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ATTACHMENT I: ARIZONA ADMINISTRATIVE CODE
Arizona Administrative Code, Title 18. Chapter 8, Article 2, A.A.C.R18-8-260 et seq. December 31, 2005, and Arizona Administrative Register - Volume 12, Issue 34, August 25, 2006.

ATTACHMENT J: 49 CODE OF FEDERAL REGISTER (CFR) 173.152

ATTACHMENT H
DRAFT CLOSURE PLAN

1.0 INTRODUCTION

This Closure Plan is provided for closure of the Veolia ES Technical Solutions, L.L.C. (VES) mercury device and lamp storage facility in compliance with A.A.C.R18-8-264.A (40 CFR 264), Subparts G and H and the closure requirements of Subpart I (Containers).

Pursuant to the requirements set forth in A.A.A.R1 8-8-264.A (40 CFR 264, Subpart G - Closure and Post-Closure), all owners and operators of hazardous waste management facilities must comply with the standards set forth in sections 264.111 through 264.115. These requirements state that the owner or operator must close the facility in a manner that minimizes the need for further maintenance and controls, minimizes or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste to the ground, surface waters or atmosphere.

The necessary components of closure include a written plan, ability to close within a specified time frame, disposal or decontamination of equipment, structures and soils, and certification of closure. VES does not fall within the definition of a facility requiring post-closure care per A.A.C.R18-8-264.A (40 CFR 264.110 (b)).

2.0 FACILITY DESCRIPTION

The VES facility consists of four buildings located on West Jefferson Street in Phoenix, Arizona. A location map for facility is provided in Exhibit H-5. Building 1 houses the mercury recycling process and mercury-containing material storage area. The VES facility site is currently zoned A-1, Light Industrial District, by the City of Phoenix. The legal boundaries of the facility are described as follows:

> Lots Thirty-seven (37) through Forty (40), Westgate Lot 5 Replat, according to the plat of record in the office of the County Recorder of Maricopa County, Arizona in Book 297 of Maps, Page 43.

The VES facility is located approximately 1 12 degrees 12’01” West Longitude and 33 degrees 26’46” North Latitude in the Southwest 1/4 of the Northwest 1/4 of Section 8, Township 1 North, Range 2 East of the Gila and Salt River Base and Meridian. The 5700 block of West Jefferson is located approximately 6 miles west of downtown Phoenix and approximately 1 mile south of Interstate 10 (I-10). The VES facility occupies 1.83 acres and Building 1 occupies approximately 0.56 acres (24,600 square feet).

The general topography of the site is flat. Water drainage within the VES facility is influenced by the sloping of asphalt and concrete traffic control and parking areas. There are 7 dry wells at the facility with two of these dry wells located at Building 1. The site is graded so as to minimize off-site run-on and on-site run-off of storm water. On-site storm water is managed through best management practices. All drywells in the process area have been welded and sealed shut to prevent the infiltration of hazardous wastes or hazardous waste constituents. Because operational activities are performed in facility buildings and mercury-containing materials are stored within the buildings, groundwater contamination from the facility is unlikely. The facility is located outside the 100-year floodplain.

Within Building 1, floor drains, sanitary sewer discharges or other types of collection lines that could contaminate sewers or sewage treatment plants do not exist in areas where processing or recovered material storage occur. Sanitary sewer and potable water services for the facility are provided by the City of Phoenix.

The facility is completely enclosed by exterior building walls, masonry block fence walls, and chain link gates topped with variations of barbed and concertina wires. The building is locked during non-operating hours and is equipped with a security system. Access gates are locked except when in use.

3.0 SOLID WASTE MANAGEMENT UNITS

This permit authorizes storage of mercury containing waste in three designated storage areas within the facility. Storage Area 1, the freestanding lamp and MCMA storage building located north of building 1, Storage Area 2 and Storage Area 3, located within Building 1. These SWMU locations are discussed in Part III and Attachment A of this Permit.

4.0 MATERIAL INVENTORY

Pursuant to 40 CFR 264, Subpart G, the Closure Plan must accurately reflect the estimated closure cost for disposal of the maximum permitted inventory authorized to be handled at the facility at any given time. Upon closure of the facility, there are three types of waste, which will be present at the facility. This will include unprocessed fluorescent lamps, HID lamps, and mercury-containing manufactured articles, (MCMA).

VES's permitted storage:

Waste Type	Maximum Inventory	Disposal Method
Mercury lamps	100,000 lamps	Recycling
Mercury Containing Manufactured Articles	125 55-gallon drums	Recycling/Retort/Disposal

Recovered glass and aluminum are commodities, which will have an asset value. This material will be sent to facilities, which have agreed to handle the material. The net asset value has not been subtracted from the cost of closure.

Spent mercury devices which have not been processed at the time of closure will be sent to an appropriate off-site facility for recycling and/or disposal.

5.0 PERFORMANCE STANDARD

VES intends to satisfy the closure performance standard 40 CFR 264.111 which requires the owner or operator to close the facility in a manner that:

- Minimizes the need for further maintenance;
- Controls, minimizes, or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the ground or surface waters or to the atmosphere; and,
- Complies with the closure requirements of 40 CFR 264 Subpart G, including the requirements of 264.178 (containers).

The demonstration of RCRA clean closure per 40 CFR 264.178 requires that all hazardous waste and hazardous waste residues must be removed from the containment system. Clean closure also requires that the remaining containers, liners, bases, and soil containing or contaminated with hazardous waste or hazardous waste residues be decontaminated or removed. Because the facility does not treat, store or dispose of any material directly on or into the land, post-closure care will not be required.

6.0 CLOSURE PROCEDURES

This section provides a detailed description of the activities that will be performed to remove Lamp and MCMA and decontaminate the storage areas for mercury and waste residues. The specific areas to be closed and decontaminate are Storage Area 1, 2 and 3 (Please see Exhibit A-1). The steps to be taken include the following:

- Remove all recyclable materials and wastes for disposal from the Building.
- Ship remaining inventory offsite to appropriate facilities.
- Clean up any waste residues and mercury from the building using a mercury vacuum.
- Wipe down building using rags and a suitable mercury decontamination solution.
- Sample the building to verify the effectiveness of the decontamination procedures.

6.1 Decontamination of Storage Buildings

An initial building inspection will be performed to locate areas where mercury contamination may have occurred. This initial inspection will consist of air sampling and a visual inspection. Air sampling will be facilitated using a Jerome (or similar) meter. After removal of inventory, the interior of the building will be carefully vacuumed using the mercury vacuum to remove any remaining waste residue of mercury, and to prevent the spread of any elemental mercury that may be present in the Area. Care will be taken to follow the specific manufacturer's instructions when using the mercury vacuum. Detailed specifications of the mercury vacuum will be included in the final closure plan to be reviewed by ADEQ for approval. Particular attention will be paid to vacuuming crevices, cracks, and joints where any spilled liquid mercury may have accumulated. Access to the decontamination areas will be limited to those personnel directly involved in decontamination activities.

The interior of the Storage Area 1, 2, and 3 will then be steam cleaned or pressure washed. All rinsate from decontamination process will be disposed at an off-site hazardous waste facility. During decontamination activities, the air will be monitored using a Jerome meter or similar mercury detection device. The NIOSH TWA of 0.05 mg/m^3 (skin) will be Action Level. Should local air monitoring indicate that mercury vapor equals or exceeds the NIOSH TWA, work stoppage will occur until such time that mercury vapor levels are below the NIOSH TWA. OSHA lists a Ceiling Limit of 0.1 mg/m^3.

Wipe samples will be taken, using NISOH surface wipe sampling method (Exhibit H-4), after each unit has been decontaminated. At minimum, 15 samples will be taken from the Storage area 1 and 10 samples each from the storage area 2 and storage area 3. Location of wipe samples will, at least, include the four lower corners and, crevices or cracks, or other areas where mercury may have accumulated. VES will submit a grid for wipe sampling as part of the final closure plan to be approved by ADEQ.

At the most restrictive level, surface wipe samples should not show any mercury remaining on

the surfaces, but since this may not be feasible, a clean up level of 10 µg/cm^2 for mercury is proposed. This number is based on the EPA's protocols for PCB and Lead clean up. EPA's TSCA clean up criteria for PCBs on surfaces (40 CFR 761. 1b) specifies a wipe sample clean up value of 10µg/cm^2 for unrestricted area access and 40µg/cm^2 for lead.

Exact number of samples, the sampling location, and the analytical method used will be submitted to ADEQ, as part of the final closure plan, for review and approval, sixty, (60) days from the scheduled date of closure of the facility. All analysis will be done by laboratories certified and approve by the State of Arizona.

In addition, VES will sample the soil beneath the asphalt in the Storage Area 1. Soil samplings will be conducted through borings in the asphalt and the soil. VES will include a methodology for soil sampling inside the Storage Area 1 as part of the final closure plan to be reviewed and approved by ADEQ.

6.2 Management of Drummed Waste Materials

All waste materials including mercury collected from the vacuum, and the mercury-containing decontamination solution will be placed into 55-gallon drums and transported as a hazardous waste to an appropriate off-site disposal facility.

6.3 Additional Closure Activities Identified in October 6, 2009 Permit Modification

At the time of closure Veolia ES Technical Solutions will perform the below listed additional closure activities in addition to and in conjunction with the closure activities that are detailed in the permit and the associated permit application. These activities include removal of asphalt/concrete and contaminated soil and post excavation sampling of the areas known as the “Former Paint Booth Area”, sample points VB1, VB2, and VB3, and removal of contaminated soil and post excavation sampling of the areas directly surrounding sample point VB7 and VB9. If soil staining or other indications that a spill are observed during the excavation, additional sampling and/or excavation and confirmation sampling will be performed. If soil analyses fail to meet the residential soil remediation levels (R-SRLs) as referenced in the Arizona Administrative Code (AAC) Title 18, Chapter 7, currently 10 milligrams per kilogram (mg/kg) for arsenic and 30 mg/kg for hexavalent chromium, or whatever the most recent regulatory standards are at the time of closure, additional excavation will be performed until the satisfactory results are obtained.

Sampling activities: Samples will be collected and analyzed using US EPA approved test methods. All sample containers used for the collection of post excavation samples will be provided by the laboratory.

Composite samples will be taken from the base of the excavation in each work area. A minimum of four composite samples (quadrants) will be collected in each excavation. The number of samples and their locations will be based on the size of the excavation and the need to verify that the contaminants of concern have not migrated outside the currently defined areas of concern. At this time, background samples are not planned during the excavation and sampling activities. The proposed goal is to meet the residential soil remediation levels (R-SRLs) as referenced in the Arizona Administrative Code (AAC) Title 18, Chapter 7, currently 10 milligrams per kilogram

(mg/kg) for arsenic and 30 mg/kg for hexavalent chromium.

Soil disposal weight was estimated using 105 pounds per cubic foot based on excavated packed earth (pg 112, US Navy Salvors Handbook, 1976).

6.3.1 Former Paint Booth Area

Asphalt and soil will be removed to a depth of 4 feet, the proposed excavation area is an area that is approximately 25 feet by 50 feet, see Exhibit H-3. This area encompasses the sample points VB1, VB2, and VB3 that exhibited elevated levels of arsenic and chromium. See Table 1, June 2009 Site Assessment Report.

After the soil has been excavated to a depth of 4 feet, below existing grade, post excavation samples will be collected. The excavated area will be divided into eight (8) grids; each grid will be approximately 12.5’ by 12.5’ in area. A total of eight (8) composite samples will be collected from the excavated area, one composite sample from each grid. A five (5) part composite sample strategy will be used and will consist of side wall sample(s), one sample at original sample point (VB1, VB2, or VB3, if located within the grid), and remaining sample locations will be chosen randomly within the grid. The sidewall samples will be collected at the same depth as the centerline samples.

If soil staining or other indications that a spill occurred are observed during the excavation, additional sampling and/or excavation and confirmation sampling will be performed. If soil analyses fail to meet the residential soil remediation levels (R-SRLs) as referenced in the Arizona Administrative Code (AAC) Title 18, Chapter 7, currently 10 milligrams per kilogram (mg/kg) for arsenic and 30 mg/kg for hexavalent chromium, additional excavation will be performed until the satisfactory results are obtained.

Once satisfactory results are received, the excavation will be backfilled with clean fill material. Virgin source material will be used as backfill.

Based on the results of the analytical presented in Table 1 it is anticipated that the asphalt and contaminated soil removed during the excavation will be disposed of at the Southwest Regional Landfill located in Buckeye, Arizona. Approximately 277 tons of material will be removed and disposed of from this area. Prior to disposal representative samples of the stockpiled of excavated material will be collected and sampled for TCLP metals to ascertain that the material can be disposed as non-hazardous waste or if it is required to be disposed of as hazardous waste.

Soil disposal weight was estimated using 105 pounds per cubic foot based on excavated packed earth (pg 112, US Navy Salvors Handbook, 1976).

6.3.2 Sample Point VB7

Asphalt and soil will be removed to a depth of 4 feet, the proposed excavation area is an area that is approximately 25 feet by 25 feet, see Exhibit H-3. This area encompasses the area around sample point VB7 that exhibited elevated levels of arsenic and chromium. See Table 1, June 2009 Site Assessment Report.

After the soil has been excavated to a depth of 4 feet, below existing grade, post excavation

samples will be collected. The excavated area will be divided into for (4) grids; each grid will be approximately 12.5' by 12.5' in area. A total of four (4) composite samples will be collected from the excavated area, one composite sample from each grid. A five (5) part composite sample

strategy will be used and will consist of side wall sample(s), one sample at original sample point (if it is located within the grid), and remaining sample locations will be chosen randomly within the grid. The sidewall samples will be collected at the same depth as the centerline samples.

