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March 22, 2007

Ms. Kimberly N. Tisa
PCB Coordinator
United States Environmental Protection Agency
One Congress Street, Suite 1100—CPT
Boston, MA 02114-2023

RE: Addendum to Comments for the Alternative Abatement Application Under 40 CFR §761.79(h) for Tower A and the Low-rise Building of the Lederle Graduate Research Center, Amherst, Massachusetts (EH&E 14680)

Dear Ms. Tisa:

On behalf of the University of Massachusetts (UMass), Environmental Health & Engineering, Inc. (EH&E) is submitting this addendum to comments provided by the U.S. Environmental Protection Agency (EPA) for the February 21, 2007, Alternative Abatement Application for the Removal of Polychlorinated Biphenyls (PCBs) (Abatement Plan) under 40 CFR §761.79(h) for Tower A and the low-rise building of the Lederle Graduate Research Center located at Amherst, Massachusetts.

Please find the following comments from the March 8, 2007, letter and the subsequent responses to each comment.

INDOOR AIR RESULTS REPORT, FEBRUARY 21, 2007 (REPORT)

- 1. This Report was confusing since many of the samples were not clearly identified. However, this was addressed in the clarification tables provided in the February 27, 2007 e-mail transmittal.**

As noted, EH&E provided additional clarification tables to the EPA in the February 27, 2007, email.

- 2a. With respect to a chain of custody form dated September 22, 2006, there is reference to samples 80244 through 80249. There is no further discussion in this Report as to what these samples were/are.**

Samples #80244 through #80249 dated September 22, 2006, were bulk and wipe samples collected from the exterior of the two buildings. As such, EH&E did not include a discussion of these results in the Report, which focused on indoor sample results. The bulk and wipe sample results for these samples are included and discussed in detail in the Abatement Plan (Tables 2.4 and 2.5).

2b. An analytical report for Sample #80244 indicated the sample matrix as a "wipe", but the chain-of-custody indicated the sample as a "bulk" sample.

Please note that the Abatement Plan dated February 21, 2007 (Abatement Plan) contains this same chain-of-custody and data for all the samples in Appendix C. There is discussion of what these samples are and interpretation of the data under the Risk Assessment Discussion and Exposure Assessment contained in the Abatement Plan's Appendix B. Sample 80244, which was identified as a "wipe" sample on the analytical data in the Report, is shown as a bulk sample on the analytical data contained in the Abatement Plan.

Accordingly; please clarify if the samples identified as #80244 are different or if there was an error on the analytical report. Please review and revise for clarity and accuracy.

In the Alpha Analytical report for the September 22, 2006 samples, sample ID #80244 is inadvertently reported twice (once as a bulk sample of concrete and once as a wipe sample). The correct sample #80244 is a bulk sample analyzed for PCB homologs and reported to contain a concentration of 14,000 ppm in Table 2.4 of the Abatement Plan. This specific sample was sent to Alpha Analytical for analysis of PCB homologs and also included samples #80245 through #80249. EH&E understands that these samples were analyzed at Alpha Analytical's Raynham facility. Another set of wipe and dust thimble samples (#80230 through # 80243 and #80250) were sent to Alpha Analytical for analysis following EPA method 8082. These samples were analyzed at Alpha Analytical's Westborough facility. Sample #80250 was a dust thimble field blank and is identified in the chain of custody. However this sample number does not appear in the laboratory results. However, a wipe sample with ID # 80244 appears in that report. EH&E believes that the laboratory inadvertently mislabeled dust thimble sample 80250 as a wipe sample with the sample ID #80244. EH&E has requested that the laboratory change the number and reissue the report.

3. For purposes of the Abatement Plan, the Report and the October 12, 2006 Preliminary Report are an integral part of understanding the current site conditions. As such, these documents will be referenced in EPA's Approval and should be part of the information available to interested parties at UMASS. Further, a hard copy of

the October 12, 2006 Preliminary Report must be provided to EPA to support the Abatement Plan.

EH&E will forward a hard copy of the *October 12, 2006 Preliminary Report* to the EPA as requested. An electronic copy of the report is currently available on UMass' website for this project.

- 4. UMASS has a web page associated with this project; however, the last information was placed on that site in September. It would be helpful if the site could be updated to include all data as well as the work that is proposed under the Abatement Plan.**

UMass has indicated that once the approval has been issued, all of the information associated with the project will be updated on the website for the project.

