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Responsible department: Occupational Health and Safety Department					
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1

SCOPE OF APPLICABILITY

This BI applies to work at all SPOLANA a.s. workplaces. Violation of this BI may result in penalties and claims for damages, including damages caused to the health of employees, in accordance with legal regulations.

This BI is binding for all employees of SPOLANA a.s. and for employees of other organizations working in hazardous areas and setting conditions for entry and safe performance of work in these areas.

The obligation to use personal protective equipment applies **to all employees of SPOLANA a.s. employees and other persons who enter or remain on the premises of SPOLANA a.s. for any reason.**

2

PURPOSE

This BI sets out the conditions for ensuring safe entry into hazardous areas and the conditions for ensuring safe work performance in these areas.

3

TERMS, DEFINITIONS AND ABBREVIATIONS

BI	- safety instructions
HZS	- Fire and Rescue Service
IDP	- Self-contained breathing apparatus
JHA	- Analysis of occupational safety
NPK	- Maximum permissible concentration
DMV	- Lower explosion limit
HMV	- Upper explosive limit
DDP	- Self-contained breathing apparatus

4

SAFETY MEASURES FOR HAZARDOUS AREAS

4.1 Hazardous area

4.1.1 This is a completely or partially enclosed space or space below ground level in which any of the following risks may occur:

- dangerous oxygen concentration,
- accumulation of toxic, flammable, or explosive substances,
- restricted entry or exit,
- temperature above 50°C.

If any of the above risks occur, the area must be considered dangerous.

4.1.1.1 This applies in particular to:

- process vessels, including columns, column jackets, large pipelines, distillation columns, flare stacks, furnaces, boilers, storage tanks, road/rail tankers,
- areas below ground level, such as drainage pits, sewer pits and associated tunnels, wells, shafts, cable ducts
- industrial, rainwater, sewage, and water supply networks, wastewater sumps, treatment plants, septic tanks, sewers,
- storage facilities for bulk, liquid, or gaseous materials,
- spaces that are inadequately ventilated,
- spaces that become enclosed due to the type of work being carried out in them, e.g., the application of coatings,
- tanks with an open top or with a floating roof in the lowest position,
- excavations (usually depths of more than 1.3 meters).

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4.2 General requirements

- 4.2.1 Entry into and work in hazardous areas may only be carried out on the basis of a written "Work Permit." An integral part of the "Work Permit" is the "Job Hazard Analysis (JHA)" specified in Appendix 2 of this BI and the "Rescue Plan" specified in Appendix 1 of this BI. The documents are processed as separate appendices to the "Work Permit" or using the basic forms "Work Permits."
- 4.2.2 More detailed specifications of selected hazards in connection with hazardous areas are provided in Appendix 3 to this BI.
- 4.2.3 The term "entry into a hazardous area" refers not only to the entry of the entire body into the area, but also to the insertion of **one's head** into manholes, openings, pipe ends, etc.
- 4.2.4 In cases where a "Work Permit" is issued for the activities of company employees and it is not possible to ensure the conditions specified in the permit due to a lack of technical equipment or sufficient number of persons, this activity must be performed by a contractor with the necessary equipment. The work permit is issued to the contractor, who in these cases is only responsible for the activities performed by him (supervision, security).
- 4.2.5 No separate "Work Permit" is issued for company employees to enter hazardous areas where the contractor's activities are carried out. The condition is the approval of entry by permanent supervision in accordance with Article 4.3, designated for the given hazardous area. To be added. Entering employees must familiarize themselves with the content of the "Work Permit" and all its relevant annexes and comply with the specified conditions and instructions of the supervisor. Re-evaluated.
- 4.2.5.1 The provision concerns the performance of control activities by company employees.
- 4.2.5.2 If certain conditions cannot be met due to a lack of technical equipment or professional and health qualifications (use of safety harness, IDP/DDP, etc.), company employees are prohibited from entering the area.
- 4.2.5.3 In cases where the contractor is not present at the work site, it is not possible to allow company employees to enter the area even by issuing a new "Work Permit" pursuant to Article 4.2.1, due to the possible risks arising from the contractor's activities.
- 4.2.6 All persons entering the hazardous area must be familiar with the content of the "Work Permit" and all its relevant annexes and comply with the specified conditions, as well as with the work task and the entire work procedure, including the safety provisions of this BI that apply to them.

