PUBLIC COMPANY ORLEN LIETUVA

APPROVED BY
General Director

30 November 2017
Order No TV1(1.2-1)-460

OCCUPATIONAL HEALTH AND SAFETY PROCEDURE BDS-6/2 WORKS IN CONFINED SPACES

I. GENERAL

Purpose and Scope of Application

1. Occupational Safety and Health Procedure BDS-6/2 'Works in Confined Spaces' (hereinafter the Procedure) aims to set occupational health and safety (hereinafter OHS) requirements applicable to works performed in confined spaces in Public Company ORLEN Lietuva (hereinafter the Company).

2. This Procedure applies to all Company and contractor (to the extent required by a contract concluded between the Company and contractor) employees involved in organizing, planning and/or performing works in confined spaces.

3. This Procedure does not apply to works performed in confined spaces within the Power Plant, which are governed by the 'Rules for Safe Operation of Heating Facilities' approved by the Order No.1-242 of the Minister of Energy of the Republic of Lithuania dated 13 September 2016.

II. REFERENCES

4. This Procedure applies in conjunction with the below listed documents (as amended to date):

4.1. Lithuanian Hygiene Norm HN 23:2011 'Limit Values of Occupational Exposure to Chemicals. General Requirements for Measurements and Impact Assessment' approved by Order No.V-824/A1-389 of 1 September 2011 by the Minister of Health and Minister of Social Security and Labor of the Republic of Lithuania;

4.2. Standard S1 - Permits to perform hazardous work (including fire hazards) of PKN ORLEN S.A. of 28 February 2017.

4.3. Standard S3 Works in Confined Spaces of PKN ORLEN S.A. of 28 February 2017.

III. TERMS, DEFINITIONS AND ABBREVIATIONS

5. Terms used herein are defined as follows:

5.1. **Entry attendant** – contractor or Company employee appointed by work manager to remain outside the confined space and safeguard workers as well as carry out all other duties described in the present Procedure.

5.2. **Lower explosion limit** (**LEL**) – the lowest concentration of a gas or a vapor in air capable of producing a flash of fire in presence of an ignition source.

5.3. **Personal protection equipment** (**PPE**) – any equipment to be worn or held by employees to be protected against hazards that may endanger their health and safety. For the purpose of the present Procedure:

5.3.1. **Mandatory PPE** – PPE indicated in OHS signs displayed at entries to process units, buildings or any other facilities of the Company (safety helmet with a strap, goggles, protective work clothing, safety footwear, ear and respiratory protection equipment);

5.3.2. **Special PPE** – PPE selected in consideration of implemented safety measures and risks associated with the planned works (safety harness, lifelines, PPE resistant to chemicals, filtering gas masks, self-contained breathing apparatus, etc.);

5.4. **Occupational risk identification card** (**RI card**) – a document (in the form established in Annex 2) that helps the work manager to identify the hazards that workers can be exposed to and take measures to ensure the safety of works. Contractor may use any other form of RI card if it is pre-agreed with the Company Occupational and Process Safety Control (OPSC) Department.

5.5. **Permit for works in confined spaces** (or **permit**) – a document (in the form established in Annex 1) authorizing works in confined space.

5.6. **Work supervisor** – organizational unit (issuing a permit) employee that passed a test on this Procedure as required by the Employee Indoctrination Procedure and is appointed by permit issuer to supervise works carried out in confined spaces (senior operator or operator of process units, oil product operator, etc.).

5.7. **Work coordinator** – employee of the Company organizational unit that initiates works in confined spaces:

– An employee under the authority of Director of Maintenance that passed a test on this OHS Procure as prescribed by Employee Indoctrination Procedure and was appointed by the Deputy Director of Maintenance or Chief Mechanical Engineer to organize and coordinate works carried out during maintenance of static and rotating equipment/facilities, structures/buildings of respective organizational unit;

– Technology & Investment Department employee that passed a test on this OHS Procedure as prescribed by Employee Indoctrination Procedure and was appointed by the Director of Investment & Technology to organize and coordinate technical activities related to implemented projects.

When works in confined spaces are initiated by managers of other organizational units of the Company, work coordinator is the respective unit employee that passed a test on this Procedure as required by the Employee Indoctrination Procedure and was appointed by the unit manager to organize and coordinate works in confined spaces.

5.8. **Work manager** – a manager that was appointed in writing by contractor for organizing and supervising works in confined spaces, passed a work manager test in the OPSC Department compliant with the Occupational Health & Safety Procedure for Contractors BDS-40 and has a valid work manager card, or an employee that was appointed by organizational unit manager and passed a test on this Procedure as required by the Employee Indoctrination Procedure. When a Company employee is appointed as work manager, he is also required to carry out the duties of work coordinator

5.9. **Workers** – Company or contractor employees that carry out works in confined spaces.

5.10. **Permit issuer** – manager of organizational unit that operates confined space equipment (Head of Operations, Deputy Head of Operations, Head of Shop, Head of Unit, Head of Section or other relevant manager), or engineer and senior process operators appointed by the unit manager for the issue of permits in emergency or other unforeseen cases at night, weekends and public holidays, all of them having passed a test on this Procedure compliant with the Employee Indoctrination Procedure. When Company General Director or Deputy General Director for Operations orders the shutdown of process units for maintenance, upgrade or implementation of investment projects, the manager of the organizational unit by his/her decree may, where deemed necessary, appoint operators and senior operators of process units to issue permits.

Permit issuer may issue permits for works carried out only in the organizational unit that operates confined space equipment.

5.11. **Air tester** – an employee of Mažeikiai Fire and Rescue Board for Protection of Facilities (**MFRB**) duly trained and appointed to test air samples, or an employee of organizational unit of the Company duly trained and appointed by a decree of the manager of organizational unit to perform the testing of air samples.