- 5. The Report (page 2) indicates that the September 22, 2006 air samples ranged from 0.14 to 0.66 micrograms. This is inaccurate. The highest results were 0.36 based on EPA's review of the analytical data. Please confirm and revise for accuracy.**

EH&E has corrected the typographical error in the report. The new paragraph reads:

Air samples collected on September 22, 2006, ranged from 0.14 to 0.36 $\mu\text{g}/\text{m}^3$ measured as the sum of PCB homologs. EH&E analyzed these air samples for PCB homologs in order to support the development of risk based occupancy criteria for Tower A and the low-rise building.

ABATEMENT PLAN, FEBRUARY 21, 2007 (ABATEMENT PLAN)

- 1. For purposes of this project, EH&S has not provided the name, title, and contact information of the UMASS person who will be responsible for this project. Please provide this information.**

UMass has identified the person responsible for this project as Donald A. Robinson. His contact information is provided below:

Donald A. Robinson, PhD.
Director of Environmental Health & Safety
Draper Hall Room 117
University of Massachusetts
40 Campus Center Way
Amherst, MA 01003-9244

2. Please provide the certification required under 40 CFR §761.61(a)(3)(E)

Under separate covers, EH&E will submit both the certification required from the owner and the abatement contractor as specified under *40 CFR §761.61(a)(3)(E)*. It is UMass' intention that the certifications would immediately follow the approval letter that is submitted by the EPA.

3a. There is a good possibility that the soil has been impacted from previous caulking removal work. There is no clear indication in the Abatement Plan that compliance with TSCA is required, in addition to any state requirements under the MCP. If there is contamination in the soil, it would be regulated under TSCA as the source would be the unauthorized caulking. Accordingly, the Abatement Plan should reflect this fact. If PCBs are identified in the soils, a separate cleanup plan under 761.61(a) would be required following completion of the Abatement Project since a soil investigation will likely occur post-Phase II work.

UMass has followed current protocols under the Massachusetts Contingency Plan (MCP) to address the PCBs found in the soil thus far. All information will be forwarded to the EPA. Once a final plan to address the soil clean-up is developed, EH&E will ensure that the clean-up plan will meet both requirements under §761.61(a) and the MCP. UMass will adhere to the stricter requirements of the two agencies.

3b. There is little discussion in the Abatement Plan regarding the asphalt remediation. Please clarify what asphalt will be removed and the verification sampling proposed for the subsurface soils. Given that only 3 samples were collected from the asphalt, additional sampling may be necessary to meet the Subpart 0 verification sampling requirements.

At the time of the August 21, 2006, sampling EH&E collected three samples of asphalt from stained surfaces to determine if asphalt underneath the dumpster used by the contractor was contaminated with PCBs greater than one ppm. The initial results confirmed the presence of PCBs in the asphalt and it is EH&E's recommendation that Phase One work will address the extent of asphalt that will need to be removed. However, EH&E has not delineated the exact amount of asphalt that will have to be removed as part of the Phase One work.

In accordance with §761.265 EH&E will overlay a grid over the area underneath where the dumpster was known to have been sited. This grid pattern will help to determine the extent of asphalt that will have to be removed and will provide the boundary of where verification sampling will occur.

Asphalt will be removed with a masonry saw with a vacuum attachment to limit debris. EH&E will delineate the area of asphalt that will be removed so that all cutting activities will occur in asphalt that contains less than or equal to one ppm of PCBs. All removed asphalt will be disposed of as PCB remediation waste for disposal at a TSCA approved disposal facility. Soil sampling will once the asphalt is removed to determine if PCBs have leached into the underlying soil.

4. Understanding the proposed remedial work and PCB-impacted materials is difficult. Please provide pictures of the caulking and what the impacted areas look like for reference.

EH&E has provided representative photographs of the affected areas for reference, as attached to this addendum.

5. As a point of clarification, given the PCB concentrations found in the caulking, please clarify the proposed disposition of the PCB bulk product waste. That is, does UMASS propose to dispose of the PCB bulk product waste in a state permitted landfill, in a Subtitle C landfill, or in a TSCA-approved disposal facility?

All PCB bulk product and remediation waste will be disposed at a TSCA-approved disposal facility. UMass is currently exploring pricing options for the disposal of the waste at various TSCA-approved disposal facilities.

6. The sample description tables are confusing. The narrative indicates that the source of the PCBs is the caulking, but the tables use different nomenclature, including caulking. Clarification would be helpful.

The sample description for Table 2.1 of the Abatement Plan categorizes the AmeriSci Laboratory's sample results as "sealant." These samples were not collected by EH&E, but EH&E understands that the term "sealant" was used interchangeably with caulking during this project. EH&E has generally described the material as caulking.

