



**Asbestos Abatement Project Specifications  
Former Encycle/ASARCO Facility  
5500 Up River Road  
Corpus Christi, TX**

Prepared by:  
**Turnstone EH&S, Inc.**  
Asbestos Consultant Agency  
Texas Department of State Health Services License No. 100408

**Tim Chaney**  
Individual Asbestos Consultant  
Texas Department of State Health Services  
License No. 105670

A handwritten signature in black ink, appearing to read "Tim Chaney", with a horizontal line underneath.

Tim Chaney  
Consultant

## TABLE OF CONTENTS

### PART 1 GENERAL INFORMATION

- 1.0 Project Specific Scope of Work
- 1.1 Scope of work
- 1.2 Definitions
- 1.3 Description of Work
- 1.4 Applicable Standards and Guidelines
- 1.5 Submittals and Notices
- 1.6 Site Security
- 1.7 Required Air Samples
- 1.8 Authority to Stop Work

### PART 2 MATERIALS AND EQUIPMENT

- 2.1 Materials
- 2.2 Equipment
- 2.3 Respiratory Equipment

### PART 3 EXECUTION

- 3.1 Preparation
- 3.2 Commencement of Asbestos Abatement
- 3.3 Personnel Protection Requirements
- 3.4 Work Place Entry and Exit Procedures
- 3.5 Removal Procedures, General

- 3.6 Glovebag Techniques
- 3.7 Stripping of Paint/Surfacing on Stack
- 3.8 Stripping of Pipe, Boiler, and Related Insulation
- 3.9 Abatement of Crawl Spaces
- 3.10 Abatement of Tunnels
- 3.11 Floor Tile and Mastic Removal
- 3.12 Requirements for Removal of Transite Material
- 3.13 Requirements for Removal of Galbestos Siding and Roofing Panels
- 3.14 Reserved
- 3.15 Specific Requirements for the Removal of Category I - II Asphalt Concrete Coatings
- 3.16 Worker Protection
- 3.17 Clean-up Procedures
- 3.18 Clearance and Perimeter Air Monitoring
- 3.19 Disposal Procedures
- 3.20 Protection of the site

#### PART 4 SUPPORT ACTIVITIES AND PERSONNEL

- 4.1 Training
- 4.2 Medical Monitoring
- 4.3 Laboratory Services
- 4.4 Emergency Precautions
- 4.5 Additional Sampling of Bulk Materials

**FIGURES:**

Figure A-2 – Buildings and Structures to be Demolished

**ATTACHMENTS:**

Attachment A - TDSHS Notification(s)

Attachment B - Survey Report

Attachment C - Project Managers

Attachment D - TDSHS Agency License, Lab License, and Insurance

## **1.1 Scope of Work**

- 1.1.1 Remove all ACM in the buildings and structures to be demolished at the former Encycle/ASARCO Facility at 5500 Up River Road in Corpus Christi, Texas (see Figure A-2).
- 1.1.2 Prevent any personnel exposure to asbestos fibers.
- 1.1.3 Prevent any contamination of uncontaminated areas, furniture, carpets, fixtures, etc.
- 1.1.4 Assure proper disposal of all ACM and ACM contaminated materials.
- 1.1.5 Fully and completely document all activities.
- 1.1.6 The ACM which is scheduled to be removed for this project is identified on Figure A-2, and described in Exhibit A of the Contract between Energy Renewal Partners and the Trustee. Drawings and general provisions of the contract, including general and supplementary conditions, apply to the work in this section.

## **1.2 Definitions**

- 1.2.1 Abatement - The process of removal, encapsulation, or enclosure of asbestos containing materials.
- 1.2.2 Airlock - A system for permitting ingress and egress with minimum air movement between a contaminated area and an uncontaminated area, typically consisting of two curtained doorways blocking air movement in either direction, thereby preventing flow through contamination.
- 1.2.3 Air Monitoring - The process of measuring the fiber concentration of a known volume of air collected during a specific period of time. The analysis procedure utilized for asbestos is the NIOSH Standard Analytical Method for Asbestos in Air, Method 7400. Transmission electron microscopy (TEM) may be utilized for lower detection limits and/or specific fiber identification.
- 1.2.4 Air Monitoring Technician - The person trained to conduct air monitoring for an asbestos abatement project or related activity in a facility. The Air Monitoring Technician may obtain area and personal air samples, and may only perform analysis of air samples after completion of the NIOSH-582 equivalent course. In public buildings he air monitoring technician must be licensed by TDSHS shall be an employee of a Licensed Asbestos Laboratory or a Licensed Asbestos Consultant Agency.
- 1.2.5 Amended Water - Water to which a surfactant has been added.
- 1.2.6 ANSI - American National Standards Institute
- 1.2.7 Asbestos - The asbestiform varieties of serpentines and amphiboles. Specifically, chrysotile, riebeckite crocidolite, cummingtonite, grunerite, amosite, anthophyllite, actinolite, and tremolite.

- 1.2.8 Asbestos Containing Material (ACM) - Material composed of asbestos of any type and in an amount greater than 1% by weight, either alone or mixed with other fibrous or non-fibrous materials.
- 1.2.9 Asbestos containing waste material - asbestos containing material or asbestos contaminated objects requiring disposal.
- 1.2.10 Asbestos Project Manager - The person trained in the AHERA Contractor/Supervisor course who has authority to perform as the Facility Owner's representative so as to oversee all regulatory requirements of an asbestos abatement project.
- 1.2.11 ASTM - American Society for Testing and Materials
- 1.2.12 Authorized personnel - Any person authorized by the Contractor and required by work duties to be present in the work area or other regulated areas.
- 1.2.13 Authorized visitor - The Facility Owner, his designated representatives, and any representative of a regulatory or other agency having jurisdiction over the project.
- 1.2.14 Facility Owner - The owner or owners or their authorized representatives of the building, site, structure, or installation to which these specifications pertain.
- 1.2.15 Clean Room - An uncontaminated area or room which is a part of the decontamination enclosure system with provisions for storage of worker's street clothes and clean protective equipment.
- 1.2.16 Consultant - That person licensed by the Texas Department of State Health Services and having Accreditation under AHERA to perform the following asbestos related functions:
- (1) Project design; (2) Asbestos surveys and condition assessment of ACM; (3) Asbestos Management Planning; (4) The collection of bulk material samples, airborne substance samples and the planning of sampling strategies; (5) Owner-representative services for asbestos abatement projects or O&M programs, including air monitoring and project management; (6) Consultation regarding regulatory compliance and all aspects of technical specifications and contract documents; and (7) the selection, fit testing, and appropriate use of personal protection equipment and the development of asbestos related engineering controls.
- 1.2.17 Contractor - The company, agency, or entity that has been retained by the Facility Owner to perform asbestos abatement and other associated functions.
- 1.2.18 Decontamination unit - A series of connected rooms consisting of a clean room, a shower room, and an equipment room separated from each other and from the work area by airlocks and curtained doorways. This system is used for all worker entrances to and exits from the work area. It is also used for all equipment and waste pass out from the work area, if a separate waste transfer airlock is not used.
- 1.2.19 Demolition - The wrecking or taking out of any load-supporting structural member of a facility, along with any related handling operations.

- 1.2.20 Encapsulation - The spray application of encapsulant, a specific adhesive designed to lock down and minimize the fiber release of asbestos containing materials and asbestos contaminated materials.
- 1.2.21 Equipment room - A contaminated area or room which is part of the decontamination enclosure system with provisions for storage of contaminated clothing and equipment.
- 1.2.22 Facility - the building, site, structure, or installation, to which these specifications pertain.
- 1.2.23 Fixed object - A piece of equipment or furniture in the work area which cannot be removed from the work area.
- 1.2.24 Friable asbestos - Asbestos containing material which can be crumbled to dust, when dry, under hand pressure.
- 1.2.25 Glovebag technique - A method with limited applications for removing small amounts of friable asbestos containing material from HVAC ducts, short piping runs, valves, joints, elbows, and other non-planar surfaces in a non-contained, plasticized work area. The glovebag assembly is a manufactured or fabricated device consisting of a glovebag (typically constructed of 6-mil transparent polyethylene or polyvinylchloride plastic), two inward projecting long sleeves, an internal tool pouch, and an attached, labeled receptacle for asbestos waste. Glovebags are seamless at the bottom. The glovebag is constructed and installed in such a manner that it surrounds the object or material to be removed and contains all asbestos fibers released during the process. Glovebags may be used during Class I, Class II, or Class III work, so long as the bag completely covers the material to be used.
- 1.2.26 HVAC - Heating, ventilation and air conditioning system.
- 1.2.27 HEPA Filter - A high efficiency particulate air filter capable of removing particles > 0.3 microns in diameter with 99.97% efficiency.
- 1.2.28 Project Manager - The person who supervises all abatement procedures, and whose primary function is to ensure that all personnel and the environment are properly protected from asbestos contamination. The Project Manager shall be an individual who has completed within the last year, an EPA approved asbestos abatement training course for Contractors and Supervisors, and who has specialized experience in asbestos abatement. The Project Manager and the Air Monitoring Professional may be the same person. The Project Manager shall not be affiliated with the Contractor performing the abatement work, in any other way than through the performance of hygiene supervision. The Project Manager will have the AHERA Contractor/Supervisor 40 hour training.
- 1.2.29 Movable object - A piece of equipment or furniture in the work area which can be removed from the work area.
- 1.2.30 Pressure differential ventilation system - A portable exhaust system equipped with HEPA filtration and capable of maintaining a pressure gradient in which the enclosed work area is lower in pressure than the area outside of the enclosed work area. The pressure gradient is maintained by moving air from the work area to the

environment outside of the work area at a rate that will support the desired air flow and pressure differential (-0.02 inches of water column). Pressure differential will be measured by Manometric measurement.

- 1.2.31 NESHAP - The National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61).
- 1.2.32 NIOSH - The National Institute for Occupational Safety and Health.
- 1.2.33 OSHA - The Occupational Safety and Health Administration.
- 1.2.34 Plasticize - To cover floors and walls with plastic sheeting as herein specified.
- 1.2.35 Prior experience - Experience required of the Contractor on asbestos projects of similar nature and scope to insure capability of performing the asbestos abatement in a satisfactory manner. Similarities shall be in areas related to project size, abatement methods required, number of employees, and material composition, as well as required engineering controls, work practices, and personal protection.
- 1.2.36 Removal - To take out asbestos containing material from any facility.
- 1.2.37 Renovation - Altering the facility in any way excluding removal or demolition of load-supporting structural members.
- 1.2.38 Shower room - A room between the clean room and the equipment room in the decontamination enclosure equipped with hot and cold running water controllable inside the shower and a drain pan to prevent water leakage. The shower room is suitably arranged for complete showering during decontamination.
- 1.2.39 Staging area - Some area near the waste transfer airlock where containerized asbestos waste has been placed prior to removal from the work area.
- 1.2.40 Strip - To take out friable asbestos materials from any part of the facility.
- 1.2.41 Surfactant - A chemical wetting agent added to water to improve penetration.
- 1.2.42 Warning signs – Asbestos warning signs are to use the following language as required by OSHA:

DANGER

ASBESTOS

CANCER AND LUNG DISEASE HAZARD

AUTHORIZED PERSONNEL ONLY

- 1.2.43 Waste load out or bag out - A decontamination enclosure system utilized exclusively for transferring containerized waste from the inside to the outside of the work area.

### **1.3 Description of Work**

- 1.3.1 The work specified herein shall be the removal of asbestos containing materials by capable persons trained, knowledgeable, and qualified in the techniques of abatement, handling, and disposal of asbestos containing materials and asbestos contaminated materials, and the subsequent cleaning of contaminated areas. These persons shall be capable of and willing to perform the work of these specifications, and they shall comply with all applicable Federal, State, and Local regulations. Materials to be removed include coating on the cement stack, insulation on piping throughout the facility, asphalt coating on cement support members, and floor tile and associated mastic.
- 1.3.2 Work will be in accordance with these specifications. Proper glovebag technique can be used, where feasible, and where approved by the Facility Owner/Consultant.

### **1.4 Applicable Standards and Guidelines**

- 1.4.1 General Requirements
  - 1.4.1.1 All work under these specifications shall be done in strict accordance with all applicable Federal, State, and Local regulations, standards, and codes governing asbestos abatement and any other trade work done in conjunction with the asbestos abatement. Contractor will follow work practices as taught in the AHERA MAP Contractor/Supervisor course.
  - 1.4.1.2 The most recent edition of any relevant regulation, standard, or code shall be in effect. Where there exists conflict between the regulations, standards, codes, or these specifications, the most stringent requirements shall be utilized.
  - 1.4.1.3 The Contractor shall furnish copies of all standards, regulations, codes, and other applicable documents, including these specifications and those listed in Section 1.5.2. These documents shall be available at the work site, to all personnel involved in the abatement project.
- 1.4.2 The Contractor shall comply with, at minimum, the following specific requirements:
  - 1.4.2.1 Occupational Safety and Health Administration (OSHA) including but not limited to:
    - 1.4.2.1.1 Title 29 code of Federal Regulations Section 1910.1001 - General Industry Standard for Asbestos.
    - 1.4.2.1.2 Title 29 Code of Federal Regulations Section 1910.134 - General Industry Standard for Respiratory Protection.
    - 1.4.2.1.3 Title 29 Code of Federal Regulations Section 1926.1101 - Construction Industry.
    - 1.4.2.1.4 Title 29 Code of Federal Regulations Section 1910.2 - Access to Employee Exposure and Medical Records.
    - 1.4.2.1.5 Title 29 Code of Federal Regulations Section 1910.1200 - Hazard Communication.

- 1.4.2.2 Environmental Protection Agency (EPA) including but not limited to:
  - 1.4.2.2.1 Title 40 Code of Federal Regulations Part 61 Subpart M - National Emission Standard for Asbestos.
  - 1.4.2.2.2 Title 40 Code of Federal Regulations Part 763 Subpart E - AHERA for public buildings.
- 1.4.2.3 Those sections of the Texas Asbestos Health Protection Regulations (TAHPR) which apply to non-public facilities.
  - 1.4.2.3.1 Texas Department of Health - Texas Administrative Code, Title 25, Chapter 325 - Texas Solid Waste Regulations.
  - 1.4.2.3.2 Texas Department of Health - Texas Civil Statutes, Article 4477-A, Section 12, General Provisions 295.31 to 295.71.
- 1.4.3 American National Standards Institute (ANSI)
- 1.4.4 American Society for Testing and Materials (ASTM)
- 1.4.5 Department of Transportation - HM 181

## **1.5 Submittals and Notices**

- 1.5.1 The Contractor shall:
  - 1.5.1.1 Document all training records, certifications, medical records, proof of Insurance and laboratory qualifications will be submitted for review as well as the following:
    - 1.5.1.1.1 Submit written notification in accordance with 40 CFR Part 61.145 of Subpart M, (November 20, 1990) to the Texas Department of State Health Services, Asbestos Programs Branch. Notification fee will be the responsibility of the Facility Owner.
    - 1.5.1.1.2 The contractor will submit proof satisfactory to the Facility Owner/Consultant that required permits, site location and arrangements for transport and disposal of asbestos containing waste materials have been made. Obtain and submit a copy of handling procedures and a list of protective equipment utilized for asbestos disposal at the landfill, signed by the landfill owner.
    - 1.5.1.1.3 Submit documentation satisfactory to the Facility Owner/Consultant that the Contractor's employees, including foremen, supervisors and any other company personnel or agents who may be exposed to airborne asbestos fibers or who may be responsible for any aspects of abatement activities, have received adequate training in compliance with applicable rules and regulations listed in section 1.5.2.
    - 1.5.1.1.4 Submit documentation to the Facility Owner/Consultant from a physician that all personnel who may be required to wear a respirator are medically monitored to determine whether they are physically capable of working while wearing the required respiratory protection without suffering adverse health effects. In addition,

document that personnel have received medical monitoring as is required in compliance with applicable rules and regulations listed in Section 1.5.2.  
filtration capabilities for all cartridges and filters.

- 1.5.1.1.5 Submit to the Facility Owner/Consultant documentation of respirator fit testing for all Contractor employees and agents who must enter the work area. This fit testing shall be in accordance with qualitative procedures as detailed in the OSHA Standard 29 CFR 1910.134. Optionally, the fit testing may be quantitative in nature.

## **1.6 Site Security**

- 1.6.1 The work area is to be restricted to all persons except authorized personnel and authorized visitors, who are both properly trained, and protected. Authorized personnel and visitors may include the Contractor's employees, employees of subcontractors, Facility Owner's employees and representatives, State and Local inspectors and any other designated individuals. A list of authorized personnel shall be established prior to the start of the job and posted immediately outside of the clean room of the decontamination facility.
- 1.6.2 Entry into the work area by unauthorized individuals shall be reported immediately to the Facility Owner by the Contractor.
- 1.6.3 A log book shall be maintained immediately outside of the decontamination enclosure system. Anyone who enters the work area must record name, affiliation, time in, and time out for each entry.
- 1.6.4 For work performed outdoors, access to each work area will be at a single location to be determined by the Contractor. Entry to each work area will be only at this point at the perimeter of the Regulated Area. A Decontamination Area consisting of impermeable dropcloth will be located at this point, large enough to allow decontamination of waste bags and changing of disposable work clothing without spreading contamination beyond the drop cloth.
- 1.6.5 For interior work, access to the work area shall be through a single decontamination enclosure system to be approved by the Facility Owner/Consultant prior to abatement activities. All other means of access (doors, windows, hallways, etc.) shall be blocked or locked so as to prevent entry to or exit from the work area. The only exceptions to this rule are the waste transfer airlock, which shall be sealed except during the removal of containerized asbestos waste from the work area, and emergency exits in case of fire or accident. Emergency exits shall not be locked from the inside, however, they shall be sealed with polyethylene sheeting and tape until needed.
- 1.6.6 The Contractor shall have control of site security during abatement operations whenever possible, in order to protect work efforts and equipment.

## **1.7 Required Air Samples**

- 1.7.1. The Project Manager will conduct air monitoring of Contractor employees as required to meet OSHA requirements for thirty (30) minute Short Term Excursion Limit (STEL) and eight (8) hour Permissible Exposure Limit (PEL). The requirements of the Federal Regulations Title 29, Part 1910 and 1928 and all revisions applicable will be administered. All samples will be tested by an AIHA certified testing laboratory using standard Phase Contrast Microscopy (PCM). OSHA required personal air sampling shall be conducted on 25% of workers per containment per day by the Contractor. All testing dates will be reviewed by the Owner before a final acceptance of the completed project. The Contractor may not take his own samples unless he is licensed by the TDH to conduct personnel air monitoring.
- 1.7.2. No employee shall be exposed at any time to airborne concentrations of asbestos fibers in excess of 0.1 fibers longer than 5 micrometers, per cubic centimeter of air. Project Manager shall stop work immediately and notify the Consultant. Refer to section 3.3.2.2.
- 1.7.3 The Consultant will provide all other air monitoring as required.
- 1.7.4 All work inside negative pressure enclosures will require PCM baseline and clearance sampling. 3 baseline samples will be required per containment. Numbers of clearance samples to be determined by the onsite project manager.

## **1.8 Authority to Stop Work**

- 1.8.1 The Consultant has the authority to stop the abatement work at any time he determines that conditions are not within these specifications or applicable laws. Further, any governmental authority pursuant to an applicable law shall have the right to stop the Work as permitted under applicable law.
- 1.8.2 The stoppage of work shall continue until conditions have been corrected and corrective steps have been taken to the satisfaction of the Consultant. Stand-by time and expenses required to resolve violations of these specifications or applicable laws shall be at the Contractor's sole expense.

## **PART 2 MATERIALS AND EQUIPMENT**

### **2.1 Materials**

#### 2.1.1 General

2.1.1.1 Deliver all materials in the original packages, containers or bundles bearing the name of the manufacturer and the brand name (where applicable).

2.1.1.2 Store all materials subject to damage off the ground, away from wet or damp surfaces and under cover sufficient enough to prevent damage or contamination. Replacement materials shall be stored outside of the work area until abatement is completed.

2.1.1.3 Damaged, deteriorating, or previously used materials shall not be used and shall be removed from the work site and disposed of properly.

#### 2.1.2 Pre-Removal

2.1.2.1 Polyethylene sheeting for walls and stationary objects shall be a minimum of 4-mil thickness. For floors and all other uses, sheeting of at least 6- mil thickness shall be used in widths selected to minimize the frequency of joints.

2.1.2.2 Polyethylene sheeting utilized for the decontamination enclosure shall be opaque white, black, or clear in color.

2.1.2.3 Warning signs and barrier tape shall be used as required by OSHA 29 CFR 1910.1001 and 40 CFR 61. Warning signs shall be in both English and Spanish.

#### 2.1.3 Removal (General)

2.1.3.1 Full body disposable protective clothing, including head, body and foot coverings (unless using footwear as described in 2.2.1.2) consisting of material impenetrable by asbestos fibers (Tyvek or equivalent) shall be provided to all workers and authorized visitors in sizes adequate to accommodate movement without tearing.

2.1.3.2 Surfactant (wetting agent) shall be a 50/50 mixture of polyoxyethylene ether and polyoxyethylene ester, or equivalent, mixed in a proportion of 1 fluid ounce to 5 gallons of water or as specified by manufacturer.

2.1.3.3 (An equivalent surfactant shall be understood to mean a material with a surface tension of 29 dynes/cm as tested in its properly mixed concentration, using ASTM method D1331-56 "Surface and Interfacial Tension of Solutions of Surface Active Agents.") Where work area temperatures may cause freezing of the amended water solution, the addition of ethylene glycol in amounts sufficient to prevent freezing is permitted.

2.1.3.4 A sufficient supply of disposable mops, rags and sponges for work area decontamination shall be available.

2.1.3.5 Disposal bags shall be of 6-mil polyethylene, pre-printed with labels as required by EPA regulation 40 CFR 61.152 (b)(i)(iv) or OSHA requirement 29 CFR1910.1001 (g)(2)(ii).

2.1.3.6 Stick on labels shall be applied to disposal drums and asbestos bags as per EPA, OSHA, and Department of Transportation HM 181 requirements.

## **2.2 Equipment**

### **2.2.1 General**

2.2.1.1 A sufficient quantity of pressure differential ventilation units equipped with HEPA filtration and operated in accordance with ANSI 29.2-79 (local exhaust ventilation requirements) and EPA guidance document EPA 560/5-83-002 Guidance for Controlling Friable Asbestos-Containing Materials in Buildings Appendix F. The pressure differential ventilation system shall be utilized so as to provide one work area air change every 15 minutes.

To calculate total air flow requirement:

Total cubic ft./min = Vol. of work area (cubic ft.) 15 minutes

To calculate the number of units needed for the abatement:

Number of units needed = Total cubic ft./min / flow rate of unit (cu. ft./min)

If air supplied respirators are utilized, estimate the volume of supplied air and add to work place air volume when calculating ventilation requirements. For small enclosures and glovebags, a HEPA filtered vacuum system may be utilized to provide negative air pressure.

2.2.1.2 Non-skid footwear shall be provided to all abatement workers. Disposable clothing shall be adequately sealed to the footwear to prevent body contamination.

2.2.1.3 Personal protective clothing as required by 3.3.3.1.

### **2.2.2 Removal Equipment**

2.2.2.1 A sufficient supply of scaffolds, ladders, lifts and safety harnesses shall be provided as required to accomplish the specified work, and shall meet all applicable safety regulations.

2.2.2.2 Sprayers with pumps capable of providing 500 pounds per square inch (PSI) at the nozzle tip at a flow rate of 2 gallons per minute for spraying amended water shall be provided.

2.2.2.3 A sufficient supply of HEPA filtered vacuum systems shall be available during cleanup.

2.2.2.4 Hand tools such as scrapers, wire cutters, brushes, utility knives, wire saws, etc. shall be provided as needed.

- 2.2.2.4.1 Tools such as shovels, dustpans and squeegees shall be made of rubber or plastic, and shall be round edged to prevent damage to plastic work area barriers.
- 2.2.2.4.2 Brushes utilized for removing loose asbestos containing material shall have nylon or fiber bristles, not metal.
- 2.2.2.5 Transportation equipment, as required shall be suitable for loading, temporary storage, transporting, and unloading of contaminated waste without exposure to persons or property.

### **2.3 Respiratory Equipment**

- 2.3.1 For minimum legal respiratory requirements, see 29 CFR 1910.134, 29 CFR 1910.1001, and 29 CFR 1926.1101.
- 2.3.2 All respiratory equipment, such as respirators, filters, regulators, batteries, etc. shall be tested and approved by the National Institute of Occupational Safety and Health (NIOSH) for use in asbestos contaminated atmospheres.
- 2.3.3 If required at any point in the operation, Type "C" air supplied respirators shall be pressure demand type with full face pieces and HEPA filters which provide a 15 minute escape time in the event of compressor failure or malfunction. Type "C" respirators shall be worn with a belt to minimize the possibility of dislodging the face mask if a hose becomes snagged.
- 2.3.4 Powered air purifying respirators (PAPR) shall be equipped with HEPA filters and full face pieces.
- 2.3.5 Air purifying respirators (APR) shall be equipped with dual high efficiency (HEPA) filters and may be either full face piece or half face piece depending on the required level of respiratory protection.
- 2.3.6 All workers, foremen, and superintendents who are required to wear a respirator shall be provided with personally issued respiratory equipment.
- 2.3.7 A sufficient supply of appropriate, unused filters shall be available for all types of respirators used during this project.
- 2.3.8 Charged replacement batteries and a flow test meter shall be available in the clean room for use with powered air purifying respirators.
- 2.3.9 Spectacle kits and eyeglasses must be provided for employees who wear glasses and who must wear full face piece respirators. Contact lense use is forbidden during respirator use.
- 2.3.10 Approved wipes for sterilizing respirators shall be provided.
- 2.3.11 At least 2 spare units of each type of respirator shall be available at all times for use by authorized visitors.

