discharges water from the separator to the PBSPS connected to the city sanitary sewer system (POTW).

C) Contents - The top of the surface impoundment contains a thin film of pentachlorophenol/diesel oil solution (approximately 200 gallons).

The next one foot of the surface impoundment contains a floating pentachlorophenol emulsion sludge (K001) in process water.

The next one foot contains process water from the steaming of wooden pine poles containing low levels of phenols and pentachlorophenol.

The sides and bottom of the impoundment contains an estimated 2000 cubic yards of creosote and sludge (K001).

The contaminated soil around and under the surface impoundment including the area past the downgradient containment wells and the contaminated soil in the corrective action surrounding the treating plant is estimated at 2500 cubic yards.

D) Removal of Inventory

Maximum amount of waste on site: Water, Emulsion & Sludge - 2500 cubic yards
Contaminated Soil - 2500 cubic yards.
Contaminated Ground water - 586,000 gals.

Disposal of all hazardous wastes: All hazardous wastes will be treated through the biological oxidative process utilizing mutant bacteria in specially lined treating cells constructed inside the impoundment (ISBODS).

Procedure for treating and disposing of free liquids on site: The liquid phase of the surface impoundment will be treated in the biological treating cells (ISBODS) in the same process with sludge and sediment decontamination.

E) Closure Procedures

1) Blank off all tank lines, pumps, drains, blow downs and sumps that supply material to the surface impoundment. Completely isolate the surface impoundment from the operating areas by utilizing the concrete tanks to hold operating discharges. Inspect all areas that drain to the surface impoundment to make sure there is no source of discharge to the surface impoundment.

2) Skim all pumpable quantity of pentachlorophenol oil solution from the surface of the impoundment using the floating adjustable weir skimmer pump discharging into the concrete penta tank. When penta has been removed to the emulsion layer stop pumping. Penta oil to be recycled and reused in wood treating.

3) Pull the floating boom toward the shore to concentrate the wood, oil and water emulsion layer against the surface impoundment banking. Use a vacuum tank truck to suck up the emulsion.

4) Drain the pentachlorophenol emulsion from the vacuum truck to the plant filter press feed tank. Pump the emulsion through the filter press to split the pentachlorophenol oil solution and water from the emulsion. Pump the split out oil and water back to the pentachlorophenol recycle process tank for reuse in wood treating. Scrape the sludge cake off the filter leafs with a hoe and shovel into 55 gallon drums with lids to hold for addition to the ISBODS.

5) Continue to run the floating weir oil skimmer pump until all trace of penta-oil is removed from the surface of the impoundment. Place the floating oil boom across the end of the surface impoundment opposite the continuous skimmer and slowly pull it toward the skimmer to assure that all surface oil is removed and concentrated in a small circle surrounding the floating skimmer intake. Leave the oil boom in place until all surface oil has been

removed. Surface will be contaminated water.

6) Continue to pump contaminated water from surface impoundment at 2 gallons/minute to the PBSPS then to the POTW sanitary sewer. Lower the water intake line and monitor the water discharge for color change. Pump water down to creosote sludge storage level. Supervisor to monitor.

7) Procedure for treating and disposing of sludge and Contaminated soil and ground water on site:

All emulsion, sludge, bottom sediment, contaminated soil and contaminated ground water will be treated on site including the area surrounding the contaminated monitoring wells and the corrective action areas. No sediment will be moved elsewhere for disposal, neither on or off-site.

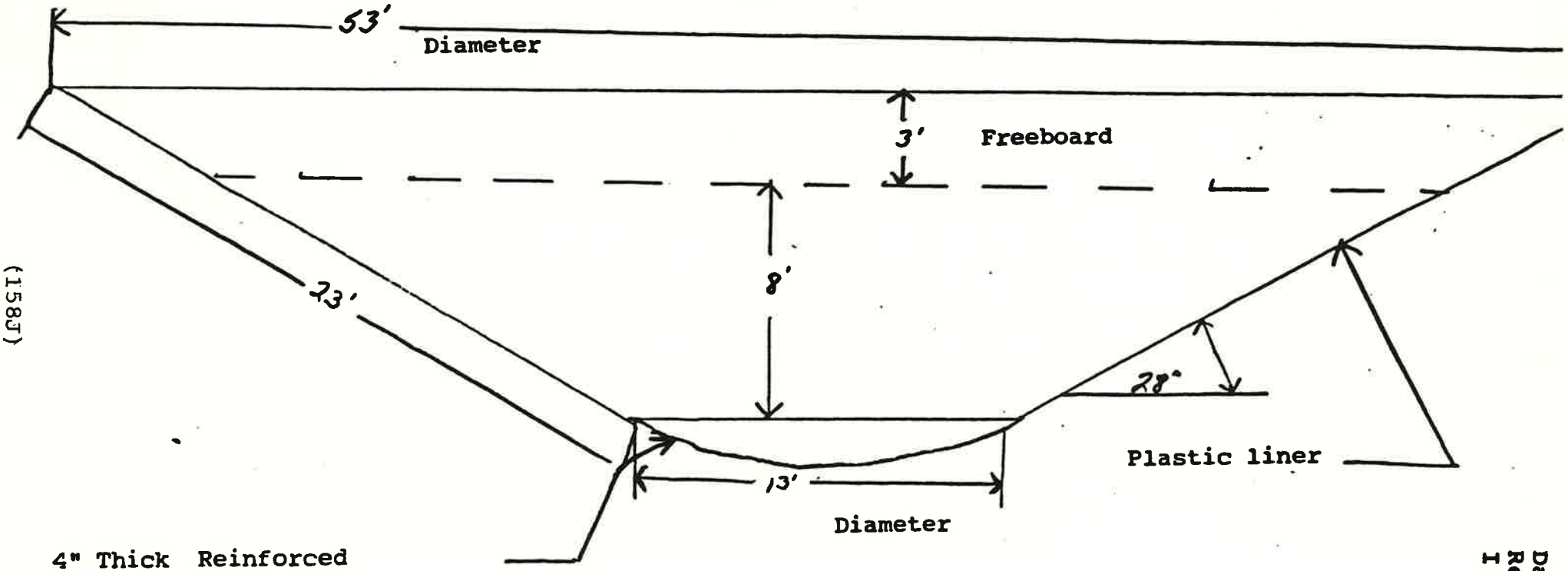
The sludge, sediments, contaminated soil, contaminated ground water, and water (including rainfall accumulated during the closure process) will be treated in the following manner:

A. Construction of Treatment Unit
   1. Removal of sludge and contaminated soil from an area large enough to accommodate areas of 53, 65, and 70 feet in diameter (See Fig. 30C1 - North end of surface impoundment in area downgradient containment monitoring wells.) This is accomplished by using a dragline and small bulldozer. A small dike or turbidity curtain is used to separate the excavated area from the remainder of the impoundment which is used as the sludge storage area.
   2. In the excavated area, the treating cells are built. See figures 30A, 30B, and 30C.
   3. Each cell is lined with a 40 mil polyethylene synthetic liner.
   4. Each liner is inspected for leaks.
   5. Concrete anchor slabs are poured in each cell.
   6. Vapor barriers are installed around treating cells

B. Start up of Treatment Unit
   1. Cells are partially filled with contaminated ground water from the containment monitoring wells.

70'
ISBODS TREATING CELL
PUMP
1½" PVC PIPE
MW5
BERM
57'
API SEPARATOR
ISBODS TREATING CELL
MW6
53'
ISBODS MIXING CELL
BERM
SWALE IMPOUNDMENT
R.R. TRACK
BATH HOUSE
F.F. 59.8
TO POTW
COOLING POOL
W.L. 32.66
SEWER PAD
PBS PS SYSTEM
PBS PS SYSTEM
PRESSURE TANK NO. 3
PRESSURE TANK NO. 1
PRESSURE TANK NO. 2
STEAM LINE
EQUIPMENT PADS
STEAM TANK
R.R. TANK CAR
TANK
TANK
TANK
SAND
SAND
R.R. TRACK
R.R. TRACK
R.R. TRACK
BOILER ROOM
TOPOGRAPHICAL SURVEY FOR
W.C. MEREDITH COMPANY
LAND LOTS 55 & 156
DISTRICT 1C
NEWTON COUNTY, GEORGIA
SCALE 1" = 10'
NOVEMBER 4, 1985
SURVEYED BY
Charles W. Worthy, L.S.
TELE. (404) 233-7028
33 ROANOKE AVE. N.E.
ATLANTA, GEORGIA 30308

FIG. 30C1
PAGE 158-I

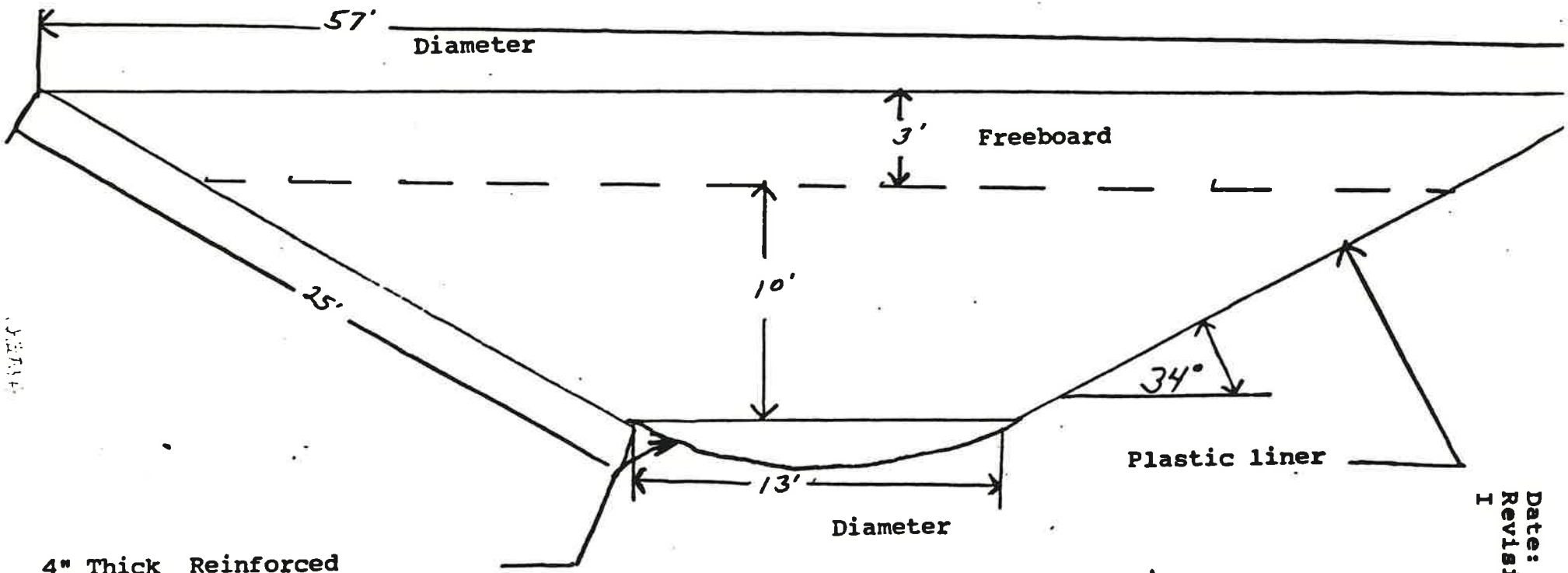


(158J)

MIXING/BIOLOGICAL TREATING UNIT

FIGURE 30A

Date: November 1, 1985
Revision No.: 2

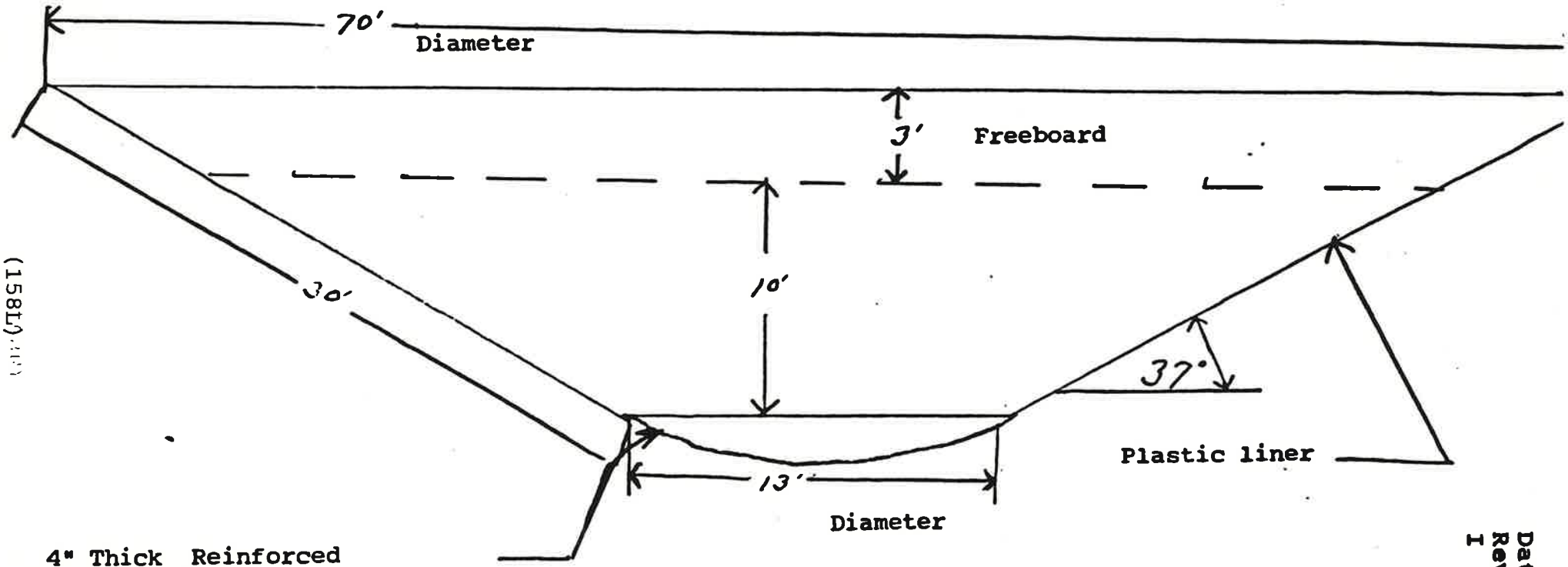


MIXING/BIOLOGICAL TREATING UNIT

Figure 30B

(158K)

