VEOLIA
ENVIRONMENTAL SERVICES

TECHNICAL SOLUTIONS
NORTH AMERICA

January 17, 2007

Mr. Bheem Kothur
Hazardous Waste Permits Section
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399

RE: Veolia ES Technical Solutions, L.L.C.
342 Marpan Lane
Tallahassee, FL 32305
EPA ID# FL0000207449
Permit Number: 71455-HO-007
Response to FLDEP Notice of Deficiency letter dated December 15, 2006

Dear Mr. Kothur:

Veolia ES Technical Solutions, L.L.C. (Veolia) is submitting this response to the Notice of Deficiency (NOD) dated December 15, 2006 and received by Veolia on December 21, 2006. Below are the responses to each of the points identified in your letter.

1. *The facility must specify whether the facility will be closed with residential or industrial cleanup standards. If the facility will be closed with industrial cleanup standards, then certain restrictions will be imposed on the property, so that in future the sire can not be used as residential.*

Enclosed with this letter is a copy of an updated closure plan which references both the industrial and the residential closure standards being proposed by Veolia. Although it is our goal to meet the residential closure standard we would prefer to keep both alternatives available at this time.

2. *At final closure, to demonstrate that the closure performance standards have been met the facility must collect adequate number of mercury wipe samples and air samples. The analytical results must be compared to the cleanup target levels specified in the Dr. Robert's guidance memo dated May 18, 2006 as follows:*

Sample	*Residential*	*Industrial*
Wipe sample	*0.00054 ug/cm^2*	*0.0087 ug/cm^2*
Air sample	*1.0 ug/m^3*	*3.0 ug/m^3*

The attached closure plan has been updated to include a reference to the air sampling closure standards specified in Dr. Roberts' May 18, 2006 guidance memo. A sampling procedure has also been included in the updated closure plan to assure that adequate measures are taken to truly assess

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the hazards posed by any residual mercury remaining on or in building surfaces. The plan; however, has not been updated to include any wipe sampling provisions.

Although Veolia agrees with the methodology employed by Dr. Roberts to develop the wipe sampling limit, we are concerned that the reference dose (RfD_O) used in the formula is not representative of the risk posed by the ingestion of elemental mercury. Based on a review of the technical data for mercury exposures published by the U.S. Environmental Protection Agency (US EPA) and the Agency for Toxic Substances and Disease Registry (ATSDR), a reference dose for the oral ingestion of elemental mercury does not exist. The reference dose referenced in Dr. Roberts' memo is equal to the reference dose for mercuric chloride (USEPA 1995), which is the only reference dose published by the US EPA for the ingestion of inorganic mercury. Although both elemental mercury and mercuric chloride are inorganic and contain mercury the absorption rates for elemental mercury and mercuric chloride are very different. Less than 0.1% of the total mass of elemental mercury will be adsorbed through the stomach and intestines following the oral ingestion of elemental mercury (ATSDR 1999, 11); whereas, as much as 25% of the mercury will be absorbed by the stomach and intestines following the oral ingestion of mercuric chloride (ATSDR 1999, 165). Therefore the direct contact wipe sample limits established by Dr. Roberts using the reference dose for mercuric chloride will be far below the level necessary to protect human health and the environment.

In addition to there being no reference dose for elemental mercury, the primary exposure pathway for elemental mercury absorption is via inhalation of mercury vapors. About 80% of the total mass of mercury inhaled as a vapor will be absorbed into the body (ATSDR 1999, 11). Additionally, at an ambient temperature of 68° F, elemental mercury has a vapor pressure of 0.04825 mm-Hg. As such, any mercury that may be present on or absorbed into a surface will evolve mercury vapors. Unless the residual mercury has been adequately removed, the vapors will continue to spread throughout and accumulate within the space until an unsafe level is reached. Therefore, if appropriate sampling procedures are followed and the space being sampled is maintained at a proper temperature and no outside ventilation is applied, air monitoring results will provide a truer assessment of any potential hazards posed by residual elemental mercury.

