

# *San Antonio Water System Standard Specification*

## ITEM NO. 3000

### Handling Asbestos Cement Pipe

**3000.1 DESCRIPTION:** This item shall govern the uncovering, dislodging, handling, removing, transporting, and disposing of asbestos cement (AC) pipe and other asbestos containing materials (ACM). AC pipe is also known as transite pipe. AC pipe typically contains from 15% to 20% chrysotile and crocidolite asbestos and is considered to be an asbestos- containing material. It is the intent of this specification to define procedures that maintain the AC pipe in an intact state.

1. Definitions used and incorporated as part of this specification are located in Appendix One.

**3000.2 REFERENCED STANDARDS:** All work under these specifications shall be done in strict accordance with all applicable Federal, State, and local regulations, standards, and codes governing asbestos disturbance, handling, removal and disposal. Work activities shall also comply with SAWS and City of San Antonio Specifications related to safety and health.

1. The most recent edition of any relevant regulation, standard, or code shall be in effect. Where there is a conflict between the regulations, standards, codes, and/or these specifications, the most stringent requirements shall apply.
2. The disturbance and/or removal of this material is governed by the National Emissions Standards for Hazardous Air Pollutants (NESHAP) 40 Code of Federal Regulations (CFR) 61; by the Occupational Safety and Health Administration (OSHA) 29 CFR 1926.1101; the State of Texas Occupation Code, Chapter 1954 and Health and Safety Code Chapters 361 and 363; and the Texas Administrative Code (TAC), 25 TAC Chapter 295 and 30 TAC Chapter 330.3 and 330.171.
3. The material is classified by definition under 40 CFR 61, Subpart M, Section 61.141 as Category II, non-friable ACM, unless, when dry, it can be crumbled, pulverized, or reduced to powder by hand pressure. At that time, it becomes classified as regulated ACM (RACM) and subject to regulation under Subpart M.
4. As a minimum, the Contractor shall comply with the applicable portions of the following:
  - a. San Antonio Water System (SAWS):
    - i. Specifications for Water and Sanitary Sewer Construction
    - ii. SAWS Materials Specifications
  - b. City of San Antonio (COSA) Specifications for Construction
  - c. American Society for Testing and Materials (ASTM)
    - i. ASTM C 150 - Standard Specification for Portland Cement.
    - ii. ASTM C 494 - Standard Specification for Chemical Admixture for Concrete.
    - iii. ASTM C 618 - Standard Specification for Fly Ash and Raw or Calcinated Natural Pozzolan for use as Mineral Admixture in Portland Cement Concrete.

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- iv. ASTM C 937 - Standard Specification for Grout Fluidifier for Pre-placed Aggregate Concrete.
- v. ASTM C 940 - Standard Test Method for Expansion and Bleeding of Freshly Mixed Grout for Replaced Aggregate Concrete in the Laboratory.
- vi. ASTM C 1017 - Standard Specification for Chemical Admixture for Use in Producing Flowing Concrete.
- vii. ASTM C 1107 - Specification for Packaged Dry, Hydraulic-Cement Grout (Non-shrink)
- d. Occupational Safety and Health Administration (OSHA) including but not limited to:
  - i. Title 29 Code of Federal Regulations (CFR) Section 1926 – Safety and Health Regulations for Construction
  - ii. Title 29 CFR Section 1926.1101 – Safety and Health Regulations for Construction - Asbestos.
  - iii. Title 29 CFR Section 1910.134 – Occupational Health and Safety Standards - Respiratory Protection.
  - iv. Title 29 CFR Section 1910.1020 – Occupational Health and Safety Standards - Access to Employee Exposure and Medical Records.
  - v. Title 29 CFR Section 1910.1200 – Occupational Health and Safety Standards - Hazard Communication.
- e. Environmental Protection Agency (EPA) including but not limited to:
  - i. Title 40 Code of Federal Regulations Part 61 Subpart M – National Emission Standard for Asbestos.
- f. Texas Statutes, including but not limited to:
  - i. Occupation Code, Chapter 1954, Asbestos Health Protection
  - ii. Health and Safety Code Chapters 361 and 363, Solid Waste
- g. Texas Administrative Code including but not limited to:
  - i. Department of State Health Services, Title 25, Chapter 295, Subchapter C – Texas Asbestos Health Protection.
  - ii, Texas Administrative Code, Title 30, Chapter 330 Municipal Solid Waste.
- i. The governing documents for SAWS asbestos-cement (AC) pipe are as follows:
  - i. U.S. Environmental Protection Agency (EPA), 40 Code of Federal Regulations (CFR) Part 61, Subpart M – National Emission Standards for Asbestos;
  - ii. Occupational Safety and Health Administration (OSHA), 29 CFR 1926.1101, Asbestos;
  - iii. The State of Texas Statute, Health and Safety Code, Chapter 363;
  - iv. Texas Administrative Code (TAC) 30 TAC Chapter 330.
  - v. Department of Transportation – Hazardous Materials Regulations 49 CFR, Parts 170 – 180.

