DEPARTMENT OF THE ARMY
UNITED STATES ARMY GARRISON BAVARIA
UNIT 28130
APO AE 09114-8130

IMBA-SO

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: USAG Bavaria Confined Space Standard Operating Procedure (SOP)

1. General.

The USAG Bavaria Confined Space Standard Operating Procedure (SOP) contains general requirements for Garrison personnel to enter confined spaces. It will not detail every element of confined space entry. Each Director, Division Chief and/or Supervisor is responsible for tailoring their confined space program to the type(s) of spaces to which their employees are exposed. This SOP is intended to outline practices and procedures to protect personnel from the hazards of confined space entry and permit-required confined spaces. These spaces are not meant for access by untrained personnel.

Examples of locations where confined spaces may occur include, but are not limited to, the following: bins; boilers; pits or shafts (such as elevator, escalator, pump, valve or other equipment); manholes (such as sewer, storm drain, electrical, communication, or other utility); tanks (such as fuel, chemical, water, or other liquid, solid or gas); incinerators; scrubbers; concrete pier columns; sewers; transformer vaults; heating, ventilation, and air-conditioning (HVAC) ducts; storm drains; water mains; precast concrete and other pre-formed manhole units; drilled shafts; enclosed beams; vessels; digesters; lift stations; cesspools; silos; air receivers; sludge gates; air preheaters; step up transformers; turbines; chillers; bag houses; and/or mixers/reactors.

NOTE: This SOP is written in accordance with Federal law and Host Nation safety requirements. At no time can any Commander, Director, Supervisor or employee accept risk by not following the requirements outlined in this SOP.

2. References.

a. 29 Code of Federal Regulations (CFR) 1910.146 Permit-Required Confined Spaces

b. 29 CFR 1926.1200 Subpart AA Confined Spaces in Construction

c. Arbeiten in engen Raumen BGR 534, 117-1,190, and BGI 594, 5028

3. Responsibilities.

a. Commander, (Employer) USAG-Bavaria will:

(1) Ensure Garrison Directors/Chiefs establish and implement a confined space program which includes a written permit-required confined space program and training for entry supervisors, entrants, and attendants. This training must include information on atmospheric monitoring equipment, harness lanyard and extraction equipment, and a listing of all non-permit and permit-required confined spaces including their exact location. The overall program must be designed to inform, train, and protect all Garrison personnel from hazards associated with entering confined spaces.

(2) Ensure funding and resources are made available to implement and maintain the Confined Space Program as outlined herein.

(3) Ensure Garrison employees never enter an “immediately dangerous to life and health” (IDLH) confined space.

(4) Ensure Directors/Chiefs appoint a competent person for the specific permit-required confined spaces employees will enter. See Annex A for qualifications of competent person.

(5) Ensure that Directors/Chiefs have written procedures on who can and when to call the Fire & Emergency Services (FES) for confined space entry and emergency rescue.

(6) Chair an annual Garrison Confined Space Program review meeting. This review may be conducted in conjunction with Garrison Safety and Occupational Health Advisory Council/Federal Employees' Compensation Act (SOHAC/FECA) Meeting.

(7) Direct a confined space rescue exercise at least annually.

(8) Designate the respective DES Fire Protection Division or off-post Host Nation equivalent as the only permit-required confined space entry rescue team. See definitions in Annex A for entry rescue, non-entry rescue, and self-rescue.

NOTE: The Garrison Commander is not responsible for tenant organizations’ confined space procedures or the oversight of their personnel. The Garrison Commander has provided this SOP as the standard all organizations within the Tower Barracks, Rose Barracks, Hohenfels, and Garmisch military communities follow when entering confined spaces.

b. Directors, Chiefs, Supervisors of Garrison personnel and tenant organizations who enter confined spaces will:

(1) Appoint, in writing, a competent person for the specific permit-required confined space employees will enter. A competent person will be one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees and who has the authorization to take prompt corrective measures to eliminate them. Entry supervisors can also act as the competent person. An appointment orders template for the competent person can be found in Annex B.

(2) Establish a confined space entry and permit-required confined space written program and ensure SOP's are established within each work-center that has personnel required to enter and perform work in these areas. The SOP will be written in accordance with (IAW) 29 CFR 1910.146, 29 CFR 1926.1200, and/or Host Nation requirements. It will be reviewed by the Garrison Safety Office prior to implementation. Supervisors are required to review and/or update the SOP at least once a year or whenever entry conditions change and they must annotate when the review or update occurred. A written permit-required confined space program template can be obtained from the USAG Bavaria Safety Office.

(3) Ensure that an atmospheric detection equipment training program is established. Ensure all entry supervisors, entrants, and attendants are trained on bump testing, calibration methods, measuring techniques, and overall proper use of equipment. The manufacturer's directions will be used as a basis for training. Manufacturer's directions will be the only method used for bump testing the atmospheric equipment prior to use. Bump test span gases will be within applicable shelf life requirements. Expired span gases will not be used to bump or calibrate any instrument. Instrument calibration frequency will be in accordance with manufacturer's instructions. Refer to Annex A for the definition of Bump Testing.

(4) Ensure required confined space entry equipment is available and maintained to support confined space entry. As much as possible during permit-required entries, the entrant will wear a harness and lanyard attached to a tripod or other suitable attachment point with a hand operated or powered winch designed for personnel extraction. All personnel utilizing this equipment will be trained on its proper use. All confined space equipment will be inspected prior to use and as required by the Occupational Safety and Health Administration (OSHA) and/or the manufacturer's instructions.

(5) Ensure all entry supervisors, entrants, and attendants are trained on their duties with regard to the specific type of confined space they will enter. The confined space training shall be designed to ensure that affected

employees gain the required understanding, knowledge, and skills necessary for the safe performance of the duties assigned under this section. The Garrison Safety Office will provide general confined space training, but all supervisors must train their employees on the specific confined space hazards and procedures they will be entering. Employees will be required to demonstrate understanding of the training.

(6) Ensure procedures for blanking, blocking, lockout/tagout (LO/TO), barricading, and any other measures are in place as necessary to afford employees a safe working environment and safety of the general public.

(7) Ensure all employees understand that an entry is still considered permit-required if forced air is the only means used to control a hazardous atmosphere. During these entries, continuous atmospheric monitoring will occur, and as necessary the entrant will have an early warning system attached to their uniform. If attendant is monitoring the work environment atmosphere, the atmospheric monitors probe will be in the same location as the entrant and entrant have the same atmospheric monitor attached to them.