Sometimes caulking is referred to as panel or frame caulking. For this project, both are the same caulking material, however the nomenclature designates whether the caulking is adhered to two porous surfaces (concrete panels) for panel caulking, or to a non-porous surface (metal frame) and a porous surface (concrete panel) for frame caulking.

- 7. The narrative appears to indicate that a contractor to perform the work has yet to be hired. However, Appendix F contained a contractor Work Plan submitted by Chapman Waterproofing. Based on discussions with EH&E, it appears that Chapman is the selected contractor for this project. Accordingly, EPA will need a better understanding of Chapman's plans for setting up its controls during removal of the PCB contamination. The plan should focus on minimizing emissions and further contamination during removal work.**

Chapman Waterproofing (Boston, Massachusetts) will be the abatement contractor for this project.

The Chapman removal process will entail conducting channel cuts into the concrete panels to remove concrete and caulking *in situ*. This will reduce the amount of caulking debris since whole pieces of caulking and concrete will be removed simultaneously. Workers in appropriate personal protective equipment (PPE) will utilize hand tools or equipment with high efficiency particulate air (HEPA)-filtered vacuum attachments. Cutting debris will be collected in buckets or bags on the swing stage or staging platform. Vacuum attachment and local exhaust ventilation will capture emissions generated by the abatement activity. In addition, the channel cutting will not be in contact with caulking, known to contain high concentrations of PCBs.

Swing stage will also include mesh wind screens to limit the emission of any loose debris not captured by the vacuum attachments nor capture buckets for loose debris. Mast climbing staging will be enclosed to prevent the release of debris. On the ground, water impervious tarping and sheeting will be placed as an additional precaution to capture any loose debris generated by the cutting activities. In addition, Chapman Waterproofing will designate one worker as a ground monitor who will be dedicated to being on the ground to pick up loose debris not captured by local exhaust controls nor containment measures from ongoing abatement activities.

- 8. In addition to data from the existing caulking and concrete, UMASS collected data from newly installed caulking, which had been installed prior to UMASS's knowledge regarding PCB contamination. Samples were also collected from the window frames and the concrete where "old caulking" had been removed and replaced with this new caulking. In all cases, high concentrations of PCBs were found in the new caulking and in the "old and un-remediated" concrete and window frames. These surfaces will need to be addressed and new caulking installed. Further, the analytical results vary greatly.**

While pilot testing on the concrete for purposes of the remedial actions were conducted, no cleaning followed by sampling of the window frames was conducted.

As such, no information is available to ascertain what decontamination method would work best. This will need to be supported by verification sampling. Previous projects have indicated that an organic solvent wash is the best approach.

The scope of work for the abatement project includes all caulking joints for Tower A and the low-rise building. This includes joints where new caulking was inadvertently installed.

In past projects and in Section 12.2 of the Abatement Plan, EH&E has found that the gross removal with hand tools of caulking from metal frames followed by additional wiping with hand scraping tools and rags moistened with mineral spirits has been effective in cleaning non-porous surfaces. Cleaned metal frames will be visually inspected and subject to verification sampling described in Appendix E of the Abatement Plan. Removal and cleaning processes is detailed in the Contractor's Work Plan as Appendix F.

9. With respect to the abatement work, there is discussion about enclosure of the exterior. Given the indoor impacts that appear to have occurred previously, it is recommended that the interior area be covered by poly or some similar material during the abatement. For example, the window could be covered from the interior with a poly sheeting taped on all 4 sides to help minimize potential for indoor air impacts.

Indoor impacts to the building occurred primarily when pressure washing activities drove debris into building prior to the discovery of PCB containing caulking. During the abatement project, no pressure washing will occur that could potentially drive debris into the buildings.

In general, it is impractical to place poly sheeting over windows due to individual room layouts. Many of these spaces are laboratories that store or use hazardous chemicals. Reorganizing the lab layout to accommodate the installation of plastic sheeting may create other safety risk to both occupants and abatement workers. Where feasible, the use of interior poly sheeting may be used by UMass, at its discretion, as an additional precautionary measure.

UMass intends to minimize the potential impacts to the indoor air through the use of engineering controls and work practices designed to contain and control any debris within the work zone so that it does not enter the buildings or the environment. The use of HEPA-filtered vacuum capture devices and HEPA-filtered local exhaust ventilation are designed to capture dust and debris before it gets into the buildings or the environment.. For Tower A, UMass plans to use enclosed mast climbing devices for the window openings. The enclosed mast climber will be equipped with HEPA-filtered exhaust ventilation that create negative pressurization within each

work zone designed to keep debris from impacting the indoor air.