Date: November 1, 1985
Revision NO.: 2



MIXING/BIOLOGICAL TREATING UNIT

Figure 30C

(158L)

Date: November 1985
Revision No.: 2

2. Aerator/agitator units are set in place, anchored, and started.

C. Operation of Treating System

1. After initial start-up each cell is allowed to acclimate biomass for three to seven days while treating only surface impoundment liquids.
2. After acclimation, sludge is added to the mixing cell on a weekly basis at a rate predetermined by solids percentage (normally about 10,000 gallons of sludge per week).
3. Each batch of sludge is solubilized for one week in the mixing cell where bacteria, nutrients, emulsifier, co-metabolite, and pH chemicals are added. The supernatant is then pumped to the oxygen transfer cell for approximately a two week treating period. The oxygen transfer cell volume can contain two batches from the mixing cell, allowing for an average two week retention. From the oxygen transfer cell residuals are pumped to the polishing cell for final decontamination to desired levels. Excess water from the oxygen transfer and polishing cells is added back to the mixing cell from time to time for use as make-up water. Additional make-up water is pumped from contaminated ground water wells.

D. Decontaminating the Facility

Area of Facility with Potential Soil Contamination:

Contaminated soil will be found (1) along the sides and bottom of the impoundment, (2) in the corrective action areas adjacent to the treating area and (3) along with being mixed in with the sludge. These soils will be treated in the treatment cells in the same process as the waste sediment. Contaminated soils to be excavated by backhoe or dragline and placed in treating cells.

Contamination of Surface Soil during Closure: After treating of impoundment sludges and soils, an inspection of the surrounding area will be made, and any affected areas will be scraped and placed into the treating scenario.

Decontamination of Equipment: All equipment utilized in the closure operations will be decontaminated on site with all wash water being placed into the ISBODS for treating. All personnel are required to wear protective clothing and, although they should not come into contact with wastes, if clothing becomes contaminated it will be washed and rinse water placed into the treatment system.
Heavy equipment will be washed upon leaving impoundment area with all wash water remaining inside the treating cells.

Volume of Wash Water: The amount of wash water will be insignificant compared to initial impoundment volume and rainwater. All water will be decontaminated in the PBSPS.

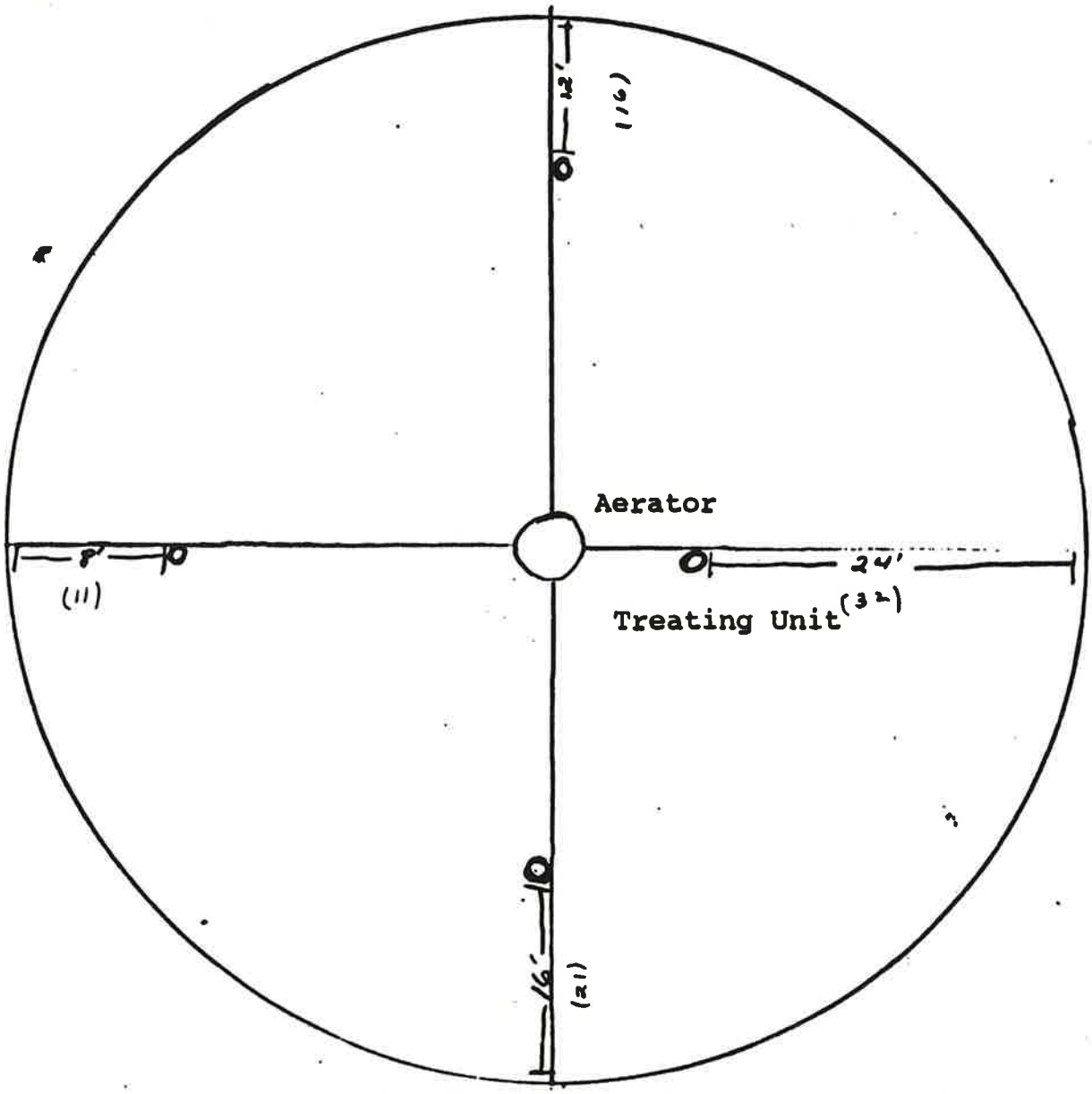
E. Sampling and Analysis

1. Weekly analysis run for operational purposes include:

   --Ammonia Nitrogen
   --Orthophosphate
   --Oil and Grease
   --pH
   --% Solids
   --% Ash
   --One K001 parameter (pentachlorophenol, phenathrene, anthracene usually or naphthalene)
   --Dissolved oxygen

2. All K001 parameters are run on a monthly to six week period to insure progress is occurring as scheduled, and the sludge volumes are being reduced as indicated.

3. Sampling techniques require composite samples being collected from the oxygen transfer and polishing cells. Each cell will have four sampling locations (Figure 30D) where both water (one foot from surface) and sediment (bottom) samples are collected, composited, and analyzed as water (top) and sediment (bottom).



Sampling Locations in Mixing/Biological Treating Unit

Figure 30D

4. All sludges will be systematically decontaminated in this manner. From time to time inert decontaminated residues will be removed from the treating cells and stored in a clean storage area inside the surface impoundment and eventually used as fill when back filling of lined cells commences. Sludges will be decontaminated to sediment concentration levels in Figure 30A1 for effective delisting after closure.

5. Polishing contingencies for delisting status:
   a. Depending on the characteristics of final sediment, final delisting concentrations may require minor chemical oxidation as a final step after polishing. Note, however, that this process is utilized only on the final retention time, thus expediting treating schedules. Existing treating cells are used for this process as mixers, and Cl_2 gas, chlorine dioxide, or hypochlorite will be used as oxidizers if this step is necessary.

   b. If final batch polishing requires excess biological retention time and chemical oxidation is not feasible, removal of final batch residues will ensue with either secure hazardous waste landfilling disposal or incineration off site required..

8) Final Impoundment Closure

Backfilling - After the liners are cleaned, all treated residues will be placed in the largest lined cell area of the impoundment. The remaining two treating cells will be bulldozed in and leveled with the surrounding soil from excavation back to the original land contour. The lined cell containing the treated residues will be filled with soil from the north end of the W.C. Meredith Co. property and then capped. The original surface impoundment area that has had all sludge and contaminated soil removed will be backfilled above existing contours with clean soil from the dike areas and with clean fill soil from the north end of the property and graded with a 2% slope to the sides to let rainwater flow away from the filled area.

Final Clay Cap Cover on Lined Disposal Cell - The 3900 square feet of surface area of the 70 foot diameter lined cell containing the residual treating solids and sediment will require a final cover. The final cap will be comprised of three layers (See Figure 30E)

A) Low Permeability Bottom Layer

1) 2 feet of purchased clay soil recompacted to a saturated conductuvity of not more than 1×10^{-7} cm/sec.
2) Soil emplaced in lifts not exceeding 6 inches before compaction with bulldozer with sheeps foot roller.
3) Center of cap higher than surrounding elevations so that grade from center of lower clay layer is 2% higher than edge at surrounding elevation.

B) Middle Drainage Layer

1) 1 foot of purchased crush run gravel of saturated conductivity not less than 1×10^{-3} cm/sec.
2) Bottom and top slope of 2 percent
3) This layer is 1 foot above surrounding elevations so that surface water above clay cap will run out onto existing surrounding soil and away from closed impoundments.

C) Vegetated Top Cover

1) 2 feet of soil that will support vegetation that minimizes erosion without continued maintenance.
2) Soil will be taken from north end of W.C. Meredith Co. property.
3) Top slope, after settling and subsidence of 3 to 5%.
4) Total area of vegetation 3900 square feet.
5) Fertilizer: 500 lb. per acre of 10-10-10 (.23 acres).
6) Seed: Bermuda 20 lbs. per acre. Roots are not expected to extend below six inches and will not penetrate the cap. Climate is warm and area has no shade, ideal conditions for Bermuda grass.
7) Straw mulch will cover the grass seed.

D) Earth Moving

1) A grading contractor will be hired to move the fill and truck in, compact and lay the cap.
2) Front end loaders, graders, bulldozers, trucks and sheeps foot rollers will be used to construct the final cap.

FINAL CAPPED CLOSURE OF TREATED WASTES LEFT IN SITU

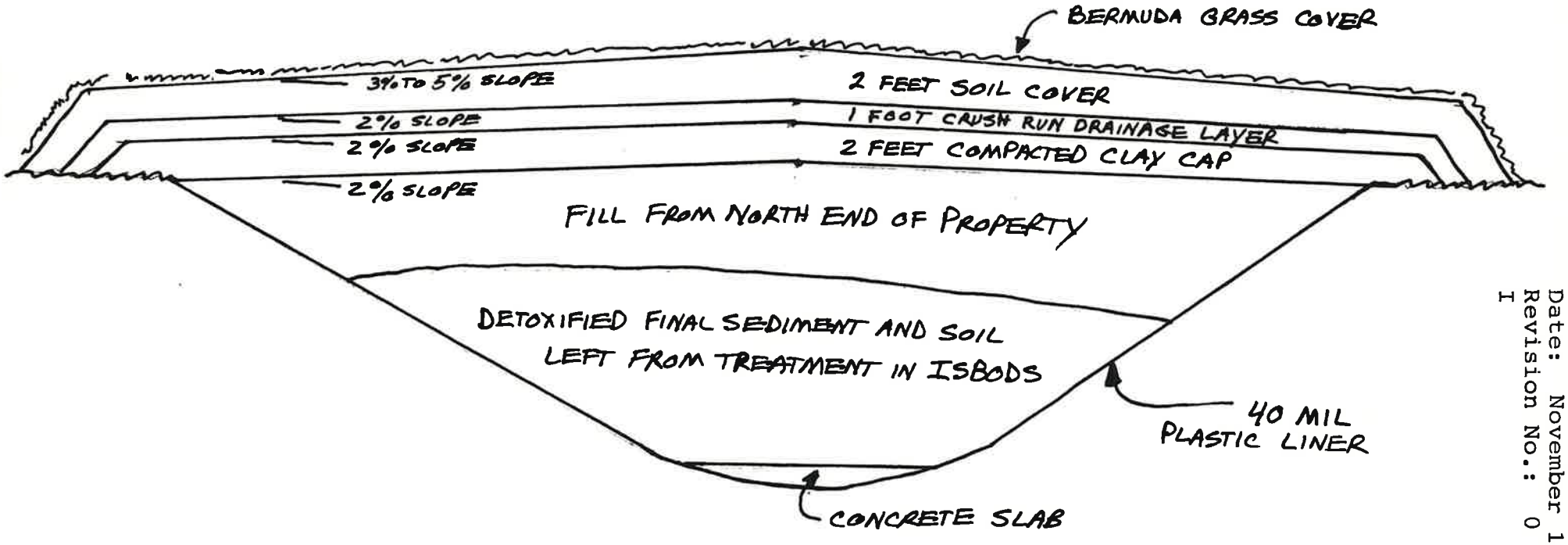


FIGURE 30E

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Future use of Capped Impoundment: Capped impoundment area is fenced off during 3 year ground water monitoring for delisting. If delisting is effected, future use restrictions are not applicable.