If soil staining or other indications that a spill occurred are observed during the excavation, additional sampling and/or excavation and confirmation sampling will be performed. If soil analyses fail to meet the residential soil remediation levels (R-SRLs) as referenced in the Arizona Administrative Code (AAC) Title 18, Chapter 7, currently 10 milligrams per kilogram (mg/kg) for arsenic and 30 mg/kg for hexavalent chromium, additional excavation will be performed until the satisfactory results are obtained.

Once satisfactory results are received, the excavation will be backfilled with clean fill material. Virgin source material will be used as backfill.

Based on the results of the analytical presented in Table 1 it is anticipated that the asphalt and contaminated soil removed during the excavation will be disposed of at the Southwest Regional Landfill located in Buckeye, Arizona. Approximately 139 tons of materials will be removed and disposed of from this area.

Prior to disposal representative samples of the stockpiled excavated material will be collected and sampled for TCLP metals to ascertain that the material can be disposed as non-hazardous waste or if it is required to be disposed of as hazardous waste.

Soil disposal weight was estimated using 105 pounds per cubic foot based on excavated packed earth (pg 112, US Navy Salvors Handbook, 1976).

6.3.3 Sample Point VB9

Asphalt and soil will be removed to a depth of 3 feet, the proposed excavation area is an area that is approximately 25 feet by 25 feet, see Exhibit H-3. Asphalt/concrete will be removed with the utilization of a pneumatic hammer and the backhoe. All removed asphalt/concrete will be disposed of with the excavated soils. This area encompasses the area around sample point VB9 that exhibited elevated levels of arsenic and chromium. See Table 1, June 2009 Site Assessment Report.

After the soil has been excavated to a depth of 3 feet, below existing grade, post excavation samples will be collected. The excavated area will be divided into for (4) grids; each grid will be approximately 12.5' by 12.5' in area. A total of four (4) composite samples will be collected from the excavated area, one composite sample from each grid. A five (5) part composite sample strategy will be used and will consist of side wall sample(s), one sample at original sample point (if it is located within the grid), and remaining sample locations will be chosen randomly within the grid. The sidewall samples will be collected at the same depth as the centerline samples.

If soil staining or other indications that a spill occurred are observed during the excavation,

additional sampling and/or excavation and confirmation sampling will be performed. If soil analyses fail to meet the residential soil remediation levels (R-SRLs) as referenced in the Arizona Administrative Code (AAC) Title 18, Chapter 7, currently 10 milligrams per kilogram (mg/kg) for arsenic and 30 mg/kg for hexavalent chromium, additional excavation will be performed until the satisfactory results are obtained.

Once satisfactory results are received, the excavation will be backfilled with clean fill material. Virgin source material will be used as backfill.

Based on the results of the analytical presented in Table 1 it is anticipated that the asphalt and contaminated soil removed during the excavation will be disposed of at the Southwest Regional Landfill located in Buckeye, Arizona. Approximately 104 tons of materials will be removed and disposed of from this area. Prior to disposal representative samples of the stockpiled excavated material will be collected and sampled for TCLP metals to ascertain that the material can be disposed as non-hazardous waste or it is required to be disposed of as hazardous waste.

Soil disposal weight was estimated using 105 pounds per cubic foot based on excavated packed earth (pg 112, US Navy Salvors Handbook, 1976).

6.4 Health and Safety Considerations

In accordance with 29 CFR 19 10.120 (b), a site-specific Heath and Safety Plan will be developed for minimizing the risk to personnel performing the on-site inspection, sampling and routine activities. The Health and Safety Plan will address potential and known hazards at the facility, emergency information, personnel protection requirements, decontamination procedures, monitoring requirements, access controls, training requirements and weather-related precautions.

6.5 Closure Quality Assurance and Quality Control Procedures

At the time of final or partial closure of the facility, VES will submit a Quality Assurance Project Plan (QAPP) to ADEQ. The submitted QAPP must be in accordance with the acceptable standards as determined by ADEQ.

6.5.1 Identification of Parameters, Analytical Methods and QA/QC Procedures

Samples collected according to this Closure Plan will be analyzed for mercury. Total and/or TCLP mercury will be required to be conducted on wipe samples, air samples and waste samples for assessment of applicable treatment and disposal requirements. In order to ensure that appropriate quality control procedures are followed, VES will include a standard Quality Assurance Project Plan (QAPP) as part of the final closure plan. In addition, VES will only use laboratories certified by the State of Arizona and/or AIHA to conduct any of the sampling or analysis for this closure.

7.0 CLOSURE SCHEDULE

As part of the closure plan requirements, a schedule for closing the container storage areas has been prepared. The schedule identifies the time required for completion of each phase of closure as well as the expected year of closure. The expected year of closure has been determined based on the estimated remaining material available to be processed at the facility and changes in the manufacturing and engineering of mercury-containing devices. Estimated life of the facility is 30 years. The facility is scheduled to be closed on approximately December 31, 2032.

The closure schedule complies with the following requirements:

- Closure must begin no later than 30 days after receipt of the final volume of hazardous waste (lamps or other mercury-containing waste).
- Notification of intent to begin closure must be submitted at least 45 days before closure is scheduled to begin.
- Removal or disposal of all waste materials must be completed within 90 days after receiving the final volume of waste.
- Final closure must be completed within 180 days after receipt of the final volume of waste.
- Final closure certification must be submitted within 60 days from completing closure.

8.0 CLOSURE CERTIFICATION

At the time of final closure VES will compile and maintain the following documents supporting the certification of closure:

- Approved Closure Plan;
- A copy of the independent registered professional engineer's field observation reports;
- Laboratory results of samples analyzed;
- Manifests and/or shipping papers showing disposition of waste and/or product inventory; and
- Closure Certification Report.

Within sixty (60) days of completion of closure of the units, the Permittee shall submit a closure report that includes at least the following information:

(a) A summary of results, significant observations, and conclusions;

(b) A detailed discussion of the closure procedures followed for each unit, including a description of:

(i) The procedures followed for decontamination of the hazardous waste management unit (including disposition of residues);

(ii) The equipment used for decontamination of the hazardous waste management units;

(iii) The sampling procedures used;

(iv) The remedial procedures (if applicable) used;

(v) The equipment used for remediation (if applicable);

(vi) The analytical procedures and methods used;

(vii) The analytical equipment used;

(viii) The quality assurance program used;

(ix) The procedures used to prevent hazards and protect field personnel during closure;

(x) Drawings and photographs where appropriate;

(xi) Description of any deviation s from the approved plan;

(xii) Data gathered from sampling and analysis activities performed pursuant to the plan, including field notes, manifests, bill of lading, LDR forms, laboratory submittal forms, chain of custody forms, laboratory reports, and drilling logs.

9.0 MODIFICATIONS TO CLOSURE PLAN

This closure plan is a draft and must be amended and resubmitted to the ADEQ for approval 180 days prior to partial or final closure of the facility. Conditions or events which would require plan modification include:

- Increase in facility size or capacity
- Increase in maximum inventory estimate
- Change in regulatory requirements that affect closure activities
- Change in surrounding land use

9.1 Unexpected Closure Events

An amended closure plan will be prepared if unexpected events occur during closure which effect closure activities that are described in the current plan.

9.2 Change in Closure Date

If, for any reason, the facility's closing date changes, an amended closure plan will be prepared and submitted to ADEQ

9.3 Change in Financial Status

An amended closure plan will be prepared if the financial status of the owner changes over the remaining life of the facility. Changes in financial status that will require modified plans will be limited to circumstances in which the owner may not be able to adequately pay for the closure of the facility.

10.0 CLOSURE COST ESTIMATE

The following discusses the cost estimates that have been developed for closure of the VES facility. The closure activities within this plan include Storage Area 1, Storage Area 2 and Storage Area 3 and the yard areas identified in the RFA and SA report (see 6.3). The street address for both buildings is 5752 West Jefferson Street. VES has developed a closure cost estimate, presented in Exhibit H-1, based on the current cost of performing each of the activities defined in this plan by a third party contractor. This approach has been used to develop a worst case scenario in accordance with the regulations. This cost estimate will be reviewed on an annual basis and will either be adjusted for inflation or recalculated as appropriate.

10.1 Financial Assurance Mechanism

VES has established a financial assurance mechanism through an account with Bank of America in the form of Irrevocable Standby Letter of Credit (LOC) presented in Exhibit H-2. VES may use any authorized funding mechanism as authorized by 40 CFR 264 Subpart H and A.A.C. R1 8-8-264.A and R1 8-8-264.L and as approved by ADEQ to secure its closure cost funding. The selected funding mechanism will be fully executed and funded within 60 days of permit issuance. The financial assurance mechanism will be updated when the closure plan and the closing cost estimate are finalized.

10.2 Liability Insurance

See Exhibit H-3 for the liability insurance.

10.3 Review of Cost Estimate

VES certifies that, to the best of its knowledge, the enclosed closure cost estimate is a true and accurate reflection of the estimated costs associated with the closure of a facility of like size and operation. The closure cost estimate contained in Exhibit H-1 has been prepared in accordance with the information and activities described in this closure plan. The costs have been estimated using current (2005) dollar values for activities described in the plan. The closure cost estimate has been developed to estimate the cost of each activity and sub-activity contained in the Plan.

EXHIBIT H-1
CLOSURE COST ESTIMATE

VEOLIA ES TECHNICAL SOLUTIONS LLC

Overview of Total Costs

Total closure costs have been calculated by adding cost of closing each storage unit and the inventory management costs as follows:

Cost of closing the Universal Waste Storage Building	**31,605.00**
Cost of closing the first storage area inside Building One	**9,958.00**
Cost of closing the second storage area inside Building One	**9,958.00**
Inventory Management for Off site recycling or disposal	**94,750.00**
Closure Certification	**3,640.00**
Contingency to entire closure cost estimate	**29,982.20**
Grand total	**179,893.20**
Annual Inflation Adjustments (through and Including 2010)	**15,621.69**
Yard Area Remediation Arsenic and Chromium	**48,404.40**
Grand Total (as of 7/7/2010)	**243,919.29**

Overview of worksheets:

The entire closure cost estimate has been broken down into steps that will occur during the closure of the operation. There are three areas defined by the plan and they are Universal Waste Storage Building and two areas inside Building One. The two areas inside building one are assumed to have identical cost for closure.

Total Closure Cost:
A summary sheet is provided outlining all costs to perform closure.

Container Storage Area Summary Worksheet (CS)
Itemized cost for each segment of closure for each area identified

Inventory Management (INV)
This worksheet details the cost to ship material offsite for proper recycling and disposal. The cost includes the cost of transportation to the out of state facility.

Decontamination Summary Worksheet (DC)
Total cost for decontamination of the area including transportation and disposal

Decontamination by Pressure Washing (DC-2)
Calculates decontamination of 5480 ft2 of the storage area in the Universal Waste Storage area and 1760 ft2 of storage area inside building one. There are two identical areas inside building one for closure purposes. The area includes the floor and four surrounding walls of the Universal Waste Storage building and one back wall of each storage unit inside building one.
Cost of labor, number of work hours, and volume of decontamination fluid was provided by ADEQ using Cost Pro Software.

Summary of Sampling and Analysis (SA)
Lists total sampling and analysis cost and is detailed on worksheet SA-5 pages one and two.

Sampling and Analysis (SA-5)
This worksheet is comprised of two pages. First page presents total cost of sampling and analysis. The second page includes only the cost of analysis of the wipe samples The number of wipe samples have been determined and provided by ADEQ. The cost for work hour per sample, cost per work hour, and analysis cost were provided by ADEQ using Cost Pro software.

Summary Worksheet for Treatment and Disposal of Waste (TD)
This worksheet summarizes cost of treatment and disposal of the decontamination fluid generated as calculated on TD-3.

Treatment and Disposal of Decontamination Fluids (TD-3)
This worksheet calculates the cost of transportation and disposal of decontamination fluid generated during decontamination of each identified unit. Volume of decontamination fluid has been determined by ADEQ based on square footage and the method of decontamination(pressure washing). Work hours, price per work hour, and tank rental fees have been generated by using Cost Pro software.

Summary Worksheet for Remediation Yard Area (AC-1)
This worksheet calculates the cost of excavation, disposal, and sampling of areas of concern identified during the RFA.