In July 2000, the Illinois Department of Public Health (IDPH) and ATSDR were contacted by a resident in the State of Illinois whose home had become contaminated with elemental mercury released from a mercury containing gas regulator. Based on a review of the technical data available, IDPH, US EPA and ATSDR jointly agreed to a clean up standard of 1.0 ug/m3 of mercury as measured in the air as the standard for the clean up of homes contaminated with elemental mercury. In the process of adopting this standard they determined that ingestion and skin absorption of elemental mercury is usually not biologically significant (ATSDR 2000).

To assure appropriate procedures were followed when sampling residential properties following the release of elemental mercury from gas regulators ATSDR developed sampling procedures (ATSDR 2000, Attachment 1), which require the area to be heated to a temperature of at least 75° F and maintained at a temperature between 75 and 80° F while sampling. With these procedures serving as a basis, Veolia has developed a sampling procedure for documenting the airborne concentration of mercury at closure.

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Although Veolia is not proposing to include wipe sampling there are two additional points that are pertinent to the evaluation of wipe samples as a closure method. The first point regards the material that is to be used to wet the wipe prior to sampling. In the past, wipe samples for metals have typically used a dilute acid solution. For mercury this solution was typically a 5% nitric acid solution because elemental mercury is soluble in nitric acid. However, there has been some debate within the industrial hygiene community as to whether wipes wetted with acid are appropriate for assessing the direct contact hazard posed by metals. There are some who believe the use of distilled water or a normal saline solution in the wipe is more representative of the direct exposure pathway. These solutions have been selected as they more accurately reflect the moisture on the surface of a person's hand. The second point that needs to be addressed is the type of surface and its potential as a source for direct contact. For instance, a warehouse with unfinished walls and a bare concrete floor would not have any potential exposure as a residential surface. Prior to use as a residential space or as a day care, walls would be constructed and floor coverings installed creating a barrier between any future occupants and the surface. As such the only space at the Tallahassee facility with the potential for a future use where the residential direct contact standard would be applicable would be the office space.

As a result of reviewing this information, Veolia has determined that the most reliable method for assessing of the potential risk from residual elemental mercury is through air sampling. To ensure that appropriate procedures are used for assessing the concentration of mercury, Veolia has developed the air sampling procedures included in Section 9.4.2.3, Phase III - Decontamination Verification.

3. *The facility must describe the decontamination procedure in detail including the chemicals to be used in the decontamination process. The facility must also provide a map identifying the sampling locations.*

Section 9.4.2.2 Phase II - Facility Decontamination has been updated to include a more detailed description of the decontamination procedures; however, Veolia will not at this time commit to any one specific product. As the final date of closure is not specified, we cannot commit to use any one specific brand or type of cleaner or decontamination fluid. The company that currently manufactures the material we use for this type of work could go out of business or a new and improved decontamination fluid may come onto the market. However, we believe the additional information provided combined with the sampling procedures to document closure will adequately address any concerns the department may have at this time.

A map of the sampling locations has been included as Figure D-9.2

If you have any questions please call Greg S. Newton at (602) 415-3023 or Linda Dunwoody at (850) 878-2259.

Sincerely,

Greg S. Newton
EHS Manager

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Phill Ditter, Veolia Port Washington, WI (w/enclosures)
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Works Cited

ATSDR (1999) Toxicological Profile for Mercury, Atlanta, GA Agency for Toxic Substances and Disease Registry

ATSDR (2000) Health Consultation, Residential Mercury Spills from Gas Regulators in Illinois (a/k/a NICOR) Mt. Prospect, Lake County, Illinois, Illinois Department of Health and Agency for Toxic Substances and Disease Registry

US EPA (1995) Integrated Risk Information System, Mercury, elemental, Washington DC, United States Environmental Protection Agency

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9.0 Closure Plan

9.1 INTRODUCTION

Veolia ES Technical Solutions, L.L.C. (Veolia) operates a mercury recovery, and reclamation facility at 342 Marpan Lane, Tallahassee, Florida. The building contains the following areas:

- Administrative offices,
- Operations support area,
- Receiving and staging area,
- Storage and accumulation areas,
    - Hazardous Waste Storage Area
    - Inbound Universal Waste Storage Area
    - Battery Storage Area
    - Electronic Waste Storage Area
    - 90 Day Accumulation Area
    - North Yard
- Prep and retort room, and
- Lamp processing room.