Time estimates for Treatment and Closure: Surface impoundment closure should require approximately 24 months. However, more accurate estimates can be made after operations begin, and if a longer time period is needed, the proper request will be made for an extension. Final certification of clean closure with delisting of detoxified K001 waste cannot be completed until after 3 years of ground water testing has been completed after closure to assure that the ground water remains clean.

Labor Force Required for Closure: Treatment cell closure activities are to be contracted. Supervision and certification of closure will be performed by an independent registered professional engineer.

Personnel Safety: All employees of W.C. Meredith Co., Inc. and all contracted personnel, who are responsible for various closure procedures, will be trained in the proper techniques of handling this particular waste. Training in safe handling and operation of equipment will be included as will proper procedures to follow in case of medical emergencies of accidental spills. Should any spill occur during closure operations, all spill materials will be returned to the impoundment.

9) Bore two new containment monitoring wells, sample and analyze.

10) Closure Certification
During closure operations, activities will be monitored by an independent registered professional engineer and the facilities' owners to insure the approved closure plan is being carried out. At the end of closure a certified closure statement will be prepared by the engineer and W.C. Meredith Co. and submitted to the State EPD regulatory agency.

11) After closure take ground water samples from point of containment wells semi-annually for 3 years to confirm that the ground water remains clean. Request delisting of waste residues left in situ at the closed surface impoundment.

Notify state EPD for inspection of closed surface impoundment site and sampling for delisting of detoxified K001 waste.

I-1f(5) Closure of Incinerators

W.C. Meredith Co. does not operate a hazardous waste incinerator, therefore, this section does not apply.

I-1f(6) Closure of Landfills

W.C. Meredith Co. does not operate a hazardous waste landfill therefore, this section does not apply.

I-1f(7) Closure of Other Potential Sources of Hazardous Waste

This section is not applicable, all associated equipment and contaminated soils that are a part of the closure of the surface impoundment are addressed in I1f(4).

I-1g Certification for Closure

During closure operations, activities will be monitored by an independent registered professional engineer and the facilities' owners to insure the approved closure plan is being carried out. At the end of closure a certified closure statement will be prepared by the engineer and W.C. Meredith Company and submitted to the Georgia EPD regulatory agency.

I-2 Post-closure Plans (40 CFR 122.25(a)(13))

Post-closure care will not be needed for this facility because this is not a disposal facility. W.C. Meredith Co. partitions for a waiver of post-closure care to start the process of delisting waste at the end of closure.

I-2 POST-CLOSURE PLAN

The purpose of the Post-Closure Plan is to provide a written plan for monitoring, inspecting, recording, testing and maintaining the hazardous waste landfill facility for 30 years after closure and to detect any changes that may cause a threat to human health and the environment.

I-2a POST-CLOSURE PLAN

1) DESCRIPTION OF GROUNDWATER MONITORING ACTIVITIES AND FREQUENCIES

a) List of hazardous Constituents to be compliance point monitored quarterly

The following list of hazardous constituents from E-7a 3 will analyzed for at the three compliance point wells MW5, MW6 and future MW-11 quarterly for 30 years or until the groundwater protection standard has not been exceeded downgradient for a period of (3) years and corrective action has been terminated.

b) Detailed Plans and an Engineering report describing Groundwater Monitoring System

The plans and details of the groundwater monitoring system to be used during the Post-Closure Care Period are fully described in Section E-5a.

c) Sampling and Analysis Procedures

The sampling and analysis procedures from E-1b and E-7a(6) following will be used throughout the Post Closure Care Period.

d) Sampling Frequency

The sampling frequency used during the Post-Closure Plan Period are described on the following E-7a(6) writeup. Quarterly samples will be taken starting 90 days after the Post-Closure Permit is issued.

I-2. POST-CLOSURE PLAN (continued)

e) Determination of Uppermost Aquifer Flow Rate and Direction

The uppermost aquifer flow rate and direction will be determined annually using methods shown in E-2 starting 1 year after issuance of the Post-Closure Permit.

f) Annual Testing Procedures for Appendix IX Constituents

Appendix IX constituents will be sampled for annually from one downgradient compliance point well per procedures following listed in E-7a(6). The first sampling will be one year after issuance of the Post Closure Permit. Sampling will rotate across the 3 compliance point wells so that each well is sampled every three years.

g) Statistical Significant Increase in Parameters Monitored

After each quarterly monitoring constituents detected in the compliance point wells will be compared statistically to the background values of that constituent per E-7a(6) to determine if there is a statistical increase at the compliance point.

h) Installation of Future Compliance Point Monitoring Wells

The installation of the third compliance point well MW-11 will be made within 90 days after SUBMITTAL of the INSTALLATION PLAN.

If during the corrective action phase of the Post-Closure period it should become necessary to remove either or both compliance wells MW5 and MW6 in order mechanically remove contaminants in the soil and groundwater surrounding them, then W.C. Meredith Company will install 2 new replacement compliance point wells in the same vacinity after cleanup is completed.

E7a (3) LIST OF HAZARDOUS CONSTITUENTS TO BE COMPLIANCE MONITORED

CFR 270.14 (c), (7), (iii) 264.99 (a) (i)

Hazardous Constituents to be Compliance Monitored under 264,97, 264,99 and 264,93	Proposed Concentration Limits for Each Constituents (mg/l)
Total Barium	1.00*
Total Cadmium	.01*
Total Chromium	.05*
Total Lead	.05*
PHENOL	BACKGROUND**
2-Chlorophenol	"
2,4-Dimethyphenol	"
2,4-Dinitrophenol	"
P-Chloro-m-cresol	"
2,4,6-Trichlorophenol	"
Penta Chlorophenol	"
m+p Cresol	"
O-Cresol	"
*** Carbazole	"
2,3,4,6-Tetrachlorophenol	"
Tolyene	"
Naphthalene	"
Acenaphthene	"
Fluoranthene	"
*** Phenanthrene	"
Anthracene	"
Indeno (1,2,3,-cd) Pyrene	"
Benzo (b) Fluoranthene	"
Benzo (a) Anthracene	"
Benzo (a) Pyrene	"
Benzo (k) Flouranthene	"
Dibenzo (a,h) Anthracene	"
Chrysene	"
Copper	"
Nickle	"
Vanadium	"
Zinc	"
CREOSOTE	"

* Concentration limit derived from 264.94 Table I

** To be developed according to procedures Section E-5c and 264.97 (g)

*** EPA SUBSTITUTES FOR CREOSOTE WHICH CANNOT BE ANALYSED FOR DIRECTLY

I-2a 1) c) CONTINUED

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E-1b SAMPLING PROCEDURES FOR EACH MONITORING WELL

1) MEASURE ELEVATION OF GROUND WATER IN EACH WELL BEFORE EVACUATING WELL

Tape a clean wood strip on the end of a clean tape measure so that the wood strip extends beyond the end of the tape. Lower the wood stick end of tape measure into the well until stick hits the water. Mark tape reading to highest casing point and withdraw tape from well. Measure distance from end of tape to wet line on wood strip and add to reading from top of casing. Record this distance from top of well casing to surface of ground water on the Chain of Custody Form next to the well number.

2) EVACUATE A MINIMUM OF 3 VOLUMES OF STANDING WATER FROM EACH WELL - OR IF WELL HAS A LOW YIELD, EVACUATE TO DRYNESS

Using a dedicated baler for monitoring wells MW 1 thru MW 11 plus MW 7a and using compressed air to purge well MW 7B evacuate minimum volumes calculated on the following Table of Standing Water in monitoring wells for each well prior to sampling and record the amount evacuated on the Chain of Custody Form. The balers should be emptied into graduated 5 gallon buckets to measure quantity evacuated.

3) HANDLING OF SAMPLING EQUIPMENT

a) Wear a new pair of disposable gloves for each dedicated sampling bailer used. Dispose of soiled gloves in trash receptacle.

b) Keep balers on clean plastic or towels in back of pickup truck or station wagon during sampling procedures. Do not let balers or rope touch the ground. Use clean empty plastic trash barrel to coil sampling rope in to keep off ground.

c) Keep sample bottles in sampling cooler or on clean towels in vehicle while sampling is performed.

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W.C. MEREDITH CO., INC. EAST POINT, GA. TABLE OF STANDING WATER IN MONITORING WELLS E-12

1 Foot of 2 inch I.D. Well Casing is .022 Cubic Feet= .163 Gallons Per Foot of 2 inch Well Casing

(1 Ft. x π $(\frac{1}{12})^2$= .022 Ft.^{3} x 7.48 Gallon/Ft.^{3}= .163 Gallons) Per Foot

Well No.	Top of Riser to Bottom of Well (ft)	(Subtract)	High Water Level From Top of Riser (ft)	(Equals)	Standing Water in Well (ft)	(Times)	Gallons Per of Well	(Times)	3 Volumes Per Well	(Equals)	3 Volumes of Standing Well Water to be Evacuated Prior to Sampling Well
MW 1	41 Ft.	-	26 Ft.	=	15 Ft.	x	.163 Gal/Ft.	x	3	=	7.4 Gallons
MW 2	36	-	18	=	18	x	.163	x	3	=	8.8 Gallons
MW 3	30.5	-	14	=	16.5	x	.163	x	3	=	8.1 Gallons
MW 4	29.4	-	11	=	18.4	x	.163	x	3	=	9.0 Gallons
MW 5	35.7	-	21	=	14.7	x	.163	x	3	=	7.2 Gallons
MW 6	31.3	-	18	=	13.3	x	.163	x	3	=	6.5 Gallons
MW 7	37.5	-	17	=	20.5	x	.163	x	3	=	10.0 Gallons
MW 7A	56	-	21	=	35	x	.163	x	3	=	17.1 Gallons
MW 7B	123.5	-	22.5	=	101	x	.163	x	3	=	50.0 Gallons
MW 8	37	-	20	=	17	x	.163	x	3	=	8.3 Gallons
MW 9	32	-	20	=	12	x	.163	x	3	=	5.9 Gallons
MW 10	35.6	-	24	=	11.6	x	.163	x	3	=	5.7 Gallons
MW 11											

I-2a 1) c) CONTINUED

4) SAMPLE THE WELL FOR ORGANIC COMPOUNDS IMMEDIATELY AFTER WATER RECHARGE FOLLOWING EVACUATION

As soon as the well has recharged with water after evacuation is complete take the dedicated baler and fill all required sample bottles EXCEPT FOR METALS SAMPLE BOTTLES. Label each bottle with well number and record on the Chain of Custody Form. Lock well cap.

5) PREPARE SHIPPING COOLERS FOR SAMPLE PRESERVATION AND SHIPMENT

Once sampling for organic compounds is completed for all wells, place the sample bottles in the shipping coolers with adequate packing materials and then fill coolers with ice.

6) DISPOSE OF EVACUATED WELL WATER PROPERCY

a) Dispose of groundwater contaminated with oil and creosote from wells MW 5, MW 6 and MW 11 in the treating plant recycle tank.
b) Dispose of groundwater from the remainder of the wells in the sanitary sewer.

7) WELL SETTLING TIME OF 18 TO 23 HOURS PRIOR TO SAMPLING FOR METALS

After each well has settled for 18 to 23 hours after evacuation, carefully lower the dedicated bailer into each well such as to remove the bailer sample without any abrupt movement that would stir up fine settled soil sediment in the well. Label each sample bottle with well number and record on Chain of Custody Form. Lock well cap.

E-1b continued

8) PREPARE SHIPPING COOLERS FOR SAMPLE PRESERVATION AND SHIPPING

Place labeled metal sample bottles in iced cooler, secure coolers tightly shut and ship sample coolers to independent analysis laboratory. Inclose the completed Chain of Custody Form in the sample bottle shipping cases.

9) CLEAN BAILERS AFTER SAMPLING AND STORE IN A CLEAN PLACE

Clean sampling bailers per following procedure in the sampling and analysis plan and store bailers in a clean place in the office.

