Polski Koncern Naftowy ORLEN
Spółka Akcyjna

SAFETY STANDARDS OF PKN ORLEN S.A.

Occupational Health and Safety guidelines for designers from the Comprehensive Prevention System of PKN ORLEN S.A.

Coordination:	Acceptance:	Approval:
Ekspert BHP Dział BHP i Koordynacji Prewencji w GK Zbigniew Stępień	Kierownik Dział BHP i Koordynacji Prewencji w GK Biuro Bezpieczeństwa i Higieny Pracy PKN ORLEN S.A. Łukasz Agaciński	Dyrektor Biura Bezpieczeństwa i Higieny Pracy Tomasz Gościniak

Editing and translation:
Natalia Grądzka-Grabowska
Konrad Chlewiński

Płock, September 2022

Guidelines for designers resulting from regulations of the Comprehensive Prevention System regarding:

1. Operational management regarding the plan of division and allocation of areas of PKN ORLEN S.A. in Płock.

The operational management introduces the "Land Ownership Plan" within the production plant in Płock, between individual Land Owners, Land Area Owners and the "Area Assignment Plan" within the production plant in Płock, applicableto the Area Owners.

The basic unit of partitioning the area inside the fence is a technological plot marked with a symbol combining a letter and a number (eg: D8).

The boundaries of the technological plot are curbs or edges of main roads in accordance with the General Plan of PKN ORLEN S.A.

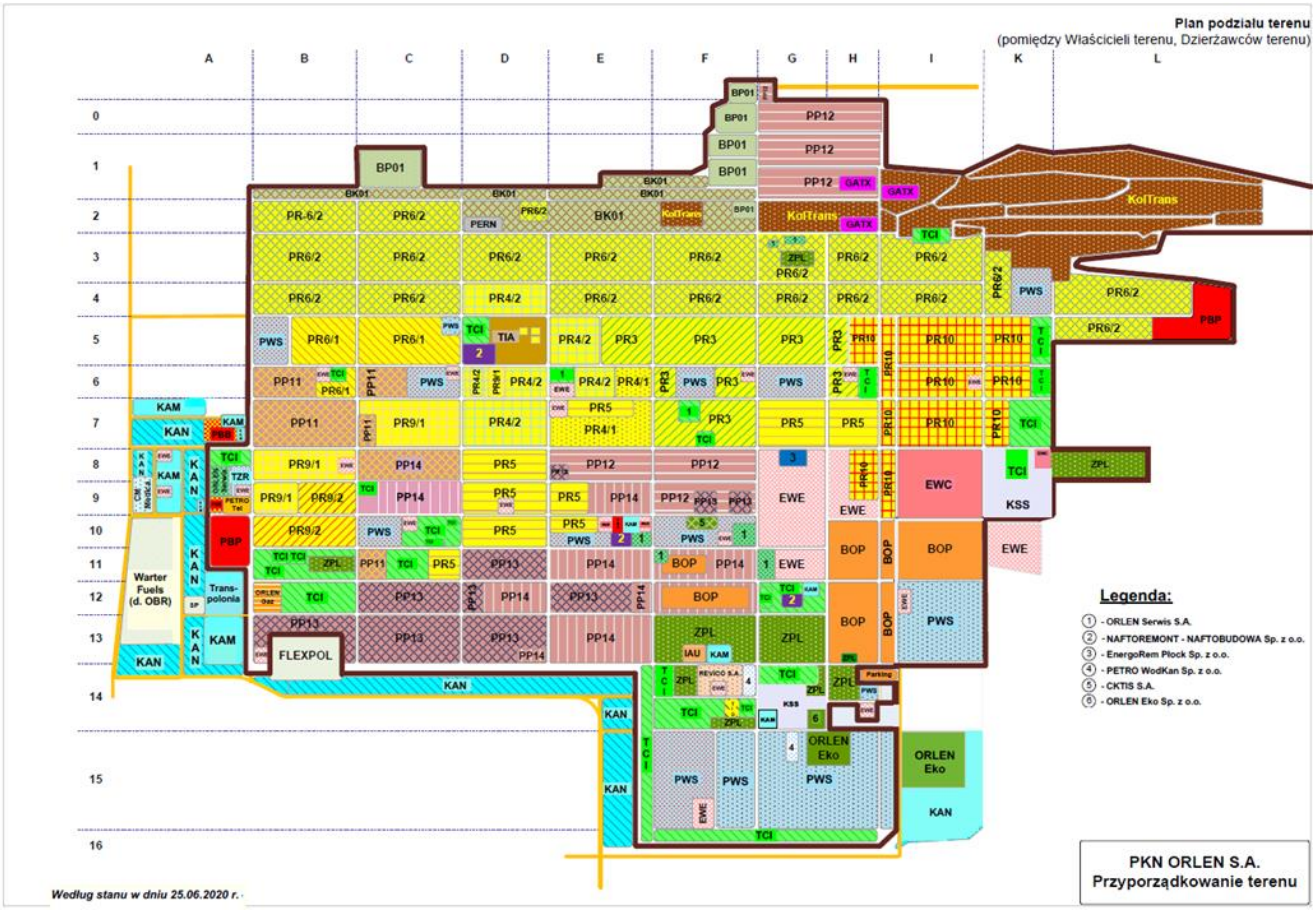


Fig. 1- Map of the Production Facility in Płock

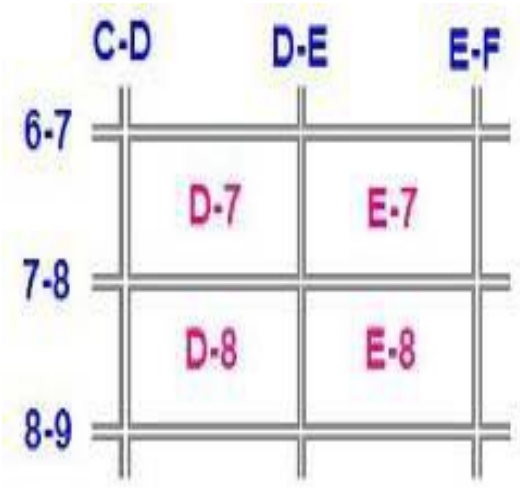


Fig. 2 Example of roads and plots marking

The land owner / tenant of the site is responsible for maintaining the health and safety at work, fire protection and environmental protection in the assigned area.
The owner of infrstructure network (structures without pipelines, sewage systems, bridges, working platforms, fittings and accessories) is the Technical Infrastructure Department.
Technological pipelines, located on piperacks and troughs, are managed by the individual managers of organizational departments (production installations).
The piperacks and main troughs are assigned in the area of supervision to individual landowners independently of the basic unit of land division, which is a technological plot.

2. Regulation regarding the occupational health and safety requirements for employees at workplaces where explosive atmospheres may occur at the PKN ORLEN S.A.

For workplaces where the possibility of an explosive atmosphere threatening the health and life of workers is suspected, a classification of potentially explosive zones and an explosion risk assessment based on it should be performed.
The explosion risk assessment is an integral part of the Explosion Protection Document called the Ex Document.
The explosion risk assessment should include at least:

- assessment of the probability and time of occurrence of an explosive atmosphere;
- assessment of the probability of occurrence and activation of ignition sources, including electrostatic discharges;
- assessment of the interaction of the installations operated, the substances and mixtures used and the processes involved;
- assessment of the size of the anticipated (possible and undesirable) effects of the explosion.