4.3 Preparation for work in a hazardous area

- 4.3.1 As part of the preparation of the workplace, it is necessary to shut down the equipment and empty its contents (by steaming, flushing with water, air or inert gas, cleaning or removing harmful substances by other means, e.g., neutralization, ventilation, etc.).
- 4.3.2 It is necessary to reliably separate the area from all other equipment, e.g. by blanking, disconnecting supply pipes, locking two fittings and venting the space between them to the atmosphere in accordance with the operating documentation and internal requirements specified in Chapter 6 of this BI.
- 4.3.3 It is prohibited to use process air from the distribution network for purging.
- 4.3.4 Enclosed spaces must be properly ventilated, if possible.
- 4.3.5 The following separation/isolation methods must not be used to enter enclosed spaces:
- closed and secured valve
 - insertion of a sewer plug, inflatable balloon, or plug into the line.
 - An exception to this provision is permitted in the following situations: for low-risk fluids such as water or air, two shut-off valves in series and an open release valve between them may be used (to ensure that the separation of the two valves is effective)
 - for water at very low pressure, sewer plugs or air bags may be used, e.g. to separate drainage sumps from connecting pipes or channels.

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4.4 Permanent supervision

- 4.4.1 Work in hazardous areas may only be carried out under the permanent supervision of a sufficient number of persons. The number of persons is determined so as to ensure continuous monitoring of the entire scope of the work being carried out and is determined by means of a JHA. Responsibility for carrying out permanent supervision is specified in the "Work Permit."
- 4.4.2 Permanent supervision must be present at the entrance to the hazardous area for the entire duration of the work and must not be assigned other tasks unrelated to the work of supervision. In hazardous areas with multiple entry points, a sufficient number of persons must be designated, or permanent supervision must be present at a location with a clear view of the entire area concerned.
- 4.4.3 The duties of permanent supervision include supervising the work being performed, supervising persons inside, checking for unauthorized entry, keeping records of persons inside, ensuring two-way flow of information and emergency signals, monitoring the duration of stay, interrupting work in case of danger, ensuring the evacuation of persons from inside hazardous areas, and, if necessary, calling emergency services in accordance with the rescue plan.

4.5 Communication

- 4.5.1 Before work begins, the method of communication between the person supervising the work and the persons inside the hazardous area must be established so that continuous communication between them is guaranteed (e.g., a whistle, radio, etc. is recommended).
- 4.5.2 The method of communication does not need to be determined in cases where the nature of the hazardous area allows for direct communication by speech.

4.6 Personal safety

- 4.6.1 This is specified for each hazardous area in which work requiring the securing of persons against falls or performed using PPE, PPE is carried out. The number of persons depends on the nature of the rescue equipment used (rope, safety harness, Swiss roll, rollgliss, tripod, winch, etc.), the physical condition of the persons, the number of persons being secured, and the rescue plan that has been drawn up. Responsibility for the safety of persons is specified in the "Work Permit".
- 4.6.2 Rescue operations are not carried out in cases where there is a risk of further damage to the health of the person being rescued (burial, even partial, complex technological units). In such cases, rescue must be carried out by the emergency services.
- 4.6.3 For vertical entries into containers with a depth of more than 1.5 m, it is not permitted to secure an employee entering enclosed spaces only with their hands. In such cases, it is always necessary to use the appropriate equipment (tripod with rope and winch, structure with sufficient load capacity for a pulley, etc.).
- 4.6.4 The securing person(s) must be physically fit to the extent necessary and must have protective equipment of the same scope and nature as the person working in the facility. However, they must not enter the enclosed space themselves unless they ensure their own safety by another person. **The prohibition on entering a confined space without being secured by another person must also be observed in the event of rescuing a person working in a confined space.**
- 4.6.5 When using respiratory protection (IDP, DDP), the person providing safety must be equipped with protective equipment of the same scope as the person working in the facility.

4.7 Securing entrances and exits

- 4.7.1 This applies to hazardous areas where entrances and exits are secured with hatches, covers, or grates. These devices must always be secured against spontaneous movement/closure. Responsibility for securing them is specified in the "Work Permit."
- 4.7.2 Openings must be opened primarily in places where it is safest to enter the space. If the space also has an entrance opening at the bottom, this opening must always be open and secured against possible falling.

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4.7.3 All open entrances to hazardous areas must be marked with a warning sign:

"CAUTION DANGER"
Enclosed space
Entry only with permission

4.8 Analysis of the environment for harmful or flammable substances

4.8.1 Before starting work in hazardous areas where dangerous concentrations of oxygen or toxic, explosive, or flammable substances may accumulate (hereinafter referred to as dangerous concentrations), an initial analysis must be performed inside the area. In the event of a possible hazardous concentration from the surrounding environment, an initial analysis must also be performed in the area surrounding the hazardous space.

4.8.2 In hazardous areas according to Article 4.8.1, it is necessary to continuously analyze the environment for the possible occurrence of hazardous concentrations during work.

4.8.3 Responsibility for performing the analysis is specified in the "Work Permit."

4.8.4 The number and location of measuring devices, taking into account the number of people and the nature of the hazardous area, must be determined by means of a JHA.