(8) Prior to all permit-required entries, ensure an entry permit is opened (see Annex C), kept on the work site, and filled out completely. If the entry supervisor is not the competent person for this configuration of confined space, the entry supervisor will consult with the competent person prior to entry. All atmospheric monitor readings will be annotated on the permit as deemed necessary but no less than hourly at a minimum. Entry permits will be kept on file in the responsible work-center for 1 year after permit has been closed.

(9) Maintain a listing of all confined spaces by organization/work-center and identify each as either permit or non-permit-required. The listing will also state for permit-required confined spaces (permit-required spaces) the location and type of hazards associated with the confined space e.g. atmospheric, electrical, engulfment etc. See Annex A for definitions. Each work-center that requires entry into confined spaces will have a listing of confined spaces with the aforementioned information as an annex in their SOP. The Director/Chief will review the confined space listing annually and provide a signed copy to the Garrison Safety Office annually or as updated, whichever comes first.

(10) Attend an annual confined space review/working group meeting. This review may be conducted in conjunction with the Garrison Safety and Occupational Health Advisory Council/Federal Employees' Compensation Act (SOHAC/FECA) Meeting.

(11) Ensure training and any other written documents are in the language the employee can understand.

(12) Perform a job hazard analysis for employees that are expected to enter confined spaces.

c. Garrison Safety Office will:

(1) Oversee the organization's confined space program IAW 29 CFR 1910.146, 1926.1200, and Host Nation requirements.

(2) Maintain a master list of confined spaces. This information will be provided by the Director/Chief of the organization requiring entry, whether contracted or employees, into confined spaces.

(3) Provide guidance to supervisors in the preparation of confined space SOPs.

(4) Review SOPs before they are published.

(5) Upon request, conduct on-site evaluations of confined space entry operations and permits to ensure compliance with prescribed directives.

(6) Conduct no notice spot inspections of confined space worksites. Safety will at a minimum review the entry permit, inspect any required equipment, review procedures for entry, and the processes that are used to make the entry acceptable for employee e.g. LO/TO, blanking/blocking, forced air, etc.

(7) Facilitate an annual confined space meeting to review the year's confined space entries and discuss any issues with confined spaces. This may be done in in conjunction with the Garrison SOHAC/FECA Meeting.

(8) Observe Fire & Emergency Services' annual emergency extraction exercise.

(9) Provide general confined space training upon request.

(10) Provide a written confined space program template which can be tailored to the shops specific requirements.

d. Directorate of Emergency Services(DES), Fire & Emergency Services (FES) will:

(1) Upon request, provide emergency standby support while government employees are performing work in a permit-required space.

(2) Monitor atmospheric conditions within a permit-required space, when acting

in emergency standby capacity, to ensure rescue personnel are not jeopardized by dangerous atmospheric conditions.

(3) Evaluate and issue hot work permits as part of the pre-entry procedures into confined spaces where welding is to take place.

(4) The Fire Chief will ensure fire rescue personnel are trained in the confined space rescue operations and procedures which they may enter. This includes all rescue equipment that may be used.

(5) Conduct a permit confined space rescue extraction exercise at least annually. Fire & Emergency Services coordinate with a directorate or tenant organization to perform this training which shall be designed to reflect, as much as practical, an actual permit-required confined space rescue.

e. Entry Supervisors will:

(1) Be familiar with and understand the hazards that may be faced during entry including information on the mode, signs or symptoms, and consequences of the exposure.

(2) Verify, by checking that the appropriate entries have been made on the 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 endorsing the permit and allowing entry to begin.

(3) Meet all training requirements for entry supervisor identified IAW 29 CFR 1910.146, 1926.1200, and Host Nation guiding standards. This includes confined space entry procedures and proper selection, use, calibration, maintenance, and care of atmospheric testing and monitoring instruments.

(4) Ensure entry conditions are monitored continuously throughout entry operations. Atmospheric monitoring results will be annotated on the permit at least hourly at a minimum.

(5) Properly fill out and issue a Confined Space Entry Permit prior to entry. If the entry supervisor is not the designated competent person, the supervisor will coordinate the entry with competent person prior to personnel entering permit-required spaces. Entry permits will be kept at the location where entry will occur.

(6) Ensure employees are supplied with and trained in the use and care of personal protective equipment (PPE) and required rescue retrieval systems when applicable.

(7) Ensure an attendant is assigned to the confined space entry operation and is knowledgeable in his/her duties. This includes atmospheric monitoring if applicable.

(8) Ensure entrant is aware of any confined space hazards which may be present or pose harm.

(9) Ensure atmospheric monitoring equipment is calibrated and bump tested per manufacturer's instructions.

(10) Strictly enforce safety and health guidelines for confined space operations. This includes the use and wear of lifeline, harness, and tripod/winch support PPE when entering into permit-required confined spaces.

(11) If an explosion protection document (EX Schutz Dokument) exists for the area where the confined space is located, the stipulations and requirements in the explosion protection document will be followed.

(12) Authorize, oversee, and terminate entry operations if conditions within the confined space become hazardous to the entrant.

NOTE: No entry will occur unless the designated competent person has reviewed confined space entry procedures.

(13) Test confined space with properly calibrated and approved testing equipment prior to employees entering the space.

(14) For permit-required entries, contact the respective FES and let them know when entry will occur, the exact location of entry, hazards associated with entry, estimated timeframe for entry, and when the permit operation has been completed. Ensure employees working in a confined space environment are able to communicate with the Fire Department and the supervisor. If cell phones are used for that purpose, it must be assured that the cellphone is working at the location of the confined space.

(15) Coordinate with a competent electrician (Chief DPW Electrical Branch) to determine whether increased electrical exposure is expected in the confined space area. If an increased electrical exposure is expected special electrical protection for the employees must be considered. Examples of special protection are protective low voltage (Schutzkleinspannung) or insolating transformers (Schutztrafo). If electrical generators are used, the proper set-up must be discussed and reviewed by a competent electrical expert.

(16) Initiate a hot work permit request through the Fire Department as part of the pre-entry procedures into confined spaces if welding is to take place.

(17) Ensure precautions are taken to prevent any type of dangerous air contamination or any other hazard which may place the entrant at risk e.g. vehicle or gas generator exhaust fumes.

(18) Ensure personnel and equipment are protected during the entry procedures. Examples are barriers around open holes, barriers and cones around work areas in or near roadways, etc.

f. Entrants will:

(1) Meet all training requirements for entrants identified IAW OSHA and Host Nation requirements. This includes confined space entry procedures and proper selection, use, calibration, maintenance, and care of atmospheric testing and instruments.

(2) Ask for any existing explosion protection documents for the area of the confined space.