5.12. **Last minute risk analysis** (**or LMRA**) – analysis conducted before works in confined spaces in order to make sure the workers understand the assigned work, know possible hazards and have all mandatory PPE and other required means of work. LMRA is part of RI card (Annex 2 hereto).

5.13. **Lockout/tagout initiator** – Company employee responsible for isolating the equipment from any hazardous energy by means of energy-isolating devices (**EID**).

5.14. **Entry point** – a place where workers enter or exit a confined space, e.g., man-ways, ports, doors, etc.

5.15. **Risk matrix** – matrix designed to evaluate the preparation of confined space for work and to determine the residual risk. Risk may be low, medium or high depending on its likelihood and the severity of possible damage to human health (Annex 3).

5.16. **Process unit** – the entirety of indoor or outdoor crude refining installations, mechanisms, machines, devices, instruments, and vessels installed on supporting structures and foundations and isolated or connected by pipelines.

5.17. **Confined space** – a space that is large enough and so configured that it is possible for a worker to enter it but has limited or restricted means for entry and exit and is not designed for continuous occupancy. Confined spaces include towers, reactors, vessels, heaters, wells, tanks, pits of the depth of two meters and more, etc.

IV. DUTIES AND RESPONSIBILITIES OF EMPLOYEES

6. **Tagout/lockout initiator must** organize the isolation of confined space equipment from the existing or potential hazardous energy by means of EID as required by OHS Procedure BDS-29 'Equipment Isolation' and organize the preparation of equipment for work following the requirements laid down herein.

7. **Permit issuer must:**

7.1. Issue or extend the permit as prescribed by this Procedure only when directly requested by the assigned work coordinator;

7.2. Before issue of permit, make sure that the confined space equipment is properly isolated from all types of hazardous energy and that all safety measures have been implemented;

7.3. Before issue of permit, evaluate the safety measures required for the planned works in confined spaces as shown in the risk matrix, specify in section 9 of the permit the PPE and other safety devices to be used during the works and in section 10 – the worksite supervision requirements;

7.4. Fill out the permit in accordance with the requirements of this Procedure;

7.5. Register the permit in the log of hazardous works maintained by the unit that issued the permit (sample form of log is provided in Annex 4);

7.6. Before issue of permit, evaluate the presence of substances or their residues in the confined space equipment, identify required air tests, sampling points and the frequency of sampling and testing, notify air tester of PPE required for sampling and organize the execution of air tests;

7.7. Before issue of permit, check the work manager's certification card and make sure that it is valid;

7.8. Issue permit and allow starting the work only after making sure that airborne concentrations of substances inside the equipment meet the values indicated in Paragraph 22 hereof, the temperature does not exceed 40^{o}C, and that the permit has been signed by all persons indicated in it;

7.9. When needed, appoint a work supervisor to supervise works in confined space. Act as work supervisor if none is appointed by the permit issuer;

7.10. In case works are suspended pursuant to Paragraph 8.2, allow resuming works only after identifying and removing the causes of unsafe work and only under conditions specified in the permit;

7.11. If permit is extended for another period, before extension make sure the worksite conditions have not changed and sign in the extension section of both counterparts of the permit.

8. **Work supervisor must:**

8.1. Get familiar with the requirements and safety measures indicated in permit and confirm this by signing in section 12 of both counterparts of the permit;

8.2. Control the works carried out in confined spaces and suspend them (by taking the permit) if they are performed unsafely or when it is becomes unsafe to proceed with the work due to changed conditions. Suspension of works must be immediately reported to permit issuer, workers and/or work manager;

8.3. Upon receipt of notice from work manager, organize periodic work environment air testing;

8.4. Upon completion of works specified in the permit, check if the worksite has been cleaned and is orderly and only then sign in section 'Worksite clean' of both counterparts of permit;

8.5. After all works specified in the permit are completed and the requirement set out in Paragraph 8.4 is fulfilled or when the permit has no empty lines left for its extension, close the permit by signing and entering a closing date and time in section 13 'Permit closed'.

9. **Work coordinator must:**

9.1. Prior to commencing work, coordinate with the work manager the date, time, place, scope and sequence of works, discuss the appropriateness of tools and equipment that will be used in confined spaces and the OHS measures;

9.2. Inform the permit issuer about the need to issue/extend a work permit by indicating the date and time of works and the contractor, if any, the name and tag number of confined space equipment and the planned works;

9.3. Get familiar with the requirements and safety measures indicated in permit and confirm this by signing in section 12 of both counterparts of the permit;

9.4. Coordinate the execution of works;

9.5. If permit is extended for another period, make sure that the scope and nature of works have not changed and confirm this by signing in the extension section of the first counterpart of permit.

10. **Work manager must:**

10.1. Prior to commencing work, contact the work coordinator and agree with him the date, time, place, scope and sequence of works, the appropriateness of tools and equipment that will be used for the works as well as planned OHS measures;

10.2 Get familiar with the requirements indicated in permit and confirm this by signing in section 12 of both counterparts of the permit;

10.3. Identify the risks that may arise in the course of works, pre-plan safety measures and fill out the RI card;

10.4. Make sure that work tools and equipment that will be used in confined space are appropriate, in good repair as well as inspected and tested in accordance with OHS regulations of the Republic of Lithuania;

10.5. Appoint adequately qualified workers for performing works in confined spaces. Workers must be trained to provide first aid to the injured;

10.6. Appoint entry attendant for supervision of confined spaces. More entry attendants are required if a single entry attendant is not able to watch all workers entering the confined space or if the confined space has several entry (exit) points.

