Document Revision Change Table

Revision Number	Revision Description	Revised By	Revision Date
013	Update procedure to disallow instrument air to be used by confined space air movers	G. Dawson	8/05/15
013	Procedure Review No Changes	G. Dawson	12/2016
013	Procedure Review No Changes	G. Dawson	12/2017
014	Procedure Review. Made changes to describe the current way Beaumont manages Confined Spaces.	G. Dawson	10/2018
015	Attachment C revisions: Changed Hagemeyer name to Vallen, corrected grammar and spelling	R. Underdown	04/09/19
016	Revised format, revised attachments	R.J. Sumrall	08/16/19
	Procedure Review	G. Dawson	12/07/20
	Procedure Review	G. Dawson	12/22/21
	Procedure Review	G. Dawson	11/15/22
017	Update Procedure to allow certain reclassification of confined spaces see 2.19, 4.8 & 4.9	G. Dawson	08/23/23
	Annual Procedure Review	G. Dawson	12/10/24
	Annual Procedure Review – Reformatted and added clarification for ventilation in confined spaces.	G. Dawson	11/10/25
018	Removed physical forms from the end of the procedure and added hyperlinks to access the latest versions in SharePoint – see attachments A, B, C & D page 27	G. Molandes	3/18/26

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`1. PURPOSE

To establish standard work practices and procedures for entering and working within Confined Spaces by BASF Beaumont Site personnel, Contractor Employee, and Contracted Employee.

2. DEFINITIONS

2.1 Attendant

An individual stationed outside one or more permit spaces who monitors the Authorized Entrants and who performs all Attendant's duties required by the site Confined Space Entry program.

2.2 Authorized Entrant

An individual who is authorized by the site Confined Space Entry program to enter a Confined Space.

2.3 Bodily Enter

For the purpose of confined space evaluation, means that a potential Authorized Entrants entire body (including head, torso, and all extremities) can pass through an opening and fit within the space in question and perform assigned work.

2.4 Contractor/Agency

A company which will be either placing or bringing Contractor(s), Temporary Employee(s) or Contractor Employee(s) onto a BC site.

2.5 Contracted Employee

A Contracted Employee is an individual or group of individuals for whom BC provides direct supervision in their day-to-day activities and direction as to how an activity is to be performed.

2.6 Contractor Employee

An individual engaged by or through a third party to perform services principally for the third party and for whom BC does not provide direct supervision in their day-to-day activities and direction as to how an activity is to be performed.

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2.7 Confined Spaces

Spaces (such as, tanks, vessels, bins, silos, boilers, vaults, pits, ditches, or sewers) that;

- Are large enough and so configured that a person can Bodily Enter and perform assigned work; and
- Has Limited or Restricted Means of Entry or Exit,
- Are not designed for continuous employee occupancy.

2.8 Limited or Restricted Means of Entry or Exit

The inability to walk upright through a space and or has significant obstructions within the space that would impede an entrant's ability to exit the space.

2.9 Entry

The action by which a person passes through an opening into a Confined Space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.

2.10 Entry Rescue

A Confined Space Rescue that must be performed by having the Rescue Team enter the confined space.

2.11 Entry Supervisor

The person (such as, supervisor, resource personnel, operations owner or crew leader) responsible for determining if acceptable Entry conditions are present at a Confined Space, authorizing Entry and overseeing Entry operations and terminating Entry activities, if required.



NOTE:
At the Beaumont site, the owning department's supervisor or operator/technician qualified for that work area may act as the entry supervisor.



NOTE:
An Entry Supervisor also may serve as an attendant or as an authorized entrant, as long as that person is trained and equipped as required for each role he or she fills. Also, the duties of Entry Supervisor may be passed from one individual to another during the course of an entry operation.

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2.12 Explosive Atmosphere

A range of concentrations of gases, dusts, or fibers with air that can support ignition. The range of concentrations is material-specific. The range for a material may vary based on pressure, temperature, and oxygen content.

2.13 Hazardous Atmosphere

An atmosphere that may expose personnel to the risk of death, incapacitation, and impairment of ability to self-rescue, injury or acute illness from one or more of the following causes;

- Flammable gas, vapor or mist in any detectable concentration using a calibrated combustible gas indicator operating in the percent range of sensitivity.
- Airborne combustible dust at a concentration that meets or exceeds its lower flammable limit. This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet (1.52 m) or less.
- Atmospheric oxygen concentration below 19.5 percent or above 21.0 percent.
- Atmospheric concentration of any substance for which a dose or permissible exposure limit is published in **29 CFR 1910 Subpart G, Occupational Health and Environmental Control or in Subpart Z, Toxic and Hazardous Substances**, and which could result in the employee exposure in excess of its dose or permissible exposure limit.
- Any other atmospheric condition that is immediately dangerous to life or health.