In support of the mercury reclamation and recovery operations, Veolia also maintains a material storage building to the south of the processing facility for the storage of new and reusable shipping containers at 336 Marpan Lane and a transfer yard at 4972 Woodville Highway South Lot for the transfer of universal wastes. The warehouse space located at 336 Marpan Lane will herein be referred to as the "container storage area" and the transfer yard located at 4972 Woodville Highway, South Lot will herein be referred to as the "transfer yard." This closure plan was written to comply with 40 CFR Part 264.112.

9.2 MAXIMUM INVENTORY OF WASTE

9.2.1 Maximum Inventory of Waste

Table D-9.1 summarizes the maximum inventory of hazardous waste, universal waste, and non hazardous waste which could be on-site during facility operations associated with mercury reclamation-recovery activities the facility's universal waste handler activities. The maximum inventory contains an approximately volume of each type of waste anticipated to be present at any time during the facility's life. Actual volumes of individual waste streams will vary; however, the total volume of waste on-site will not exceed the maximum storage capacities listed in Attachment D-4.

9.2.2 Anticipated Inventory of Waste Generated as a Result of Closure Activities

Table D-9.2 summarizes the expected maximum inventory of waste materials anticipated to be generated as a result of closure activities.

9.3. CLOSURE SCHEDULE

Figure D-9.1 illustrates a closure schedule for Veolia'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 inventory removal and pre-decontamination activities could be completed within thirty days. Decontamination activities are expected to require an additional ninety days to complete.

9.4. DETAILED DESCRIPTION OF DECONTAMINATION ACTIVITIES

Decontamination activities at Veolia'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 a planned 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 Veolia. They will be dismantled before third party pre-decontamination activities and transported to a new location. In the event that this equipment is no longer usable for its intended purpose it will be decontaminated and recycled or disposed as appropriate.

9.4.1 Inventory Removal

The first step in the closure process will be the removal of all wastes and supplies from the facility. In the event of a planned closure of the facility, Veolia will transport all wastes and materials to other Veolia facilities for reuse, recycling or disposal. In the event of an unplanned closure or if Veolia does not have a facility permitted or available to accept the material, it will be shipped to the corresponding facility noted in the closure cost estimate contained in Table D-9.3. In the case of materials meeting the definition of hazardous waste, a uniform hazardous waste manifest will be used to document the shipment of the material. In all other cases, a straight bill of lading will be used to document the shipment.

9.4.2 Pre-Decontamination Activities

Personnel will thoroughly sweep surface dust and glass from floors, and other readily accessible surfaces within the building, with the exception of the spaces inside the prep and retort room and inside the lamp processing room. 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.

9.4.2 Decontamination Activities

Decontamination of Veolia's facility consists of three principal phases. Phase I involves determining the extent, if any, of mercury contamination. Phase II includes the demolition of the prep and retort room and the lamp processing room, the cleaning of the exterior surface of all equipment and accessible surfaces (i.e., floors, walls and ceilings). Phase III involves

verifying that the cleaning activities completed in step two were successful.

9.4.2.1 Phase I - Contamination Evaluation

The current level of mercury contamination in the buildings is not known; however, for the purpose of closure it will be assumed that all surfaces within the warehouse and processing areas exhibit some level of contamination. As such, these areas will proceed directly to Phase II. The office areas and the container storage area will be screened with a direct reading mercury monitoring instrument. The results of the direct reading instrument will be used to determine the decontamination activities required for these areas. The transfer yard will be sampled to assess whether this area has been impacted by facility activities. Surface soil samples will be collected from the transfer yard and analyzed for total mercury. Eight samples will be collected from this area.

