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RECYCLIGHTS®

"Environmental Protection through Mercury Reclamation"

June 21, 1999

Mr. Bill Kellenberger, P.E.
Hazardous Waste Section Supervisor
Northwest District
160 Governmental Center
Pensacola, FL 32501-5794

Dear Bill,

I have enclosed an amended Closure Plan for your file. Several months ago, our Tallahassee facility was approved by a large, new customer that is a utility. They generate many high intensity discharge (HID) lamps; we are not sure how many they intend to send us. Consequently, we think it is prudent to increase the quantity of HID lamps that we would have in storage at the facility. I have increased the maximum inventory from 5,000 to 20,000 HIDs.

To be specific, I changed the Hid quantity values in Tables 1 and 2 from 1,000 and 4,000 to 5,000 and 15,000 units, respectively. I also changed the quantity number in footnote #2 on page two from 90 to 110; I missed this change in my last revision dated 4-23-99.

I also increased the grand total dollar amount in Table 3 on page 8 to reflect the increased maximum inventory of HIDs. The revised grand total is now $100,182 instead of $87,582. I will send you revised financial assurance information as soon as I receive it from our corporate office.

If you have any questions, call me at 800-831-2852. Thank you.

Sincerely,

Brian R. Golob, CHMM
Environmental Manager

Enclosure (1)

RECEIVED
RCRA
JUL 22 1999
Hazardous Waste Regulation

BRG/jah
cc: Randy Peterson, Superior Special Services, Inc.
Jeff Kirk, RECYCLIGHTS, Inc.

CLOSURE PLAN

FOR

RECYCLIGHTS, Inc.'s
Mercury Reclamation, Recovery and Storage Facility
4972 Woodville Highway
Building No. 2
Tallahassee, FL 32311

Prepared: October 1994
Revised: June 21, 1999

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LIST OF EXHIBITS

1. INTRODUCTION

RECYCLIGHTS, Inc. operates a mercury reclamation/recovery/storage facility for mercury-containing lamps and devices at 4972 Woodville Highway (Building No. 2) in Tallahassee, Florida. The building consists of the following: an office, a conference room, a break room, locker rooms; a lavatory; a receiving and staging area; a storage area; a distiller room and a crusher-separator room. This closure plan was written to comply with 40 CFR Part 264.112.

2. MAXIMUM INVENTORY OF ON-SITE HAZARDOUS WASTE

2.1 Mercury Reclamation - Recovery Activities

Table 1 summarizes the maximum inventory of hazardous waste which could be on-site during facility operations associated with mercury reclamation-recovery activities. There is sufficient space to receive approximately 21,000 mercury-containing lamps (i.e., fluorescent and high intensity discharge lamps). RECYCLIGHTS, Inc. typically processes all fluorescent and HID lamps as soon as possible upon receipt at the loading dock.

RECYCLIGHTS, Inc. periodically vacuums floors in the processing and administrative rooms; these activities generate waste water. Condensate is also periodically generated depending on the humidity and temperature. This liquid waste water which has tested as hazardous with regard to mercury has been collected by Safety Kleen and transported to one of their permitted facilities.

On occasion, it is possible to produce a back log of unprocessed powder and house mercury-containing devices. Any unprocessed powder or mercury-containing devices would: either be placed into RECYCLIGHTS distiller before closure activities would commence, be transported to a sister facility or outside facility for treatment.

Some of RECYCLIGHTS customers crush their own lamps on-site and either transport them directly to RECYCLIGHTS or arrange to have them delivered to the company. Those pre-crushed lamps would be processed by RECYCLIGHTS also.

2.2 Storage Activities

Table 2 summarizes the expected maximum inventory of recyclable items which could be stored on-site. Designated space at the facility is used to house mercury-containing lamps and devices.

Table 1
Maximun. .ventory of On-Site Hazardous Wast. .ssociated With Mercury Reclamation/Recovery Activities

Waste Type	Estimated Maximum Quantity On-Site	Management Method
Whole Fluorescent Lamps	20,000	Crushed, Separated and Distilled
High Intensity Discharge Lamps	5,000	Broken, Separated and Distilled
Condensate[(1)]/Vacuum Water	5 55-Gallon Drums	Aqueous Treatment Off-Site
Unprocessed Powder and/or HID Capsules[(2)]	110 55-Gallon Drums	Landfilled in an out of State Permitted Facility
Pre-Crushed Fluorescent Lamps	10 55-Gallon Drums	Managed by a Recycler