NOTE:
For air contaminants for which OSHA has not determined a dose or permissible exposure limit, other sources of information; such as, Safety Data Sheets, ACGIH TLVs, published information, and internal documents may provide guidance in establishing acceptable atmospheric conditions.

2.14 Immediately Dangerous to Life or Health ("IDLH")

Any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape unaided from a permit space. Included in this definition is an oxygen deficient atmosphere containing less than 19.5 percent oxygen by volume. (Refer to the NIOSH Pocket Guide to Chemical Hazards for IDLH limits for toxic chemicals which is available from NIOSH.)

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2.15 Operating/Owning Department

The BASF unit or department that operates or is responsible for the daily operation of the process, area, or facility where work is being conducted.

2.16 Monitoring

The process by which the hazards, that may confront entrants in the space, are identified and evaluated.

2.17 Non-entry rescue

The ability to facilitate non entry rescue by means of retrieval systems or other methods.

2.18 Permit System

The site's written procedure for preparing and issuing permits for Entry and for returning the permit space to service following termination of Entry.

2.19 Reclassification

The process of changing a classification of a Confined Space permitted confined space to a Safe Work Permitted confined space by means of eliminating the non-atmospheric hazard(s).

Spaces that have any potential for atmospheric hazards shall not be reclassified to Safe Work Permitted confined spaces. Control of atmospheric hazards through forced air ventilation does not constitute elimination of the hazard.

2.20 Re-issue a Permit

Means to void the previous permit for work and issue a new permit.

2.21 Re-validate a Permit

Means to review the conditions for work specified on the permit, ensure that they are still met and secure the appropriate signatures and approvals.

2.22 Rescue Plan

A pre-plan established prior to confined space entry. The plan will include; type of entry, names of rescue team personnel notified, method of rescue, equipment required to perform rescue and location of stated equipment.

2.23 Rescue Service

Personnel designated to rescue personnel from Confined Spaces.

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2.24 Retrieval System

The equipment including a retrieval line, chest or full-body harness, wristlets (if appropriate) and a lifting device or anchor used for non-Entry rescue of persons from permit spaces.

3. SCOPE

This procedure applies to all BASF employees, contract employees, and contractors whose work involves confined space entry at the Beaumont Site.

4. PROCEDURE

4.1 General Requirements

4.1.1 Evaluation

Each Confined Space must be evaluated to determine the potential for hazards according to the intended service or use, not after a given hazard(s) has been eliminated or controlled. If any of the following apply, these confined spaces can only be entered by the issuance of a Confined Space Entry Permit.

- Does the confined space contain or have the potential to contain a Hazardous Atmosphere (such as having held flammable, explosive, acidic, caustic, toxic materials) or where oxygen enriched, or deficient atmospheres or noxious odors may exist?
- Does the confined space contain a material that has the potential for engulfing an entrant?
- Does the confined space have an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section?
- Does the confined space contain any other recognized serious safety or health hazards; such as ionizing radiation, electric shock, temperature, or moving parts?

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4.1.2 Confined Space Identification

Equipment Identification

All equipment considered to be a confined space will have the following sign posted at the entry point if the space is accessible. If the space isn't easily accessible (i.e. vessel where space is bolted up and not designed to be accessible from ground floor/fixed platform) it will only have a sign on it once the space becomes accessible through the Safe Work permitting process. A list of all the area confined spaces will be kept by the area in which the confined space exists. Training will be provided to site to reflect the way confined spaces are managed for the Beaumont site.



4.1.3 Authorization

No person shall enter any Confined Space falling within the scope of this procedure without the prior written approval of the Operating/Owning Entry Supervisor (an authorized Operations area rep) of the area in which the Confined Space is located. In addition, there must also be a 4 Eyes sign off by another authorized Operations area rep. All Confined Spaces on the Beaumont site require a Confined Space Entry Permit.

4.1.4 Annual Program Review

The written program shall be reviewed at least annually to ensure that the procedures and requirements are being followed.

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4.1.5 Employee Participation

The Beaumont Site shall consult with affected employees and their representatives in the development and implementation of this program and provide all information regarding the site's Confined Space program.