**3000.3 SUBMITTALS:** The Contractor shall develop an Asbestos Removal Work Plan, herein

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referred to as “the Plan”, (see Appendix Two, Example Procedures) that provides specific and detailed procedures they and/or any of their subcontractors will follow to maintain the AC pipe in an intact state.

1. The contractor shall have and follow a written Plan that describes their detailed handling and disposal procedures of the AC pipe.
2. The contractor shall submit copies of the Plan to SAWS for review and approval and for joint bids, COSA Environmental representatives, as required.
3. The Contractor shall comply with the COSA and any other agencies requirements.
4. The Plan shall specify the wet techniques to be followed when the pipe collars are dislodged.
5. The Plan shall include procedures/actions to be followed if the intact AC pipe becomes broken and the possibility exists of asbestos fibers becoming airborne.
6. Plans submitted with insufficient detail will be returned requesting more information be provided.
7. OSHA classifies the handling and removal of asbestos containing material (ACM) as Class II asbestos work.
  - a. Contractor shall acknowledge that their program complies with OSHA standard 29 CFR 1926.1101
  - b. Contractor shall describe how their program complies with that standard.
  - c. It should be included in the contractor’s submission meeting SAWS Specification Item No. 902, Safety and Health Program.
8. The plan submitted shall contain the following:
  - a. The scope of work to be accomplished shall be described in detail.
  - b. Be specific as to the involvement with the existing AC pipe.
    - i. For example: abandoning/removing X feet of AC pipe; tying into one or more joint(s)/section(s) of an existing water main and replacing one or more joints/sections (X feet) of pipe to make the connection; removing X feet of buried AC pipe encased in concrete crossing a drainage way not accessible by road; or connecting to an existing joint/section of AC pipe by tapping into the AC pipe.
9. Detailed procedures that describe the methods/techniques to be employed to uncover, dislodge, handle, remove, secure, transport, and dispose of the AC pipe and any generated ACM waste.
  - a. For illustrative purposes only the following is an example of the level of detail expected in a plan.
  - b. The contractor could use them as a basis for preparing their plan.
  - c. If the contractor employs this example, SAWS requires greater site specific detail in the plan submitted.
7. The Plan shall state or reference procedures in the contractor’s Safety and health program document that they will follow to comply with the federal OSHA asbestos standard. Finally, the Plan shall contain provisions for the environmentally compliant disposal of the intact AC pipe and any RACM created during the removal process.