10.7. Define a rescue and evacuation procedure, communication methods (rope signals, hand signals, etc.), devices (radio communication equipment, whistles, etc.) as well as frequency of communication between workers and entry attendant;

10.8. Instruct the workers about the works, their course, safe work methods, air testing results, mandatory and special PPE and other safety measures, worker rescue and evacuation procedure, method of communication between workers and entry attendant against their signatures on the second counterpart of permit and the RI card;

10.9. Enter the workers and entry attendants in the work permit section 'Familiar with works, work conditions and PPE'.

10.10. Inform the permit issuer or work supervisor, if any, about the number of workers and entry attendants indicated in the work permit. In case of any changes to the number of workers during the validity of permit, indicate the new number of workers;

10.11. Make sure that the workers and entry attendants do not start any work before the permit is issued, they receive instructions and sign the RI card;

10.12. Prior to work, perform LMR analysis and make sure the workers understand that all worksite risks are controlled and required preventive measures have been implemented;

10.13. Make sure that the confined space is not entered by workers in numbers that can jeopardize their safety and health;

10.14. Provide the worksite with gas analyzers for monitoring airborne concentrations of hazardous substances if so required by permit;

10.15. During work, request permit issuer or work supervisor to organize workplace air testing at intervals prescribed by the permit and, if works have been suspended for more than 30 minutes, make sure that works are resumed only after air tests confirm that working conditions have not changed;

10.16. Control the execution of works periodically or continuously, depending on the level of risk at the worksite;

10.17. Make sure that workers and entry attendants comply with the requirements established in the permit, RI card and other OHS procedures of the Company, apply safe work methods and wear mandatory and special PPE; Provide entry attendants with same PPE as workers in confined spaces;

10.18. Make sure the permit and RI card are available at the worksite at all times;

10.19. Make sure that the worksite is always in proper order, i.e. waste and irrelevant items are removed from the site, required materials are stored orderly, etc.;

10.20. Upon completion of works specified in the permit, before the expiry of permit, organize the worksite cleanup and inform the permit issuer or work supervisor about completed works as well as confirm that the site is clean by signing in section 12 'Worksite clean' of the permit;

10.21. If permit is extended, make sure the type and scope of work have not changed, indoctrinate newly assigned workers and sign in the extension section of both counterparts of the permit.

11. **Workers must:**

11.1. Commence works in confined spaces only after getting familiar with the workplace hazards, obtaining all mandatory PPE as well as special PPE and collective protective equipment indicated in the permit and RI card, receiving instructions from the work manager, giving positive answers in the LMRA checklist and making sure that all required safety measures have been implemented and all hazards are under control (by signing the second counterpart of the permit and RI card);

11.2. Perform works specified in the permit only and comply with the requirements indicated in the permit, RI card and the applicable OHS procedures of the Company;

11.3. Not enter confined space if entry attendant is absent;

11.4. Maintain communication with entry attendant using methods, means and at a frequency specified by work manager;

11.5. Always keep the worksite clean, i.e. remove all irrelevant items, orderly store materials used for works in confined spaces;

11.6. Immediately evacuate from confined space when so instructed by entry attendant, or when noticing any signs of possible danger, or in case of emergency alarm.

11.7. If a worker working in the confined space needs to be replaced, work handover is done outside the confined space.

12. **Entry attendant must:**

12.1. During work in confined space:

12.1.1. Stay outside the confined space (near the entry point or in some other place that is best to watch the workers) all the time while the workers are inside the confined space;

12.1.2. Count (and always know) the number of workers inside the confined space and fill the entry/exit sheet (sample form provided in Annex 5);

12.1.3. Maintain communication with the workers and watch their actions;

12.1.4. Instruct the workers to evacuate from confined space:

12.1.4.1. If working conditions become inadmissible (other than specified in permit);

12.1.4.2. After noticing any signs of abnormal behavior (symptoms of weakness and fatigue, attempts to remove face mask, etc.);

12.1.4.3. After noticing any danger outside the confined space that can put at risk the workers inside the equipment;

12.1.4.4. In case of fire, emergency or any other incident, emergency alarm or activated gas analyzer;

12.1.4.5. When entry attendant cannot carry his duties properly and safely;

12.1.5. Not perform any other actions that may impair the performance of direct duties – control and safeguard the workers in the confined space;

12.2. During rescue works it is prohibited to enter the confined space. If affected worker is not able to evacuate from the confined space without assistance, entry attendant must retrieve the worker from the confined space by means of available rescue equipment and call in the rescue forces (firemen and ambulance);

12.3. Wear signal west and have a sound device (e.g., whistle) to draw the attention of workers.

13. **Manager of organizational unit that issued permit for work in confined space must** organize and ensure that work in confined space is carried out following the requirements of this Procedure.

14. **If any other person that is subject to this procedure** notices that the works are performed unsafely and may result in accidents or incidents, he/she **must** inform the permit issuer or work supervisor.

V. PREPARATION OF CONFINED SPACES

15. Confined space must be isolated with EID from the existing or potential hazardous energy as required by the Occupational Safety and Health Procedure BDS-29 ‘Equipment Isolation'.

16. All petroleum products or other chemical substances must be removed from confined space to reduce their concentrations to limits required by this Procedure. For this purpose the equipment is flushed with water, steamed, purged with inert gas, etc.

17. Confined space is cooled to 40^{o}C and ventilated.

18. If residues removed from confined space contains or may contain any pyrophoric compounds, they must be regularly watered until their disposal.

VI. AIR SAMPLING AND TEMPERATURE MEASUREMENT

19. Before starting or resuming works in confined space, air must be sampled next to the entry and inside the confined space to determine the concentrations of oxygen, explosive and hazardous substances as required by the Company Occupational Health and Safety Procedure BDS-12 'Use of Portable Gas Analyzers or Detectors'. Effects of oxygen depletion and increased carbon dioxide concentrations in workplace air are described in Annex 6 hereto. Temperature must be measured inside the confined space before the start of work.

