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## Summary

To help ensure the safety of individuals entering areas which meet the criteria outlined by OSHA as a 'confined space' (i.e., locations not designed for continuous human occupancy but are large enough that personnel can bodily enter into them, and which have a limited or restricted means of entry and exit), detailed precautions are outlined in this program which address hazard identification and control activities necessary prior to entry into the confined space, measures to ensure the ongoing safety of entrants while work is being performed within the confined space, and steps to terminate the entry as work within the confined space is concluded. Completing and posting a confined space entry permit serves as a checklist for these activities and provides entrants, and those individuals monitoring the safety of the confined space, with information regarding potential hazards and appropriate safeguards.

### 1.0 Purpose

The precautions and procedures outlined in this program are designed to ensure that our employees are safe while working in confined spaces. Under no circumstances will our employees enter a Confined Space where hazards have not been eliminated or effectively controlled.

### 2.0 Scope

This confined space program covers the safe entry of all employees or contractors into confined spaces at all work locations.

### 3.0 Roles & Responsibilities

3.1 Plant Superintendent - The Plant Superintendent is responsible for implementing Branscome's Confined Space policy including maintaining designations and proper signage. In addition, the Plant Superintendent will assist in an annual review of the use of this policy and recommend any changes to the Safety Specialist.

3.2 Director of Safety - The Director of Safety will work with site management to develop, implement, and administer the Confined Space Entry Program. This includes the following:

- Evaluate each job site to identify all confined space hazards;
- Develop the Confined Space Entry Program;
- Ensure the appropriate level of training for all employees;
- Ensure that employees are trained and apprised of the hazards of all confined spaces that they may be required to enter; and
- Evaluate the program at least annually to determine continued effectiveness.

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3.3 Safety Specialist - Work with the Director of Safety to develop and implement the requirements of this program, to include:

- Serve as or designate the Entry Supervisor for all Confined Entries;
- Ensure that all Confined Spaces are identified appropriately at all times;
- Conduct training making it specific to the type of space and procedure;
- Provide for emergency and rescue services;
- Ensure that contractor employees are apprised of the hazards of the confined spaces that they will enter; and
- Retain completed permits and other required records.

3.4 Supervisors - It is the responsibility of all supervisors to:

- Ensure that all employees have received training before they perform an entry;
- Ensure that employees do not enter Confined Spaces without following the proper procedures for that entry;
- Take disciplinary action whenever procedures are violated;
- Function as Entry Supervisor, when trained and appropriate;
- Perform an evaluation of each space prior to entry;
- Where required, conduct air monitoring of the confined space;
- Ensure that the equipment is properly locked out;
- Ensure that employees wear any personal protective equipment required to perform the entry;
- Cancel the entry authorization and terminate entry whenever acceptable entry conditions are not met;
- Ensure that the permit is posted at the confined space entry point;
- Verify that rescue services are available for all permit entries; and
- Return permit or other documentation to the Safety Specialist upon completion of the entry.

3.5 Employees - It is the responsibility of all employees to follow all program requirements and to report previously unidentified hazards associated with the confined space to the Safety Specialist or their supervisor.

#### **4.0 Definitions**

4.1 Alternate Procedures - Alternate Procedures can be utilized when the only hazard posed by the space is an actual or potential atmospheric hazard and continuous forced air ventilation is adequate to maintain the safe entry of the space.

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- 4.2 Confined Spaces - An area that is large enough and so configured that an employee can bodily enter and perform assigned work; and has limited or restricted means for entry or exit; and is not designed for continuous employee occupancy.
- 4.3 Entry - Entry occurs as soon as any part of the employee's body breaks the plane of an opening into the confined space whether the individual intends to fully enter the space or not.
- 4.4 Hazardous Atmosphere - An atmosphere that may expose an employee to the risk of death, injury, illness, or impairment of ability to escape unaided from a permit space from one or more of the following causes:
- Flammable gas or vapor;
  - Airborne dust that exceeds the lower flammable limit;
  - Oxygen concentration below 19.5% or above 23.5%; or
  - Concentrations of any substance that exceed the permissible exposure limit.
- 4.5 Non-permit confined space - A confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm.
- 4.6 Permit-Required Confined Space - A confined space that has one or more of the following characteristics:
1. contains or has the potential to contain a hazardous atmosphere;
  2. contains a material that has the potential for engulfing an entrant;
  3. has an internal configuration such that an entrant could be trapped by walls caving in or by a floor which slopes down and tapers to a smaller cross section contains any other recognized serious safety or health hazard under certain conditions, including welding, burning, grinding, or painting tasks; or
  4. Contains any other recognized serious safety or health hazard.
- 4.7 Reclassification - Reclassification of a confined space is permitted when the non-atmospheric hazards of the space can be eliminated without entry into the space.