Identification of explosive atmospheres

Characteristics of hazardous substances in terms of explosives

List and characteristics of explosive hazardous materials developed based on Ex approved and accepted classification cards for hazardous areas - Appendix No. 2.

Classification of potentially explosive atmospheres

List and classification of potentially explosive atmospheres prepared on the basis of Ex approved and accepted classification cards for hazardous areas (Appendix No. 3).

Explosion risk assessment
The probability of occurrence of effective sources of ignition

It is recommended to classify effective ignition sources, taking into account the probability of their occurrence as follows:

- sources of ignition that can occur constantly/ continuously or frequently (10^{0} - 10^{-2})

- sources of ignition that may rarely occur (10^{-3} - 10^{-5})

- sources of ignition that may occur exceptionally (10^{-6} - 10^{-7})

The analysis should cover all types of ignition sources given in the PN-EN 1127-1 standard, determine their effectiveness and probability of occurring in the considered space using the risk matrix.

Note: we assume higher probability values to estimate the explosion risk.

The probability of an explosive atmosphere

We estimate the likelihood of an explosive atmosphere based on the risk matrix presented in the table below:

Type of explosion hazard area	Description of the zone	Duration	The probability of atmosphere occurring
Zone 0	A space in which an explosive atmosphere containing a mixture of combustible substances, in the form of gas, steam or mist with air, occurs continuously or in long periods	>1000 hour/year	$10^{-1} \div 1$
Zone 1	A space in which an explosive atmosphere containing a mixture of combustible substances with air may occur under normal operating conditions	10÷1000 hour/year	$10^{-3} \div 10^{-2}$
Zone 2	A space in which during the conditions of normal operation the appearance of an explosive gas atmosphere does not occur, and in the case of occurrence, it is short-lived	1÷10 hour/year	$10^{-4} \div 10^{-3}$

Note: we assume higher probability values to estimate the explosion risk.

Determination of explosion risk

To estimate the explosion risk, there is used a process risk matrix included in the ordinance on the introduction and application of the Process Safety Management System at the PKN ORLEN SA is used.

Attention:
The probability of an explosion is the presence of the product multiplied by the probability of the appearance of effective ignition sources and the occurrence of an explosive atmosphere.

Category of effects (S) / Frequency of effects 1/year (P)		numeric designation	*negligible*	*small*	*average*	*big*	*disaster*
			1	*2*	*3*	*4*	*5*
very often	**$<10^{0} – 10^{-1})$**	*1*	**TA**	**TNA**	**NA**	**NA**	**NA**
often	**$<10^{-1} – 10^{-2})$**	*2*	**TA**	**TNA**	**TNA**	**NA**	**NA**
possible	**$<10^{-2} – 10^{-3})$**	*3*	**TA**	**TA**	**TNA**	**TNA**	**NA**
sporadic	**$<10^{-3} – 10^{-4})$**	*4*	**A**	**TA**	**TA**	**TNA**	**TNA**
rare	**$<10^{-4} – 10^{-5})$**	*5*	**A**	**A**	**TA**	**TA**	**TNA**
very rare	**$<10^{-5} – 10^{-6})$**	*6*	**A**	**A**	**A**	**TA**	**TA**
nearly impossible	**$<10^{-6} – 10^{-7}>$**	*7*	**A**	**A**	**A**	**A**	**A**

Where the resulting risk level (R) is determined by:

- **A** Risk accepted (in theory no additional security measures are required, however, they may be indicated for implementation),
- **TA** Risk tolerated - accepted (ALARP principle, review the alternatives)
- **TNA** Accepted unacceptable risk (introduce additional safety measures on a separate date)
- **NA** Unacceptable risk (stop the process immediately)

Categories of effects:

effects	Employees	Population	Enviroment	Wealth	Reputation
negligible	No injuries	No injuries	No influence	To 10 000 €	No influence
small	Single minor injuries. (Not affecting the performance of work or	Odor, noise *(No evacuation required or first medical aid required)*	Small recorded in reports. *(Light environmental destruction within the installation)*	To 100 000 €	A slight impact *(Missed trustees - possible to recover quickly at low cost.*

effects	Employees	Population	Enviroment	Wealth	Reputation
	causing inability to work)				*Public awareness may exist)*
average	Average injuries, single severe injuries *(Limiting performance of duties or a few days absence for full recovery, small, reversible health effects, eg skin irritation, food poisoning)*	Small injuries *(No evacuation required, first pre-medical help required)*	Average damage *(Clearly destruction or emission to the environment, but no lasting effect, single case of violation of a statutory restriction or a single complaint)*	To 1.000 000 €	Limited impact *(Conflicted trust - possible to regain in the long term with PR support. Unpleasant attention of local media / political groups)*
big	Numerous heavy injuries *(Irreversible health effects with serious inability to work, for example: caustic burns, loss of hearing due to detonation noise, heat stroke)*	Average injuries *(Limited health effects for people not required evacuation, medical assistance required for individual cases)*	Serious destruction *(The company must undertake comprehensive measures to rebuild environmental damage, the extent of damage violates statutory restrictions)*	To 10 000 000 €	National influence *(Significant drop in confidence - trust that can be recovered in the long term, but at a high cost. Extensive, unfavorable national media attention)*
catastrophic	Fatalities *(Single or collective fatal accident)*	Serious injuries *(Irreversible health effects, required evacuation and medical help for a large number of people)*	Ecological disaster *(Permanent and serious damage to the environment resulting in large financial consequences for the Company, ongoing effects seriously violate statutory restrictions)*	Above 10 000 000 €	International influence *(Seriously tarnished confidence - impossible to recover fully. International public attention, extensive, unfavorable international media attention)*

The result of the explosion risk assessment should be presented in the table. Appendix **No.4.**

List of potentially explosive workplaces

The list of potentially explosive workplaces should be presented in the table. Appendix **No. 5**.

Measures to prevent the occurrence of explosive hazards and to reduce the effects of an explosion

The following is a sample of an example table:

Item	Workplace	Explosion prevention agent used	The date of the review	Responsible person
1				
2				

Specification of explosion-proof devices
Define the specification of explosion-proof devices installed on the site - mechanical, electrical, automatic, teleinformatic. It is necessary to apply to all industries for providing specimens of device specification tables - Appendix **No. 6**

List of certificates for explosion-proof devices
The list of certificates for explosion-proof devices should be prepared with the division into individual industries - mechanical, electrical, automatic, teleinformatic as per Appendix **No. 7**

3. Regulations regarding the classification of potentially explosive atmospheres in PKN ORLEN S.A. and in companies of the ORLEN Capital Group.

The scope regarding the classification of potentially explosive atmospheres is included in the Technical Requirements of the Electric Industry (issue 2.7 or later), item 2. transferred or provided to the Contractor.