Sampling locations will be determined by a qualified independent third party. The sampling will also be conducted by an independent third party and will be analyzed by a state certified laboratory. Any area with mercury levels that exceed the closure standard will proceed to Phase II. If all samples from an area meet the closure standard, the area will be designated as meeting the closure standard and no further decontamination or testing will be required.

9.4.2.2 Phase II - Facility Decontamination

Decontamination of Veolia's building will be performed by the following procedures:

- Remove mercury contamination from all accessible surfaces and equipment in the prep room, retort room, and lamp processing room using a high efficiency mercury vacuum and cold power washing.
- Remove equipment and supplies from the prep room, retort room, and lamp processing room for reuse, recycling or disposal.
- Construct a containment area using polyethylene sheeting around the prep room, retort room, and lamp processing room.
- Demolish the prep room, retort room, and lamp processing room and containerize for off-site disposal.
- Remove mercury contamination from all accessible surfaces using a high efficiency mercury vacuum and cold power washing.
- Clean walls, ceiling beams, floor and equipment in accordance with the following procedures:
    1. Visually inspect the surfaces to be decontaminated. For surfaces with excessive dust buildup proceed to Step 2. If the surfaces have only a minimal amount of dust buildup, proceed to Step 3.
    2. Vacuum the surfaces using a mercury vacuum equipped with a HEPA filter and carbon filter.
    3. Using pump sprayers, mops and rags, wet the surface with a general purpose cleaner/degreaser. An example of this type of

cleaner/degreaser would be Simple Green® All Purpose Cleaner. Scrub the surfaces as necessary to remove dust and any other surface contamination that might exist.

4. Rinse the surface using a pressure washer and water.
5. Recover any cleaning fluids and rinse waters for proper disposal.
6. Wet the surfaces with a mercury decontamination fluid. An example of this type of decontamination fluid would be HgX® from Acton Technologies.
7. Scrub the surfaces to ensure that the decontamination fluid contacts all surfaces.
8. Rinse the surface using a pressure washer and water.
9. Recover any cleaning fluids and rinse waters for proper disposal.
10. Repeat Steps 6 through 9.
11. Repeat Steps 3 through 5.

- 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.

9.4.2.3 Phase III - Decontamination Verification

The objective of this phase is to sample and analyze representative areas and surfaces in order to determine that decontamination activities have removed mercury to target clean-up concentrations. The analytical results from the testing of air samples will provide documentation of successful facility decontamination. A total of twelve air samples will be collected from interior spaces. Samples will be collected from each of the following areas, administrative office, operations office/locker room, hazardous waste storage area, lamp storage area, universal waste battery storage area, HID processing area, lamp processing area, lamp processing room, retort room and container storage area in the building south of the lamp facility. Two additional air samples will be collected from warehouse/processing areas as determined by an independent third party. In addition, it is anticipated that three waste stream samples will be collected and analyzed for disposal purposes. Air sampling will be completed in accordance with the following procedures:

Final Clearance Sampling Protocol

This protocol is designed to be implemented after the decontamination activities have been completed and the facility has been adequately cleaned and for the sole purpose of gathering valid data.

Quantitative Sampling:

1. Prior to the sampling period, the indoor temperature of facility environment should be determined and documented. Temperature should be at least 75° F

for a minimum of 60 minutes prior to commencing sampling. If the facility temperature is below 75° F, the facility shall be heated to achieve this temperature.

2. Following the heating period, if necessary, the facility should be closed up (ventilation systems turned off and doors closed) for a minimum of 60 minutes to allow for equilibrium temperatures to be achieved.

3. Final clearance sampling shall be performed utilizing USEPA Response Team SOP #1827 with a modified NIOSH 6009 method, 5/13/99 or OSHA ID-140. The pump will be calibrated to 0.2 liters/min., or as defined by the method. The media utilized will be hopacalite or approved equivalent (e.g. SKC Hydrar).

4. One (1) field blank (opened in field and handled with samples) shall be taken for the sampling event. In addition, two (2) unopened trip blanks from the same lot shall be retained and submitted with the corresponding field blank.

5. The sample media shall be set at a height of between three to four (3-4) feet from ground level to represent a breathing zone sample.