## 5.0 References

- 5.1 29 CFR 1910.146 – Permit-Required Confined Space
- 5.2 29 CFR 1910.157 – The Control of Hazardous Energy

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- 5.3 ANSI/ASSE: Z117.1 Safety Requirements for Confined Spaces
- 5.4 Branscome Companies Control of Hazardous Energy Program
- 5.5 Branscome Companies Respiratory Protection Program

## 6.0 Program

### 6.1 Evaluation of Confined Spaces

All enclosed spaces at Branscome have been evaluated to determine if they fall into the Confined Space categories. This evaluation is the responsibility of the Safety Specialist in conjunction with the Plant Superintendents.

### 6.2 Documentation

The locations and hazards of spaces determined to be confined spaces must be documented. This may be accomplished using the form in **Appendix A – Confined Space Evaluation**. These completed assessments must be retained by the Plant Superintendents with copies to the Corporate Director of Safety.

### 6.3 Changes

Where changes occur in the use or configuration of a non-permit required confined space that might increase the hazards to entrants, the space will be re-evaluated at the time of the modifications, and be reclassified as a permit-required confined space.

### 6.4 Reasons for Entry

There are several conditions which may require entry into confined spaces at Branscome. They are as follows:

<b>Stage</b>	<b>Description</b>
Cleaning or Clearing	Asphalt or materials need to be removed during normal operation.
Maintenance & Repair	Spaces need to be cleaned, maintained, or repaired during a shutdown. Maintenance or repair work may include welding, painting, re-coating, or other activities that may change the atmosphere in the space. The Material Safety Data Sheets will be consulted to determine the proper entry procedures if welding or other activities requiring the use of chemicals are to be performed.

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## 6.5 General Types of Spaces

This section provides a general discussion of the common types of confined spaces found at the Branscome Companies. There may be other types of spaces not mentioned here. An assessment is to be conducted annually of all identified confined spaces to determine if circumstances have changed that would lead to a different classification.

### 6.5.1 Silos, Bins, Hoppers Requiring Fall Protection

These areas are used to store materials and process asphalt. They are constructed of metal. Typically, these spaces are entered only for cleaning and maintenance. The access door or panel is normally kept closed but must be opened to inspect and monitor the product. These spaces empty from the bottom and have inwardly converging walls.

### 6.5.2 Silos, Bins, Hoppers Not Requiring Fall Protection

These bins feed the equipment or move aggregate. They are constructed of metal. Typically, these spaces are entered only for cleaning and maintenance, when they are empty of material. The access door or panel is normally kept closed but must be opened to inspect and monitor the product. These spaces empty from the bottom and have inwardly converging walls.

### 6.5.3 Conveyors and Augers

Conveyors move aggregate or asphalt to different points in the process. Workers may open this equipment to clear material that is blocking the process or to return fallen material to the conveyor. If chemical cleaning, welding or cutting operations are being performed in these spaces, it could create a hazardous atmosphere, making them a permit-required confined space.

### 6.5.4 Rail Car Dump

Aggregate is deposited from rail cars into a belowground dump pit where it is deposited on a conveyor. This space contains mechanical hazards and dust. In this space, the mechanical, and electrical can be locked out without entry into the space. If welding or cutting is being done, then full confined space permit procedures must be observed.

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#### 6.5.5 Baghouse and Dust Collectors

The Bag House will normally not be entered except during annual maintenance. These spaces contain mechanical hazards. In this space, the mechanical, and electrical can be locked out without entry into the space. If welding or cutting is being done, then full confined space permit procedures must be observed.

#### 6.5.7 Dryer Drum

This Dryer Drum dries aggregate at a high temperature. This operation has mechanical, electrical, atmospheric hazards, and temperature hazards.