(3) Ask for any expected increase electrical exposure for the confined space.

(4) Check to ensure communication equipment, whether radio or cell phone are at the worksite and are operational. If cell phones are used, the emergency services phone number shall be programed into the phone and written on the entry permit. If radios are used, they shall be keyed to the same frequency as emergency services.

(5) Communicate with the attendant as necessary to enable the attendant to assess entrant status and to enable the attendant to alert entrants of the need to evacuate the space as required.

(6) Alert the attendant whenever there is any warning sign or symptom of exposure to a dangerous situation or the entrant detects a prohibited condition.

(7) Entrant will exit from the permit-required space as quickly as possible when;

(a) An order to evacuate is given by the attendant or the entry supervisor;

(b) There is any warning sign or symptom of exposure to a dangerous situation;

(c) The entrant detects a prohibited condition; or

(d) An evacuation alarm is activated.

g. Attendants will:

(1) Be familiar with and understand the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.

(2) Continuously maintain an accurate count of authorized entrants in the permit-required space and ensures that the means used to accurately identify authorized entrants who are in the permit-required space.

(3) Remain outside the permit-required space during entry operations until relieved by another attendant.

(4) Communicate with authorized entrants as necessary to assess entrant status and to alert entrants of the need to evacuate the space.

(5) Assess activities and conditions inside and outside the space to determine if it is safe for entrants to remain in the space and orders the authorized entrants to evacuate the permit-required space immediately under any of the following conditions:

(a) If there is a prohibited condition;

(b) If the behavioral effects of hazard exposure are apparent in an authorized entrant;

(c) If there is a situation outside the space that could endanger the authorized entrants; and/or

(d) If the attendant cannot effectively and safely perform all the duties required of this standard operating procedure.

(6) Summon rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit-required space hazards.

(7) Take the following actions when unauthorized persons approach or enter a permit-required space while entry is underway:

(a) Warn the unauthorized persons that they must stay away from the permit-required space

(b) Advise unauthorized persons that they must exit immediately if they have entered the permit-required space; and

(c) Inform the authorized entrants and the entry supervisor if unauthorized persons have entered the permit-required space.

(d) Perform non-entry rescues as specified by the employer's rescue procedure.

NOTE: At no time is the attendant allowed to enter the confined space. The only authorized confined space rescue team is DES/FES.

4. General Requirements.

a. Before a confined space is entered at a worksite, each Director or Division Chief must ensure that a competent person identifies all confined spaces in which one or more employee(s) may work. Each Director or Division Chief must identify each space that is a permit-required space through consideration and evaluation of the elements of that space, work that will be conducted in the space, and will include testing as necessary.

b. If the workplace contains one or more permit-required space(s), the Directorate who identifies, or who receives notice of, a permit-required space must:

(1) Inform exposed employees by posting danger signs, or by any other equally effective means, of the existence and location of and the danger posed by each permit-required space and a sign reading **"DANGER -- PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER"**. Other similar language would satisfy the requirement for a sign as well.

(2) Inform all exposed employees and contractors of the existence, location, and dangers posed by each permit-required space. This requirement must be done in a timely manner, and in a manner other than posting.

c. Each Directorate/workplace who identifies, or receives notice of, a permit-required space and has not authorized their employees to work in that space must take effective measures to prevent those employees from entering that permit-required space, in addition to complying with all other applicable requirements of this SOP.

d. If any Directorate/workplace decides that its employees will enter a permit-required space, that Directorate/Workplace must have a written permit-required space program that complies with 29 CFR 1910.146, 1926.1204, and Host Nation requirements implemented at the organization site. The written program must be made available prior to and during entry operations for inspection by employees and their authorized representatives such as the Works Council.

(1) The following requirements apply to entry into permit-required spaces:

(a) Any conditions making it unsafe to remove an entrance cover must be eliminated before the cover is removed.

(b) When entrance covers are removed, the opening must be immediately guarded by a railing, temporary cover, or other temporary barrier that will prevent an accidental fall through the opening and that will protect each employee working in the space from foreign objects entering the space.

(c) Before an employee enters the space, the internal atmosphere must be tested for the following hazards using a calibrated direct-reading instrument, in the following order:

(i) 1st -- Oxygen content,

(ii) 2nd-- Flammable gases and vapors, and

(iii) 3rd -- Potential toxic air contaminants.

NOTE: Any employee who enters the space, or that employee's authorized representative, must be provided an opportunity to observe the pre-entry testing required by this section.

(d) Continuous forced air ventilation must be used, as follows:

(i) An employee must not enter the space until the forced air ventilation has eliminated any hazardous atmosphere;

(ii) The forced air ventilation must be so directed as to ventilate the immediate areas where an employee is or will be within the space and must continue until all employees have left the space;

(iii) The air supply for the forced air ventilation must be from a clean source and must not increase the hazards in the space.

(e) The atmosphere within the space must be continuously monitored. The Directorate / workplace must ensure that the monitoring equipment has an alarm that will notify all entrants if a specified atmospheric threshold is achieved or an employee must check the monitor with sufficient frequency to ensure that entrants have adequate time to escape. All monitoring must ensure that the continuous forced air ventilation is preventing the accumulation of a hazardous atmosphere. The monitoring probe end must be in the same location as the entrant. Any employee who enters the space must be provided with an opportunity to observe the testing required by this section.

(f) If a hazard is detected during entry:

(iv) Each employee must leave the space immediately.

(v) The space must be evaluated to determine how the hazard developed.

(vi) The workplace must implement measures to protect employees from the hazard before any subsequent entry takes place. This will be done through the coordination of the Garrison Safety Office.

(g) The employer must ensure a safe method of entering and exiting the space. If a hoisting system is used, it must be designed and manufactured for personnel hoisting; however, a job-made hoisting system is permissible if it is approved for personnel hoisting by a registered professional engineer, in writing, prior to use.

(h) The employer must verify that the space is safe for entry and that the pre-entry measures required by applicable regulations (such as 29 CFR 1926.1203(e)(2)) have been taken through a written certification that contains the date, the location of the space, and the signature of the person providing the certification. The certification must be made before entry and must be made available to each employee entering the space or to that employee's authorized representative.

e. When there are changes in the use or configuration of a non-permit confined space that might increase the hazards to entrants or some indication that the initial evaluation of the space may not have been adequate, each entry employer must have a competent person reevaluate that space and, if necessary, reclassify it as a permit-required confined space.

f. A space classified by an employer as a permit-required confined space may only be reclassified as a non-permit confined space when a competent person determines that all of the applicable requirements in the following paragraphs (1) through (4) have been met:

(1) If the permit-required space poses no actual or potential atmospheric hazards and if all hazards within the space are eliminated or isolated without entry into the space (unless the employer can demonstrate that doing so without entry is infeasible), the permit-required space may be reclassified as a non-permit confined space for as long as the non-atmospheric hazards remain eliminated or isolated;

(2) The entry employer must eliminate or isolate the hazards without entering the space, unless it can demonstrate that this is infeasible. If it is necessary to enter the permit-required space to eliminate or isolate hazards, such entry must be performed under 29 CFR 1926.1204 through 1211. If testing and inspection during that entry demonstrate that the hazards within the permit-required space have been eliminated or

isolated, the permit-required space may be reclassified as a non-permit confined space for as long as the hazards remain eliminated or isolated.

