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**New York City Department of Environmental Protection
Bureau of Environmental Compliance**

The New York City Department of Environmental Protection Asbestos Control Program (ACP) with assistance from representatives of the NYS Department of Labor (NYS DOL) and the United States Environmental Protection Agency (US EPA) performed site visits at buildings in the vicinity of the World Trade Center. These site visits were scheduled in January and February 2002 to perform visual assessments of clean-up activities and the presence of visible debris at building exteriors. These assessments were a follow-up for activities performed in October and November 2001.

The visual assessments disclosed the presence of various amounts of debris with various dispersal patterns of the building exteriors. The majority of buildings had isolated areas of debris specifically at the perimeter of the roofs, at the base of parapet walls, and in gutters. Debris was also visible at horizontal surfaces, on building facades. For some buildings, building facades facing the street were cleaned while the facades at the rear remained dirty.

The observed debris was characteristic of the debris from the impact of September 11, 2001. The debris appears to have reformed into a dense mass (caked). ~~In this state, the material does not pose an immediate threat to public health and safety.~~ *for EPA info*

Letters were forwarded to building owners identifying the observations, and the requirements for assessment and appropriate clean up. Subsequently, the ACP scheduled follow-up site visits to determine clean-up activities. During these follow-up visits, samples of the debris were collected. The uneven dispersal identified above was also evident in the sample collection. Samples collected from various buildings indicated that some of the debris was asbestos-containing material. Other samples did not disclose the presence of asbestos, and others were trace or below 1% asbestos.

[Based on the current conditions, the potential for exposure to elevated airborne asbestos levels from this material is low. This is also confirmed by the outdoor air sampling data collected to date, which verifies levels are below the re-occupancy standard. However, the identified areas must be cleaned to prevent the potential exposure if conditions change. In accordance with the asbestos rules and regulations, material must be assumed to be ACM unless sampled and found to be negative.] In the absence of sampling data for specific buildings, it is recommended that NYS DOL licensed asbestos contractors with NYC DEP and NYS DOL certified workers perform the clean-up activities. In addition, an independent third party must perform air monitoring during the clean-up activities. *Asbestos* *buildings with debris*

Supporting documentation is attached for your reference. The information includes a summary of the visual inspections and the areas identified for clean-up, scopes of work for clean up of the roofs and/or building facades, estimated cost for the clean-up activities.

February 27, 2002

EPA → Should expect owners that already cleaned to expect calls

about re-emburment for owners

→ who already called re FEMA

would

COST ESTIMATE**DRAFT**Total Number of Buildings $200 + 50^* = 250$ **CLEAN UP COST -ROOF**

Assumption	Area of Contamination	Number of buildings	Clean up Cost/ sq.ft	Total Cost
10%	10,000 sq.ft	25	\$3	\$750,000
20%	5,000 sq.ft	50	\$4	\$1,000,000
70%	1000-5000 sq.ft (Avg .2500 sq.ft)	175	\$8	<u>\$3,500,000</u> <u>\$5,250,000</u>

AIR MONITORING COST

No. of man-hour days = 400
 Total man-hours = 400×8
 = 3,200
 Cost for air monitoring tech. = \$35 / hr
 Total cost for man-hours = \$112,000

TEM analysis cost = \$35 / sample
 No. of samples = 1,250
 (Five samples at each site)

Total cost for TEM analysis = $35 \times 1,250$
 = \$43,750

Total cost for sampling & analysis = \$155,750

FAÇADE

Costs are difficult to estimate because of the equipment cost which depends on the height of the building.

Approximate cost = \$3,000,000

TOTAL PROJECT COST \$ 5,405,750+ 3,000,000+ \$ 2,000,000** = \$10,405,750

* Estimate of dirty roofs based on our plan to expand Zone 1 and Zone 2

** Contingency

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Building Facade Clean-up

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Work shall be performed by a NYSDOL licensed asbestos contractor with NYCDEP and NYSDOL asbestos certified workers.

The contractor performing the cleaning should be experienced in cleaning building facades.

The area below the façade cleaning shall be covered with a layer of polyethylene sheeting and all debris and water must be collected for disposal as ACM waste (i.e. All waste must be double bagged in ACM waste labeled bags.)