Table 2
Maximum Inventory of On-Site Items Associated With Storage Activities

Waste Type	Estimated Maximum Quantity On-Site	Management Method
Whole Fluorescent Lamps	60,000	Crushed, Separated and Distilled
High Intensity Discharge Lamps	15,000	Crushed, Separated and Distilled
Mercury-Containing Devices, Batteries and/or Amalgam	30 55-Gallon Drums	Landfilled in an out of State Permitted Facility
Lamp Ballasts/transformers/ capacitors	20 55-Gallon Drums	Landfilled in an out of State Permitted Facility

(1) Reflects one distillation unit.
(2) RECYCLIGHTS estimates housing 110 55-gallon drums of HID capsules and/or unprocessed powder.
(3) RECYCLIGHTS estimates housing 30 55-gallon drums of mercury-containing devices, batteries and/or amalgam.

Note: The actual quantity of hazardous waste (e.g., unprocessed powder and HID capsules) drums and drums of mercury-containing devices will vary depending on business. The combined total number of drums will not exceed 140 55-gallon drums.

3. CLOSURE SCHEDULE

Figure 1 illustrates a closure schedule for RECYCLIGHTS, Inc.'s mercury reclamation, recovery and storage facility. The schedule reflects each of the tasks described in the section titled Detailed Description of Decontamination Activities. It is anticipated the pre-decontamination activities could be completed within five working days. Decontamination activities are expected to require an additional 33 working days to complete.

4. DETAILED DESCRIPTION OF DECONTAMINATION ACTIVITIES

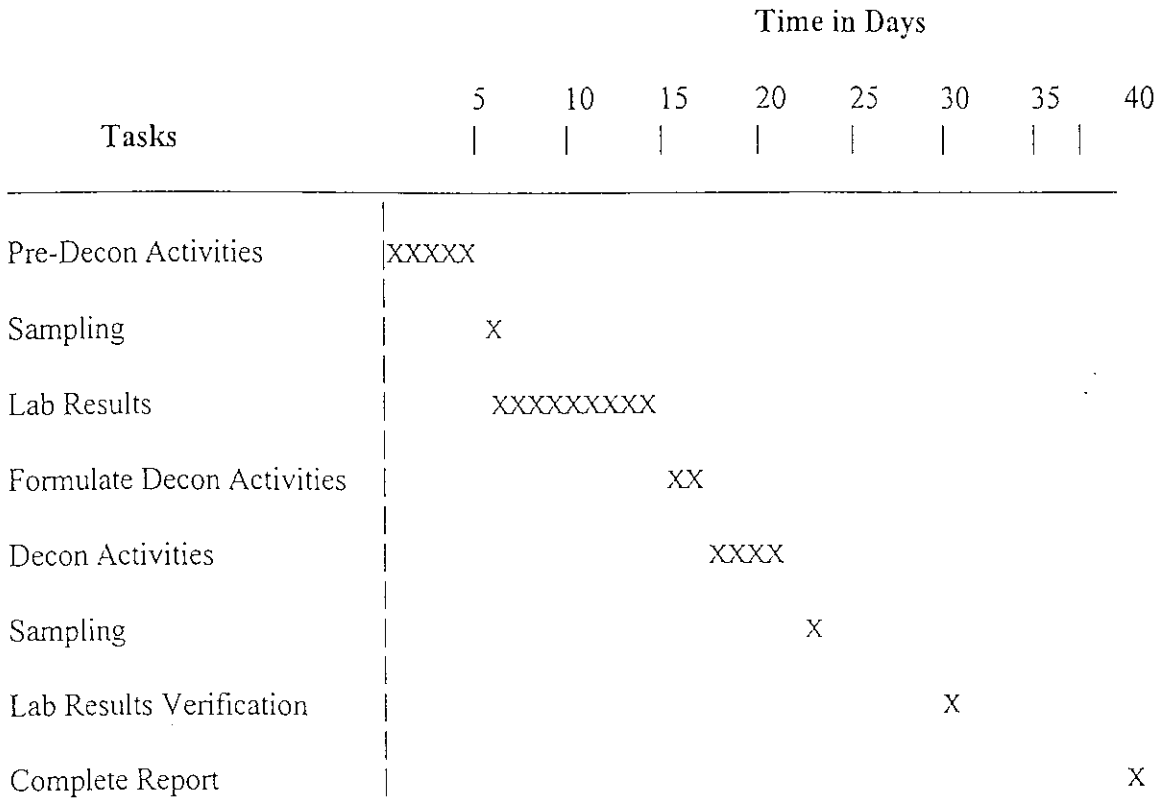
Decontamination activities at RECYCLIGHTS, Inc.'s facility consist of pre-decontamination, decontamination and post-decontamination related tasks. All tasks will be conducted by a third party. In the event of closure, the recycling (e.g., crusher, separator and distiller) equipment and pollution control equipment (i.e., carbon filters, HEPA filter and baghouse filter) will be removed by RECYCLIGHTS, Inc. They will be dismantled before third party pre-decontamination activities and transported to a new location. The equipment would certainly be operable and would have a value on the open market. The equipment is considered an asset by RECYCLIGHTS, Inc.'s bank.