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I - 2 a 1) c) CONTINUED

SAMPLING AND ANALYSIS PLAN
FOR
GROUNDWATER MONITORING

W.C. Meredith Co., Inc.
East Point, Georgia

May, 1988

I. INTRODUCTION

Section 264.228 of the U.S. EPA Hazardous Waste Rules and Regulations, required the owners and operators of a surface impoundment which contains hazardous waste and is closed as a landfill to monitor their groundwater monitoring wells quarterly during post closure. This regulation includes a requirement for the development of a plan for sample collection, preservation, shipment, analytical procedures, and chain of custody.

The following sections contain the Sampling and Analysis Plan for monitoring the surface impoundment at the East Point Plant of W.C. Meredith Co., Inc. (WCM). This plan is based on procedures defined in:

(1). Section 264 and 265 of the Hazardous Waste Rules and Regulations;

(2). Test Methods for Evaluating Solid Waste (EPA SW 846);

(3). Procedures Manual for Groundwater Monitoring at Solid Waste Disposal Facilities (EPA 530/SW-611);

(4). Methods for Chemical Analysis of Water and Wastes (EPA 600/4-79-020).

The purpose for this plan is to provide for the collection of representative groundwater samples. Any changes in this plan must be submitted to the Georgia EPA for approval.

Emphasis has been placed on procedures that reduce the potential of contaminating the sample by careless sampling and that prevent degradation of the sample due to improper preservation and/or packaging for shipment prior to chemical analysis.

II. GENERAL SAMPLING REQUIREMENTS

Sampling will be performed by W.C. Meredith's (WCM) personnel. Field personnel are required to maintain a field log and document all field events by filling out the monitoring well sampling log sheet (Figure 1).

Sample collection should occur such that wells of minimal or no contamination are sampled before the more heavily contaminated wells.

III. WELL AND PARAMETER SELECTION

The following compliance point groundwater wells will be monitored on a quarterly basis: MW 5, MW 6, and MW 11. Appendix IX will be run on one compliance well annually, rotating wells each year.

W.C. Meredith will collect and analyze the groundwater from these wells quarterly in compliance with the sites' Groundwater Assessment Program.

The analytical parameters to be analysed have been chosen because they are representative of plant operations. These parameters are listed in Table 2. EPA analytical methods and practical quantitation limits to be used for the parameters selected for this plan are presented in this table.

IV. SAMPLING COLLECTION, PRESERVATIVES AND SHIPMENT

A. Sampling Equipment and Supplies:

1) Bailers: Each well has a dedicated PVC bailer.

2) Sample Containers: The container type (glass or plastic), the preservatives (if any), and the number of each type of container to be filled at each well will be on a form included by the laboratory with the sample containers. The types of containers, preservatives and sample holding times to be used are included in Table 2. The containers will be prepared by the laboratory according to EPA 600/4-79-020 and other EPA guide lines.

3) Distilled Water: Distilled water is required for cleaning the sampling equipment before and after each sampling event.

4) GLOVES: Disposable plastic or rubber gloves are to be worn when sampling. The gloves are to be discarded after each use.

5) Cleaning Solvent: Methanol, Hexane, or Acetone.

6) Rope: A new polypropylene or nylon rope will be attached to each dedicated bailer.

7) Measuring Tape: A calibrated measuring tape may be used to determine water levels in the wells prior to sampling.

8) Wood Strips: This strip used for attaching to measuring tape.

9) Five Gallon Pail: To contain the groundwater during purging.

10) Sealing Tape: Used to seal the sample shipper and/or sample containers prior to shipping.

11) Plastic Sheets: Sheets approximately 4 ft. X 4 ft. will be placed on the ground around each well during sampling to prevent surface soils from coming in contact with the sampling equipment. The sheets will be discarded after each sample has been taken, and a different sheet used at the next well.

Equipment must be cleaned prior to use by the procedure below:

a. Scrub with tap water and laboratory grade detergent;

b. Rinse equipment thoroughly with tap water followed by distilled water;

c. Rinse with appropriate solvent (Hexane, Methanol, or Spectra Analyzed Acetone);

d. Rinse three times with distilled water;

e. Wrap and store equipment to prevent contamination before arrival at the site.

B. Groundwater Elevation Determination

Groundwater elevations at each well are necessary before sampling can begin. Depth measurements are used to determine the volume of standing water in the well casing. The volume of standing water in the well in turn is used to determine the amount of water to be purged prior to sampling. Measurement of groundwater elevation is as follows:

1. Preparation for Water Level Measurement:

a) Place a clean plastic sheet on the ground around the well to prevent surface soils from coming into contact with the purging and sampling equipment;

b) Unlock the well and place the cap on the plastic sheet;

c) Rinse the measuring tape with distilled water;

d) Attach a clean wood strip (a new strip for each well) to the back of a measuring tape and lower the tape and strip into the well;

e) As soon as the strip encounters the water, record the measurement on the tape (at the top of the casing). The tape should not come into contact with the water. If the tape becomes contaminated, it should be cleaned or replaced;

f) Wind-up tape and record the "wet-dry point" on the strip;

g) Use the following formula to calculate water level (in inches) from top of casing:

water level (inches) = tape measurement - "wet-dry point" on strip.

h) Record water level to top of casing on custody form (Table 3);

i) Subtract water level from top of casing elevation of the top of the casing in order of elevation of water level;

C. Remove Standing Water from Well Prior to Sampling

Monitoring wells must be purged prior to sampling. The purging process is necessary to avoid collection of nonrepresentative (stagnant or stratified) water and to allow water representative of the aquifer to enter the well.

1) Use the field log book to record the calculations for the volume of water required to be evacuated form the well.

2) Determine the volume of water to be removed from well by the following procedures:

   a. Subtract the depth to water elevation from the total well depth to determine the amount of standing water in the well casing.

   b. Calculate the area of the well (A) (in square feet) using the following equations:

      $A = \pi r^2$
      r = radius of well (expressed in feet).

   c. To obtain the volume of the well, multiply the area of the well by the standing water depth in the well using this equation: V = A x D depth (ft.).

   d. Multiply the volume of water obtained by the constant, 7.48 gallons/cu. ft. to convert the volume from cubic feet to gallons.

   e. To convert from gallons to liters, multiply gallons by 3.8. Purge at least three times the volume of water from the monitoring well.

3) With gloves on, connect an adequate length of clean, new rope to a dedicated bailer. Use the well depth to determine the amount of rope to use.

4) Remove the calculated amount of water from the well by bailing and collecting it in a container of known volume (5 gallon pail).

5) Bail at least three well casing volumes from the well. If the well bails dry, allow the groundwater to re-enter the well and collect sample. If the well is slow to recharge, allow enough time after purging (not to exceed 24 hours) for groundwater to re-enter the casing before sampling. Purge deep well, MW7B, with filtered compressed air.

6) Once the calculated amount of water has been purged, dispose of the water on-site in the wastewater treatment system, unless the purged water is deemed a hazardous material. Oily samples should be placed in the plant process recycle system.

D. Procedures for Obtaining a Representative Groundwater Sample

After purging, in order to obtain a representative groundwater sample the following procedures are to be used:

1) Obtain groundwater samples by slowly lowering bailer into well until it contacts the water surface. Allow bailer to sink slowly, filling with minimal disturbance. Slowly retrieve bailer from the well taking care not to allow the rope or bailer to contact ground. Take organic samples immediately ater purging and take metal samples after 18-23 hours settling time after purging.

2) At each well, fill all bottles designated for that well. Sampling bottles are prepared and labeled in the laboratory, preservatives are added and the number and type of bottles for each well are designated on a form on the back page of the custody sheet (Figure 2). Bottles are prepared according to EPA 600/4-79-020 and other EPA guidelines. Type of bottle and preservatives are included in Table 1. Size of bottles are determined by the laboratory (depending on parameters required). Samples taken for volatile parameters should be filled to the top, with no headspace.

3) As they are filled, check off each bottle on custody sheet (Figure 2) and place samples in ice chests.

4) Fill out all pertinent information on custody sheet and sign and date custody sheet.

5) Transfer iced samples to laboratory in order that samples can be analyzed within required holding times (Table 1). Custody sheet should be signed by each party who has "custody" of the samples.

6) Sample bottles provided by the contract laboratory must be appropriately labelled with the well identification, date, and name of samplers. Fill the labelled bottles in a way as to minimize agitation and aeration, using a funnel if necessary. Fill the bottles in the proper order as follows:

   a. Volatile organics (VOA)
   b. Extractable organics
   c. Total metals

   Do not overfill bottles as some may contain preservatives.

7) Repeat above steps as needed to acquire a sufficient sample volume to fill all containers.

8) Observe the sample as container(s) are being filled and record observations in field log book (i.e., extremely turbid, visual oil, etc).

9) Immediately place sample containers in ice.

10) Remove rope from bailer and discard. ✓

11) Rinse bailer and store as per Section II.

12) Wash any other equipment used, i.e., beaker, funnel, 5 gallon pail, etc., as per Section II.

13) Discard the plastic sheet, gloves, etc., and repeat the same procedure at the next well.

E. Chain of Custody Forms

A Chain of Custody Form is an accurate written record which will trace possession and handling of the sample from the moment of collection through laboratory analysis and final recording of results. An example of Chain of Custody Form is shown on Figure 2. A Chain of Custody Form should accompany the sample bottles at all times.

Each sample should be uniquely identified on the container(s).

Samples should be properly packaged and dispatched as soon as possible to the appropriate laboratory for analysis. Sample containers should be packed in a proper sample shipper (i.e., cooler) along with the Chain of Custody Form. Field personnel should place a seal (such as a strip of tape) around the cap of each individual sample container or around the shippers which will indicate tampering.

When transferring possession of the samples, the transferee should sign and record the date and time on the Chain of Custody Form. Each person who takes custody should fill in the appropriate section of the Chain of Custody Form.

Once the samples have arrived at the analytical laboratory, laboratory personnel should then reconcile the information on the sample label and seal against that on the Chain of Custody Form. Discrepancies between the information on the sample and seal and that on the Chain of Custody Form and the sample analysis request sheet should be resolved before the sample is assigned for analysis. Samples should then be place in a secured sample storage area.

When filling out Chain of Custody Forms, include the following information: sample identification; sample log number (well #); date and time of sample collection; number of bottles per sample; method of shipment; sample type (i.e., groundwater); parameters requested for analysis; and signatures of person(s) involved in the chain of possession, etc.

F. Preparation of Sample for Shipment to Analytical Laboratory

After all samples have been obtained and placed into shipping container, and before the sample is sent to the analytical laboratory, the following steps must be taken:

1. Pack sample containers very carefully to prevent breakage
2. Place ice in shipping container after packing
3. Place shipping label on container to be shipped
4. Seal container with tape
5. Check package for integrity

TABLE 1

Parameter	Container	Preservative	Holding Time
K001, Cresols	1 liter glass	None	7/40 days
Metals	250 ml plastic	Nitric Acid	180 days
Toluene	3-40 ml VOA	Hydrochloric Acid	14 days

TABLE 2

Parameter	SW-846 Method	Practical Quantitation * Limit (ug/l)
K001 **	8040/8100	10 - 30
O-Cresol	8100	10
M+P - Cresol	8100	10
Toluene	8020	1
Barium	6010	10
Cadmium	6010	5
Chromium	6010	10
Lead	7421	10
Nickel	6010	10
Copper	6010	10
Vanadium	6010	10
Zinc	6010	10
Appendix IX	SW846/GA Modified Method	

* Practical quantitation limits may be elevated in samples with elevated levels of test compounds or other organics such as oil.

** See attached example report.

Table 2 Cont'
Example Report

James W. Andrews, Ph.D.
President

Janette M. Davis
Vice-President

SAVANNAH LABORATORIES AND ENVIRONMENTAL SERVICES, INC.