4. Operational regulation regarding recording, setting up and removal of plugs on the premises of PKN ORLEN S.A.

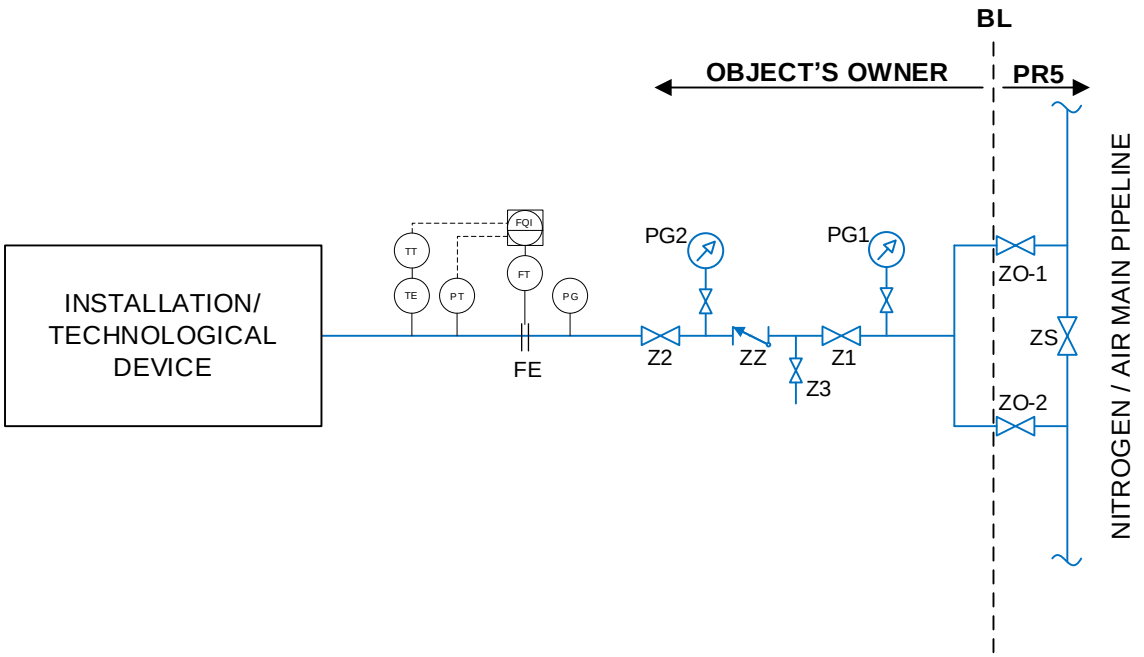
The most effective way to cut off the medium is to install a suitable blind on the flange connection. Apparatus, devices and pipelines containing the following media: flammable and explosive, corrosive and stinging, toxic, technical gases, hot water, steam and other hot media should be absolutely blinded for technological, renovation, investment purposes, etc. In the case of a plug protecting the workplace against the appearance of hazardous energy, it is covered by the LOTO system. The LOTO lock is placed on the end cap in accordance with the detailed LOTO instruction for a given Department / Installation. The plugs must be of appropriate diameter, thickness and made of a material capable of withstanding pressure, temperature and corrosive effects of media on the active side, and should have a "eyepiece" or "eye" - a round end protruding above the joint.

5. Regulation on the application of the Process Safety Management System at the PKN ORLEN S.A.

The Process Safety Management System is part of the overall management system at PKN ORLEN SA.

The Production Facility in Płock, the PTA Facility in Włocławek and the Company's fuel terminals have been classified as an increased or high hazard worksites (upper-tier establishments).
All classified facilities have documentation adequate to the classification of:
• registration of the Facility
• Prevention Program
And for high-risk worksites also:
• Safety Report
• Internal Operation and Rescue Plan,
• Quantitative list of hazardous substances as of December 31 of each year.
Hazard analyzes are carried out at every stage of the installation's life. PHA and HAZOP methods are most commonly used. The results of analyzes should be documented. Review of the analyzes should be carried out at least every 5 years.
Process Analyzes are assessed by the Analytical Team and process safety assessments are made by the Process Safety Committee.

6. Operational regulation regarding securing nitrogen and air pipelines against their contamination with dangerous media at the Production Facility in Płock.



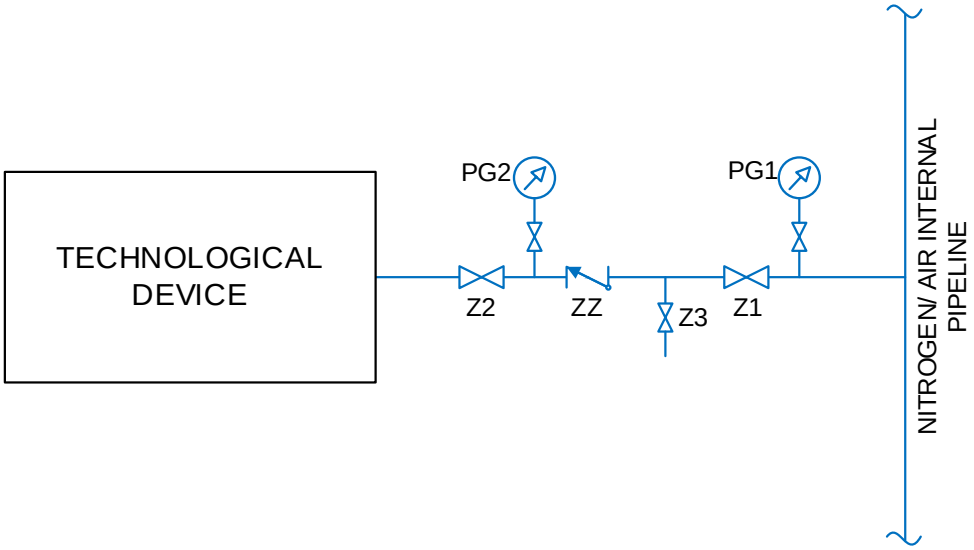
Marking:

Z – shut-off fittings
ZZ – check valve
ZS – section shut-off fittings
ZO – main shut-off fittings
PG – manometer
FE – flange (example of the measuring system based on the pressure difference)
BL – Battery Limit

Fig. 1

The above diagram does not take into account the place of installation of the eyepiece plug, the location of which is within the control of the owner of the installation / technological device

Installations and technical equipment supplied with nitrogen or air should be connected to the main pipelines in a way that will prevent contamination of main pipelines with hazardous media, and their connection with main pipelines must be made in accordance with Figure 1.



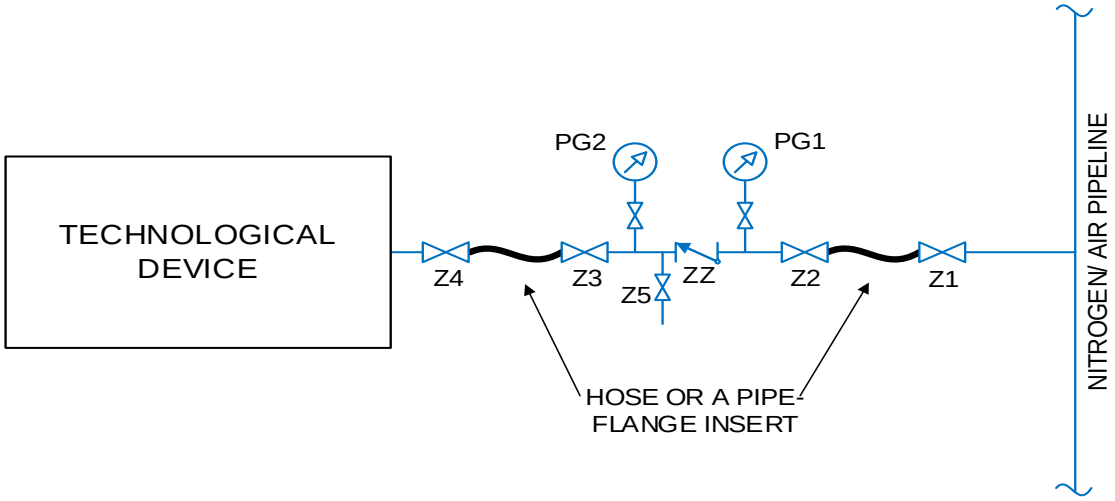
Marking:

Z – shut-off fittings
ZZ – check valve
PG – manometer

Fig. 2

The above diagram does not take into account the place fo installation of the eyepiece plug, the location of which should be taken into account by the owner of the technological device.