6. The sample time should be approximately eight (8) hours or as necessary to obtain a detection limit less than 0.001 mg/m^3. Periodic pump flow checks and ambient temperature readings shall be performed and documented throughout the sampling period (minimum of 3).

7. Upon completion of the sampling, samples shall be handled and submitted to an AIHA accredited laboratory for analysis utilizing proper chain of custody procedures.

8. The analytical method to be utilized should be USEPA Response Team SOP #1827 with a modified NIOSH 6009 method, 5/13/99 or OSHA ID-140.

9. Upon completion of the final clearance test and receipt of results, the sampling firm will prepare a clearance sampling report and submit as a component of the closure certification report. The report shall consist of, at a minimum:

    a. Floor map documenting the locations of samples taken
    b. Sample data sheets documenting either the instrument readings or the media number, sample location, pump flow (with checks), final volume sampled, sample duration and any remarkable field notes.
    c. Sample results as submitted by the laboratory corresponding to provided sample data sheets, as applicable.

d. Copy of this sampling protocol.

9.4.3 Post-Decontamination Activities

For purposes of this plan, these activities focus on the quantity and disposition of clean-up residue. Table D-9.2 contains a listing of the types and volumes of wastes anticipated to be generated.

9.5. CLOSURE PERFORMANCE STANDARDS

Chemical	Environmental Media	Maximum Concentration		Analytical Method	Source
		Residential	Industrial		
Mercury	Soil	2.1 mg/kg	2.1 mg/kg	EPA Method 7471	Note 2
Mercury	Indoor Air	1.0 ug/m3	3.0 ug/m3	NIOSH Method 6009	Note 1

1. May 18, 2006 letter report from Stephen M. Roberts, Ph.D., University of Florida to Tim Bahr, Florida Department of Environmental Protection regarding Mercury Criteria for Buildings.
2. Florida Department of Environmental Protection Cleanup Target Levels Chapter 62-777 Florida Administrative Code based on leach ability to ground water.

9.6 COST ESTIMATE FOR FACILITY CLOSURE

The closure cost estimate is based on costs for an independent third party to complete all activities required to close the facility. A detailed written facility closure estimate for the facility is presented in Table D-9.3. Closure costs are expressed in 2006 dollars.

9.7 PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

Veolia 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 Veolia will minimize exposure to hazardous constituents resulting in the protection of human health and the environment.

9.8 EXPECTED YEAR OF CLOSURE

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

operation.

9.9 CLOSURE ACTIVITIES

Veolia will notify DEP staff of all closure related activities.

9.10 AMENDMENT OF PLAN

Veolia will comply with the provisions of 40 CFR Part 264.112 (c)

9.11 NOTIFICATION OF FINAL CLOSURE

Veolia will comply with the provisions of 40 CFR Part 264.112 (d).

Table D-9.1
Maximum Inventory of Waste

Material	Maximum Inventory
Fluorescent Lamps	50,000 Lamps
Compact, U-tube and other specialty lamps	5,000 Lamps
HID Lamps	9,000 Lamps
Mercury Containing Devices	30 drums
Dental Amalgam and Traps	4 drums
Phosphor Powder	30 drums
HID Arc Tubes (whole and crushed)	8 drums
Prep Room Debris	4 drums
Condensate Water	4 drums
Spent Carbon	4 drums
Retorted Phosphor Powder	30 drums
Non-hazardous PPE	12 drums
Retort Residues	6 drums
Batteries	36 Pallets
Electronic Waste	36 Pallets
Glass	50 tons
Aluminum End Caps/Scrap Metal	2 tons
Plastic	30 tons
Cardboard	30 tons
Elemental Mercury	2800 pounds

Table D-9.2
Anticipated Inventory of Waste Generated as a Result of Closure Activities

Clean-up Wastes	Estimated Quantity
Demolition Debris – Hazardous Waste	20 tons
Demolition Debris – Non-hazardous Waste	40 tons
Decon Wash and Rinse Water	15 drums
Hazardous Waste Solids (non-debris)	4 drums