## **PART 3 EXECUTION**

### **3.1 Preparation**

- 3.1.1 Negative pressure enclosure. See section 3.11, Floor Tile and Mastic Removal for specific procedures for flooring. The following procedures are for Class I removal.
  - 3.1.1.1 Post warning signs and barricade tape meeting the specification of OSHA 29 CFR 1926.1101 and 40 CFR 61 at any location and approaches to a location where airborne concentration of asbestos may exceed ambient background levels. Signs shall be posted at a distance sufficiently far enough away from the work area to permit an employee to read the sign and take the necessary protective measures to avoid exposure. Additional signs may need to be posted following construction of work place enclosure barriers. Maintain constant security against unauthorized entry past warning signs and barrier tape. Signs will be in both English and Spanish.
  - 3.1.1.2 Provide temporary power and lighting. Insure safe installation (including ground fault interrupters) of temporary power sources and equipment by compliance with all applicable electrical code requirements and OSHA requirements for temporary electrical systems.
  - 3.1.1.3 Appropriate equipment and control measures shall be utilized to prevent contamination of building spaces outside of containments during removal of floor tile/mastic or other interior ACM. Investigate the work area and agree on pre-abatement conditions with the Facility Owner. Seal all intake and exhaust vents in the work area with tape and 6 mil polyethylene bags for staging and eventual disposal as asbestos contaminated waste.
  - 3.1.1.4 All movable objects within the work area shall be removed from the work area and stored by the Contractor in an uncontaminated location.
  - 3.1.1.5 Seal off all windows, doorways, elevator openings, corridor entrances, drains, ducts, grills, grates, diffusers, skylights and any other openings between the work area and uncontaminated areas outside of the work area (including the outside of the building, tunnels and crawl spaces) with 4 mil polyethylene sheeting and tape (See Section 3.1.1.9, Isolation of the work area from occupied areas of the building).
  - 3.1.1.6 Copies of the Texas Commission on Environmental Quality Waste Manifest will be supplied by the Contractor and signed by Facility Owner as required by Section 3.16.3.
  - 3.1.1.7 The contaminated work area shall be separated from uncontaminated, occupied areas of the building by the construction of air tight barriers.
  - 3.1.1.8 Frames shall be constructed of wood or metal framing to support barriers in all openings larger than 32 square feet (4' x 8'). A sheathing material (e.g., plywood, drywall) of at least 3/8" thickness shall be applied to the work side of the barrier.
- 3.1.2 Poly floors and walls. For floor tile/mastic removal, only 4 foot splash guards on walls and doors are required. No floor poly is required.

- 3.1.2.1 Floor and wall sheeting shall be installed in the following order: 1st floor, 1st wall, 2nd floor, 2nd wall, etc. This staggering minimizes leakage at the floor/wall seams.
- 3.1.2.2 Cover floors in the work area with polyethylene sheeting.
- 3.1.2.3 Floors shall be covered with a minimum of two layers of 6 mil sheeting.
- 3.1.2.4 Plastic polyethylene sheeting and other covering and sheeting shall be tight and leak proof. Plastic shall be sized to minimize seams. If the floor area necessitates seams, those on successive layers of sheeting shall be staggered to reduce the potential for water to penetrate to the flooring material. A distance of at least 6 feet between seams is sufficient. Do not locate any seams at wall/floor joints.
- 3.1.2.5 Floor sheeting shall extend at least 12 inches up the side walls of the work area.
- 3.1.2.6 Sheeting shall be installed in a fashion so as to prevent slippage between successive layers of material. (Vinyl sheeting may be used for improved traction of floors.)
- 3.1.2.7 Cover walls in the work area with polyethylene sheeting. They can be decontaminated using HEPA vacuums and wet cleaning techniques. Walls with mortar joints (e.g., tile) are considered porous. In addition, openings through these walls to uncontaminated areas of the building must be sealed as described in Section 3.1.2.
- 3.1.2.8 Walls shall be covered with a minimum of two layers of 4-mil polyethylene sheeting.
- 3.1.2.9 Plastic shall be sized to minimize seams. Seams shall be staggered and separated by a distance of at least 6 feet.
- 3.1.2.10 Wall sheeting shall overlap floor sheeting by at least 12 inches beyond the wall/floor joint to provide a better seal against water damage and for a better pressure differential.
- 3.1.2.11 Wall sheeting shall be secured adequately to prevent it from falling away from the walls. This may require additional support, or attachment because pressure differential ventilation systems will pull the sheeting away from the walls.
- 3.1.2.12 The Contractor shall install a clear plastic viewing port to allow visibility into the work area.
- 3.1.3 Decontamination enclosure systems for interior work.
  - 3.1.3.1 Decontamination enclosure systems shall be provided at all locations where workers will enter or exit the work area. One system at a single location for each contained work area is preferred. These systems may consist of existing rooms outside of the work area, if the layout is appropriate, that can be enclosed in plastic sheeting and are accessible from the work area. When this situation does exist, enclosure systems may be constructed out of metal, wood, or plastic as appropriate.
  - 3.1.3.2 Decontamination enclosure systems constructed at the work site shall utilize 6-mil polyethylene sheeting or other acceptable materials for privacy. Use of portable,

prefabricated units or portable decontamination trailers are acceptable for work performed outdoors.

- 3.1.3.3 The decontamination enclosure system shall consist of at least an equipment room adjacent to the work area, a shower room separating the equipment room and the clean room, and a clean room with access to outside of the work area. Each room shall be separated from the other and from the work area by airlocks.
- 3.1.3.4 Entry to and exit from all decontamination enclosure system chambers shall be through curtained doorways (airlocks) consisting of two sheets of overlapping polyethylene sheeting. Both sheets shall be secured at the top. Other doorway designs, providing equivalent protection, and acceptable to the Consultant/Project Manager, may be utilized.
- 3.1.3.5 Pathways into (from clean to contaminated) and out (from contaminated to clean) of the work area shall be clearly designated.
- 3.1.3.6 Clean rooms shall be sized to adequately accommodate the work crew. Benches shall be provided as well as hooks for hanging up street clothes. (Lockers may be provided for valuables. However, workers may be requested to secure their valuables elsewhere.) Shelves for storing respirators shall also be provided in this area. Clean work clothes (if required under disposables), clean disposable clothing, replacement filters for respirators, towels and other necessary items shall be provided in adequate supply at the clean room. A location for posting shall also be provided in this area. Whenever possible, a lockable door shall be used to permit access into the clean room from outside the work area. Lighting, heat and electricity shall be provided as necessary for comfort. This space shall not be used for storage of tools, equipment, or materials (except as specifically designated), or as office space.
- 3.1.3.7 The shower room shall contain one or more showers as necessary to adequately accommodate workers. Each shower head shall be supplied with hot and cold water adjustable at the tap. The shower enclosure shall be constructed to ensure against leakage of any kind. An adequate supply of soap, shampoo, nail brushes, and towels shall be supplied by the Contractor and shall be available at all times. The shower room shall be equipped with a freely draining floor in the shower pan, and with non-porous drainboards to keep workers above any standing water. All contaminated water from shower areas and abatement area shall be disposed of in compliance with all applicable laws. All waste water must be filtered prior to release into a sanitary sewer system. The filter shall be, at a minimum, a two-stage cascaded unit. The primary filter shall stop particles larger than 20 microns. The secondary filter shall stop particles larger than 5 microns. The entire filter unit shall be placed in a water tight pan capable of containing any water which may drain or leak from it. The filters shall be changed at least daily.
- 3.1.3.8 The equipment room shall be used for storage of equipment and tools at the end of a shift after they have been decontaminated using a HEPA filtered vacuum and/or wet cleaning technique as appropriate. Replacement filters (in sealed containers until used) for HEPA vacuums and pressure differential ventilation equipment, extra tools, containers of surfactant and other materials and equipment that may be required during the abatement may also be stored here as needed. A walk-off pan (a small children's swimming pool, or equivalent) filled with water, shall be located in the

work area just outside the equipment room for workers to clean off foot coverings after leaving the work area and prevent excessive contamination of the decontamination enclosure system. A drum lined with a labeled 6-mil polyethylene bag for collection of disposable clothing shall be located in this room. Contaminated footwear (e.g. rubber boots, other reusable footwear) shall be stored in this area for reuse the following work day.

- 3.1.4 Waste transfer airlock (optional).
  - 3.1.4.1 The waste transfer airlock shall be constructed at some location away from the decontamination enclosure system if possible. Wherever possible, this shall be located where there is direct access from the work area to the outside of the building.
  - 3.1.4.2 This airlock system shall consist of an inner airlock adjacent to the work area, a container staging area between the inner and outer airlocks, and an outer airlock with access to outside the work area.
  - 3.1.4.3 The waste transfer airlock shall be constructed in similar fashion to the decontamination enclosure system using similar materials, airlocks, and curtain doorway designs.
  - 3.1.4.4 The waste transfer airlock system shall not be used to enter or exit the work site.
- 3.1.5 Establishing emergency exits
  - 3.1.5.1 Emergency exits shall be established and clearly marked with duct tape arrows or other effective indicators to permit easy location from anywhere within the work area. All emergency exit indicators shall be either illuminated with, or fabricated from fluorescent materials which can be seen in a smoky environment.
  - 3.1.5.2 Emergency exits shall be secured to prevent access from uncontaminated areas and still permit emergency exiting. These exits shall be properly sealed with polyethylene sheeting which can be cut to permit egress if needed. The emergency exit shall be provided with means of rapidly cutting through the containment.
  - 3.1.5.3 All emergency exits shall be equipped outside the containment area with two full sets of protective clothing and respirators at all times.
  - 3.1.5.4 Emergency exits shall be clearly identified and maintained throughout the abatement process. Debris, tools, materials, and other items shall not block emergency exits at any time during the abatement process.
- 3.1.6 Install and initiate operation of pressure differential ventilation equipment as needed to provide one air change in the work area every 15 minutes (see Section 2.2.1.1).
  - 3.1.6.1 In addition, a pressure differential of at least -0.02 inches water column will be maintained by the pressure differential ventilation equipment.
  - 3.1.6.2 Provide a pressure differential measuring device such as a chart recorder or water manometer or equivalent for use to verify the pressure differential. This shall be documented hourly per 8-hour shift by the Project Supervisor.

- 3.1.6.3 Openings made in the enclosure system to accommodate these units shall be made airtight with tape and/or caulking as needed. If more than one unit is installed, they should be turned on one at a time, checking the integrity of the wall barriers for secure attachment and the need for additional reinforcement. Insure that adequate power supply is available to satisfy the requirements of the ventilating units.
- 3.1.6.4 Pressure differential ventilation units shall be exhausted to the outside of the building. They shall not be exhausted into occupied areas of the building. Twelve inch extension ducting shall be used to reach from the work area to the outside of the building when required. Careful installation, air monitoring and daily inspections shall be done to insure that fiber release into uncontaminated building areas does not occur.
- 3.1.6.5 Once constructed and reinforced as necessary, with pressure differential ventilation units in operation as required, test enclosure for leakage utilizing smoke tubes. Repair or reconstruct as needed.
- 3.1.7 Maintenance of work place barriers and decontamination enclosure systems.
  - 3.1.7.1 Following completion of the construction of all polyethylene barriers and decontamination system enclosures, and following installation and initiation of pressure differential ventilation units, but prior to abatement activities, the Contractor shall inspect the work area containment to insure that barriers will remain intact and secured to walls and fixtures.
  - 3.1.7.2 All polyethylene barriers inside the work place, in the decontamination enclosure system, in the waste transfer airlock and at partitions constructed to isolate the work area shall be inspected at least twice daily, prior to the start of each day's abatement activities and following the completion of the day's abatement activities. Document inspections and observations in the daily project log.
  - 3.1.7.3 Damage and defects in the enclosure system are to be repaired immediately upon discovery.
  - 3.1.7.4 Use smoke tubes to test the effectiveness of the barrier system.
  - 3.1.7.5 At any time during the abatement activities, after barriers have been erected, if visible material is observed outside of the work area or if damage occurs to barriers, work shall stop immediately, repairs shall be made to barriers, and debris/residue shall be cleaned up using appropriate HEPA vacuuming and wet cleaning procedures.
  - 3.1.7.6 If air samples collected outside of the work area during abatement activities indicate airborne fiber concentrations greater than 0.01 fibers per cc, or greater than pre-abatement background levels outside of the work area, whichever is higher, work shall stop immediately for inspection and repair of barriers. Surfaces outside of the work area shall be cleaned using HEPA vacuums or wet cleaning techniques as necessary.
- 3.1.8 Removing fixtures from area

- 3.1.8.1 Remove, clean and enclose in polyethylene the ceiling mounted objects such as lights and other items that may interfere with the abatement process, and that were not previously cleaned and sealed off. Utilize localized spraying of amended water and/or HEPA vacuums to reduce fiber dispersal during the removal of these fixtures.

## **3.2 Commencement of Asbestos Abatement**

- 3.2.1 Commencement of asbestos abatement shall not occur until:
  - 3.2.1.1 The enclosure systems have been constructed and tested.
  - 3.2.1.2 Pressure differential ventilation systems are functioning properly.
  - 3.2.1.3 All pre-abatement submissions, notifications, postings, and permits have been provided and are satisfactory to the Facility Owner/Consultant (see Section 1.6).
  - 3.2.1.4 All equipment for abatement, clean up and disposal are on hand.
  - 3.2.1.5 All worker training and certification is completed, and available on site.
  - 3.2.1.6 The Contractor receives written permission from the Facility Owner/Consultant to commence abatement.

## **3.3 Personnel Protection Requirements**

- 3.3.1 Training
  - 3.3.1.1 Prior to commencement of abatement activities, all personnel who will be required to enter the work area or handle containerized asbestos containing materials must have received adequate training in accordance with Section 4.1 of this document.
  - 3.3.1.2 Special on-site training on equipment and procedures unique to this job site shall be performed as required.
  - 3.3.1.3 Training in emergency response and evacuation procedures shall be provided.
- 3.3.2 Respiratory Protection (For descriptions of respirators, see Section 2.3, Respiratory Equipment.)
  - 3.3.2.1 Asbestos abatement activity for Class I work shall begin in Type "C" respiratory protection or PAPR unless a negative exposure assessment has been established.

3.3.2.2 Any changes (downgrade or upgrade) in respiratory protection will be based upon an 8 hour time weighted average (TWA) of fiber concentrations in the work area. 8 hour TWA's will be calculated at least daily by the Project Manager, for personnel samples in the work area. The highest calculated 8 hour TWA shall be used in the following schedule to determine the type of respirator to be worn:

<b>8 hour TWA</b>	<b>Respirator type</b>	<b>Equivalent Work</b>
> 1.0 fibers/cc	Type "C"	Dry removal of insulation in containment
0.1 - 1.0 fibers/cc	PAPR	Removal of insulation in containment (Class I Work)
< 0.1 f/cc	Half face APR	Removal of floor tile/mastic Glove bag removal of insulation Operation of heavy equipment during demolition of ACM containing structures (all Class II Work)

3.3.2.3 All respiratory protection shall be provided to workers in accordance with the submitted written respiratory protection program, which includes all items in OSHA 29 CFR 1910.134 (b)(1-11). This program shall be posted immediately outside of the clean room of the decontamination enclosure system.

3.3.2.4 Workers shall be provided with personally issued, individually identified (marked with waterproof designations) respirators.

3.3.2.5 Fit Testing

3.3.2.5.1 Workers must perform positive and negative air pressure fit checks each time a respirator is put on, whenever the respirator design so permits. Powered air purifying respirators shall be tested for adequate flow as specified by the manufacturer.

3.3.2.5.2 Workers shall be given a qualitative fit test in accordance with procedures detailed in the OSHA 29 CFR 1910.134 for all respirators to be used on this abatement project. An appropriately administered quantitative fit test may be substituted for the qualitative fit test.

3.3.2.5.3 Documentation of adequate respirator fit must be provided to the Project Manager.

3.3.2.6 No one with facial hair that would interfere with the face to respirator seal or respirator valve function shall be permitted to don a respirator and enter the work area.

3.3.2.7 Additional respirators (minimum of 2) and training on their donning and use must be available at the work site for authorized visitors who may be required to enter the work area.

3.3.3 Protective Clothing

3.3.3.1 Full body Tyvek type disposable protective clothing shall be provided in sufficient quantities and adequate sizes for all workers and authorized visitors.

- 3.3.3.2 Launderable clothing, if used, shall be provided in sufficient quantities and adequate sizes for all workers and authorized visitors.
- 3.3.3.3 Hard hats, protective eye wear, gloves, rubber boots, and/or other footwear shall be provided as required for workers and authorized visitors. Safety shoes may be required for some activities as determined by the Owner and/or Contractor.

### **3.4 Work Place Entry and Exit Procedures**

#### 3.4.1 Personnel entry procedures

3.4.1.1 All workers and authorized personnel shall enter the work area through the decontamination unit or area. Areas without containment – the decontamination unit will be a sheet of polyethylene at the edge of the Regulated Area.

3.4.1.2 All personnel who enter the work area must sign the entry log, located immediately outside of the clean room or decontamination area, upon entry and exit.

3.4.1.3 All personnel, before entering the work area, shall read and be familiar with all posted regulations, personal protection requirements (including work place entry and exit procedures) and emergency procedures. A sign-off sheet shall be used to acknowledge that these have been reviewed and understood by all personnel prior to entry.

3.4.1.4 All personnel shall proceed first to the clean room, remove all street clothing, don adequate respiratory protection (as deemed adequate for the job conditions) and disposable Tyvek type full body clothing. Hard hats, eye protection and gloves shall also be utilized if required. Clean protective clothing, and clean respirators with new HEPA filters shall be provided and utilized by each person for each separate entry into the work area.

3.4.1.5 Personnel wearing designated personal protective equipment shall proceed from the clean room through the shower room and equipment room to the main work area.

#### 3.4.2 Personnel exit procedures

3.4.2.1 Before leaving the work area all personnel shall remove gross contamination from the outside of respirators and protective clothing by HEPA vacuuming, brushing, and/or wet wiping procedures.

3.4.2.2 Personnel shall proceed to the equipment room where they remove all protective equipment except respirators. Deposit disposable (and launderable) clothing into appropriately labeled containers for disposal (or laundering).

3.4.2.3 Reusable, contaminated footwear shall be stored in the equipment room when not in use in the work area. Upon completion of abatement, the contaminated footwear shall be disposed of as asbestos contaminated waste. (Rubber boots may be decontaminated at the completion of the abatement project.)

3.4.2.4 Still wearing respirators, personnel shall proceed to the shower area, clean the outside of the respirators and their exposed face area under running water prior to

removal of the respirator. Personnel shall then remove their respirator and then shower and shampoo to remove residual asbestos contamination from their bodies. Various types of respirators will require slight modification of these procedures. An airline respirator with HEPA filtered disconnect protection may be disconnected in the equipment room and worn into the shower. A powered air-purifying respirator face piece will have to be disconnected from the filter/power pack assembly which is not waterproof, upon entering the shower. A dual cartridge respirator may be worn into the shower. Cartridges must be replaced for each new entry into the work area.

- 3.4.2.5 Personnel exiting the work area shall shower for a minimum of two minutes. Workers should take extra care in cleaning under fingernails, and should use the provided nylon fingernail brush.
- 3.4.2.6 After showering and drying off, proceed to the clean room and don street clothes.
- 3.4.2.7 Personnel entry and exit procedures shall be posted immediately outside of the clean room and inside the work area immediately outside of the equipment room.
- 3.4.3 Waste container pass out procedures
  - 3.4.3.1 Asbestos contaminated waste that has been containerized shall be transported out of the work area through the waste transfer airlock, or through the worker decontamination enclosure if a separate airlock has not been constructed.
  - 3.4.3.2 Waste pass out procedures shall utilize two teams of workers, an "inside" and an "outside" team.
  - 3.4.3.3 The inside team wearing appropriate protective clothing and respirators for inside the work area shall clean the outside, including bottoms, of properly labeled containers (bags, drums, or wrapped components) using HEPA vacuums and wet/wiping techniques and transport them into the container staging area of the waste transfer airlock, or the shower room of the worker decontamination enclosure. No worker from the inside team shall exit the work area any further than this airlock.
  - 3.4.3.4 The outside team shall wear protective clothing and appropriately assigned respirators. (Note: Outside team workers may wear street clothes underneath their protective clothing.) The outside team shall enter the waste transfer airlock or decontamination enclosure from outside of the work area, and shall enclose the properly labeled containers (bags, drums, or wrapped components) in clean, labeled, 6 mil polyethylene bags and remove them from the container staging area or the shower room to the outside. No worker from the outside team shall enter the work area any further than this airlock.
  - 3.4.3.5 The exit from this airlock shall be secured to prevent unauthorized entry.
  - 3.4.3.6 For work not requiring containment, the decontamination area will be a sheet of plastic at the edge of the work area of sufficient size to accommodate removal of protective coveralls and cleaning of equipment. Entry and exit from the Regulated Area will only be allowed at this location.

### **3.5 Removal Procedures, General**

(Personal Protection as required by Section 3.3 shall be followed)

- 3.5.1 Clean and isolate the area in accordance with Section 3.2.
- 3.5.2 Wet all asbestos containing material with an amended water solution using equipment capable of providing a fine spray mist, in order to reduce airborne fiber concentrations when the material is disturbed. Saturate the material to the substrate. However, do not allow excessive water to accumulate in the work area. Keep all removed material wet enough to prevent fiber release until it can be containerized for disposal. Maintain a high humidity in the work area by misting or spraying to assist in fiber settling and reduce airborne concentrations. Wetting procedures are not equally effective on all types of asbestos containing materials, but shall none the less be used in all possible cases. (See Section 3.5.3., Special circumstances.)
- 3.5.3 Special circumstances (e.g., live electrical equipment, high amosite content of material, materials previously coated with an encapsulant or paint) may prohibit the adequate use of wet methods to reduce fiber concentrations. For these situations, a dry removal may be required. The Contractor will have to acquire special permits, different from those mentioned herein, and inform the NESHAP enforcement agency.
- 3.5.4 Saturated asbestos containing material shall be removed in manageable sections. Removed material should be containerized before moving to a new location for continuance of work. Surrounding areas shall be periodically sprayed and maintained in a wet condition until visible material is cleaned up.
- 3.5.5 Several buildings at the facility are structurally unsound, and material in structurally unsound buildings should be removed as intact sections or components whenever possible and carefully lowered to a structurally sound area. Material removed from building structures or components shall not be dropped or thrown to the floor.
- 3.5.6 Containers (6 mil polyethylene bags or drums) shall be sealed when full. Waste material shall be double bagged. Bags shall not be overfilled. Bags should be securely sealed to prevent accidental opening and leakage by tying tops of bags in an overhand knot or by taping in goose neck fashion. Do not seal bags with wire or cord. Bags may be placed in drums for staging and transportation to the landfill. Bags shall be decontaminated on exterior surfaces by wet cleaning and HEPA vacuuming before being placed in clean drums and sealed with locking ring tops.
- 3.5.7 Large components removed intact may be wrapped in 2 layers of 6 mil polyethylene sheeting secured with tape for disposal staging.
- 3.5.8 Asbestos containing waste with sharp edged components (e.g., nails, screws, metal lathe, tin sheeting), will tear the polyethylene bags and sheeting, and therefore shall be placed into drums for disposal staging.
- 3.5.9 After completion of all stripping work, surfaces from which asbestos containing materials have been removed shall be wet brushed and sponged, or cleaned by some equivalent method to remove all visible residue.
- 3.5.10 Clean up shall proceed in accordance with Section 3.1.3.

## **3.6 Glovebag Techniques**

### **3.6.1 Preparation.**

- 3.6.1.1 The glovebag technique shall be used where appropriate.
- 3.6.1.2 The work area shall be restricted to unauthorized personnel by posting warning signs and barrier tape on the perimeter.
- 3.6.1.3 Glovebags shall be 6 mil minimum and seamless at the bottom.
- 3.6.1.4 A minimum of two persons are required to perform glovebag removal. A third person may be required to assist with supplies. Each of these team members must have received training on the use and limitations of glovebag removal projects.
- 3.6.1.5 Employees shall be trained in emergency procedures should the glovebag rupture. This usually includes wet cleaning and/or HEPA vacuuming procedures and a shower available at a remote location.
- 3.6.1.6 Never perform glovebag removal on hot pipes (over 150 degree Fahrenheit). This may cause the bag or gloves to melt over the workers' hands and arms.
- 3.6.1.7 Before any work begins, all necessary materials and supplies shall be brought into the work area.
- 3.6.1.8 Place a sheet of 6 mil plastic beneath the entire length of pipe to be abated and extending approximately 2 feet to either side of the pipe.
- 3.6.1.9 Check the pipe where the work will be performed. For pipe with damaged insulation cover, wrap the entire length of the pipe in polyethylene plastic and "candy stripe" it with duct tape. Pipe will then be glovebagged in sections to accommodate the waste dumpster. A common error when doing glovebag work is forgetting that loose pipe lagging several feet or even several yards away from the glovebag work may be jarred loose by the activity. This is one of the common causes of high airborne fiber concentrations during glovebag work.
- 3.6.1.10 Glovebags may only be used once and may not be moved to a new location on the pipe.

### **3.6.2 Removal**

- 3.6.2.1 Wrap duct tape around the pipe where the glovebag is to be attached. This will provide a firm seal for the glovebag, and will also help prevent additional fiber release when the glovebag is removed.
- 3.6.2.2 Slit the top of the glovebag open (if necessary) and cut down the sides to accommodate the size of the pipe (about two inches longer than the pipe diameter). One brand has a zipper top and straps at each end facilitating installation of the bag on the pipe.

- 3.6.2.3 Place the necessary tools into the pouch located inside the glovebag. This will usually include the bone saw, utility knife, rags, scrub brush, wire cutters, tin snips and solid encapsulant.
- 3.6.2.4 Place one strip of duct tape along the edge of the open top slit of the glovebag for reinforcement.
- 3.6.2.5 Place the glovebag around the section of pipe to be worked on and seal the top ends together. Next, fold the sealed top flap back and tape it down with a strip of duct tape. This should provide an adequate seal along the top. Next, duct tape the ends of the glovebag to the pipe itself, previously covered with plastic or duct tape.
- 3.6.2.6 Using the smoke tube and aspirator bulb, place the tube into the water sleeve (two inch opening to glovebag). By squeezing the bulb, fill the bag with the smoke. Remove the smoke tube and twist the water sleeve closed. While holding the water sleeve tightly, gently squeeze the glovebag and look for smoke leaking out, especially at the top and ends of the glovebag. If leaks are found they should be taped closed using duct tape and the bag should be smoke tested again, until no leaks are detected.
- 3.6.2.7 Insert the wand from the water sprayer through the water sleeve. Using duct tape, tape the water sleeve tightly around the wand to prevent air leakage.
- 3.6.2.8 One person places his hands into the long-sleeved gloves while the second person directs the water spray at the work.
- 3.6.2.9 If the section of pipe is covered with an aluminum jacket, this is removed first using the wire cutters to cut any bands and the tin snips to remove the aluminum. It is important to fold the sharp edges in to prevent cutting the bag when it is placed in the bottom. Use caution to prevent cuts. Some insulation may have wire to be clipped as well.
- 3.6.2.10 With the insulation exposed, cut the insulation at each end of the section to be removed inside the glovebag. Throughout this process, water is sprayed on the cutting area to keep dust to a minimum.
- 3.6.2.11 Once the ends are cut, the section of insulation should be slit from end to end. The cut should be made along the bottom of the pipe and water continuously applied. Care should be taken when using the knife not to puncture the bag.
- 3.6.2.12 Spray all tools with water inside the bag and place back into pouch.
- 3.6.2.13 The insulation can now be lifted off the pipe and gently placed in the bottom of the bag.
- 3.6.2.14 Using the scrub brush, rags and water, scrub and wipe down the exposed pipe inside the glovebag.
- 3.6.2.15 Thoroughly encapsulate all abated surfaces and exposed ends of insulation with an approved encapsulant.