Closure Cost Estimate

Facility Name: **Veolia ES Technical Solutions, LLC** Facility Sequence: **7/7/2010**

Unit Name: **Mercury Recovery Operation** Unit Sequence:

SUMMARY WORKSHEET

	Activity	Worksheet Number	Cost
1.	Off Site Disposal and Transportation of Waste Product	INV-1	$ 94,750.00
2.	**Subtotal of Off Site Waste Management**		**$ 94,750.00**
3.	Decontamination	DC-1	$ 9,050.00
4.	Sampling and Analysis	SA-2	$ 1,273.00
5.	Treatment and Disposal	TD-1	$ 21,282.00
6.	**Subtotal of Closure Costs for Universal Waste Storage Area**		**$ 31,605.00**
7.	Decontamination	DC-1(1)	$ 2,907.00
8.	Sampling and Analysis	SA-2(1)	$ 849.00
9.	Treatment and Disposal	TD-1(1)	$ 6,202.00
10.	**Subtotal of Closure Costs for Inside Building #1**		**$ 9,958.00**
11.	Decontamination	DC-1(2)	$ 2,907.00
12.	Sampling and Analysis	SA-2(2)	$ 849.00
13.	Treatment and Disposal	TD-1(2)	$ 6,202.00
14.	**Subtotal of Closure Costs for Inside Building #1 Second Storage Area**		**$ 9,958.00**
15.	Certification of Closure for Entire Facility	CS-7	$ 3,640.00
16.	**Subtotal**		**$ 149,911.00**
17.	Contingency Allowance Percent Applied 20%		**$ 29,982.20**
TOTAL COST OF CLOSURE			**$ 179,893.20**

Total Closure Cost

CONTAINER STORAGE AREAS CS-2

Facility Name: **Veolia ES Technical Solutions, LLC** Facility Sequence: **1** **7/7/2010**

Unit Name: **Universal Waste Storage Facility** Unit Sequence: **1**

SUMMARY WORKSHEET

	Activity		Worksheet Number		Cost
1.	Off Site Disposal and Transportation of Waste Product		INV-1	$	94,750.00
2.	Decontamination		DC-1	$	9,050.00
3.	Sampling and Analysis		SA-2	$	1,273.00
4.	Treatment and Disposal		TD-1	$	21,282.00
5.	**Subtotal of Closure Costs**			$	126,355.00
6.	Engineering Expenses	Percent Applied 0%		$	-
7.	Certification of Closure		CS-7	$	3,640.00
8.	**Subtotal**			$	129,995.00
9.	Contingency Allowance	Percent Applied 20%			
TOTAL COST OF CLOSURE				$	129,995.00

Inventory Management

INV-1

Facility Name: **Veolia ES Technical Solutions, LLC** Facility Sequence: **0** **7/7/2010**

Unit Name: **Off Site Disposal of Max Inventory** Unit Sequence: **0**

SUMMARY WORKSHEET

	Activity	Unit Cost	Total Cost
1.	Off Site Disposal of 76,000 4' Fluorescent lamps	0.17	$ **12,920.00**
2.	Off Site Disposal of 19,000 Miscellaneous Fluorescent lamps	0.35	$ **6,650.00**
3.	Off Site Disposal of 5000 High Intensity Discharge lamps	1.15	$ **5,750.00**
4.	Off Site Disposal of 25 DMS Crushed Lamps/Phosphor	210/dm	$ **5,250.00**
5.	Off Site Disposal of 90 DMS of Mercury Devices	635/dm	$ **57,150.00**
6.	Off Site Disposal of 10 DMS Mercury Debris/ Clean Up	685/dm	$ **6,850.00**
7.	**Total Cost of Inventory Disposal and Management**		$ **94,570.00**

DECONTAMINATION

DC-1

Facility Name: **Veolia ES Technical Solutions, LLC** Facility Sequence: **1** **7/7/2010**

Unit Name: **Universal Waste Storage Bldg** Unit Sequence: **1**

SUMMARY WORKSHEET

	Activity	Worksheet Number	Cost
1.	Decontamination of Unit by Steam Cleaning or Pressure Washing	DC-2	$ 9,050.00
2.	Decontamination of Unit by Sandblasting	DC-3	$ -
3.	Decontamination of Heavy Equipment	DC-4	$ -
TOTAL COST OF DECONTAMINATION			**$ 9,050.00**

DECONTAMINATION

DECONTAMINATION OF UNIT BY STEAM CLEANING OR PRESSURE WASHING -Page 1 of 1

Facility Name: **Veolia ES Technical Solutions, LLC** Facility Sequence: **1** **7/7/2010**

Unit Name: **Universal Waste Storage Bldg** Unit Sequence: **1** Form Sequence:

1.	Area to unit to be decontaminated	5480.0 ft	
2.	Labor and equipment cost per work hour Appropriate level of PPE	$ 41.23 / work hr Protection Level D	
3.	Work rate to steam clean or pressure wash one ft	0.04 /work hr / ft	
4.	Number of hours required to steam clean or pressure wash the unit	219.5 / work hrs	
5.	**Subtotal of labor and equipment costs to decontaminate unit by steam cleaning or pressure washing.**		**$ 9,050.00**
6.	Volume of decontamination fluid generated	21,920 / gallon	
7.	Number of drums required to contain decontamination fluid for removal	/ drums	
8.	Cost of one drum	/ drums	
9.	Cost of drums needed to contain decontamination fluid	$	-
TOTAL COST OF DECONTAMINATION OF UNIT BY STEAM CLEANING OR PRESSURE WASHING		**$**	**9,050.00**

SAMPLING AND ANALYSIS SA-2

Facility Name: **Veolia ES Technical Solutions, LLC** Facility Sequence: **1** **7/7/2010**

Unit Name: **Universal Waste Storage Bldg** Unit Sequence: **1** Form Sequence:

SUMMARY WORKSHEET

Activity		Worksheet Number	Cost
1.	Drilling and Subsurface Soil Sample	SA-3	$ -
2.	Concrete Core Sample	SA-4	$ -
3.	Wipe Sample	SA-5	$ 1,273.00
4.	Surface Water and Liquid Sample	SA-6	$ -
5.	Soil, Sludge, and Sediment Sample	SA-7	$ -
6.	Groundwater Sample	SA-8	$ -
7.	Soil-Pore Liquid Sample	SA-9	$ -
8.	Analysis of Subsurface Soil Sample	SA-10	$ -
TOTAL SAMPLING AND ANALYSIS COST			**$ 1,273.00**

SAMPLING AND ANALYSIS

WIPE SAMPLE -Page 1 of 2

Facility Name: **Veolia ES Technical Solutions, LLC** Facility Sequence: 1 **7/7/2010**

Unit Name: **Universal Waste Storage Bldg** Unit Sequence: 1 Form Sequence:

1 COLLECTION OF WIPE SAMPLE			
1.A	Number of sampling locations	15 sample locations	
1.B	Labor and equipment cost per work hour Appropriate level of PPE	$ 87.30 / work hr Protection Level D	
1.C	Work rate to collect samples from one sampling location	0.50 / work hr / ft	
1.D	Number of hours required to collect all samples	7.50 / work hrs	
1.E	**Cost of Collection per Sampling Event**	**$ 655.00**	**/ event**
2 ANALYSIS OF WIPE SAMPLE			
2.	**Cost of Analysis per Sampling Event** **(total from next page)**	**$ 618.00**	**/ event**
3 SAMPLING EVENTS			
3.	Number of sampling events	1 **events**	
TOTAL COST OF SAMPLING AND ANALYSIS OF WIPE SAMPLES			**$ 1,273.00**

SAMPLING AND ANALYSIS SA-5

DECONTAMINATION OF UNIT BY STEAM CLEANING OR PRESSURE WASHING -Page 2 of 2

Facility Name: **Veolia ES Technical Solutions, LLC** Facility Sequence: 1 **2/15/2005**

Unit Name: **Universal Waste Storage Bldg** Unit Sequence: 1 Form Sequence:

Cost of Analysis per Sampling Event

Reference of Line 2.A

Column 1 Analytical Parameter And Method Reference	Column 2 Cost of Analysis ($) per Parameter	Column 3 Number of Analyses Including QC Analyses	Column 4 Total Cost of Analysis ($) per Parameter per Event
Mercury, cold vapor (SW 7470) with prep	$ 41.20	15	$ 618.00
	$ -		$ -
	$ -		$ -
	$ -		$ -
	$ -		$ -
	$ -		$ -
TOTAL COST FOR ANALYSIS OF WIPE SAMPLES			**$ 618.00 / event**

TREATMENT AND DISPOSAL

Facility Name: **Veolia ES Technical Solutions, LLC** Facility Sequence: **1** **7/7/2010**

Unit Name: **Universal Waste Storage Bldg** Unit Sequence: **1**

SUMMARY WORKSHEET

	Activity	Worksheet Number	Cost
1.	Treatment and Disposal of Waste	TD-2	$ -
2.	Transportation and Disposal of Decontamination Fluids	TD-3	$ 21,282.00
TOTAL COST OF TREATMENT AND DISPOSAL			**$ 21,282.00**

TREATMENT AND DISPOSAL

TRANSPORTATION AND DISPOSAL OF DECONTAMINATION FLUIDS - Page 1 of 1

Facility Name: **Veolia ES Technical Solutions, LLC** Facility Sequence: **1** **7/7/2010**

Unit Name: **Universal Waste Storage Bldg** Unit Sequence: **1** Form Sequence: **4**

1.	Volume of decontamination fluid generated from closure activities	19760.000 / total gal	
2.	Labor and equipment cost per work hour Appropriate level of PPE	$ 48.19 / work hr Protection Level D	
3.	Work rate to pump decontamination fluid to a holding tank	0.00007 / work hr /gallon	
4.	Number of hours required to pump decontamination to a holding tank	1.5 work hrs	
5.	**Subtotal of labor and equipment costs to pump decontamination fluid to a holding tank**		**$ 72.00**
6.	Number of days required to rent holding tank	1 / days	
7.	Holding tank rental fee (10, 000 gal tank per day)	$ 330.00 / day	
8.	Number of tanks required	2 / tanks	
9.	**Subtotal of tank rental costs**		**$ 660.00**
10.	Transporation and disposal costs for bulk liquid	$ 1.04 / gal	$ 20,550.40
TOTAL COST TO TRANSPORT AND DISPOSE OF DECONTAMINATION FLUID AS A BULK LIQUID			**$ 21,282.40**

CONTAINER STORAGE AREAS

CERTIFICATION OF CLOSURE - Page 1 of 1

Facility Name: **Veolia ES Technical Solutions, LLC** Facility Sequence: 1 **7/7/2010**

Unit Name: **Universal Waste Storage Bldg** Unit Sequence: **1** Form Sequence: **0**

1.	Number of units requiring certification of closure	1	
2.	Cost of certification of closure per unit	$ 3,640.00	
TOTAL COST OF CERTIFICATION OF CLOSURE			**$ 3,640.00**

CONTAINER STORAGE AREAS CS-2(1)

Facility Name: **Veolia ES Technical Solutions, LLC** Facility Sequence: **2** **7/7/2010**

Unit Name: **Bldg #1 Inside Storage** Unit Sequence: **2**

SUMMARY WORKSHEET

	Activity		Worksheet Number	Cost
1.	Decontamination		DC-1(1)	$ 2,902.00
2.	Sampling and Analysis		SA-2(1)	$ 849.00
3.	Treatment and Disposal		TD-1(1)	$ 6,874.00
12.	**Subtotal of Closure Costs**			$ 10,625.00
13.	Engineering Expenses	Percent Applied 0%		$ -
14.	Certification of Closure		CS-7	$ -
15.	**Subtotal**			$ 10,625.00
16.	Contingency Allowance	Percent Applied 20%		$ 2,125.00
TOTAL COST OF CLOSURE				$ 12,750.00

DECONTAMINATION DC-1(1)

Facility Name: **Veolia ES Technical Solutions, LLC** Facility Sequence: **2** **7/7/2010**

Unit Name: **Bldg #1 Inside Storage** Unit Sequence: **2**

SUMMARY WORKSHEET

	Activity	Worksheet Number	Cost
1.	Decontamination of Unit by Steam Cleaning or Pressure Washing	DC-2(1)	$ 2,907.00
2.	Decontamination of Unit by Sandblasting	DC-3	$ -
3.	Decontamination of Heavy Equipment	DC-4	$ -
TOTAL COST OF DECONTAMINATION			**$ 2,907.00**

DECONTAMINATION

DC-2(1)

DECONTAMINATION OF UNIT BY STEAM CLEANING OR PRESSURE WASHING -Page 1 of 1

Facility Name: **Veolia ES Technical Solutions, LLC** Facility Sequence: **2** **7/7/2010**

Unit Name: **Bldg #1 Inside Storage** Unit Sequence: **2** Form Sequence:

1.	Area to unit to be decontaminated	1750.0 ft	
2.	Labor and equipment cost per work hour Appropriate level of PPE	$ 41.23 / work hr Protection Level D	
3.	Work rate to steam clean or pressure wash one ft	0.04 /work hr / ft	
4.	Number of hours required to steam clean or pressure wash the unit	70.5 / work hrs	
5.	**Subtotal of labor and equipment costs to decontaminate unit by steam cleaning or pressure washing.**		**$ 2,907.00**
6.	Volume of decontamination fluid generated	7,040 / gallon	
7.	Number of drums required to contain decontamination fluid for removal	/ drums	
8.	Cost of one drum	/ drums	
9.	Cost of drums needed to contain decontamination fluid	$	-
	TOTAL COST OF DECONTAMINATION OF UNIT BY STEAM CLEANING OR PRESSURE WASHING	**$**	**2,907.00**

SAMPLING AND ANALYSIS SA-2(1)

Facility Name: **Veolia ES Technical Solutions, LLC** Facility Sequence: **2** **7/7/2010**

Unit Name: **Bldg #1 Inside Storage** Unit Sequence: **2** Form Sequence:

SUMMARY WORKSHEET

	Activity	Worksheet Number	Cost
1.	Drilling and Subsurface Soil Sample	SA-3	$ -
2.	Concrete Core Sample	SA-4	$ -
3.	Wipe Sample	SA-5(1)	$ 849.00
4.	Surface Water and Liquid Sample	SA-6	$ -
5.	Soil, Sludge, and Sediment Sample	SA-7	$ -
6.	Groundwater Sample	SA-8	$ -
7.	Soil-Pore Liquid Sample	SA-9	$ -
8.	Analysis of Subsurface Soil Sample	SA-10	$ -
TOTAL SAMPLING AND ANALYSIS COST			**$ 849.00**