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8. The Plan shall be provided to the San Antonio Water System (SAWS) at the pre-construction (pre-con) meeting for its review and approval prior to initiating uncovering operations to verify the contractor has met the contractual requirements.
9. Preparation and submission of the Plan shall be considered subsidiary to the work required and no direct payment will be made.
10. See Appendix Two for an example of the detailed general work practices a contractor could use in preparing an Asbestos Removal Work Plan.
  - a. If the contractor uses the example, they must expand upon the provisions in the appendix to describe its specific procedures.
  - b. The appendix is provided for illustrative purposes only.
  - c. If the contractor employs this example, SAWS requires greater site specific detail to be included in the Plan submitted for approval.
11. At the Pre-construction Conference/Meeting the following shall be submitted for review and approval to SAWS, and when applicable COSA Environmental representatives, as required:
  - a. The Plan in accordance with: NESHAP, OSHA, this Special Specifications, Item Number 3000, and State requirements.
    - i. The number of copies submitted of the Plan is the same as the number of copies required under other bid submittal requirements with one copy being submitted electronically.
12. The work plan shall provide detailed procedures for retaining the AC pipe's Category II, non- friable NESHAP classification.
13. The contractor shall incorporate working with ACM and complying with mandated OSHA requirements for Class II, asbestos work in their project specific Safety and Health Plan.
14. The guidance provided in these special specifications is not intended and does not constitute an asbestos abatement project design as described under 25 TAC, Chapter 295.
15. Submit proof satisfactory to SAWS, and as applicable, COSA Environmental representatives, that required permits, site location, and arrangements for transport and disposal of asbestos containing waste material (ACWM) have been made that meet Texas environmental statutes and regulations.
16. Include the name of the transporter, their Texas asbestos transporter license number, and the name of the approved landfill where the AC pipe and ACM waste will be buried.
17. Submit copies to SAWS and if applicable, COSA Environmental representatives of all transport manifests, trip tickets, and disposal receipts for all ACWM removed from the work area during the project.
18. The Contractor will sign manifests as the SAWS' representative (generator) for the AC pipe and provide copies to the SAWS Construction Inspection Department for final payment.
19. Any project involving AC pipe, the Contractor shall comply with OSHA standards and shall develop a Safety and Health Plan that complies with SAWS Specification Item No. 902, "Construction Safety and Health Program requirements."

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**3000.4 CONSTRUCTION:** The San Antonio Water System AC pipe is considered by the U.S. EPA as Category II, non-friable asbestos containing material (ACM). The SAWS wants its pipe to retain that asbestos categorization. By using procedures that have a low to no probability of fiber release, the pipe retains its classification as Category II, non-friable ACM.

1. No handling and disposing of SAWS AC pipe will begin without approval from SAWS.
2. The Contractor shall uncover, dislodge, handle, remove, transport, and dispose of all AC pipe specified in the contract documents for this project using wet technique procedures.
3. All work involving AC pipe and other ACM products must be addressed in the Plan.
4. The Contractor shall take precautions to prevent damage to adjacent structures and material/finished material not required for AC pipe handling
5. All projects involving AC pipe require that NESHAP and OSHA standards are met and/or exceeded.
6. The contractor shall perform all work in a manner that meets or exceeds those standards
7. To comply with NESHAP and OSHA requirements, this project will require workers trained in using wet technique procedures to dislodge and remove AC pipe, AC pipe joints, valves (any type) containing ACM, and any surrounding soils that may contain ACM.
8. OSHA requires that during any ACM disturbance, regardless of amount, the asbestos worker(s) shall be protected from potential airborne asbestos exposure in excess of the permissible exposure limit or excursion limit as stipulated in 29 CFR 1926.1101
9. Contractors shall not use procedures that subject the AC pipe to forces that will crumble, pulverize, or reduce to powder the AC pipe.
  - a. Once the pipe becomes crumbled, pulverized, or reduced to powder it becomes classified as regulated ACM. (40 CFR 61.141) ACM (RACM) and subject to NESHAP.
10. The following work practices and engineering controls shall not be used for work related to AC pipe or for work which disturbs ACM, regardless of asbestos exposure or the results of Initial Exposure Assessments:
  - a. High-speed abrasive disc saws and sanders not equipped with point of cut ventilator or enclosures with HEPA filtered exhaust air;
  - b. Carbide-tipped cutting blades;
  - c. Electrical drills, chisels, and rasps used to make field connections in AC pipe;
  - d. Shell cutters used to cut entry holes in AC pipe;
  - e. A hammer and chisel without using wet techniques to remove pipe connections;
  - f. Compressed air used to remove asbestos or material containing