Examples include but are not limited to:

- Safety Meetings
- Rescue drill critiques
- Employee suggestions
- Accident / Incident report investigations follow-up
- Training sessions

4.2 Confined Space Permits

4.2.1 Issuance and Authorization

- The Operating/Owning area technician shall complete the Confined Space Permit and ensure that all pre-entry preparations have been completed.
- Prior to authorization of the permit the Entry Supervisor and representative personnel involved in the Entry shall;
  - personally, inspect the confined space preparation,
  - review precautions taken,
  - review personal protective equipment to be used,
  - review procedures to be followed and instructions for all personnel involved in the assignment,
  - ensure the permit is located at the work site,
  - provide an opportunity for the confined space entrant or their authorized representatives to observe pre-entry and periodic monitoring of the atmosphere, and
  - re-evaluate the confined space in the presence of any authorized entrant or their representative upon requests by either if they have reason to believe that the initial evaluation may not have been adequate.
- The Operating/Owning Supervisor shall approve a Confined Space Entry permit for the respective Confined Space.

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4.2.2 Content

The Entry permit shall, at a minimum, include the following information:

- identification of the Confined Space and purpose of Entry,
- date and authorized duration of Entry,
- list of names authorized to enter and names of Attendants,
- name of individual currently serving as Entry Supervisor,
- signature of Entry Supervisor who originally authorized Entry,
- list of the hazards and the isolation and control methods,
- acceptable Entry conditions,
- initial and periodic Monitoring results with initials of tester and time of test,
- Identification of Rescue Service and method of communication,
- Entry equipment required; other permits required; and
- an area for additional information/comments.

Confined Space Permits are kept onsite at the Vallen Shop.

4.2.3 Special Procedures & Instructions

Where there exists any requirement for special procedures or instructions, it shall be noted on the Confined Space Entry permit. These instructions must be complied prior to the issuance of the Confined Space Entry permit.

4.2.4 Duration

4.2.4.1 A Confined Space Entry permit shall be valid only for the time required to complete the job, the specific location and time identified on the permit.

4.2.4.2 Any personnel changes concerning Attendants and Authorized Entrants shall be documented on the permit by an Entry Supervisor.

4.2.4.3 If a change in Entry supervision occurs, the on-coming Entry Supervisor must revalidate or reissue the Entry permit and inform \ representative personnel involved in the Entry of the change in supervision.

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4.2.5 Completed Confined Space Entry Permits

- Upon completion or discontinuation of the Entry, the completed Confined Space Entry permit shall be returned to the Operating/Owning department supervision.
- Completed permits shall be reviewed to determine the effectiveness of the site program
- Any problems encountered during an Entry shall be noted on the permit so that appropriate revisions to the site program can be made.
- Completed permits shall be retained at an interval no greater than one year to facilitate the program review stated in Section 4.8
- Contractor Employee shall be debriefed concerning the entry and any hazards that were created or confronted during Entry at the end of any Entry operation.

4.3 Preparation and Isolation

4.3.1 Isolation Techniques

The Confined Space shall be isolated from all adjoining piping including drains and overflow lines in order to ensure that liquids, solids, vapors, or gases do not enter the Confined Space. A line shall be deemed isolated if one or more of the following steps are taken:

- A **blank or blind** has been inserted in the line. Blanks must be of construction and thickness to sustain the maximum line pressure. The blank or blind must be tagged with a pink and black BLIND tag along with the LT&T RED Tag if used as an isolation device. In addition, fill the BLIND tag out and tear the perforated section off and place with the Lockout Package. The other section of the BLIND tag will be tagged in field.
- The line has a **double block and bleed** where the two block valves are closed; the bleed is opened, and locks and tags are applied to all valves as required by the site Control of Hazardous Energy procedure.
- Lines are **disconnected and are misaligned** from the Confined Space.
- The block valves in a line to jackets, coils, reboilers and similar items which in themselves are not open to the area in which work is to be performed are closed and lockout/ tagout applied. The only exception would be the use of external cooling water on vessel jackets or coils during hot weather.
    - Lines going to jackets, coils, re-boilers are closed or locked and tagged, given the fact that the jackets and coils will not leak into the space

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Isolate as close as possible to the Confined Space to prevent dead legs of contaminants from entering the space.

- All energy isolation devices used to isolate the Confined Space shall be documented on the Equipment Specific Hazardous Energy Control Procedure and the Tagout sheet. Prior to authorization of the Confined Space Entry, the Entry Supervisor and an Entrant representative shall verify proper isolation of the space by signing off by each isolation point represented on the Tagout sheet.

