Каспийский Трубопроводный Консорциум
Caspian Pipeline Consortium
Каспий Құбыр Консорциумы

APPROVED
Operations Department
_____ V.A. Shmakov

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OPERATIONS DEPARTMENT RISK MANAGEMENT PROCEDURE

Revision 2

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1. PURPOSE

This document (hereinafter - the Procedure) has been developed taking into account the requirements to the risk management process set forth in the CPC Risk Management Standard (hereinafter – the Standard). The purpose of the Procedure is to reflect the specifics of the Operation Department's (hereinafter – the OD) risk management as well as the order of interaction between participants within the OD risk management process.

The Procedure establishes requirements for the OD risk management process and describes the following:

- stages of the risk management process;
- criteria for risk assessment applied in the Company;
- criteria for risk level acceptability;
- allocation of responsibilities and authority within the risk management process;
- rules for risk record-keeping.

2. SCOPE

This regulation applies to all structural subdivisions of the Company Operations Department as well as other Company structural subdivisions that affect the operations process.

3. REGULATORY REFERENCES

The list of regulatory documents governing this process is given in the Table below:

Table 1. List of Regulatory Documents

No.	Regulatory Documents
1	**External**
	RF
1.1	Federal Law #116-FZ dated 21.07.1997 “On Industrial Safety of Hazardous Production Facilities”
1.2	Federal Law #123-FZ dated 22.07.2008 “Technical Regulations for Fire Safety Requirements”
1.3	GOST R 51897-2021 Guidelines “Risk Management. Terms and Definitions”
1.4	GOST R ISO 31000-2019 “Risk Management. Principles and Guidelines”
1.5	GOST R 51901.21-2012 "Risk Management. Risk Register. General Provisions"
	RoK
1.6	Customs Union Technical Guidelines #012/2011 dated 18.10.2011 “On Safety of Equipment Operating in Explosion Hazardous Environments”
1.7	Customs Union Technical Guidelines #823 dated 18.10.2011 “On Safety of Machinery and Equipment”
	International
1.8	International Standard ISO 45001:2018 “Occupational Health and Safety Management Systems - Requirements and Guidance for Use”
1.9	International Standard ISO 14001:2015 "Environmental Management System - Requirements and Guidance for Use"
1.10	International Standard ISO 9001:2015 (GOST R ISO 9001-2015) "Quality Management Systems. Requirements"
1.11	International Standard ISO 31000 "Risk Management - Principles and Guidelines

No.	Regulatory Documents
1.12	International standard ISO / IEC 31010 (GOSR R 58771-2019) “Risk Management. Risk Assessment Technologies”
2	**Internal**
2.1	Risk Management Standard, CPC STP 42.07.2019, rev. 3
2.2.	Integrated Business Planning Procedure, rev.1
2.3	CPC-R/K Health, Safety and Environment Management System (HSE MS) Manual, rev. 3
2.4	CPC Management of Change (MOC) Procedure # I CPC 54.06.2021, rev. 3
2.5	Work permit procedure for arrangements of Hot Works, Gas Hazardous, Excavation, Repair and other hazardous works, STP CPC 33.04.2021, Rev. 3

4. TERMS, DEFINITIONS AND ABBREVIATIONS

Terms and abbreviations used herein are listed in Table.

Table 2. Terms and Abbreviations

No.	Term/Abbreviation	Term Definition/ Key to Abbreviation
1	**Terms**	
1.1	**Action Parties**	Designated persons (usually employees of the Company) who have to do certain work to implement risk mitigation actions assigned to them.
1.2	**Barriers (risk controls)**	technical or organizational safety measures aimed at preventing the causes of negative events and / or reducing the consequences if these events take place
1.3	**Bow-tie diagram**	The schematic way to describe a risk path from its source to its consequences, as well as the analysis of risk management measures.
1.4	**Consequence**	Relates to the potential outcome of a hazardous event. It is usually associated with people injuries, environmental impacts or damage to Company facilities or third parties.
1.5	**Controls (barriers)**	Technical or organizational measures aimed at preventing the causes of negative events and/or reducing the consequences when these events take place. • Preventive controls: controls that reduce the likelihood of dangerous events, • Mitigating/recover controls: controls to prevent an event from escalation after it has occurred, thus reducing its impact (mitigating its consequences).
1.6	**Environmental aspect**	The element of company's operations, products, or services that can interact with the environment.
1.7	**Hazard (hazardous factor)**	The source (object, situation, or action) that may cause harm to people, property, or the environment.
1.8	**Hazardous event**	The event that occurs in case of hazard manifestation, which leads to unwanted effects (i.e., incident).