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- asbestos;
  - g. Dry sweeping, dry shoveling, or other dry clean-up of dust and ACM debris;
  - h. Employee rotation as a means of reducing employee exposure to asbestos;
11. These procedures will protect workers from the health risk associated with airborne asbestos.
  12. References to the City of San Antonio (COSA) pertain only to those joint bid projects, where joint jurisdiction occurs due to the contract's binding agreement.
  13. Refer to Appendix Three of this specification for more specific guidance of addressing an acceptable procedure for handling SAWS AC pipe.
  14. No handling and disposing of SAWS AC pipe will begin without approval from SAWS.
  15. To meet and/or exceed NESHAP and OSHA guidelines, the contractor may subcontract the AC pipe handling plan and work to an Environmental Protection Agency (EPA) accredited and Texas Department of State Health Services (DSHS) licensed asbestos abatement contractor, DSHS licensed asbestos consultant, and DSHS air monitoring technician.
  16. The contractor shall be responsible for submitting the DSHS notification with copies to SAWS and COSA Environmental Division for joint bid projects.
  17. NESHAP guidelines apply to facility projects in which the combined amount of regulated asbestos containing material (RACM) is at least 260 linear feet (LF) or 35 cubic feet or 160 square feet.
    - a. If the combined amount of RACM is at least 260 linear feet of the AC pipe, including AC collars, and it is expected to become or becomes crumbled, pulverized, or reduced to powder, then the project is subject to the NESHAP provisions of reporting and asbestos emission control paragraphs in 40 CFR Section 61.145.
    - b. If the scope of the project involves the threshold amount (260 linear feet or greater), a Demolition/Renovation Notification Form is required to be sent to DSHS by the Contractor.
      - i. This form shall be post-marked no later than 10 working days prior to the start of any asbestos handling work.
  18. The Contractor shall notify SAWS and, if applicable COSA representatives, at least 72 hours prior to beginning uncovering, dislodging, handling, and removing the AC pipe.
  19. AC pipe uncovering, dislodging, handling, and/or removing shall be conducted during regular business hours, 8 a.m. to 5 p.m., Monday-Friday.
  20. No uncovering, dislodging, handling, and or removing of AC pipe outside of the normal business hours or during the weekend is allowed unless special circumstances require the contractor to do so and the work has been approved in writing at least 72 hours before the commencement of the work.
  21. Disposal bags for RACM shall be 6-mil polyethylene and labeled as required by EPA Regulation 40 CFR 61.150 (a)(1)(iv) or OSHA requirement 29 CFR 1926.1101(k)(8).
  22. Stick-on labels identifying the generator's name (SAWS) and address and the

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project site location shall be applied to any asbestos waste disposal bag that contains RACM, as per EPA or OSHA and Department of Transportation requirements

23. The Contractor shall remove and double bag with 6-mil polyethylene sheeting to yield a total of at least 12-mil, the asbestos pipe in the trench or immediately when it comes out of the trench, seal, label, transport, and dispose of all Category II non- friable ACM and RACM in compliance with applicable current Federal, State and local regulations, laws, ordinances, rules, standards and regulatory agency recommended requirements.
24. Time is of the essence in removing the ACM from the project area.
25. All work must be completed within the time period specified in the contract. SAWS, and if applicable COSA representative will be responsible for coordinating this work in high-density areas, such as schools, church facilities, and residential areas.
26. All notifications required to state regulatory agencies will be made by the Contractor with copies provided to SAWS and as applicable, COSA representatives, including but not limited to the DSHS Demolition/Renovation Notification Form.
27. The Contractor shall have an on-site supervisor, who is an OSHA Competent Person, present on the job site at all times that the AC pipe work is in progress.
  - a. Supervisor shall be thoroughly familiar with and experienced at asbestos pipe handling using wet techniques and shall be familiar with and shall enforce the use of all safety procedures and equipment.
  - b. Supervisor shall be knowledgeable of all applicable EPA, OSHA, and DSHS asbestos requirements and guidelines.
28. The Contractor has sole and primary responsibility for the “means and/or methods” of the work; an obligation to SAWS to inspect all stages of the work; and sole responsibility to supervise the performance of the work.
29. Certain work practices for AC pipe disturbance are prohibited as per this Specification.
30. The Contractor shall be responsible for site safety and for taking all necessary precautions to protect the Contractor’s, SAWS, and COSA personnel and the public from airborne asbestos exposure and/or injury.
31. The Contractor shall be responsible for maintaining the integrity of the work area.
32. The Contractor shall confine operations at the site to the area requiring interface with the AC pipe and the general site area in close proximity to the project.
33. The Contractor will not unreasonably encumber the site with materials or equipment.
34. If ACWMs are required to be stored overnight in a secured area, the waste material and waste containers shall be labeled according to OSHA and EPA, and the State of Texas requirements, & containerized to preclude unauthorized disturbance of the ACWMs.
35. The Contractor shall be responsible for obtaining and coordinating waste disposal and transport of ACWM to a Texas Commission on Environmental Quality (TCEQ) permitted asbestos waste landfill.
36. Waste manifests shall be generated for the transport of the AC pipe and ACWMs