4.8.5 Safe concentration:

- oxygen in the range of 19-23.5% by volume.
- gases/vapors that could form explosive mixtures with air below 10% of the lower explosive limit (LEL),
- toxic gases permitted by NPK.

4.8.6 When assessing the risk of a hazardous area, it is necessary to take into account the oxygen content in the air inside the vessel, especially in cases where the vessel has been filled/flushed with inert gas and has not been flushed with fresh air for a long period of time - chimney effect, forced draft, diffusion. It is also necessary to take into account the fire safety of the work being carried out (e.g., in the case of pyrophoric deposits).

4.8.7 Entry into hazardous areas where a safe concentration cannot be ensured is only permitted with the use of respiratory protection (IDP/DDP). It is forbidden to remove the insulating breathing apparatus from the face at any time during work, even in the event of nausea!

4.8.8 Concentration measuring devices must be switched on outside the tested environment, i.e., in an environment without dangerous oxygen concentrations or the possibility of accumulation of toxic, explosive, or flammable substances. The devices must be operated in accordance with legislative and normative requirements and the manufacturer's requirements and must be suitable for use in the given environment.

4.9 Use of electrical items and other equipment in hazardous areas

4.9.1 The use of electrical items must be in accordance with the operating documentation and internal requirements specified in Chapter 6 of this BI and in accordance with the principles of the relevant legislative and normative requirements.

4.9.2 For work in metal containers, non-electrical equipment (pneumatic, etc.) must be preferred. If electrical equipment with a voltage higher than the safe voltage (50 V) must be used, then only with the use of an isolating protective transformer for each piece of electrical equipment used.

4.9.3 Personal protective equipment and measuring and safety technology used in work where an explosive mixture may arise must be appropriate for the environment, or appropriate measures must be established to eliminate the possibility of ignition sufficiently in advance.

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4.10 Additional requirements

- 4.10.1 In the case of welding work inside a hazardous area, the hoses of the welding equipment must be removed from the enclosed space after the work is completed.
- 4.10.2 During thunderstorms, work in metal equipment must be interrupted if it is located outside enclosed and roofed structures.
- 4.10.3 If there are residues of sludge, coatings, or other contaminants in the equipment, workers must be protected during their removal (against the possible aggressiveness of these substances on the body) by suitable clothing and against a possible dusty atmosphere by suitable respiratory protection.
- 4.10.4 The JHA analysis must take into account the possible length of time workers may spend inside the hazardous area, taking into account the given working and climatic conditions and the method of rotation and safety measures (high temperatures, dust, etc.). Rotation must take place outside the hazardous area.
- 4.10.5 In the event of damage to protective equipment, nausea, or other accidents, work on the equipment must be stopped immediately, the area must be vacated, and the cause must be reported to the permanent supervisor.

5 RESPONSIBILITY

Responsibility is determined by the individual provisions of Chapter 4.

6 RELATED REGULATIONS

- 1) Directive SGŘ-23-13 Fire protection
- 2) Directive SGŘ-23-14 Authorization of work on equipment and work under exceptional conditions
- 3) Government Regulation No. 375/2017 Coll. on the appearance, placement, and design of safety signs and markings and the introduction of signals
- 4) Government Regulation No. 362/2005 Coll. on detailed requirements for occupational health and safety at workplaces with a risk of falling from a height or into a depth
- 5) Government Regulation No. 591/2006 Coll. on detailed minimum requirements for occupational health and safety at construction sites, as amended
- 6) Act No. 309/2006 Coll., regulating further requirements for occupational health and safety in labor relations and ensuring occupational health and safety in activities or the provision of services outside labor relations (Act on Ensuring Further Conditions for Occupational Health and Safety), as amended
- 7) Government Regulation No. 101/2005 Coll. on more detailed requirements for workplaces and the working environment

7 INFORMING EMPLOYEES ABOUT SAFETY INSTRUCTIONS

It is the duty of managers of all departments to ensure that their subordinates are familiar with this revision of the BI and subsequently in accordance with SGŘ-23-08. They shall make a record of the training in the "B" occupational safety card.

8 RECORDING AND LONG-TERM STORAGE

The central record and long-term storage of the originals of this BI (including already cancelled BI revisions), the supporting documents for its processing and the approval procedure shall be ensured by an authorised employee of the HBP department. The manager creates controlled copies for the needs of the controlled department and ensures their registration.

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LIST OF APPENDICES

Appendix No. 1 – Rescue plan

Appendix No. 2 – Job Hazard Analysis (JHA) Appendix No. 3 –
Hazards associated with confined spaces

10

DISTRIBUTION LIST

This BI is distributed to company departments in electronic form in the Lotus Notes environment and to external companies on the SPOLANA a.s. website (<http://www.spolana.cz/v> under “Services and premises / Legislation”).

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