4.1 Pre-Decontamination Activities

A contractor would schedule and arrange for all on-site recovered materials (e.g., glass, corrugated cardboard, aluminum, brass and powder) to be transported to local end markets. The contractor would contact DEP's Northwest District to obtain the confidential list of RECYCLIGHTS' recovered material markets. Representatives from seven different companies would be contacted to arrange for the collection of crushed glass, metal, liquid mercury, powder, baled corrugated boxes, wooden pallets and empty drums. All containers (e.g., corrugated boxed and drums) would be dusted to remove surface dust. Then, contractor personnel would thoroughly sweep surface dust and glass from floors, and other readily accessible surfaces within the building. Level"D" (work uniform and a dust mask) personal protective equipment would be required for this cleaning. Personal protective clothing such as dust masks and cleaning rags will be placed into a 5-gallon bucket. Collected debris (i.e., dirt, dust and glass) will be collected and placed into a 55-gallon drum.

Figure 1

Closure Schedule



4.2 Decontamination Activities

Decontamination of RECYCLIGHTS, Inc.'s facility consists of three principal steps. The first step involves determining the extent, if any, of mercury and cadmium contamination. The second step reflects cleaning the exterior surface of all equipment and accessible surfaces (i.e., floors, walls and ceilings). The last step involves verifying that the cleaning activities completed in step two were successful.

Phase I - Contamination Evaluation

The current level of mercury and cadmium contamination (if any) in the buildings is not known. The objective of this phase is to sample and analyze representative surfaces for mercury and cadmium. It is anticipated that mercury and cadmium samples will be collected from 32 locations in the reclamation/recovery building. Twelve will be collected in the processing area, eight from the office area and another 12 throughout the building. Twelve wipe samples will be taken from the storage building. Seven shallow soil samples will also be collected and analyzed for mercury to determine if the loading dock area and glass roll-off area were affected. The analytical results will provide information on the degree (if any) of mercury and cadmium contamination at the building. This sampling is also important to ensure that the decontamination efforts proceed from more contaminated to less contaminated areas.

Phase II - Facility Decontamination

Decontamination of RECYCLIGHTS, Inc.'s building will be performed by the following procedures:

- Remove mercury and cadmium contamination from all accessible surfaces using a high efficiency mercury vacuum and cold power washing.
- Clean walls, ceiling beams, floor and equipment.
- Collect all cleaning fluids and rinsate.
- Containerize and segregate waste materials from clean-up activities (e.g., solids, liquid, cleaning materials and personal protective equipment); and
- Sample waste materials and manage appropriately.

Phase III - Decontamination Verification

The objective of this phase is to sample and analyze representative surfaces in order to determine that decontamination activities have removed mercury and cadmium to target clean-up concentrations. Surface sample analytical results will provide documentation of successful facility decontamination. It is anticipated that 32 samples for mercury and cadmium will be collected for analysis. In addition, two or three waste stream samples will likely be collected and analyzed for disposal purposes.

4.3 Post-Decontamination .vities

For purposes of this plan, these activities focus on the quantity and disposition of clean-up residue. It is estimated that clean-up activities may generate four to eight 55-gallon drums of waste (i.e., rags, filters, personal protective equipment and water). As mentioned earlier, this material will be tested to determine the appropriate management practice.