NOTE: Control of atmospheric hazards through forced air ventilation does not constitute elimination or isolation of the hazards. Refer to 29 CFR 1926.1203(e) covers permit-required space entry where the employer can demonstrate that forced air ventilation alone will control all hazards in the space.

(3) The employer must document the basis for determining that all hazards in a permit-required space have been eliminated or isolated through a certification that contains the date, the location of the space, and the signature of the person making the determination. The certification must be made available to each employee entering the space or to that employee's authorized representative.

(4) If hazards arise within a permit-required space that has been reclassified as a non-permit-required space under the OSHA standard, each employee in the space must exit the space. The entry employer must then reevaluate the space and reclassify it as a permit-required space as appropriate in accordance with all other applicable provisions of this SOP.

5. Permit-Required Confined Space Entry Contractor Communication and Coordination.

a. All confined space requirements outlined in this SOP and governing standards also apply to contractors. A copy of this SOP will be provided to each contractor involved in permit-required space entry work.

b. Before entry operations begin, the contracting officer must ensure the Directorate/Shop provide the following information to the contractor:

(1) The location of each known permit-required space;

(2) The hazards or potential hazards in each space or the reason it is a permit-required space; and

(3) Any precautions that the host directorate or any previous controlling contractor or entry employer implemented for the protection of employees in the permit-required space.

c. Before entry operations begin, the contractor must:

(1) Obtain the host Directorate's information about the permit-required space hazards and previous entry operations; and

(2) Provide the following information to each entrant entering a permit-required space and any other person(s) at the worksite whose

activities could foreseeably result in a hazard in the permit-required space:

(a) The information received from the Directorate/Shop/Employer;

(b) Any additional information the controlling contractor has about the subjects listed in this section; and

(c) The precautions that the Directorate, or other entry employers, implemented for the protection of employees in the permit-required spaces.

6. <u>Permit-Required Confined Space Program.</u>

Each entry Directorate/Shop/Employer must:

a. Implement the measures necessary to prevent unauthorized entry into permit required confined spaces;

b. Identify and evaluate the hazards of permit-required spaces before employees enter them;

c. Develop and implement the means, procedures, and practices necessary for safe permit-required space entry operations including, but not limited to, the following:

(1) Specifying acceptable entry conditions;

(2) Providing each authorized entrant or the entrant's authorized representative with the opportunity to observe any monitoring or testing of permit-required spaces;

(3) Isolating the permit-required space and physical hazard(s) within the space;

(4) Purging, inerting, flushing, or ventilating the permit-required space as necessary to eliminate or control atmospheric hazards;

(5) Determining that, in the event the ventilation system stops working, the monitoring procedures will detect an increase in atmospheric hazard levels in sufficient time for the entrants to safely exit the permit-required space;

(6) Providing pedestrian, vehicle, or other barriers as necessary to protect entrants from external hazards;

(7) Verifying that conditions in the permit-required space are acceptable for entry throughout the duration of an authorized entry and ensuring that

employees are not allowed to enter into, or remain in, a permit-required space with a hazardous atmosphere unless the employer can demonstrate that PPE will provide effective protection for each employee in the permit-required space and provides the appropriate PPE to each employee.; and/or

(8) Eliminating any conditions (for example high pressure) that could make it unsafe to remove an entrance cover.

d. Provide the following equipment at no cost to each employee, maintain that equipment properly, and ensure that each employee uses that equipment properly:

(1) Testing and monitoring equipment needed to comply with CFR 1926.1200, 1910.146, and Host Nation governing standards.

(2) Ventilating equipment needed to obtain acceptable entry conditions.

(3) Communications equipment necessary for compliance and emergency communication including any necessary electronic communication equipment for attendants assessing entrants' status in multiple spaces.

(4) PPE insofar as feasible engineering and work-practice controls do not adequately protect employees.

NOTE: The requirements of this part and other PPE requirements continue to apply to the use of PPE in a permit-required space. For example, if employees use respirators, then the respirator requirements in 29 CFR 1926, 1910, and Host Nations standards must be met. Lighting equipment that meets the minimum illumination requirements in 29 CFR 1926.56 is approved for the ignitable or combustible properties of the specific gas, vapor, dust, or fiber that will be present and is sufficient to enable employees to see well enough to work safely and to exit the space quickly in an emergency.

(5) Barriers and shields as required.

(6) Equipment, such as ladders, needed for safe ingress and egress by authorized entrants.

(7) Rescue and emergency equipment needed for self-rescue or attendant assisted rescue.

(8) Any other equipment necessary for safe ingress, egress, and self-rescue from permit-required spaces.

e. Evaluate permit-required space conditions in accordance with paragraphs e.(1) through (6) of this section when entry operations are conducted:

(1) Test conditions in the permit-required space to determine if acceptable entry conditions exist before changes to the space's natural ventilation are made and before entry is authorized to begin, except that, if an employer demonstrates that isolation of the space is infeasible because the space is large or is part of a continuous system (such as a sewer), the employer must:

(a) Perform pre-entry testing to the extent feasible before entry is authorized;

(b) If entry is authorized, continuously monitor entry conditions in the areas where authorized entrants are working; and

(c) Provide an early-warning system that continuously monitors for non-isolated engulfment hazards. The system must alert authorized entrants and attendants in sufficient time for the authorized entrants to safely exit from the space;

(2) Continuously monitor atmospheric hazards unless the employer can demonstrate that the equipment for continuously monitoring a hazard is not commercially available or that periodic monitoring is of sufficient frequency to ensure that the atmospheric hazard is being controlled at safe levels. If continuous monitoring is not used, periodic monitoring is required with sufficient frequency to ensure that acceptable entry conditions are being maintained during the course of entry operations;

(3) When testing for atmospheric hazards, test first for oxygen, next for combustible gases and vapors, and finally for toxic gases and vapors. The atmospheric monitors will have multiple detection devices to test for known or anticipated hazards of the space;

(4) Provide each authorized entrant or that employee's authorized representative an opportunity to observe the pre-entry and any subsequent testing or monitoring of permit-required spaces;

(5) Reevaluate the permit-required space in the presence of any authorized entrant or that employee's authorized representative who requests that the employer conduct such reevaluation because there is some indication that the evaluation of that space may not have been adequate; and

(6) Immediately provide each authorized entrant or that employee's authorized representative with the results of any testing conducted in accordance with this SOP or any other governing standard.

f. Provide at least one attendant outside the permit-required space into which entry is authorized for the duration of entry operations;

(1) An attendant will only monitor/attend one permit-required confined space at a time. The attendant will not simultaneously attend multiple spaces.