For continuous supply of technological devices with nitrogen or air, their connection to internal nitrogen or air pipelines must be made in accordance with Figure 2.



Marking:

Z – shut-off fittings
ZZ – check valve

PG – manometer

Fig. 3

When supplying process equipment with nitrogen or air, connection with nitrogen or air piping must be carried out in accordance with Figure 3.

Colors of hoses used to connect energy media on the premises of PKN ORLEN:.

- white or black with white elements, e.g. stripes for nitrogen;
- blue or black with blue elements, e.g. stripes for air or water;
- red or black with red elements, e.g. stripes for steam;
- colors other than the above-mentioned for media not included in this ordinance i.e. acid, lye, etc.

All new connections to the main nitrogen/air pipelines should be previously agreed and approved by representatives of PKN ORLEN and equipped with appropriate fittings:

- Gate valves
- Check valves
- Manometers
- Drains
- Measuring systems with flow and pressure visualization in the system of the currently functioning real-time database of PKN ORLEN S.A., e.g. PI ProcessBook,

Fig. 4

Fittings and pipelines supplying nitrogen and air to technological equipment should be described and marked in accordance with the rules in force at the Production Facility in Płock.

Nitrogen ignition switch should be equipped with technical solutions that make it impossible to connect a flexible hose to a medium other than nitrogen to the ignition switch.

During the investment stage, it is allowed to temporarily connect nitrogen and air from the main pipeline to the building under construction using the existing connectors.

7. Regulation regarding the implementation of "Instructions for the control and operation of PiA interlock systems in the Production Facility of PKN ORLEN SA in Płock and the PTA Facility in Włocławek".

The PiA locking system is a significant safety layer independent of the basic control system. The purpose of the locking system is to reduce the risk of consequences of the threat for which it has been designed. In case of exceeding the limit values of the process parameters, the locking system executes automatically, without intervention of the operator, the activities that ensure

the shut down of the technological object in a safe manner. Service schedules for blocking systems are created based on the results of SIL (safety integrity analysis). The SIL analysis relies on a qualitative and quantitative risk assessment of the operation of technological installations and takes into account the probability of occurrence of events and their consequences. Changes in technological blocking systems, in particular regarding the implementation of blocking functions, set initiators and test intervals, may be made at the request of the person managing the Department / Block / Division, after approval by appropriate Fire and Technical Committees. Activating the MOS switch (Maintenance Override Switch) disables the control of a given locking parameter, therefore it should be used only in particularly justified cases limited to the necessary service needs. The duration of MOS in the active state should be as short as possible. Deactivation of the possible activation of the interlock circuit as a result of the predicted actual exceeding of the parameter controlled by the initiator is not covered by the design purpose of the MOS switch.

8. Regulations regarding the implementation of a fire protection standard for production installations for use in investment and modernization processes at PKN ORLEN S.A.

In order to ensure the same technical requirements for the Production Facility in Płock (excluding the Fuel Terminal in Płock and the Railway Terminal in Płock), the PTA Facility in Włocławek and CCGT Facility in Włocławek for investment projects and tasks, there are introduced "The guidelines for the design of fire protection for new and modernized production installations of PKN ORLEN S.A.

Business Owners are responsible for establishing the Team to evaluate the proposed solutions for fire protection.
The team, etc., for fire protection assessment, evaluates:

- fire risk analysis,
- project for the selection of passive fire protection measures,

after which he draws up a report from the work.
The potential for fire is considered to be devices, apparatus containing flammable substances of class I, II, and III with a flash point up to 100 ° C or operating at a temperature above the self-ignition temperature.

The main elements subject to passive fire protection:

- elements of shelves constituting the main supporting structure,
- elements of piperacks constituting the main supporting structure,
- supports for tanks, reactors and other vertical devices,
- air cooler supports,
- tank beds and horizontal braces,
- power installations and energy,
- technological protection systems.

Fireproof materials selection and execution

Required safety properties of fire protection:

- suitability and effectiveness in hydrocarbon fires,
- asbestos content is excluded,
- durability of at least 15 years,

- resistance to rapid changes in temperature caused by a stream of water when extinguishing a possible fire,
- the initiation and maintenance of processes detrimental to the durability of the structure (etc., processoric) is excluded,
- resistance to external weather conditions.

Construction products intended for use must have the necessary approvals in accordance with the Construction Products Act of 16 April 2004 (JoL.2004, no.92 pos. 881, as amended)
The technical specification may only be:

- according to the European system, in the case of CE marking - a harmonized standard, a European technical approval or a national technical specification of a product of a Member State of the European Union or the European Economic Area, recognized by the European Commission as compliant with the basic requirements.

9. Regulation on the implementation for business use of the "Fire and Chemical Safety Regulations of PKN ORLEN S.A."

General organizational and ordering rules related to fire and chemical safety of PKN ORLEN S.A. facilities.

- Fire Safety Instructions should always be available to employees (in paper or electronic form) and to the emergency services (in paper form).
- All PKN ORLEN S.A. facilities must be provided with instructions on proceeding in the event of fire, chemical accident or other local emergency, including a list of emergency numbers, in a public place.
- All production and storage facilities, buildings and back-up facilities should be marked with a plate indicating the name of the facility / company and the person responsible for fire and chemical safety of the given facility, with a 24-hour/day contact telephone number. In fuel terminals outside Płock, such information should be placed in the porter's lodge, which is supervised 24/7 by the prevention.
- As a rule, the location of the assembly point for evacuation is the northeast corner of each plot.

- On the premises of PKN ORLEN S.A. smoking cigarettes and alternative products are forbidden, except for properly arranged smoking rooms marked with the information "TU WOLNO PALIĆ" or "PALARNIA". In buildings where there is no technical possibility to create a smoking room, smoking cigarettes and alternative products are strictly forbidden. The smoking room should be equipped with mechanical exhaust ventilation or a filtration system preventing the penetration of tobacco smoke to other rooms, handheld fire-fighting equipment and ashtray for extinguishing cigarette butts. If the smoking room is located in production, workshop or back-up facilities, it must be additionally equipped with a water container to extinguish cigarette butts.
- It is allowed to:

- organize permanent outdoor smoking rooms in the form of temporary construction facilities. Permanent outdoor smoking rooms must be made of non-flammable and non-fire spreading elements.
- organize temporary outdoor smoking rooms for employees of external companies for the duration of renovation/investment works on installations emptied of utilities, enclosed to a height of at least 0.5 m with a housing made of non-flammable material. It must be equipped with a water container to extinguish cigarette butts,
- organizing temporary outdoor smoking rooms for employees of external companies for the duration of renovation/investment works on installations in the form of a closed temporary cubature facility made of non-combustible materials. It must be equipped with a water container to extinguish cigarette butts,

Outdoor smoking rooms must be located at least 30 m from the designated explosion hazard zones and at least 10 m from cubature facilities. Sewerage chambers must be secured within a 20 m radius from the outdoor smoking room. Outdoor smoking rooms must be equipped with handheld firefighting equipment and ashtray to extinguish cigarette butts. It is recommended to create 1 temporary smoking room per 200 Contractor's employees. The smoking room should have an area of at least 10 m^2. The location of the smoking room should be indicated by the manager of the organizational unit and the Head of the Company Fire Brigade (for facilities located in Płock and Włocławek), and for facilities located outside Płock and Włocławek with an authorized employee of the ORLEN Eko Sp. z o.o.