- 3.6.2.16 Remove the water wand from the water sleeve and insert the small nozzle from a HEPA-filtered vacuum into the water sleeve. Turn on the vacuum, but only briefly to collapse the bag.
- 3.6.2.17 Remove the vacuum nozzle and twist the water sleeve closed and seal with duct tape.
- 3.6.2.18 From outside the bag, pull the tool pouch away from the bag and twist it to separate it from the bag. Or, invert one of the arms so it is outside the bag and place the tools in the sleeve and twist it. Place duct tape over the twisted portion and then cut the tool bag from the glovebag, cutting through the twisted, taped section. In this manner, the contaminated tools may be placed directly into the next glovebag without cleaning. Alternately, the tool pouch with the tools can be placed in a bucket of water, opened underwater, and the tools cleaned and dried without releasing asbestos into the air. Note: Rags and the scrub brush cannot be cleaned in this manner and should be discarded with the asbestos waste.
- 3.6.2.19 With the removed insulation in the bottom of the bag, twist the bag several times and tape it to keep the material in the bottom during removal of the glovebag from the pipe.
- 3.6.2.20 Slip a 6 mil disposal bag over the glovebag (still attached to the pipe). Remove the tape and open the top of the glovebag and fold it down into the disposal bag.
- 3.6.2.21 Twist the top of the bag closed, gooseneck it, and seal with duct tape.
- 3.6.2.22 When all glovebag removal in this area is complete, remove the disposable suits and dispose of them as ACM waste.
- 3.6.2.23 Using a clean damp rag, wipe the exterior of the respirator and leave the work area. Remove the respirator.
- 3.6.2.24 Air sampling will be conducted before, during, and after glovebag removal projects to determine if undetected leakage occurred. The number of samples to be taken is left to the discretion of the Industrial Hygienist. Once the area has met the criteria for re-entry by unprotected personnel, the barriers may be removed and re-installation completed.

### **3.7 Stripping of Paint/Surfacing on the Stack**

- 3.7.1 Preparation
  - 3.7.1.2 All procedures shall be performed in accordance with these specifications. Material is to be treated as Category II non-friable unless methods that sand, grind, saw cut, or abrade are used.
  - 3.7.1.3 Spray the asbestos-containing material with amended water, using low pressure spray equipment capable of providing a "mist" application to reduce the release of fibers. Saturate the material sufficiently to wet it to the substrate without causing excess dripping. Spray the asbestos-containing material prior to stripping and repeatedly during work process to maintain wet condition and to minimize asbestos fiber dispersion.

- 3.7.1.4 If material is removed intact and not lowered to the ground, a wind screen and plastic under the removal area may be used. Plastic should be securely attached to withstand winds. No gaps in flooring are allowed which would allow material to fall through.
- 3.7.1.5 All the Paint/Surfacing shall be removed to the concrete, using appropriate tools and methods. In all cases, asbestos-contaminated materials shall be handled carefully. Agitation of the material is strictly prohibited. The use of high RPM power equipment is prohibited.
- 3.7.1.6 After completion of abatement work, all surfaces from which asbestos has been removed shall be brushed, wet sponged, and/or cleaned by an equivalent method to remove all visible material. During this work, the surfaces being cleaned shall be kept wet with amended water.

### **3.8 Stripping of Pipe, Boiler and Related Insulation**

- 3.8.1 All procedures shall be performed in accordance with these specifications.
- 3.8.2 Abatement of pipe and boilers containing regulated ACM shall be done in full enclosure and containment or wrapped in plastic sheet and candy wrapped, glovebagged into sections, and cut at the cleaned sections.
- 3.8.3 For Pipe and boiler insulation in inaccessible areas (such as high up in buildings where access presents a special hazard or structurally unsound structures), buildings and pipe racks are to be demolished with the material in place. Demolition of buildings with in-place ACM is to be accomplished inside Regulated Areas, using adequate water under sufficient pressure to prevent dispersal of dust.

### **3.9 Abatement of Crawl Spaces**

- 3.9.1 Preparation
  - 3.9.1.1 All procedures shall be performed in accordance with these specifications.
  - 3.9.1.2 Asbestos shall be removed from pipes and elbows in crawl spaces using full enclosure and containment techniques. Glovebag methods must be approved by Consultant before work begins.
  - 3.9.1.3 Full containment shall include the use of pressure differential air units. If the units are placed outside a vent, they must be connected to the vent by a duct and enclosed in a shelter. This is to permit removal of the filter in an enclosed space.
  - 3.9.1.4 Contractor personnel shall wear double suits due to excessive tearing of coverings.
- 3.9.2 Removal

- 3.9.2.1 In crawl spaces or pipe basements with dirt floor, first remove all large or visible pieces of suspected asbestos contaminated material. The floor under all work areas shall next be covered by two sheets of 6 mil plastic and a hard walking surface (i.e. chipboard), or two sheets of 12 mil plastic.
- 3.9.2.2 After all asbestos material is removed from pipes and/or elbows, the Contractor shall remove all floor coverings and mist the floor prior to removal to reduce the dust level.
- 3.9.2.3 Crawl spaces must be under continuous pressure differential with HEPA exhaust units.

### **3.10 Abatement of Tunnels**

All procedures shall be performed in accordance with these specifications.

- 3.10.1 Asbestos shall be removed from pipes and electrical conduit in tunnel areas using full enclosures and containment techniques. Some removal may be performed by glovebag technique (refer to Section 3.6). Glovebag methods must be approved by Consultant before work begins. The Contractor is responsible for submitting a safety plan prior to working in tunnel areas which are electrically active. This plan is to include, but not limited to, providing a written procedure as well as type of equipment to be used in the abatement of electrically active conduit.

### **3.11 Floor Tile and Mastic Removal**

- 3.11.1 All procedures shall be performed in accordance with these specifications.
- 3.11.2 All floor tile removal work shall begin in Half face air purifying respirators and full body Tyvek type clothing.
- 3.11.3 Walls shall be covered to a height of 4 feet with a minimum of one layer of 4 mil polyethylene.
- 3.11.4 Negative pressure will be provided and maintained with sufficient HEPA equipped filtration units to maintain  $-0.02''$  of water pressure differential and turn over air in the containment every 15 minutes.
- 3.11.5 Use of sawing, drilling, sanding, or any other dust- producing technique to remove the tile is prohibited. Spud bars and electrical chippers are acceptable.
- 3.11.6 The tiles must be kept wet during removal, by the spraying of amended water.

### **3.12 Requirements for the Removal of Transite Material**

- 3.12.1 The following requirements shall be followed as required by the regulations which govern asbestos abatement projects for the removal of Asbestos Containing Materials (ACM).
- 3.12.2 All ACM will be handled by AHERA certified and licensed asbestos abatement personnel.

- 3.12.3 A security barrier shall be placed around each work area by the contractor.
- 3.12.4 The transite material will be carefully lowered from the building, hand carried - no dropping or throwing.
- 3.12.5 The transite material will be double wrapped with standard 6 mil poly and labeled as required by 40 CFR 61 Sub-part M.
- 3.12.6 The transite material will be placed in a secured roll-off box, dumpster or trailer, which will be at least double wrapped with 6 mil. poly.
- 3.12.7 The dumpster/trailer will be covered at all times except when loading.
- 3.12.8 The dumpster/trailer will be marked and critical barriers will be in place.
- 3.12.9 All small pieces of ACM will be picked up before the end of the work day and placed in a 6 mil. poly bag, double-wrapped and labeled as required before placing in the dumpster/trailer.
- 3.12.10 When the dumpster/trailer is full it will be hauled away to an approved landfill for proper disposal. The manifest will be signed by a representative of the Facility Owner.

**3.13 Requirements for the Removal of Galbestos Siding and Roofing panels**

- 3.13.1 Prior to handling of Galbestos, the onsite NESHAP trained person will determine if the material is intact. A written statement to that effect will be signed, along with an assurance that the material will not be made intact during removal or demolition.
- 3.13.2 All ACM will be handled by AHERA accredited asbestos abatement personnel.
- 3.13.4 A security barrier consisting of asbestos barricade tape and signs shall be placed around each work area by the contractor to prevent access by unauthorized personnel.
- 3.13.5 Intact Galbestos material will be carefully lowered from the strutures - no dropping or throwing.
- 3.13.6 This material, if removed intact or left in place using normal demolition methods, is not RACM as defined in 40 CFR 61 subpart M. It may be disposed of as non-regulated waste. Material is to be kept wet during removal. Nail or bolt heads should be removed by use of sharp edged tools such as chisels.
- 3.13.7 If left in place during demolition, it may not be sanded, ground, or abraded. Use of track shears or other heavy demolition equipment is acceptable.
- 3.13.8 Material is to be kept wet during demolition.

3.13.9 The disposal dumpster/trailer will be marked with asbestos warning signs and asbestos barricade tape.

3.13.10 When the dumpster/trailer is full it will be transported to an approved landfill for proper disposal. The manifest will be signed by a representative of the Facility Owner.

### **3.14 Reserved**

### **3.15 Specific Requirements for the Removal of Category II - Concrete Coatings**

3.15.1 Prior to handling of coatings, the onsite NESHAP trained person will determine if the material is intact. A written statement to that effect will be signed, along with an assurance that the material will not be made intact during removal or demolition.

3.15.2 All ACM will be handled by AHERA accredited asbestos abatement personnel.

3.15.3 A security barrier consisting of asbestos barricade tape and signs shall be placed around each work area by the contractor to prevent access by unauthorized personnel.

3.15.4 Material may not be sanded, ground, or abraded. Use of air tools such as air chisels is acceptable. Grinders may not be used except in negative pressure containments.

3.15.5 This material is Category II non friable, and if removed intact or left in place using normal demolition methods, is not RACM as defined in 40 CFR 61 subpart M. It may be disposed of as non-regulated waste. Material is to be kept wet during removal.

3.15.6 If left in place during demolition, material may not be sanded, ground, or abraded. Use of track shears or other heavy demolition equipment is acceptable.

3.15.7 Material is to be kept wet during demolition or removal.

3.15.8 The disposal dumpster/trailer will be marked with asbestos warning signs and asbestos barricade tape. The material may be disposed of at a Class II landfill pending landfill approval.

3.15.9 When the dumpster/trailer is full it will be transported to an authorized landfill for disposal.

3.15.10 The following requirements shall be followed as required by the regulations which govern asbestos abatement projects for the removal of Asbestos Containing Materials.

3.15.10.1 All Asbestos Containing Materials (ACM) will be handled by AHERA accredited asbestos abatement personnel.

### **3.16 Worker Protection**

- 3.16.1 At a minimum, the Contractor will construct a dry decon to be used by the Asbestos Abatement personnel. This may consist of a piece of 6 mil polyethylene sheet at the entry to the Regulated Area.
- 3.16.2 Asbestos abatement personnel will wear personal protective clothing (Tyvek type full body suits) at all times during abatement activity. Two suits will be worn when using a dry decon.
- 3.16.3 A minimum of half-face negative pressure respirators will be worn at all times while working with the ACM. (Depending on personal air monitoring, upgrading may be necessary).
- 3.16.4 Personal air monitoring as required to meet OSHA Requirements for 30-minute Short Term Excursion Limit (STEL) and 8-hour time Permissible Exposure Limit (PEL) will be conducted each day of asbestos handling. All samples will be tested by a certified testing laboratory using standard Phase Contrast Microscopy (PCM). OSHA required personal air sampling shall be conducted on 25% of workers per containment per day by the Contractor. NIOSH 582 trained technicians may analyze samples on or off site.
- 3.16.5 The Consultant will provide all other air monitoring as required.
- 3.16.6 Perimeter area monitoring will be performed during all abatement activities. Monitoring will consist of upwind and downwind samples. Minimum sample volume will be 480 liters for ambient samples where feasible. Samples will also be collected between asbestos work and the neighborhood located south of the Encycle facility, if not covered by the upwind/downwind samples.
- 3.16.7 Warning Signs: Communication of hazard to employees (both in English and Spanish) as required by regulations displayed at locations of access and on the temporary storage dumpster/trailer.
- 3.16.8 All small pieces of ACM will be picked up before the end of the work day and placed in double 6 mil poly bags and labeled as required before placing in the dumpster/trailer.
- 3.16.9 When the dumpster/trailer is full it will be transported to a landfill for disposal. If a Class II landfill is utilized the landfill operator should be apprized of the asbestos content of the material.

### **3.17 Clean Up Procedures**

- 3.17.1 Remove and containerize all visible accumulations of asbestos containing material and asbestos contaminated debris utilizing rubber dustpans, plastic shovels and rubber squeegees. Do not use metal shovels to pick up or move accumulated waste. Special care shall be taken to minimize damage to floor sheeting.
- 3.17.2 Wet clean all surfaces in the work area using rags, mops and sponges as appropriate. (Note: Some HEPA vacuums might not be wet/dry vacuums. To pick up excess water and wet debris, a wet/dry shop vacuum may be used. This will be contaminated and require cleaning prior to removal from the work area.)

- 3.16.3 Remove all containerized waste from the work area and waste transfer airlock.
- 3.17.4 Remove the cleaned inner layer of plastic sheeting from walls and floors, containerize and remove from the work area. The outer layer of plastic sheeting will remain in place. Any openings, tears, rips, etc. in the outer layer of plastic shall be repaired immediately. Windows, doors, HVAC system vents and all other openings shall remain sealed. The pressure differential ventilation units shall remain in continuous operation. Decontamination enclosure systems shall remain in place and be utilized.
- 3.17.5 Decontaminate all tools and equipment and remove at the appropriate time in the cleaning sequence.
- 3.17.6 Inspect the work area for visible residue. If any accumulation of residue is observed, cleaning procedures shall be repeated.
- 3.17.7 The work area shall be cleaned until it is in compliance with State and Local requirements. Criteria for compliance shall be in the form of visual inspections and air sampling. Additional cleaning shall be provided, as necessary, at no cost to the Facility Owner until these criteria have been met.

### **3.18 Clearance and Perimeter Air Monitoring**

- 3.18.1 For work in negative pressure enclosure: - After the removal is completed, the Contractor shall notify the Consultant/Project Manager that the work area is ready for clearance air monitoring.
- 3.18.2 The Project Manager/Air Monitoring Technician will perform a visual inspection of all surfaces in the work area to determine that no visible dust or debris is present. The Air Monitoring Technician shall then sample the work area for airborne fiber concentrations.
- 3.18.3 The onsite project manager will determine the number of samples required for clearance of the containment. After analysis of the samples, the Contractor will be notified that all plastic barriers, decontamination unit, and negative air machines may be removed from the area. All plastic sheeting used for critical barriers will be containerized and disposed of as asbestos waste.
- 3.18.4 Perimeter Monitoring during demolition of structures containing ACM materials including Galbestos, asphalt concrete coating, and insulation will be accomplished using PCM sampling. At least 480 liters will be collected per sample. Sampling will at a minimum involve collection of one upwind reference sample and 3 downwind samples. Samples will also be collected on the south side of the work area if downwind samples are not collected there. The number of downwind samples will depend on the size of the Regulated Area.

Areas to be monitored during abatement in negative pressure enclosures include:

- Baselines, minimum 1200 liters
- Negative air exhaust

- Decontamination unit entrance
- Load out, if applicable
- Outside critical barrier, inside building, if applicable.

### **3.19 Disposal Procedures**

- 3.19.1 As the work progresses, to prevent exceeding available storage capacity on site, sealed and labeled containers of asbestos containing waste shall be removed and transported to the prearranged disposal location.
- 3.19.2 Disposal must occur at an authorized site in accordance with regulatory requirements of NESHAP, Texas Commission on Environmental Quality, and Texas Department of State Health Services guidelines and regulations.
- 3.19.3 All dump receipts, trip tickets, Texas Commission on Environmental Quality Manifests and other documentation of disposal shall be delivered to the Facility Owner for his records. A record keeping format utilizing a manifest which include the names and addresses of the generating facility, transporter and disposal site, the estimated quantity of the asbestos waste and the type of containers will be utilized. These manifests will be signed by the Generator (or Generator's designated representative).
- 3.19.4 Transportation to the approved landfill
- 3.19.4.1 Once drums, bags and wrapped components have been removed from the work area, they shall be loaded into an enclosed truck or dumpster for transportation.
- 3.19.4.2 When moving containers, utilize hand trucks, carts and proper lifting techniques to avoid back injuries. Trucks with lift gates are helpful for raising drums during truck loading.
- 3.19.4.3 The enclosed cargo area of the truck or dumpster shall be free of debris and lined with 6 mil polyethylene sheeting to prevent contamination from leaking or spilled containers. Floor sheeting shall be installed first and shall extend up the side walls. Wall sheeting shall be overlapped and taped into place.
- 3.19.4.4 Drums shall be placed on level surfaces in the cargo area and packed tightly together to prevent shifting and tipping. Large structural components shall be secured to prevent shifting. Bags shall be placed on top of structural components. Do not throw containers into truck cargo area.
- 3.19.4.5 Personnel loading asbestos containing waste shall be protected by disposable clothing including head, body, and foot protection, and at a minimum, half face, air purifying, dual cartridge respirators equipped with HEPA filters.
- 3.19.4.6 Any debris or residue observed on containers or surfaces outside of the work area resulting from clean up or disposal activities shall be immediately cleaned up using HEPA filtered vacuum equipment and/or wet methods as appropriate.

### **3.20 Protection of the site:**

- 3.20.1 The storm drains in the work area are to be protected using filters or similar material to prevent waste runoff from entering the storm drains.
- 3.20.2 All material will be maintained adequately wet during demolition and containerization. No visible emissions will be allowed during asbestos handling operations.
- 3.20.3 Upwind air samples will be used for comparison with downwind samples.

## **PART 4 SUPPORT ACTIVITIES AND PERSONNEL**

### **4.1 Training**

- 4.1.1 Training shall be provided by the Contractor to all employees or agents who may be required to disturb asbestos containing or asbestos contaminated materials for abatement and auxiliary purposes and to all supervisory personnel who may be involved in planning, execution or inspection of abatement projects.
- 4.1.2 All personnel on site will have Asbestos Awareness training as defined in 40 CFR 763.92(a)(1), AHERA.
- 4.1.3 Training for personnel operating heavy equipment during demolition of structures containing friable ACM will be the AHERA 32 hour asbestos worker class.
- 4.1.4 All supervisory personnel and workers shall have skill and experience with all phases of abatement work as evidenced through participation in at least two asbestos abatement projects, including at least 30 days inside containment areas.
- 4.1.5 All supervisory personnel must have successfully completed an EPA approved training course for asbestos abatement contractors and supervisors.
- 4.1.6 All asbestos workers must have successfully completed an EPA approved training course for asbestos abatement workers.
- 4.1.7 Training courses for workers and supervisors shall provide, at a minimum, information on the following topics:
  - 4.1.7.1 The health hazards of asbestos including the nature of various asbestos related diseases, routes of exposure, known dose-response relationships, the synergistic relationship between asbestos exposure and cigarette smoking, latency periods for disease and health basis for standards.
  - 4.1.7.2 The physical characteristics of asbestos including fiber size, aerodynamic properties, physical appearance and uses.
  - 4.1.7.3 Employee personal protective equipment including the types and characteristics of respirator classes, limitations of respirators, proper selection, inspection, donning, use, maintenance and storage of respirators, field testing the face piece to face seal (positive and negative pressure fitting tests), qualitative and quantitative fit testing procedures, variations between laboratory and field fit factors, factors that affect

respirator fit (e.g., facial hair), selection and use of disposable clothing, use and handling of launderable clothing, non-skid shoes, gloves, eye protection, and hard hats.

- 4.1.7.4 Medical monitoring requirements for workers including required and recommended tests, reasons for medical monitoring and employee access to records.
- 4.1.7.5 Air monitoring procedures and requirements for workers including description of equipment and procedures, reasons for monitoring, types of samples and current standards with recommended changes.
- 4.1.7.6 Work practices for asbestos abatement including purpose, proper construction and maintenance of air tight plastic barriers, airlocks, decontamination enclosure systems and waste transfer airlocks, posting of warning signs, engineering controls, electrical and ventilation system lockout, proper working techniques, waste clean up, storage and disposal procedures.
- 4.1.7.7 Personal hygiene including entry and exit procedures for the work area, use of showers and prohibition of eating, drinking, smoking and chewing in the work area.
- 4.1.7.8 Special safety hazards that may be encountered including electrical hazards, air contaminants (e.g., carbon monoxide, wetting agents, encapsulants), fire and explosion hazards, scaffold and ladder hazards, slippery surfaces, confined spaces, heat stress and noise.
- 4.1.7.9 Workshops affording both supervisory personnel and abatement workers the opportunity to see and experience the construction of containment barriers and decontamination facilities.
- 4.1.7.10 Supervisory personnel shall, in addition, receive training on contract specifications, liability insurance and bonding, legal considerations related to abatement, establishing respiratory protection, medical surveillance programs, EPA and OSHA record keeping requirements, and other topics as required.
- 4.1.8 Training for workers and supervisors must be provided by a Texas Department of State Health Services licensed training provider. Training for 2 hour awareness may be provided by Contractor / Supervisor trained and experienced individuals.
- 4.1.9 Training is to have occurred within the last 12 months.
- 4.1.10 Contractor must document training by providing originals or photocopies of training certificates which include: date of training, training entity, and names and qualifications of trainers. For awareness level training, a copy of the class sign in sheet with the individual's name and identification number will serve as proof of training.

## **4.2 Medical Monitoring**

- 4.2.1 Medical monitoring shall include at a minimum:
  - 4.2.1.1 A work/medical history to elicit symptomatology of respiratory disease.

- 4.2.1.2 A chest x-ray (posterior-anterior, 14 x 13 inches) evaluated by a certified B-reader.
- 4.2.1.3 A pulmonary function test, including forced vital capacity (FVC) and forced expiratory volume at one second (FEV), administered and interpreted by a Certified Pulmonary Specialist.
- 4.2.2 Employees shall be given an opportunity to be evaluated by a physician to determine their capability to work safely while breathing through the added resistance of a respirator. Examining physicians shall be aware of the nature of respiratory protective devices and their contributions to breathing resistance. They shall also be informed of the specific types of respirators the employee shall be required to wear, as well as special work place conditions such as high temperature, high humidity, and chemical contaminants to which the employee may be exposed.

### **4.3 Laboratory Services**

- 4.3.1 The laboratory utilized for analyzing air samples shall be satisfactory participants in a proficiency program such as the NIOSH Proficiency Analytical Testing (PAT) program for the analysis of asbestos air samples. The laboratory shall also be licensed by the Texas Department of State Health Services.
- 4.3.2 The laboratory used for bulk material identification shall be satisfactory participants in the NVLAP quality assurance program for bulk asbestos analysis. The laboratory shall also be licensed by the Texas Department of Health.
- 4.3.3 The period of time permitted between the collection of air samples and the availability of results shall be less than 24 hours for samples collected during abatement activities.

### **4.4 Emergency Precautions**

- 4.4.1 A local medical emergency facility shall be identified and their ambulance crews and hospital emergency room staff shall be notified prior to commencement of abatement operations as to the possibility of having to handle contaminated or injured workmen, and shall be advised on safe decontamination.
- 4.4.2 The Contractor shall be prepared to administer first aid to injured personnel after decontamination. Seriously injured personnel shall be treated immediately or evacuated without delay for decontamination. When an injury occurs the Contractor shall stop work and implement fiber reduction techniques (e.g., water spraying) until the injured person has been removed from the work area.
- 4.4.3 Before commencement of abatement activities, the Contractor shall notify the local police and fire departments as to the danger of entering the work area and they shall be invited to attend an informal training program to be conducted by the Contractor who shall provide information regarding abatement activities, decontamination practices, etc. The Contractor shall make every effort to help these agencies form plans of action should their personnel need to enter the contaminated area.

### **4.5 Additional Sampling of Bulk Materials**

4.5.1 At any time, the Contractor may take additional samples of previously identified Asbestos Containing Materials for analysis using Point Counting and/or TEM Gravimetric analysis to rebut their designation as ACM. Point Counted samples will supercede PLM samples, and TEM Gravimetric will supercede both PLM and Point Counting.

ATTACHMENT A  
TDSHS Notification(s)

*For Office Use Only:*

Notification #: \_\_\_\_\_

## ASBESTOS/DEMOLITION NOTIFICATION FORM

*DO NOT WRITE IN THIS BOX- FOR DEPARTMENT USE ONLY*

Date received: \_\_\_/\_\_\_/\_\_\_ Postmark date: \_\_\_/\_\_\_/\_\_\_ Walk-in date: \_\_\_/\_\_\_/\_\_\_

**TYPE OF NOTIFICATION:** *(Select one and fill in the requested information)*

**ORIGINAL**    **AMENDMENT No. \_\_\_**    **CANCELLATION**

**EMERGENCY**

•Was emergency request made to the Regional Office or Environmental Health Notifications Group (EHNG) by phone?

Yes    No

•If yes, the DSHS reference #: \_\_\_\_\_ and name of the Regional or EHNG representative with whom you spoke? \_\_\_\_\_

Date: \_\_\_/\_\_\_/\_\_\_ Time: \_\_\_\_\_  a.m.    p.m.