Building occupants shall be notified prior to the façade cleaning. Access to the street below the façade cleaning shall be restricted and marked with caution tape. Cleaning shall not be performed during wind speeds greater than 20 mph.

All HVAC systems and air conditioners shall be turned off. All windows shall be closed during the cleaning of the building. Some air conditioners and windows may require sealing with duct tape to prevent water penetration.

In cases where equipment is rigged from the roof: All clean-up activities on the roof must be completed prior to rigging equipment from the roof.

All horizontal surfaces and all windows on the façade shall be cleaned of large bulk material by wetting and brushing, by wet wiping and/ or by HEPA vacuuming from top to bottom. The removed material shall be immediately placed into containers (e.g. bags). Windows shall be wet wiped. Free running water shall not be evident during this procedure. Power for HEPA vacuums shall be supplied through ground fault interrupters.

After completing the above, the entire façade shall be carefully washed. A low pressure washing technique, moving from top to bottom, shall be employed to minimize water bounce-back

At the completion of work, a visual inspection of the abated surfaces and sidewalk shall be performed to verify the absence of visible debris.

Air monitoring shall be performed by an independent NYSDOL licensed third party air monitoring firm with certified workers.

In order to minimize disruption to the public and to the building occupants, it is recommended this work be performed during off-hours.

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DRAFT**H. Roof Decontamination**

Application: This procedure utilizes wet methods and careful hygiene protocol for cleaning roofs contaminated with asbestos containing material (ACM).

1. The entire roof shall be considered the work area. All abatement will be performed by NYSDOL licensed contractors with NYC DEP certified workers.
2. A changing area consisting of two adjacent step-off pads located on the roof immediately adjoining the roof entrance/exit. This area shall consist of a clean pad and a change pad. The clean pad shall be adjacent to the building interior access way (or at the point of entry to the roof for exterior access). The change pad shall be adjacent to the contaminated roof areas. Each pad (change pad and clean pad) shall consist of two layers of 10-mil reinforced plastic on the roof/access way surface and shall be large enough to facilitate changing and decontamination as described herein. A minimum of 4' x 4' is recommended, though the exact configuration will be specific to the roof.
3. Workers shall first step from the building interior (or exterior at the point of entry to the roof) directly onto the clean pad. On the clean pad, each worker shall be double suited with disposable coveralls, plastic booties, gloves, and head coverings. Rubber boots may be used instead of the plastic booties. The boots shall be wet wiped and HEPA vacuumed prior to leaving the roof. Each worker shall wear a minimum of a half-face air-purifying respirator equipped with HEPA cartridges.
4. All penetrations at the roof shall be cleaned by wet methods/HEPA vacuum and sealed with polyethylene sheeting.
5. Roof cleanup shall begin at the entrance/exit and proceed in a path working away from the entrance/exit. Water shall be the primary engineering control to minimize the potential for fiber release.
6. Roof surfaces shall be wetted and then wet cleaned using wet wiping techniques with water, mops, rags, brushes, etc. HEPA vacuuming may also be used as alternative to or in combination with wet cleaning.
7. Throughout the procedure, all personnel entering or existing the roof shall observe the personal decontamination practices. Attention shall be paid to limiting unnecessary walking on or disturbance of material on the roof. These personal decontamination procedures shall be adhered to strictly in order to minimize the potential for spreading contamination to the interior of the buildings.
8. Solid nonporous objects, such as metal patio furniture, plant pots, and plastic furniture cushions, shall be wet wiped with damp rags. Wooden objects such as decking shall be HEPA vacuumed, wet wiped, and lightly brushed with a bristle brush utilizing simultaneous misting and local HEPA exhaust. Woven materials shall either be disposed as ACM or bagged and removed off-site for proper laundering in accordance with 29 CFR 1901. 1001. Potted plants with visual contamination should be disposed as ACM waste unless the owner requests decontamination. Potted plants will be repeatedly rinsed, and provisions shall be made to catch the runoff water (i.e. into ACM disposal bags or by using rags and HEPA wet-vacs).
9. Air Monitoring shall be performed by NYSDOL licensed a Third Party Air Monitoring firm with certified workers. At a minimum, air sampling shall be performed at the interior of the building entrance to the roof.

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