20. Air is retested inside the confined space when it is not entered for more than 30 minutes or a 30-minute break is made between works (unless continuous air monitoring is in place). Air tester enters the periodic air testing results in the air test results record sheet (Annex 7). This sheet is filled out by the air tester in two copies, one going to permit issuer and another to work manager. During and after completion of works, air test results record sheet must be kept together with the permit.

21. In case of possible air change (e.g., toxic vapors can be released from oil products /sludge/scale during a storage tank cleaning operation), permit must set a requirement to perform continuous air monitoring using a gas analyzer that signals any deviations from fixed values.

VII. REQUIREMENTS FOR AIR AND TEMPERATURE IN CONFINED SPACE

22. Personal respiratory protection equipment does not have to be used in confined spaces if:

22.1. Oxygen concentration in the air is not less that 19.5 % and not higher than 23.5 %;

22.2. Concentrations of harmful substances that may be present in confined space do not exceed long-term exposure limits [4.1];

22.3. Concentrations of explosive substances in the confined space are 0 % of LEL;

22.4. Confined space is free from oil products, deposits and other impurities which could release harmful chemical substances if moved.

23. Confined space may be entered only when its temperature is not more than 40^{o}C.

24. Confined spaces may not be entered (irrespective of the type of personal respiratory protection equipment used) when:

24.1. Concentrations of acute substances exceed the threshold limits specified in table 1 [4.1];

24.2. Concentrations of explosive substances exceed 10 % of LEL.

Table 1

Acute toxic substance	Threshold limit values					
	Long-term exposure limit (LTEL)		Short-term exposure limit (STEL)		Threshold limit value (TLV)	
	mg/m^3	ppm	mg/m^3	ppm	mg/m^3	ppm
Hydrogen sulfide (H2S)	7	5	14	10	20	15
Sodium hydroxide (caustic soda)	-	-	-	-	2	-
Sulphur dioxide	5	2	-	-	13	5
Nitrogen dioxide	4	2	-	-	10	5

VIII. WARNING ABOUT DANGER

25. A warning sign 'Caution! Entry under permit only!' must be placed in a visible place near each open entry into confined space (manhole, hatch, door or alike). Manager of organizational unit issuing a permit for work in confined space must make sure that such sign is posted immediately after the entry to confined space is opened and is not removed for as long as it stays open.

26. If there is a risk of falling into the confined space through its open entry, it must be enclosed in accordance with the Company Occupational Safety and Health Procedure BDS-20 'Enclosures'.

IX. VENTILATION

27. Depending on the nature of work performed, effective ventilation (natural or mechanical) must provided to ensure that the air in the confined space always complies with the established requirements.

28. When selecting a location for ventilator it is essential that the ventilator is far enough from any potential sources of gas that could be drawn into the confined space.

29. Ventilator is positioned to blow air into the bottom of confined space.

X. ISSUE A PERMIT FOR WORK IN CONFINED SPACE

30. Works in confined spaces are allowed only under permit issued in accordance with this Procedure. Issue of permits and execution of works in confined spaces are prohibited during the startup and shutdown of process units.

31. Permit is issued for each specific confined space (e.g. tower, separator, tank, etc).

32. Permit is executed in two counterparts: the first (top) counterpart (white) is original, the second (pale yellow) – a carbon copy. Electronic permits are also possible (in this case both counterparts are original).

33. Permit must state the organizational unit where the works will be performed, contractor or Company unit that will perform he works, confined space equipment and its tag number, product removed from equipment, required works, implemented equipment preparation procedures, required air tests and intervals between the tests, safety requirements applicable to work in confined space. Section 'Worksite supervision' must always indicate that works in confined space must be watched by a sufficient number of entry attendants.

34. Depending on implemented equipment preparation procedures and potential hazards, additional OHS measures must be also specified in the permit.

35. After filling sections 1, 3–11 of the permit, it is registered in the log of hazardous works maintained by the respective organizational unit with the registration number and date entered in the permit.

36. Section 12 of the permit must specify the date and time of validity and air testing results, and must be signed by all persons indicated in the permit.

37. Date and time fixed in the permit must not extend beyond the end of shift of the work supervisor or permit issuer.

38. Permit must be enclosed with a copy of EID diagram with indicated EIDs and their locations as required by the Company Occupational Health and Safety Procedure BDS-29 'Equipment Isolation'.

39. The diagram must have the registration number of permit and marked sampling points. The diagram must be signed by the permit issuer.

40. Permit enters into force after it is signed by the permit issuer, work supervisor (if any), work coordinator (except for cases described in Paragraph 46), work manager, workers and entry attendants.

41. The first counterpart of permit is kept by the permit issuer in the control room or another place of issue of permits. The second counterpart is handed over to the work manager. This counterpart must be always kept at the worksite while performing the works.

42. Registered permit may be extended for a total of seven 12-hour shifts from the date of issue of permit provided that the nature of works and working conditions will remain the same.

43. The permit for work in confined space ceases to be valid if any of the responsible persons that signed the permit has been replaced, i.e. permit issuer, work supervisor (if any), work coordinator and/or work manager. In such cases a new validity date and time, ambient air test results signed by the individual who performed such tests and other responsible persons must be entered and signed on both counterparts of the permit.

44. If work manager is replaced, a new work manager must read the occupational RI card and where necessary specify additional safety measures and sign the RI card. For the same

type of works, it is recommended to issue separate permits for shifts from 8 AM to 8 PM and from 8 PM to 8 AM.

45. Issue or extension of permit for works in confined spaces done at night (from 8:00 PM to 8:00 AM), weekends and public holidays is allowed only upon prior written approval of a higher level manager (Head of Operations, Deputy Head of Operations, Head of Shop, etc.) that must sign in the section 'Other Requirements and Approvals' of the permit. Such agreement is not required for issue or extension of permits if process units are shut down for turnaround, maintenance, upgrade or implementation of investment projects as ordered by the Company General Director or Deputy General Director for Operations.