•Describe the reason for Emergency: \_\_\_\_\_

**ORDERED:** *(For structurally unsound facilities, attach copy of demolition order and identify Governmental Official)*

Name: \_\_\_\_\_ Registration No. \_\_\_\_\_

Title: \_\_\_\_\_

Date of order (MM/DD/YY): \_\_\_/\_\_\_/\_\_\_      Date order to begin (MM/DD/YY): \_\_\_/\_\_\_/\_\_\_

**AMENDMENTS:** *You must complete the entire form and mark the appropriate check box(es) along the left-hand side of this form to indicate amended information.*

(x)  
Below if  
Amended

**TYPE OF WORK**

Asbestos Abatement    Demolition    Annual Consolidated O&M    Abatement/Demolition

Is this a phased project?    Yes    No

**FACILITY INFORMATION**

**1. Facility Location**

..... Description or Facility Name: **Former ASARCO/Encycle Facility**

..... Physical Address: **5500 Up River River Road**

..... County: **Nueces** City: **Corpus Christi** Zip: **78407**

..... Facility Contact: **Robert Resuriz** Phone #: **(713) 562-6912**

**2. Type of Facility (Select one)**

Public    Federal    Industrial/Manufacturing    NESHAP-Only    Public School K-12

**3. Facility Details**

..... Description of Area/Room Number: **53 buildings**

..... Age of Building: **1942** Size: **~1,500,000 sqft** Number of Floors: **10**

..... Is this building occupied?    Yes    No

..... Prior Use: **Zinc Smelter and metals recycling**

..... Future Use: **Possible re-development for commercial/industrial use**

..... Date of Asbestos Survey/NESHAP Inspection: **12/01/06**

..... DSHS Inspector License #: **20-5050**

..... Analytical Method:    PLM    TEM    Assumed Asbestos    No Suspect Material

..... DSHS Laboratory License #: **300188**

**WORK SCHEDULE/ASBESTOS AMOUNTS** *(Note: if the start date(s) entered below cannot be met, the DSHS Regional or Local Program office must be notified prior to the scheduled start date. Failure to do so is a violation of TAC Section 295.61.)*

**1. Asbestos Abatement Work Schedule:**

..... Start date: **1/31/11** and End date: **9/15/11**

..... Work days:    Mon.    Tues.    Wed.    Thurs.    Fri.    Sat.    Sun.

..... Working hours: **7**  a.m.    p.m. to **7**  a.m.    p.m.

**2. Demolition Work Schedule:**

..... Start date: **1/31/11** and End date: **10/01/11**

..... Work days:    Mon.    Tues.    Wed.    Thurs.    Fri.    Sat.    Sun.

..... Working hours: **7**  a.m.    p.m. to **7**  a.m.    p.m.

(x)  
Below if  
Amended

**C. ASBESTOS AMOUNTS**

..... Is Asbestos Present?  Yes  No (*Complete the table below if asbestos is present*)

Asbestos-Containing Building Material Type	Approximate amount of Asbestos						
	Pipes	Ln Ft	Ln M	Surface Area	SQ Ft	SQ M	Cu Ft
<input type="checkbox"/> RACM to be removed	10,000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	20,000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/> RACM left in place during demolition	1,000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2,000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/> Interior Category I non-friable removed	0	<input type="checkbox"/>	<input type="checkbox"/>	10,625	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/> Exterior Category I non-friable removed	0	<input type="checkbox"/>	<input type="checkbox"/>	9,395	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/> Category I non-friable left in place during demolition	0	<input type="checkbox"/>	<input type="checkbox"/>	9,395	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/> Interior Category II non-friable removed	0	<input type="checkbox"/>	<input type="checkbox"/>	200,000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/> Exterior Category II non-friable removed	0	<input type="checkbox"/>	<input type="checkbox"/>	10,000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/> Category II non-friable left in place during demolition	0	<input type="checkbox"/>	<input type="checkbox"/>	450,000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/> RACM Off-Facility Component							

**DESCRIPTION OF WORK PRACTICES AND PROCEDURES**

..... 1. Description of procedures to be followed in the event that unexpected asbestos is found or previously non-friable asbestos material becomes crumbled, pulverized, or reduced to powder: **Stop work, notify Owner. Secure licensed contractor to isolate and barricade area, HEPA vacuum, wet removal methods, double bag for disposal.**

..... 2. Description of planned demolition or abatement work, type of material, and method(s) to be used: **DemoAbatement of facility structures. RACM includes pipe/equipment insulation. Will utilize glove bag and full containment methods. Non-RACM includes roofing materials, tile/mastics, stack coating, and galvestos coating. Will use wet meth**

..... 3. Description of work practices and engineering controls to be used to prevent emissions of asbestos at the demolition site: **Will utilize SOPs and site-specific Health & Safety Plan and NESHAP and OSHA guidelines for ACM activities. Glove bag, mini-enclosures and negative pressure enclosures utilizing wet methods, HEPA vacuum, and wet wipe. Work will be completed in accordanc with EPA, OSHA, and TX DSHS.**

**PROJECT INFORMATION**

..... **A. FACILITY OWNER**

Facility Owner Name: **Former Encycle/Texas, Inc Facility**  
Phone #: **(361) 693-9402**  
Attention: **Mike Boudloche**  
Mailing Address: **555 North Carancahua, Ste. 600**  
City: **Corpus Christi** State: **TX** Zip: **78478**

..... **B. ASBESTOS ABATEMENT CONTRACTOR #1**

DSHS Asbestos Contractor License #: **800967**  
Contractor Name: **Camacho Environmental**  
Address: **7141 Hwy 77**  
City: **Sinton** State: **TX** Zip: **78387**  
Office Phone #: **(361) 364-9047** Job-Site Phone #: **(361) 726-8278**

..... **C. ASBESTOS ABATEMENT CONTRACTOR #2 (Only if there is more than one Contractor)**

DSHS Asbestos Contractor License #: **NA**  
Contractor Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Office Phone #: ( ) - - Job-Site Phone #: ( ) - -

**D. ASBESTOS SUPERVISOR**

..... DSHS Supervisor License #: **802376** Site Supervisor: **Santiago Reyes**

..... DSHS Supervisor License #: **804361** Site Supervisor: **Luis Granado**

(x)

Below if

Amended **E. NESHAP TRAINED INDIVIDUAL**

..... NESHAP Trained Individual: **Santiago Reyes**  
Certification Date: **11/13/09**

..... **F. DEMOLITION CONTRACTOR**  
Demolition Contractor: **Specialized Industrial Services, Inc**  
Address: **14150 Vine Place**  
City: **Cerritos** State: **CA** Zip: **90730** Phone #: **(562) 843-1269**

..... **G. PROJECT CONSULTANT OR OPERATOR**  
DSHS License No.: **10-0408**  
Project Consultant or Operator: **Turnstone EH&S, Inc**  
Address: **226 Enterprise Parkway, Ste 116**  
City: **Corpus Christi** State: **TX** Zip: **78405** Phone #: **(361) 289-2510**

..... **H. Waste Transporter**  
DSHS Waste Transporter License #: **400278**  
Waste Transporter: **Allied Waste**  
Address: **4542 SE Loop 410**  
City: **San Antonio** State: **TX** Zip: **78222**  
Contact Person: **Todd Muenster** Phone #: **(800) 275-4234**

..... **I. Waste Disposal Site**  
TCEQ Permit #: **H1410**  
Waste Disposal Site: **Tessman Road Landfill**  
Address: **7000 I-10 E**  
City: **San Antonio** State: **TX** Zip: **78219**  
Phone #: **(210) 661-4104**

**CERTIFICATION STATEMENT**

I hereby declare that I have examined this notification and, to the best of my knowledge and belief, all information provided is complete, true, and correct. I affirm that I am the owner, operator, or delegated agent and that I am responsible for the fee associated with this notification. I also understand that the owner, operator, or delegated agent is responsible for notification to the department.

Date:   /  /  

\_\_\_\_\_  
(Signature of Owner, Operator or Delegated Agent)

**Mike Boudloche, Chapter 7 Bankruptcy Court Trustee**  
(Printed Name & Title)

E-mail Address: **mboudloche@ch13boudloche.com** Phone #: **(361) 693-9402**

**IMPORTANT INFORMATION**

**NOTIFICATION TIMELINESS REQUIREMENT:**

Your Asbestos/Demolition Notification form must be postmarked no less than ten working days (not calendar days) prior to the start of any asbestos abatement or demolition.

**FILING FEE:** An invoice will be mailed to the facility owner upon completion of the project.

**CALL FOR ASSISTANCE:** (512) 834-6747 or (888) 778-9440 (toll free in Texas)

**MAIL FORM TO:** ENVIRONMENTAL HEALTH NOTIFICATIONS GROUP  
TEXAS DEPARTMENT OF STATE HEALTH SERVICES  
PO BOX 143538  
AUSTIN, TX 78714-3538

# ATTACHMENT B

## Survey Report



Infrastructure, environment, facilities

Mr. Mike Boudloche, Trustee  
555 N. Carancahua, Suite 600  
Corpus Christi, TX 78478

Subject:

Asbestos Inspection Results  
Encycle Facility  
5500 Up River Road  
Corpus Christi, Texas

Dear Mr. Boudlache:

This letter report presents the results of an asbestos inspection conducted during November and December 2006 at the Encycle facility located at 5500 Up River Road in Corpus Christi, Texas. The asbestos inspection was conducted at the 51 buildings located at the facility. Building locations are shown on Figure 1.

The scope of the inspection initially involved visual examination of each building to identify suspect asbestos-containing material (suspect ACM). Following the visual examination, samples of each homogeneous area of suspect ACM were collected for asbestos analysis. The results of the asbestos inspection are detailed below.

### Visual Inspection

Prior to collection of samples for asbestos analysis, a visual examination of all 51 site buildings was conducted by Kenneth J. Brandner, a Texas Department of State Health Services-licensed asbestos inspector (License Number: 20-5050). All accessible portions of the building interiors and exteriors were visually examined to identify suspect ACM. A total of 35 homogenous areas of suspect ACM were identified in the buildings, and a description of each homogenous area of suspect ACM is provided on Table 1.

As part of the visual examination, each homogenous area of suspect ACM was assessed to determine if the material was friable. Friable is defined in 40 Code of Federal Regulations (CFR) Part 763.83 as "material, when dry, may be crumbled, pulverized, or reduced to powder by hand pressure, and includes previously nonfriable material after such previously nonfriable material becomes damaged to the extent that when dry it may be crumbled, pulverized, or reduced to powder by hand pressure." The results of the friability determination are provided on Table 1. As shown on Table 1, several homogenous areas of suspect ACM at the facility were friable (fibrous pipe wrap, boiler insulation, ceiling tiles, fibrous thermal system insulation).

ARCADIS Geraghty & Miller, Inc.  
711 North Carancahua  
Suite 1700  
Corpus Christi  
Texas 78475  
Tel 361 883 1353  
Fax 361 883 7565

ENVIRONMENTAL SERVICES

Date  
December 14, 2006

Contact:  
Ken J. Brandner

Extension:  
361-883-1353, ext. 16

# ARCADIS

## Suspect ACM Sample Collection

A total of 188 samples were collected for asbestos analysis during November and December 2006 (Sample IDs: A-1 through A-188). As specified in 40 CFR Part 763.86, at least three samples of each homogenous area of suspect thermal system insulation and suspect miscellaneous materials were collected for asbestos analysis. The number of samples collected from suspect surfacing materials was dependent on the area of the surfacing material. At least three samples were collected from suspect surfacing materials with an area of 1,000 ft<sup>2</sup> or less, at least five samples were collected from suspect surfacing materials with an area between 1,000 ft<sup>2</sup> and 5,000 ft<sup>2</sup>, and at least seven samples were collected from suspect surfacing materials with an area greater than 5,000 ft<sup>2</sup>. The suspect ACM sample locations are shown on Figure 2.

Each sample was collected by spraying the sample area with a wetting agent, and collecting each sample using new gloves and a new knife blade. Each sample was placed into a labeled plastic bag, then sealed and placed into a second labeled plastic bag. The samples were shipped to a Texas Department of State Health Services-licensed asbestos laboratory for asbestos analysis. Following sample collection, the sample areas were patched using duct tape and/or asbestos-free spackling.

A homogenous area is defined in 40 CFR Part 763.83 as "an area of surfacing material, thermal system insulation, or miscellaneous material that is uniform in color and texture." During the asbestos inspection, it was observed that several homogeneous areas of suspect ACM are present in more than one building at the facility, including black "galvestos" surfacing material on building exterior walls and roofs; linoleum floor covering; baseboard; floor tiles; ceiling tiles; pipe wrap; air duct insulation; sheet rock/gypsum board walls; asphalt roofs; and tar and gravel roofs.

During the inspection, pink, orange, and/or yellow fibrous thermal system insulation labeled "fiberglass" was observed in several of the buildings, including Facility No. 1, Facility No. 2, and Facility No. 3. Fiberglass is not suspect ACM (40 CFR Part 763.86), and therefore materials labeled "fiberglass" were not sampled.

## Asbestos Analytical Results

Each sample was analyzed for asbestos using polarized light microscopy (PLM). The presence of asbestos in Sample A-162 was also verified using asbestos point count analysis. Asbestos analytical results for each sample are summarized on Table 1, copies of the analytical laboratory reports are provided in Attachment 1, and photographs of the asbestos-containing materials are provided in Attachment 2.

## ARCADIS

As shown on Table 1, 13 homogenous areas of asbestos-containing materials were identified in the buildings as follows:

- Black, non-friable, 1/16 to 1/8-inch-thick, black coating (galvestos) on metal walls, roofs, I-beams, and pipes (Homogeneous Area 1 on Table 1): Black galvestos coating (1/16" to 1/8"-thick) is present on the exterior metal walls, metal roofs, steel I-beams, steel pipes, and/or concrete pillars of several buildings, including Facility No. 1, Facility No. 2, Facility No. 3, East Product Storage Building 5, the Old Casting Building, the Sanitary Wastewater Building, the Product Storage Bins Numbered Bins Building, the Lettered Bins Building, the East Cell House, Building 17, Building 20, Building 24, the Power House, the West Cell House, the Reagent Storage Building, and the Zinc Building (see Attachment 2, photographs 1 through 5). In addition to the galvestos coating in the buildings listed above, two large steel tanks on the north side of Facility No. 1, and two large steel tanks on the west side of Facility No. 2 contain galvestos coating (see Attachment 2, photograph 6). A total of 20 samples of the black galvestos coating were collected for asbestos analysis (Sample IDs: A-1, A-2, A-3, A-19, A-28, A-41, A-56, A-57, A-61, A-63, A-68, A-69, A-79, A-85, A-86, A-88, A-92, A-94, A-116, A-121), and all 20 samples contained asbestos. The black galvestos coating was not friable, but was damaged (tears, holes).
- Brown linoleum floor covering (Homogeneous Area 3 on Table 1): Brown linoleum floor covering (1/8"-thick) is present in the offices on the 2<sup>nd</sup> floor of Facility No. 1, the 2<sup>nd</sup> and 3<sup>rd</sup> floors of Facility No. 2, the 5<sup>th</sup> floor of Facility No. 3, the 2<sup>nd</sup> floor of the West Cell House, the 1<sup>st</sup> floor at the south-center end of the Reagent Storage Building (Building 28), and the 2<sup>nd</sup> floor of the Admin Building and Lab (see Attachment 2, photographs 7 and 8). Six samples of the brown linoleum floor covering were collected for asbestos analysis (Sample IDs: A-7, A-8, A-9, A-20, A-126, and A-155), and all six samples contained asbestos. The brown linoleum floor covering was not friable and not damaged.
- Pipe wrap with white fibers and outer black tar jacket (Homogenous Area 5 on Table 1): Pipe wrap with 1" to 2"-thick white fibers and an outer black tar jacket are present on pipes ranging in diameter from 1/2" to 8" in Facility No. 1, Facility No. 2, Facility No. 3, Facility No. 4, the Old Casting Building, the East Cell House, the West Cell House, the Admin and Lab Building basement, the east Yard Office building, and the Guard House/Change House (see Attachment 2, photographs 9 through 12). Fifteen samples of the white pipe wrap with outer black tar jacket were collected for asbestos analysis (Sample IDs: A-13, A-14, A-15, A-25, A-26, A-27, A-29, A-30, A-44, A-62, A-87, A-118, A-160, A-161, and A-165), and eight of the samples contained asbestos. The white pipe wrap was friable and damaged (tears, deterioration, water damage).

## ARCADIS

- 12" x 12" light brown floor tile (Homogenous Area 9 on Table 1): 12" x 12" light brown floor tile (1/8"-thick) (approximately 225 square feet) is present in the office at the northeast end of the 1<sup>st</sup> floor of Facility No. 2 (see Attachment 2, photograph 13). Three samples of the floor tiles were collected for asbestos analysis (Sample IDs: A-32, A-33, and A-34), and two of the samples contained asbestos. The light brown floor tiles were not friable and not damaged.
- Tar and gravel roofs (Homogenous Area 21 on Table 1): Tar and gravel roofs with 1/2" to 3/4"-thick black tar and tan and brown rounded gravel are present on the roofs of Building 12, the Yard Offices, Building 18, Building 19, Building 20, the Oil House, Building 29, Building 30, the Lunch Room, Building 34, Reagent Storage Building 36, Building 44, Building 45, and Building 52 (see Attachment 2, photograph 14). Eight samples of the tar and gravel roofs were collected for asbestos analysis (Sample IDs: A-73, A-78, A-90, A-91, A-93, A-128, A-132, and A-150), and four of the samples contained asbestos. The tar and gravel roofs were not friable and not damaged.
- Tan and gray checkered linoleum floor covering (Homogenous Area 25 on Table 1): Tan and gray checkered linoleum floor covering (1/8"-thick) is present in lab and office on the south side of the 1<sup>st</sup> floor of the Admin Building and Lab (Building 46), the offices on the north end of the 2<sup>nd</sup> floor of the Admin Building and Lab, and in the laundry room at the east end of the Change House (Building 47). Three samples of the tan and gray checkered linoleum floor covering were collected for asbestos analysis (Sample IDs: A-151, A-152, and A-153), and one sample contained asbestos. The tan and gray checkered linoleum floor covering was not friable and not damaged.
- 9" x 9" light brown floor tile (Homogeneous Area 26 on Table 1): 9" x 9" light brown floor tile (1/8"-thick) is present in the offices on the 2<sup>nd</sup> floor at the south end of the Power House, and the office on the 2<sup>nd</sup> floor near the northeast end of the Admin Building and Lab (Building 46) (see Attachment 2, photograph 15). Four samples of the 9" x 9" light brown floor tile were collected for asbestos analysis (Sample IDs: A-98, A-99, A-100, and A-156), and all of the samples contained asbestos. The floor tile was not friable and not damaged.
- Pipe wrap with white fibers and outer orange jacket (Homogenous Area 27 on Table 1): 18"-diameter pipe wrap with 2"-thick white fibers and an outer orange jacket is present on an approximate 14"-diameter steel pipe that runs north-south along the center of the Power House, approximately 12 feet above the 1<sup>st</sup> floor. The northern end of the 18"-diameter pipe wrap extends to the 2<sup>nd</sup> floor at the north end of the Power House (see Attachment 2,

## ARCADIS

photograph 16). Three samples of the 18"-diameter pipe wrap with an outer orange jacket were collected for asbestos analysis (Sample IDs: A-104, A-105, and A-106), and all of the samples contained asbestos. The white pipe wrap was friable and slightly damaged (tears, deterioration).

- Thermal system insulation on boilers (boiler insulation) – white fibers with gray exterior jacket (Homogeneous Area 28 on Table 1): Steel boilers on the 2<sup>nd</sup> floor at the southeast end of the Power House, and boilers in the Zinc Building (Building 32) contain 1"-thick white fibers with an outer gray jacket (see Attachment 2, photographs 17 and 18). Six samples of the white boiler insulation were collected for asbestos analysis (Sample IDs: A-107, A-108, A-109, A-129, A-130, and A-131), and all of the samples contained asbestos. The white boiler insulation is friable, and the boiler insulation in the Zinc Building is damaged (tears, deterioration).
- Pipe wrap with white fibers and outer metal jacket (Homogenous Area 29 on Table 1): Pipe wrap with 1" to 2"-thick white fibers and an outer 1/16"-thick sheet metal jacket are present on pipes ranging in diameter from 2" to 8" on the 1<sup>st</sup> floor at the east end of Facility No. 4, and the 1<sup>st</sup> floor in the southeast portion of the Power House below the boilers (see Attachment 2, photographs 19 and 20). Five samples of the white pipe wrap with outer sheet metal jacket were collected for asbestos analysis (Sample IDs: A-54, A-55, A-110, A-111, and A-112), and three of the samples contained asbestos. The white pipe wrap is friable, and slightly damaged at Facility No. 4 (tears, deterioration).
- 12" x 12" white floor tile with light gray streaks (Homogenous Area 31 on Table 1): 12" x 12" white floor tile with light gray streaks (1/8"-thick) is present in the eastern portion of the Change House/Guard House (Building 47) (see Attachment 2, photograph 21). One sample of the floor tiles was collected for asbestos analysis (Sample ID: A-162), and asbestos was detected in the central layer (black vinyl layer) of the floor tile. This floor tile sample was also analyzed for asbestos using the point count method, and the presence of asbestos (1.75% asbestos) was confirmed. Materials containing more than 1% asbestos are considered asbestos-containing materials (40 CFR Part 763.83). The white floor tiles with light gray streaks were not friable and not damaged.
- 9" x 9" cream-white floor tile (Homogeneous Area 34 on Table 1): 9" x 9" cream-white floor tile (1/8"-thick) (approximately 400 square feet) is present in the office at the northeast end of Warehouse Storage Building 51 (see Attachment 2, photograph 22). Three samples of the 9" x 9" cream-white floor tile were collected for asbestos analysis (Sample IDs: A-179, A-180, and A-181), and all of the samples contained asbestos. The floor tile was not friable and not damaged.

## ARCADIS

- 1/8"-inch-thick red coating on large brick/concrete smokestack southwest of Facility No. 4 (Homogenous Area 35 on Table 1): The large (estimated 250 feet high, 18'-diameter at base) brick and concrete smokestack directly southwest of Facility No. 4 has a 1/8"-thick red exterior coating (see Attachment 2, photograph 23). Three samples of the red exterior coating were collected for asbestos analysis (Sample IDs: A-186, A-187, and A-188), and all of the samples contained asbestos. The red exterior coating was non-friable, except along damaged areas (tears) where the materials was friable.

A summary of the asbestos-containing materials in the buildings at the Encycle facility is provided on Table 2.

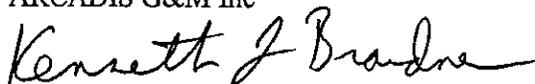
### Asbestos Management Recommendations

Asbestos was detected in 13 homogeneous areas at the Encycle facility (black galvestos coating, brown linoleum floor covering, white pipe wrap with outer black tar jacket, 12" x 12" light brown floor tile, tar and gravel roofs, tan and gray checkered linoleum floor covering, 9" x 9" light brown floor tile, white pipe wrap with outer orange jacket, white fibrous insulation on boilers, white pipe wrap with outer sheet metal jacket, 12" x 12" white floor tile with light gray streaks, 9" x 9" cream-white floor tile, red coating on large brick/concrete smokestack). Any activities that involve disturbance of these asbestos-containing materials (cutting, drilling, scraping, removal, demolition, etc.) should be conducted by a Texas Department of State Health Services-licensed asbestos abatement contractor. Prior to removal of the asbestos-containing materials, an asbestos abatement project design should be prepared by a Texas Department of State Health Services-licensed asbestos consultant or asbestos project designer. A 10-day notification form also should be submitted to the Texas Department of State Health Services prior to abatement activities. Following completion of asbestos abatement activities, independent third party air monitoring should be conducted by a Texas Department of State Health Services-licensed air monitoring technician prior to issuing final clearance.

Please contact Ken Brandner at (361) 883-1353 if you have any questions.

Sincerely,

ARCADIS G&M Inc



Kenneth J. Brandner, P.E., P.G.

Licensed Asbestos Inspector, License No. 20-5050

**Table 1. Suspect Asbestos Containing Material (Suspect ACM) Sample Descriptions, November-December 2006, Encyle Facility, 5500 Up River Road, Corpus Christi, Texas**

Figure 1 Building Number	Encyle Building Name	Suspect ACM Sample ID	Homogenous Area Number	Suspect ACM Description <sup>a</sup>	Suspect ACM Sample Location	Asbestos Sample Results
1	Facility No. 1	A-1	1	Black galvestos coating (1/8-inch-thick) on exterior metal walls and roof of Facility No. 1. Non-friable.	East exterior metal wall of Facility No. 1. Sample collected 7' AGL, 10' SE of Feed Tank 1.	55% asbestos.
		A-2	1	Black galvestos coating (1/16-inch-thick) on 2 large metal cone-shaped tanks directly north of Facility No. 1. Non-friable.	Exterior metal surface of large cone-shaped tanks (2) north of Facility No. 1. Sample taken from western tank, 10' AGL.	5% asbestos.
		A-3	1	Black galvestos coating (1/16 to 1/8-inch-thick) is present on some of the steel structural supports (I-beams and cross beams) in Facility No. 1. Non-friable. Galvestos also present on several 1" and 3"-diameter steel pipes on 2nd floor.	2" x 3" steel cross beam (L-shape 90° angle) along west wall of Facility No. 1. 2nd floor of building, west-center wall, 3' above floor.	6% asbestos.
		A-4	2	2' x 4' white ceiling tile in offices on 2nd floor of Facility No. 1. 5/8"-thick ceiling tile. Friable.	Offices on 2nd floor of Facility No. 1, 8' AGL.	None detected.
		A-5	2	(same as Sample A-4)	(same as Sample A-4)	None detected.
		A-6	2	(same as Sample A-4)	(same as Sample A-4)	None detected.
		A-7	3	Brown linoleum floor covering. 1/8"-thick. Non-friable.	Offices on 2nd floor of Facility No. 1. Also present in offices in Facility No. 2 and Facility No. 3.	15% asbestos.
		A-8	3	(same as Sample A-7)	(same as Sample A-7)	15% asbestos.
		A-9	3	(same as Sample A-7)	(same as Sample A-7)	15% asbestos.
		A-10	4	Sheet rock/gypsum board walls. 5/8"-thick white chalky material with outer paper jacket. Non-friable.	Interior walls of Facility No. 1. Located in office areas on 2nd floor of Facility No. 1.	None detected.