(2) Attendants may be stationed at any location outside the permit-required space as long as the duties described in all governing standards can be effectively performed for the permit-required space to which the attendant is assigned.

g. Designate each person who has an active role (for example, authorized entrants, attendants, entry supervisors, or persons who test or monitor the atmosphere in a permit-required space) in entry operations, identify the duties of each such employee, and provide each such employee with the training required by 29 CFR 1926.1207, 1910.146, and Host Nation standards;

h. Develop and implement procedures for summoning rescue and emergency services (including procedures for summoning emergency assistance in the event of a failed non-entry rescue), rescuing entrants from permit-required spaces, providing necessary emergency services to rescued employees, and preventing unauthorized personnel from attempting a rescue;

i. Develop and implement a system for the preparation, issuance, use, and cancellation of entry permits as required by this standard operating procedure including the safe termination of entry operations under both planned and emergency conditions;

j. Develop and implement procedures to coordinate entry operations when employees of more than one employer are working simultaneously in a permit-required space or elsewhere on the worksite where their activities could, either alone or in conjunction with the activities within a permit-required space, foreseeably result in a hazard within the confined space, so that employees of one employer or shop do not endanger the employees of any other employer;

k. Develop and implement procedures (such as closing off a permit-required space and canceling the permit) necessary for concluding the entry after entry operations have been completed;

l. Review entry operations when the measures taken under the permit-required confined space program may not protect employees and revise the program to correct deficiencies found to exist before subsequent entries are authorized; and

NOTE: Examples of circumstances requiring the review of the permit-required confined space program include, but are not limited to: any unauthorized entry of a permit-required space, the detection of a permit-required space hazard not covered by

the permit, the detection of a condition prohibited by the permit, the occurrence of an injury or near-miss during entry, a change in the use or configuration of a permit-required space, and employee complaints about the effectiveness of the program.

m. Review the permit-required confined space program using the past year's canceled permits and revise the program as necessary to ensure that employees participating in entry operations are protected from permit-required space hazards.

NOTE: Employers may perform a single annual review covering all entries performed during a 12-month period. If no entry is performed during a 12-month period, no review is necessary.

7. <u>Permitting Process</u>.

a. Before entry is authorized, each entry employer must document the completion of measures required by 29 CFR 1926.1204(c) by preparing an entry permit (Garrison employees will use Entry Permit in Annex C).

b. Before entry begins, the entry supervisor identified on the permit must sign the entry permit to authorize entry.

c. The completed permit must be made available at the time of entry to all authorized entrants or their authorized representatives by posting it at the entry portal or by any other equally effective means, so that the entrants can confirm that pre-entry preparations have been completed.

d. The duration of the permit may not exceed the time required to complete the assigned task or job identified on the permit in accordance with 29 CFR 1926.1206(b).

e. The entry supervisor must terminate entry and take the following action when any of the following apply:

(1) Cancel the entry permit when the entry operations covered by the entry permit have been completed; or

(2) Suspend or cancel the entry permit and fully reassess the space before allowing reentry when a condition that is not allowed under the entry permit arises in or near the permit-required space and that condition is temporary in nature and does not change the configuration of the space or create any new hazards within it; and

(3) Cancel the entry permit when a condition that is not allowed under the entry permit arises in or near the permit-required space and that condition is not covered by subparagraph (e)(2) of this section.

f. The entry employer must retain each canceled entry permit for at least 1 year . to facilitate the review of the permit-required confined space program required by 29 CFR 1926.1204(n). Any problems encountered during an entry operation must be annotated on the permit so that appropriate revisions to the permit-required space program can be made.

8. Entry permit.

The entry permit that documents compliance with this section and authorizes entry to a permit-required space must identify the items listed below. An example entry permit can be found in Annex C of this SOP. All areas of the permit will be filled out completely. If a tenant organization does not want to use the entry permit provided in this SOP then they must develop a permit that covers the items listed below.

a. The permit-required space to be entered;

b. The purpose of the entry;

c. The date and the authorized duration of the entry permit;

d. The authorized entrants within the permit-required space by name that will enable the attendant to determine quickly and accurately, for the duration of the permit, which authorized entrants are inside the permit-required space;

e. Means of detecting an increase in atmospheric hazard levels in the event the ventilation system stops working;

f. Each person, by name, currently serving as an attendant;

g. The individual, by name, currently serving as entry supervisor and the signature or initials of each entry supervisor who authorizes entry;

h. The hazards of the permit-required space to be entered;

i. The measures used to isolate the permit-required space and to eliminate or control permit-required space hazards before entry;

NOTE: Those measures can include, but are not limited to, the lockout or tagging of equipment and procedures for purging, inerting, ventilating, and flushing permit-required spaces.

j. The acceptable entry conditions;

k. The results of tests and monitoring performed under this SOP, accompanied by the names or initials of the testers, and by an indication of when the tests were performed;

l. The rescue and emergency services that can be summoned and the means (such as the equipment to use and the numbers to call) for summoning those services;

m. The communication procedures used by authorized entrants and attendants to maintain contact during the entry;

n. Equipment such as personal protective equipment, testing equipment, communications equipment, alarm systems, and rescue equipment to be provided for compliance with this SOP;

o. Any other information necessary, given the circumstances of the particular confined space, to ensure employee safety; and

p. Any additional permits, such as for hot work, that have been issued to authorize work in the permit-required space.