The work practices are designed to limit the potential impact on the indoor environment. The work practice measures include the removal of caulking in whole pieces from abated joints to limit the generation of dust and small pieces of debris that could potentially enter the building or the environment.

During the abatement project, UMass will implement additional engineering measures to prevent debris from infiltrating into both buildings. For the low-rise building, UMass will modify the ventilation rates in the building to maintain positive pressure, which will provide an additional measure of protection for the insides of the building. For Tower A, UMass plans to implement ventilation control modulations on individual floors to minimize pressure differentials associated with “stack effect” from the Tower.

10. Page 29 of the Abatement Plan indicates that air sampling may be conducted in the Waste storage areas to monitor for contamination. No information is provided for this activity, including monitoring criteria and standards.

Because the PCB dumpster will be located outside in a secured area, EH&E does not believe that air sampling of the area will be necessary. Furthermore, the dumpster will be lined and covered and all of waste will be bagged. These precautions should be sufficient to control for emissions from the dumpster area. The inclusion of air sampling for the waste storage area was an inaccurate addition. The sentence has been struck from the paragraph and the new paragraph should read:

To insure that the material storage areas will not be a possible source of contaminants, all PCB bulk product or remediation waste will be bagged and sealed in the lined and covered PCB dumpster.

11. Page 30. There is reference to disposal of the dust as a PCB bulk product waste. This is incorrect as this material would be defined as PCB remediation waste.

EH&E has revised the section. The new paragraph reads:

No dry dusting or sweeping will be allowed for this waste stream. The use of minimal quantities of water to moisten the generated dust prior to collection will be allowed. Under no

circumstances shall the PCB remediation waste show evidence of free liquid water, pooling, or ponding within the waste stream. Any liquid used to wet the dust will be collected along with dust and disposed as PCB remediation waste according to procedures outline in Section 11. All rags and/or cleaning materials used to clean PCB-contaminated materials shall also be disposed as PCB remediation waste.

12. For purposes of this project, UMASS has deemed floors located above the 1st floor to be a low occupancy area. Please clarify how UMASS supports this classification.

As noted in the Abatement Plan, all of the specified caulking identified for this project is located on the exterior of the two buildings. Windows in both buildings are not operable, so that direct contact with the exterior caulking above the second floor is remote and restricted. The only personnel who may come into contact with the new installed caulking (containing no PCBs) and remaining concrete surfaces (< 25 ppm and encapsulated with new caulking) will be maintenance personnel. These personnel will have appropriate PPE (gloves) when working on these surfaces. Maintenance on the exterior of the two buildings for all floors is expected to be well below the 16.7 hours per week for non-porous surfaces and 6.7 hours per week for porous surfaces, the EPA's definition for low-occupancy areas.

EH&E's risk based criterion for the exterior concrete of 28 ppm, which accounts for contact of concrete surfaces 1 time per day, 5 days per week, 50 weeks per year for 25 years. This exposure frequency and duration likely overestimates the actual contact frequency of a hypothetical worker with the exterior concrete surface, especially given that these surfaces are inaccessible to non-maintenance personnel.

13. The Abatement Plan proposes to meet risk-based air numbers in both Tower A and in the low rise post-abatement work. As such, EPA would prefer that either Method TO-10 or TO-4A be used in lieu of NIOSH 5503, since this method only provides total PCBs. Further, detection limits need to be sufficiently below the 0.29 ug risk-based standard. Some previously sampled areas may need to be re-checked given the detection limits of previous work. It is also important to recognize that should the PCB air concentrations remain above risk-based standards, additional measures may be required.

In developing the risk based criterion for air concentrations, EH&E collected samples for analysis following EPA Method TO-10. This analysis provided more detailed homolog information that was critical in the development of risk based criteria specific for the two

buildings. However, EH&E believes that the NIOSH 5503 provides valid screening information to determine if additional detailed sampling may be required. Data analyzed by the Science Collaborative indicated that the congener patterns of the caulking and air samples collected by EH&E are consistent with Aroclor 1254 associated with the caulking.

Prior to the development of the air concentration risk-based criterion, EH&E collected air samples (for analysis following NIOSH 5503) with the goal of achieving detection limits that approach $0.1 \mu\text{g}/\text{m}^3$ or lower. This detection limit is well below the risk based criterion of $0.29 \mu\text{g}/\text{m}^3$. In limited instances, pump faults resulted in samples that had higher detection limits. For this project, EH&E will void any air sample that has a detection limit higher than $0.29 \mu\text{g}/\text{m}^3$.