46. In emergency cases (e.g. risk of emergency shutdown of process unit) permit for works in confined space at night, weekends and public holidays may be issued/extended by a permit issuer appointed by decree of the manager of organizational unit. In such case, the permit issuer must enter in section 'Other requirements and authorizations' of the permit the contact details of work coordinator and organizational unit manager that requested to perform the works.

XI. ENTRY INTO CONFINED SPACE BY EMPLOYEES

47. Permit can be issued only to one work manager that performs major works in confined space at a time.

48. If other contractor or Company employees need to enter the confined space at the same time, the contractor or company work manager holding the permit evaluates the possibility of entry, informs the permit issuer and fills out the sheet of approvals for work in confined space (Annex 8). The sheet is filled in two copes and signed by the workers indicated in it. One copy is always kept at the worksite, other – in the control room or other place of issue of permit together with the permit.

49. Permit issuer must familiarize the other work manager with the requirements set forth in the permit. Work manager instructs his employees and performs other functions set forth herein.

50. All employees (including individuals that need to access the confined space for inspections/checks, such as managers, specialists, consultants, etc.) are indoctrinated by the work manager and sign the permit (in its section signed by workers). Prior to entering the confined space, they must be registered by entry attendant and follow his instructions.

XII. REQUIREMENTS FOR WORK IN SEWAGE SYSTEMS

51. Appropriately trained employees that know OHS requirements applicable to confined spaces can work in wastewater disposal wells (hereinafter the sewer systems).

52. Working in sewer systems does no require isolating them from hazardous energy sources.

53. Sewer system entry is not permitted without self-contained respiratory protection (e.g. self-contained breathing apparatus) and verified and operating gas analyzer for continuous monitoring of gas concentrations.

54. Sewer systems may not be entered when the concentration of explosive substances exceed 10 % of LEL. In such case wells are filled with water, ventilated, etc to reduce hazardous concentrations to allowable limits.

XIII. OTHER REQUIREMENTS

55. Electrical equipment and tools used in confined space must comply with the requirements of Procedure BE-2 for Operating Electrified Machinery, Handheld Electrical Equipment and Tools, Domestic Electric Appliances and Portable Lights.

56. Total light intensity in confined space must be at least 50 lx.

57. Confined space evacuation exits must be visible (where required marked with signs, additionally illuminated, etc.), employees must be provided with the possibility of quick and safe evacuation from all workplaces in case of hazard.

58. Hot works can be performed in confined space (including use of electrical equipment) in accordance with the Occupational Health and Safety Procedure BDS-7 'Hot works' after removing all combustible materials (wooden scaffolds (or properly isolate them), polythene covers, etc.).

59. CO2 fire extinguisher must be at the place of hot works in the confined space. It is prohibited to use powder extinguishers in confined spaces.

XIV. RESCUE EQUIPMENT

60. If confined space contains gas or nitrogen and requires use of self-contained breathing apparatus, prior to work, the work manager must draft a worker rescue plan (describe, provide in drawings), prepare rescue equipment and introduce the plan to the workers by sign-off.

61. If rescue plan provides for retrieval through the top opening of confined space, lifting equipment (tripod, hoist, etc) must be installed above the opening or there must be a sufficient number of standby employees ready to retrieve the workers from the confined space. If the plan provides for retrieval through the side entry, it must specify other rescue equipment such as sloped (inclined) ducts, rescue ropes, etc.

62. Confined space entrant must wear safety harness and have an attached signal/rescue rope. One end of signal/rescue rope is attached to the safety harness on the employee's back, other end – to a fixed support outside the confined space. If several workers work within the same level of confined space, one signal/rescue rope is sufficient to rescue a worker when needed. In such case one end of the rope must be next to the workers, the other end is attached to a fixed support outside the confined space.

63. Safety harness and signal/rescue ropes may not be used in confined spaces the design/structure of which prevents the retrieval of workers (in distillation, absorption towers, heaters) as well as in excavations with landfall protection, entry and exit equipment installed in accordance with the Company's Occupational Safety and Health Procedure BDS-31 'Earth works'.

XV. EMERGENCY PROCEDURES

64. Workers must immediately terminate all activities and evacuate from confined space in case of fire, emergency, accident or any other hazard, when so instructed by entry attendant, and in case of emergency alarm or activated gas analyzer.

65. All incidents must be immediately reported by the workers, entry attendant, work managers and supervisors to the Company's dispatcher by phone number 3333 (for fixed-line calls) or +370 443 92510 (for any calls) and the staff of the unit where the works were carried out. If works are performed in Būtingė Terminal, all incidents must be immediately reported by the workers, entry attendants, work managers and work supervisors to the Terminal Operations Group shift supervisor by phone number +370 443 93459 or +370 686 78112. If works are performed in Biržai and Joniškis Oil Transshipment Stations – to the Main Pipelines Service Group dispatcher by phone number +370 443 93483 or +370 689 89845.

66. If any incident occurs while working in confined space, the permit ceases to be valid and all its counterparts are transferred to the respective incident investigation committee.

67. In the event of accidents during which people in confined space are affected by hazardous substances, information about such substances (safety data sheets, written procedures and other documents) is immediately presented to the healthcare facility providing medical treatment to the casualties.

XVI. DOCUMENT CUSTODY

68. After completing works in confined space, the first counterpart of permit (original) is retained by the organizational unit that issued the permit for 30 (thirty) calendar days.

69. The second counterpart of permit is retained by the contractor.

70. A log of hazardous works is kept in the organizational unit for the period of its validity and for another 5 years after it is fully completed.