9. Training.

a. The Directorate must provide training to each employee whose work is regulated by this standard operating procedure, at no cost to the employee, and ensure that the employee possesses the understanding, knowledge, and skills necessary for the safe performance of the duties assigned under this standard. This training must result in a demonstrated understanding of the hazards in the permit-required space and the methods used to isolate, control, or in other ways protect employees from these hazards and ensuring employees fully understand they are not authorized to perform entry rescues - only qualified Fire & Emergency Services personnel are authorized to perform this operation.

b. Training required must be provided to each affected employee:

(1) In both a language and vocabulary that the employee can understand;

(2) Before the employee is first assigned duties under this SOP;

(3) Before there is a change in assigned duties;

(4) Whenever there is a change in permit-required space entry operations that presents a hazard about which an employee has not previously been trained; and

(5) Whenever there is any evidence of a deviation from the permit-required space entry procedures required by this SOP or there are inadequacies in the employee's knowledge or use of these procedures.

c. The training must establish employee proficiency in the duties required by this

SOP and must introduce new or revised procedures, as necessary, for compliance with this SOP.

d. The Directorate must maintain training records to show that the training required by this SOP has been accomplished. The training records must contain each employee's name, the name of the trainers, and the dates of training. The documentation must be available for inspection by employees and their authorized representatives for the period of time the employee is employed by that employer.

e. Specific Training

(1) Training for atmospheric monitoring personnel shall include proper use of monitoring instruments including instruction on the following:

(a) Proper use of the equipment;

(b) Calibration and bump testing of equipment;

(c) Sampling strategies and techniques; and

(d) Maintenance of the equipment.

(2) Training for attendants shall include the following:

(a) Procedures for summoning rescue or other emergency services, and

(b) Proper utilization of equipment used for communicating with entry and emergency/rescue personnel.

10. <u>Labeling and Posting.</u>

a. In order to prevent inadvertent or unauthorized entry into a confined space such areas shall be posted where appropriate.

b. Entrances to permit-required confined spaces of permanent structures shall be posted as necessary.

c. Signs shall include but not necessarily be limited to the following information; commercial signs with similar intent are authorized. See Figure 1 below.

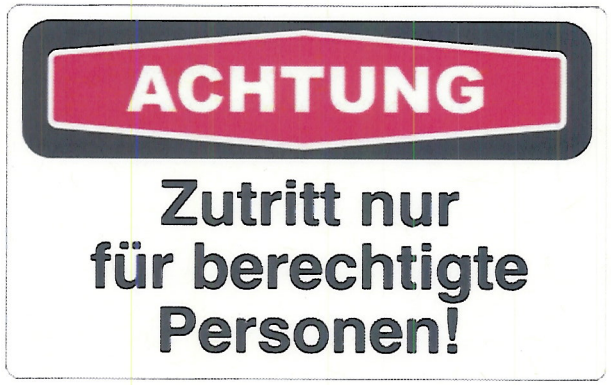

FIGURE 1. Confined Space Placards

11. Points of Contact

a. USAG Bavaria Chief of Safety is the proponent of this SOP. Any concerns, questions, or recommendations can be coordinated through USAG Bavaria Safety Office, Rose/Tower Barracks, 526-2303, Hohenfels, 466-2865, and Garmisch, 440-3595.

LANCE C. VARNEY
COL, IN
Commanding

ANNEX A: Definitions

Acceptable Entry Conditions: The conditions that must exist in a permit-required space, before an employee may enter that space, to ensure that employees can safely enter into, and safely work within, the space.

Attendant: An individual stationed outside a permit-required space who assesses the status of authorized entrants and who must perform the duties specified in this SOP and other governing directives.

Authorized Entrant: An employee who is authorized by the entry supervisor to enter a permit-required space.

Barrier: A physical obstruction that blocks or limits access.

Blanking or Blinding: The absolute closure of a pipe, line, or duct by the fastening of a solid plate (such as a spectacle blind or a skillet blind) that completely covers the bore and that is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.

Bump Testing (or Function Test): A qualitative function check in which a challenge gas is passed over the sensor(s) at a concentration and exposure time sufficient to activate all alarm settings. The purpose of this check is to confirm that gas can get to the sensor(s) and that all the instrument's alarms are functional. The bump test or function check does not provide a measure of the instrument's accuracy. When performing a bump test, the challenge gas concentration should trigger the direct-reading portable gas monitor’s (DRPGM)'s alarm(s). If it does not, there is a problem with either the challenge gas or the meter.

Calibration Check or Full Calibration: There are two methods for verifying DRPGM accuracy: a calibration check and a full calibration. Each method is appropriate under certain conditions. A calibration check verifies that the sensor(s) and alarms respond within the manufacturer's acceptable limits by exposing the instrument to a test gas. The operator compares the reading to the test-gas concentration (as indicated on the cylinder containing the test gas). If the instrument's response is within the acceptable range of the test-gas concentration (typically ± 10-20% of the test-gas concentration), then the calibration check verified the instrument's accuracy. (**NOTE**: OSHA recommends that operators check with the instrument's manufacturer for the acceptable tolerance ranges.) An operator shall "zero" an instrument (reset the reference point, in some cases "zero air" gas may be needed) before conducting the calibration check to ensure that the calibration check results are accurate. When performing a calibration check, the test-gas concentration should be high enough to trigger the instrument's alarm(s). If the calibration-check results are not within the acceptable range, the operator shall perform a full calibration. A full calibration adjusts the instrument's reading to coincide with a known concentration (i.e., certified standard) of test gas. Test

gas used for calibration gas shall always be certified using a standard traceable to the National Institute of Standards and Technology (NIST).

Competent Person: One who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate the hazards.

Confined Space:

1. A space large enough and so configured that an employee can bodily enter it;

2. Has limited or restricted means for entry and exit; and

3. Is not designed for continuous employee occupancy.

Control: The action taken to reduce the level of any hazard inside a confined space using engineering methods (for example, by ventilation), and then using these methods to maintain the reduced hazard level. Control also refers to the engineering methods used for this purpose. Personal protective equipment is not a control.

Controlling Contractor: The contractor that has overall responsibility for construction or work at the worksite.

Double Block and Bleed: The closure of a line, duct, or pipe by closing and locking or tagging two inline valves and by opening and locking or tagging a drain or vent valve in the line between the two closed valves.

Early-Warning System: The method used to alert authorized entrants and attendants that an engulfment hazard may be developing. Examples of early-warning systems include, but are not limited to: Alarms activated by remote sensors; and lookouts with equipment for immediately communicating with the authorized entrants and attendants.

Electrical Exposure: An entry supervisor must check with a competent electrician (chief DPW electrical branch) whether increased electrical exposure is expected in the confined space area. If an increased electrical exposure is expected special electrical protection for the employees must be considered. Examples of special protection are protective low voltage (Schutzkleinspannung) or insolating transformers (Schutztrafo). If electrical generators are used the proper set up must be discussed and reviewed by a competent electrical expert prior to entry.

Emergency: Any occurrence (including any failure of power, hazard control or monitoring equipment) or event, internal or external, to the permit-required space that could endanger entrants.