**Table 1. Suspect Asbestos Containing Material (Suspect ACM) Sample Descriptions, November-December 2006, Encyle Facility, 5500 Up River Road, Corpus Christi, Texas**

Figure 1 Building Number	Encyle Building Name	Suspect ACM Sample ID	Homogenous Area Number	Suspect ACM Description <sup>a</sup>	Suspect ACM Sample Location	Asbestos Sample Results
		A-11	4	(same as Sample A-10)	(same as Sample A-10)	None detected.
		A-12	4	(same as Sample A-10)	(same as Sample A-10)	None detected.
		A-13	5	Pipe wrap. 2"-thick white pipe wrap with outer black jacket on 6"-diameter pipe. Friable.	2nd floor of Facility No. 1. Located above filters and tanks near center of 2nd floor. Sample collected 7' AGL at Filter 5113.	5% asbestos.
		A-14	5	Pipe wrap valve cover. 2"-thick white pipe wrap on valve. Friable.	2nd floor of Facility No. 1. Located on valve cover above filters and tanks near center of 2nd floor. Sample collected 6' AGL at Filter 5111.	None detected.
		A-15	5	Pipe wrap. 2"-thick white pipe wrap with outer black jacket on 1"-diameter pipe. Friable.	2nd floor of Facility No. 1. Located above filters and tanks near center of 2nd floor. Sample collected 1' AGL at Tank 705260.	None detected.
		A-16	6	24"-diameter grayish green vent pipe. 1/8-inch-thick. Non-friable.	2nd floor of Facility No. 1. 24" gray-green pipes located above wooden tanks to top of building.	None detected.
		A-17	6	(same as Sample A-16)	(same as Sample A-16)	None detected.
		A-18	6	(same as Sample A-16)	(same as Sample A-16)	None detected.
2	Facility No. 2	A-19	1	Black galvestos coating (1/8-inch-thick) on exterior metal walls and roof of Facility No. 2. Non-friable. Also located on exterior surface of 2 large metal cone-shaped tanks west of Facility No. 2, and I-beams and concrete pillars at south and east ends of Facility No. 2.	East exterior metal wall of Facility No. 2. Sample collected 2' AGL, 5' north of Bldg. 34.	5% asbestos.
		A-20	3	Brown linoleum floor covering. 1/8"-thick. Non-friable.	Offices on 2nd floor and 3rd floor at northwest end of Facility No. 2. Also located in office on 2nd floor at east end of West Cell House, and office on 5th floor at NE end of Facility No. 3.	22% asbestos.

**Table 1. Suspect Asbestos Containing Material (Suspect ACM) Sample Descriptions, November-December 2006, Encyle Facility, 5500 Up River Road, Corpus Christi, Texas**

Figure 1 Building Number	Encyle Building Name	Suspect ACM Sample ID	Homogenous Area Number	Suspect ACM Description <sup>a</sup>	Suspect ACM Sample Location	Asbestos Sample Results
		A-21	2	2' x 4' white ceiling tile in offices on 2nd and 3rd floor of Facility No. 2. 5/8"-thick ceiling tile. Friable.	Offices on 1st, 2nd & 3rd floors of Facility No. 2. Sample taken 8' AGL, 3rd floor, NW end of bldg.	None detected.
		A-22	7	Brown flexible baseboard, 4"-high, 1/8"-thick. Non-friable.	Baseboard located along base of interior walls in offices on 2nd and 3rd floors of Facility No. 2.	None detected.
		A-23	7	(same as Sample A-22)	(same as Sample A-22)	None detected.
		A-24	7	(same as Sample A-22)	(same as Sample A-22)	None detected.
		A-25	5	Pipe wrap. 2"-thick white pipe wrap with outer black jacket on 2"-diameter steel pipe. Friable.	2nd and 3rd floor at west end of Facility No. 2. Sample collected on 3rd floor west wall adjacent to Tank 605038.	None detected.
		A-26	5	Pipe wrap. 2"-thick white pipe wrap with outer black jacket on 6"-diameter steel pipe. Friable.	3rd floor at west end of Facility No. 2. Extends vertically upward to ceiling at west end of Facility No. 2. Sample collected 3rd floor west wall, west of Tank 605038	55% asbestos.
		A-27	5	Pipe wrap. 1"-thick white pipe wrap with outer black jacket on 1/2"-diameter steel pipe. Friable.	2nd and 3rd floor at west end of Facility No. 2. Sample collected 2nd floor, SW of Thickener 4.	55% asbestos.
		A-28	1	Black galvestos coating (1/8-inch-thick) on steel I-beams and 8"-diameter steel pipe at south end of Facility No. 2. Non-friable.	Black galvestos coating on steel I-beams and 8" steel pipes at south end of Facility No. 2. Sample collected at 8" pipe, 2' AGL.	12% asbestos.
		A-29	5	Pipe wrap. 1"-thick white pipe wrap with outer black jacket on 1"-diameter steel pipe. Friable.	East end of Facility No. 2, sample collected 6' AGL, 80' SW of Facility No. 2 NE corner.	None detected.
		A-30	5	Pipe wrap. 1"-thick white pipe wrap with outer black jacket on 3/4"-diameter steel pipe. Friable. Significant damage.	East end of Facility No. 2, sample collected 7' AGL, 80' WSW of Facility No. 2 NE corner.	25% asbestos.

**Table 1. Suspect Asbestos Containing Material (Suspect ACM) Sample Descriptions, November-December 2006, Encyle Facility, 5500 Up River Road, Corpus Christi, Texas**

Figure 1 Building Number	Encyle Building Name	Suspect ACM Sample ID	Homogenous Area Number	Suspect ACM Description <sup>a</sup>	Suspect ACM Sample Location	Asbestos Sample Results
		A-31	8	Thermal system insulation. 1"-thick orange fibers with outer aluminum foil jacket. Friable.	Orange fibers located on 2"-diameter pipe along east wall of Facility No. 2, 12' AGL. Sample collected 12' AGL at SE corner of Facility No. 2.	None detected.
		A-32	9	Floor tile. 12" x 12" lt. brown floor tile. Non-friable.	Floor tile located in office at northeast end of Facility No. 2, 1st floor.	None detected.
		A-33	9	(same as Sample A-32)	(same as Sample A-32)	2% asbestos.
		A-34	9	(same as Sample A-32)	(same as Sample A-32)	2% asbestos.
		A-35	10	1' x 1' white ceiling tile in office on 1st floor of Facility No. 2, NE corner of bldg. 5/8"-thick ceiling tile. Friable.	Ceiling tile located in office on 1st floor at NE end of Facility No. 2, 8' AGL.	None detected.
		A-36	10	(same as Sample A-35)	(same as Sample A-35)	None detected.
		A-37	10	(same as Sample A-35)	(same as Sample A-35)	None detected.
		A-38	11	Miscellaneous suspect ACM. 1" to 2" thick, brown, non-friable "cement-like" insulation with rough, irregular surface on ceiling of 1st floor at south end of Facility No. 2.	Insulation located on 1st floor ceiling at south end of Facility No. 2, above steel I-beams, 20' AGL.	None detected.
		A-39	11	(same as Sample A-38)	(same as Sample A-38)	None detected.
		A-40	11	(same as Sample A-38)	(same as Sample A-38)	None detected.
3	Facility No. 3	A-41	1	Black galvestos coating (1/8-inch-thick) on exterior metal walls and roof of Facility No. 3. Non-friable.	East exterior metal wall of Facility No. 3. Sample collected 5' AGL, 40' N of SE corner.	40% asbestos.
		A-42	12	Thermal system insulation. 4"-thick yellow friable fibers with outer aluminum foil jacket on tanks on third floor of Facility No. 3.	Tanks with yellow insulation located on 3rd floor of Facility No. 3. Sample collected from western tank, 3rd floor, 50' S of north wall.	None detected.

**Table 1. Suspect Asbestos Containing Material (Suspect ACM) Sample Descriptions, November-December 2006, Encyle Facility, 5500 Up River Road, Corpus Christi, Texas**

Figure 1 Building Number	Encyle Building Name	Suspect ACM Sample ID	Homogenous Area Number	Suspect ACM Description <sup>a</sup>	Suspect ACM Sample Location	Asbestos Sample Results
		A-43	12	Thermal system insulation. 1"-thick yellow friable fibers with outer aluminum foil jacket on pipes adjacent to tanks on third floor of Facility No. 3.	Pipes with yellow pipe wrap located adjacent to tanks on 3rd floor of Facility No. 3. Collected sample 10' east of Sample A-42.	None detected.
		A-44	5	Pipe wrap. 1"-thick white pipe wrap with outer black jacket on 6"-diameter pipe. Friable.	East-center end of Facility No. 3, all five floors. Sample collected 2nd floor at east-center wall.	None detected.
4	Facility No. 4	A-45	2	2' x 4' white ceiling tile in offices at north end of Facility No. 4. 5/8"-thick ceiling tile. Friable.	Offices at north end of Facility No. 4, 8' AGL. Sample collected from 1st floor office.	None detected.
		A-46	14	Floor tile. 12" x 12" lt. brown floor tile. Non-friable.	Floor tile located in offices at north end of Facility No. 4; 1st through 4th floors.	None detected.
		A-47	14	(same as Sample A-46)	(same as Sample A-46)	None detected.
		A-48	14	(same as Sample A-46)	(same as Sample A-46)	None detected.
		A-49	15	Thermal system insulation. 2"-thick yellow-orange friable fibers on large cone-shaped tanks at Facility No. 4. Insulation located below outer metal jacket.	Large (30"-diameter) cone-shaped tank at north end of Facility No. 4, and two 10'-diameter tanks at south end of Facility No. 4.	None detected.
		A-50	15	(same as Sample A-49)	(same as Sample A-49)	None detected.
		A-51	15	(same as Sample A-49)	(same as Sample A-49)	None detected.
		A-52	8	Thermal system insulation. Rigid air duct with 1"-thick orange friable fibers and aluminum foil outer jacket.	Air duct located in office area at north end of Facility No. 4. Sample collected 1st floor, NW end.	None detected.
		A-53	11	Miscellaneous suspect ACM. 1" to 4" thick, brown, non-friable "cement-like" insulation with rough, irregular surface at base of metal conveyor belt at Facility No. 4.	Insulation located on 3rd floor at south-center end of Facility No. 4, below conveyor belt.	None detected.
		A-54	29	Pipe wrap. 2"-thick white pipe wrap with outer metal jacket on 2", 3", 4", and 6"-diameter pipes. Friable.	1st floor of Facility No. 4, east end of building. Sample collected 6' AGL on 2"-diameter pipe.	2% asbestos.

**Table 1. Suspect Asbestos Containing Material (Suspect ACM) Sample Descriptions, November-December 2006, Encyle Facility, 5500 Up River Road, Corpus Christi, Texas**

Figure 1 Building Number	Encyle Building Name	Suspect ACM Sample ID	Homogenous Area Number	Suspect ACM Description <sup>a</sup>	Suspect ACM Sample Location	Asbestos Sample Results
		A-55	29	(same as Sample A-54)	1st floor of Facility No. 4, east end of building. Sample collected 3' AGL on 6"-diameter pipe valve cover.	15% asbestos.
5	East Product Storage	A-56	1	Black galvestos coating (1/8-inch-thick) on exterior metal walls and I-beams of East Product Storage Building. Non-friable.	Sample collected from steel I-beams at south end of East Product Storage Building, 4' AGL.	5% asbestos.
		A-57	1	(same as Sample A-56)	Sample collected from south metal wall of East Product Storage Building, 1' AGL.	45% asbestos.
6	Product Storage	A-58	17	Thermal system insulation. 2"-thick, tan friable fibers on interior walls and ceiling of office at northwest end of Product Storage building.	Sample collected in office at northwest end of Product Storage Building.	None detected.
		A-59	17	(same as Sample A-58)	(same as Sample A-58)	None detected.
		A-60	17	(same as Sample A-58)	(same as Sample A-58)	None detected.
7	Old Casting Building	A-61	1	Black galvestos coating (1/8-inch-thick) on exterior metal walls and roof of Old Casting Building. Non-friable.	West exterior metal wall of Old Casting Building. Sample collected 1' AGL.	30% asbestos.
		A-62	5	Pipe wrap. 1"-thick white pipe wrap with outer black jacket on 1" and 2"-diameter pipes at south end of building, west end of building, and at overhead pipe rack 10' south of building. Friable. Significant damage.	Pipe wrap located at south end of Old Casting Building and on overhead pipe rack 10' south of building. Sample collected 10' south of building on pipe rack, 12' AGL. Note: 3' segment also located at east Yard Office building (Bldg 13).	60% asbestos.
		A-63	1	Black galvestos coating (1/8-inch-thick) on 8"-diameter steel pipe on pipe rack 10' south of Old Casting Building. Galvestos located below an exterior white coating. Non-friable.	Sample collected from 8"-diameter pipe on steel pipe rack 10' south of Old Casting Building, 9' AGL. This material is also located on an 8"-diameter pipe at the north-center end of the Sanitary Wastewater Building (Building 9).	23% asbestos.

**Table 1. Suspect Asbestos Containing Material (Suspect ACM) Sample Descriptions, November-December 2006, Encyle Facility, 5500 Up River Road, Corpus Christi, Texas**

Figure 1 Building Number	Encyle Building Name	Suspect ACM Sample ID	Homogenous Area Number	Suspect ACM Description <sup>a</sup>	Suspect ACM Sample Location	Asbestos Sample Results
		A-64	18	Miscellaneous suspect ACM. 1/8" to 1/2"-thick, white granular friable coating/accretions inside metal ovens in Old Casting Building.	Sample collected inside brick oven at south-center end of Old Casting Building.	None detected.
		A-65	18	(same as Sample A-64)	(same as Sample A-64)	None detected.
		A-66	18	(same as Sample A-64)	(same as Sample A-64)	None detected.
		A-67	(see Note 1)	Thermal system insulation. 18"-diameter rigid air duct with 1"-thick pink friable fibers.	Air duct located 12' AGL at center of Old Casting Building.	None detected.
8	Hazardous waste Storage Building	NA	NA	No suspect ACM present.	No suspect ACM present.	
9	Sanitary Wastewater Bldg	A-68	1	Black galvestos coating (1/8-inch-thick) on exterior metal walls of Sanitary Wastewater Building. Non-friable.	Sample collected 2' AGL, west wall of building.	35% asbestos.
10	Product Storage Bins (Numbered Bins Building)	A-69	1	Black galvestos coating (1/8-inch-thick) on exterior metal walls and roof of Numbered Bins Building. Non-friable.	Exterior metal walls and roof of Numbered Bins Building, and rail car metal canopy north of building. Sample collected 3' AGL at southeast corner of building.	35% asbestos.
11	Wastewater Treatment Bldg	A-70	20	Brown fabric on large metal drum filter on second floor of Wastewater Treatment Building. 1/16"-thick, friable.	Drum filter approx. 10'-diameter, 15'-long on 2nd floor of Wastewater Treatment bldg.	None detected.
		A-71	20	(same as Sample A-70)	(same as Sample A-70)	None detected.
		A-72	20	(same as Sample A-70)	(same as Sample A-70)	None detected.
12	---	A-73	21	Tar & gravel roof. 3/4"-thick black non-friable tar roof.	300 square foot brick building west of reactor/clarifier. Sample taken from roof, 15AGL.	20% asbestos.

**Table 1. Suspect Asbestos Containing Material (Suspect ACM) Sample Descriptions, November-December 2006, Encyle Facility, 5500 Up River Road, Corpus Christi, Texas**

Figure 1 Building Number	Encyle Building Name	Suspect ACM Sample ID	Homogenous Area Number	Suspect ACM Description <sup>a</sup>	Suspect ACM Sample Location	Asbestos Sample Results
13	Yard offices	A-74	22	Surfacing material. Ceiling texture on ceiling of west yard office building (600 square foot building). Ceiling texture located 14' AGL, 1/2"-thick non-friable gray "cement-like" texture with wire mesh reinforcement.	Ceiling texture located on ceiling of west yard office building, 14' AGL.	None detected.
		A-75	22	(same as Sample A-74)	(same as Sample A-74)	None detected.
		A-76	22	(same as Sample A-74)	(same as Sample A-74)	None detected.
		A-77	8	Thermal system insulation. Rigid air duct with 1"-thick orange friable fibers and aluminum foil outer jacket.	Air duct located 9' AGL in east yard office building.	None detected.
		A-78	21	Tar & gravel roof. 1/2"-thick black non-friable tar roof with underlying 1/2"-thick brown friable fibers.	Roof of Yard Office Buildings (2 adjacent buildings). Sample collected from east building.	None detected.
14	Lettered Bins Building	A-79	1	Black galvestos coating (1/8-inch-thick) on exterior metal walls and roof of Facility No. 1. Non-friable.	Galvestos coating on exterior metal walls and roof. Sample collected 4' AGL at north wall.	20% asbestos.
15	Plant Engineering	A-80	2	2' x 4' white ceiling tile in offices on 2nd floor of Plant Engineering building. 5/8"-thick ceiling tile. Friable.	Offices on 2nd floor of Plant Engineering building, 8' AGL.	None detected.
		A-81	24	Red-brown linoleum floor covering. 1/8"-thick. Non-friable.	2nd floor, west side of Plant Engineering building.	None detected.
		A-82	24	(Same as Sample A-81)	(Same as Sample A-81)	None detected.
		A-83	24	(Same as Sample A-81)	(Same as Sample A-81)	None detected.
		A-84	12	Thermal system insulation. 12"-diameter air duct with 1"-thick yellow friable fibers and outer aluminum foil jacket.	Air duct located above ceiling on 2nd floor of Plant Engineering building.	None detected.
16	East Cell House	A-85	1	Black galvestos coating (1/16-inch-thick) on steel I-beams in East Cell House. Non-friable. Significant damage.	I-beams in East Cell House. Sample collected from I-beam on 2nd floor, east-center end, 3' AGL.	8% asbestos.

**Table 1. Suspect Asbestos Containing Material (Suspect ACM) Sample Descriptions, November-December 2006, Encyle Facility, 5500 Up River Road, Corpus Christi, Texas**

Figure 1 Building Number	Encyle Building Name	Suspect ACM Sample ID	Homogenous Area Number	Suspect ACM Description <sup>a</sup>	Suspect ACM Sample Location	Asbestos Sample Results
17	---	A-86	1	Black galvestos coating (1/8-inch-thick) on 1st floor concrete pillars and 2nd floor concrete curbs. Non-friable.	Sample collected from 1st floor concrete pillar, 3' AGL, 30' west of building SE corner.	6% asbestos.
	---	A-87	5	Pipe wrap. 1"-thick white pipe wrap with outer black jacket on 1" and 2"-diameter pipes on 2nd floor along north, east, and south perimeter walls. Friable.	Sample collected from 2nd floor of East Cell House, east end, 1"-diameter pipe, 8' AGL.	None detected.
	---	A-88	1	Black galvestos coating (1/16-inch-thick) on steel walkway outside north and east ends of building. Non-friable.	Galvestos coating on exterior metal walkways north and east of building.	5% asbestos.
	---	A-89	18	Miscellaneous suspect ACM. 1/8" to 1/2"-thick, white granular friable coating/accretions on 2nd floor I-beams. Friable.	Sample collected from I-beam on 2nd floor at east end of building.	None detected.
18	---	A-90	21	Tar & gravel roof. 3/4"-thick black non-friable tar roof.	Roof of Building 18. Sample collected west end.	None detected.
19	Substation	A-91	21	Tar & gravel roof. 3/4"-thick black non-friable tar roof.	Roof of Building 19. Sample collected north end.	2% asbestos.
20	---	A-92	1	Black galvestos coating (1/16-inch-thick) on 1"-diameter steel pipe at west end of Building 20. Non-friable. (Note: This building also has a tar & gravel roof. See Sample A-93).	20'-long, 1"-diameter steel pipe with galvestos coating, sample collected 3' AGL.	6% asbestos.
21	Oil House	A-93	21	Tar & gravel roof. 1/2"-thick black non-friable tar roof.	Roof of Oil House. Sample collected south end.	6% asbestos.
22	---	NA	NA	No suspect ACM present.	No suspect ACM present.	
23	---	NA	NA	No suspect ACM present.	No suspect ACM present.	
24	---	A-94	1	Black galvestos coating (1/16-inch-thick) on metal canopy north of building. Non-friable.	Metal canopy north of building. Sample collected 6' AGL at northeast corner of canopy.	20% asbestos.

**Table 1. Suspect Asbestos Containing Material (Suspect ACM) Sample Descriptions, November-December 2006, Encyle Facility, 5500 Up River Road, Corpus Christi, Texas**

Figure 1 Building Number	Encyle Building Name	Suspect ACM Sample ID	Homogenous Area Number	Suspect ACM Description <sup>a</sup>	Suspect ACM Sample Location	Asbestos Sample Results
		A-95	18	Miscellaneous suspect ACM. 1/8" to 1/2"-thick, white granular friable coating/accretions on 1st floor walls and ceiling. Friable. (Note: Damaged thermal insulation (fragments) on 4th level roof bottom not accessible, not sampled).	Sample collected from 1st floor west-center wall, 3' AGL.	None detected.
25	Power House	A-96	10	1' x 1' white ceiling tile in offices on 2nd floor of Power House, south end of bldg. 5/8"-thick ceiling tile. Friable.	Ceiling tile located 9' AGL in offices on 2nd floor, south end of Power House.	None detected.
		A-97	2	2' x 4' white ceiling tile in supply room on 2nd floor of Power House, south end. 5/8"-thick ceiling tile. Friable.	Ceiling tile located 9' AGL in supply room on 2nd floor, south end of Power House.	None detected.
		A-98	26	Floor tile. 9" x 9" lt. brown floor tile. Non-friable.	Floor tile located in offices on 2nd floor, south end of Power House.	5% asbestos.
		A-99	26	(same as Sample A-98)	(same as Sample A-98)	5% asbestos.
		A-100	26	(same as Sample A-98)	(same as Sample A-98)	5% asbestos.
		A-101	24	Red-brown linoleum floor covering. 1/8"-thick. Non-friable.	Red-brown linoleum floor covering located in lab on 2nd floor, and west end of 2nd floor in Power House.	None detected.
		A-102	24	(same as Sample A-101)	(same as Sample A-101)	None detected.
		A-103	24	(same as Sample A-101)	(same as Sample A-101)	None detected.
		A-104	27	Pipe wrap. 18"-diameter white pipe wrap, 1"-thick, with outer orange jacket. Friable.	18"-diameter pipe wrap with orange exterior jacket runs north-south approximately 12' AGL along the center 1st floor of the Power House. Also present on the 2nd floor north end.	35% asbestos.
		A-105	27	(same as Sample A-104)	(same as Sample A-104)	35% asbestos.

**Table 1. Suspect Asbestos Containing Material (Suspect ACM) Sample Descriptions, November-December 2006, Encyle Facility, 5500 Up River Road, Corpus Christi, Texas**

Figure Number	Encyle Building Name	Suspect ACM Sample ID	Homogenous Area Number	Suspect ACM Description <sup>a</sup>	Suspect ACM Sample Location	Asbestos Sample Results
		A-106	27	(same as Sample A-104)	(same as Sample A-104)	35% asbestos.
		A-107	28	Thermal system insulation on boiler (Boiler insulation). 1"-thick white friable fibers with outer black tar coating and gray exterior jacket.	Boiler insulation located on boilers on 2nd level at the southeast end of the Power House.	8% asbestos.
		A-108	28	(same as Sample A-107)	(same as Sample A-107)	8% asbestos.
		A-109	28	(same as Sample A-107 - sampled at valve cover)	(same as Sample A-107)	8% asbestos.
		A-110	29	Pipe wrap. 8"-outside diameter pipe wrap with 2"-thick white friable fibers and outer metal jacket.	Pipe wrap with outer metal jacket located on first floor at southeast corner of Power House. Sample A-110 pipe wrap labeled "Boiler Feed Water". Sample collected 5' AGL.	None detected.
		A-111	29	(same as Sample A-110 - sampled at 16" OD valve cover)	Sample collected on 1st floor, 50' SW of NE end of Power House.	None detected.
		A-112	29	(same as Sample A-110 - sampled at 18" OD valve cover)	Sample collected on 2nd floor, 100' SW of NE end of Power House.	3% asbestos.
		A-113	30	Thermal system insulation. Loose 36 ft <sup>3</sup> pile of white friable insulation located on 1st floor near center of Power House.	Insulation pile (4'x3'x3'-high) located on 1st floor of Power House, center of 1st floor.	None detected.
		A-114	30	(same as Sample A-113)	(same as Sample A-113)	None detected.
		A-115	30	(same as Sample A-113)	(same as Sample A-113)	None detected.
26	West Cell House	A-116	1	Black galvestos coating (1/8-inch-thick) on exterior metal walls and roof, concrete pillars, 1st floor concrete ceiling, and I-beams in West Cell House. Nonfriable. Damaged.	Galvestos sample collected from 1st floor concrete pillar at east end of West Cell House, 3' AGL.	6% asbestos.

**Table 1. Suspect Asbestos Containing Material (Suspect ACM) Sample Descriptions, November-December 2006, Encyle Facility, 5500 Up River Road, Corpus Christi, Texas**

Figure 1 Building Number	Encyle Building Name	Suspect ACM Sample ID	Homogenous Area Number	Suspect ACM Description <sup>a</sup>	Suspect ACM Sample Location	Asbestos Sample Results
		A-117	23	Asphalt roof. 1/2"-thick non-friable asphalt on metal roof.	Sample collected 10' AGL from metal roof at east-center end of West Cell House. Also present on roofs at top of West Cell House.	None detected.
		A-118	5	Pipe wrap. 1"-thick white pipe wrap with outer black jacket on 2", 3", 4" and 6"-diameter pipe. Friable. Significant damage.	Pipe wrap located on 2nd floor of West Cell House, extends upward to roof underside. Sample taken from 3"-diameter pipe, 10' AGL.	55% asbestos.
		A-119	(see Note 2)	Green translucent piping with fibers, located near cooling towers. Fiberglass appearance.	Piping located near cooling towers west of East Cell House and West Cell House.	None detected.
27	South Reagent Storage Building	A-120	(see Note 3)	Pipe wrap. Cardboard boxes containing unused white fibrous friable pipe wrap. Approx. 16 cardboard boxes of unused pipe wrap/insulation present in building. (Note: This building also has a tar & gravel roof. See Sample A-93).	Cardboard boxes of unused white pipe wrap are located on a wooden shelf at the east end of the South Reagent Storage Building. Sample taken from a 3"-OD pipe wrap segment in box.	None detected.
28	Reagent Storage Building (NOR 43)	A-121	1	Black galvestos coating (1/8-inch-thick) on exterior metal walls, roof, roof drains, and exterior metal cone-shaped tanks at the Reagent Storage Building. Non-friable.	Sample collected from north exterior metal wall of building near NW corner, 3' AGL.	30% asbestos.
		A-122	33	Miscellaneous suspect ACM. 1/8"-thick gray exterior friable coating/accretion on 3"-diameter by 8"-high steel tank/boiler at south end of Reagent Storage Building.	Sample collected from 3"-diameter by 8"-high steel tank at south end of Reagent Storage Building, 50' east of building SW corner.	None detected.
		A-123	33	(same as Sample A-122)	(same as Sample A-122)	None detected.
		A-124	33	(same as Sample A-122)	(same as Sample A-122)	None detected.
		A-125	33	Same as Sample A-122, located on exterior of electrical conduits at south end of Reagent Storage Building.	Sample collected from exterior electrical conduit pipe (1"-diameter pipe), 10' AGL, S. end of bldg.	None detected.
		A-126	3	Brown linoleum floor covering. 1/8"-thick. Non-friable.	Brown linoleum floor covering located in office at south-center end of Reagent Storage Building.	20% asbestos.