SAMPLING AND ANALYSIS

SA-5(1)

WIPE SAMPLE -Page 1 of 2

Facility Name: **Veolia ES Technical Solutions, LLC** Facility Sequence: **2** **7/7/2010**

Unit Name: **Bldg #1 Inside Storage** Unit Sequence: **2** Form Sequence:

1 COLLECTION OF WIPE SAMPLE			
1.A	Number of sampling locations	10 sample locations	
1.B	Labor and equipment cost per work hour Appropriate level of PPE	$ 87.30 / work hr Protection Level D	
1.C	Work rate to collect samples from one sampling location	0.50 / work hr / ft	
1.D	Number of hours required to collect all samples	5.00 / work hrs	
1.E	**Cost of Collection per Sampling Event**	**$ 437.00**	**/ event**
2 ANALYSIS OF WIPE SAMPLE			
2.	**Cost of Analysis per Sampling Event** **(total from next page)**	**$ 412.00**	**/ event**
3 SAMPLING EVENTS			
3.	Number of sampling events	1 **events**	
TOTAL COST OF SAMPLING AND ANALYSIS OF WIPE SAMPLES			**$ 849.00**

SAMPLING AND ANALYSIS SA-5(1)

DECONTAMINATION OF UNIT BY STEAM CLEANING OR PRESSURE WASHING -Page 2 of 2

Facility Name: **Veolia ES Technical Solutions, LLC** Facility Sequence: **2** **2/15/2005**

Unit Name: **Bldg #1 Inside Storage** Unit Sequence: **2** Form Sequence:

Cost of Analysis per Sampling Event

Reference of Line 2.A

Column 1 Analytical Parameter And Method Reference	Column 2 Cost of Analysis ($) per Parameter	Column 3 Number of Analyses Including QC Analyses	Column 4 Total Cost of Analysis ($) per Parameter per Event
Mercury, cold vapor (SW 7470) with prep	$ 41.20	10	$ 412.00
	$ -		$ -
	$ -		$ -
	$ -		$ -
	$ -		$ -
	$ -		$ -
TOTAL COST FOR ANALYSIS OF WIPE SAMPLES			**$ 412.00 / event**

TREATMENT AND DISPOSAL

TD-1(1)

Facility Name: **Veolia ES Technical Solutions, LLC** Facility Sequence: **2** **7/7/2010**

Unit Name: **Bldg #1 Inside Storage** Unit Sequence: **2**

SUMMARY WORKSHEET

	Activity	Worksheet Number	Cost
1.	Treatment and Disposal of Waste	TD-2	$ -
2.	Transportation and Disposal of Decontamination Fluids	TD-3(1)	$ 6,202.00
TOTAL COST OF TREATMENT AND DISPOSAL			**$ 6,202.00**

TREATMENT AND DISPOSAL TD-3(1)

TRANSPORTATION AND DISPOSAL OF DECONTAMINATION FLUIDS - Page 1 of 1

Facility Name: **Veolia ES Technical Solutions, LLC** Facility Sequence: 1 **7/7/2010**

Unit Name: **Bldg #1 Inside Storage** Unit Sequence: 1 Form Sequence:

1.	Volume of decontamination fluid generated from closure activities	5600.000 / total gal	
2.	Labor and equipment cost per work hour Appropriate level of PPE	$ 48.19 / work hr Protection Level D	
3.	Work rate to pump decontamination fluid to a holding tank	0.00007 / work hr / ft	
4.	Number of hours required to pump decontamination to a holding tank	1.0 work hrs	
5.	**Subtotal of labor and equipment costs to pump decontamination fluid to a holding tank**		**$ 48.00**
6.	Number of days required to rent holding tank	1 / days	
7.	Holding tank rental fee (10, 000 gal tank per day)	$ 330.00 / day	
8.	Number of tanks required	1 / tanks	
9.	**Subtotal of tank rental costs**		**$ 330.00**
10.	Transporation and disposal costs for bulk liquid	$ 1.04 / gal	$ 5,824.00
TOTAL COST TO TRANSPORT AND DISPOSE OF DECONTAMINATION FLUID AS A BULK LIQUID			**$ 6,202.00**

Arsenic and Chromium Excavation AC-1

Facility Name: **Veolia ES Technical Solutions, L.L.C.** Facility Sequence: 1 **7/7/2010**

Unit Name: **Yard Area Remediation** Unit Sequence: 1

SUMMARY WORKSHEET

	Activity	Worksheet Number	Cost
1.	Off Site Disposal and Transportation of Waste Product		$ 20,110.00
2.	Sampling and Analysis		$ 2,205.00
3.	Labor Excavation		$ 2,784.00
4.	Labor Backfill		$ 848.00
5.	Labor Load		$ 5,088.00
6.	Equipment		$ 2,372.00
7.	Materials		$ 6,930.00
5.	**Subtotal of Closure Costs**		$ 40,337.00

9.	Contingency Allowance	Percent Applied 20%	$ 8,067.40
TOTAL COST REMEDIATION YARD AREA			$ 48,404.40

EXHIBIT H-2

FINANCIAL ASSURANCE

VEOLIA
ENVIRONMENTAL SERVICES

Sc - 4123

RECEIVED
DEC 2 2010
ADEQ

TECHNICAL SOLUTIONS
NORTH AMERICA

December 2, 2010

Mr. Anthony Leverock
Manager, Hazardous Waste Permits Unit
Arizona Department of Environmental Quality
1110 West Washington Street
Phoenix, Arizona 85007

RE: Letter of Credit – Veolia ES Technical Solutions, L.L.C., 5736 W. Jefferson St, Phoenix, AZ 85043; EPA ID Number AZ0 000 337 360

Dear Mr. Leverock,

Enclosed is the amended Irrevocable Standby Letter of Credit 68052986, for the amount of $243,919.29 issued by Bank of America and dated October 5, 2010 for the Veolia Phoenix Facility, 5736 W. Jefferson St., Phoenix, AZ 85043; EPA ID Number AZ0 000 337 360. This letter of credit replaces Irrevocable Standby Letter of Credit Number 68005173.

Per your instruction I will contact Diana Deming for the return of Letter of Credit #68005173.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based upon my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions or desire any additional information please contact me at (602) 233-2955.

Wayne Bulsiewicz

EHS Manager
VES-Phoenix, AZ

Attachment

Veolia ES Technical Solutions, L.L.C.
5736 W Jefferson Street, Phoenix, AZ 85043
tel: 602 233 2955 - toll free: 800 368 9095 - fax: 602 415 3030
www.VeoliaES.com

Bank of America

DATE: SEPTEMBER 8, 2010

IRREVOCABLE STANDBY LETTER OF CREDIT NUMBER: 68052986
APPLICANT REFERENCE NUMBER: BFBS AZ DEQ 2010

ISSUING BANK
BANK OF AMERICA, N.A.
ONE FLEET WAY
PA6-580-02-30
SCRANTON, PA 18507-1999

BENEFICIARY
ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY
1110 W. WASHIGHTON STREET
PHOENIX, AZ 85007

APPLICANT
VEOLIA ES TECHNICAL SOLUTIONS, LLC
5736 W. JEFFERSON
PHOENIX, AZ 85043

AMOUNT
NOT EXCEEDING USD 243,919.29
NOT EXCEEDING TWO HUNDRED FORTY THREE THOUSAND NINE HUNDRED NINETEEN AND 29/100'S US DOLLARS

EXPIRATION
SEPTEMBER 10, 2011 AT OUR COUNTERS

DEAR SIR OR MADAM,

WE HEREBY ESTABLISH OUR IRREVOCABLE STANDBY LETTER OF CREDIT NO. 68052986 IN YOUR FAVOR, AT THE REQUEST AND FOR THE ACCOUNT OF VEOLIA ES TECHNICAL SOLUTIONS LLC, 5736 WEST JEFFERSON, PHOENIX, AZ 85043, UP TO THE AGGREGATE AMOUNT OF USD 243,919.29 (TWO HUNDRED FOURTY THREE THOUSAND NINE HUNDRED NINETEEN AND 29/100 U.S. DOLLARS) AVAILABLE UPON PRESENTATION OF:

1. YOUR SIGHT DRAFT, BEARING REFERENCE TO THIS LETTER OF CREDIT N0. 68052986, AND

2. YOUR SIGNED STATEMENT READING AS FOLLOWS:

"I CERTIFY THAT THE AMOUNT OF THE DRAFT IS PAYABLE PURSUANT TO REGULATIONS ISSUED UNDER THE AUTHORITY OF THE RESOURCE CONSERVATION AND RECOVERY ACT OF 1976 AS AMENDED."

THIS LETTER OF CREDIT IS EFFECTIVE AS OF SEPTEMBER 10, 2010 AND SHALL EXPIRE ON SEPTEMBER 10, 2011, BUT SUCH EXPIRATION DATE SHALL BE AUTOMATICALLY EXTENDED FOR A PERIOD OF 1 YEAR ON EACH SUCCESSIVE EXPIRATION DATE, UNLESS, AT LEAST 120 DAYS BEFORE THE CURRENT EXPIRATION DATE, WE NOTIFY BOTH YOU AND VEOLIA ES TECHNICAL SOLUTIONS, LLC BY CERTIFIED MAIL THAT WE HAVE DECIDED NOT TO EXTEND THIS LETTER OF CREDIT BEYOND THE CURRENT EXPIRATION DATE. IN THE

ORIGINAL

Bank of America

THIS IS AN INTEGRAL PART OF LETTER OF CREDIT NUMBER: 68052986

EVENT YOU ARE SO NOTIFIED, ANY UNUSED PORTION OF THE CREDIT SHALL BE AVAILABLE UPON PRESENTATION OF YOUR SIGHT DRAFT FOR 120 DAYS AFTER THE DATE OF RECEIPT BY BOTH YOU AND VEOLIA ES TECHNICAL SOLUTIONS, LLC, AS SHOWN ON THE SIGNED RETURN RECEIPTS.

WHENEVER THIS LETTER OF CREDIT IS DRAWN ON UNDER AND IN COMPLIANCE WITH THE TERMS OF THIS CREDIT, WE SHALL DULY HONOR SUCH DRAFT UPON PRESENTATION TO US, AND WE SHALL DEPOSIT THE AMOUNT OF THE DRAFT DIRECTLY INTO THE STANDBY TRUST FUND OF VEOLIA ES TECHNICAL SOLUTIONS LLC, IN ACCORDANCE WITH YOUR INSTRUCTIONS.

WE CERTIFY THAT THE WORDING OF THIS LETTER OF CREDIT IS IDENTICAL TO THE WORDING SPECIFIED IN 40 CFR 264.151 D AS SUCH REGULATIONS WERE CONSTITUTED ON THE DATE SHOWN IMMEDIATELY BELOW.

THIS CREDIT IS SUBJECT TO THE 2007 REVISION OF THE UNIFORM CUSTOMS AND PRACTICE FOR DOCUMETARY CREDITS, PUBLISHED AND COPYRIGHTED BY THE INTERNATIONAL CHAMBER OF COMMERCE, (PUBLICATION NO. 600).

BANK OF AMERICA, N.A.

MICHAEL GRIZZANTI, VP
SEPTEMBER 8, 2010

ORIGINAL

Bank of America

DATE: OCTOBER 5, 2010

AMENDMENT TO IRREVOCABLE STANDBY LETTER OF CREDIT NUMBER: 68052986
APPLICANT REFERENCE NUMBER: BFBS AZ DEQ 2010

AMENDMENT NUMBER 1

ISSUING BANK
BANK OF AMERICA, N.A.
ONE FLEET WAY
PA6-580-02-30
SCRANTON, PA 18507-1999

BENEFICIARY
DIRECTOR ARIZONA DEPARTMENT OF
ENVIRONMENTAL QUALITY
1110 W. WASHINGTON STREET
PHOENIX, AZ 85007

APPLICANT
VEOLIA ES TECHNICAL SOLUTIONS, LLC
5736 W. JEFFERSON STREET
PHOENIX, AZ 85043

THIS AMENDMENT IS TO BE CONSIDERED AN INTEGRAL PART OF THE ABOVE CREDIT AND MUST BE ATTACHED THERETO.

THE ABOVE MENTIONED CREDIT IS AMENDED AS FOLLOWS:

THE APPLICANT IS AMENDED TO READ AS SHOWN ABOVE.

THE TEXT IN PARAGRAPH ONE OF THE L/C READING:
".... FOR THE ACCOUNT OF VEOLIA ES TECHNICAL SOLUTIONS LLC, 5736 WEST JEFFERSON, PHOENIX, AZ 85043, UP TO THE AGGREGATE AMOUNT OF USD 243,919.29 (TWO HUNDRED FOURTY THREE THOUSAND NINE ...."
IS AMENDED TO READ:
".... FOR THE ACCOUNT OF VEOLIA ES TECHNICAL SOLUTIONS LLC, 5736 WEST JEFFERSON STREET, PHOENIX, AZ 85043, UP TO THE AGGREGATE AMOUNT OF USD 243,919.29 (TWO HUNDRED FORTY THREE THOUSAND NINE ...."