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- from the project site to the landfill disposal site.
37. The Contractor will sign the manifests as the SAWS's representative (generator) for the AC pipe and provide copies to the SAWS Construction Inspection Department for final payment.
  38. The Contractor shall demarcate the area of AC pipe interface ("regulated area") with barrier tape and warning signs, per OSHA regulation 29 CFR 1926.1101.
    - a. Access to the regulated area will be limited to authorized personnel and visitors.
    - b. The contractor shall identify in their site specific safety and health plan how they intend to limit access and who is authorized to be in the demarcated area.
  39. Abandonment of AC water mains/pipes:
    - a. The Contractor is responsible for isolating the existing mains to remain in place by capping, plugging and blocking as necessary.
    - b. The opening of an abandoned AC water main and all other openings or holes shall be blocked off by manually forcing cement grout or concrete into & around the openings in sufficient quantity to provide a permanent watertight seal.
    - c. Valves to be abandoned, that contain ACM, in the execution of the work shall have the valve box and extension packed with sand to within eight inches (8") of the street surface.
      - i. The remaining eight inches (8") shall be filled with 3,000 psi concrete or an equivalent sand-cement mix and finished flush with the adjacent pavement or ground surface.
      - ii. The valves covers shall be salvaged & returned to SAWS.
  40. The Contractor's on-site Competent Person shall inspect the work area, verify, and certify that no residual AC pipe fragments and debris remain.
  41. Submit copies to SAWS Environmental Division and, if applicable COSA Environmental representatives, of all transport manifests, trip tickets, and disposal receipts for all asbestos waste materials removed from the work area during the project.
  42. The Contractor will sign manifests as the SAWS representative (generator) for the AC pipe and provide copies to SAWS Construction Inspections for final payment.

**3000.5 MEASUREMENT:** The work performed as prescribed by these items shall be measured for at the contract unit price bid per linear foot for "Removal, Transportation, and Disposal".

1. The work includes all work specified herein, to include mobilization and demobilization, labor, materials, overhead, profit, taxes, transportation, disposal fees, administrative fees, and incidental cost.
2. Estimating areas, quantities, and weight are the sole responsibility of the Contractor.

**3000.6 PAYMENT:** The work performed as prescribed by these items shall be paid for at the contract unit price bid per linear foot for "Removal, Transportation, and Disposal," which



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prices shall be full compensation for the work herein specified including the furnishing of all materials, equipment, tools and for the material disposal, submittals, and labor necessary to complete the work.

1. No payment shall be made for the Plan.
2. Abandonment of AC water mains will be considered subsidiary to the work required, and no direct payment will be made.
3. Abandonment of valves containing ACM is considered subsidiary to the work required, and no direct payment will be made.
4. If the DSHS RACM limit of 260 LF is exceeded, the contractor is responsible for any DSHS administrative fees and fines at no additional cost to owner.
5. Any uncovering, dislodging, handling, or disposing of AC pipe and associated written handling and removal plans, such as an abatement plan, required by another agency will be paid for by that agency using their specification/bid item number.
6. Any ACM encountered that is not SAWS pipe and not previously identified by SAWS or shown on SAWS plans will be not be authorized for disposal payment.
7. Bit Item: Removal, Transportation, and Disposal – Linear Foot

**STANDARD PLAN NOTE:** Asbestos Cement (AC) pipe, also known as transite pipe, contains asbestos-containing material (ACM) and is located within the project limits. Special waste management procedures and health and safety requirements are applicable when handling, removing, and disposing of this pipe. Payment for such work is to be made under Special Specification Item No 3000, “Special Specification for Handling Asbestos Cement Pipe.”