XVII. EMPLOYEE TRAINING

71. Company employees (permit issuers, work supervisors, work coordinators, work managers, workers and entry attendants) are required to pass a test on this Procedure as required by the Company's Occupational Health and Safety Indoctrination Procedure.

72. Contractor's work managers are required to pass a test on this Procedure prior to commencing works in the Company and thereafter on a periodic basis at least every 12 months. After passing a test, work manager receives a work manager card containing the following information: employee's full name, organization and expiry date. While performing works in confined space, the work manager must always keep the card at the worksite.

73. Contractor's staff (workers and entry attendants) must be indoctrinated on this Procedure in accordance with the contractor's procedures.

XVIII. FINAL PROVISIONS

74. This Procedure sets the basic and minimum OHS requirements for works performed in confined spaces and therefore all employees involved in organizing and/or performing such works must take additional OHS measures if necessary to ensure the safety of works.

75. Director of Quality, Labour Safety and Environmental Control is responsible for the periodic review, and where necessary updating, of this Procedure.

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Prepared by
Control and Prevention Group Manager
Egidijus Luomanas

_____
2017-11-06

Agreed with:
Director of Quality, Labour Safety and Environmental Control
Arkadiusz Pawlak

_____
___-11-2017

RISK IDENTIFICATION CARD
(Sample form)

Contractor:
Work permit registration # and date:
Enter hazard abbreviation in column 'HAZARDS': F – fire/explosion HS – hot surfaces P – poisoning N – noise V – vibration; II – inadequate illumination FTH – fall of things from height FT – fall of things ML – manual lifting of loads FH – falling from height E – hazard related to electricity SS – slippery surfaces TE – thermal environment UET – hazard related to use of equipment and tools M – hazard related to use of materials MLL – mechanical lifting of loads Other hazards (enter potential hazards and abbreviations):

OPERATIONS (ACTIONS)	HAZARDS	SAFETY EQUIPMENT

Work manager _____
(Name, surname and signature)

(reverse side of card)

LAST MINUTE RISK ANALYSIS		
Prior to commencement of work, make sure that the risk you have estimated beforehand as well as safety measures you have takenare consistent with the situation you encounter at the worksite and all risk are under control. **Ask each worker to answer these questions:**	**YES**	**NO**
Do I know what I need to do?		
Do I know and understand the requirements set in the work permit and the card?		
Do I have the right tools?		
Do I have proper safety equipment (PPE)?		
Is the workplace safe?		
If anything goes wrong, do I know what I'm supposed to do? Memorize ORLEN emergency phone number: **+370 443 9333**		
If you think that risk is acceptable, indicate YES. If you do not think that risk is acceptable, indicate NO. If at least one NO, do not start work - go to your work manager and discuss the situation.		

The work I need to do as well as hazards and all safety procedures have been explained to me and I am sure that everything possible to minimise the risk and ensure the safety at work has been done (worker):

Date	Full name	Job title	Signature

RISK MATRIX		LIKELIHOOD OF RISK MATERIALIZING		
		LOW This risk is unlikely and has never materialized in execution of works	**MEDIUM** Most likely that this risk may materialize in execution of these works	**HIGH** This risk has materialized in the past, will materialize in execution of these works and may repeat
SEVERITY OF DAMAGE TO	**LOW** Slight personal injuries not requiring medical treatment (superficial wounds, minor cuts, minor abrasions)	LOW	LOW	MEDIUM
	MEDIUM Minor injuries requiring medical treatment (fractures, dislocations, muscle sprains, burns or other minor traumas), poisoning	LOW	MEDIUM	HIGH
	HIGH Serious injury or fatality (multiple fractures, concussion and other effects dangerous to life), acute poisoning	MEDIUM	HIGH	HIGH

MEASURES APPLICABLE TO IDENTIFIED RISK LEVEL	
LOW	Worksite and environment are safe, only periodic work supervision is required.
MEDIUM	Work environment may change and therefore it is necessary to specify in Section 9 'Safety requirements applicable to works' of permit the safety measures that must be applied during works. If severity of damage to health is low but the likelihood of risk materializing is high work manager must be always present in the place of work.
HIGH	Works may be performed if section 9 of permit ('Safety requirements applicable to works') sets safety measures that allow reducing the risk to medium or low, the work manager is always present at the worksite or if ORLEN Lietuva OHS Procedure BDS-27 'High-Risk Works' is applied.

Specimen log of hazardous works

Start of Work						End of Work	
Work Permit Reg. No.	Date and time of issue of work permit	Hazardous work (MW, EDW, HW, WCS, EW)*	Worksite (Equipment or other facility, tag No.)	Contractor	Permit issuer (full name, signature)	Date and time of expiry of work permit	Permit issuer (full name, signature)

*MW – maintenance works, EDW – equipment depressurization works, HW – hot works, WCS – works in confined space, EW - earthworks

Sheet of confined space entrants and entry/exit times
(Sample form)

Date _____ Confined space equipment and its No. _____

Entry attendant(s) _____ From _____ to _____
(Name, job title) (Watch time)

_____ From _____ to _____

_____ From _____ to _____

Worker name and job title	Time of entry/exit					

Reverse side of sheet

Entry attendant must:

- Stay outside the confined space (near the entry point or in some other place that is best to watch the workers) all the time while workers are inside the confined space;
- Count (and always know) the number of workers inside the confined space and fill this entry/exit sheet;
- Maintain communication with the workers and watch their actions;
- Instruct the workers to evacuate from confined space:
- Upon noticing any inadmissible working conditions (other than specified in permit);
- After noticing any signs of abnormal behavior (symptoms of weakness and fatigue, attempts to remove face mask, etc.);
- After noticing any danger outside the confined space that can put at risk the workers inside the equipment;
- In case of fire, emergency or any other incident, emergency alarm or activated gas analyzer;
- When entry attendant cannot carry his duties properly and safely;
- Not perform any other actions that may impair the performance of direct duties – control and safeguard the workers in the confined space.
- Entry attendants may not enter the confined space during rescue works.
- If workers are not able to exit confined space without help, entry attendant must call the Company dispatcher by phone 3333 (for fixed-line calls) or +370 443 9333 (for any calls) that will send the rescue forces (firemen and ambulance) to the scene of incident.