THE TEXT IN THE AUTOMATIC EXTENSION CLAUSE READING:
"THIS LETTER OF CREDIT IS EFFECTIVE AS OF SEPTEMBER 10, 2010 AND SHALL EXPIRE ON SEPTEMBER 10, 2011, BUT SUCH EXPIRATION DATE SHALL BE AUTOMATICALLY EXTENDED FOR A PERIOD OF 1 YEAR ON EACH SUCCESSIVE EXPIRATION DATE, ..."
IS AMENDED TO READ:
"THIS LETTER OF CREDIT IS EFFECTIVE AS OF SEPTEMBER 10, 2010 AND SHALL EXPIRE ON SEPTEMBER 10, 2011, BUT SUCH EXPIRATION DATE SHALL BE AUTOMATICALLY EXTENDED FOR A PERIOD OF 1 YEAR ON SEPTEMBER 10, 2011 AND EACH SUCCESSIVE EXPIRATION DATE, ..."

THE TEXT IN THE LAST PARAGRAPH OF THE L/C READING:
".... CUSTOMS AND PRACTICE FOR DOCUMETARY CREDITS, ..."
IS AMENDED TO READ:

ORIGINAL

Bank of America

".... CUSTOMS AND PRACTICE FOR DOCUMENTARY CREDITS, ..."

THE BENEFICIARY HAS BEEN AMENDED TO:
DIRECTOR ARIZONA DEPARTMENT OF
ENVIRONMENTAL QUALITY
1110 W. WASHINGTON STREET
PHOENIX, AZ 85007

ALL OTHER TERMS AND CONDITIONS REMAIN UNCHANGED.

IF YOU REQUIRE ANY ASSISTANCE OR HAVE ANY QUESTIONS REGARDING THIS AMENDMENT, PLEASE CALL 1-800-370-7519 OPT 1.

AUTHORIZED SIGNATURE

THIS DOCUMENT CONSISTS OF 2 PAGE(S).

ORIGINAL

Bank of America

DATE: FEBRUARY 1, 2005

IRREVOCABLE STANDBY LETTER OF CREDIT NUMBER: 68005173

BENEFICIARY
ARIZONA DEPARTMENT OF
ENVIRONMENTAL QUALITY
1110 W. WASHINGTON STREET
PHOENIX, AZ 85007

APPLICANT
ONYX NORTH AMERICA CORP.
ONYX ENVIROMENTAL SRVS, LLC
AZD 983473539 5736 W. JEFFERSON
PHOENIX, AZ 85043

ISSUING BANK
BANK OF AMERICA, N.A.
1 FLEET WAY
PA6-580-02-30
SCRANTON, PA 18507-1999

AMOUNT
NOT EXCEEDING USD 89,525.03
NOT EXCEEDING EIGHTY NINE THOUSAND
FIVE HUNDRED TWENTY FIVE AND
03/100'S US DOLLARS

EXPIRATION
FEBRUARY 1, 2006 AT OUR COUNTERS

DEAR SIR OR MADAM: WE HEREBY ESTABLISH OUR IRREVOCABLE STANDBY LETTER OF CREDIT NO. 68005173 IN YOUR FAVOR, AT THE REQUEST AND FOR THE ACCOUNT OF ONYX NORTH AMERICA CORP., ONYX ENVIRONMENTAL SERVICES, LLC, 5736 WEST JEFFERSON, PHOENIX, AZ 85043, UP TO THE AGGREGATE AMOUNT OF $89,525.03(EIGHTY NINE THOUSAND FIVE HUNDRED TWENTY FIVE AND 03/100 U.S. DOLLARS), AVAILABLE UPON PRESENTATION OF:

(1) YOUR SIGHT DRAFT, BEARING REFERENCE TO THIS LETTER OF CREDIT N0. 68005173, AND

(2) YOUR SIGNED STATEMENT READING AS FOLLOWS:

"I CERTIFY THAT THE AMOUNT OF THE DRAFT IS PAYABLE PURSUANT TO REGULATIONS ISSUED UNDER THE AUTHORITY OF THE RESOURCE CONSERVATION AND RECOVERY ACT OF 1976 AS AMENDED".

THIS LETTER OF CREDIT IS EFFECTIVE AS OF FERUARY 1, 2005 AND SHALL EXPIRE FEBRUARY 1, 2006, BUT SUCH EXPIRATION DATE SHALL BE AUTOMATICALLY EXTENDED FOR A PERIOD OF 1 YEAR AND ON EACH SUCCESSIVE EXPIRATION DATE, UNLESS, AT LEAST 120 DAYS BEFORE THE CURRENT EXPIRATION DATE, WE NOTIFY BOTH YOU AND ONYX NORTH AMERICA CORP., ONYX ENVIRONMENTAL SERVICES, LLC BY CERTIFIED MAIL THAT WE HAVE DECIDED NOT TO EXTEND THIS LETTER OF CREDIT BEYOND THE CURRENT EXPIRATION DATE. IN THE EVENT YOU ARE SO NOTIFIED, ANY UNUSED PORTION

Bank of America

THIS IS AN INTEGRAL PART OF LETTER OF CREDIT NUMBER: 68005173

OF THE CREDIT SHALL BE AVAILABLE UPON PRESENTATION OF YOUR SIGHT DRAFT FOR 120 DAYS AFTER THE DATE OF RECEIPT BY BOTH YOU AND ONYX NORTH AMERICA CORP., ONYX ENVIRONMENTAL SERVICES, LLC, AS SHOWN ON THE SIGNED RETURN RECEIPTS.

WHENEVER THIS LETTER OF CREDIT IS DRAWN ON UNDER AND IN COMPLIANCE WITH THE TERMS OF THIS CREDIT, WE SHALL DULY HONOR SUCH DRAFT UPON PRESENTATION TO US, AND WE SHALL DEPOSIT THE AMOUNT OF THE DRAFT DIRECTLY INTO THE STANDBY TRUST FUND OF ONYX NORTH AMERICA CORP., ONYX ENVIRONMENTAL SERVICES, LLC, IN ACCORDANCE WITH YOUR INSTRUCTIONS.

WE CERTIFY THAT THE WORDING OF THIS LETTER OF CREDIT IS IDENTICAL TO THE WORDING SPECIFIED IN 40 CFR 264.151 (D) AS SUCH REGULATIONS WERE CONSTITUTED ON THE DATE SHOWN IMMEDIATELY BELOW.

THIS CREDIT IS SUBJECT TO "THE 1993 REVISION OF THE UNIFORM CUSTOMS AND PRACTICES FOR DOCUMETARY CREDITS, PUBLISHED AND COPYRIGHTED BY THE INTERNATIONAL CHAMBER OF COMMERCE", OR "THE UNIFORM COMMERCIAL CODE".

THIS DOCUMENT IS PROVIDED BY BANK OF AMERICA ON BEHALF OF FLEET NATIONAL BANK.

IF YOU REQUIRE ANY ASSISTANCE OR HAVE ANY QUESTIONS REGARDING THIS TRANSACTION, PLEASE CALL 800-370-7519 .

AUTHORIZED SIGNATURE

THIS DOCUMENT CONSISTS OF 2 PAGE(S).

ASSISTANT VICE PRESIDENT
FEBRUARY 1, 2005

Bank of America, N.A. Trade Operations
Mail Code: PA6-580-02-30
1 Fleet Way, 2nd Floor, Scranton, PA 18507

ORIGINAL

EXHIBIT H-3
LIABILITY INSURANCE

MARSH

CERTIFICATE OF INSURANCE

CERTIFICATE NUMBER
HOU-000439187-07

PRODUCER
Marsh USA Inc.
1000 Main Street, Suite 3000
Houston, TX 77002

10056 -ONA-DOMES-04-05 OSSAZ ** No

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER OTHER THAN THOSE PROVIDED IN THE POLICY. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES DESCRIBED HEREIN.

COMPANIES AFFORDING COVERAGE

COMPANY A COMMERCE AND INDUSTRY INS CO

COMPANY B DISCOVER PROPERTY & CASUALTY INS. CO.

COMPANY C UNITED STATES FIDELITY AND GUARANTY COMPANY

COMPANY D LEXINGTON INSURANCE COMPANY

INSURED
Onyx Environmental Services
5736 W. Jefferson Street
Phoenix, AZ 85043

COVERAGES This certificate supersedes and replaces any previously issued certificate for the policy period noted below. 12

THIS IS TO CERTIFY THAT POLICIES OF INSURANCE DESCRIBED HEREIN HAVE BEEN ISSUED TO THE INSURED NAMED HEREIN FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THE CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, CONDITIONS AND EXCLUSIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
	GENERAL LIABILITY					
A	X COMMERCIAL GENERAL LIABILITY	GL 4177311	07/01/04	07/01/05	GENERAL AGGREGATE	$ 1,000,000
	CLAIMS MADE X OCCUR				PRODUCTS - COMP/OP AGG	$ 1,000,000
	OWNER'S & CONTRACTOR'S PROT				PERSONAL & ADV INJURY	$ 1,000,000
	X CONTRACTUAL LIABILITY				EACH OCCURRENCE	$ 1,000,000
					FIRE DAMAGE (Any one fire)	$ 1,000,000
					MED EXP (Any one person)	$ 5,000
	AUTOMOBILE LIABILITY				COMBINED SINGLE LIMIT	$ 1,000,000
B	X ANY AUTO	D007A00008 (TX)	07/01/04	07/01/05		
B	ALL OWNED AUTOS	D007A00009 (MA)	07/01/04	07/01/05	BODILY INJURY (Per person)	$
C	SCHEDULED AUTOS	D007A00010 (PR)	07/01/04	07/01/05		
B	HIRED AUTOS	D007A00011 (AOS)	07/01/04	07/01/05	BODILY INJURY (Per accident)	$
	NON-OWNED AUTOS				PROPERTY DAMAGE	$
	GARAGE LIABILITY				AUTO ONLY - EA ACCIDENT	$
	ANY AUTO				OTHER THAN AUTO ONLY:	
					EACH ACCIDENT	$
					AGGREGATE	$
D	EXCESS LIABILITY	285 1893	07/01/04	07/01/05	EACH OCCURRENCE	$ 5,000,000
D	X UMBRELLA FORM	711 3650	07/01/04	07/01/05	AGGREGATE	$ 5,000,000
	OTHER THAN UMBRELLA FORM					$
E	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY	WC4552998 (AOS)	07/01/04	07/01/05	X WC STATUTORY LIMITS / OTHER	
F		WC4552999 (AZ,ID,MD,VA)	07/01/04	07/01/05	EL EACH ACCIDENT	$ 1,000,000
G	THE PROPRIETOR/ PARTNERS/EXECUTIVE OFFICERS ARE: X INCL	WC4553000 (CA)	07/01/04	07/01/05	EL DISEASE-POLICY LIMIT	$ 1,000,000
A	EXCL	WC4553001 (nd,oh,wa,wi,wv,wy)	07/01/04	07/01/05	EL DISEASE-EACH EMPLOYEE	$ 1,000,000
	OTHER					

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS

CERTIFICATE HOLDER

FOR INFORMATION ONLY

CANCELLATION

SHOULD ANY OF THE POLICIES DESCRIBED HEREIN BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE INSURER AFFORDING COVERAGE WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED HEREIN, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER AFFORDING COVERAGE, ITS AGENTS OR REPRESENTATIVES, OR THE ISSUER OF THIS CERTIFICATE.

MARSH USA INC.
BY: Barry N. Smith

MM1(3/02) VALID AS OF: 01/05/05

ADDITIONAL INFORMATION

DATE (MM/DD/YY)
HOU-000439187-07 01/05/05

PRODUCER
Marsh USA Inc.
1000 Main Street, Suite 3000
Houston, TX 77002

10056 -ONA-DOMES-04-05 OSSAZ ** No

INSURED
Onyx Environmental Services
5736 W. Jefferson Street
Phoenix, AZ 85043

COMPANIES AFFORDING COVERAGE

COMPANY
E INS. CO. OF THE STATE OF PA (AIG)

COMPANY
F BIRMINGHAM FIRE INS CO OF PA

COMPANY
G AMERICAN HOME ASSURANCE CO

COMPANY
H

TEXT

CERTIFICATE HOLDER
FOR INFORMATION ONLY

MARSH USA INC. BY
Barry N. Smith

Page

MARSH

CERTIFICATE OF INSURANCE

CERTIFICATE NUMBER
HOU-000610061-01

PRODUCER
Marsh USA Inc.
1000 Main Street, Suite 3000
Houston, TX 77002

10056 -ONA-P/C-04/07

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER OTHER THAN THOSE PROVIDED IN THE POLICY. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES DESCRIBED HEREIN.

COMPANIES AFFORDING COVERAGE

COMPANY A

COMPANY B

COMPANY C AMERICAN INTERNATIONAL SPECIALTY LINES INS CO

COMPANY D

INSURED
Onyx Environmental Services
5736 W. Jefferson Street
Phoenix, AZ 85043

COVERAGES This certificate supersedes and replaces any previously issued certificate for the policy period noted below.