**Table 1. Suspect Asbestos Containing Material (Suspect ACM) Sample Descriptions, November-December 2006, Encyle Facility, 5500 Up River Road, Corpus Christi, Texas**

Figure 1 Building Number	Encyle Building Name	Suspect ACM Sample ID	Homogenous Area Number	Suspect ACM Description <sup>a</sup>	Suspect ACM Sample Location	Asbestos Sample Results
29	---	A-127	(see Note 4) 21	White paint. 1/32"-thick paint coating on walls of Building 29. Non-friable. (Note: This building also has a tar & gravel roof. See Sample A-91, A-93 and A-128).	White paint on building 29 interior walls. Paint sample collected to confirm absence of asbestos.	None detected.
30	---	A-128	21	Tar & gravel roof. 1/2"-thick black non-friable tar roof with underlying 1/2"-thick brown friable fibers.	Roof of Building 30. Sample collected west end.	10% asbestos.
31	Spill Sorbent Storage Building	NA	NA	No suspect ACM present.	No suspect ACM present.	
32	Zinc Building	A-129	28	Thermal system insulation on boiler (Boiler insulation). 1"-thick white friable fibers with gray exterior jacket. Damaged. (Note: This building also galvestos on exterior metal walls and roof. See Sample A-1).	Boiler insulation located on exterior of three large boilers and attached ducts at the east end of the Zinc Building.	15% asbestos.
33	Lunch Room	A-132	21	Tar & gravel roof. 1/2"-thick black non-friable tar roof.	Roof of Lunch Room.	None detected.
34	MCC L&M	A-130	21	(Note: This building has a tar & gravel roof. See Sample A-91, A-93 and A-128).	Roof of MCC L&M Building.	
35	Scale House	A-133	23	Asphalt roof.	9' x 12' wooden building with asphalt roof.	None detected.
36	Reagent Storage	Brick	21	(Note: This building has a tar & gravel roof. See Sample A-91, A-93 and A-128).	Roof of Reagent Storage Bldg NW of Facility No. 2.	
37	MCC 29D	A-134	23	Asphalt roof. Asphalt only - no tar & gravel.	Brick building roof east of Facility No. 3.	None detected.

**Table 1. Suspect Asbestos Containing Material (Suspect ACM) Sample Descriptions, November-December 2006, Encyle Facility, 5500 Up River Road, Corpus Christi, Texas**

Figure 1 Building Number	Encyle Building Name	Suspect ACM Sample ID	Homogenous Area Number	Suspect ACM Description <sup>a</sup>	Suspect ACM Sample Location	Asbestos Sample Results
38	---	A-135	2	2' x 4' white ceiling tile in Building 38. 5/8"-thick ceiling tile. Friable.	Office at northwest end of building, 8' AGL.	None detected.
		A-136	8	Thermal system insulation. Rigid air duct with 1"-thick orange-yellow friable fibers and aluminum foil outer jacket.	Air duct located in office area at north end of building. Sample collected 10' AGL.	None detected.
		A-137	4	Sheet rock/gypsum board walls. 5/8"-thick white chalky material with outer paper jacket. Non-friable.	Sheet rock located on interior walls, collected sample from west-center room, 3' AGL.	None detected.
		A-138	13	Tar & gravel roof with red "lava/pumice" gravel. 1/2"-thick black non-friable tar roof.	Roof of building 38. Sample collected at south-center end of roof.	None detected.
39	Substation	A-139	13	Tar & gravel roof with "white" gravel. 1/2"-thick black non-friable tar roof.	Roof of building 39. Sample collected at north-center end of roof.	None detected.
40	Substation	A-140	13	Tar & gravel roof with "white" gravel. 1/2"-thick black non-friable tar roof.	Roof of building 40. Sample collected at east end of roof.	None detected.
41	Lab	A-141	2	2' x 4' white ceiling tile in Building 41. 5/8"-thick ceiling tile. Friable.	Ceiling tile located 9' AGL throughout building interior, sample collected at south-center end.	None detected.
		A-142	16	Floor tile. 12" x 12" white floor tile. Non-friable.	Floor tile located on Building 41 (Lab) floor.	None detected.
		A-143	16	(same as Sample A-142)	(same as Sample A-142)	None detected.
		A-144	16	(same as Sample A-142)	(same as Sample A-142)	None detected.
		A-145	19	Blue flexible baseboard, 4"-high, 1/8"-thick. Non-friable.	Baseboard located along base of interior walls	None detected.
		A-146	19	(same as Sample A-145)	(same as Sample A-145)	None detected.
		A-147	19	(same as Sample A-145)	(same as Sample A-145)	None detected.

**Table 1. Suspect Asbestos Containing Material (Suspect ACM) Sample Descriptions, November-December 2006, Encyle Facility, 5500 Up River Road, Corpus Christi, Texas**

Figure Number	Encyle Building Name	Suspect ACM Sample ID	Homogenous Area Number	Suspect ACM Description <sup>a</sup>	Suspect ACM Sample Location	Asbestos Sample Results
		A-148	4	Sheet rock/gypsum board walls. 5/8"-thick white chalky material with outer paper jacket. Non-friable.	Interior walls of lab. Sample collected at sheet rock joint, 4' AGL, 10' north of bldg SE corner.	None detected.
42	---	A-149	23	Asphalt shingle roof. 1/4" thick non-friable black shingles.	Sampled at stairway at building NE corner.	None detected.
43	---	NA	NA	No suspect ACM present.	No suspect ACM present.	
44	---	NA	NA	No suspect ACM present.	No suspect ACM present.	
45	---	A-150	21	(Note: This building has a tar & gravel roof. See Sample A-91, A-93 and A-128). Tar & gravel roof. 1/2"-thick black non-friable tar roof.	Building located south of Facility No. 1.	None detected.
46	Admin Building and Lab	A-151	25	Tan & gray checkered linoleum floor covering. 1/8"-thick. Non-friable. Small (1/2") square checkered pattern.	Sample collected at north end of building roof. Linoleum located on floor at south side of first floor, and north side of 2nd floor. Also present in laundry room at east end of Change House.	None detected.
		A-152	25	(same as Sample A-151)	(same as Sample A-151)	None detected.
		A-153	25	(same as Sample A-151)	(same as Sample A-151)	5% asbestos in underlying mastic.
		A-154	16	Floor tile. 12" x 12" white floor tile. Non-friable.	Floor tile located in hallways on 1st and 2nd floor.	None detected.
		A-155	3	Brown linoleum floor covering. 1/8"-thick. Non-friable.	Brown linoleum located on 2nd floor hallway and 2nd floor offices north of hallway.	20% asbestos.
		A-156	26	Floor tile. 9" x 9" lt. brown floor tile. Non-friable.	9" x 9" floor tile located in 2nd floor office, north of hallway, 30' west of building NE corner.	5% asbestos.
		A-157	7	Gray/brown flexible baseboard, 4"-high, 1/8"-thick. Non-friable.	Baseboard located along base of interior walls	None detected.

**Table 1. Suspect Asbestos Containing Material (Suspect ACM) Sample Descriptions, November-December 2006, Encyle Facility, 5500 Up River Road, Corpus Christi, Texas**

Figure 1 Building Number	Encyle Building Name	Suspect ACM Sample ID	Homogenous Area Number	Suspect ACM Description <sup>a</sup>	Suspect ACM Sample Location	Asbestos Sample Results
		A-158	2	2' x 4' white ceiling tile in offices on 1st and 2nd floor of Admin bldg and lab. 5/8"-thick ceiling tile. Friable.	Offices on 1st and 2nd floor, sample collected in lab 30' west of building SE corner, 8' AGL.	None detected.
		A-159	4	Sheet rock/gypsum board walls. 5/8"-thick white chalky material with outer paper jacket. Non-friable.	Interior walls of building. Sample collected in hallway 15' west of east-center door, 1st floor.	None detected.
		A-160	5	Pipe wrap. 1"-thick white pipe wrap with outer black jacket on 2"-diameter pipe. Friable. Significant damage.	Pipe wrap located on 2", 4", and 6" pipes in building basement. Sample collected 8' AGL.	55% asbestos.
		A-161	5	(same as Sample A-160)	(same as Sample A-160)	65% asbestos.
47	Change House/ Guard House	A-162	31	Floor tile. 12" x 12" white floor tile with lt. gray streaks in Change House/Guard House. 1/8"-thick. Non-friable.	White floor tile located in eastern portion of Change House/Guard House. Sample collected at doorway at east-center end of building.	3% asbestos (PLM). 1.75% asbestos (Point Count Method)
		A-163	7	Gray/brown flexible baseboard, 4"-high, 1/8"-thick. Non-friable.	Baseboard located along base of interior walls in offices at east end of building.	None detected.
		A-164	2	2' x 4' white ceiling tile in Change House. 5/8"-thick, friable.	Sample collected 30' west of east end, 8' AGL.	None detected.
		A-165	5	Pipe wrap. 1"-thick white pipe wrap with outer black jacket on 2"-diameter pipe. Friable.	Pipe wrap located on 2" pipe along outer north wall of Change House, 50' west of NE corner.	None detected.
		A-166	15	Thermal system insulation. 2"-thick yellow-orange friable fibers on tank/boiler at north-center end of Change House. Insulation located below outer metal jacket.	5'-diameter x 15'-high tank at north-center end of Change House. Sample collected 4' AGL.	None detected.
48	Visitor Center	A-167	14	Floor tile. 12" x 12" gray-brown floor tile. Non-friable.	Floor of Visitor Center, sampled at south-center.	None detected.
		A-168	7	Gray/brown flexible baseboard, 4"-high, 1/8"-thick. Non-friable.	Baseboard located along base of interior walls, sample collected at east-center wall.	None detected.
		A-169	2	2' x 4' white ceiling tile in Visitor Center. 5/8"-thick, friable.	Sample collected at center of building, 9' AGL.	None detected.

**Table 1. Suspect Asbestos Containing Material (Suspect ACM) Sample Descriptions, November-December 2006, Encyle Facility, 5500 Up River Road, Corpus Christi, Texas**

Figure 1 Building Number	Encyle Building Name	Suspect ACM Sample ID	Homogenous Area Number	Suspect ACM Description <sup>a</sup>	Suspect ACM Sample Location	Asbestos Sample Results
		A-170	13	Tar & gravel roof. Non-friable.	Roof of Visitor Center. Sample collected at S end.	None detected.
49	Admin Offices	A-171	14	Floor tile. 12" x 12" gray-brown floor tile. Non-friable.	Floor of Admin offices, sampled at east end.	None detected.
		A-172	7	Gray/brown flexible baseboard, 4"-high, 1/8"-thick. Non-friable.	Baseboard located along base of interior walls, sample collected at east-center wall.	None detected.
		A-173	2	2' x 4' white ceiling tile in Admin Offices. 5/8"-thick, friable.	Sample collected at east end of building, 9' AGL.	None detected.
		A-174	8	Thermal system insulation. Rigid air duct with 1"-thick orange friable fibers and aluminum foil outer jacket.	Air duct located in office area in southern portion of Admin Offices. Sample collected 10' AGL.	None detected.
		A-175	32	4' x4' brown ceiling tiles/ceiling panels on ceiling at north end of Admin Offices in storage room, and on ceiling of Warehouse Storage Building (Building 51). 5/8"-thick brown fibrous insulation. Friable.	Ceiling at north end of Admin Offices, and ceiling of Warehouse Storage Building (Building 51), located 15-25' AGL. Samples A-175 through A-176 collected from ceiling of Admin Offices.	None detected.
		A-176	32	(same as Sample A-175)	(same as Sample A-175)	None detected.
		A-177	32	(same as Sample A-175)	(same as Sample A-175)	None detected.
50	Fire Water Bldg.	A-178	13	Tar & gravel roof. Non-friable.	Roof of Fire Water Building. Sampled at N end.	None detected.
51	Warehouse Storage Bldg.	A-179	34	Floor tile. 9" x 9" cream-white floor tile. Non-friable.	Floor of 16' x 25' office at northeast end of Warehouse Storage Building.	6% asbestos.
		A-180	34	(same as Sample A-179)	(same as Sample A-179)	6% asbestos.
		A-181	34	(same as Sample A-179)	(same as Sample A-179)	6% asbestos.
		A-182	10	1' x 1' white ceiling tile on ceiling and interior walls at east-center end of Warehouse Storage Bldg. 5/8", Friable.	Ceiling tile located on walls and ceiling of office at east-center end of Warehouse Storage Bldg.	None detected.

**Table 1. Suspect Asbestos Containing Material (Suspect ACM) Sample Descriptions, November-December 2006, Encyle Facility, 5500 Up River Road, Corpus Christi, Texas**

Figure 1 Building Number	Encyle Building Name	Suspect ACM Sample ID	Homogenous Area Number	Suspect ACM Description <sup>a</sup>	Suspect ACM Sample Location	Asbestos Sample Results
		A-183	7	Gray/brown flexible baseboard, 4"-high, 1/8"-thick. Non-friable.	Baseboard located along base of interior walls at east end of building, sample collected NE corner.	None detected.
		A-184	7	(same as Sample A-183)	(same as Sample A-183)	None detected.
		A-185	7	(same as Sample A-183)	(same as Sample A-183)	None detected.
52	--		21	(Note: This building also has a tar & gravel roof. See Sample A-91 and A-93).	Small brick building west of Facility No. 1.	
53	Smokestack	A-186	35	Surfacing material on large concrete/brick smokestack exterior. 1/8"-thick red coating, tar-like with fibers. Non-friable in undamaged areas, friable in damaged areas.	Tall smokestack SW of Facility No. 4. Smokestack has red lights on top. Sample collected at SE end, 3' AGL.	11% asbestos.
		A-187	35	(same as Sample A-186)	Sample collected at north end, 2' AGL.	11% asbestos.
		A-188	35	(same as Sample A-186)	Sample collected at west end, 3' AGL.	11% asbestos.

**Suspect ACM**

AGL  
OD

Suspect asbestos-containing material.  
Above ground level.  
Outside diameter.

**Notes:**

1. This air duct appears to be fiberglass (not suspect ACM), but one sample was collected (Sample ID: A-67) to verify the absence of asbestos. Asbestos was not detected in the sample, and the laboratory report showed the pink fibers are fiberglass.
2. Green translucent piping is located outside the west end of the East Cell House and West Cell House near cooling towers. This piping appears to be fiberglass (not suspect ACM), but one sample was collected (Sample ID: A-119) to verify the absence of asbestos. Asbestos was not detected in the sample, and the laboratory report showed the fibers in the pipe are fiberglass.
3. A box of unused white pipe wrap is also present on the 1st floor at the north end of the Power House, and this box is labeled "Johns Manville Thermal Pipe Insulation - Asbestos Free." A sample of the unused white pipe wrap (Sample ID: A-120) in cardboard boxes in the South Reagent Storage Building (Building 27) was collected, and asbestos was not detected in the sample.
4. A thin layer of white paint is present on the Building 29 interior walls. The paint did not appear to contain fibers, however a sample was collected (Sample ID: A-127) to confirm the absence of asbestos. Asbestos was not detected in the sample, and the laboratory report showed the paint is non-fibrous.
5. Yellow, pink, and/or orange thermal system insulation is present above ceiling tiles in several buildings, including Facility No. 1, Facility No. 2, and Facility No. 3, was labeled "fiberglass" and is therefore not suspect ACM and was not sampled.

**Table 2. Asbestos Containing Material Summary, Encyle Facility, 5500 Up River Road, Corpus Christi, Texas**

Figure 1 Building Number	Encyle Building Name	Building Material of Construction	Approximate Building Size (ft <sup>2</sup> )	Asbestos-Containing Materials	Remarks
1	Facility No. 1	Prefabricated metal	50,000	Black galvestos coating on large metal cone-shaped tanks directly north of Facility No. 1. Black galvestos coating on exterior metal walls and roof. Black galvestos coating on some steel I-beams, steel angle beams, and steel pipes inside Facility No. 1. Brown linoleum floor covering in 2nd level offices. White fibrous pipe wrap with outer black tar jacket on 1/2" to 8"-diameter pipes in portions of the 1st and 2nd levels of Facility No. 1.	2 levels inside building. Some metal floor plates on 2nd level unstable/deteriorated.
2	Facility No. 2	Prefabricated metal	54,000	Black galvestos coating on large metal cone-shaped tanks directly west of Facility No. 2. Black galvestos coating on exterior metal walls and roof. Black galvestos coating on some steel I-beams, concrete pillars, and pipes at the south and east interior portions of Facility No. 2. Brown linoleum floor covering in 2nd and 3rd level offices at northwest end of Facility No. 2.	3 levels inside building. Eastern half of building interior unstable/deteriorated.
3	Facility No. 3	Prefabricated metal	15,000	White fibrous pipe wrap with outer black tar jacket on 1/2" to 8"-diameter pipes in portions of the 1st, 2nd, and 3rd levels of Facility No. 2. 12" x 12" light brown floor tile in office on 1st level at northeast end of Facility No. 2.	5 levels inside building.
4	Facility No. 4	Prefabricated metal	6,500	Black galvestos coating on exterior metal walls of Facility No. 3. Brown linoleum floor covering in 5th level office at northeast end of Facility No. 3. White fibrous pipe wrap with outer black tar jacket on 1" to 6"-diameter pipes at the east end of Facility No. 3, levels 1 through 5.	5 levels inside building.
5	East Product Storage	Prefabricated metal	2,400	White fibrous pipe wrap with outer sheet metal jacket on 2" to 8"-diameter pipes and valve covers on the 1st floor at the east end of Facility No. 4. Black galvestos coating on exterior metal walls and roof of East Product Storage building. Black galvestos coating on interior I-beams.	Easternmost site building.
6	Product Storage	Prefabricated metal	11,200	No ACM present.	No ACM present.

**Table 2. Asbestos Containing Material Summary, Encyle Facility, 5500 Up River Road, Corpus Christi, Texas**

Figure 1 Building Number	Encyle Building Name	Building Material of Construction	Approximate Building Size (ft <sup>2</sup> )	Asbestos-Containing Materials	Remarks
7	Old Casting Building	Prefabricated metal	20,000	Black galvestos coating on exterior metal walls and roof of Old Casting Building. Black galvestos coating on 8"-diameter steel pipe 10' AGL on elevated steel pipe rack south of Old Casting Building. White fibrous pipe wrap with outer black tar jacket on 1" to 2"-diameter pipes at the south and west ends of the Old Casting Building, and pipe rack south of building.	North of East Cell House.
8	Hazardous waste Storage Building	Prefabricated metal	3,200	No ACM present.	No ACM present.
9	Sanitary Wastewater Bldg	Prefabricated metal	1,200	Black galvestos coating on exterior metal walls of Sanitary Wastewater building. Black galvestos coating on 8"-diameter steel pipe at north-center end of the Sanitary Wastewater Building.	NE end of site plant area.
10	Product Storage Bins (Numbered Bins Building)	Concrete and Prefabricated metal	30,000	Black galvestos coating on exterior metal walls and roof of Numbered Bins Building.	Building contains large concrete bins.
11	Wastewater Treatment Bldg	Brick and Prefabricated metal	800	No ACM present.	No ACM present.
12	---	Brick	300	Tar & gravel roof.	West of reactor/clarifier.
13	Yard offices	Brick	1,800	White fibrous pipe wrap with outer black tar jacket on 3-foot-long segment of steel pipe, 10' east of northwest corner of eastern Yard Office building. Tar & gravel roof.	2 adjacent builidings east of Lettered Bins Building.
14	Lettered Bins Building	Concrete and Prefabricated metal	50,000	Black galvestos coating on exterior metal walls and roof of Lettered Bins Building.	Building contains large concrete bins.
15	Plant Engineering	Brick	3,750	No ACM present.	No ACM present.

**Table 2. Asbestos Containing Material Summary, Encyle Facility, 5500 Up River Road, Corpus Christi, Texas**

Figure 1 Building Number	Encyle Building Name	Building Material of Construction	Approximate Building Size (ft <sup>2</sup> )	Asbestos-Containing Materials	Remarks
16	East Cell House	Concrete and Prefabricated metal	40,000	Black galvestos coating on exterior metal walls and roof of East Cell House. Black galvestos coating on 1st level concrete pillars, 2nd level steel i-beams, and 2nd level concrete curbing. White fibrous pipe wrap with outer black tar jacket on 1" to 2"-diameter pipes on the 2nd level of the East Cell House.	2 levels inside building.
17	---	Brick	1,000	Black galvestos coating on exterior metal walkway on north and east side of Building 17. White fibrous pipe wrap with outer black tar jacket on 4-foot-long segment of pipe outside the north end of Building 17.	East of Facility No. 1. 3 levels inside building.
18	---	Brick	2,000	Tar & gravel roof.	East of Facility No. 1.
19	Substation	Brick	240	Tar & gravel roof.	West of Numbered Bins Bldg. Door labeled "SS 21".
20	---	Brick	120	Black galvestos coating on 1"-diameter pipe west of Building 20. Tar & gravel roof.	30' east of Oil House.
21	Oil House	Brick	900	Tar & gravel roof.	North of Power House.
22	---	Prefabricated metal	225	No ACM present.	No ACM present. West of Oil House.
23	---	Prefabricated metal	825	No ACM present.	No ACM present. West of Oil House.
24	---	Brick	525	Black galvestos coating on exterior metal canopy north of Building 24. White fibrous pipe wrap with outer black tar jacket on 8-foot-long segment of pipe outside the north end of Building 24 near wooden tank.	Building 4 levels high.

**Table 2. Asbestos Containing Material Summary, Encyle Facility, 5500 Up River Road, Corpus Christi, Texas**

Figure 1 Building Number	Encyle Building Name	Building Material of Construction	Approximate Building Size (ft <sup>2</sup> )	Asbestos-Containing Materials	Remarks
25	Power House	Brick	35,000	Black galvestos coating on I-beams at east end of Power House. 9" x 9" light brown floor tile in offices on 2nd floor, south end of Power House. 18"-diameter white pipe wrap with outer orange jacket on 1st level, center of Power House, running north-south approximately 12' AGL. Thermal system insulation on boilers - white fibers with outer gray jacket. Boilers located on 2nd floor at southeast end of Power House. White fibrous pipe wrap with outer sheet metal jacket on 2" to 8"-diameter pipes and pipe valve covers below boilers on 1st level, southeast end of Power House.	
26	West Cell House	Concrete and Prefabricated metal	40,000	Black galvestos coating on exterior metal walls and roof of West Cell House. Black galvestos coating on 1st and 2nd level concrete pillars and steel I-beams. Black galvestos coating on 1st level concrete ceiling, and some 1st level pipes at the east end of the building. Brown linoleum floor covering in 2nd level office at east end of West Cell House. White fibrous pipe wrap with outer black tar jacket on 1" to 6"-diameter pipes on the 2nd level of the West Cell House.	2 levels inside building. Building interior unstable/  deteriorated.
27	South Reagent Storage Building	Brick	1,800	Tar & gravel roof.	Building located northwest of West Cell House.
28	Reagent Storage Building (NOR 43)	Prefabricated metal	12,000	Black galvestos coating on exterior metal walls and roof. Black galvestos coating on interior walls west end, exterior roof drains, and exterior metal cone-shaped tanks at north and south ends of building. White fibrous pipe wrap with outer black tar jacket on 1" and 2"-diameter pipes on the 2nd level at the east end of the building. Brown linoleum floor covering in office at the south-center end of the Reagent Storage Building.	Referred to as "NOR 43 Building". 2 levels inside building.
29	---	Brick	300	Tar & gravel roof.	SE of Feed Tank #2.
30	---	Brick	200	Tar & gravel roof.	SE of Facility No. 2.
31	Spill Sorbent Storage Building	Brick	60	No ACM present.	No ACM present. SE of Facility No. 2.

**Table 2. Asbestos Containing Material Summary, Encyle Facility, 5500 Up River Road, Corpus Christi, Texas**

Figure 1 Building Number	Encyle Building Name	Building Material of Construction	Approximate Building Size (ft <sup>2</sup> )	Asbestos-Containing Materials	Remarks
32	Zinc Building	Prefabricated metal	3,200	Black galvestos coating on exterior metal walls and roof. Thermal system insulation on boilers and connecting ducts - white fibers with outer gray jacket. Boilers and ducts located at east end of Zinc Building (Building 32).	West of Feed Tank #2.
33	Lunch Room	Brick	600	Tar & gravel roof.	NE of Facility No. 2.
34	MCC L&M	Brick	180	Tar & gravel roof.	East of Facility No. 2.
35	Scale House	Wooden	108	No ACM present.	No ACM present. 9' x 12' wooden building.
36	Reagent Storage	Brick	2,100	Tar & gravel roof.	NW of Facility No. 2.
37	MCC 29D	Brick	180	No ACM present.	No ACM present. East of Facility No. 3.
38	---	Brick	1,000	No ACM present.	No ACM present. SE of Facility No. 3. Red Brick Building.
39	Substation	Brick	600	No ACM present.	No ACM present. SE of Facility No. 3. White Brick Building.
40	Substation	Brick	600	No ACM present.	No ACM present. White Brick Building.
41	Lab	Brick	1,350	No ACM present.	No ACM present. White Brick Building. South of Facility No. 4.
42	---	Prefabricated metal	800	No ACM present.	No ACM present. Blue Metal Building.