Effects of oxygen depletion

(Data taken from Great Britain's Health and Safety Executive website)

Oxygen concentration in air, vol %	Symptoms/reaction
21–20 %	Normal
18 %	Night vision starts to be impaired
17 %	Respiration volume increase, muscular coordination diminishes, attention wanes and thinking clearly requires more effort
15-12 %	Shortness of breath, headache, dizziness, quickening of pulse, quick fatigue, loss of muscular coordination of skilled movements occurs
12–10 %	Nausea and vomiting, inability to exert, paralysis of motion
8-6 %	Collapse and unconsciousness occurs
6 % and below	Death in 6 to 8 minutes

Effects of carbon dioxide

Carbon dioxide concentration in air, % vol.	Symptoms/reaction
4.5 %	Reduced concentration capability for more than 8 hours exposure
5.5 %	Breathing difficulty, headache and increased heart rate after 1 hour
6.5 %	Dizziness, and confusion after 15 minutes exposure
7 %	Anxiety caused by breathing difficulty effects becoming severe after 6 minutes exposure
10 %	Unconsciousness occurs in 30 minutes
12 %	Unconsciousness occurs in 5 minutes
15 %	Unconsciousness occurs in 1 minute
20 %	Unconsciousness occursin less than 1 minute

AIR TEST RESULTS RECORD SHEET
(Sample sheet form)

Work permit registration No___________ Work permit registration date: ___________________

Date	Time	LEL %	O_2 %	H_2S mg/m^3	Air tester (Full name, signature)

SHEET OF APPROVALS FOR WORKS IN CONFINED SPACE
(Sample sheet form)

Date _____ **Permit No**_____ **Location, name of confined space equipment**_____

Permit issued to contractor _____ **Work manager** _____

Name of organization	Work description	Number of employees	Work permitted		Work manager to whom permit is issued (Full name, signature)	Work manager whose employees are allowed to work under issued permit (Full name, signature)	AGREED WITH Permit issuer (Full name, signature)
			Date	Time from to			

ORLEN Lietuva

1 Permit for:

☐ **MAINTENANCE** ☐**EQUIPMENT DEPRESSURIZATION** ☐ **HOT WORKS OF CATEGORY __** ☐ **WORKS IN CONFINED SPACES**

2 Reg. No. _____

Date _____

3 Organizational unit_____ **Equipment No/location** _____ **Product/medium removed from equipment** _____

Contractor _____ **Works** _____

4 Preparation of equipment:	**Yes**	**No**	**NA**
Isolated as per EID list No. _____	□	□	□
Hazardous substances removed	□	□	□
Purged with steam/nitrogen	□	□	□
Pressure reduced to atmospheric	□	□	□
Cooled to ≤ 40 °C	□	□	□
Tie-in points marked	□	□	□
Depressurization points marked	□	□	□
Equipment de-energized	□	□	□

5 Preparation of territory:	**Yes**	**No**	**NA**
Flammable substances removed	□	□	□
Ignition sources removed	□	□	□
Gas release hazard eliminated	□	□	□
Sewer facilities tightly closed	□	□	□
Ventilation ports isolated	□	□	□

6 Ambient air testing:

LEL: □ ≤ 5 vol %

O_2: □ 19.5 – 23.5 vol %

H_2S □ ≤ 7 mg/m3

Othe □ _____

Frequency of testing:

□ Not required

□ Before start of work

□ Periodic, every _ hours

□ Continuously

7 Potential hazards:

□ Fall from height □ Gas leak

□ Fire □ Hot surfaces

□ Other: _____

8 Risk matrix:

Severity of damage to health	**Likelihood of materializing: Low**	**Medium**	**High**
Low	Low	Low	Medium
Medium	Low	Medium	High
High	Medium	High	High

9 Safety requirements applicable to work:

	Yes	**No**
Fire extinguisher: □ Power □ CO2	□	□
Protections against fall from height required	□	□
Gas analyzers required	□	□
Face mask with ABEK gas filter: □ Have □ Use	□	□
Dust masks required	□	□
Self-contained breathing apparatus required	□	□
Chemical-resistant PPE required	□	□
Use of harness and lifeline in confined space required	□	□
Mechanical ventilation required	□	□
Use of Ex equipment required	□	□

Other: _____

10 Worksite supervision

	Yes	**No**
Works must be watched by fire watch	□	□
Works must be watched by a sufficient number of entry attendants	□	□
Flange spreading operation must be watched by responsible persons	□	□
Works must be continuously supervised by work manager	□	□

11 authorizations:

12

Permit valid until		Air testing results					Air tester (full name, signature)	Permit issuer		Work supervisor (signature)	Work coordinator (full name, signature)	Work manager (full name, signature)	Worksite clean	
Date	Time (from - to)	Time	LEL%	O_2,%	H_2S, mg/m^3	Other		I authorize the works (full name, signature)	I appoint as work supervisor (full name)				Work manager (signature)	Verified by (signature)

13 Permit closed: Permit issuer or work supervisor _____ Date and time _____

ABBREVIATIONS: NA – not applicable, PPE– personal protective equipment, EID – energy isolating devices, LEL – lower explosion limit, O2 – oxygen, H2S – hydrogen sulphide

14 Familiar with works, working conditions and PPE (worker, entry attendant/fire watch):

Name, surname	Job title	Signature	Date 1	2	3	4	5	6	7	Name, surname	Job title	Signature	Date 1	2	3	4	5	6	7

Each shift, in the column 'Date', work manager enters **X** for workers and attendants/watchers working in a shift that has been issued the permit.