5. CLOSURE PERFORMANCE STANDARDS

The Occupational Safety and Health Administration (OSHA), U.S. Environmental Protection Agency (EPA) and the Department of Housing and Urban Development (HUD) have no established allowable surface residue concentrations for cadmium and mercury. There is, however, a level established by the Department of Housing and Urban Development for lead at 500 micrograms (ug) per square foot. RECYCLIGHTS, Inc.'s target clean up levels for cadmium and mercury regarding closure are set forth below. It is important to note that 500 ug/ft^2 is approximately equal to 50 $ug/100\ cm^2$

Substance	PEL[1] (mg/m3)	MCL[2] (mg/L)	Reference dose (RfD)[3]	Surface limit Existing	Surface limit Suggested	Rationale
Cadmium (Cd)	0.005	0.0005	0.0005 mg/kg/day (IRIS)[4]	NA	20 $ug/100\ cm^2$	Set at 40% of the Pb level based on higher toxicity lower PEL of cadmium. Exposure according to scenario is 12% of RfD.
Mercury (Hg)	0.1	0.002	none established	NA	20 $ug/100\ cm^2$	Set at 40% of the Pb level based on the similarity of the MCL value to that of cadmium, even though PEL is the same as Pb.

1 The PEL (Permissible Exposure Limit) is set by the Occupational Safety and Health Administration (OSHA) and represents the highest average airborne concentration to which employees may be legally exposed in a workplace exposure situation.

2 The MCL (Maximum Contaminant Level) is the water concentration set by the Environmental Protection Agency (EPA) to prevent health effects (among the public) associated with water consumption.

3 The reference dose (RfD) is the highest daily dose of a chemical such that chronic, noncarcinogenic health effects are not expected among the general population. Doses exceeding 100% of the RfD would not be acceptable.

4 IRIS is the U. S. Environmental Protection Agency Integrated Risk Information Service toxicity database.

6. COST ESTIMATE FOR FACILITY CLOSURE

The closure cost estimate is based on costs that RECYCLIGHTS, Inc. would incur by selecting and hiring a third party to close the facility. A third party is a party who is neither a parent nor a subsidiary of the owner or operator. Detailed written facility closure estimates for RECYCLIGHTS, Inc. are presented in Table 3. Closure costs are expressed in 1999 dollars.

7. PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

RECYCLIGHTS, Inc. has always maintained stringent operating practices. We strongly believe that the detailed decontamination procedures described in this Closure Plan ensure that the facility will not pose a threat to human health and the environment. Closure or decontamination procedures at RECYCLIGHTS, Inc. will minimize exposure to hazardous constituents resulting in the protection of human health and the environment.

8. EXPECTED YEAR OF CLOSURE

It is not possible to predict an expected year of closure for RECYCLIGHTS, Inc. is recycling facility. Closure of the facility would likely occur for one of the following reasons. One, RECYCLIGHTS, Inc. decides to terminate the Florida operation. Two, RECYCLIGHTS, Inc. business continues to grow and it must move to a larger building. Three, another company acquires the firm and decides to relocate the operation.

9. CLOSURE ACTIVITIES

RECYCLIGHTS, Inc. will notify DEP staff of all closure related activities.

10. AMENDMENT OF PLAN

RECYCLIGHTS, Inc. will comply with the provisions of 40 CFR Part 264.112 (c)

11. NOTIFICATION OF FINAL CLOSURE

RECYCLIGHTS, Inc. will comply with the provisions of 40 CFR Part 264.112 (d).

Tasks	Estimated Cost ($)
Pre-Decontamination Activities	
Labor-Dusting/Sweeping [1]	$ 160
Project Management [2]	$ 120
Shipping/Material Management	
Glass [3]	$ 300
Al End Caps [4]	$ 0
Liquid Hg [5]	$ 151
Powder [6]	$ 3,500
Corrugated Bales [4]	$ 0
Pallets [7]	$ 100
Empty Drums [8]	$ 0
Processing Equipment [9]	$ 500
Subtotal	$ 4,831
Phase I: Contamination Evaluation	
Wipe Sampling [10]	$ 88
Lab Analysis [11]	$ 1,280
Soil Sampling [12]	$ 350
Project Management [13]	$ 150
Subtotal	$ 1,868
Phase II: Decontamination Activities	
Labor [14]	$ 6,400
PPE [15]	$ 1,500
Lodging/Meals [16]	$ 1,500
Service Vehicle [17]	$ 904
Equipment [18]	$ 2,360
Miscellaneous [19]	$ 400
Project Management/Closure Certification [20]	$ 1,360
Subtotal	$14,424
Phase III: Decontamination Verification	
Wipe Sampling [10]	$ 88
Lab Analysis [21]	$ 1,280
Project Management/Report [22]	$ 150
Subtotal	$ 1,518
Residue Management for Decon Activities [23]	$ 3,450
On-Site Inventory Management	
Fluorescent Lamps [24]	$17,600
HID Lamps [25]	$16,000
Condensate/Vacuum Water [26]	$ 950
Unprocessed Powder/Mercury Containing Waste Items [27]	$24,800
Crushed Lamps [28]	$ 1,700
Fluorescent Lamp Ballasts [29]	$ 5,550
Engineering/Management [30]	$ 2,720
Subtotal	$ 72,770
Total	$ 95,411
Contingency [31]	$ 4,771
Grand Total	$100,182