THIS IS TO CERTIFY THAT POLICIES OF INSURANCE DESCRIBED HEREIN HAVE BEEN ISSUED TO THE INSURED NAMED HEREIN FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THE CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, CONDITIONS AND EXCLUSIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
	GENERAL LIABILITY				GENERAL AGGREGATE	$
	COMMERCIAL GENERAL LIABILITY				PRODUCTS - COMP/OP AGG	$
	CLAIMS MADE / OCCUR				PERSONAL & ADV INJURY	$
	OWNER'S & CONTRACTOR'S PROT				EACH OCCURRENCE	$
					FIRE DAMAGE (Any one fire)	$
					MED EXP (Any one person)	$
	AUTOMOBILE LIABILITY				COMBINED SINGLE LIMIT	$
	ANY AUTO				BODILY INJURY (Per person)	$
	ALL OWNED AUTOS					
	SCHEDULED AUTOS				BODILY INJURY (Per accident)	$
	HIRED AUTOS					
	NON-OWNED AUTOS				PROPERTY DAMAGE	$
	GARAGE LIABILITY				AUTO ONLY - EA ACCIDENT	$
	ANY AUTO				OTHER THAN AUTO ONLY:	
					EACH ACCIDENT	$
					AGGREGATE	$
	EXCESS LIABILITY				EACH OCCURRENCE	$
	UMBRELLA FORM				AGGREGATE	$
	OTHER THAN UMBRELLA FORM					$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY				WC STATUTORY LIMITS / OTHER	
	THE PROPRIETOR/ PARTNERS/EXECUTIVE OFFICERS ARE: INCL / EXCL				EL EACH ACCIDENT	$
					EL DISEASE-POLICY LIMIT	$
					EL DISEASE-EACH EMPLOYEE	$
C	OTHER COPS	COPS 1956635	09/30/04	07/01/06	Each Incident	15,000,000
C	Pollution Legal Liability Claims Made Form Sudden & Gradual	PLS1364667	09/30/04	07/01/07	Aggregate	15,000,000

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS

CERTIFICATE HOLDER

"FOR INFORMATION ONLY"

CANCELLATION

SHOULD ANY OF THE POLICIES DESCRIBED HEREIN BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE INSURER AFFORDING COVERAGE WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED HEREIN, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER AFFORDING COVERAGE, ITS AGENTS OR REPRESENTATIVES, OR THE ISSUER OF THIS CERTIFICATE.

MARSH USA INC.
BY: Barry N. Smith

MM1(3/02)

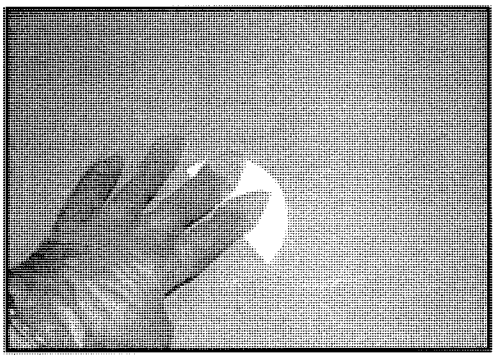
VALID AS OF: 01/06/05

EXHIBIT H-4
SURFACE WIPE SAMPLING PROCEDURE

Surface Wipe Sampling Procedure

Contents

1.0 Purpose & Scope
2.0 Responsibilities
3.0 Definitions
4.0 Prerequisites
5.0 Precautions
6.0 Procedure
7.0 Implementation and Training
8.0 References
9.0 Attachments
10.0 Documentation



1.0 Purpose & Scope

This document describes a field procedure for taking wipe samples of potentially contaminated surfaces. It is based on methodology described in NIOSH 9100 "Lead in Surface Wipe Samples" of the NIOSH Manual of Analytical Methods.

The goal of the procedure is to provide a uniform methodology to collect representative samples of surface contamination of particulates or low volatility liquids. Using this method will ensure repeatability between various sampling personnel and between surface configurations. This method is appropriate for collection of Lead, Beryllium, other particulates, metals, and low volatility liquid contaminants. The use of this procedure for Polychlorinated Biphenyl (PCB) is limited to circumstances involving OSHA compliance testing. (Compliance sampling for EPA clearance levels at spills and remediation sites require the use of Environmental Services Division EM-SOP-PCB.)

2.0 Responsibilities

2.1 **Demonstrated Competency:** This procedure is administered through the SHSD Industrial Hygiene Group. It is implemented through members of the SHSD Industrial Hygiene Group, the Radiological Control Division Facility Support group, and other BNL ESH&Q related organizations. Only persons who have demonstrated competency in performing this procedure in accordance with Section 4 are authorized to use this procedure.

2.2 **Chain of Custody procedures:** The collector of the sample is responsible for the integrity of the sample until the sample has been properly transferred to the IH Group laboratory using the SHSD established *Chain of Custody IH51300* procedures. It is permissible to use this procedure to collect samples that will be analyzed by a laboratory not associated with the IH Group. However, to have the data included in the SHSD IH group databases, approval of the data by the IH Group Leader or his/her designee is required. Approval will be contingent on documentation that appropriate sampling and analysis procedures were followed and the submittal of an appropriate *Chain of Custody*, analysis report, and any other requested documentation to the IH group.

2.3 **Hazard Analysis of the Sampling Task:** It is the responsibility of the person using this method and his/her supervisor to ensure that the appropriate personal protective equipment is worn while performing this procedure. See section 5.2 and Table 1. In addition, the person performing this procedure and his/her supervisor are responsible to ensure that all required training and qualification for hazards that may be present in areas where this procedure will be used have been met. The person performing this procedure and his/her line supervisor are responsible to comply with all work planning and work permit system requirements.

3.0 Definitions

3.1 ***ACGIH TLV***: American Conference of Governmental Industrial Hygienist Threshold Limit Value- a DOE mandated occupational exposure limit.

3.2 ***OSHA PEL***: Occupational Safety and Health Administration Permissible Exposure Limit- a DOE mandated occupational exposure limit.

3.3 ***Program Administrator:*** A person designated by the IH Group Leader or SHSD management to administer this procedure and the associated program of wipe sampling data management.

3.4 ***Qualified Sampler:*** A person who has demonstrated competency, in accordance with Section 7, to perform this field procedure.

4.0 Prerequisites

Persons using this SOP must meet the qualification criteria in Section 7.

5.0 Precautions

5.1 **Hazard assessment:** The actual task of taking a surface wipe sample typically does not cause significant employee health risks. However, the technique can involve risk if the solvent used is hazardous. By its very nature, this SOP may be performed in areas with chemical or radiological contamination, and these hazards must be assessed on a case-by-case basis. No one is to perform Surface Wipe sampling until the hazards of the area have been assessed by a competent individual knowledgeable of the hazards of the area.

5.2 **Personal Protective Equipment:** Appropriate personal protective equipment to protect the person collecting the sample must be used when implementing this procedure. At a minimum, disposable gloves must be used when contacting the surface material and handling exposed sampling media. The gloves must have sufficient impermeability to the surface contaminant and solvent used on the collection media to allow safe handling. See Table 1. Where the potential for contamination of the body can occur, the use of disposable clothing to cover the areas of contact is required. When the potential for exposure to airborne contaminants above the ACGIH TLV, STEL or Ceiling or OSHA PEL (which ever is lower) may occur, the person collecting the sample must use appropriate respiratory protection in compliance with the BNL Respiratory Protection Program.

5.3 **Radioactive Contamination:** It is possible that some surfaces to be tested may have radioactive contamination as well as the chemical contamination. In these cases, personal protective equipment and administrative controls must be implemented for the radiological contaminant hazard in addition to the chemical hazard. In addition, the collected sample must be analyzed for the radiological hazard before it can be submitted to the IH Group for analysis. The radiological contamination must be below the permissible release limits to the general public. See FS SOP-1005.

5.4 **Work Planning:** All requirements of work permits and work planning system reviews must be met in performing this procedure.

5.5 **Environmental Impact and Waste Disposal:** This technique does not have adverse impact on the environment. The sampling media used in this technique that may have hazardous chemical involved is processed to a laboratory for analysis. Any unused

solvents, templates, and gloves that are to be discarded must be disposed of in accordance with Waste Management Division directions and procedures.

6.0 Procedure

6.1 Equipment

Sample container (either):	Bag, plastic, sealable with "zip" type seal.
	Vial, glass or plastic. (Glass is needed for hexane solvents based samples).
Sample media (any of these)	Gauze: 2" x 2" or 4" x 4" cotton gauze
	Paper: Ashless quantitative filter paper (typical diameter is 1.5 to 4 inches)
	Pre-moistened wipe: manufacturer foil wrapped, solvent soaked disposable cloths (An acceptable brand is the GhostWipes™; via Environmental Express.)
Gloves	Appropriate for contaminant and solvent (see Table 1) and site hazards.
Solvent	Distilled water, iso-propanol, ethanol, methanol, n-hexane, or pre-moistened. See Table 1 for recommended solvent for each contaminant.
Template	Plastic sheet or cardboard: See Table 1 for size needed - 100cm^2: 10 cm x 10 cm square –or- circle of 11.24 cm diameter. - 1ft^2: 1foot x 1 foot, or other shape totaling 144 in^2.

6.2 **Surface Wipe Technique:** BNL SHSD IH Group has selected the NIOSH method of collecting wipe samples. For uniformity, this method should be used for all sampling. **surface to be sampled (Visual depicted in Figure A)**

6.2.1 Moisten the sample media with 1 to 2 ml of the appropriate solvent (see **Table 1**) or use pre-moistened wipe. Apply only enough solvent to moisten approximately 80% of the area of the media. Avoid excess solvent on the filter or pad as it may cause drips and running on the surface thus diluting the sample.

6.2.2 Place the template over the area to be sampled or measure out 1 ft^2 or 100-cm2 surface area. If the object has a total surface area of less than 1 ft^2 or 100 cm^2, sample the whole surface area, if possible, and record the surface area. If the surface does not allow the use of a template, carefully determine the dimensions that will equal 1 ft^2 or 100 cm^2.

6.2.3 Wipe the surface with firm pressure, using 3 or more S-strokes (in one direction, covering the entire surface). Fold the exposed side of the pad or filter inward (i.e. fold in half). [If the surface is very rough, a dabbing action may be substituted for the S-stroke wipe. Indicate dabbing done on **Attachment 9.1**]

6.2.4 Using the once-folded media, wipe the same area with S-strokes at right angles to the first wipe. Fold the exposed side of the pad or filter in.

6.2.5 Using the twice-folded media, wipe with S-strokes in the original direction. Fold the exposed side of the pad or filter in.

6.2.6 Place the media in a plastic bag or vial. Seal the zip lock or vial. Record the sample identification on the bag or vial.

6.2.7 Thoroughly clean reusable templates or discard paper templates in preparation of the next sample. Based on WMD testing of similar material, templates can be disposed as normal trash.

6.2.8 Remove gloves and discard appropriately before handling the next filter or pad. Based on WMD testing of similar material, templates can be disposed as normal trash.

6.2.9 Record the sample identification, surface area sampled, and description of the sample and surface on the sample form in **Attachment 9.1.**

6.2.10 Include 1 blank filter or pad (moisten and placed in bags or vials) with each set of samples (provide 1 blank per 6 samples).

Figure A: NIOSH Surface Wipe Method

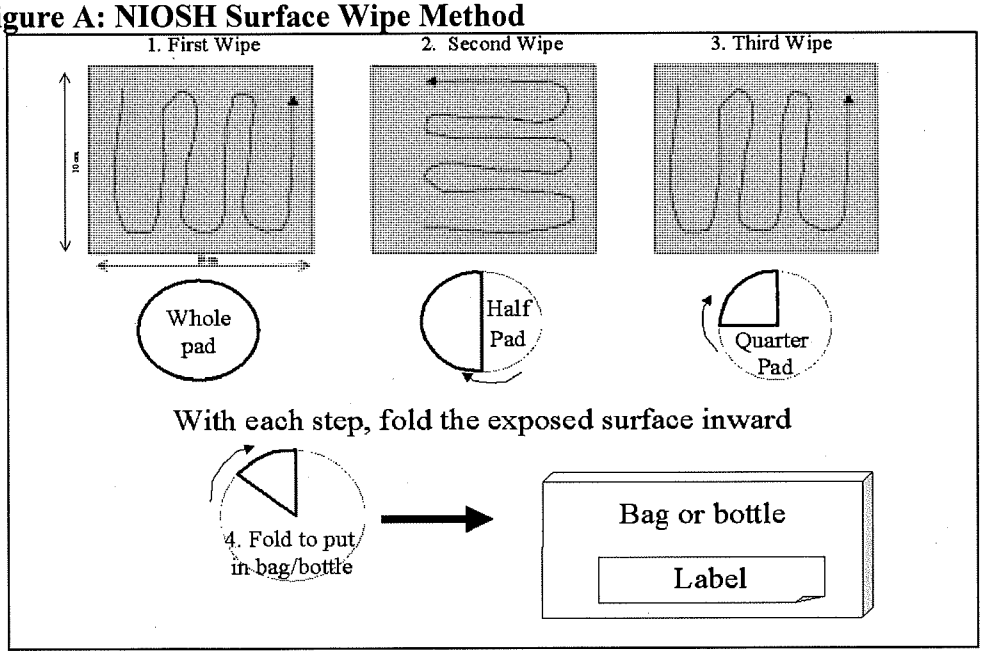


Table 1

Contaminant	Media	Solvent[1]	PPE Glove[2] Disposable Style	Sample Size
Lead	Gauze or Filter	Distilled Water	Natural Latex Rubber, Nitrile, PVC, or Polyethylene	1 square foot, 100 cm^2 requires advanced approval by IH professional verifying that sensitivity is adequate
	GhostWipe™ (should be cut in half) [3]	Wipe is premoisten (Water & Benzalkonium Chloride)		
Beryllium	Gauze or Filter	Distilled Water	Natural Latex Rubber, Nitrile, PVC, or Polyethylene	1 square foot minimum needed always
		Isopropanol, Methanol, Ethanol		
	GhostWipe™ (should be cut in half) [3]	Wipe is premoisten (Water & Benzalkonium Chloride)		
Arsenic Cadmium Chromium, or Nickel	Gauze or Filter	Distilled Water	Natural Latex Rubber, Nitrile, PVC, or Polyethylene	100 cm^2 typically acceptable
	GhostWipe™ (should be cut in half) [3]	Wipe is premoisten (Water & Benzalkonium Chloride)		
PCB[4]	Gauze Pad	Iso-octane, n-hexane, cyclohexane	Natural Latex Rubber, Nitrile, Neoprene	100 cm^2 typically acceptable
PNAH	Filter	Hexane	Nitrile, Neoprene	100 cm^2 typically acceptable

Media and solvents described in Reference 9.4.