**Table 2. Asbestos Containing Material Summary, Encyle Facility, 5500 Up River Road, Corpus Christi, Texas**

Figure 1 Building Number	Encyle Building Name	Building Material of Construction	Approximate Building Size (ft <sup>2</sup> )	Asbestos-Containing Materials	Remarks
43	---	Brick	64	No ACM present.	No ACM present. Building labeled "Spill Response Equipment".
44	---	Brick	180	Tar & gravel roof.	South of Facility No. 1.
45	---	Brick	150	Tar & gravel roof.	East of water tower.
46	Admin Building and Lab	Brick	3,500	Brown linoleum floor covering on the 2nd floor hallway and offices north of hallway. White fibrous pipe wrap with outer black tar jacket on 1" to 6"-diameter pipes in the basement of the Admin Building and lab. Tan and gray checkered linoleum floor covering on 1st floor, south side of building, and 2nd floor, north side of building. 9" x 9" light brown floor tile in room on 2nd floor, 30' west of building NE corner.	2 levels plus basement. Pipe insulation in basement labeled "asbestos".
47	Change House/ Guard House	Brick	10,000	White fibrous pipe wrap with outer black tar jacket on 2"-diameter steel pipe along outer wall at north-center end of Change House, and room at north-center end of Change House. Tan and gray checkered linoleum floor covering on 1st floor laundry room, east end of Change House. 12" x 12" white floor tile with light gray streaks located in the eastern portion of the Change House.	Building west of main entrance gate on Up River Rd.
48	Visitor Center	Brick	1,500	No ACM present.	No ACM present. North of Change House.
49	Admin Offices	Brick	6,300	No ACM present.	No ACM present. North of Change House. West of Visitor Center.
50	Fire Water Bldg.	Brick	150	No ACM present.	No ACM present. North of Change House. Southwest of Admin Offices.

**Table 2. Asbestos Containing Material Summary, Encyle Facility, 5500 Up River Road, Corpus Christi, Texas**

Figure 1 Building Number	Encyle Building Name	Building Material of Construction	Approximate Building Size (ft <sup>2</sup> )	Asbestos-Containing Materials	Remarks
51	Warehouse Storage Bldg.	Brick	3,200	9" x 9" cream-white floor tile in offices at northeast end of Warehouse Storage Building.	Northwest of Change House.
52	---	Brick	325	Tar & gravel roof.	West of Facility No. 1.
53	Smokestack	Brick	NA	1/8"-thick red coating on exterior of large concrete/brick smokestack located directly southwest of Facility No. 4.	Tall brick smokestack. Located SW of Facility No. 4.

AGL Above ground level.

Note: The roofing materials of several large buildings (Plant Engineering Building, Power House, Admin Building and Lab) were not visible and not accessible.

**ATTACHMENT 1**

**Asbestos Laboratory Reports**

# ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

7469 WHITE PINE ROAD - RICHMOND, VA 23237

804-275-4788 FAX 804-275-4907

## BULK ASBESTOS SAMPLE ANALYSIS SUMMARY

CLIENT: ARCADIS Geraghty & Miller  
711 North Carancahua, Suite 1700  
Corpus Christi, TX 78475-1801

DATE OF RECEIPT: 29 Nov 2006  
DATE OF ANALYSIS: 29 Nov 2006  
DATE OF REPORT: 30 Nov 2006

CLIENT NUMBER: 45-2081 D  
EHS PROJECT #: 2006-11-3218  
PROJECT: Encycle

EHS SAMPLE #	CLIENT SAMPLE #/ LABORATORY GROSS DESCRIPTION	% ASBESTOS	OTHER MATERIALS
01	A-1/ Black Tar-Like; Brown/Tan Fib.	55% Chrysotile 55% Total Asbestos	10% Cellulose 35% Non-Fibrous
02	A-2/ Black Tar-Like	5% Chrysotile 5% Total Asbestos	95% Non-Fibrous
03	A-3/ Black Tar-Like	6% Chrysotile 6% Total Asbestos	94% Non-Fibrous
04	A-4/ Tan Fib.	NAD	40% Cellulose 40% Fibrous Glass 20% Non-Fibrous
05	A-5/ Tan Fib.	NAD	40% Cellulose 40% Fibrous Glass 20% Non-Fibrous
06	A-6/ Tan Fib.	NAD	40% Cellulose 40% Fibrous Glass 20% Non-Fibrous
07A	A-7(a)-Linoleum/ Brown Linoleum; Tan Fib.	15% Chrysotile ★ 15% Total Asbestos ★Present in fibrous backing.	85% Non-Fibrous
07B	A-7(b)-Mastic/ Yellow Adhes.	Trace, <1% Chrysotile ★ <1% Total Asbestos ★Possible contamination from fibrous backing.	100% Non-Fibrous
08	A-8/ Brown Linoleum; Tan Fib.	15% Chrysotile 15% Total Asbestos	85% Non-Fibrous
09	A-9/ Brown Linoleum; Tan Fib.	15% Chrysotile 15% Total Asbestos	85% Non-Fibrous
10	A-10/ White Chalky	NAD	4% Cellulose 96% Non-Fibrous

# ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

CLIENT NUMBER: 45-2081 D  
 EHS PROJECT #: 2006-11-3218  
 PROJECT: Encycle

EHS SAMPLE #	CLIENT SAMPLE #/ LABORATORY GROSS DESCRIPTION	% ASBESTOS	OTHER MATERIALS
11	A-11/ White Chalky; Brown Fib.	NAD	25% Cellulose 75% Non-Fibrous
12	A-12/ White Chalky; Brown Fib.	NAD	20% Cellulose 80% Non-Fibrous
13	A-13/ White Powder; Black Tar-Like; Fib.	5% Chrysotile 5% Total Asbestos	5% Cellulose 90% Non-Fibrous
14	A-14/ White Chalky	NAD	4% Cellulose 96% Non-Fibrous
15	A-15/ Black Tar-Like; Fib.; White Powder	NAD	15% Cellulose 85% Non-Fibrous
16	A-16/ Gray Brittle; Fib.	NAD	25% Fibrous Glass 75% Non-Fibrous
17	A-17/ Gray Brittle; Fib.	NAD	25% Fibrous Glass 75% Non-Fibrous
18	A-18/ Gray Brittle; Fib.	NAD	25% Fibrous Glass 75% Non-Fibrous
19	A-19/ Black Tar-Like	5% Chrysotile 5% Total Asbestos	95% Non-Fibrous
20A	A-20(a)-Flooring/ Gray/Brown Vinyl-Like; Pale Gray Fib.	22% Chrysotile ★ 22% Total Asbestos ★Present in fibrous backing.	8% Cellulose 70% Non-Fibrous
20B	A-20(b)-Mastic/ Dk. Yellow Adhes.	2% Chrysotile ★ 2% Total Asbestos ★Possible contamination from fibrous backing.	6% Cellulose 2% Hair 90% Non-Fibrous
21	A-21/ Pale Gray/Tan Fib.; White Brittle	NAD	40% Cellulose 35% Fibrous Glass 25% Non-Fibrous
22A	A-22(a)-Baseboard/ Gray Vinyl-Like	NAD	100% Non-Fibrous
22B	A-22(b)-Mastic/ Brown Adhes.	NAD	3% Cellulose 97% Non-Fibrous
23A	A-23(a)-Baseboard/ Gray Vinyl-Like	NAD	100% Non-Fibrous

# ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

CLIENT NUMBER: 45-2081 D  
 EHS PROJECT #: 2006-11-3218  
 PROJECT: Encycle

EHS SAMPLE #	CLIENT SAMPLE #/ LABORATORY GROSS DESCRIPTION	% ASBESTOS	OTHER MATERIALS
23B	A-23(b)-Mastic/ Brown Adhes.	NAD	3% Cellulose 97% Non-Fibrous
24A	A-24(a)-Baseboard/ Gray Vinyl-Like	NAD	100% Non-Fibrous
24B	A-24(b)-Mastic/ Brown Adhes.	NAD	4% Cellulose 96% Non-Fibrous
25	A-25/ Off-White/Black Fib.	NAD	30% Cellulose 10% Fibrous Glass 15% Synthetic 45% Non-Fibrous
26	A-26/ Off-White/Black Fib.	20% Chrysotile 35% Amosite 55% Total Asbestos ★ ★Chrysotile present throughout sample. Amosite present in the off-white (main) layer.	10% Cellulose 35% Non-Fibrous
27	A-27/ Off-White/Black Fib.	15% Chrysotile 40% Amosite 55% Total Asbestos ★ ★Chrysotile/Amosite present in the off-white(main) layer.	20% Cellulose 25% Non-Fibrous
28	A-28/ Off-White/Black Fib.	12% Chrysotile 12% Total Asbestos ★ ★Present in the dark brown fibrous felt paper layer.	20% Cellulose 18% Fibrous Glass 50% Non-Fibrous
29	A-29/ Off-White/Black Fib.	NAD	40% Cellulose 5% Fibrous Glass 55% Non-Fibrous
30	A-30/ Pale Gray/Black Fib.	3% Chrysotile 22% Amosite 25% Total Asbestos ★ ★Chrysotile/Amosite present in the pale gray (main) layer.	20% Cellulose 55% Non-Fibrous
31	A-31/ Pale Gold/Black Fib.; Black Brittle; Silver Metallic	NAD	15% Cellulose 55% Fibrous Glass 30% Non-Fibrous
32A	A-32(a)-Flooring/ Off-White/White Vinyl-Like; Olive Green Fib.	NAD	15% Cellulose 15% Synthetic 70% Non-Fibrous

# ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

CLIENT NUMBER: 45-2081 D  
EHS PROJECT #: 2006-11-3218  
PROJECT: Encycle

EHS SAMPLE #	CLIENT SAMPLE #/ LABORATORY GROSS DESCRIPTION	% ASBESTOS	OTHER MATERIALS
32B	A-32(b)-Mastic/ Brown Adhes.	NAD	4% Cellulose 1% Hair 95% Non-Fibrous
33A	A-33(a)-Tile/ Off-White Gran.	2% Chrysotile 2% Total Asbestos	98% Non-Fibrous
33B	A-33(b)-Mastic/ Yellow Adhes.	NAD	4% Cellulose 96% Non-Fibrous
34A	A-34(a)-Tile/ Off-White Gran.	2% Chrysotile 2% Total Asbestos	98% Non-Fibrous
34B	A-34(b)-Mastic/ Yellow Adhes.	NAD	4% Cellulose 96% Non-Fibrous
35	A-35/ Tan Fib.; White Brittle	NAD	90% Cellulose 10% Non-Fibrous
36	A-36/ Tan Fib.; White Brittle	NAD	90% Cellulose 10% Non-Fibrous
37	A-37/ Tan Fib.; White Brittle	NAD	90% Cellulose 10% Non-Fibrous
38	A-38/ Gray Cementitious; Dk. Brown Brittle	NAD	3% Cellulose 97% Non-Fibrous
39	A-39/ Gray Cementitious; Dk. Brown Brittle	NAD	3% Cellulose 97% Non-Fibrous
40	A-40/ Gray Gran.	NAD	3% Cellulose 97% Non-Fibrous
41	A-41/ Brown Fib.	40% Chrysotile 40% Total Asbestos	10% Cellulose 50% Non-Fibrous
42	A-42/ Yellow Fib.	NAD	2% Cellulose 93% Fibrous Glass 5% Non-Fibrous
43	A-43/ Yellow Fib.	NAD	95% Fibrous Glass 5% Non-Fibrous
44	A-44/ White Powdery	NAD	30% Cellulose 70% Non-Fibrous

# ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

CLIENT NUMBER: 45-2081 D  
 EHS PROJECT #: 2006-11-3218  
 PROJECT: Encycle

EHS SAMPLE #	CLIENT SAMPLE #/ LABORATORY GROSS DESCRIPTION	% ASBESTOS	OTHER MATERIALS
45	A-45/ White Fib.	NAD	40% Cellulose 40% Fibrous Glass 20% Non-Fibrous
46A	A-46(a)-Tile/ Lt. Tan Solid Tile	NAD	100% Non-Fibrous
46B	A-46(b)-Mastic/ Brown Adhes.	NAD	100% Non-Fibrous
47A	A-47(a)-Tile/ Lt. Tan Solid Tile	NAD	100% Non-Fibrous
47B	A-47(b)-Mastic/ Tan Adhes.	NAD	100% Non-Fibrous
48A	A-48(a)-Tile/ Brown Solid Tile	NAD	100% Non-Fibrous
48B	A-48(b)-Mastic/ Tan Adhes.	NAD	100% Non-Fibrous
49	A-49/ Orange Fib.	NAD	90% Fibrous Glass 10% Non-Fibrous
50	A-50/ Yellow Fib.	NAD	95% Fibrous Glass 5% Non-Fibrous
51	A-51/ Gray Fib.	NAD	2% Cellulose 88% Fibrous Glass 10% Non-Fibrous
52	A-52/ Yellow Fib.	NAD	95% Fibrous Glass 5% Non-Fibrous
53	A-53/ White Gran.	NAD	3% Fibrous Glass 97% Non-Fibrous
54	A-54/ White Gran.	2% Chrysotile 2% Total Asbestos	2% Fibrous Glass 96% Non-Fibrous
55	A-55/ White Gran.; Fib.	15% Chrysotile 15% Total Asbestos	85% Non-Fibrous
56	A-56/ Black Tar-Like	5% Chrysotile 5% Total Asbestos	95% Non-Fibrous
57	A-57/ Brown Fib.	45% Chrysotile 45% Total Asbestos	5% Cellulose 50% Non-Fibrous

# ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

CLIENT NUMBER: 45-2081 D  
 EHS PROJECT #: 2006-11-3218  
 PROJECT: Encycle

EHS SAMPLE #	CLIENT SAMPLE #/ LABORATORY GROSS DESCRIPTION	% ASBESTOS	OTHER MATERIALS
58	A-58/ Tan Fib.	NAD	93% Cellulose 7% Non-Fibrous
59	A-59/ Tan Fib.	NAD	95% Cellulose 5% Non-Fibrous
60	A-60/ Beige Fib.	NAD	92% Cellulose 8% Non-Fibrous
61	A-61/ Pale Tan/Off-White Fib.; Black Brittle	30% Chrysotile ★ 30% Total Asbestos	25% Cellulose 5% Fibrous Glass 40% Non-Fibrous
		★Present in the felt paper (main) layer.	
62	A-62/ Off-White/Black Fib.; Black Brittle	22% Chrysotile 38% Amosite 60% Total Asbestos ★	5% Cellulose 35% Non-Fibrous
		★Chrysotile present throughout sample. Amosite present in the off-white (main) layer.	
63	A-63/ Black/Gray Brittle; Off-White Fib.	20% Chrysotile 3% Amosite 23% Total Asbestos ★	7% Cellulose 10% Fibrous Glass 60% Non-Fibrous
		★Chrysotile present throughout sample. Amosite present in the off-white layer.	
64	A-64/ Off-White Brittle; Coarse Powder; Gray Brittle	NAD	100% Non-Fibrous
65	A-65/ Off-White Brittle; Coarse Powder; Gray Brittle	NAD	100% Non-Fibrous
66	A-66/ Off-White/Pale Gray Cementitious; Coarse Powder; Pale Pink Brittle	NAD	1% Cellulose 99% Non-Fibrous
67	A-67/ Pale Pink Fib.	NAD	97% Fibrous Glass 3% Non-Fibrous
68	A-68/ Brown/Off-White Fib.; Black Brittle	35% Chrysotile ★ 35% Total Asbestos	25% Cellulose 5% Fibrous Glass 35% Non-Fibrous
		★Present in the fibrous felt paper (main) layer.	

# ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

CLIENT NUMBER: 45-2081 D  
 EHS PROJECT #: 2006-11-3218  
 PROJECT: Encycle

EHS SAMPLE #	CLIENT SAMPLE #/ LABORATORY GROSS DESCRIPTION	% ASBESTOS	OTHER MATERIALS
69	A-69/ Brown/Off-White Fib.; Black Brittle	35% Chrysotile ★ 35% Total Asbestos  ★Present in the fibrous felt paper (main) layer.	25% Cellulose 5% Fibrous Glass 35% Non-Fibrous
70	A-70/ Tan Fib.	NAD	90% Synthetic 10% Non-Fibrous
71	A-71/ Tan Fib.	NAD	85% Synthetic 15% Non-Fibrous
72	A-72/ Tan Fib.	NAD	80% Synthetic 20% Non-Fibrous
73	A-73/ Black Tar-Like	20% Chrysotile 20% Total Asbestos	30% Cellulose 50% Non-Fibrous
74	A-74/ Tan Gran.	NAD	100% Non-Fibrous
75	A-75/ Brown Gran.	NAD	5% Cellulose 95% Non-Fibrous
76	A-76/ Brown Gran.	NAD	7% Cellulose 93% Non-Fibrous
77	A-77/ Orange Fib.	NAD	80% Fibrous Glass 20% Non-Fibrous
78	A-78/ Black Tar-Like	NAD	20% Cellulose 80% Non-Fibrous
79	A-79/ Black Fib.	20% Chrysotile 20% Total Asbestos	30% Cellulose 50% Non-Fibrous

# ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

CLIENT NUMBER: 45-2081 D  
EHS PROJECT #: 2006-11-3218  
PROJECT: Encycle

QC SAMPLE: M21995-2  
NIST REF  
M11995-3

QC BLANK: SRM 1866 Fiberglass

REPORTING LIMIT: 1% Asbestos

METHOD: Polarized Light Microscopy, EPA Method 600/R-93/116 \*

ANALYST: Melissa Boggs Steiniger  
Mark Case  
Mark DeLeonardis

Reviewed By Authorized Signatory:



*Michael A. Mueller, MPH, Laboratory Director*  
*Howard Varner, General Manager*  
*Irma Faszewski, Quality Assurance Coordinator*

The condition of the samples analyzed was acceptable upon receipt per laboratory protocol unless otherwise noted on this report. Results represent the analysis of samples submitted by the client. Sample location, description, area, volume, etc., was provided by the client. This report cannot be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without the written consent of Environmental Hazards Services, L.L.C. California Certification #2319 NY ELAP #11714. All information concerning sampling location, date, and time can be found on Chain-of-Custody. Environmental Hazards Services, L.L.C. does not perform any sample collection.

Environmental Hazards Services, L.L.C. recommends reanalysis by point count (for more accurate quantification) or Transmission Electron Microscopy (TEM), for enhanced detection capabilities) for materials regulated by the EPA NESHAP (National Emission Standards for Hazardous Air Pollutants) and found to contain less than ten percent (<10%) asbestos by polarized light microscopy (PLM). Both services are available for an additional fee.

\* All California samples analyzed by Polarized Light Microscopy, EPA Method 600/M4-82-020, Dec. 1982.

---

LEGEND NAD = no asbestos detected  
SCF = suspected ceramic fibers

---

p1m1.dot/07MAR2006/REV2/ MR

-- PAGE 08 of 08 -- END OF REPORT --



19 PLM

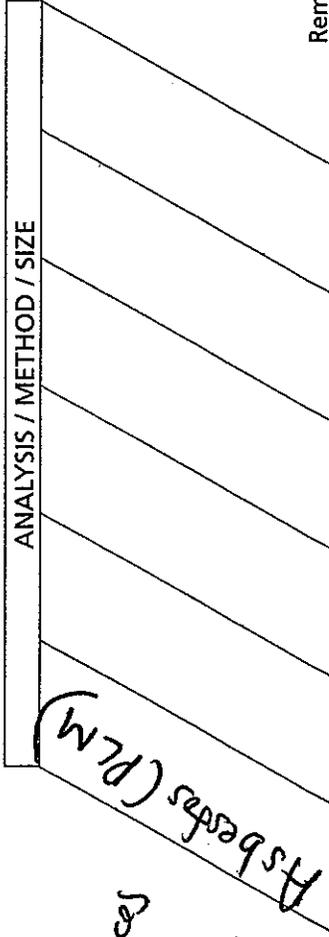
Laboratory Task Order No./P.O. No.

EHS 2006-11-3218 USTUDY RECORD

Page

1 of 2

Project Number/Name Encycle  
 Project Location Corpus Christi, TX  
 Laboratory Environmental Hazards Services  
 Project Manager Ken Brandy  
 Sampler(s)/Affiliation ARCADIS/Ken Brandy



Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	Remarks	Total
A-1	S	11/27/06 12:15		Analyze all	1
A-2	S	12:30		79 Samples	1
A-3	S	12:45		with this	1
A-4	S	12:55		shipment for	1
A-5	S	13:10		asbestos using	1
A-6	S	13:20		PLM.	1
A-7	S	13:30			1
A-8	S	13:40			1
A-9	S	13:50			1
A-10	S	14:00			1
A-11	S	14:10			1
A-12	S	14:20		SAMPLE CONDITION	1
A-13	S	14:30		Acceptable	1
A-14	S	14:40		Unacceptable	1
A-15	S	14:50			1

Sample Matrix: L = Liquid; S = Solid; A = Air  
 Relinquished by: Ken Brandy Organization: ARCADIS Date: 11/28/06 Time: 5PM Seal Intact? Yes No N/A  
 Received by: \_\_\_\_\_ Organization: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Seal Intact? Yes No N/A  
 Relinquished by: \_\_\_\_\_ Organization: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Seal Intact? Yes No N/A  
 Received by: \_\_\_\_\_ Organization: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Seal Intact? Yes No N/A

Special Instructions/Remarks: Results to Ken Brandy ARCADIS, Corpus Christi, TX (Fax 361-883-7565) (Phone 361-883-1353)  
5-day turnaround needed.  
 Delivery Method:  In Person  Common Carrier  Lab Courier  Other



# ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

7469 WHITE PINE ROAD - RICHMOND, VA 23237

804-275-4788 FAX 804-275-4907

## BULK ASBESTOS SAMPLE ANALYSIS SUMMARY

**CLIENT:** ARCADIS Geraghty & Miller  
711 North Carancahua, Suite 1700  
Corpus Christi, TX 78475-1801

**DATE OF RECEIPT:** 04 Dec 2006  
**DATE OF ANALYSIS:** 04 Dec 2006  
**DATE OF REPORT:** 05 Dec 2006

**CLIENT NUMBER:** 45-2081 D  
**EHS PROJECT #:** 2006-12-0281  
**PROJECT:** Encycle

<b>EHS SAMPLE #</b>	<b>CLIENT SAMPLE #/ LABORATORY GROSS DESCRIPTION</b>	<b>% ASBESTOS</b>	<b>OTHER MATERIALS</b>
01	A-80/ Brown Fib.	NAD	60% Cellulose 10% Fibrous Glass 30% Non-Fibrous
02A	A-81(a)-Tile/ Brown Vinyl	NAD	6% Cellulose 94% Non-Fibrous
02B	A-81(b)-Mastic/ Brown/Black Adhes.	NAD	5% Cellulose 95% Non-Fibrous
03A	A-82(a)-Tile/ Brown Vinyl	NAD	6% Cellulose 94% Non-Fibrous
03B	A-82(b)-Mastic/ Brown/Black Adhes.	NAD	4% Cellulose 96% Non-Fibrous
04A	A-83(a)-Tile/ Brown Vinyl	NAD	6% Cellulose 94% Non-Fibrous
04B	A-83(b)-Mastic/ Brown/Black Adhes.	NAD	4% Cellulose 96% Non-Fibrous
05	A-84/ Tan Fib.	NAD	96% Fibrous Glass 4% Non-Fibrous
06	A-85/ Black Tar-Like	8% Chrysotile 8% Total Asbestos	2% Cellulose 90% Non-Fibrous
07	A-86/ Black Tar-Like	6% Chrysotile 6% Total Asbestos	2% Cellulose 92% Non-Fibrous
08A	A-87(a)-TSI/ White Powder	NAD	15% Synthetic 85% Non-Fibrous
08B	A-87(b)-Felt/ Black Fib.	NAD	92% Cellulose 8% Non-Fibrous
09	A-88/ Black Tar-Like	5% Chrysotile 5% Total Asbestos	4% Cellulose 91% Non-Fibrous

# ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

CLIENT NUMBER: 45-2081 D  
EHS PROJECT #: 2006-12-0281  
PROJECT: Encycle

EHS SAMPLE #	CLIENT SAMPLE #/ LABORATORY GROSS DESCRIPTION	% ASBESTOS	OTHER MATERIALS
10	A-89/ Brown Powder	NAD	5% Fibrous Glass 95% Non-Fibrous
11	A-90/ Black Tar-Like	NAD	20% Cellulose 80% Non-Fibrous
12	A-91/ Brown/Gray Gran.; Black Tar-Like	2% Chrysotile 2% Total Asbestos	1% Cellulose 97% Non-Fibrous
13	A-92/ Black Tar-Like	6% Chrysotile 6% Total Asbestos	2% Cellulose 92% Non-Fibrous
14	A-93/ Black Tar-Like	6% Chrysotile 6% Total Asbestos	6% Cellulose 88% Non-Fibrous
15	A-94/ Black Fib.; Black Tar-Like	20% Chrysotile 20% Total Asbestos	20% Cellulose 60% Non-Fibrous
16	A-95/ Gray Brittle	NAD	100% Non-Fibrous
17	A-96/ Brown Fib.; Tan Powder	NAD	93% Cellulose 7% Non-Fibrous
18	A-97/ Brown Fib.	NAD	60% Cellulose 10% Fibrous Glass 30% Non-Fibrous
19A	A-98(a)-Tile/ Tan Vinyl	4% Chrysotile 4% Total Asbestos	96% Non-Fibrous
19B	A-98(b)-Mastic/ Black Tar-Like	5% Chrysotile 5% Total Asbestos	5% Cellulose 90% Non-Fibrous
20A	A-99(a)-Tile/ Tan Vinyl	4% Chrysotile 4% Total Asbestos	96% Non-Fibrous
20B	A-99(b)-Mastic/ Black Tar-Like	5% Chrysotile 5% Total Asbestos	5% Cellulose 90% Non-Fibrous
21A	A-100(a)-Tile/ Tan Vinyl	4% Chrysotile 4% Total Asbestos	96% Non-Fibrous
21B	A-100(b)-Mastic/ Black Tar-Like	5% Chrysotile 5% Total Asbestos	5% Cellulose 90% Non-Fibrous
22A	A-101(a)-Tile/ Brown Vinyl	NAD	6% Cellulose 94% Non-Fibrous

# ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

CLIENT NUMBER: 45-2081 D  
EHS PROJECT #: 2006-12-0281  
PROJECT: Encycle

EHS SAMPLE #	CLIENT SAMPLE #/ LABORATORY GROSS DESCRIPTION	% ASBESTOS	OTHER MATERIALS
22B	A-101(b)-Mastic/ Brown Adhes.	NAD	5% Cellulose 95% Non-Fibrous
23A	A-102(a)-Tile/ Brown Vinyl	NAD	6% Cellulose 94% Non-Fibrous
23B	A-102(b)-Mastic/ Brown Adhes.; Brown Fib.	NAD	60% Cellulose 40% Non-Fibrous
24A	A-103(a)-Tile/ Brown Vinyl	NAD	6% Cellulose 94% Non-Fibrous
24B	A-103(b)-Mastic/ Brown Adhes.; Brown Fib.	NAD	55% Cellulose 45% Non-Fibrous
25	A-104/ White Powder; Brown/White Fib.	35% Chrysotile 35% Total Asbestos	35% Cellulose 30% Non-Fibrous
26	A-105/ White Powder; White/Brown Fib.	35% Chrysotile 35% Total Asbestos	35% Cellulose 30% Non-Fibrous
27	A-106/ White Powder; White/Brown Fib.	35% Chrysotile 35% Total Asbestos	35% Cellulose 30% Non-Fibrous
28	A-107/ Black Tar-Like; Tan Fib.	6% Chrysotile 2% Amosite 8% Total Asbestos	2% Cellulose 90% Non-Fibrous
29	A-108/ Black Tar-Like; Tan Fib.	6% Chrysotile 2% Amosite 8% Total Asbestos	2% Cellulose 90% Non-Fibrous
30	A-109/ Black Tar-Like; Tan Fib.	6% Chrysotile 2% Amosite 8% Total Asbestos	2% Cellulose 90% Non-Fibrous
31	A-110/ White Powder; White Fib.	NAD	30% Cellulose 70% Non-Fibrous
32	A-111/ White Powder; White Fib.	NAD	30% Cellulose 70% Non-Fibrous
33	A-112/ White Powder; Black Tar-Like	3% Chrysotile 3% Total Asbestos	6% Cellulose 91% Non-Fibrous
34	A-113/ Gray Powder	NAD	100% Non-Fibrous

# ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

CLIENT NUMBER: 45-2081 D  
EHS PROJECT #: 2006-12-0281  
PROJECT: Encycle

EHS SAMPLE #	CLIENT SAMPLE # LABORATORY GROSS DESCRIPTION	% ASBESTOS	OTHER MATERIALS
35	A-114/ Gray Powder	NAD	100% Non-Fibrous
36	A-115/ Gray Powder	NAD	100% Non-Fibrous
37	A-116/ Black Tar-Like	6% Chrysotile 6% Total Asbestos	3% Cellulose 91% Non-Fibrous
38	A-117/ Black Tar-Like; Black Fib.	NAD	60% Cellulose 40% Non-Fibrous
39	A-118/ White Powder; White Fib.	30% Chrysotile 25% Amosite 55% Total Asbestos	45% Non-Fibrous
40	A-119/ Tan Fib.; Brown Adhes.	NAD	85% Fibrous Glass 15% Non-Fibrous
41	A-120/ White Powder	NAD	20% Synthetic 80% Non-Fibrous
42	A-121/ Black Tar-Like; Gray Fib.	30% Chrysotile 30% Total Asbestos	30% Cellulose 40% Non-Fibrous
43	A-122/ Gray Gran.	NAD	100% Non-Fibrous
44	A-123/ Gray Gran.	NAD	100% Non-Fibrous
45	A-124/ Gray Gran.	NAD	100% Non-Fibrous
46	A-125/ Gray Gran.	NAD	100% Non-Fibrous
47A	A-126(a)-Linoleum/ Green Vinyl; Gray Fib.	20% Chrysotile 20% Total Asbestos	20% Cellulose 60% Non-Fibrous
47B	A-126(b)-Mastic/ Tan Adhes.	Trace, <1% Chrysotile ★ <1% Total Asbestos ★Possible contamination from fibrous backing.	3% Cellulose 97% Non-Fibrous
48	A-127/ Tan Brittle	NAD	100% Non-Fibrous
49	A-128/ Black Tar-Like; Black Fib.	10% Chrysotile 10% Total Asbestos	15% Cellulose 75% Non-Fibrous

# ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

CLIENT NUMBER: 45-2081 D  
EHS PROJECT #: 2006-12-0281  
PROJECT: Encycle

EHS SAMPLE #	CLIENT SAMPLE #/ LABORATORY GROSS DESCRIPTION	% ASBESTOS	OTHER MATERIALS
50	A-129/ Tan Gran.; Tan Powder	15% Chrysotile 15% Total Asbestos	85% Non-Fibrous
51	A-130/ Brown Powder; Brown Fib.	5% Chrysotile 25% Amosite 30% Total Asbestos	5% Cellulose 65% Non-Fibrous
52	A-131/ Tan Fib.; Tan Powder	35% Chrysotile 35% Total Asbestos	30% Fibrous Glass 35% Non-Fibrous
53	A-132/ Black Tar-Like; Black Fib.	NAD	30% Cellulose 70% Non-Fibrous
54	A-133/ Black Tar-Like	NAD	30% Cellulose 70% Non-Fibrous
55	A-134/ Black Tar-Like	NAD	2% Cellulose 98% Non-Fibrous
56	A-135/ Brown Fib.	NAD	60% Cellulose 10% Fibrous Glass 30% Non-Fibrous
57	A-136/ Yellow Fib.	NAD	96% Fibrous Glass 4% Non-Fibrous
58	A-137/ White Powder; Brown Fib.	NAD	35% Cellulose 65% Non-Fibrous
59	A-138/ Black Tar-Like; Black Fib.	NAD	45% Cellulose 55% Non-Fibrous
60	A-139/ Brown Fib.; Black Tar-Like	NAD	60% Cellulose 40% Non-Fibrous
61	A-140/ Black Tar-Like; Black Fib.	NAD	45% Cellulose 55% Non-Fibrous
62	A-141/ Brown Fib.	NAD	60% Cellulose 10% Fibrous Glass 30% Non-Fibrous
63A	A-142(a)-Tile/ Tan Vinyl	NAD	100% Non-Fibrous
63B	A-142(b)-Mastic/ Brown Adhes.	NAD	2% Cellulose 98% Non-Fibrous

# ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

CLIENT NUMBER: 45-2081 D  
EHS PROJECT #: 2006-12-0281  
PROJECT: Encycle

EHS SAMPLE #	CLIENT SAMPLE #/ LABORATORY GROSS DESCRIPTION	% ASBESTOS	OTHER MATERIALS
64A	A-143(a)-Tile/ Tan Vinyl	NAD	100% Non-Fibrous
64B	A-143(b)-Mastic/ Brown Adhes.; Tan Powder	NAD	3% Cellulose 97% Non-Fibrous
65A	A-144(a)-Tile/ Tan Vinyl	NAD	100% Non-Fibrous
65B	A-144(b)-Mastic/ Brown Adhes.	NAD	4% Cellulose 96% Non-Fibrous
66A	A-145(a)-Tile/ Blue Vinyl	NAD	100% Non-Fibrous
66B	A-145(b)-Mastic/ Tan Adhes.	NAD	1% Cellulose 99% Non-Fibrous
67A	A-146(a)-Tile/ Blue Vinyl	NAD	100% Non-Fibrous
67B	A-146(b)-Mastic/ Tan Adhes.	NAD	1% Cellulose 99% Non-Fibrous
68A	A-147(a)-Tile/ Blue Vinyl	NAD	100% Non-Fibrous
68B	A-147(b)-Mastic/ Tan/Brown Adhes.	NAD	2% Cellulose 98% Non-Fibrous
69	A-148/ White Powder; Brown Fib.	NAD	35% Cellulose 65% Non-Fibrous
70	A-149/ Black Tar-Like	NAD	35% Cellulose 65% Non-Fibrous
71	A-150/ Black Tar-Like; Black Fib.	NAD	35% Cellulose 65% Non-Fibrous
72	A-151/ Tan Vinyl; Tan Fib.	NAD	35% Cellulose 5% Synthetic 60% Non-Fibrous
73	A-152/ Tan Vinyl; Tan Fib.	NAD	35% Cellulose 5% Synthetic 60% Non-Fibrous

# ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

CLIENT NUMBER: 45-2081 D  
EHS PROJECT #: 2006-12-0281  
PROJECT: Encycle

EHS SAMPLE #	CLIENT SAMPLE #/ LABORATORY GROSS DESCRIPTION	% ASBESTOS	OTHER MATERIALS
74A	A-153(a)-Linoleum/ Tan Vinyl; Tan Fib.	NAD	35% Cellulose 5% Synthetic 60% Non-Fibrous
74B	A-153(b)-Mastic/ Black Tar-Like	5% Chrysotile 5% Total Asbestos	4% Cellulose 91% Non-Fibrous
75A	A-154(a)-Tile/ Tan Vinyl	NAD	100% Non-Fibrous
75B	A-154(b)-Mastic/ Brown Adhes.	NAD	3% Cellulose 97% Non-Fibrous
76A	A-155(a)-Linoleum/ Brown Vinyl; Tan Fib.	20% Chrysotile 20% Total Asbestos	20% Cellulose 60% Non-Fibrous
76B	A-155(b)-Mastic/ Black Tar-Like	5% Chrysotile 5% Total Asbestos	2% Cellulose 93% Non-Fibrous
77A	A-156(a)-Tile/ Brown Vinyl	5% Chrysotile 5% Total Asbestos	95% Non-Fibrous
77B	A-156(b)-Mastic/ Black Tar-Like	4% Chrysotile 4% Total Asbestos	6% Cellulose 90% Non-Fibrous
78	A-157/ Gray Vinyl; Brown Fib.	NAD	20% Cellulose 80% Non-Fibrous
79	A-158/ Brown Fib.	NAD	60% Cellulose 10% Fibrous Glass 30% Non-Fibrous
80	A-159/ White Powder; Tan Fib.	NAD	30% Cellulose 70% Non-Fibrous
81	A-160/ Gray Powder; Gray Fib.	55% Chrysotile 55% Total Asbestos	45% Non-Fibrous
82	A-161/ Gray Fib.	65% Chrysotile 65% Total Asbestos	20% Cellulose 15% Non-Fibrous
83A	A-162(a)-Tile I/ Tan Vinyl	NAD	100% Non-Fibrous
83B	A-162(b)-Tile II/ Black Vinyl	3% Chrysotile 3% Total Asbestos	97% Non-Fibrous
83C	A-162(c)-Mastic/ Brown Adhes.	NAD	3% Cellulose 97% Non-Fibrous

# ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

CLIENT NUMBER: 45-2081 D  
EHS PROJECT #: 2006-12-0281  
PROJECT: Encycle

EHS SAMPLE #	CLIENT SAMPLE #/ LABORATORY GROSS DESCRIPTION	% ASBESTOS	OTHER MATERIALS
84A	A-163(a)-Tile/ Gray Vinyl	NAD	100% Non-Fibrous
84B	A-163(b)-Mastic/ Tan Adhes.; White Powder	NAD	2% Cellulose 98% Non-Fibrous
85	A-164/ Brown Fib.	NAD	60% Cellulose 10% Fibrous Glass 30% Non-Fibrous
86	A-165/ White/Black Fib.; White Powder	NAD	30% Cellulose 10% Synthetic 60% Non-Fibrous
87	A-166/ Brown Fib.	NAD	94% Fibrous Glass 6% Non-Fibrous
88A	A-167(a)-Tile/ Gray Vinyl	NAD	100% Non-Fibrous
88B	A-167(b)-Mastic/ Brown Adhes.	NAD	3% Cellulose 97% Non-Fibrous
89A	A-168(a)-Tile/ Brown Vinyl	NAD	100% Non-Fibrous
89B	A-168(b)-Mastic/ Tan Adhes.	NAD	10% Cellulose 90% Non-Fibrous
90	A-169/ Brown Fib.	NAD	60% Cellulose 10% Fibrous Glass 30% Non-Fibrous
91	A-170/ Black Tar-Like; Black Fib.	NAD	45% Cellulose 55% Non-Fibrous
92A	A-171(a)-Tile/ Brown Vinyl	NAD	100% Non-Fibrous
92B	A-171(b)-Mastic/ Brown Adhes.	NAD	2% Cellulose 98% Non-Fibrous
93A	A-172(a)-Tile/ Black Vinyl	NAD	100% Non-Fibrous
93B	A-172(b)-Mastic/ Tan Adhes.	NAD	4% Cellulose 96% Non-Fibrous

# ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

CLIENT NUMBER: 45-2081 D  
EHS PROJECT #: 2006-12-0281  
PROJECT: Encycle

EHS SAMPLE #	CLIENT SAMPLE #/ LABORATORY GROSS DESCRIPTION	% ASBESTOS	OTHER MATERIALS
94	A-173/ Brown Fib.	NAD	60% Cellulose 10% Fibrous Glass 30% Non-Fibrous
95	A-174/ Yellow Fib.	NAD	96% Fibrous Glass 4% Non-Fibrous
96	A-175/ Brown Fib.	NAD	93% Cellulose 7% Non-Fibrous
97	A-176/ Brown Fib.	NAD	93% Cellulose 7% Non-Fibrous
98	A-177/ Brown Fib.	NAD	93% Cellulose 7% Non-Fibrous
99	A-178/ Black Tar-Like; Black Fib.	NAD	45% Cellulose 55% Non-Fibrous
100A	A-179(a)-Tile/ Tan Vinyl	5% Chrysotile 5% Total Asbestos	95% Non-Fibrous
100B	A-179(b)-Mastic/ Black Tar-Like	6% Chrysotile 6% Total Asbestos	3% Cellulose 91% Non-Fibrous
101A	A-180(a)-Tile/ Tan Vinyl	5% Chrysotile 5% Total Asbestos	95% Non-Fibrous
101B	A-180(b)-Mastic/ Black Tar-Like	6% Chrysotile 6% Total Asbestos	3% Cellulose 91% Non-Fibrous
102A	A-181(a)-Tile/ Tan Vinyl	5% Chrysotile 5% Total Asbestos	95% Non-Fibrous
102B	A-181(b)-Mastic/ Black Tar-Like	6% Chrysotile 6% Total Asbestos	3% Cellulose 91% Non-Fibrous
103	A-182/ Brown Fib.; Tan Powder	NAD	93% Cellulose 7% Non-Fibrous
104A	A-183(a)-Cove Base/ Tan Vinyl	NAD	100% Non-Fibrous
104B	A-183(b)-Mastic/ Tan Adhes.	NAD	3% Cellulose 97% Non-Fibrous
105A	A-184(a)-Cove Base/ Tan Vinyl	NAD	100% Non-Fibrous

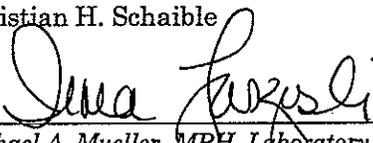
# ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

CLIENT NUMBER: 45-2081 D  
EHS PROJECT #: 2006-12-0281  
PROJECT: Encycle

EHS SAMPLE #	CLIENT SAMPLE #/ LABORATORY GROSS DESCRIPTION	% ASBESTOS	OTHER MATERIALS
105B	A-184(b)-Mastic/ Tan Adhes.	NAD	3% Cellulose 97% Non-Fibrous
106A	A-185(a)-Cove Base/ Tan Vinyl	NAD	100% Non-Fibrous
106B	A-185(b)-Mastic/ Tan Adhes.	NAD	4% Cellulose 96% Non-Fibrous
107	A-186/ Red Brittle	11% Chrysotile 11% Total Asbestos	89% Non-Fibrous
108	A-187/ Red Brittle	11% Chrysotile 11% Total Asbestos	89% Non-Fibrous
109	A-188/ Red Brittle	11% Chrysotile 11% Total Asbestos	89% Non-Fibrous

QC SAMPLE: NIST REF  
QC BLANK: SRM 1866 Fiberglass  
REPORTING LIMIT: 1% Asbestos  
METHOD: Polarized Light Microscopy, EPA Method 600/R-93/116 \*  
ANALYST: Christian H. Schaible

Reviewed By Authorized Signatory:

  
Michael A. Mueller, MPH, Laboratory Director  
Howard Varner, General Manager  
Irma Faszewski, Quality Assurance Coordinator

The condition of the samples analyzed was acceptable upon receipt per laboratory protocol unless otherwise noted on this report. Results represent the analysis of samples submitted by the client. Sample location, description, area, volume, etc., was provided by the client. This report cannot be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without the written consent of Environmental Hazards Services, L.L.C. California Certification #2319 NY ELAP #11714. All information concerning sampling location, date, and time can be found on Chain-of-Custody. Environmental Hazards Services, L.L.C. does not perform any sample collection.

Environmental Hazards Services, L.L.C. recommends reanalysis by point count (for more accurate quantification) or Transmission Electron Microscopy (TEM), for enhanced detection capabilities) for materials regulated by the EPA NESHAP (National Emission Standards for Hazardous Air Pollutants) and found to contain less than ten percent (<10%) asbestos by polarized light microscopy (PLM). Both services are available for an additional fee.

\* All California samples analyzed by Polarized Light Microscopy, EPA Method 600/M4-82-020, Dec. 1982.

LEGEND NAD = no asbestos detected  
SCF = suspected ceramic fibers

plm1.dot/07MAR2006/REV2/ MR



100 PUM

Laboratory Task Ord

EHS 2006-12-0281

CHAIN-OF-CUSTODY RECORD

Page 1 of 2

Project Number/Name: Encycle  
 Project Location: Corpus Christi, TX  
 Laboratory: Environmental Hazards Services  
 Project Manager: Ken Brandon  
 Sampler(s)/Affiliation: Ken Brandon / ARCADIS

ANALYSIS / METHOD / SIZE
Asbestos (PM)

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	Remarks	Total
A-80	S	11/29/06 8:10		Analyze all	1
A-81	S	8:20		Samples for	1
A-82	S	8:25		asbestos using PUM.	1
A-83	S	8:30			1
A-84	S	8:40			1
A-85	S	8:50			1
A-86	S	9:00			1
A-87	S	9:10			1
A-88	S	9:20			1
A-89	S	9:30		SAMPLE CONDITION	1
A-90	S	9:40		capable	1
A-91	S	9:50		nonacceptable	1
A-92	S	10:00			1
A-93	S	10:10			1
A-94	S	10:20			1

Sample Matrix: L = Liquid; S = Solid; A = Air

Relinquished by: [Signature] Organization: ARCADIS Date: 12/01/06 Time: PM Seal Intact? Yes No N/A

Received by: [Signature] Organization: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Seal Intact? \_\_\_\_\_

Relinquished by: [Signature] Organization: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Seal Intact? \_\_\_\_\_

Received by: [Signature] Organization: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Seal Intact? \_\_\_\_\_

Special Instructions/Remarks: Results to Ken Brandon, ARCADIS, Corpus Christi, TX (Fax 361-883-7565) (Phone 361-883-1353)  
5-day turnaround needed.

Delivery Method:  In Person  Common Carrier Fed Ex  Lab Courier  Other



# ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

7469 WHITE PINE ROAD - RICHMOND, VA 23237

804-275-4788 FAX 804-275-4907

## ASBESTOS POINT COUNT ANALYSIS SUMMARY

**CLIENT:** ARCADIS Geraghty & Miller  
711 North Carancahua, Suite 1700  
Corpus Christi, TX 78475-1801

**DATE OF RECEIPT:** 07 Dec 2006  
**DATE OF ANALYSIS:** 08 Dec 2006  
**DATE OF REPORT:** 09 Dec 2006

**CLIENT NUMBER:** 45-2081 D  
**EHS PROJECT #:** 2006-12-0907  
**PROJECT:** Encycle; EHS #2006-12-0281

<b>EHS SAMPLE#</b>	<b>CLIENT SAMPLE #/ LABORATORY GROSS DESCRIPTION</b>	<b>% ASBESTOS</b>
------------------------	--	-------------------

01	A162B/ Black Vinyl	1.75% Chrysotile
----	-----------------------	------------------

**REPORTING LIMIT:** 0.25% Asbestos

**METHOD:** Polarized Light Microscopy, EPA Method 600/R-93/116

**ANALYST:** Christian H. Schaible

**Reviewed By Authorized Signatory:**



*Michael A. Mueller, MPH, Laboratory Director*

*Howard Varner, General Manager*

*Irma Faszewski, Quality Assurance Coordinator*

The condition of the samples analyzed was acceptable upon receipt per laboratory protocol unless otherwise noted on this report. Results represent the analysis of samples submitted by the client. Sample location, description, area, volume, etc., was provided by the client. This report cannot be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full without the written consent of Environmental Hazards Services, L.L.C. California Certification #2319 NY ELAP #11714

**LEGEND** NAD = no asbestos detected

asbptct1.dot/07JUL2006/REV3/MR

-- PAGE 01 of 01 -- END OF REPORT --



**ATTACHMENT 3**

**Texas Department of State Health Services  
Licenses**



Control No:  
92228

Department of State Health Services certifies that:

**KENNETH J BRANDNER**

is licensed as an:  
Individual Asbestos Management  
Planner



License Number: 205050  
From: 03/31/2006  
To: 03/30/2008

TEXAS DEPARTMENT OF STATE HEALTH SERVICES

Be it known that

ENVIRONMENTAL HAZARDS SERVICES LLC

is certified to perform as a

Asbestos Laboratory  
PLM, PCM

in the State of Texas within the purview of Texas Occupations Code, chapter 1954,  
so long as this license is not suspended or revoked and is renewed according to the  
rules adopted by the Texas Board of Health.

*Eduardo J. Sanchez, M.D., M.P.H.*

Eduardo J. Sanchez, M.D., M.P.H.  
Commissioner of Health

License Number: 300188

Effective Date: 2/8/2006

Expiration Date: 2/7/2008

(Void After Expiration Date)

VOID IF ALTERED

Control Number: 91453

NON-TRANSFERABLE

# ATTACHMENT C

## Project Managers



5449 Bear Lane Suite 440  
Corpus Christi, TX 78405  
(361) 289-2510

This is to certify that

**Steve Strong**  
9557

Has Successfully Completed the

## 8 Hr Asbestos Contractor Supervisor Refresher Course

Required by 40 CFR 763, Subpart E, Appendix C (EPA MAP), and TSCA Title II

Meets the requirements of the Texas Department of State Health Services  
Certificate #10-0532-1

Date(s) of Training: 5/3/10

Expiration Date: 5/4/11

Instructor

Director of Training



5449 Bear Lane Suite 440  
Corpus Christi, TX 78405  
(361) 289-2510

This is to certify that

**Moses Rosas**  
ID#9044

Has Successfully Completed the

## 8 Hr Asbestos Contractor Supervisor Refresher Course

Required by 40 CFR 763, Subpart E, Appendix C (EPA MAP), and TSCA Title II

Meets the requirements of the Texas Department of State Health Services  
Certificate #10-1427-1

Date(s) of Training: 12/20/2010

Expiration Date: 12/19/2011

Instructor

Director of Training



5449 Bear Lane Suite 440  
Corpus Christi, TX 78405  
(361) 289-2510

This is to certify that

**Rigo Martinez**  
ID#5620

Has Successfully Completed the

## 8 Hr Asbestos Contractor Supervisor Refresher Course

Required by 40 CFR 763, Subpart E, Appendix C (EPA MAP), and TSCA Title II

Meets the requirements of the Texas Department of State Health Services  
Certificate #10-0977-1

Date(s) of Training: 9/3/2010

Expiration Date: 9/2/2011

Instructor

Director of Training



5449 Bear Lane Suite 440  
Corpus Christi, TX 78405  
(361) 289-2510

This is to certify that

**Melanie Fox**  
ID#5972

Has Successfully Completed the

## 8 Hr Asbestos Contractor Supervisor Refresher Course

Required by 40 CFR 763, Subpart E, Appendix C (EPA MAP), and TSCA Title II

Meets the requirements of the Texas Department of State Health Services  
Certificate #10-1427-2

Date(s) of Training: 12/20/2010

Expiration Date: 12/19/2011

Instructor

Director of Training



5449 Bear Lane Suite 440  
Corpus Christi, TX 78405  
(361) 289-2510

This is to certify that

**David De Los Santos**  
9147

Has Successfully Completed the

## 8 Hr Asbestos Contractor Supervisor Refresher Course

Required by 40 CFR 763, Subpart E, Appendix C (EPA MAP), and TSCA Title II

Meets the requirements of the Texas Department of State Health Services  
Certificate #10-0977-2

Date(s) of Training: 9/3/2010

Expiration Date: 9/2/2011

Instructor

Director of Training



5449 Bear Lane Suite 440  
Corpus Christi, TX 78405  
(361) 289-2510

This is to certify that

**Jerry Armstrong**  
0588

Has Successfully Completed the

## 8 Hr Asbestos Contractor Supervisor Refresher Course

Required by 40 CFR 763, Subpart E, Appendix C (EPA MAP), and TSCA Title II

Meets the requirements of the Texas Department of State Health Services  
Certificate #10-0773-2

Date(s) of Training: 7/1/2010

Expiration Date: 6/30/2011

Instructor

Director of Training

# ATTACHMENT D

## TDSHS Asbestos Consultant Agency License & Asbestos Laboratory License



# TEXAS DEPARTMENT OF STATE HEALTH SERVICES

## **TURNSTONE EH&S, INC.**

*is certified to perform as a*

### **Asbestos Consultant Agency**

*in the State of Texas within the purview of Texas Occupations Code, chapter 1954, so long as this license is not suspended or revoked and is renewed according to the rules adopted by the Texas Board of Health.*

A handwritten signature in black ink, reading "David Lahey, M.D." with a stylized flourish at the end.

DAVID LAKEY, M.D.  
COMMISSIONER OF HEALTH

License Number: 100408

Control Number: 96311

Expiration Date: 4/12/2012

(Void After Expiration Date)

VOID IF ALTERED      NON-TRANSFERABLE



# TEXAS DEPARTMENT OF STATE HEALTH SERVICES

## TURNSTONE EH&S, INC.

*is certified to perform as a*

**Asbestos Laboratory  
PCM**

*in the State of Texas within the purview of Texas Occupations Code, chapter 1954, so long as this license is not suspended or revoked and is renewed according to the rules adopted by the Texas Board of Health.*

A handwritten signature in cursive script, reading "David Lakey, M.D.".

DAVID LAKEY, M.D.  
COMMISSIONER OF HEALTH

License Number: 300372

Control Number: 95554

Expiration Date: 3/8/2011

(Void After Expiration Date)

VOID IF ALTERED      NON-TRANSFERABLE