4.3.2 Power Sources

If the Confined Space contains internal power-driven mechanisms, such as agitators, all switch gear and other power sources shall be " locked, tagged and tried" in conformity with the site Control of Hazardous Energy procedure.

4.3.3 Decontamination

The Confined Space along with other inter-connecting equipment should be cleaned by washing, neutralizing or purging to eliminate corrosive, noxious, poisonous or flammable/combustible material.

4.3.4 Radioactive Devices

Radioactive devices such as level detectors shall be secured to prevent exposure during the Entry in conformity with the existing BC032.014, Control of Hazardous Energy procedure.

4.3.5 Sign Posting & Barricades

When necessary to prevent unauthorized personnel from accidentally entering the Confined Space area, the area immediately surrounding the working area shall be posted with signs or barricades cautioning of the on-going entry.

4.4 Entry

4.4.1 Communication

Communications (visual, audio, verbal or signal line) shall be maintained between all individuals involved in the Entry and the Attendant. The Attendant may ***not*** monitor more than one Confined Space at a time. A deviation can be requested for this in approved cases. See the Safety Department. For deviation approval.

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4.4.2 Entry Supervisor Responsibilities

The Operating/Owning Entry Supervisor shall authorize entry into the Confined Space by signing the Confined Space Permit.

- Determine whenever responsibility for a permit space entry operation is transferred and at intervals dictated by the hazards and operations performed within the space that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.
- Prior to authorization of the Confined Space Entry permit, the Entry Supervisor and representative personnel involved in the Entry shall:
  - Personally, inspect the Confined Space preparation.
  - Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences.
  - Verify, by checking that the appropriate entries have been made on the Confined Space permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before signing the Confined Space permit and allowing entry to begin.
  - Provide an opportunity for the Authorized Entrant or their Authorized representative to observe pre-entry and periodic Monitoring of the atmosphere.
  - Review precautions taken.
  - Verify that rescue services are available and that the means for summoning them are operable.

Throughout the activities, the Entry Supervisor shall:

- Ensure the permit is located at the work site.
- Review procedures to be followed and instructions for all personnel involved in the assignment.
- Re-evaluate the Confined Space in the presence of any Authorized Entrant or their representative upon request by either if they have reason to believe that the initial evaluation may not have been adequate.
- Remove unauthorized individuals who enter or who attempt to enter the Confined Space during entry operations.
- Terminate the entry and cancels the Confined Space Entry permit when hazards or conditions warrant.

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4.4.3 Attendant Location and Responsibilities

When personnel are working within a Confined Space, a trained Attendant shall be immediately outside the space. The Attendant responsibilities include but are not limited to;

- Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.
- Be aware of possible behavioral effects of hazard exposure in Authorized Entrants.
- Maintain an accurate count of Authorized Entrants in the confined space.
- Remain outside the permit space during entry operations until relieved by another attendant.
- Communicate with Authorized Entrants as necessary to monitor entrant status and alert entrants of the need to evacuate the space.
- Monitor confined space activities and orders the Authorized Entrants to evacuate the permit space immediately under any of the following conditions;
  - Condition which is prohibited;
  - Behavioral effects of Authorized Entrant hazard exposure;
  - Situation outside the confined space which could endanger Authorized Entrants; or
  - Attendant cannot effectively and safely perform all required duties.
- Summon rescue and other emergency services.
- Take the following actions when unauthorized persons approach an entry in progress;
  - Warn unauthorized persons,
  - Advise unauthorized persons to exit immediately if they have entered the confined space; and
  - Inform Authorized Entrants and Entry Supervisor if unauthorized persons have entered the confined space.
- Perform non-entry rescues if specified by Rescue Plan Guidelines.
- Perform no duties that might interfere with primary duty to monitor and protect Authorized Entrants.

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4.4.4 Entrant

The Authorized Entrant responsibilities include but are not limited to;

- knowing the hazards that he/she may face upon entry, including information on the mode, signs, or symptoms and consequences of the exposure;
- properly using equipment as required by this document such has PPE, lighting, and ventilation;
- communicating with the Attendant as necessary to enable the Attendant to monitor Entrant status and to enable the Attendant to alert Entrants of the need to evacuate the space;
- alerting the Attendant whenever;
  - The Authorized Entrant recognizes any warning sign or symptom of exposure to a dangerous situation, or
  - The Entrant detects a prohibited condition.
- exiting from the Confined Space as quickly as possible whenever;
  - The Attendant or the Entry Supervisor gives an order to evacuate, or
  - The Entrant recognizes any warning sign or symptom of exposure to a dangerous situation, or
  - The Authorized Entrant detects a prohibited condition, or
  - The evacuation alarm is activated.