- Social and assembly facilities of external enterprises located on the premises of production facilities should be organized in such a way as not to impede communication on internal roads and to prevent access to fire-fighting devices. Each facility and each temporary facility must be marked in such a way that the owner can be identified, and also with the person to contact (including the contact telephone number). The location of the facilities at the Production Plsnt in Płock must be agreed with the Commander of the Comapny Fire Brigade, and for the PTA and CCGT Plants in Włocławek, fuel terminals and other facilities located outside Płock and Włocławek – with an authorized employee of ORLEN Eko Sp. z o.o.
- It is forbidden to block entries to the installation area in a way preventing entry of rescue vehicles.
- Storage of technical gases at the Company's premises should be carried out in accordance with state regulations.
- Fire and chemical safety inspections at the Company's premises may be conducted by:
  - Employees of the Company Fore Brigade,
  - Employees of the Group OHS and Prevention Coordination Department,
  - Employees of ORLEN Eko Sp. z o.o. in accordance with the scope of contracts.

- Ad hoc inspections of the state of fire and chemical safety can be carried out by Managers of facilities in their area. As part of patrol activities, security service employees have the right to check whether the fire and chemical safety rules are enforced in the Company's facilities and companies conducting work at PKN ORLEN S.A. Security officers immediately inform the Commander of the Company Fire Brigade about all irregularities found in the field of fire and chemical safety. In disputes regarding the controls of fire and chemical safety, you can appeal to the Head of the Occupational Health and Safety.

When performing fire hazardous works, you need to:

- protect combustible materials against fire,occurring in the place of work and in adjacent areas, including elements of the structure of the object, and related technical installations;
- secure drains within a minimum radius of 20 m;
- carry out fire-hazardous works in potentially explosive atmospheres or in spaces where other work has previously been carried out related to the use of flammable liquids or flammable gases, only if the concentration of the vapors of liquids or gases in the mixture with air at the place of work does not exceed 10% of their lower explosion limit;
- have at the place of work equipment enabling the elimination of all sources of fire;
- organize and control the place where the works were carried out and in the adjacent areas;
- provide technically efficient equipment designed to carry out work in accordance with the principles of health and safety and fire safety.
- during work, use extreme caution, eliminate the potential of the source of fire and the observed sources of fire, and in the event of a situation threatening with fire, chemical failure or other local threat stop working.
- It is the duty of the parson carrying out fire-hazardous works to comply strictly with the conditions set out in the written permit.
- All employees of external entities conducting work at PKN ORLEN S.A. are required to acknowledge and comply with the provisions on fire and chemical safety in force at the Company's premises.

Procedures and rules on acceptance of fire protection documentation:

- The Company Fire Brigade gives opinion on documentation only and exclusively in the field of fire protection.
- In order to issue an opinion on documentation in the field of fire protection, projects should be submitted to the Company Fire Brigade in a paper version in Polish, and prepared in accordance with applicable regulations agreed (without comments) with an appraiser in field of fire protection.
- Projects should provide feedback before submitting them to the appropriate office (construction projects) or for implementation (technical and executive designs).
- The Company Fire Brigade gives opinion on fire safety documentation within 14 days since the date of delivery.
- In specific situations, the period of giving the opinion may be extended.
- The fire protection conditions in construction projects must be a separate chapter.
- Scopes for fire-fighting equipment in industry projects must be separate chapters.
- The Company Fire Brigade issues an opinion on the construction project based on the following data included in the project documentation:
  - information on the area, height and number of stories;
  - fire and chemical hazard characteristics, including the parameters of fire hazardous materials, risks of technological processes and depending on the needs – fire characteristics adopted for design purposes;
  - information on the hazard category for people and the expected number of persons on the site and on each floor;
  - information on the expected fire load density;
  - assessment of the explosion hazard in rooms and external spaces;
  - information on fire resistance class, fore integrity class and fire spreading degree of construction elements;
  - information about the building division into fire zones and smoke zones;
  - location information regarding fire and chemical safety, including distances from neighboring facilities;

- information about the conditions and strategies for evacuating people or saving them in a different way;
- information on the method of fire protection of utility installations, in particular ventilation/ air conditioning, heating, gas, electricity, teletechnical and lightning protection installations;
- information about the selection of fire-fighting equipment and other fire and chemical safety devices, adapted to the requirements under the regulations concerning fire protection and fire scenarios adopted, with the basic characteristics of these devices;
- information on equipping the facility with fire extinguishers;
- information about the fire water supply for external fire fighting;
- information on the preparation of the construction object and the area for carrying out rescue and firefighting operations, in particular information on the fire road;
- the need for additional equipment necessary for the Company Fire Brigade.

Rules for alerting and informing people and emergency services

Every employee who has noticed a fire, chemical accident or other local threat is absolutely obliged to warn people nearby as well as notify their superiors and alert:

- Company Fire Brigade - in the case of facilities at the Production Plant in Płock or other appropriate fire protection unit,
- Company Fire Brigade of ANWIL S.A. – at the PTA and CCGT Facilities in Włocławek,
- the nearest local unit of the State Fire Service (for other facilities outside Płock and Włocławek) by calling the telephone numbers:
  19 998 – Company Emergency Number in Płock
  19 998 – PTA and CCGT Facilities in Włocławek
  998 or 112 – The State Fire Service throughout the country.

The emergency report should be short, concise and clearly define:

- place of fire, chemical failure or other thread,
- existence of danger to people,
- type of released substance,
- name and phone number from which you are calling;
- other data allowing a proper decision on the disposition of forces and resources by the person receiving the notification.

Announcement of chemical alarms

Production Facility in Płock

In the event of a chemical accident hazard, a chemical alarm in one of three phases is announced:

Phase "I" alarm - it is announced when the hazard range covers the installation node or installations, not exceeding the boundary plot - main roads. The alarm is announced by an alarm siren or buzzer, with **modulated sound signals lasting 3 minutes**.
Phase „I" alarm is announced by the facility manager or a person authorized by him (e.g. Shift Supervisor). If a large amount of hazardous substances suddenly escapes (e.g. hydrogen sulfide, liquefied gas), any employee who notices this ocurence may issue an alarm.
Phase "II" alarm – it is announced when the threat exceeds the area of one plot or one installation. The **phase "II" alarm** is announced by repeating the **phase "I" alarm** sound signals by alarm sirens from several or all facilities at the Production Plant in Płock. The decision to announce the phase "II" alarm is made by the Head of the Rescue Operation (KAR) or the Head of Rescue Activities (KDR) in consultation with the Central Production Scheduling and Coordination Department.
At the same time, information about the announcement of the **phase "II" alarm** is transmitted via the Warning and Alarm System messages.
Phase "III" alarm – the phase „III" chemical alarm is a continuation of the **phase "II" alarm** and it is a consequence of the development of the action outside the fencing area of the Production Plant in Płock. The activities are carried out on the basis of the External Emergency Plan. The decision to announce the phase "II" alarm is made by the Head of Rescue Activities (KDR) in consultation with the Central Production Scheduling and Coordination Department.