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### **APPENDIX ONE: DEFINITIONS**

As used anywhere in Item No. 3000, Specifications for Handling Asbestos-Cement Pipe, including all appendices, the following shall be defined to mean:

1. Amended Water: Water to which a surfactant (wetting agent) has been added to increase the ability of the liquid to penetrate ACM.
2. Approval: Means the SAWS contract requirements have been met but does not mean that the SAWS stipulates any written documents adequately comply with federal and state occupational safety and health regulatory requirements.
3. Asbestos: A group of naturally occurring silicate minerals and includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that has been chemically treated and/or altered.
4. Asbestos Containing Material (ACM): Material or products that contain more than 1.0% of any kind of asbestos.
5. Asbestos Containing Waste Material (ACWM): Asbestos containing material or asbestos contaminated objects requiring disposal.
6. Authorized Personnel: Any person authorized by the Contractor and required by work duties to be present in the regulated area.
7. Authorized Visitor: SAWS representatives, and any representative of a regulatory or other agency having jurisdiction over the project.
8. Asbestos Consultant: A person licensed by the Texas Department of State Health Services to perform the following asbestos abatement related functions in public buildings:
  - a. Project design;
  - b. Asbestos surveys and condition assessment of ACM;
  - c. Asbestos Management Planning;
  - d. The collection of bulk material samples, airborne substance samples and the planning of sampling strategies;
  - e. Owner-representative services for asbestos abatement projects or O&M programs, including air monitoring and project management;
  - f. Consultation regarding regulatory compliance and all aspects of technical specifications and contract documents;
  - g. The selection, fit testing, and appropriate use of personal protection equipment & the development of asbestos related engineering controls.
9. Abatement Contractor: The company, agency, or entity licensed by the Texas Department of State Health Services that has been retained to perform asbestos abatement and other associated functions.
10. Class II Asbestos Work (OSHA Standard): Activities involving the removal of ACM, which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.
11. Competent Person: An individual, who is capable of identifying existing

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asbestos hazards in the workplace, can select the appropriate control strategy for asbestos exposure, and who has the authority to take prompt corrective measures to eliminate them.

12. Friable Asbestos: Asbestos containing material, that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure and includes previously non-friable material that has become damaged to the extent that, when dry, it may be crumbled, pulverized, or reduced to powder by hand pressure.
13. NESHAP: The National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61).
14. OSHA: The Occupational Safety and Health Administration.
15. Regulated Area: An area established by the Contractor or employer to demarcate areas where asbestos work is conducted and any adjoining area where debris and waste from such asbestos work accumulate; and an area within which airborne concentrations of asbestos exceed or there is a reasonable possibility they may exceed the permissible exposure limit.
16. Regulated Asbestos Containing Material (RACM): (1) Friable asbestos material; (2) Category I non-friable ACM that has become friable; (3) Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading; or, (4) Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by forces expected to act on the material in the course of the demolition or renovation operations regulated by 40 CFR Part 61, Subpart M.
17. Staging area: A pre-selected area where wrapped or containerized asbestos containing waste material will be placed prior to removal from the project site.
18. Surfactant: A chemical wetting agent added to water to improve penetration.
19. Uncovering operations: The use of mechanical, pneumatic, and/or manual procedures that disturb the material and/or soil above and/or around the AC pipe that would expose personnel to the AC pipe.

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### **APPENDIX TWO: EXAMPLE OF PROCEDURES FOR HANDLING SAWS AC PIPE**

The following is an example of procedures for handling SAWS AC pipe. A contractor could use them as a basis for preparing an Asbestos Removal Work Plan. The contractor must expand upon the provisions of this appendix to describe its specific procedures.

This appendix is provided for illustrative purposes only. The contractor is required to develop a site specific Asbestos Removal Work Plan that complies with the provisions of this specification.

If the contractor employs this example, SAWS will require greater site specific detail to be included in the plan submitted for approval.

Scope of Work: Describe the work and be specific as to the intended involvement with the existing AC pipe. For example: abandoning/removing X feet of AC pipe; tying into a section of an existing waterline and replacing one section (X feet) of pipe to make the connection; or connecting into an existing section of AC pipe by tapping into the AC pipe.

1. Excavation to Pipe:

- a. Excavate to within X inches/feet of the section of AC pipe to be replaced/removed. Depending upon the depth of the excavation, shoring may be needed following company procedures (provide or reference those procedures).
- b. Once the pipe is located, excavate (by machine or hand) on one/both sides of the pipe to expose the collars and pipe. Dig the earth from around the collars by hand to create a clearance space completely around the collar. **DO NOT SCRAPE OR ABRABE THE PIPE WITH THE EXCAVATION DEVICE(S).**
- c. Set up pumps to evacuate any residual water when the AC pipe is dislodged.