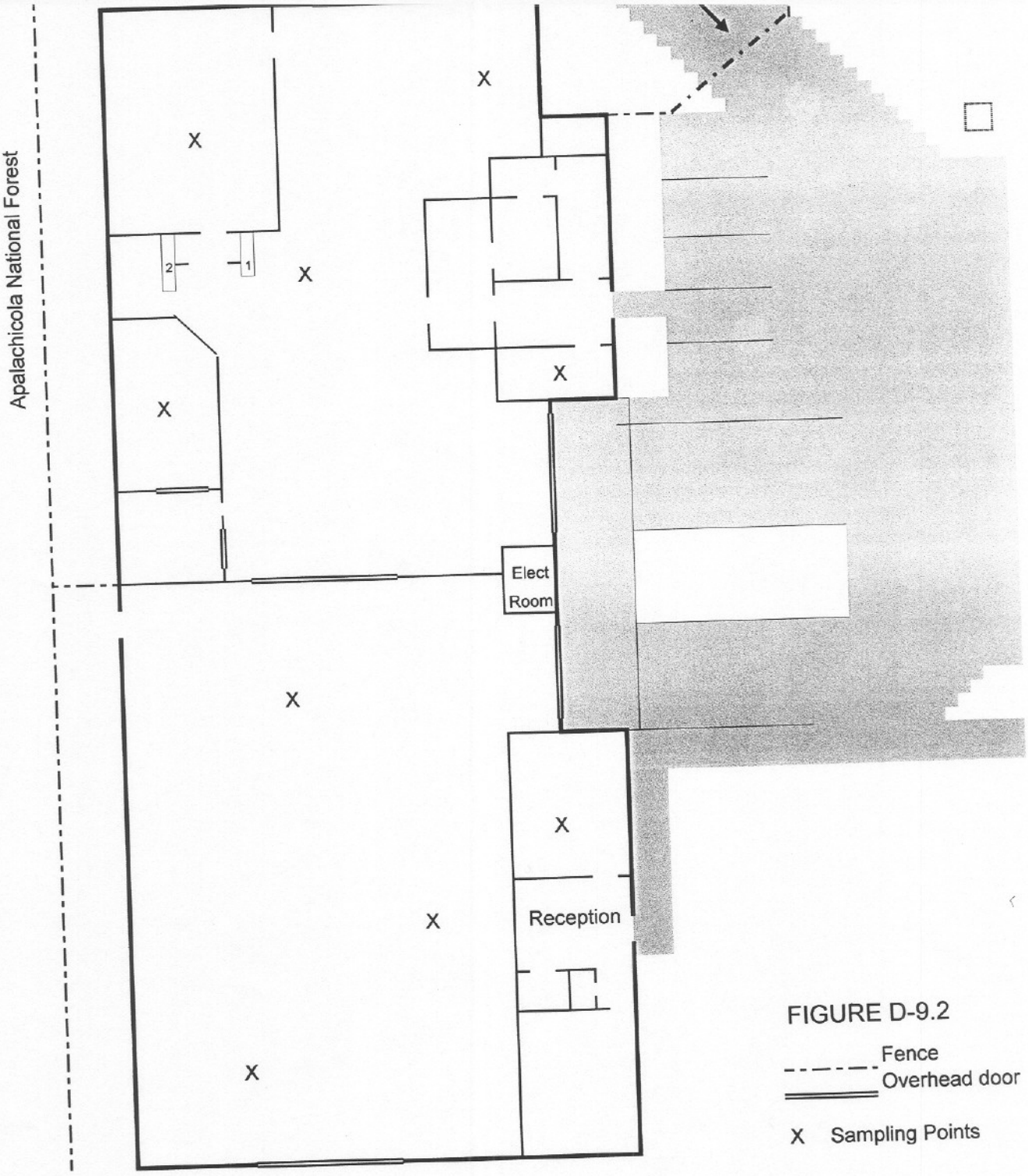

FIGURE D-9.2

Fence
Overhead door

X Sampling Points