Assumptions:

(1) Reflects 4 hours (technician) @ $40/hour

Source: Savannah Laboratories and Environmental Services, Inc. (SL & ES)

(2) Reflects 2 hours @ $60/hour

Source: Environmental Geotechnical

(3) Reflects $60 per rolloff and five rolloffs

Source: Marpan Supply, Inc.

(4) Local vendor would not charge to collect material.

(5) Reflects shipping one container holding approximately 1,000 pounds of liquid mercury to market in Illinois

Source: Trucking Company

(6) Reflects hauling and recycling fee @ $35/drum; maximum inventory at 100

(7) Reflects hauling pallets to Leon County Landfill

Source: Tip fee at landfill plus trucking cost.

(8) Local vendor would not charge to collect material.

(9) Source: Local trucking company.

(10) Reflects staff time, automobile charge, mileage and containers.

Field Technician $40/hour @ 1.5 hours = $60

Mileage 20 Miles @ $0.40/mile = $8

Containers $20

Source: SL & ES

(11) Reflects 32 Locations @ $40/location = $1,280

1 Hg Test = $30
1 Cd Test = $10

Source: SL & ES

(12) Reflects staff time plus analytical testing. This activity would be completed at the same time as footnote #11.

Sampling Fee @ $50

Analytical Fee @ $40/sample for Hg total for 7 samples and 1 blank @ $30 = $310

Source: SL & ES

(13) Reflects $150 for Senior Staff

Source: SL & ES

(14) Reflects 2 technicians at $40/hour for 10 days

$40/hour Source: American Compliance Technologies (ACT)

Source: RECYCLIGHTS, Inc. staff experience closing out its facility in Minneapolis, Minnesota, in December 1994.

(15) Reflects $75/day/person for 10 days for 2 people; EPA Level "C"

Source: ACT

(16) Reflects $75/day/person for 10 days for 2 people

Source: ACT.

(17) Reflects a utility truck @ $[illegible]/day for 10 days and 440 miles @ $0.35/mile

Source: ACT

(18) Reflects pressure washer and wet/dry vacuum at $125/day for 10 days Source: ACT

Reflects scissor lift for 10 days @ $110/day Source: Erickson Forklift

(19) Reflects containers, drums, labels and rags

Source: ACT

(20) Reflects ~16 hours of senior staff person at $85/hour

Source: ACT

(21) Reflects 32 locations @ $40/location

Source: SL & ES

(22) Reflects 2 hours @ $75/hour

Source: SL & ES

(23) Reflects 15 55-gallon drums of rinsate (i.e., wash water) at$190 per drum and 1 55-gallon drum of solid material (e.g., dust, glass, rags and PPE) hauled outstate and managed by a TSDF.

Total cost = $3,450

(24) Reflects 80,000 fluorescent lamps in storage and reclamation buildings hauled within the state and recycled by a lamp recycler.

Cost base on: 80,000 lamps @ $0.22/lamp recycling fee plus transportation = $17,600.

Source: In-State Recycler.

(25) Reflects 20,000 HID lamps in storage and reclamation buildings hauled within the state and recycled by a lamp recycler.

Cost based on: 20,000 lamps @ $0.80/lamp recycling fee plus transportation = $16,000.

Source: In-State Recycler

(26) Reflects 5 55-gallon drums of water hauled off-site and managed by a TSDF.
Total cost = $950

(27) Reflects 140 drums of unprocessed powder and or mercury-containing waste hauled outstate and managed by a recycler.

Cost reflects $145 fee per drum, $500 for 2 waste stream profiles, plus shipping (at $25 per drum) by a hazardous waste transporter.

(28) Reflects 10 drums of crushed lamps hauled to an out-state recycler st $170/drum (includes transportation).

(29) Reflects 20 55-gallon drums transported to an out of state recycler at $0.37/lb and 750 lbs/drum.

(30) Estimated at $2,720 equal to $85/hour @ 32 hours. This cost item plus project management/closure certification equals $4,080.

(31) Estimated at ~ 5% of $95,411 = $4,771.