UMass understands that should air samples remain above the risk based criterion, additional measures will need to be undertaken. These additional measures may include, but may not be limited to: additional sampling, more detailed air sampling, surface cleaning, and increased ventilation rates.

14. With respect to exceedences of the required verification standards, EH&E indicates that additional abatement shall be conducted (page 38). For purposes of clarification, abatement measures must include the entire area represented by the sample; ie the area from the previous sampling point which met required standards. Please revise this for clarification and accuracy.

EH&E has revised the following paragraph to reflect comments. The revised paragraph will read as follows:

In the event that a sample fails the specified acceptance criterion, then additional abatement procedures shall be conducted. The abatement contractor will re-clean all areas from the area represented by the failed sample to the area represented by the last acceptable (passing the applicable acceptance criterion) sample. These areas will be subject to visual inspections and confirmatory sampling.

Following additional decontamination, confirmatory sampling of the re-abated areas and/or surfaces shall be conducted. Additional abatement procedures include, but are not limited to,

additional cleaning of surfaces with solvents, additional scarification or wire brushing of surfaces at deeper levels, and more thorough vacuuming of surfaces.

15. Are PE samples available with concrete as a matrix? If so, EPA would like to include these in the QAIQC plan.

EH&E has requested that Groundwater Analytical (Buzzards Bay, Massachusetts) investigate if commercially available performance evaluation (PE) standards are available for the concrete matrix. If PE samples are available, EH&E has requested that Groundwater include these samples as part of the QA/QC plan for the project.

16. The precision acceptance criteria specified in table 13.2 are inconsistent with that prescribed in Section 13.4.1.

EH&E has modified table 13.2 and the wording in section 13.4.1. The acceptance criteria for QA/QC samples will be 45%. If samples exceed acceptance criteria, EH&E will not necessarily exclude the individual sample. EH&E will evaluate the laboratory data to determine if sample results are valid on a case by case basis. If an individual sample is to be voided, EH&E will make a determination to see if re-sampling is appropriate.

The revised Section 13.4.1 reads as follows:

Precision is the degree of agreement among repeated measurements of the same characteristic under the same or similar conditions. In general, EH&E collects one duplicate sample for every ten samples collected or 10% of the sample size. No less than one duplicate set will be collected, regardless of the sample size. The identity of the duplicate sample(s) is not revealed to the analytical laboratory. The target precision among field duplicates is $\pm 45\%$, indicating good reproducibility. Because of the low possibility of residual PCBs in the collected samples, EH&E believes that a precision of 45% will be an acceptable indicator for reproducibility. Precision levels greater than 45% will not invalidate the sample data set, but will be flagged to caution users about the variability within the data.

17. EH&E is proposing a large range for precision in table 13.2. Given the proposed remedial standards, please clarify what actions will be taken if duplicates are outside the acceptance range and/or if one of the samples exceed the cleanup standards.

For this project, and in prior projects, EH&E has required that both the duplicate and the reference sample concentration be below the appropriate acceptance criterion. If either the duplicate sample or the reference sample exceeds the acceptance criterion, both samples will be treated as a sample failing the acceptance criterion. As a result, the abatement contractor will need to conduct additional cleaning of (consistent with the above comment) surfaces. Following the additional cleaning, EH&E will conduct additional visual inspections and then resample the area to meet the appropriate acceptance criterion.

As noted in the previous response, EH&E will not necessarily invalidate duplicate samples outside the acceptance range. EH&E will examine the sample results to examine if an explanation for the variability can be found in the results. If variability cannot be explained, EH&E may void the duplicate pair and require additional sampling to verify the initial results.

18. Appendix E

- a. A verification sampling plan is proposed to assess the adequacy of the remediation. In general, EH&E will conduct visual assessment and will also collect samples to verify that standards have been achieved. The verification samples must be conducted on both concrete and on non-porous surfaces (e.g. metal window frames).**

Verification inspection and sampling will be conducted for both porous and non-porous surfaces for this project.