### 6.6 Signs

#### 6.6.1 Warning Signs and Labels

Access points to all confined spaces shall be prominently marked. Signs shall be maintained in a legible condition. The signs shall contain a warning that a permit is required before entry.

#### 6.7 Reserved

### 6.8 Duties of Personnel

#### 6.8.1 Attendant - The attendant stays outside of the space and monitors the entrant at all times. The attendant must:

- Know and understand the hazards that may be faced during entry;
- Remain outside the space during entry operations until relieved by another attendant;
- The attendant will have no other duties that may distract his attention from the work or require him to leave his post at the confined space at any time;
- Monitor the activities and conditions inside the space, and provide external assistance to those in the space;
- Maintain some form of contact with personnel in the confined space. Visual contact is preferred, if possible;
- Ensure that unauthorized personnel do not enter the space or perform activities that may increase the risk to entrants;
- Order personnel within the space to exit immediately if irregularities are observed, such as subtle behavioral changes in entrants, changes in

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speech patterns, variations in established communication procedures, and inappropriate actions by unauthorized personnel;

- Be knowledgeable in the method for contacting rescue personnel and immediately initiate those contacts in the event of an emergency; and
- In the event of an emergency, NEVER enter the confined space; instead, contact emergency/rescue services.

6.8.2 Entrant - The entrant is the person who enters the confined space to perform work. The entrant must:

- Know and understand the hazards of the specific confined space;
- Properly use the equipment required for a safe entry;
- Communicate with the attendant as necessary and as required;
- Comply with the requirements of this procedure and any applicable confined space entry permits; and
- Exit from the space immediately if an order to evacuate is given by the attendant or entry supervisor, any warning signs or symptoms of exposure are recognized, or a prohibited condition is detected, or an evacuation alarm is activated.

6.8.3 Entry Supervisor - The Entry Supervisor performs oversight and verification activities to ensure that entry requirements are fully implemented. Specific duties of the Entry Supervisor are as follows:

- Know and understand the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of exposure to atmospheric hazards and the types and injury potential of physical hazards anticipated;
- Ensure all entrant understand the requirements of entry into the space.
- Verify that all entries on the permit have been completed, all monitoring/testing has been conducted, and all procedures and equipment necessary to affect safe entry are in place prior to endorsing the permit and allowing the entry to begin;
- Verify that emergency/rescue services are available and that the means for summoning them are operable;
- Remove or arrange for removal of unauthorized personnel who enter or attempt to enter the space during entry operations;
- Ensure that entry operations remain consistent with the acceptable entry conditions and permit requirements at all times;
- Maintain or turn over canceled Confined Space Entry Permits for review, follow-up, and placement into the Department's files; and

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- Terminate the entry and cancel the permit as required upon completion of task, expiration of the permit period, or upon evacuation of the space due to unforeseen circumstances or emergencies.

## 6.9 Permits

- 6.9.1 Purpose - The Confined Space Entry Permit is an essential part of the Confined Space Program for ensuring safety during entry in confined spaces. The entry permit process guides the supervisor and workers through a systematic evaluation of the space to be entered.
- 6.9.2 Full Completion of Permit - Before each entry into a confined space, an entry permit will be completed. The contents of the permit will be communicated to all employees involved in the operation, and the permit will be posted conspicuously near the work location.
- 6.9.3 **A standard entry permit shall be used for all entries.** The permit form is located in **Appendix B - Confined Space Entry Permit.**
- 6.9.4 Permit Duration - A permit is only valid for one shift. For a permit to be renewed, the following conditions shall be met before each reentry into the confined space:
- The Entry Supervisor shall verify that all precautions and other measures called for on the permit are still in effect; and
  - Only operations or work originally approved on the permit shall be conducted in the confined space.
- 6.9.5 New Permits - A new permit shall be issued whenever changing work conditions or work activities introduce new hazards into the confined space.
- 6.9.6 Cancelled Permits - After expiration of the permit, it shall be returned to the Safety Specialist. Canceled entry permits must be retained for at least one (1) year to facilitate the review of the Confined Space Entry Program. Any problems encountered during an entry operation shall be noted on the permit(s) so that appropriate revisions to the confined space program can be made.