PTA and CCGT Facilities in Włocławek

In the event of a chemical accident at the premises of PTA and CCGT Facilities in Włocławek, the following chemical alarms are issued depending on the scope and direction of the threat.:

- 1st degree chemical alarm
- chemical alarm - warning
- 2nd degree chemical alarm
- 3rd degree chemical alarm

1st degree chemical alarm
The 1st degree chemical alarm is announced in the event of a local chemical threat on the premises of the PTA or CCGT Facilities in Włocławek, which does not threaten the areas adjacent to the plant. The alarm is announced by means of a horn with intermittent sound signals lasting 2 sec. with breaks of 1 sec. Total signal transmission time is 3 minutes. The 1st degree chemical alarm is announced by the head of the PTA Plant or the CCGT Włocławek Plant or a person authorized by him (e.g. Shift Supervisor). In addition, a light signal is generated.
Cancellation of the 1st degree chemical alarm is done by a verbal signal (voice announcement). The 1st degree chemical alarm is canceled by the head of the PTA Plant or the CCGT Włocławek Plant or a person authorized by him (e.g. Shift Supervisor).
Chemical alarm - warning
Chemical alarm - warning is used to alert employees about occurrences on the premises of the PTA Plant, CCGT Włocławek Plant or ANWIL S.A. of a threat not threatening the areas adjacent to the plant. Chemical alarm - warning is announced by the Company Dispatcher at ANWIL S.A. The verbal signal is accompanied by a continuous acoustic signal lasting 1 minute.

Chemical alarm - warning is dismissed by the Company Dispatcher at ANWIL S.A. through an appropriate message.

2nd degree chemical alarm

The 2nd degree chemical alarm is announced in the event of a local chemical threat at the premises of PTA or CCGT Włocławek with the possibility of extension to ANWIL S.A. production installations or Indorama Ventures Poland Sp. z o.o. The alarm is announced by means of an intermittent acoustic signal (modulated) of sirens lasting 3 minutes and the transmission of an appropriate message by the Company Dispatcher at ANWIL S.A.

3rd degree chemical alarm

The 3rd degree chemical alarm is a continuation of the 2nd degree alarm and is a consequence of the development of the action outside the fence of the PTA Plant. The 3rd degree chemical alarm is announced by the Company Dispatcher at ANWIL S.A. The light signal is accompanied by an intermittent acoustic signal (modulated) of sirens lasting 3 minutes. Additionally (depending on the wind direction) the "stop" traffic lights can be turned on on the roads:

- national no 1,
- local Krzywa Góra-Gąbinek,
- local Włocławek – Brzezie.

Cancellation of the 2nd and 3rd degree chemical alarm is done by a continuous acoustic signal of sirens lasting 3 minutes and an appropriate message issued by the Company Dispatcher at ANWIL S.A.

Handheld fire-fighting equipment:

All facilities should be equipped with handheld fire-fighting equipment adapted to extinguishing these groups of fires that may occur in the facility. At the PKN ORLEN S.A. the basic unit of mass of extinguishing agent is 6 kg (in the case of powder extinguishers) or 5 kg (for snow extinguishers).

10. Regulation on the implementation of the "Instruction on the location of temporary facilities and organization of construction sites for Contractors on the premises of the Production Facility in Płock, the PTA Facility in Włocławek, CCGT Włocławek or adjacent areas".

1. Temporary back-up facility located on the premises of the production plant in Płock, PTA Plant in Włocławek, CCGT Włocławek Plant or adjacent areas for Contractors with contracts for the implementation of repair services or contracts for the implementation of works under investment projects.
2. Temporary facilities may be located within the Production Facility in Płock, PTA Facility in Włocławek, CCGT Włocławek Facility or adjacent areas only on the basis of a contract for repair, periodic, planned, current, framework, technological services or for investment projects concluded between PKN ORLEN ARE a Contractors or tenancy / lease / access agreements.
3. The Contractor who meets the provisions in point 1 - 3 applying for temporary location of facilities in the area and within the Production Facility in Płock, PTA Facility in Włocławek, CCGT Włocławek Facility or adjacent areas obtains the required approvals from the Principal and the Designer's Main Department, requested by the completed form "Permission for temporary Contractor's location location "

4. The Contractor shall be required to obtain the approval of the back office location by the Site Owner or the area designated by the Owner.
5. The time / period of the back office operation is valid with the deadlines specified in the contract for the performance of renovation or investment works, including the time provided for mobilization and demobilization.
6. All permits for the temporary location of the Contractor's back-up facilities are recorded by the Technical Infrastructure Department.
7. The transfer of the land for the back-up facility is carried out by protocol.
8. The contractor is responsible for the area taken over along with the facilities, until the completion of works and a formal return of the area with the surrounding surroundings.
9. 8. It is strictly forbidden to create permanent dumps and storage places for any waste in the back office and its surroundings.
10. Waste generated in the construction/ renovation process should be selectively stored, removed from the construction site and managed in accordance with applicable regulations and arrangements contained in the contract. Recommended removal cycle from the construction site is 7 calendar days.
11. The Contractor's duties include equipping the back-end with a container or container for municipal waste as well as designating and marking a place for temporary storage of waste.
12. To use the media in the back office, it is required to conclude agreements with service providers and to cover their costs by the Contractor.
13. The Contractor shall be liable under general rules provided for by civil law for damages resulting from acts or omissions in relation to equipment and installations of PKN ORLEN SA located on the given square or area - from the moment of its adoption until the moment of formal return.

Conditions for temporary back-up facilities

1. The facilities located on the premises of the Production Facility in Płock, PTA Facility in Włocławek, CCGT Włocławek Facility or on adjacent areas should be fenced in such a way as to prevent outsiders access to the back office.
2. It is allowed not to fence the facilities for carrying out renovation works, as agreed with the landowners/ users or for investment works in accordance with arrangements with appropriate Implementers or Project Implementation Managers in consultation with landowners, which does not absolve the Contractor from responsibility for the facilities and the area taken over.

3. After taking over the land (plot), the Contractor is responsible for organizing the facilities and utilities necessary for the functioning of the temporary back office facilities.

4. Each object, temporary facilities should have a visible yellow information board giving:
   - name of the Contractor,
   - name and surname of the person responsible for the object,
   - 24-hour telephone to the person responsible for the back office.
5. Fenced or back-up areas that will not have an information board will be considered as abandoned property.
6. The facilities should be located in the following distances from:
   a) designated Ex-zones,
   b) main lanes, networks and utilities, to ensure maximum safety of employees
7. The facilities referred to shall meet the following conditions:
   a) the location of the min. 2 m. outside the designated danger zone specified in the classification documentation for potentially explosive atmospheres;
   b) it is possible to locate a plug in a potentially explosive atmosphere during a shutdown or overhaul, provided that the hydrocarbon installation is empty inside a designated explosion hazard zone;
   c) distance from other objects including railway tracks - min. 8 m,

d) as a rule, it is assumed that the back-up facilities will consist total of three barracks or other rooms marked with the company's name, with a total area of up to 50 m2, for one Contractor;
e) in the case of the need to increase the number of facilities, it requires justification, confirmed by the ordering party;
f) outside the facilities mentioned in point 7d. a distance of at least 4 m must be kept;
g) distance from the main road - at least 5 meters from the road strip limit, and the facilites can not limit the visibility of the drivers moving on the road.

8. In order to ensure sufficient visibility at intersections of main roads, it is forbidden to set containers and crew wagons at a distance of less than 15 m from the road gauge.
9. It is forbidden to set containers and crew wagons acting as social facilities under main flyovers and flares.
10. Facilities must be equipped with hand-held fire-fighting equipment in accordance with regulations defined in Comprehensive Prevention System (further referred to as KSP), but not less than 1 unit of fire-fighting equipment for each truck or other compartment. The free access to fire-extinguishing equipment should be provided - leaving free space no less than 2 m in each direction from the device.
11. Back – up facilities should be located in such a way as to maintain access to the installation's security devices - leaving a space of not less than 2m.
12. The Contractor's duties include:
    a) exercising general supervision over the behavior and compliance with the regulations as well as OSH and fire protection rules,
    b) providing in containers or other rooms instructions in the event of fire,
    c) maintaining cleanliness and order in the subordinate area,
    d) compliance with the conditions that should be met by the area (yard) or facilities,
    e) protection of the area located in (site), back-up facilities - trees, technical infrastructure and other elements of development,
    f) safe storage of technical gases in accordance with the principles of PKN ORLEN SA.