Engulfment: The surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, crushing, or suffocation.

Entry: The action by which any part of a person passes through an opening into a permit-required 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, whether or not such action is intentional or any work activities are actually performed in the space.

Entry Employer: Any employer who decides that an employee it directs will enter a permit-required space. In USAG Bavaria, the entry employer is the Directorate or tenant organization ordering its employees into the confined space. **NOTE:** An employer cannot avoid the duties of the standard operating procedure merely by refusing to decide whether its employees will enter a permit-required space and OSHA will consider the failure to so decide to be an implicit decision to allow employees to enter those spaces if they are working in the *proximity* of the space.

Entry Permit: The written or printed document that is provided by the employer who designated the space a permit-required space to allow and control entry into a permit-required space and that contains the information specified in this SOP. (See Annex C)

Entry Rescue: Occurs when a trained and authorized rescue service enters a permit-required space to rescue one or more employees. In USAG Bavaria, only DES Fire & Emergency Services or its off post Host Nation equivalent are authorized to conduct entry rescue operations.

Entry Supervisor: The qualified person (such as the employer, foreman, or crew chief) responsible for determining if acceptable entry conditions are present at a permit-required space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this standard. **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 by this standard operating procedure 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.

Explosive Protection Document (EX Schutz Dokument): If an explosion protection document exists for the confined space or where the confined space is located, the stipulations and requirements in the explosion protection document must be followed.

Hazard: A physical hazard or hazardous atmosphere. See definition of Hazardous Atmosphere.

Hazardous Atmosphere: An atmosphere that may expose employees to the risk of death, incapacitation, and impairment of ability to self-rescue (that is, escape unaided

from a permit-required space), injury, or acute illness from one or more of the following causes:

1. Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL);

2. Airborne combustible dust at a concentration that meets or exceeds its LFL; **NOTE:** This concentration may be approximated as a condition in which the combustible dust obscures vision at a distance of 5 feet (1.52 meters) or less.

3. Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent;

4. Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published in 29 CFR 1910 Subpart G (Occupational Health and Environmental Control), or in Subpart Z of this part (Toxic and Hazardous Substances), and which could result in employee exposure in excess of its dose or permissible exposure limit; **NOTE:** An atmospheric concentration of any substance that is not capable of causing death, incapacitation, and impairment of ability to self-rescue, injury, or acute illness due to its health effects is not covered by this definition.

5. 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 that comply with the Hazard Communication Standard, 29 CFR 1910.1200 and 1926.59, and internal documents can provide guidance in establishing acceptable atmospheric conditions.

Host Employer/Directorate: The employer is the Directorate or tenant organization that owns or manages the property where the work whether construction or general industrial operation is taking place.

Hot Work: Operations capable of providing a source of ignition (for example, riveting, welding, cutting, burning, and heating).

Immediately Dangerous to Life or Health (IDLH): Any condition that would interfere with an individual's ability to escape unaided from a permit-required space and that poses a threat to life or that would cause irreversible adverse health effects.

Inerting: Displacing the atmosphere in a permit-required space by a noncombustible gas (such as nitrogen) to such an extent that the resulting atmosphere is noncombustible. **NOTE:** "Inerting" produces an IDLH oxygen deficient atmosphere and employees are not authorized to enter such environments.

Isolate or Isolation: The process by which employees in a confined space are completely protected against the release of energy and material into the space, and

contact with a physical hazard, by such means as: Blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; a double block and bleed system; lockout or tagout of all sources of energy; blocking or disconnecting all mechanical linkages; or placement of barriers to eliminate the potential for employee contact with a physical hazard.

Limited or Restricted Means for Entry or Exit: A condition that has a potential to impede an employee's movement into or out of a confined space. Such conditions include, but are not limited to, trip hazards, poor illumination, slippery floors, inclining surfaces and ladders.

Lockout: The placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Lower Flammable Limit (LFL) or Lower Explosive Limit (LEL): The minimum concentration of a substance in air needed for an ignition source to cause a flame or explosion.

Monitor or Monitoring: The process used to identify and evaluate the hazards after an authorized entrant enters the space. This is a process of checking for changes that is performed in a periodic or continuous manner after the completion of the initial testing or evaluation of that space.

Non-Entry Rescue: Occurs when a rescue occurs, usually the attendant, retrieves employees in a permit-required space without entering the permit-required space. This is normally done using a lifeline/lanyard that is attached to the entrant’s harness and an external tri-pod and winch.

Non-Permit Confined Space: A confined space that meets the definition of a confined space but does not meet the requirements for a permit-required confined space, as defined in this subpart.

Oxygen Deficient Atmosphere: An atmosphere containing less than 19.5 percent oxygen by volume.

Oxygen Enriched Atmosphere: An atmosphere containing more than 23.5 percent oxygen by volume.

Permit-Required Confined Space (Permit-Required Space): A confined space that has one or more of the following characteristics:

1. Contains or has a 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 or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or

4. Contains any other recognized serious safety or health hazard.

Permit-Required Confined Space Program (Permit-Required Space Program): The employer's overall program for controlling, and, where appropriate, for protecting employees from, permit-required space hazards and for regulating employee entry into permit-required spaces.

Physical Hazard: An existing or potential hazard that can cause death or serious physical damage. Examples include, but are not limited to: Explosives (as defined by paragraph (n) of 29 CFR 1926.914, definition of "explosive" and German Explosion-Schutz-Dokument; mechanical, electrical, hydraulic and pneumatic energy; radiation; temperature extremes; engulfment; noise; and inwardly converging surfaces. Physical hazard also includes chemicals that can cause death or serious physical damage through skin or eye contact (rather than through inhalation). Also electrical hazards in confined space per German Safety and Occupational Health (SOH) standards.

Prohibited Condition: Any condition in a permit-required space that is not allowed by the permit during the period when entry is authorized. A hazardous atmosphere is a prohibited condition unless the employer can demonstrate that personal protective equipment (PPE) will provide effective protection for each employee in the permit-required space and provides the appropriate PPE to each employee.

Qualified Person: One who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project.

Rescue: Retrieving, and providing medical assistance to, one or more employees who are in a permit-required space.

Rescue Service: The personnel designated to rescue employees from permit-required spaces. In USAG Bavaria, only DES Fire & Emergency Services or its off post Host Nation equivalent are authorized to conduct entry rescue operations.

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

Self-Rescue: The ability of the entrant to remove themselves from a confined space when alerted to do so.