Notes for Table 1:

(1) Solvent: The solvent is not critical for lead, beryllium, and most heavy metals such as cadmium, nickel, and chromium. In doing wipes for these compounds, it is allowable to choose the solvent that will have the least impact (residues) on the owner of the equipment being sampled (i.e. some equipment is sensitive to water residues and an alcohol or other solvent may be preferred by the equipment owner.)

(2) Selection criteria: Breakthrough time greater than 1 hour of continuous contact. Source of data *is DOE Guidelines for the Selection of Chemical Protective Clothing, 1991.*

(3) The use of full size GhostWipes™ for may cause the sample to not meet the minimum level of detection. To increase sensitivity, cut GhostWipes™ in half to reduce the size of the wipe.

(4) The use of this procedure for Polychlorinated Biphenyl (PCB) is limited to circumstances involving OSHA compliance testing. (Compliance sampling for EPA clearance at spills and remediation sites requires the use of Environmental Services Division EM-SOP-PCB.)

6.3 **Sampling Technique:** Determining HOW MANY samples to take. It is not possible to provide definitive guidance on the number of samples to be taken in every case. **Table 2** provides general guidance on which to base professional judgment in determining the number of samples. Factors that should be considered in selecting the number of replicate samples to be taken include: the size of the area to be tested, the predicted uniformity of contamination over the surface area, and the eventual fate of the surface area (disposal, remediation, background measurement, etc.)

If more than six (6) samples are to be taken, it is suggested that at least one (1) duplicate sample be taken in close proximity to one other to verify the precision (repeatability) of the sampling.

Table 2

Surface Configuration	Minimum Number of Samples	Qualifier
Entire Surface is less than 100 cm2 (example: a small article)	1	If possible, sample the whole item, one sample is usually sufficient.
Surface Area of object or area is greater than 100 cm2 but only a few square feet (example: table top on which a process is done)	1	If only one sample is taken, select the area with highest potential contamination
Surface Area of object or area is greater than a few square feet (example: floor or wall of a room)	1 - 3	Ideally three samples are taken, but fewer samples may be taken depending on the response action and purpose for sampling
Multiple surfaces are present in an area with the same exposure potential to source (example, many rooms in a building with a common source such as the HVAC system)	1 – 3 for each unique surface type, 3 in a representative location and, 6 or more for the whole area	Assumes all the surfaces have similar exposure potential, else treat each area separately.

6.4 **Sampling Technique:** Determining WHAT KIND of samples to take when assessing the contamination of an object, spill site, or work area, and characterizing levels on exposed surfaces is the main focus of sampling. However, it may be appropriate to take wipes of the other surfaces, such as:

- surfaces that hazardous objects rest on,
- inside of storage drawers and cabinets,
- areas where workers predominately spend time or frequently access,
- sources of the contamination (such as process equipment, lab apparatus),
- areas where contamination is not expected (serves as a control), and

- areas where contamination would not be permissible (such as lunch rooms and offices).

6.5 **Results interpretation:** Sampling results from the laboratory should be normalized to the base units of the Acceptable Surface Contamination Level's (ASCL) reported value. The limits are listed in **Table 3**.

6.6 **Reporting results**: The assessment of results of surface wipe sampling should be conveyed to the requestor of the sampling, that organization's ESH Coordinator and the management of the building's occupants in the form of a written analysis documenting:
- Sampling and analysis methods,
- Contamination levels measured,
- Impact of the levels on regulatory compliance and occupant safety, and
- Recommendations on corrective actions (if corrective action is necessary).

Table 3

Compound	Acceptable Surface Contamination Level	Matrix/Qualifier	M/R	Source
Beryllium	3 ug/100cm^2	Housekeeping: Dust on surface	M	DOE 10 CFR 850.30
	3 ug/100cm^2	Release Criteria: to beryllium area	M	DOE 10 CFR 850.31
	0.2 ug/100cm^2	Release Criteria: to non-beryllium area	M	DOE 10 CFR 850.31
Lead	4.3 ug/100cm^2 (40 ug/sq ft)	Floors	R1	EPA TSCA 403
	26.9 ug/100cm^2 (250 ug/sq ft)	Interior Window Sills	R1	
Arsenic	15 ug/100cm^2	Housekeeping: Dust on surface	R2	BNL Best Management Practice based on DOE Beryllium
	1.0 ug/100cm^2	Release Criteria: to non-regulated area	R2	
Cadmium	3 ug/100cm^2	Housekeeping: Dust on surface	R2	BNL Best Management Practice based on DOE Beryllium
	0.2 ug/100cm^2	Release Criteria: to non-regulated area	R2	
Chromium III	70 ug/100cm^2	Housekeeping: Dust on surface	R2	BNL Best Management Practice based on DOE Beryllium
	3.3 ug/100cm^2	Release Criteria: to non-regulated area	R2	

Compound	Acceptable Surface Contamination Level	Matrix/Qualifier	M/R	Source
Chromium VI	3 ug/100cm^2	Housekeeping: Dust on surface	R2	BNL Best Management Practice based on DOE Beryllium
	0.2 ug/100cm^2	Release Criteria: to non-regulated area	R2	
Nickel	200 ug/100cm^2	Housekeeping: Dust on surface	R2	BNL Best Management Practice based on DOE Beryllium
	10 ug/100cm^2	Release Criteria: to non-regulated area	R2	
PCB	10 ug/100cm^2	Unrestricted access area, liquid on surface	M	TSCA
	100 ug/100cm^2	TSCA restricted access area, liquid on surface	M	

M = Mandatory based on regulation applicable to BNL
R1= Recommended based on regulation not applicable to BNL
R2= Recommended based on analogy to Beryllium surface criteria

7.0 Implementation and Training

7.1 **Qualification Criteria:** Use of this SOP shall be limited to persons who have demonstrated the competency to satisfactorily use the procedure, as evidenced by experience and training, to the satisfaction of their supervision or existing qualification criteria set by their organization.

7.1.1 **For SHSD:** The IH Group will maintain a record of SHSD personnel who have passed the competency test listed in Attachment 8.2. If significant and substantive changes to the procedure are made, *Qualified Samplers* will be notified of the changes. IHG will re-qualify on a three year cycle.

7.1.2 **For other organizations:** The qualification criteria, re-qualification frequency, and record keeping for personnel are to be determined and documented by an organization's management.

8.0 References

8.1 NIOSH Manual of Analytical Method, Fourth Edition, Method 9100: *Lead in Surface Wipe Samples*, 8/15/94.

8.2 OSHA Instruction CPL 2-2.20B: *Sampling for Surface Contamination*, 2/5/90.

8.3 EPA: Toxic Substance Control Act (TSCA) 40CFR761.130.

8.4 Ness, S.A.; *Surface and Dermal Monitoring for Toxic Exposures*, Van Nostrand Reinhold, 1994.

9.0 Attachments

9.1 Attachment 9.1: Surface Contamination Sampling Form
9.2 Attachment 9.2: SHSD Job Performance Measure (JPM) Completion Certificate

10.0 Documentation

Document Review Tracking Sheet		
Prepared By: *Signature and date on file* R. Selvey, CIH 02/25/2000	Technical Reviewed By / Date: *Signature on file* N. Bernholc, CIH 02/27/00	SHSD Approved By / Date: *Signature on file* R. Selvey 03/02/2000
Technical Reviewed By / Date: *Signature on file* C. Weilandics, RCD- FS	RCD Review Committee **3-29-01**	RCD Facility Support Approved By/ Date: *(Signature and date on file)* **N. Foster 04/22/01** Procedure Committee Review
Filing Code: **IH52QR.01**	QA Review /Date: *Signature on file* E. Tucker	Effective Date: **03/02/2000**

Periodic Review Record		
Date of Review	Reviewer Signature and Date	Comments Attached
10/6/00	*(Signature and date on File)* Robert Selvey	Revised for minor correction noted in training classes
02/05/01	*(Signature and date on File)* Robert Selvey	Added new format, SBMS header and reviewed sections on Hazard assessment, PPE. Added Waste Disposal and Environmental Impact text.
03/09/01	*(Signature and date on File)* Robert Selvey	Minor format change. Converted SOP number from IH-FP-3.2 to new system IH75190.
04/22/01	*(Signature and date on file)* Robert Selvey	Revised to include RCD Facility Support Procedure Committee Review comments.

04/10/02	*(Signature and date on file)* Robert Selvey	Updated Table 1 adding Arsenic and Cadmium Media. Update Table 3 with Arsenic and Cadmium Release Criteria and update EPA Lead Criteria
4/17/02	*(Signature and date on file)* Robert Selvey	Updated Table 1 to correct error in lead criteria. Insert Section 7 and transfer information from section 4. Renumber attachments.
08/16/02	*(Signature and date on file)* Robert Selvey	Added Best Management Practice release criteria for Arsenic and Cadmium to Table 3.
10/17/02	*(Signature and date on file)* Robert Selvey	Added Best Management Practice release criteria for Nickel to Table 3.
02/19/03	*(Signature and date on file)* Robert Selvey John Peters	Full review of SOP. Significant text changes. Deleted OSHA Method for procedure. Updated Attachments 9.1 and 9.2.

Brookhaven National Laboratory
Safety & Health Service Division
Industrial Hygiene Group

Surface Contamination Sampling Form

BNL-IH75190 Attachment 9.1 02/2003

Analyte:

	LEAD
	BERYLLIUM
	CADMIUM
	Other:

DEPT:

BUILDING:

LOCATION NAME, ROOM NUMBER & DESCRIPTION:

Sample Media:

	Ghost Wipe™
	Cotton Gauze Size:
	Filter Paper Type & Size:
	Other:

Solvent:

	Pre-Moistened
	Distilled Water
	Hexane
	Iso-Propanol
	Other:

Surface Area Measurement:

	Template
	Measured Area
	Estimated Area
	Other:

REASON FOR SAMPLING:

___Area Characterization
___Pre-Remediation
___Post Remediation

Other:

Sample Identification

Sample Number				Sample Location	Surface Type Metal / Plastic / Glass /Painted Wood / Wood / Painted Concrete / Concrete	Surface Area
Bldg#	MMDDYY	Sample #	Analyte Symbol			
						_____1 ft^2 _____100 cm^2 other: _____
						_____1 ft^2 _____100 cm^2 other: _____
						_____1 ft^2 _____100 cm^2 other: _____
						_____1 ft^2 _____100 cm^2 other: _____

___Additional Samples next page

Total Number of Samples:_____

SAMPLE DATE:		**RELINQUISHED TO SHSD IH LAB BY: (SIGNATURE):**	**DATE /TIME:** /
SAMPLES TAKEN BY: (Print Name and Signature) /		**RECEIVED BY SHSD IH LAB EMPLOYEE (SIGNATURE):**	**DATE /TIME:** /

BROOKHAVEN
NATIONAL LABORATORY

IH75190 Attachment 9.2
HP-IHP-75190

Environmental, Safety, Health & Quality Directorate
SHSD Industrial Hygiene

Chemical Surface Wipe Sampling
Job Performance Measure (JPM) Completion Certificate

Candidate's Name	Life Number:	Qualification Number: **HP-IHP- 75190**

Knowledge of the Principles of Surface Wipe Sampling — **Demonstrated by Written Exam**

Criteria	Qualifying Standard
Hazard Analysis	Understands the need to perform a hazard analysis of the sampling area and potential exposure to the sampler.
Personal Protective Equipment	Understands the need to be aware of the potential surface contamination and airborne levels of contaminants and knows how to determine the need for PPE.
Sampling Protocol	Understands the exposure monitoring logic necessary to appropriately select sampling locations to accurately measure worker, public and environmental exposure potential.
Analysis of data	Understands the need to perform analysis on the sampling data to assess potential exposure to the sampler, worker, public and environment, and to recommend corrective actions as necessary.

Practical Skill Evaluation: Demonstration of Surface Wipe Methodology

Criteria	Qualifying Performance Standard	Unsat.	Recov.	Satisf.
Sampling Equipment	Knows where equipment needed for the procedure is located and how to properly sign it out.			
Moistening Media	a. Filter/gauze: Moistens media with the appropriate solvent. Applies solvent to moisten approximately 80% of the area of the media. Does not over moisten. b. For pre-moistened media, shows reduction in size of wipe.			
Size of Area & Use of Template	Understands the importance of quantifying the area sampled. Demonstrates placing template on surface or measuring the surface area.			
Folding Media at each wipe step	Demonstrates the inward folding of media after each wipe and placement of media into container so that surfaces loaded in the wiping are not exposed.			
NIOSH Method wipe pattern	Demonstrates the technique of three passes of wiping in "S" pattern, changing the direction on second pass, original direction on third pass.			
Choose correct solvent	Knows how to select correct solvent from Table 1.			
Select the correct number of samples	Knows how to choose the appropriate numbers of samples based on Table 2.			
Record forms	Shows how to correctly and completely fill all forms associated with this SOP.			