Liquidation of the back-up facilities, transfer of premises or building sites

1. The contractor is obliged to remove their back – up facilities and transfer the area (plot) in the state defined by the contract or in the permit, after completion of the work and formal acceptance by the ordering party, unless the deadline is specified in the contract should be given in the acceptance report.
2. The Contractor shall, in the agreed scope, dismantle and liquidate the connections made for the site and submit them in the General Plan Workshop.
3. The Contractor transfers the structured area on the basis of the acceptance protocol, signed by both parties.

Social and living facilities

Social and living facilities located on the premises of a Production Facility in Płock, PTA Facility in Włocławek, CCGT Włocławek Facility or on areas adjacent to Contractors with contracts for the implementation of planned and technological repairs.

1. For the Contractor performing works under scheduled and technological repairs, the location of the social and welfare facilities is determined by the Technical Infrastructure Department.
2. It is required to conclude contracts with service providers and to cover their costs themselves, to use the media in the social and living facilities, i.e .:

a) electricity and other energy media,

b) potable water, as indicated by meters installed at outflows or power supply,
c) export of solid and liquid waste,
d) sewage disposal.

3. The Contractor is obliged to notify 1 month before the renovation or within the time limit set by the Supervisor of the Ordering Party about the planned amount of setting his own containers:
   - office,
   - social,
   - warehouse,
   - sanitation.
4. Containers must be technically functional, aesthetic and meet all social conditions - health and safety and fire protection.
5. In order to ensure the order and aesthetics of the area of the production facility in Płock and areas adjacent to it, Contractor is obliged to independently maintain the cleanliness of the area.
6. Contrator's social and living facilities must be equipped with hand-held firefighting equipment in accordance with KSP, but not less than 1 unit of fire-fighting equipment for each barracks. Externally accessible fire-extinguishing devices must be provided - leaving adequate free space.
7. Municipal waste generated in connection with the stay of the Contractor's employees on the premises of PKN ORLEN S.A. should be placed in dedicated containers intended for selective municipal waste collection. Containers other than municipal waste, in particular hazardous waste, may not be put into containers.

Transmission of the land for construction use

Transfer of sites for construction at the Production Facility in Płock, PTA Facility in Włocławek, CCGT Włocławek Facility or areas adjacent to the Users or Land Owners for the implementation of renovation works and investment tasks from the 30000/40000 group

1. The site (plot) of construction should be transferred by protocol.
2. When transferring the construction site, PKN ORLEN S.A. represents the orderer of work, in cooperation with the supervision inspector. In the case of the construction industry - the construction supervision inspector.
3. The contractor is responsible for the acquired site, including the facilities, until the completion of works and a formal return of the area.
4. The given area (plot) of construction should be fenced and have a yellow information board, on which all information about the investment, investor, emergency numbers of telephones and telephone of the manager of a given construction must be posted.
5. Waste generated in the construction process should be selectively stored, removed from the construction site and managed in accordance with the applicable regulations and provisions of the contract. Recommended removal cycle from the construction site is up to 7 calendar days.
6. The Contractor's duties include equiping the facility plot in a container for municipal waste, and on the site of construction, designation and marking of a place for temporary storage of waste.
7. The Contractor's duties include, above all:
   a) exercising general supervision over their conduct and observance of regulations as well as OSH and fire protection rules;
   b) maintaining cleanliness and order in the subordinate area;
   c) compliance with the conditions to be met by the construction site and facilities;
   d) Organization and coordination of services;

e) Protection of the construction site, back-up facilities and other elements of development located in the area, unless they are foreseen for liquidation.

8. The Contractor shall be liable under general rules provided for by civil law for damages resulting from acts or omissions in relation to the equipment and installations of PKN ORLEN S.A. located on the given territory - from the moment of its acceptance, until the moment of formal return and resulting from agreements concluded between the parties.
9. Development of the site should be made in accordance with the documentation and detailed arrangements, which should include:
    a) land development plan / square / construction and social and assembly facilities;
    b) arrangements with the relevant services of PKN ORLEN S.A. in the field of energy media consumption, electric power supply, etc .;
    c) arrangements made with the ordering parties regarding the organization and conditions of carrying out works and the validity date of the back office location;
    d) agreeing on the scope of disassembly works after completion of works on the site;
    e) arrangements regarding the arrangement of the area after the liquidated back office.
10. Depending on the situation and for the needs of a given site (plot), the Contractor develops documentation containing etc. place and methods of connection to the electricity grid, teletechnical and other networks located on the site (plot) - to the analogous PKN ORLEN SA networks, as well as the identification of collection points.
11. Handover of the Contractor's construction site for ongoing investment projects
12. Implemented by the Property Investment Implementation Office should take into account the requirements contained in the "Instruction for the preparation and implementation of property investments in PKN ORLEN S.A.".

Fixed back-up facilities

Conditions to be met by fixed facilities located on the premises of the Production Facility in Płock, PTA Facility in Włocławek, CCGT Facility for Contractors with periodic, servicing and ongoing repairs.

1. Permanent facilities may be located on the premises of the Production Facility in Płock, PTA Facility in Włocławek, CCGT Włocławek Facility or within them only and exclusively on the basis of a contract (lease, lease, access) concluded between interested parties in accordance with the rules of disposal in force at the Company real estate established in relevant internal acts.
2. The application for leasing / renting / providing facilities is made by the landowner supervising the property on which the facilities are to be located, to the Property Disposal Department, indicating its location and special conditions of use and special obligations of the lessee / tenant to be included in the contract in relation with the characteristics of his business or real estate status (on which the back-up facilities are to be located). The application should be accompanied by:
    a) consent of the Security Office (for the establishment of facilities at the plant for a given contractor),
    b) recommendation of the Occupational Health and Safety Office (in the scope of occupational safety and health, fire protection and process safety),
    c) recommendation of organizational units responsible for the implementation of contracts with Contractors and for the settlement of these contracts, confirming that the contractor applying for the lease performs the service / for the Company, indicating the time of implementation and no objections to the cooperation with it so far),

d) a map with the boundaries of the leased / rented item / access agreed with the General Plan Workshop.

3. Agreements referred to in point 1 of this Chapter are prepared by the Department of Real Estate Disposal and are subject to acceptance by the Owners of leased / rented / shared areas in terms of safeguarding the legitimate interests of the Company, including the requirements for location and use of fixed facilities on terms analogous to temporary and social welfare provided for this Instruction.
4. Agreements referred to in point 1 of this Chapter should contain a provision concerning the Contractor's liability for municipal waste management, including submission of the "DO-1 Declaration" in the relevant City Hall regarding the amount of the municipal waste management fee.

11. Regulation on the use of fire water network and marking and maintenance of hydrants at the Production Facility in Płock.

For activities related to checking, maintenance, functional tests of water sprinkling installations as well as organization of tactical and combat exercises (maneuvers), a fire water network is used.

The unreconciled collection of water from the main fire network and internal fire water networks installed on production installations and the use of equipment installed on them for purposes not related to fire protection is prohibited.