Serious Physical Damage: An impairment or illness in which a body part is made functionally useless or is substantially reduced in efficiency. Such impairment or illness may be permanent or temporary and includes, but is not limited to, loss of consciousness, disorientation, or other immediate and substantial reduction in mental efficiency. Injuries involving such impairment would usually require treatment by a physician or other licensed health-care professional.

Tagout:

1. Placement of a tagout device on a circuit or equipment that has been de-energized, in accordance with an established procedure, to indicate that the circuit or equipment being controlled may not be operated until the tagout device is removed; and

2. The employer ensures that:
   i. Tagout provides equivalent protection to lockout; or

   ii. That lockout is infeasible and the employer has relieved, disconnected, restrained and otherwise rendered safe stored (residual) energy.

Test or Testing: The process by which the hazards that may confront entrants of a permit-required space are identified and evaluated. Testing includes specifying the tests that are to be performed in the permit-required space. **NOTE:** Testing enables employers both to devise and implement adequate control measures for the protection of authorized entrants and to determine if acceptable entry conditions are present immediately prior to, and during, entry.

Ventilate or Ventilation: Controlling a hazardous atmosphere using continuous forced-air mechanical systems that meet the requirements of 29 CFR 1926.57 (Ventilation).

ANNEX B: Sample Appointment Letter for the Competent Person Template

DEPARTMENT OF THE ARMY
UNITED STATES ARMY GARRISON BAVARIA
UNIT 28130
APO AE 09114-8130

OFFICE-SYMBOL DATE

MEMORANDUM FOR RECORD

SUBJECT: Confined Space Competent Persons Appointment Orders

1. References:

A. AR 385-10 The Army Safety Program, 27 November 2013

B. DA Pam 385-10 Army Safety Program, RAR 19 January 2010

2. The following individuals have been appointed as the primary and alternate Confined Space Competent Persons for USAG Bavaria XXXXXX. These individuals have completed the necessary training to identify existing and predictable hazards in the surroundings or working conditions in a confined space which are unsanitary, hazardous, or dangerous to employees. Lastly, these individuals have the authorization to take prompt corrective measures to eliminate the hazards.

A. Primary: NAME

B. Alternate: NAME

3. The appointment of Confined Space Competent Persons fulfills the Army requirement and supports the USAG Bavaria Accident Prevention and Safety Management (APSM) program pillars, Management and Leader Commitment and Employee Involvement.

4. The USAG Bavaria XXXXX Point of Contact is the undersigned at DSN (###) XXX-XXXX.

NAME
JOB TITLE/POSITION
USAG Bavaria

ANNEX C: Sample Entry Permit (Page 1)

USAG BAVARIA CONFINED SPACE ENTRY PERMIT

Confined Space Location/Description/ID Number **Date:**

Purpose of Entry

Time In: _____ **Permit Canceled Time:** _____
Time Out: _____ **Reason Permit Canceled:** _____

Supervisor: _____

Rescue and Emergency Services Called in Time **Called Out Time**

Hazards of Confined Space	Yes	No	Special Requirements	Yes	No
Oxygen deficiency			Hot Work Permit Required		
Combustible gas/vapor			Lockout/Tagout		
Combustible dust			Lines broken, capped, or blanked		
Carbon Monoxide			Purge-flush and vent		
Hydrogen Sulfide			Secure Area-Post and Flag		
Toxic gas/vapor			Ventilation		
Toxic fumes			Other- List:		
Skin- chemical hazards			**Special Equipment**		
Electrical hazard			Breathing apparatus- respirator		
Mechanical hazard			Escape harness required		
Engulfment hazard			Tripod emergency escape unit		
Entrapment hazard			Lifelines		
Thermal hazard			Lighting (explosive proof/low voltage)		
Slip or fall hazard			PPE- goggles, gloves, clothing, etc.		
			Fire Extinguisher		

Communication Procedures:

DO NOT ENTER IF PERMISSABLE ENTRY LEVELS ARE EXCEEDED		**Test Start and Stop Time:** Start	Stop
	Permissable Entry Level		
% of Oxygen	19.5 % to 23.5 %		
% of LEL	Less than 10%		
Carbon Monoxide	35 PPM (8 hr.)		
Hydrogen Sulfide	10 PPM (8 hr.)		
Other			

Name(s) or Person(s) testing: _____

Test Instrument(s) used- Include Name, Model, Serial Number and Date Last Calibrated:

CFM-Ventilation	Size-Cubic Feet	Pre Entry Time	☐ ES Notified Before Entrance	Time Notified:
			☐ ES Notified After Entrance	Time Notified:

Annex C: Sample Entry Permit (Page 2)

Authorized Entrants	Authorized Attendants
_____	_____
_____	_____
_____	_____

PERMIT AUTHORIZATION I Certify that all actions and conditions necessary for safe entry have been performed.	
Name-Print:	
Signature:	
Date:	Time:

Entry Procedure Checklist: Complete the following steps before, during, and after a confined space entry:

Step 1
Obtain a Permit-Confined Space Entry Form from Shop Supervisor or Competent Person.
Step 2
Notify Supervisor and Competent Person to review procedures before the **Confined Space Entry**
Step 3
Verify Confined Space Meter has been calibrated per manufacturers specifications and is in working order
Step 4
Complete the top portion of the Permit-Confined Space Entry Form
Step 5
Ensure all rescue equipment (e.g. tripod, body-belt, lanyard) is in place prior to entry
Step 6
Ensure emergency Services has been contacted prior to entry (phone # _____), let them know exact location, type of hazard
Step 7
Monitor the confined space with the _____ Atmospheric Gas Detector prior to entry. The entrant and attendant should sign the permit authorization section on the bottom of the permit to ensure all actions and conditions necessary for safe entry have been performed.
Step 8
Employee entering the confined space should wear or ensure the _____ Atmospheric Detector probe is in the same location as enterant. The employee should also have a full body harness and lanyard attached to the rescue tripod. Attendant and/or Employee shall have a radio or phone and any other necessary personal protective equipment.
Step 9
Employee can enter the confined once Step 7 is completed. The entrant and attendant should complete the Hazards of Confined Spaces and Special Requirements Section of the Permit-Confined Space Entry Form once the employee is within the confined space. The entrant should also gather the % Oxygen, % Explosive Gases, Carbon Monoxide, and Hydrogen Sulfide readings and communicate them to the attendant to place on the Permit Form.
Step 10
The attendant should maintain constant communication either visual or radio with the entrant until the entrant has exited the confined space.
Step 11
The attendant should contact Supervisor and Emergency Services once the entrant has exited the confined space.
Step 12
The Permit-Confined Space Entry Form should be given to Shop Supervisor, to file in the Confined Space Records in the shop and kept on file for 1 year.