I accept the responsibility for performing this task as demonstrated within this JPM and the corresponding SOP.

Candidate Signature:	Date:

I certify the candidate has satisfactorily performed each of the above listed steps and is capable of performing the task unsupervised.

Evaluator Signature:	Date:

Surface Contamination Sampling Form BNL-IH75190 Attachment 9.1 Page _____ of _____

Sample Number				Sample Location	Surface Type Metal / Plastic / Glass /Painted Wood / Wood / Painted Concrete / Concrete	Surface Area
Bldg#	MMDDYY	Sample #	Analyte Symbol			
						_____1 ft^2 _____100 cm^2 other: __________
						_____1 ft^2 _____100 cm^2 other: __________
						_____1 ft^2 _____100 cm^2 other: __________
						_____1 ft^2 _____100 cm^2 other: __________
						_____1 ft^2 _____100 cm^2 other: __________
						_____1 ft^2 _____100 cm^2 other: __________
						_____1 ft^2 _____100 cm^2 other: __________
						_____1 ft^2 _____100 cm^2 other: __________
						_____1 ft^2 _____100 cm^2 other: __________
						_____1 ft^2 _____100 cm^2 other: __________

SAMPLE DATE:

SAMPLES TAKEN BY: (Print Name and Signature)
/

RELINQUISHED TO SHSD IH LAB BY: (SIGNATURE):	**DATE /TIME:** /
RECEIVED BY SHSD IH LAB EMPLOYEE (SIGNATURE):	**DATE /TIME:** /

EXHIBIT H-5
VES LOCATION MAP

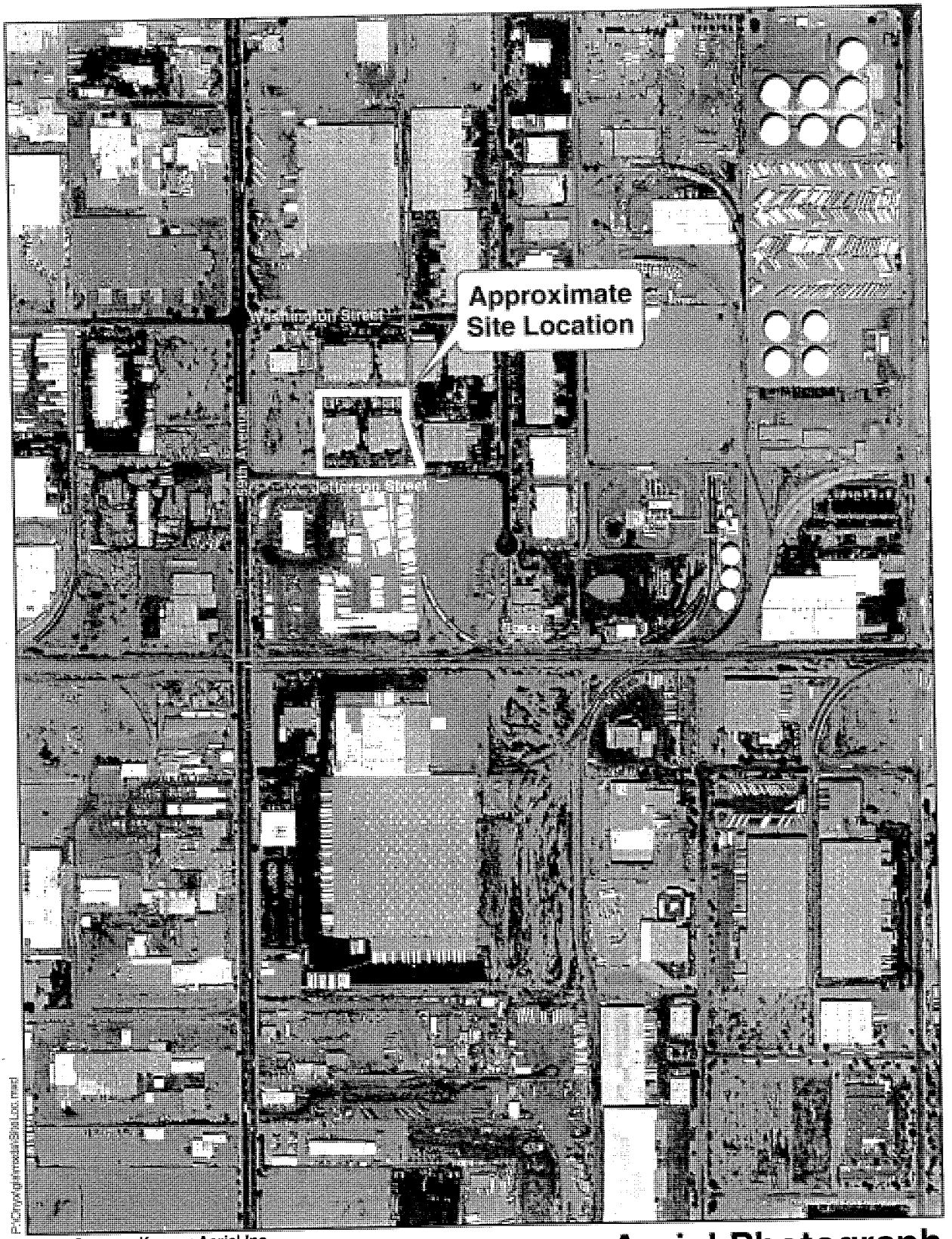


Photo Source: Kenney Aerial Inc.

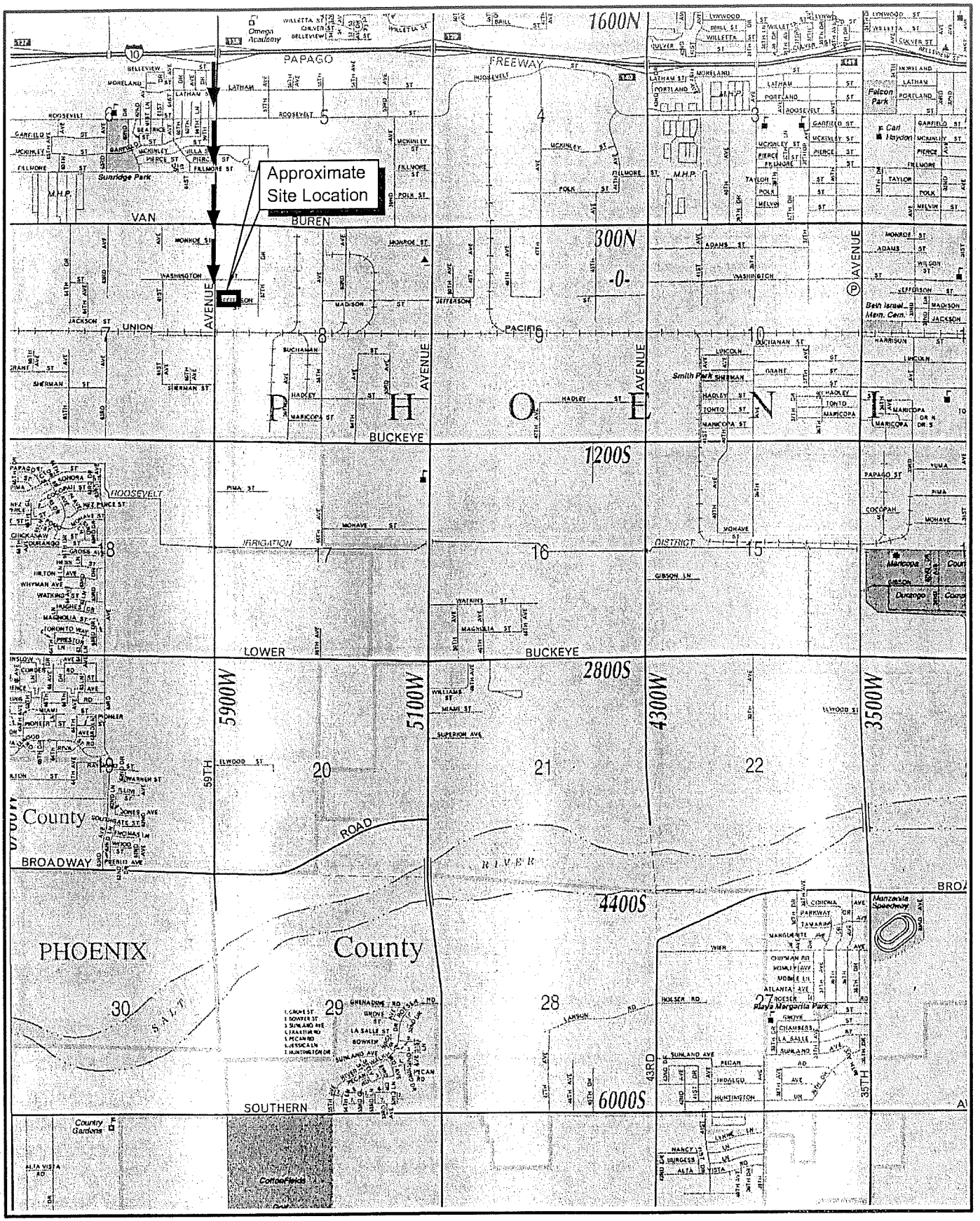
Aerial Photograph

Part A Application

0 500 1,000 Feet

December 11, 2002

ONYX SPECIAL SERVICES



Transportation Route

0 1 2 5 Scale in Miles

Street Map

Figure 2

ONYX SPECIAL SERVICES

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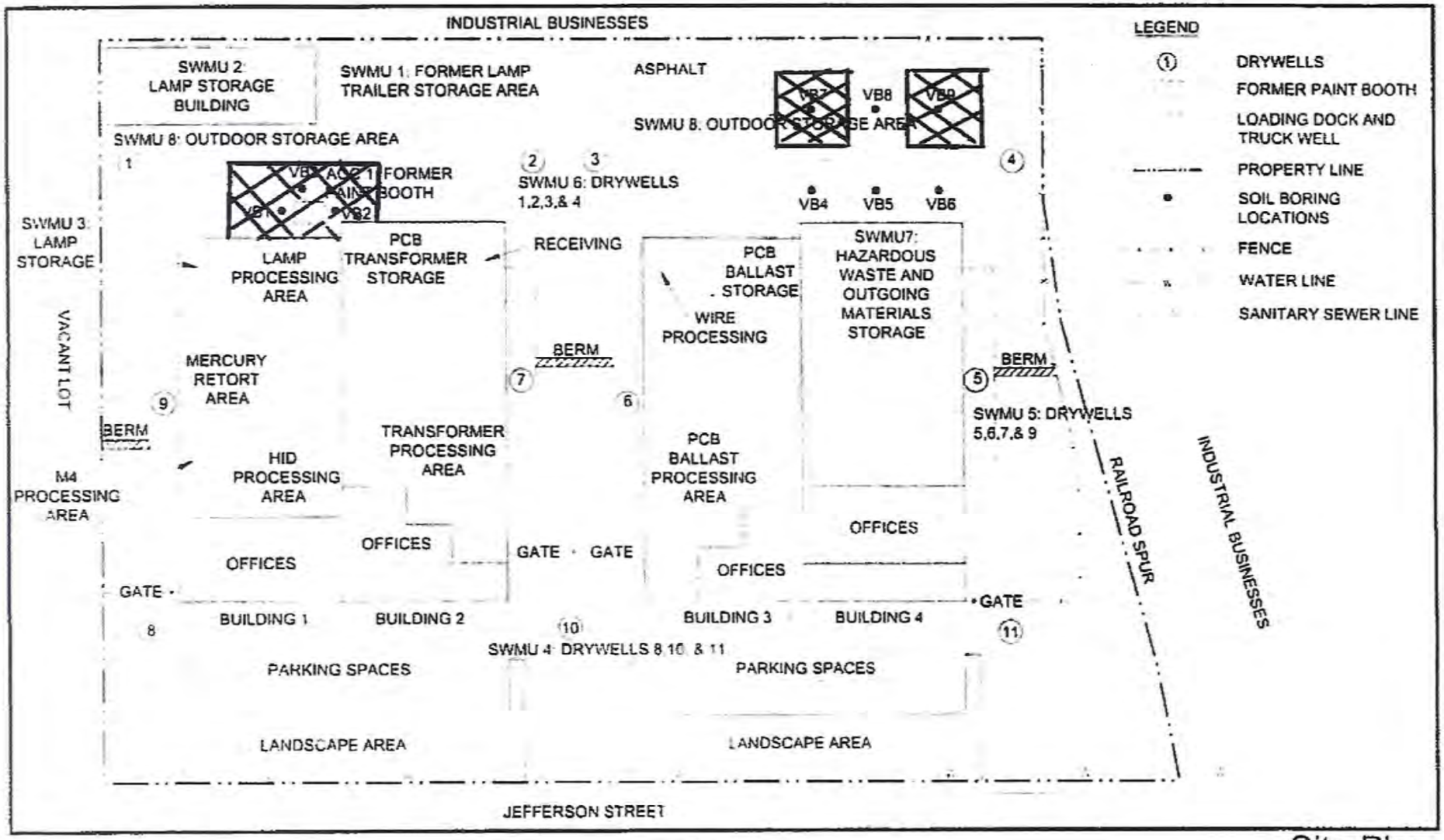
EXHIBIT H-6

SITE PLAN FOR CLOSURE



Site Plan

Site Assessment Report
Veolia ES Technical Solutions, LLC
5736 West Jefferson Street
Phoenix, AZ

Figure 2

URS

P:\VEOLIA\CADD\FIGURES\A17505.DWG 04-10-08