4.4.5 Equipment Requirements for Attendants

During a confined space entry, the attendant shall possess;

- Air monitoring equipment; and
- A radio that can directly contact the Owning/Operating Dept; and
- An orange work vest; and
- A working air horn; and
- Confined space entry signs; and
- Have the same level of respiratory protection as the entrants ***(have available in case needed).***

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4.4.6 Ladder Use

When a portable ladder or stairs are required to enter a Confined Space, the equipment shall be;

- Inspected,
- suitable for the type of space and
- readily available for exit to anyone in the space.

4.4.7 Electrical Equipment Use

All electrical equipment used inside a Confined Space shall be;

- consistent with the area classification
- in a safe condition and
- grounded or double insulated.

Lighting is "approved" for low voltage units or extension cords and shall be equipped with a functional ground fault circuit interrupter. All temporary lighting shall be equipped with guards to prevent contact with the bulb.

- Vapor-proof flashlights may also be used.

4.4.8 Ventilation

Ventilation shall be provided for All Confined Space Entry Jobs.

- Ventilation shall be provided during Entry into a Confined Space where it is necessary to reduce concentrations of gases and vapors (refer to Section 4.4.9 for specific requirements).
- Ventilation shall also be necessary where excessive heat or humidity may be present.
- When ventilation (draft / forced) is used during the Confined Space Entry, a minimum distance of 35 ft. shall be maintained between any internal combustion type engine and the air intake of the ventilation system and all confined space openings. Examples; Welding machine, compressor motor/driver, vehicle or mobile equipment.
- Site Instrument/Utility Air is backed up by nitrogen, thus it **Shall Not** be used for air blowers in confined space applications. A separate mobile compressor must be used to provide ventilation for all confined space jobs.

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NOTE:
Wind direction, equipment, and other obstacles that may affect/enhance a wind direction should also be considered prior to placement of any internal combustion type engine.

4.4.9 Welding & Cutting in Confined Space

Welding/Cutting in Confined Spaces shall be in compliance with;

- Site Hot Work Standard practices, and
- Site Personal Protective Equipment Standard practices.
- Welding activities in Confined Spaces must include but are not limited to be the following provisions:
- Gas cylinders and welding machines shall remain on the outside during welding or cutting operations.
- When welding equipment is unattended, electrodes shall be removed from holders and located to prevent accidental contact.
- The machine shall be disconnected from the power source.
- Local exhaust or general ventilation to maintain toxic fumes, gases, or dust below the OEL specified in the BASF Exposure Assessment Occupational Exposure Limit Reference Value Determination in establishing acceptable occupational exposure limits. In situations in which local exhaust or general ventilation is not sufficient or feasible, approved air-line respiratory protection must be provided.
- Mechanical ventilation shall be used when the following spaces have:
  - an area fewer than 10,000 cubic feet per welder,
  - ceiling under 16 feet,
  - an internal configuration that prohibits or obstructs cross-ventilation general ventilation rate of 2,000 cubic feet per minute per welder except where local exhaust hoods and/or booths (provide welders with a rate of air flow sufficient to maintain a velocity in the direction of the hood of 100 linear feet (30m) per minute in the zone of welding when the hood is at its most remote distance from the welding) are used or when NIOSH-approved air-line respiratory protection is used.

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4.4.10 Entry into Tank Cars & Tank Trucks

- No person shall enter any railroad tank car or tank truck without the prior approval of the Operating/Owning Supervisor over the area where the work is to be performed using a properly executed Confined Space Entry permit.
- Prior to commencing tank car and/or tank truck Entry preparation, the tank car or tank truck shall be secured.
- For tank cars, derails must be set, track signs or flags set, and wheels chocked.
- Tank trucks must have wheels chocked and hand brakes set.

4.4.11 Atmospheric Conditions

A. Oxygen

- Where the level of oxygen is between 19.5% and the normal 21% and the integrity of the atmosphere cannot be guaranteed, an air-line respirator or self-contained breathing apparatus ("SCBA") shall be used.
- Where the level of oxygen is found to be below 19.5% and corrective actions do not alleviate the situation, a SCBA or pressure-demand air-line respirator with an emergency egress bottle shall be used.
- Under no circumstances shall a routine Entry be made into an atmosphere containing less than 16.0% oxygen.
- Entry into inert atmospheres requires authorization of Beaumont facility manager or designee and Safety Specialist or designee.



NOTE:
Please refer to Attachment C Breathing Air Guidelines for use of breathing air.