INSTRUCTIONS FOR FILLING THE WORK PERMIT

A permit must be filled in legible handwriting by entering appropriate information in each section of the permit and marking the right boxes with the cross mark '**X**'.

Section 1. Mark the appropriate box depending on the type of planned works. For hot works that will be performed in confined spaces, mark the boxes 'HOT WORKS OF CATEGORY I/II' and 'IN CONFINED SPACES'. For earthworks that are performed at depths greater than 2 meters, mark the boxes 'IN CONFINED SPACES' and 'EARTHWORK'.

Section 2. Enter the permit registration number and date from the logbook for registration of hazardous works.

Section 3. Specify the organizational unit and its tag number or the site where the works will be performed, product/media removed from equipment, contractor and the works.

Section 4. Mark 'Yes', 'No' or 'NA' (not applicable) for the listed equipment preparation activities. 'Yes' is marked for activities that have been implemented. If 'No' is marked for any box, specify additional safety measures in section 9 'Requirements applicable to works' of the permit or works must be performed following the OHS Procedure BDS-27 'High-Risk Works'. 'NA' is marked for activities that are irrelevant.

Section 5. Mark 'Yes', 'No' or 'NA' (not applicable) for the listed territory preparation activities. 'Yes' is marked for activities that have been implemented. If If 'No' is marked for any box, specify additional safety measures in section 9 'Requirements applicable to works' of the permit or works must be performed following the OHS Procedure BDS-27 'High-Risk Works'. Mark 'NA' for activities that are irrelevant.

Clarification of some expressions: 'Removed ignition sources' means no hot works of categories I and II are performed, 'Gas release hazard eliminated' means that no depressurization, draining or steaming of equipment are performed.

Section 6. Enter the required air tests and their frequency. If no air testing is required, enter 'Not required', If periodic air testing is required, specify the intervals between tests with test results provided in a separate sheet kept at the worksite during the work.

Section 7. Indicate possible work hazards in consideration of completed preparation activities.

Section 8. Describe the work risks determined using the risk matrix and the safety measures selected in consideration of the risk level:

RISK MATRIX		**LIKELIHOOD OF RISK MATERIALIZING**		
		LOW This risk is unlikely and has never materialized in execution of works	**MEDIUM** Most likely that this risk may materialize in execution of these works	**HIGH** This risk has materialized in the past, will materialize in execution of these works and may repeat
SEVERITY OF DAMAGE TO HEALTH	**LOW** Slight personal injuries not requiring medical treatment (superficial wounds, minor cuts, minor abrasions)	LOW	LOW	MEDIUM
	MEDIUM Minor injuries requiring medical treatment (fractures, dislocations, muscle sprains, burns or other minor traumas), poisoning	LOW	MEDIUM	HIGH
	HIGH Serious injury or fatality (multiple fractures, concussion and other effects dangerous to life), acute poisoning	MEDIUM	HIGH	HIGH

MEASURES APPLICABLE TO IDENTIFIED RISK LEVEL	
LOW	Worksite and environment are safe, only periodic worksite supervision is required.
MEDIUM	Work environment may change and therefore it is necessary to specify in Section 9 'Requirements applicable to works' of permit the safety measures that must be applied during works. If severity of damage to health is low but the likelihood of risk materializing is high work manager must be always present in the place of work.
HIGH	Works may be performed if section 9 of the permit ('Requirements applicable to works') sets safety measures that allow reducing the risk to medium or low, the work manager is always present at the worksite or if Company OHS Procedure BDS-27 'High-Risk Works' is applied.

Section 9. Mark 'Yes' for safety devices that are mandatory during the work or 'No' for devices that are irrelevant/not required. Specify other precautions that must be taken during the work.

Section 10. Mark 'Yes' if works must be watched by the specified persons or 'No' if no watch is required. Requirement 'Flange spreading operation must be watched by responsible persons' means that the permit issuer or his appointed work supervisor must watch the spreading of flanges when depressurizing the equipment.

Section 11. Specify additional OHS requirements (if required) that must be observed during the work and the persons (if applicable) that must approve the permit (e.g., in case of hot works on OSBL piping, cable trays and other engineering networks, the permit must be coordinated with the manager of unit where hot works are performed).

Section 12. Enter the validity date and time (permit may be issued for a period not longer than a 12-hour shift). Air testing results are entered and signed by the air tester. Enter responsible persons in other columns (to be signed by them): permit issuer, work supervisor (if any), work coordinator and work manager. Each shift, after completion of works for which the permit has been issued, the work manager or person that checks the worksite (permit issuer or work supervisor) signs in the section 'Work completed' of both counterparts of the permit. If permit is extended, the below lines are completed as described above.

Section 13. This section is filled after no empty lines are left or all works indicated in the permit are completed by entering the closing date and time in the first counterpart of permit that must be signed by the permit issuer or work supervisor.

Section 14. To be signed by all workers and appointed attendants/watchers after the indoctrination given by the work manager before the start of work. If permit is extended, it must be signed only by newly appointed workers and attendants/watches after are indoctrinated before the start of work. In the column 'Date', the work manager places X for workers and attendants/watchers working in a shift that has been issued the permit.

Distribution of permit: original (white) – retained by the organizational unit that issued the permit, copy (yellow) – submitted to the work manager (must be kept at the worksite).

After closing the permit, its first counterpart (original) is retained for 30 days by the organizational unit that issued the permit. After the expiry of the retention period, permits are destroyed at the unit manager's decision in accordance with the Company Rules for Document Preparation and Management.

Permit issuer is responsible for the implementation of requirements set forth in sections 4, 5 and 6 of the permit and work manager – in sections 10 and 11.