CONCRETE

- i) Phase 1 and 2 concrete joints: EH&E is proposing an initial sampling frequency of 1 sample per 50 linear feet.**
- 1) There is no clear statement on how long this initial sampling frequency will be conducted. Further, there is reference to bulk sampling of the caulking which is incorrect. The paragraph needs to be revised for accuracy and to clarify the proposed initial sampling timeframe.**

EH&E intends to conduct the initial sampling frequency of one sample every 50 linear feet for the first 1,000 feet of abated concrete joints for both phases of the project. This will enable EH&E to evaluate the effectiveness of the cleaning. EH&E will conduct bulk sampling of the remaining concrete surface, not the caulking, which will be removed by the abatement activities. The revised paragraph from page two of Appendix E reads:

EH&E will collect more frequent samples during the initial stages of the abatement work to verify

work completeness and effectiveness. Initial sampling frequencies will be approximately one bulk sample per 50 linear feet of caulking for the first 1000 linear feet of abated concrete joints. Results from the initial sampling will be conveyed to the EPA under a separate cover, if sample results are consistently below the acceptance criterion EH&E will collect less frequent sampling (approximately one sample per 250 linear feet) during later stages of the abatement work.

- 2. Given that several of the pilot test sample results were at or exceeded the proposed cleanup standard based on the abatement action proposed, EPA is concerned about the (initial) proposed sampling frequency. EPA would prefer that a higher sampling frequency be employed to demonstrate that the proposed remedial technique and removal depth is adequate.**

Please refer to the response to the previous comment for EH&E initial sampling frequency for the bulk sampling of remaining concrete from abated concrete joints. EH&E and UMass believe that the sampling frequency as proposed is sufficient to demonstrate compliance with the applicable acceptance criterion.

- 3. Following the initial Phase I sampling and provided all samples meet remedial objectives, EH&E is proposing a lower sampling frequency of 1 sample per every 250 linear feet, with a minimum of at least 3 samples comprising each composite (e.g. 1 sample per 80+ feet). If all initial samples came back satisfactory, given the proposed linear footage of 47,000 feet, this sampling frequency may be reasonable. However, much depends upon the results of the initial sampling.**

EH&E believes that this comment is accurate, since the results of the initial sampling will determine the sampling frequency for later portions of the project.

- ii) Reference is made the extraction method 3545. As this is not an approved method, Subpart Q will be necessary or method 3540C may be used.**

The default extraction process will be by EPA Method 3540C (Soxhlet Extraction) for all samples. EH&E will conduct a side-by-side comparison of soxhlet extraction versus accelerated solvent extraction (ASE) (EPA Method 3545) for wipe samples collected for the project. If the comparison study between the two extraction methods yields similar results, EH&E will make a formal request to the EPA to allow wipe samples to follow EPA Method 3545.

METAL FRAMES

- i) Based on the information shown in Table E.2, the proposed verification sampling frequency for the metals frames is 10%. No pilot testing was conducted to assess the**

adequacy of the proposed decontamination plan and as such, a higher frequency than this will be required initially. As with the concrete, UMASS may request a lower frequency upon demonstration that cleanup criteria are being achieved.

EH&E will conduct more frequent samples of cleaned window frames during initial stages of the project. For the first twenty windows, EH&E will collect wipe samples from one third of the window frames. If the initial wipe sample results are favorable, EH&E will make a request to the EPA to reduce the sample frequency to no less than 10%.

ii) There was no discussion on sample collection procedure. Please clarify.

Please find the following paragraphs detailing EH&E's wipe sample procedures.

Wipe samples from non-porous cleaned window frame surfaces along the exterior of both Tower A and the low-rise building shall be collected as described in §761.123, and shall be extracted/analyzed using EPA Methods 3540C/8082.

EH&E shall collect samples from non-porous cleaned window frame surfaces using hexane prepared wipes and measuring tapes to accurately measure surface area. Because the frame surface does not neatly fit a 100 square centimeter template, EH&E will use the tape measure to determine wipe surface areas. EH&E anticipates that, at a minimum, 10% (see response to comments above) of cleaned non-porous surfaces will be tested as part of the abatement process, although all surfaces will be visually assessed as part of the abatement acceptance process. Modifications to these frequencies may occur based on site conditions and the results of visual inspections during and after cleaning.

The final number of samples will be determined so that the number of samples collected will represent at least 10% of surfaces abated or decontaminated as discussed in this section.

Please do not hesitate to contact me if you have any questions or comments.

Sincerely,



Maximilian P. Chang, M.S.

Response to Request for Pictures



Photograph 1 Overview of South Elevation of Tower A



Photograph 2 Overview of North Elevation of Low-Rise Building



Photograph 3 Cutting Tool with Vacuum Attachment



Photograph 4 Example of Channel Cut, Approximately 1/4" Cut from Caulking