2. Wet Method Use:

- a. Make the amended water solution by mixing 1 ounce of a liquid detergent (Dawn, Joy, other) with 2 to 3 gallons of water in a 2 to 3 gallon mist sprayer. Other size sprayers may be used.
- b. Wet each portion of the pipe, normally just the collar, to be removed with the amended water (water/soap) solution.
- c. Use the mist sprayer to produce a “mist” application and continuously wet the collars throughout the wrapping, cracking, and removal process. A worker shall be assigned to and is responsible for this procedure during the entire dislodging process.

3. Only Cracking AC Pipe Collars is Approved:

- a. Wrap wet towels/burlap/other defined absorbent material around the collar. Wrap the collar with at least two layers of 6-mil polyethylene sheeting to provide a total of at least 12-mil. It is recommended that additional poly be used on the collars to minimize possible tearing of the plastic.
- b. Place another layer of wet towels/burlap/ other defined absorbent material on the wrapped collar.
- c. Use the flat head end of a sledgehammer to crack the collar while continuously

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“misting” the collar. Strike the collar on the side of the section of pipe to be removed to prevent the remaining section of pipe from being broken.

- d. Put all of the pieces of collar into a 6-mil polyethylene waste bag. Look for small pieces that may have been generated during the cracking process, wet them, and place them in the waste bag.

**NOTE:** When the collars are cracked and removed from a shutdown waterline, residual water may drain from the dislodged AC pipe. Follow company safety procedures to control the water (provide or reference those procedures).

### 4. Double Bag All AC Waste Materials:

- a. All visible AC pipe materials including collars, towels, rubber gloves, gaskets, and other items suspected of containing asbestos shall be double bagged using two (2) 6- mil AC waste bags. The inner bag contents shall be mist sprayed with amended water or mixed with water from the trench prior to closing to maintain the contents wet. Close the bag when it is half full by twisting the top of the bag and sealing with moisture resistant tape.
- b. If the asbestos waste bag is small enough, it may be placed inside the section of intact pipe before the pipe is wrapped in at least two layers of 6-mil poly. If placing the waste bag inside the pipe, do not force it causing it to tear.

### 5. Removal of Pipe and Waste Bag from Trench:

- a. All sections of “intact” pipe shall be wrapped in a minimum of two (2) layers of 6-mil poly sheets (12-mil total) while in the trench and lifted out of the trench using only nylon slings. If the trench contains water, the pipe shall be lifted out of the trench using only nylon slings and placed on a minimum of two (2) layers of 6-mil poly sheets (12-mil total) on the ground next to the trench.
- b. Wrap each pipe segment in at least 12-mil of poly and secure with tape.
- c. Lift the ACM waste bag(s) from the trench and move it/them to a secure location to prevent accidental contact with the bag(s) that would cause it/them to tear.

**NOTE:** Any valves, bends, tees, fittings, or other items that have AC pipe connected shall be wrapped whole as required with the same minimum total of 12-mil of poly material.

### 6. AC Pipe and Waste Storage/Transfer:

- a. Wrapped AC pipe and ACM waste bags shall be stored in a secure area away from traffic that could damage the wrapped pipe and/or waste bags while awaiting transport to the permitted landfill.
- b. If daily transport to a permitted landfill cannot be provided, a roll-off type dumpster/disposal container may be used to hold only the wrapped AC pipe and bagged RACM waste to prevent damage to the wrapping.
  - (1) DO NOT TOSS THE PIPE OR WASTE BAGS INTO THE ROLL-OFF OR DISPOSAL CONTAINER.
  - (2) DO NOT MIX SPOILS WITH THE AC WRAPPED PIPE AND AC WASTE.
- c. All wrapped or bagged materials shall be moved to the AC pipe/waste fenced

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holding area for storage. If a roll-off or other type disposal container is used, place the wrapped pipe and waste bags in the roll-off/container using methods that do not cause the wrapping/bagging to be torn.

- d. Any bagged or wrapped materials that are torn in handling shall be mended and taped. If the tear is too extensive for a simple tape repair, wrap/bag with an additional equivalent of 12-mil minimum thickness of poly wrap/bagging.
7. AC Pipe and Waste Disposal: The wrapped AC pipe and ACM bagged waste shall be transported to an approved AC waste landfill with the manifests being generated at the time of transfer. Include the name of the transporter, their Texas asbestos transporter license number, and the name of the permitted landfill where the AC pipe and ACM waste will be buried.

**- End of Specification -**