P. O. Box 13548 • Savannah, GA 31416-0548
Whitfield Avenue at Shipyard Road (31406)
(912) 354-7858

LOG NO: 99-9999

Received: 06 NOV 87

Dr. James Andrews
Savannah Laboratories
P.O. Box 13548
Savannah, Georgia 31406

Project: Detection Limits

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	SAMPLED BY
9999-1	Quantitation Limits for Water	Savannah Laboratories

PARAMETER	9999-1
KOO1-Appendix 7 Parameters	
2-Chlorophenol, mg/l	0.01
Phenol, mg/l	0.01
2,4-Dimethylphenol, mg/l	0.01
2,4,6-Trichlorophenol, mg/l	0.01
p-Chloro-m-cresol, mg/l	0.01
Tetrachlorophenol, mg/l	0.02
2,4-Dinitrophenol, mg/l	0.03
Pentachlorophenol, mg/l	0.01
Naphthalene, mg/l	0.01
Acenaphthene, mg/l	0.01
Phenanthrene + Anthracene, mg/l	0.02
Fluoranthene, mg/l	0.02
Chrysene + Benz(a)anthracene, mg/l	0.03
Benzo(b,k)fluoranthene, mg/l	0.03
Benzo(a)pyrene, mg/l	0.02
Indeno(1,2,3-cd)pyrene+Dibenzo(a,h)anthracene, mg/l	0.03
Carbazole, mg/l	0.01

Methods: EPA SW-846

Figure 1

MONITORING WELL SAMPLING LOG

CLIENT/FACILITY: _____

WELL ID: _____ DATE: _____ TIME: _____

WELL LOCKED: ____YES ____NO BAILER PRESENT: ____YES ____NO

* WATER LEVEL: _____(0.01 ft) WELL DEPTH: _____(ft)

WATER EVACUATION: _____ (liters) YIELD: _____(L/H)

FLOATERS: ____YES ____NO ____(ft) SINKERS: ____YES ____NO

** pH: _____(units) CALIBRATED: _____/_____(Date/Time)

** SC: _____(µmhos/cm) CALIBRATED: _____/_____(Date/Time)

TEMP: _____(°C) CALIBRATED: _____/_____(Date/Time)

BOTTLES LABELED: ____YES ____NO

SAMPLING COMPLETED: _____/_____(Date/Time)

BAILER RETURNED & WELL LOCKED: ____YES ____NO

CUSTODY FORM COMPLETED: ____YES ____NO

SAMPLES ICED: ____YES ____NO

COOLERS SEALED: ____YES ____NO SEAL NO: _____

CARRIER: _____ DATE/TIME: _____

COLLECTOR: _____ DATE/TIME: _____
signature

NOTES: _____

_____

_____

_____

_____

_____

_____

* Fisher Electronic WL Meter
** DSPH-3 Meter

Figure 2

CHAIN OF CUSTODY RECORD

SLES inc.

COLOR CODE | WATER/WASTEWATER | SOIL/SLUDGE

COMPANY NAME/LOCATION

SAMPLERS *(Signature)*

SL&ES LOG NO.	DATE	TIME	COMP	GRAB	SAMPLE IDENTIFICATION	NO. OF CONTAINERS	1 liter plastic jug (T)	1 liter glass w/TFE (J)	500 ml plastic-ger(A)	500 ml plastic-met(W)	250 ml plastic (D)	250 ml oval glass(C)	130 ml amber glass(E)	100 ml plastic (F)	40ml vial w/ins. (G)	20 ml plastic vial(I)	1 liter wm glass (L)	1 liter wm plastic(U)	500 ml wm glass (N)	500 ml wm plastic(P)	40ml vial w/ins. (G)	*Container sealed	Analyses Requested

Relinquished by:	Date/Time	Received by:	Date/Time	Relinquished by:	Date/Time
Relinquished by:	Date/Time	Received by:	Date/Time	Relinquished by:	Date/Time

Color Code/Preservative
- Green - sulfuric acid
- Purple - no preservative
- Red - nitric acid
- Tan - zinc acetate
- Yellow - sodium thiosulfate
- Blue - sodium hydroxide
- Lt. Blue - hydrochloric acid

Container seal intact

Field _____

Lab _____

I-2a 1) c) CONTINUED
1) d) CONTINUED

DATE: May 2, 1988
Revision No: 1
E

Continued from E-7a(6)

Sampling and Analysis Procedures CFR 264.99(g)

Sampling and Analysis Procedures will be the same during the Post Closure care period as those described in detail in SECTION E-1b and E-5b of the Permit application.

Quarterly Samples

The Gas Chromatagraph methods in SW 846 approved for use on the listed hazardous constituents in appendix IX will be used for all quarterly samples.

Annual Appendix IX Samples

The Mass Spectrometer Methods in SW 846 approved for use on hazardous constituents in appendix IX will be used for all annual appendix IX samples.

Sampling Frequency CFR 264.99(d)

Samples will be taken quarterly from the three compliance point wells MW 5, MW6 and new well MW-11 to be installed after closure is complete and analyzed for the compliance monitored constituents listed in E-7a(3). Concentration will be expressed at each well in a form necessary for the determination of statistically significant increases under 264.97(h).

I-2 a 1) e) CONTINUED
1) f) CONTINUED

DATE: May 2, 1988
Revision No: 1
E

CONTINUED FROM E-7a(6)

Procedures for Annual Determination of Uppermost Aquifer Flow Rate and Direction CFR 264.99(1)

Horizontal and Vertical flow rates and direction of flow will be determined annually for the uppermost aquifer using methods shown in Section E-2.

If appendix IX constituents are found in the groundwater, W.C. Meredith Company will report the additional constituents to Director of Georgia EPA within seven days after completion of analysis.

Annual Testing Procedures for Appendix IX Constituents CFR 264.99(b)

One compliance point well will be sampled annually for Part 261 Appendix IX constituents to determine whether additional hazardous constituents are present in the uppermost aquifer. Due to the small size of the landfill facility (100 feet x 120 feet), the three compliance point wells (MW5, MW6 and future MW11) will be only approximately 25 feet apart. The justification of analyzing one compliance point well per year (rotating wells sampled each year) is as follows: 1.) The closeness of the three compliance point wells (only 25 feet apart) 2.) The K001 sludge waste was treated to reduce the quantity and toxicity thus leaving only treated solids and contaminated soil in place in the landfill. 3.) The impermeable cap of 60 mil polyethylene will keep any surface water from flowing down through the closed landfill. 4.) The hazardous constituents have not moved in the groundwater significant distances in 61 years. 5.) No hazardous constituents are near the company property

I-2a 1)f) CONTINUED
1)g) CONTINUED

DATE: May 2, 1988
Revision No: 1
E

CONTINUED FROM E-7a(6)

Annual Testing Procdures for Appendix IX Constituents
CFR 264.99(b) Continued

boundaries 6.) There are no groundwater drinking water wells in the City of East Point and 7.) The extreme financial burden of running three Appendix IX tests per year for 30 years for this small company. The company needs all of its financial availability to accomplish results of protecting human health and the environment in the corrective action portion of the Post Closure Period.

If appendix IX constituents are found in the groundwater, W.C. Meredith Company will report the additional constituents to Director of Georgia EPA within seven days after completion of analysis.

Procedures for Determining a Statistically Significant increase for any Monitored Parameters
CFR 264.99(h)

After each quarterly sampling of compliance point wells, the analyses for each constituent well be compared to the concentration limits for that constituent using a direct comparison of values and the CABF Students t-test as described in E-5d and 264.97 (h)(2) when more than 3 analyses have been determined.

I-2 POST-CLOSURE PLAN (continued)

e) Determination of Uppermost Aquifer Flow Rate and Direction

The uppermost aquifer flow rate and direction will be determined annually using methods shown in E-2 starting 1 year after issuance of the Post-Closure Permit.

f) Annual Testing Procedures for Appendix IX Constituents

Appendix IX constituents will be sampled for annually from one downgradient compliance point well per procedures following listed in E-7a(6). The first sampling will be one year after issuance of the Post Closure Permit. Sampling will rotate across the 3 compliance point wells so that each well is sampled every three years.

g) Statistical Significant Increase in Parameters Monitored

After each quarterly monitoring constituents detected in the compliance point wells will be compared statistically to the background values of that constituent per E-7a(6) to determine if there is a statistical increase at the compliance point.

h) Installation of Future Compliance Point Monitoring Wells

The installation of the third compliance point well MW-11 will be made within 120 days after issuance of the Post-Closure Permit.

If during the corrective action phase of the Post-Closure period it should become necessary to remove either or both compliance wells MW5 and MW6 in order mechanically remove contaminants in the soil and groundwater surrounding them, then W.C. Meredith Company will install 2 new replacement compliance point wells in the same vacinity after cleanup is completed.

2) DESCRIPTION OF THE LEACHATE COLLECTION, DETECTION, AND REMOVAL SYSTEMS

The W. C. Meredith Company landfill is being created by closing an existing portion of a 60 year old surface impoundment with treated wastes and contaminated soil left in place. Since this closure is of an existing portion of the landfill, the requirement for leachate collection, detection and removal systems does not apply to this Post Closure Permit.

3) DESCRIPTION OF THE RUN-ON/RUN-OFF CONTROL SYSTEMS

a) RUN-ON CONTROL SYSTEMS

(1) The upgradient (south) side of the land fill cell will be protected by a reinforced concrete retaining wall the full length of the landfill cell when closure is complete. On the upgradient side of the retaining wall will be a concrete floor with concrete sumps to collect any rainwater, surface run on water or water and contaminants from the treating plant processing areas within the upgradient diked areas. The sump will be equipped with a sump pump and automatic float level control switch. The sump pump discharge will be to the treating plant process recycle system then to two 50,000 gallon waste water storage tanks.

I-2a continued

(2) The center ridge of the landfill cap will be 3% to 5% above the surrounding ground elevations. The cap will slope to the edge of the landfill cover where there will be a three foot wide by 6 inch deep interceptor trench full of large crushed stone.

The natural surrounding land contour drops 5 feet in elevation over the 120 foot length of the land fill from the upgradient south end ot the downgradient north end.

Any surface water flowing on adjacent ground from the east, west or north sides toward the landfill cap will be caught in the rock interceptor trench surrounding the land fill and drained through the trench to the outlets on the downgradient (north) side and discharge into the facility surface water runoff culvert leading to the lower elevation drainage creek on the north end of the facility property.

b) RUN-OFF CONTROL SYSTEMS

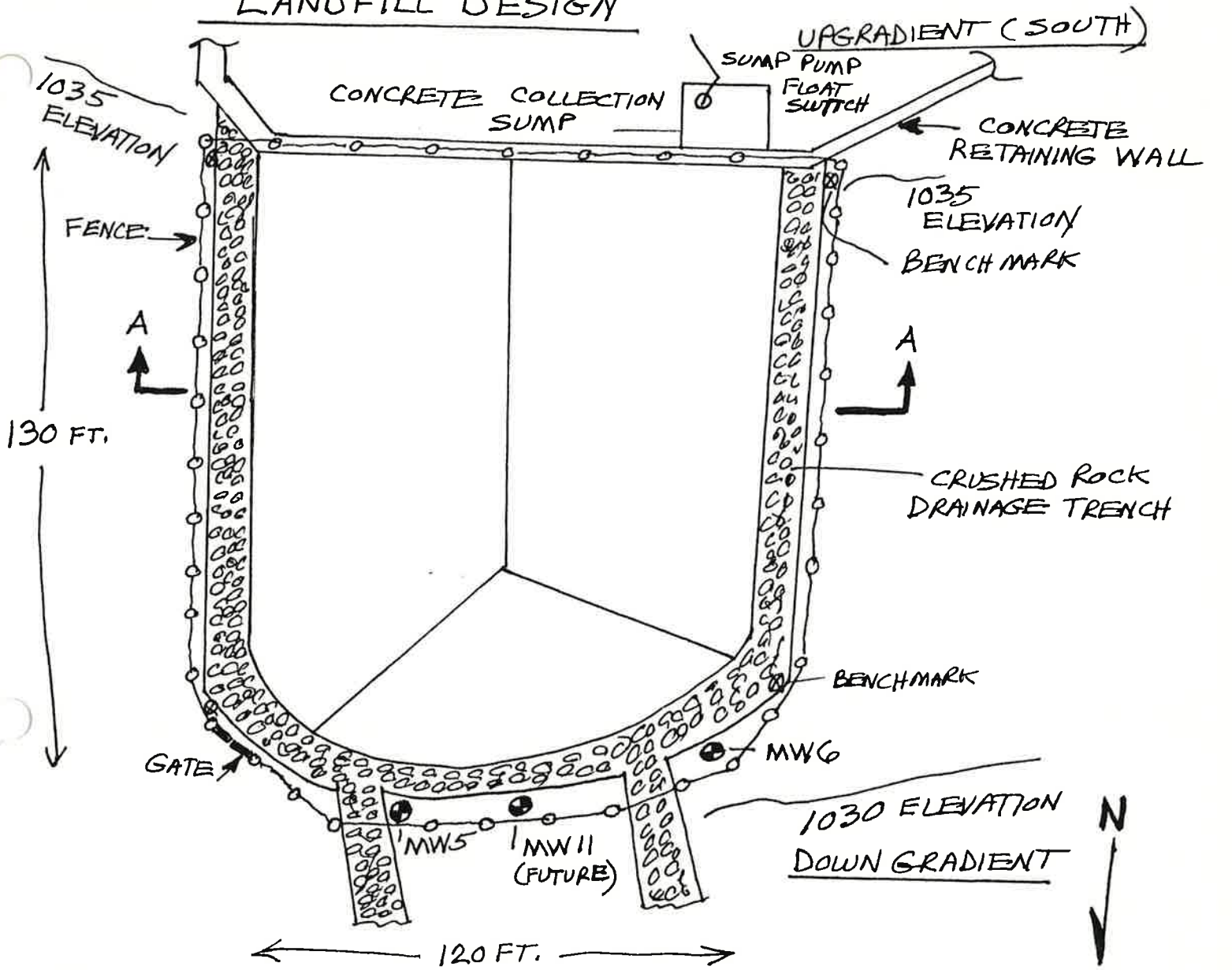
Run-off control is accomplished by landfill cap slope, surrounding rock drainage trench and naturally sloping terrain drainage downgradient.