In exceptional and justified cases, it is allowed to periodically use the fire water network for purposes not related to fire protection, based on the written permission obtained for the collection of fire water.

A written application for permission to collect fire water for purposes not related to fire protection is submitted to the manager the Water Production Unit (SWP) in the Water & Wastewater Plant (PWS) or a person authorized by it:

- for the needs of the organizational units of PKN ORLEN S.A. – the manager of the interested organizational unit or a person authorized by him,
- for the needs of other recipients - a person authorized on behalf of the company, etc.

A written permit for the collection of fire water is issued by the manager of the Water Production Unit (SWP) in the Water & Wastewater Plant (PWS) or a person authorized by it.
The obligation to use pressure reducers for water intake from the fire water network.

The Issuer of the above mentioned permit shall send information in this matter by e-mail to:

- Company Fire Brigade,
- Wastewater Unit.

Permission for temporary, short-term use of the fire water network by the organizational units of PKN ORLEN SA can be issued by the the manager the Water Production Unit (SWP) or a authorized person authorized by him – on working days, while during his absence (non-working days, 2nd shift) - Master of Production Processes - Shift manager of the Water Production Unit, after informing about the fact the Company Fire Brigade.

For activities related to checking, maintenance, functional tests of water sprinkling installations and semi-permanent foam fire-extinguishing systems as well as organization of tactical and combat exercises (maneuvers), a fire water network is used and in the case of rinsing the intra-plot network, it is required to obtain approval from the Master of Production Processes - Shift manager of the Water Production Unit and Wastewater Unit).

Immediate interruption of fire water intake for purposes not related to rescue and extinguishing operations takes place in the case of the necessity of carrying out rescue and firefighting operations.

The following are authorized to make a decision to immediately stop the collection of fire water:

- Manager of the Water Production Unit (SWP) in the Water & Wastewater Plant (PWS) or a person authorized by him,
- person managing the Water & Wastewater Plant (PWS),
- Master of Production Processes - Shift manager of the Water Production Unit (non-working days, 2nd shift),
- Head of Company Fire Brigade or a person authorized by him,
- Shift dispatcher of the Water and Wasteland Plant,
- Manager of the organizational unit, in which there is a fire water intake point.

Persons issuing permits for the collection of fire water and the Company Fire Brigade are obliged to immediately issue a ban on collecting fire water from the network in the event of non-compliance with the permit or arbitrary collection by the user.

Outdoor hydrants should be marked in accordance with the applicable legal regulations in accordance with PN-97 / N-01256/04, item 220. The marking applies to both hydrants belonging to the main network and to the intra-plot network. Consultation on the correct marking of hydrants is provided by the Water & Wastewater Plant (PWS).

SAFETY STANDARDS OF PKN ORLEN S.A.

List of regulations, standards and guidelines applicable to the classification of potentially explosive atmospheres

1. Regulation of the Minister of Interior and Administration of 7 June 2010 on fire protection of buildings, other construction objects and areas (Journal of Laws of 2010, No. 109, item 719).
2. Regulation of the Minister of Economy of November 21, 2005 on technical conditions to be met by liquid fuel bases and stations, long-distance pipelines for the transport of crude oil and petroleum products and their location (JoL. 2014, item 1853, as amended).
3. Regulation of the Minister of Economy of 8 July 2010 on minimum requirements regarding health and safety at work, related to the possibility of an explosive atmosphere in the workplace, (JiL of 2010 No. 138, item 931).
4. PN-EN 1127-1 Explosive atmospheres. Explosion prevention and explosion protection. Basic concepts and methodology.
5. PN-EN 60079-10-1 Explosive atmospheres. Classification of space. Gaseous explosive atmospheres.
6. PN-EN 60079-10-2 Explosive atmospheres. Classification of space. Atmospheres containing combustible dust.
7. PN-EN 50272 Safety requirements and installation of secondary batteries.

Appendix No. 2.1

List and characteristics of explosive hazardous materials.

Flammable material			**Flash-point**	**DGW**		**Relative density of gas or steam related to air)**	**Temperature of self-ignition**	**Explosive group**	**Temperature class**	**Number of the space in which the substance is present**
Item	**Name**	**Composition**								
		[V/V]	[^{0}C]	[kg/m^3]	[%Vol]		[^{0}C]			
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**

Appendix No. 2.2

List and classification of potentially explosive atmospheres

No. of classified space	Name of classified space	The type of space	Classification of space
1	2	4	5

Please note:
In accordance with the Fire Protection Act of August 24, 1991 and the Ordinance of the Minister of Interior and Administration of June 7, 2010 on fire protection of buildings, other structures and areas for existing facilities, with a complete facility consistent with the actual state , classification documentation for potentially explosive atmospheres, classification of workplaces where explosive atmospheres may occur, the following markings should be taken:
a) **zone 0** - for zone Z 0 and for zones of category W I, in which the explosive atmosphere occurs permanently or permanently under normal operating conditions;
b) **zone 1** - for zone Z 1 and for zones of category WI, in which the explosive atmosphere occurs periodically under normal operating conditions and zones of category W II, in which the explosive atmosphere may be prolonged;
c) **zone 2** - for zone Z 2 and for zones of category WII, in which the explosive atmosphere may occur only temporarily, and for zones of category W III;
d) **zone 20** - for zone Z 10 and for zones of category W IV;
e) **zone 21** - for zone Z 11 and zone W V, for which an explosive atmosphere in the form of a cloud of flammable dust in the air can sometimes occur during normal operation;
f) **zone 22** - for zone Z 11 and zone W V, for which an explosive atmosphere in the form of a cloud of flammable dust in the air does not occur during normal operation, and in case of occurrence it is short

Appendix No. 2.3

The result of the explosion risk assessment

Item	Identified explosive atmospheres			Identified potential sources of ignition		Risk of explosion		
	Name of classified space	The probability of an explosive atmosphere	Type of danger zone	Type	The probability of occurrence of an ignition source	P - probability of explosion (the product of columns 3 and 6)	S	R
1	2	3	4	5	6	7	8	9
1				Flames and hot gases				
				Electrical equipment (electrically generated sparks)				
				Static electricity				
				Thunder Strike				

Where: P - the probability of explosion as a product of the probability of the appearance of effective ignition sources and the occurrence of an explosive atmosphere

S - explosion effects determined on the basis of matrix from point 3.3. We accept the highest category designated for individual groups (Employees, Population, Environment, and Property.

R - explosion risk determined on the basis of the matrix from point 3.3.

Appendix No. 2.4

List of potentially explosive workplaces

Item	Workplace	The employee's business position	No. of space and type of explosion hazard zone	Risk of explosion
1	2	3	4	5

Note: In the column "No.of space and type of explosion hazard zone", the possibility of occurrence of more than 1 classification card should be taken into account. In column 5, enter explosion risk estimated in point 3.3

Appendix No. 2.5

Specification of explosion-proof devices (example PiA)

Data from the device's rating plate					Classification data					Remarks measuring circuit numbers	Authorization, opinion / signature
Item	Name and type of device	Manufactured by:	Name of the certification body, certificate number	Explosion-proof device and ATEX marking	Type of Ex zone	Explosion group and temperature class	Workplace (open / closed space)	Quantity	Another certificate number (according to the list of attached certificates)		
1	2	3	4	5	6	7	8	9	10	11	12

Appendix No. 2.6

List of certificates for explosion-proof devices

Consecutive serial number of the certificate	Certificate number	Feature of the device	ATEX marking	Manufacturer, name and type of device	EU declaration of conformity