## 6.10 Standard Entry Procedures

- 6.10.1 The entire confined space entry permit shall be completed before a standard entry. Entry shall be allowed only when all requirements of the permit are



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met and it is reviewed and signed by an Entry Supervisor. The following conditions must be met prior to standard entry:

- Affected personnel shall be trained to establish proficiency in the duties that will be performed within the confined space;
- The internal atmosphere within the confined space shall be tested by a competent person with a calibrated, direct-reading instrument;
- Personnel shall be provided with necessary PPE as determined by the Entry Supervisor; and
- All additional control measures will be implemented to protect from other physical hazards.

6.10.2 Opening a Confined Space - Any conditions making it unsafe to remove an entrance cover shall be eliminated before the cover is removed. When entrance covers are removed, the opening shall be promptly guarded by a railing, temporary cover, or other temporary barrier that will prevent anyone from falling through the opening. This barrier or cover shall protect each employee working in the space from foreign objects entering the space. If it is in a traffic area, adequate barriers shall be erected.

6.10.3 Atmospheric Testing - Atmospheric test data is required prior to entry into a confined space for two distinct purposes:

- evaluation of the hazards of the space; and
- verification that acceptable conditions exist for entry into that space.

Results of testing shall be recorded on the permit by the person performing the tests. The atmosphere shall be periodically retested to verify that atmospheric conditions remain within acceptable entry parameters.

6.10.4 The internal atmosphere shall be tested with a calibrated, direct-reading instrument for oxygen, flammable gases and vapors, and potential toxic air contaminants.

All testing equipment shall be approved by a nationally recognized laboratory, such as Underwriters Laboratories or Factory Mutual Systems.

6.10.5 Acceptable Limits - The atmosphere of the confined spaces shall be considered to be within acceptable limits when the following conditions are maintained:

- **Oxygen:** 19.5 percent to 23.5 percent;

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- **Flammability:** less than 10 percent of the Lower Flammable Limit (LFL); and
- **Toxicity:** less than the recognized American Conference of Governmental Industrial Hygienists (ACGIH) exposure limits or other published exposure levels [i.e., OSHA Permissible Exposure Limits (PELs) or National Institute of Occupational Safety and Health (NIOSH) Recommended Exposure Limits (RELs)].

6.10.6 Lockout/Tagout - All energy sources that are potentially hazardous to confined space entrants shall be secured, relieved, disconnected, and/or restrained before personnel are permitted to enter the confined space. Equipment systems or processes shall be locked out and/or tagged out as required by Branscome Companies Lockout/Tagout Program prior to permitting entry into the confined space.

Where there is a need to test, position, or activate equipment by temporarily removing the lock or tag or both, it shall be done in accordance with the Lockout/Tagout Program.

6.10.7 Means for safe entry and exit shall be provided for confined spaces. Each entry and exit point shall be evaluated to determine the most effective methods and equipment that will enable employees to safely enter and exit the confined space.

Appropriate retrieval equipment or methods shall be used whenever a person enters a confined space. Use of retrieval equipment may be waived if use of the equipment increases the overall risks of entry or does not contribute to the rescue. A mechanical device shall be available to retrieve personnel from vertical confined spaces greater than five (5) feet in depth.

## 6.11 Reclassification

6.11.1 Criteria - A permit-required confined space may be reclassified as a non-permit confined space if it meets the following criteria:

- If the space poses no actual or potential atmospheric hazards and/or
- The hazard within the space may be eliminated without entry into the space. Most commonly, these mechanical and electrical hazards can be locked out from outside the space.

6.11.2 Documentation - In order to reclassify the space, the basis for determining that all hazards have been eliminated must be documented.

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## 6.12 Rescue and Emergency Services

6.12.1 Self-Rescue - Self-rescue is performed by the entrant when they recognize a developing hazard in the space and/or observe signs and symptoms of chemical exposures or lack of oxygen.