The land fill cap will start at the upgradient concrete retaining wall on the south side and slope downgradient (north) to a natural elevation 5 feet lower than the upgradient surrounding elevations. The center ridge WILL BE 3% HIGHER THAN EDG of the landfill cap. (See landfill design drawing following) Any rain runoff coming

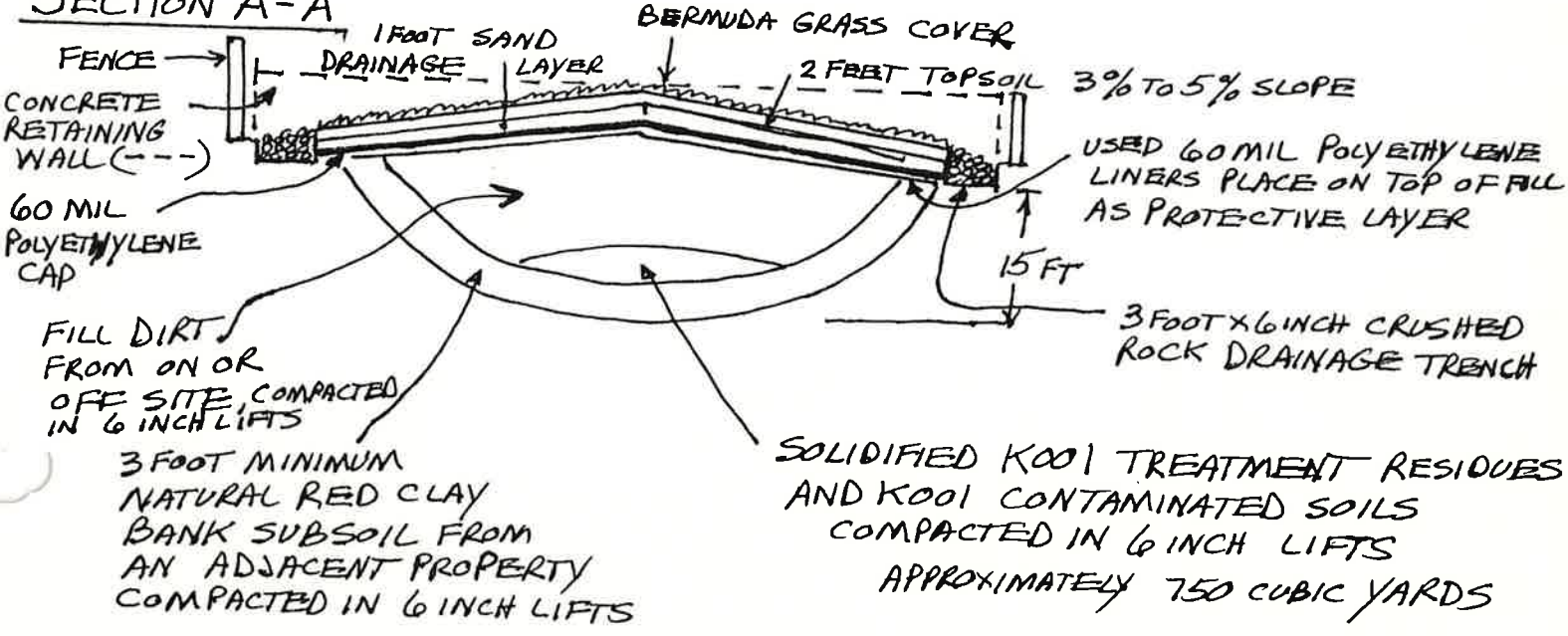
DATE: MAY 2, 1988
REVISION NO: 1
D

D-3b

W.C. MEREDITH CO. INC
LANDFILL DESIGN



SECTION A-A



I-2a continued

off the landfill cap will drain off the sloping cap to the east, west or north sides of the land fill where it will drain into the 3 foot wide crushed stone interceptor trench surrounding the downgradient sides and end of the landfill and discharging to the surface water culvert runoff area directly downgradient of the landfill. The surrounding downgradient drainage area is 30 feet lower in elevation than the north side downgradient end of the land fill and therefore carries away all intercepted run-on and run-off water without creating a backup onto the cap surface. The area where the land fill is and the surrounding drainage areas are not in the 100 year flood plain.

4) DESCRIPTION OF INSPECTION PROGRAM AND MAINTENANCE ACTIVITIES AND FREQUENCIES

Inspection of the total landfill facility will be made quarterly by an independent registered engineer and after each 5 INCH 24 Hour rainstorm which occurs approximately every five years. The two hour inspection, which includes transportation, will document inspection of all areas in the land fill log book for use in the post closure certification. Recommendations for maintenance activities will be given to the facility owner or operator.

I-2a continued

a) FINAL CONTAINMENT STRUCTURES

(1) INSPECTION PROGRAM

(a) Inspect upgradient reinforced concrete retaining wall for settling, cracking, movement or leakage

(b) Inspect concrete sump, sump pump, recycling system and waste water storage tanks for settling, cracking, leaks and proper operation of pump and float switches.

(c) Inspect landfill surface area and surrounding surface areas for settling, sink holes, and drainage systems.

(d) Inspect lock on fence gate and all fence and posts surrounding the facility to make sure all fencing is tight to posts and intack from ground to top of fence line. Be sure fence is continuous around entire landfill facility with no breaks, gaps or pushed down sections.

(2) MAINTENANCE PROGRAM

Maintenance on the final containment structures will be on an "as needed" basis when determined by the independent engineer or operator. Anticipated repairs would be to repair the land fill cap topsoil from settling, erosion damage

or rain damage by adding new top soil to bring the cap up to original designed surface level and reseeding any bare areas. Fence repairs would be replacing old locks, tamping loose posts, re-stapling fence to posts.

b) FACILITY MONITORING EQUIPMENT

Facility monitoring equipment will be inspected quarterly by the personnel doing the quarterly groundwater sampling. Any equipment that is not in proper operating status will be documented in the facility log and reported to the facility owner/operator.

(1) INSPECTION PROGRAM

(a) Inspect all dedicated balers, line, tape measure, funnels for cracks, damage or improper functioning or contamination.

(b) Inspect all ground water monitoring well locks, caps, protective casings and well casings for cracks, breaks, damage, dislodgment, or contamination.

(c) Inspect all sampling bottles, coolers and shippers for damage.

(d) Inspect recovery of each well after baling to make sure each well is responding properly.

I-2a continued

(2) MAINTENANCE PROGRAM

(a) Purchase new tape measures, baler rope, plastic sheets, measuring wood strips, funnels and disposable gloves for each quarterly sampling period.

(b) Replace damaged well locks ar broken caps and weld damaged protective casing if needed.

(c) Replace dirty or damaged sampling bottles or damaged coolers or shippers from the laboratory prior to sampling.

(d) If screens in wells appear to be blocked affecting the recovery of the groundwater well take the air compressor used to evacuate MW-10 and redevelop the affected well to open up the well screens to higher recovery flow.

c) EROSION DAMAGE

(1) INSPECTION PROGRAM

Inspect the entire cap area of the landfill and the surrounding rock drainage trench for any rain water erosion damage to the cap topsoil or grass cover.

(2) MAINTENANCE PROGRAM

Take topsoil from on plant site in a wheelbarrow and fill all areas where the cap topsoil has erroded. Compact by tamping in place. Seed any bare areas by scratching in grass seed with a rake and cover with straw for protection.

If crushed rock has eroded away, replace crushed rock in run-on/run-off drainage trench.

d) VEGETATIVE COVER

(1) INSPECTION PROGRAM

Inspect entire cap area of the landfill for completeness and protectiveness of vegetative grass cover. Document any deficiencies in the health or cover of the grass.

(2) MAINTENANCE PROGRAM

a) Fertilize the grass cover on the cap once per year.
b) Mow the grass cover on the cap to 3 inches high nine times per year (once per month - months of March through November).
c) Reseed bare grass areas by scratching in seed with a rake and cover with straw.

I-2a continued

e) RUN-ON/RUN-OFF CONTROL SYSTEMS

(1) INSPECTION PROGRAM

(a) Inspect the concrete retaining wall, collection sump, pump, piping and tanks for leaks, breaks, settling or contamination transmittal or malfunctions.
(b) Inspect run-on/run-off crushed rock drainage trench surrounding the landfill for malfunction due to run-on sand and situ, damming, or erosion of rock.

(2) MAINTENANCE PROGRAM

Repair any cracks in cement retaining walls with water tight silicone sealant.
Shovel out any run-on silt or sand or soil dams from the crushed rock drainage trench. Put silty soil in wheel barrow and dump in lower area at downgradient end of property.
Replace any crushed rock washed from the drainage trench.

f) LEACHATE COLLECTION, DETECTION, AND REMOVAL SYSTEMS

This section does not apply to the W.C. Meredith Company landfill as the landfill was created by closing an "EXISTING PORTION OF A SURFACE IMPOUNDMENT WITH WASTES LEFT IN PLACE".

I-2a continued

g) GAS VENTING SYSTEM

The landfill at W.C. Meredith Company contains K001 solids waste and there are no gases given off that require a venting system.

h) GROUNDWATER MONITORING SYSTEM

The ground water monitoring system inspection and maintenance activities are described in I-2a 4) b.

i) FUGITIVE DUST CONTROL SYSTEM

The landfill will be capped with a polyethylene sheet and a topsoil and grass top cover which will eliminate the need for a fugitive dust control system, as no dust will be present.

j) CROP PROHIBITIONS

No crops will be planted in the secured landfill area. Only the top grass vegetative cover will grow on the landfill site.

k) pH CONTROL

There will be no need for Post Closure pH control as the solids remaining in the landfill will be stabilized before burial and capped with the impervious polyethylene cap so that no surface water flows through the closed landfill.

I-2a continued

5) IDENTIFICATION AND LOCATION OF PERSON RESPONSIBLE FOR STORAGE AND UPDATING FACILITY COPY OF POST CLOSURE PLAN DURING POST CLOSURE PERIOD

The following person is responsible for storage and updating facility copy of Post Closure Plan during Post Closure Period

PAUL M. CASTLE, VICE PRES./GEN. MGR.
W.C. MEREDITH CO., INC.
2335 LAWRENCE ST. (P.O. BOX 90456)
EAST POINT, GA. 30068

TELEPHONE: 404-767-2621

6) A DEMONSTRATION THAT THERE WILL BE ADEQUATE SECURITY AT THE CLOSED SITE DURING THE POST-CLOSURE PERIOD IF WASTES ARE TO REMAIN AFTER COMPLETION OF CLOSURE OR ACCESS TO THE CLOSED SITE BY THE PUBLIC OR DOMESTIC LIVESTOCK MAY POSE A HAZARD TO HUMAN HEALTH

The closed landfill area will have a continuous fence around the entire capped area. The fence will be five foot high welded steel wire fencing with openings no greater than 2 inches by 4 inches stapled securely to 6 inch diameter treated wooden posts. The fence will have a locked gate for entrance for inspections and maintenance activities. The wire fencing will extend down to contact the ground. Signs will be posted on the fence in all directions stating "No Trespassing-Authorized Persons Only".

The closed fenced in landfill is in the interior portion of an industrial manufacturing property and is not close to public roads or livstock areas. The treating plant adjacent to the landfill has operating employees 3 shifts per day and 24 hour watchman on the weekends.

I-2a continued

7) A WASTE MANAGEMENT PLAN FOR EPA HAZARDOUS WASTE NOS. F020, F021, F022, F023, F026 and F027

The W.C. Meredith Company landfill contains only the residuals of K001 and does not contain F020, F021, F022, F023, F026 and F027 so this section does not apply.

I-2a(1) LANDFILLS

(a) PROCEDURES FOR MAINTENANCE AND REPAIR OF FINAL COVER

Procedures for maintenance and repair of the final vegative cover, the final containment cap and erosion damage is covered under section I-2a 4) (2), I-2a 4) a (2) and I-2a 4) c (2).

The owner operator will hire and direct personnel to make the "as needed" repairs to the final cover following the quarterly inspections and will hire personnel for the annual fertilizing and the monthly grass mowings during the nine growing months.

(b) MONITORING AND MAINTENANCE PROCEDURES FOR LEAK DETECTION SYSTEM

This section does not apply to the W.C. Meredith Company landfill as the landfill was created by closing an "EXISTING PORTION OF A SURFACE IMPOUNDMENT WITH WASTES LEFT IN PLACE.

(c) PROCEDURES FOR LEACHATE COLLECTION/REMOVAL SYSTEM OPERATION

This section does not apply to the W.C. Meredith Company landfill as the landfill was created by closing an "EXISTING PORTION OF A SURFACE IMPOUNDMENT WITH WASTES LEFT IN PLACE."

I-2a (1) continued

(d) PROCEDURES TO MAINTAIN AND MONITOR GROUND-WATER MONITORING SYSTEM

Procedures for maintaining and monitoring the groundwater monitoring system is covered under section I-2a 4) b (1) and I-2a 4) b (2).