B. Enriched Oxygen

- Atmospheres found to have enriched oxygen supplies (greater than 21%) require appropriate action to reduce the level to 21%. Excess oxygen can extend the flammable range of gases and vapors and can also make combustible materials ignite and burn rapidly.

C. Flammable Gases/Vapors

- Confined Spaces containing detectable flammable gases/vapors using a combustible gas indicator operating in the percent range of sensitivity shall not be entered.

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D. Generation of Flammable Gases/Vapors

- If work activities to be performed in a Confined Space are expected to generate flammable gases/vapors (LEL), continuous ventilation and representative-continuous monitoring are required.
- Entrants must exit the Confined Space immediately if flammable gases/vapors are detected (LEL).
- If flammable gases/vapors are detected, immediate corrective action must be taken to reduce their concentrations; e.g., increased ventilation and reduced rate of vapor generation.

E. IDLH

- When entry is made into an IDLH atmosphere or into a space that could quickly develop an IDLH atmosphere (if ventilation fails or for other reasons), the rescue team or service shall be standing by at the Confined Space.

F. Toxic Substances

- The level of a toxic substance in the Confined Space should be maintained below 25% of the TLV or OSHA PEL (Substances not having established exposure limits will be given an arbitrary upper limit of 100 ppm).
- In those situations where the concentration cannot be maintained below the allowable limit appropriate personal protective equipment "PPE" (e.g., respiratory protection)) shall be used by all personnel within the Confined Space according to the site/unit respiratory protection program.
- Concentrations of contaminants may be toxic at levels much lower than flammable gas detection; therefore, the requirements for appropriate PPE for these conditions must also be evaluated and implemented.

G. Particulates

- Confined Spaces containing airborne combustible dust at a concentration that obscures vision at five feet or less shall not be entered.

H. Physical Hazards

- Heat, humidity, and cold stress hazards during Confined Space Entry shall be controlled to prevent adverse health effects to Authorized Entrants.

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4.5 Monitoring

4.5.1 Maintenance & Calibration

Combustible Gas monitors shall be 'bump' or span tested once daily and signed off as being bump tested. Calibrations shall be performed in accordance with the manufacturer's recommendations. Calibration shall be performed against a known concentration of test gas for each oxygen gas, flammable gas/vapor and toxic gas/vapor/mist of concern. The calibration date shall be noted on the instrument.

4.5.2 Instrument Tolerances

Instrument calibration and subsequent Monitoring prior to Entry shall allow for normal acceptable instrument deviations as determined by the manufacturer.

4.5.3 Sequence

The atmosphere of all spaces shall be tested in the following order;

- oxygen content,
- flammable gases/vapors,
- toxic gases/vapors/mists and
- observation for combustible dusts.

4.5.4 Frequency

Initial

- All initial Monitoring for atmospheric conditions shall be conducted as close to Entry time as possible and at no time shall it exceed two hours prior to entry.
- If the space is unoccupied due to work breaks or delays, Monitoring shall be performed as close to Entry time as possible and at no time shall it exceed two hours prior to entry.
- Various levels or sections of the Confined Space shall be checked to account for oxygen being displaced by gases heavier or lighter than air.

Periodic or Continuous

- The atmosphere in the Confined Space shall be monitored continuously during the Entry activities for oxygen.

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- The atmosphere in the Confined Space shall be monitored continuously during the Entry activities for flammable gases/vapors/particulates when work activities to be performed in a Confined Space are expected to generate flammable gases/vapors/particulates or when the confined space has contained flammable gases/vapors. In situations where continuous monitoring is technically infeasible, pre-determined periodic monitoring shall be conducted as appropriate.
- Confined Spaces that contain toxic gases/vapors/mists shall be evaluated to determine the appropriate sampling frequency that will accurately assess the atmospheric exposure.

4.5.5 Documentation

- The following must be documented on the Entry permit:
  - Monitoring instrument calibration date and equipment identification.
  - Confined Space atmosphere monitoring results, including the time of the tests and the tester's initials.
  - All test results must be documented on the permit every two hours.
- Results of air monitoring that indicate the atmosphere the employee entered, including oxygen concentration below 19.5% and flammable gases/vapors and toxic materials above zero ppm. The results are considered IH exposure records subject to recordkeeping requirements.
- Results and corrections from the annual program review shall be documented and retained until the next review.



NOTE:
Refer to BASF Records Retention Policy, BC037 and BASF Exposure Assessment Work Process BWP-008 in Section 6 Related documents.