6.12.2 Non-Entry Rescue - Non-entry rescue using a retrieval system or other such methods may be used whenever an authorized entrant enters a permit space, unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant. Retrieval systems must meet the following requirements:

- A chest or full body harness, with a retrieval line attached at the center of the entrant's back near shoulder level, above the entrant's head, or at another point which presents a profile small enough for the successful removal of the entrant; and
- The other end of the retrieval line is attached to a mechanical device or fixed point outside the permit space in such a manner that rescue can begin as soon as the rescuer becomes aware that rescue is necessary.
- **A mechanical device is required to retrieve personnel from vertical type permit spaces more than 5 feet deep.**

6.13.3 Rescue Teams - In event of an emergency, where there are not on-site rescue personnel or retrieval devices, arrangements may be made for off- site rescue and emergency services. If used, this service must be informed of the hazards they may encounter if they are summoned.

6.13.4 Off-Site Rescue – Branscome will provide the rescue team or service selected with access to all permit spaces from which rescue may be necessary so that the rescue service can develop appropriate rescue plans and practice rescue operations

## 7.0 Training

7.1 Training shall be provided to each employee involved in the Confined Space Entry Program:

- Before the employee is first assigned duties involving a confined space;
- Before there is a change in assigned duties;
- When there is a change in permit space operations that presents a hazard for which an employee has not been trained; or

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- When the supervisor or management has reason to believe that there are deviations from the confined space entry procedures that are required in this program, or that are inadequacies in the employee's knowledge or use of these procedures.

The training shall establish employee proficiency in the duties required in this program, and shall introduce new or revised procedures, as necessary, for compliance with this program.

- 7.2 All employees who enter confined spaces or facilitate the entry shall be trained in entry procedures. Personnel responsible for supervising, planning, entering, or participating in confined space entry and rescue shall be adequately trained in their functional duties prior to any confined space entry. Training shall include:
- Explanation of the general hazards associated with confined spaces;
  - Discussion of specific confined-space hazards associated with the facility, location, or operation;
  - Reason for, proper use, and limitations of personal protective equipment and other safety equipment required for entry into confined spaces;
  - Explanation of permits and other procedural requirements for conducting a confined space entry;
  - A clear understanding of what conditions would prohibit entry;
  - Procedures for responding to emergencies;
  - Duties and responsibilities of the confined space entry team; and
  - Description of how to recognize symptoms of overexposure to air contaminants, and method(s) for alerting the Attendant(s).
- 7.3 Refresher training shall be conducted as needed to maintain employee competence in entry procedures and precautions.
- 7.4 Training for atmospheric monitoring personnel shall include proper use of monitoring instruments, including instruction on the following:
- Proper use of the equipment;
  - Calibration of equipment;
  - Sampling strategies and techniques; and
  - Exposure limits (PELs, TLVs, LELs, UELs, etc.)
- 7.5 Periodic assessment of the effectiveness of employee training shall be conducted by the Safety Specialist. Training sessions shall be repeated as often as necessary to maintain an acceptable level of personnel competence.

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7.6 When a training session is held, the training will be documented with an attendance sheet showing the employee's name, topic of training, date of training, and the trainer's signature. This documentation shall be retained for 5 years from the date of the training.

## 8.0 Program Review and Documentation

8.1 The confined space program shall be reviewed at least annually using the canceled permits from the preceding twelve months. The program shall be modified as required.

8.2 Appendices

8.2.1 Appendix A: Confined Space Assessment

8.2.2 Appendix B: Confined Space Entry Permit

8.2.3 Deleted - Appendix C: Certification of Reclassification or Alternate Procedures

8.2.4 Appendix D: Confined Space Evaluation Form

## 9.0 Document History

<b>Number</b>	<b>Effective Date</b>	<b>Purpose</b>	<b>Author</b>
Original	May, 2006		
Revision 1	January, 2012	Program Revision	Alvin Trotman
Revision 2	July, 2013	Delete Section 6.7.3 to remove "Head & Shoulders Entry" reference.	Alvin Trotman
	July, 2014	Annual Review. No Changes	Alvin Trotman
	June, 2015	Annual Review. No Changes	Alvin Trotman
Revision 3	October 2016	Reflection of title changes	Alvin Trotman
Revision 4	May 2017	Delete Section 6.7 6.8.3 Revised to include Entry Supervisor addition, "Ensure all entrant understand the requirements of entry into the space." 8.2.3 – Delete reference to Appendix C. 6.11.2 – Deleting " A certification form for this purpose including the date, the location of the space, and the signature of the person making the decision, is located in Appendix C.	Alvin Trotman