The owner/operator will hire personnel to MONITOR THE monitoring system by completing the required inspections during each quarterly groundwater sampling. Maintenance will be contracted for by the owner/operator or as needed basis.

(e) PROCEDURES FOR COMPLIANCE WITH 40 CFR 264 SUBPART F.

40 CFR 264.90 Applicability

The W.C. Meredith Company surface impoundment received hazardous waste after July 26, 1982, thus it is a "regulated unit" and must comply with the requirements of 264.91 through 264.100.

40 CFR 264.91 Required Programs

1) A compliance monitoring program under 264.99 will be instituted whenever hazardous waste constituents are detected at the compliance point wells. Compliance monitoring will be continued until the groundwater protection standard at the compliance point has not been exceeded for three consecutive years, at which time a detection monitoring program under 264.98 will be institued. The compliance monitoring program will be institued upon receipt of the Post Closure Permit.

I-2a (1) continued

2) A corrective action program under 264.100 will be instituted whenever the ground water protection standard under 264.92 is exceeded. The corrective action feasibility plan will be submitted 90 days after issuance of the Post Closure Permit. Implementation of the corrective action plan will be 180 days after issuance of the Post Closure Permit.

3) Whenever hazardous constituents under 264.93 from the regulated unit exceed concentration limits under 264.94 in groundwater between the compliance point under 264.95 and the downgradient property boundary a corrective action plan under 264.100 will be instituted. Concentration Limits are listed in E-5c.

4) Point of Compliance Wells are MW5, MW6 and future well MW-11.

5) Compliance Period is 30 years from issuance of Post Closure Permit.

6) Groundwater Monitoring requirements are fully covered in E-7a(6)

7) The Corrective Action Program will implement procedures that prevents hazardous constituents from exceeding their respective concentration limits at the compliance point by removing the hazardous waste constituents or treating them in place. Corrective Action will include releases from any solid waste management at the facility regardless of the time at which the waste was placed in the unit.

I-2a (1) continued

(f) PROCEDURES FOR PREVENTING FINAL CAP EROSION DUE TO RUN-ON AND FUN-OFF

Procedures for inspecting and maintaining the run-on/run-off control systems were covered in I-2a 4) e.

The owner/operator will hire personnel equipment, and purchase topsoil, grass seed and crushed stone as needed to prevent final cap erosion due to run-on/run-off.

(g) PROCEDURE FOR PROTECTION AND MAINTENANCE OF BENCH MARKS

Permanent concrete benchmarks will be installed inside the landfill secured fence area on all four corners and will by marked with protective stakes so that it will not be hit by lawnmowers. It is not anticipated that any maintenance will be required.

I-2a (2) LANDTREATMENT FACILITIES

This section is not applicable as W.C. Meredith Company did not have any land treatment facilities.

I-3 NOTICES REQUIRED FOR DISPOSAL FACILITES

I-3a NOTICE TO LOCAL LAND AUTHORITY

Within 90 days after certification of closure has been completed, a survey plat indicating the location and dimensions of landfill with respect to permanently surveyed benchmarks and a record of the type, location and quantity of hazardous waste within the unit will be submitted to the appropriate land use authority and to the Director of EPA.

I-3b NOTICE IN DEED TO PROPERTY

W.C. Meredith Company will record a notation on the facitlity deed that notifies any potential purchaser of the property that:

1) The property has been used to manage hazardous wastes.
2) Use of the land is restricted to activities that will not disturb the integrity of the final cover system or monitoring system during post closure care period.
3) Requirements stated under I-3a above have been complied with.

I-4 ANNUAL POST CLOSURE COST ESTIMATE

1) GROUNDWATER MONITORING

MEASURING GROUNDWATER ELEVATION, SAMPLING MONITORING WELLS, TRANSPORTING SAMPLES TO LAB (OUTSIDE LAB TO PROVIDE SERVICE)

4 Sampling/Year X $600/Sampling Trip =$2,400.00

QUARTERLY MONITORING WELL SAMPLING

3 Compliance Point Wells X 3 Times/Year X $600/Well =$5,400.00

2 Compliance Point Wells X 1 Times/Year X $600/Well ($3^{rd}$ Compliance Well Data generated from the annual Appendix IX Sampling Data which includes all of the Quarterly Parameters) =1,200.00

ANNUAL MONITORING WELL SAMPLING

1) Compliance Point Well X 1 Time/Year X $2500.00/Well (Run Appendix IX sampling on the Compliance Point Well which was not sampled for Quarterly Analysis-Rotate sampling so that each year a different Com-Well is sampled) =$2,500.00

ANNUAL COST MEASURING TAPE, ROPE, PLASTIC, WOOD STRIPS DISPOSABLE GLOVES =$ 100.00

T-4 continued

2) INSPECTION OF TOTAL LANDFILL FACILITY AND DOCUMENTATION IN OPERATING LOG BOOK FOR POST CLOSURE CERTIFICATION (BY INDEPENDENT REGISTERED ENGINEER INCLUDINGTRANSPORTATION)

a) ROUTINE QUARTERLY INSPECTION
4 Inspections/Year X 2 Hrs/Inspection X $70.00/Hr = $ 560.00

b) INSPECTION TRIP AFTER 5 INCH 24 HOUR RAIN STORM
1-5" Rain Storm/5Years X 2 Hrs/Inspection / 5 YEARS X $70.00/Hrs =$ 28.00

3) MAINTENANCE OF LANDFILL FACILITY

a) FERTILIZE VEGETATIVE COVER ($\frac{1}{2}$ Acre) - 1 TIME PER YEAR =$ 100.00

b) MOW GRASS ON VEGETATIVE COVER (9 TIMES/YEAR)
1 Hour/Mowing X 1 Mowing/Month X 9 Months X $25.00/Hr =$ 225.00

4) REPAIR OF LANDFILL FACILITY

a) REPAIR CAP TOPSOIL EROSION, SETTLING, RESEED RAIN DAMAGE =$ 250.00

b) REPAIR GROUNDWATER MONITORING WELLS =$ 50.00
(Replace locks or caps as needed)

c) REPAIR RUN-ON/RUNOFF CONTROL CRUSHED ROCK DRAINAGE TRENCH =$ 100.00

d) REPAIR OF SECURITY FENCE AND PROTECTING BENCH MARKS =$ 100.00

$13,013.00

5) ADMINISTRATIVE COSTS

$13,013.00 X 15% =$ 1,952.00

TOTAL ANNUAL POST CLOSURE PLAN ESTIMATE =$14,965.00/Yr.

I-4 continued

6) ADDITIONAL FIRST YEAR ONLY POST CLOSURE COSTS

(1) Sample upgradient well for first 2 quarters to complete 1 years quarterly sampling data for all constituents to develop upgradient background levels

1 upgradient Well X 2 Times/Year X $600 =$ 1,200.00

(2) Install a third compliance point monitoring well MW-11 within 90 days after SUBMITTAL OF INSTALLATION PLAN.

=$ 3,200.00

(3) Survey Plat designating landfill area and incoroation in deed. =$ 250.00

(4) Install upgradient concrete retaining wall and sump =$21,500.00

Total additional first year only Post Closure Costs =$26,150.00

7) TOTAL POST-CLOSURE PLAN CARE COST ESTIMATE

1st YEAR ADDITIONAL 1 TIME COSTS =$26,150.00

1st YEAR THRU 30th YEAR COSTS
$14,965.00 X 30 YEARS =$448,950.00

TOTAL POST-CLOSURE COST =$475,100.00

I-5 FINANCIAL ASSURANCE MECHANISM FOR POST CLOSURE CARE

W.C. Meredith Company will use the previously established closure/Post Closure Trust Fund (copy following) with a modified pay-in period to cover the financial assurance for post closure care.

Due to the small size of the W.C. Meredith Company and the lack of company financial strength it is impossible for the company to comply with any of the established financial assurance mechanisms as stated in 264.145. The Post Closure Trust Fund mechanism of 264.145 a would require an up front payment of $475,100.00 into the Post Closure Trust Fund at the end of closure. Once Closure is completed at an estimated cost of $397,869.17 the W.C. Meredith Company will have no financial instruments available to generate $475,100.00 for depositing in the Post Closure Trust Fund. Therefore use of the Post Closure Trust Fund with a modified pay-in period will allow the W.C. Meredith Company to meet it environmental commitments and still stay in business to continue.

The Post Closure Care Requirements

The modified Post Closure pay in period would be structured as follows:

1) W.C. Meredith Company would pay directly the cost of the current year Post Closure Care Costs.
2) The amount of the current year Post Closure payment in step 1 would be deducted from the current Post Closure Plan Cost Estimate to obtain the remaining balance to be funded for Post Closure Care costs.
3) The remaining balance to be funded for Post Closure Care costs from step 2 would be divided by the number of years left in the Post Closure Care Plan to determine the current years deposit to be made to the Post Closure Trust Fund.

I-5 continued

4) For each suceeding year, steps 1 through 3 above would be repeated as long as the current Post Closure Trust Fund Balance was less than the remaining balance to be funded for Post Closure Care costs.

This modified pay-in approach would have the Post Closure Trust Fund fully funded approximately fifteen years after closure was complete, by paying for the current year and depositing an additional year to the Post Closure Trust each year for approximately the first fifteen years after closure.

All direct company Post Closure Payments in Step 1 and company deposits to the Post Closure Trust Fund would cease at the point that the Post Closure Trust Fund balance was equal to remaining balance to be funded for Post Closure Care costs.

5) Whenever the Trust Fund Balance exceeds the amount required for future post closure, W.C. Meredith Company will request reimbursement from the Post Closure Trust Fund from EPD.

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I-4 ANNUAL POST CLOSURE COST ESTIMATE

1) GROUNDWATER MONITORING

MEASURING GROUNDWATER ELEVATION, SAMPLING MONITORING WELLS, TRANSPORTING SAMPLES TO LAB (OUTSIDE LAB TO PROVIDE SERVICE)

4 Sampling/Year X $600/Sampling Trip =$2,400.00

QUARTERLY MONITORING WELL SAMPLING

3 Compliance Point Wells X 3 Times/Year X $600/Well =$5,400.00

2 Compliance Point Wells X 1 Times/Year X $600/Well ($3^{rd}$ Compliance Well Data generated from the annual Appendix IX Sampling Data which includes all of the Quarterly Parameters) =1,200.00

ANNUAL MONITORING WELL SAMPLING

1) Compliance Point Well X 1 Time/Year X $2500.00/ Well (Run Appendix IX sampling on the Compliance Point Well which was not sampled for Quarterly Analysis-Rotate sampling so that each year a different Com-Well is sampled) =$2,500.00

ANNUAL COST MEASURING TAPE, ROPE, PLASTIC, WOOD STRIPS DISPOSABLE GLOVES =$ 100.00

SECTION 2, SCHEDULE A CONTINUED

DATE: May 2, 1988
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I-4 continued

2) INSPECTION OF TOTAL LANDFILL FACILITY AND DOCUMENTATION IN OPERATING LOG BOOK FOR POST CLOSURE CERTIFICATION (BY INDEPENDENT REGISTERED ENGINEER INCLUDING TRANSPORTATION)

a) ROUTINE QUARTERLY INSPECTION
4 Inspections/Year X 2 Hrs/Inspection X $70.00/Hr = $ 560.00

b) INSPECTION TRIP AFTER 5 INCH 24 HOUR RAIN STORM
1-5" Rain Storm/5Years X 2 Hrs/Inspection / 5 YEARS X $70.00/Hrs =$ 28.00

3) MAINTENANCE OF LANDFILL FACILITY

a) FERTILIZE VEGETATIVE COVER (½ Acre) - 1 TIME PER YEAR =$ 100.00

b) MOW GRASS ON VEGETATIVE COVER (9 TIMES/YEAR)
1 Hour/Mowing X 1 Mowing/Month X 9 Months X $25.00/Hr =$ 225.00

4) REPAIR OF LANDFILL FACILITY

a) REPAIR CAP TOPSOIL EROSION, SETTLING, RESEED RAIN DAMAGE =$ 250.00

b) REPAIR GROUNDWATER MONITORING WELLS =$ 50.00
(Replace locks or caps as needed)

c) REPAIR RUN-ON/RUNOFF CONTROL CRUSHED ROCK DRAINAGE TRENCH =$ 100.00

d) REPAIR OF SECURITY FENCE AND PROTECTING BENCH MARKS =$ 100.00

$13,013.00

5) ADMINISTRATIVE COSTS

$13,013.00 X 15% =$ 1,952.00

TOTAL ANNUAL POST CLOSURE PLAN ESTIMATE =$14,965.00/Yr.

SECTION 2, SCHEDULE A CONTINUED

DATE: May 2, 1988
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I-4 continued

6) ADDITIONAL FIRST YEAR ONLY POST CLOSURE COSTS

(1) Sample upgradient well for first 2 quarters to complete 1 years quarterly sampling data for all constituents to develop upgradient background levels

1 upgradient Well X 2 Times/Year X $600 =$ 1,200.00

(2) Install a third compliance point monitoring well MW-11 within 120 days after permit approved. (Well to be large enough to use as a withdrawal well) =$ 3,200.00

(3) Survey Plat designating landfill area and incoroation in deed. =$ 250.00

(4) Install upgradient concrete retaining wall and sump =$21,500.00

Total additional first year only Post Closure Costs =$26,150.00

7) TOTAL POST-CLOSURE PLAN CARE COST ESTIMATE

1st YEAR ADDITIONAL 1 TIME COSTS =$26,150.00

1st YEAR THRU 30th YEAR COSTS
$14,965.00 X 30 YEARS =$448,950.00

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TOTAL POST-CLOSURE COST =$475,100.00

W.C. MEREDITH CO., INC.