4.6 Rescue

4.6.1 Retrieval System

- A Retrieval System shall be used whenever an Authorized Entrant enters a Confined Space unless the retrieval equipment would increase the overall risk of Entry or would not contribute to the rescue of the entrant.

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- The Retrieval System shall consist of a chest or full body harness with a retrieval line in good condition attached to the entrant at any point which presents a profile small enough for the successful removal of the entrant to a fixed point or mechanical device outside the Confined Space.
- When a retrieval system is used a chest or full body harness shall be donned before entering any Confined Space where Entry is through a manway or other restricted opening. A designated full body harness with shoulder “D-Rings” shall be required for vertical entries.
- A mechanical device shall be used for vertical type Confined Spaces more than five feet deep.
- Wristlets may be used in lieu of a chest or full body harness if the use of the chest or full body harness is infeasible or creates a greater hazard.
- Safety approval must be obtained prior to the exemption of the use of retrieval equipment.

4.6.2 Rescue Services

- The Beaumont site has an on-site rescue team. A minimum of four rescue members must be contacted verbally prior to an Entry. The names of the rescue members are documented on the Emergency Rescue Team Plan.
- Non-Entry rescue shall be used whenever possible.
- A Confined Space rescue plan must be completed, and all requirements of plan must be in-place prior to Entry. (See Attachment A)
- When non-Entry rescue is not possible due to the space configuration or obstructions, any rescue equipment which would be used in an Entry rescue shall be readily available, at or near the Confined Space Entry area, to reduce the response time.
- Any Rescue Entry shall require the use of a supplied-air respirator with a five-minute emergency egress bottle or a SCBA.

4.7 Recordkeeping and Inspection program

4.7.1 The Shift Supervisor/Team Lead

- Will review completed/closed permits for discrepancies and communicate the discrepancies with the permit issuer.
- Any Confined Space Entry which document’s a problem associated with entry will be forwarded to site Safety along with all associated permits and documents.

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4.7.2 Owning / Operating Department Supervision

- All Confined Space Permits, along with their associated Safe work Permits, Hazardous Energy Control Procedures, Lockout/Tagout Sheets, Rescue Plans, etc., issued to a Work Crew shall be filed and retained for a minimum of 1 year.
- At least annually Owning/Operating Department Supervision will conduct a review of this program to ensure that the procedures and the requirements of the standard are being followed. This review will be conducted by inspecting actual procedures in the field and reviewing them with the employees who are following them. Any deficiencies uncovered by these inspections will be corrected and all affected personnel will be trained as necessary.

4.7.3 Site Safety (EHS Team Member)

- All Confined Space permits that document any problems encountered during an Entry and any incident investigation involving Confined Space Entry shall be reviewed by Site Safety. Appropriate revisions to the site program will be made to correct noted deficiencies.
- Annual review of site Confined Space program to ensure that the procedures and requirements are being followed.

4.8 Excavations

Excavations are regulated under a specific OSHA Excavation Standard (29 CFR 1926.650- 652) and are not covered under the OSHA Confined Space standard. Excavation work shall be done under a safe work permit and must ensure precautions are followed as defined under the OSHA 1926.651(g).

Note: Excavations that are **greater than 4 feet deep** and have the potential to have hazardous atmospheres shall be deemed a confined space and work will be performed under a Confined Space Permit.

4.9 Guarding A Space to Prevent Bodily Entrance

If openings to a space can be guarded so that bodily entry is not possible and the guarding prevents the body part from the possibility of injury or illness, the space can be reclassified, and no confined space permit is required. However, this activity must be authorized by the Safe Work Permitting process (e.g., written procedures or a safe work permit).

Note 1: This is not applicable when there is an atmospheric hazard.

Note 2: Partial bodily entry without sufficient guarding must be authorized by confined space permit

4.10 Training

4.10.1 Persons Directly Involved in Entry Operations

Permit issuers, entrants, Attendants, testers or other personnel whose job may require involvement in the Entry of Confined Spaces shall receive and understand training in:

- confined space and hazard identification,
- evaluation techniques,
- appropriate control methods,
- proper use of all associated equipment to successfully effect Entry, and
- their specific roles/responsibilities under the program

Confined Space Permit Issuer training and competency verification shall align with the training and competency verification in N-ID-OSA 024 Safe Work section 4.11 Training.

Persons Not Directly Involved in Entry Operations
Personnel not directly involved in Entry operations who may be exposed to the hazards of Confined Spaces shall receive awareness training to prevent unauthorized Entry.