EAST POINT, GEORGIA

CORRECTIVE ACTION PLAN FOR EXISTING SOLID WASTE MANAGEMENT UNITS

A) LAND DRIPPAGE AREAS SURROUNDING WOOD PRESERVATIVE TREATMENT PLANT (See Figure 1 for areas outlined on topographic map)

1. PROCESS TANK FIELD AREA INCLUDING CREOSOTE TRUCK UNLOADING AREA

Total tank field/unloading area is:
overall size 40' x 90' = 3600 sq. ft.
minus concrete pads under tanks -700 sq. ft.
Total area to be excavated for treatment in ISBODS = 2900 sq. ft.

2900 sq. ft. x 1 foot deep = 2900 cu. ft. = 107 cu. yds.

Excavate 107 cubic yards of contaminated process tank field soil and place in ISBODS for treatment and detoxification. Excavation to be completed by July 1986. The cost estimate for excavation and treatment is included in the Closure Plan Estimate.

Upon completion of excavation, pour process tank field areas between tanks with 5" reinforced concrete pad and dike to contain any future drippage, spills or leaks.

2. TREATING ROOM AREA UNDER ROOF

Rear half of treating room floor is dirt contaminated with drippage.

Treating room area is:
20' x 30' = 600 sq. ft.
600 sq. ft. x 1 foot deep = 600 cu. ft. = 22 cu. yds.

Excavate 22 cubic yards of contaminated treating room floor soil and place in ISBODS for treatment and detoxification. Excavation to be completed by March 1986. The cost estimate for excavation and treatment is included in the Closure Plan Estimate.

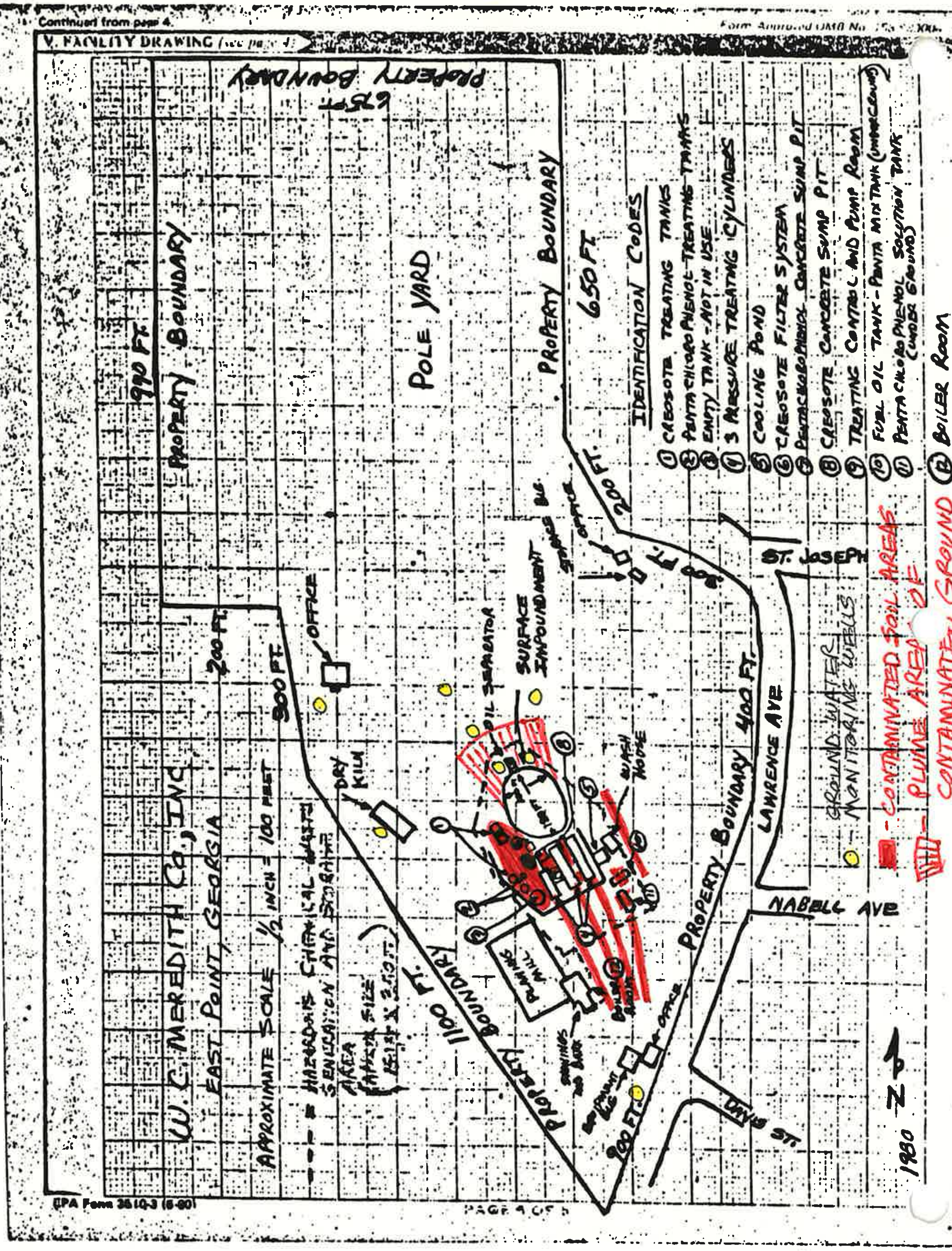
Upon completion of excavation, pour a 5" reinforced concrete floor with drainage sumps to contain any future drippage, spills or leaks.

3. SOIL AREAS BETWEEN THE CONCRETE PAD UNDER #0 TREATING CYLINDER AND THE CONCRETE FOUNDATIONS UNTER #1 CYLINDER

Front area is: 15' x 20' = 300 sq. ft.
Side area is: 10' x 50' = 500 sq. ft.
Total Area = 800 sq. ft.
800 sq. ft. x 1 foot deep = 800 cu.ft. = 30 cu. yds.

Date: November 1, 1985
Appendix I

FIGURE 1. W.C. MEREDITH CO. PROPERTY LAYOUT



Excavate 30 cubic yards of contaminated soil between cylinders #0 and #1 and place on inside of surface impoundment dike for future treatment in the ISBODS. Excavation to be completed in November 1985. The cost estimate for excavation and treatment is included in the Closure Plan Estimate.

Upon completion of excavation, pour a 5" reinforced concrete slab to contain any future drippage, spills or leaks.

4. SOIL AREAS AROUND PENTACHLOROPHENOL AND DIESEL OIL UNLOADING TANK AREAS.

Pentachlorophenol tank area is: 10' x 10' = 100 sq. ft.
Diesel tank area is: 10' x 10' = 100 sq. ft.
Total Area = 200 sq. ft.
200 sq. ft. x 1 foot deep = 200 cu. ft. = 7 cu. yds.

Excavate 7 cubic yards of contaminated soil around the pentachlorophenol and diesel oil unloading tanks and place in the ISBODS for treatment and decontamination. Excavation to be completed in July of 1986. The cost estimate for excavation and treatment is included in the Closure Plan Estimate.

Upon completion of excavation, pour a 5" reinforced concrete slab with 1 foot surrounding dike to contain any future drippage, spills or leaks.

5. RAILROAD TRACK "KICKBACK DRIPPAGE AREA"

Railroad track in front of #0 treating cylinder is:
10' x 190' = 1900 sq. ft.
Railroad track in front of #1 treating cylinder is:
10' x 190' = 1900 sq. ft.
Railroad track in front of #2 treating cylinder is:
5' x 190' = 950 sq. ft.
Railroad track - oil tract area is:
10' x 180' = 1800 sq. ft.
Railroad track - washhouse tract area is:
10' x 100' = 1000 sq. ft.
Total track area = 7550 sq. ft.
7550 sq. ft. x 1 foot deep = 7550 cu. ft. = 280 cu. yds.

Excavate 280 cubic yards of contaminated soil around the railroad track areas where "kickback drippage" occurs and place in the ISBODS for treatment and decontamination. Excavation to be completed in July of 1987. The cost estimate for excavation and treatment is included in the Closure Plan Estimate.

Upon completion of excavation, steel drip pans will be installed between and along the sides of railroad tracks to contain "kickback drippage" from hitting the soil.

TOTAL ALL LAND DRIPPAGE SOIL EXCAVATED AND TREATED IN ISBODS = 446 cubic yards.

B) CONTAMINATED GROUND WATER REMOVAL AND TREATMENT FROM PLUME AREA

The area downgradient of the surface impoundment which defines the horizontal plume is a sector of a ring (a band) that extends 80 feet northward downgradient from the sides of the surface impoundment. The area of the 80 foot long ring of horizontal plume is 11,245 sq. ft. (See Figure 1 for area outlined on topographic map). The 80 foot horizontal definition of the plume was derived from the Appendix VIII analysis of the samples from downgradient wells MW7, MW8 and upgradient well MW1. MW7 at 80 feet from the impoundment defines the edge of polum contamination. (See Figure 2 Monitoring Well results of Appendix VIII Constituents in compliance point well MW5, wells defining plume of contamination MW7, MW8 and upgradient well MW1).

Vertical depth of plume is 25 percent of horizontal plume consistent with area soils. 80 feet horizontal plume x .25 = 20 feet deep.

CALCULATION OF VOLUME OF CONTAMINATED GROUND WATER IN THE PLUME DOWNGRADIENT OF THE W.C. MEREDITH CO. SURFACE IMPOUNDMENT

Horizontal plume area x Vertical plume x Effective porosity = Volume of water in plume

11,245 sq. ft. x 20 ft. x .35 = 78,715 cubic feet of water in plume

7.45 gallons/cubic foot x 78,715 cu. ft. of plume = 586,427 gallons

Estimate of contaminated ground water in the downgradient plume area is 586,000 gallons.

The 586,000 gallons of contaminated ground water in the plume will be pumped out of the ground during the two year surface impoundment closure and treatement procedure. The water will be used as makeup water in the ISBODS closure mixing and treating cells and will be detoxified biologically with mutant bacteria. Ground water removal and decontamination to be completed by December 1987. The cost estimate for pumping and treating contaminated ground water is included in the Closure Plan Estimate.

Upon the completion of the ground water removal and treatment the containment ground water monitoring wells will be sampled and analyzed semi-annually for three years prior to a request for delisting the detoxified treatment residues left in situ.

APPENDIX I

Date: November 1, 1985
Revision No.: 2
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GROUND WATER APPENDIX VIII TESTING - PARAMETERS DETECTED

	4-30-85 Point of Containment Downgradient Well of Highest Concentration	7-16-85 App. VIII Constituents in wells to define plume		7-16-85 App. VIII Constituents in upgradient well
Parameter	MW5	MW7	MW8	MW1
TOLUENE	.05	.03	< 0.01	< 0.01
CHRYSENE	.12	< 0.01	< 0.01	< 0.01
O-CRESOL	20	< 0.01	< 0.01	< 0.01
m+p-CRESOL	21	< 0.01	< 0.01	< 0.01
DIBENZ(a,h)ANTHRACENE	.6	< 0.05	< 0.05	< 0.05
FLUORANTHENE	21	.05	< 0.01	< 0.01
NAPHTHALENE(*)	110	2.8	< 0.01	< 0.01
PHENANTHRENE	67	.38	< 0.01	< 0.01
CARBAZOLE	3.8	.03	< 0.01	< 0.01
PENTACHLOROPHENOL	21	< 0.01	< 0.01	< 0.01
2,4-DIMETHYLPHENOL	.5	< 0.01	< 0.01	< 0.01
PHENOL	21	< 0.01	< 0.01	< 0.01
2,3,4,6-TETRACHLOROPHENOL	3.5	< 0.01	< 0.01	< 0.01
SULFIDES	57	.72	1.9	.98
ALUMINUM	14	1.1	3.1	1.1
BARIUM	.41	.17	.06	< 0.05
CADMIUM	.002	< 0.002	< 0.002	< 0.002
CALCIUM	32	21	6.4	11
CHROMIUM	.03	< 0.01	< 0.01	< 0.01
COPPER	.22	< 0.05	< 0.05	< 0.05
IRON	20	13	2,9	2.1
LEAD	.02	< 0.01	< 0.01	< 0.01
NICKEL	.01	< 0.01	< 0.01	< 0.01
POTASSIUM	16	3.5	2.1	1.2
SODIUM	100	14	6.2	2.1
VANADIUM	.27	< 0.05	< 0.05	< 0.05
ZINC	.65	< 0.05	< 0.05	< 0.05

(*) = Indicator Parameter

FIGURE 2