4.10.2 Rescue Service

- Rescue Service shall receive the same training as Authorized Entrants plus;
  - training in rescue techniques and equipment,
  - the use of personal protective equipment,
  - blood-borne pathogens,
  - first aid, and
  - CPR.
- Each member of the Rescue Service shall receive basic training in first aid and CPR, and at least one member of the service who maintains current certification shall be available at the facility during the Entry with direct means of communication (e.g., radio and telephone) to facilitate a quick response to the Entry location.
- Attendants shall also receive training in non-Entry rescue techniques.

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4.10.3 Confined Space Entry/Rescue Equipment

All equipment required by the Rescue Plan or the permit are to be stationed at the confined space entry point or close enough to the confined space entry point that will ensure easy access to ensure timely delivery of this equipment will occur when need for such equipment is required.

4.10.4 Frequency

- Training shall be delivered in accordance with the EHS curriculum assignment process.
- Personnel shall be retrained whenever deviations or inadequacies to the Confined Space Entry procedure are identified.
- Each member of the Rescue Service shall practice in a Confined Space rescue drill (Entry drill or non-Entry drill), representative of the Confined Spaces at their facility at least once every 12 months with field evaluation to verify competency.

Documentation

Training shall be documented including:

- date of the training,
- trainees' names, and
- means used to verify understanding
- learning objectives for the course.

Training documentation shall be maintained according to BC037, Record Retention Policy and the applicable record retention schedule.

4.10.5 Contractor Employee

- Contractor Employee whose work involves or may be affected by Confined Space Entry shall be informed of the of the site procedure and how the requirements will be applied in addition to having basic Confined Space Entry training from ISTC. Contractor Employees shall be trained in accordance with N-ID-OSA-002, Contractor EHS Qualification and Oversight for training requirements.
- Contractors shall be debriefed concerning the program and any hazards that were created or confronted during Entry at the end of any Entry operation.

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NOTE:
Refer to BASF BC032.002 Contractor Selection Oversight and Safety in Section 6 Related Documents.

4.11 Confined Space Management System Review

The BASF Beaumont site shall review the effectiveness of Confined Space Entry practices at least annually to ensure that the Confined Space Entry management system is properly implemented, and the elements adequately control Confined Space activities.

At a minimum, the following elements of the Confined Space Entry management system shall be included in the review;

- Review the site procedure and permit to ensure all currently required elements are included.
- A review of all incidents and other nonconformance reports involving Confined Space Entry activities that have occurred since the last Confined Space Entry management system annual review. The review should verify root causes have been properly identified and appropriate corrective actions have been implemented.
- Inspection of at least one Confined Space Entry job-in-progress to verify site practices comply with the site procedure. Verification of the training personnel involved in this job-in-progress have received.
- Interviews with a representative number of Permit Issuers, persons performing Confined Space Entry, and other affected employees, including Contractor and Contracted Employees where applicable, to verify they understand their role/responsibility.
- A review of applicable equipment and instrument maintenance and calibration records.

The review shall be documented using Beaumont Confined Space Entry Inspection Form.

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5 RESPONSIBILITIES

- **Site Leadership Team**

  Has primary responsibility for the implementation of this procedure.

- **Unit/Department Manager**

  Develop and maintain list of all confined space locations and hazardous associated with each confined space within the boundaries of each department.

- **HS Manager**

  Has primary responsibility for the initiation, re-issuance, administration, and/or interpretation of this procedure.

- **Site Employees and Contractors**

  Have primary responsibilities for adherence to the procedure including the identification of deficiencies in the procedure, and identifying, reporting and correcting activities not in compliance with this procedure.

6 RELATED DOCUMENTS

BMEHS-002.026 Beaumont Safe work Procedure
BMEHS-002.005 Beaumont Control of Hazardous Energy (Lock Tag and Try) Procedure
N-ID-OSA 017 Confined Space Entry
N-ID-OSA 014 Control of Hazardous Energy (Lock, Tag and Try)
29 CFR 1910, Subpart Q Welding, Cutting and Brazing
29 CFR 1910.146 Permit-required Confined Spaces
29 CFR 1910.1020 Access to Employee Exposure and Medical Records
BWP 008 BASF Exposure Assessment Work Process BWP-008
List of BASF Beaumont Confined Spaces
Beaumont Confined Space Entry Inspection Form

7 ATTACHMENTS

7.1 Attachment A – Emergency Rescue Team Plan Template

7.2 Attachment B - Confined Space Flow Meter Conversion Information

7.3 Attachment C – Breathing Air Guidelines

7.4 Attachment D – Confined Space Entry Inspection

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