No.	Term/Abbreviation	Term Definition/ Key to Abbreviation
1.9	**Individual risk**	Frequency of harm caused to an individual person as a result of the studied factors of the emergency hazard impact, RTN *Resolution No 228, 17.06.2016*
1.10	**OD Risk Control Card Initiator**	Any employee of the Company who reports that it is necessary to implement controls/improvements of the effective controls to the Company management by sending an OD Risk Control Card for consideration.
1.11	**Probability**	quantifies the likelihood that events will occur. Probability is expressed by a real number in the interval from 0 to 1, where 0 corresponds to an impossible event and 1 to a credible event. The higher the probability of event, the more likely it is that the event will occur.
1.12	**Public risk**	Expected number of injured as a result of possible emergencies during a certain time. *RTN Resolution No 228, 17.06.2016*
1.13	**Qualitative risk assessment**	Description of the qualitative characteristics and possibilities of occurrence and corresponding impact of emergency consequences for human life and health, for assets and environment. *RTN Resolution 11.04.2016 n144 RB Basic Methods of Hazards Analysis and Hazardous Facilities Emergencies Risk Assessment.* Qualitative risk assessment allows to determine consequences, probability and risk level using the scale “high”, “medium” and “low” parameters; the assessment of consequences and probability can be combined; risk level comparative assessment in this case is made according to qualitative criteria.
1.14	**Quantitative risk assessment (Quantitative risk analysis)**	Quantitative risk parameters assessment for main oil pipeline to be compared to the statistically average (baseline) risk level and to establish hazard level (low, medium, high, extremely high) for the main oil pipeline parts and components.
1.15	**RCC Electronic Register**	Electronic data base being an integral part of the Risk Management System (RMS) used to document Risk Control Cards (RCCs).
1.16	**Residual risk**	The risk remaining after the risk response has been applied.
1.17	**Risk**	A combination of consequences of events (impact) and probabilities of their occurrences, namely probability of exposure to a hazard (or environmental aspect) and the gravity of consequences.
1.18	**Risk assessment**	Risk scoring. The use of calculation methods implies a quantitative assessment of risks, and the use of expert methods - a qualitative assessment.
1.19	**Risk causes**	Facts, conditions, or events that may lead to negative consequences (risk realization).
1.20	**Risk Control Card (RCC)**	The document containing information on the proposed control (barrier) to reduce the risk and the risk score assessed as per the risk matrix adopted in the Company
1.21	**Risk Holder**	The head of department, division, unit, facility, where the risk is identified, who has the authority and responsibility for risk management.

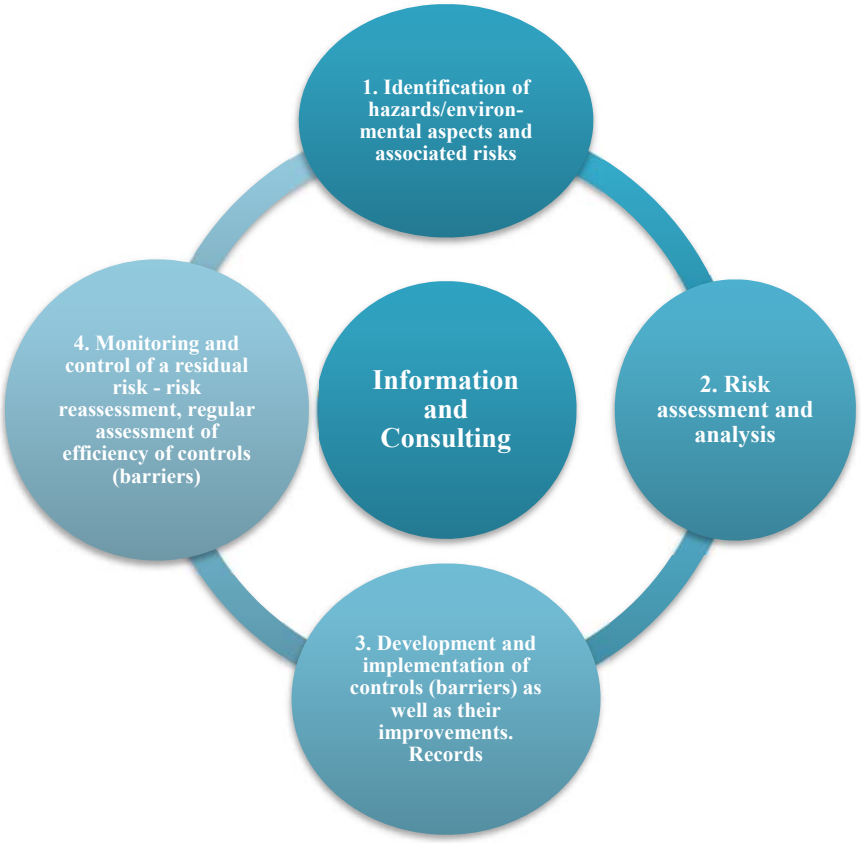
No.	Term/Abbreviation	Term Definition/ Key to Abbreviation
1.22	**Risk mitigation actions**	Actions aimed at reducing the consequences and/or probability of risk occurrence at Company facilities. Actions, as a rule, are targeted to create new or improve existing controls.
1.23	**Risk rating**	The risk score, which is determined as per the risk assessment matrix (by the formula: “Impact” x “Probability”)
1.24	**Risk Register**	The format of information recording containing a list of identified and assessed risks, including risk mitigation plans.
1.25	**RMS OD Electronic Register**	Electronic data base for OD risks in RMS containing bowtie diagrams for significant risks
1.26	**Significant risk**	The risk with a high score (15-25 points).
1.27	**Top risk**	The risk included in the CPC Top Risk Register and monitored by the CPC Management Team
2	**Abbreviations**	
2.1	**Activity**	Activity as part of the IBP
2.2	**CPC** **Company**	Caspian Pipeline Consortium-R (CPC-R) Caspian Pipeline Consortium-K (CPC-K)
2.3	**CWG**	Corporate HSE MS Working Group
2.4	**HAZID**	Hazard Identification Assessment
2.5	**HAZOP**	Hazard and Operability Study
2.6	**HSE**	Health, Safety and Environment
2.7	**HSE MS**	Health, Safety and Environment Management System
2.8	**HSMS**	Health and Safety Management System
2.9	**IBP**	Integrated Business Planning
2.10	**ICT**	Internal Audit, Controls and Compliance Team
2.11	**MChS**	Ministry of Emergencies
2.12	**OD**	Operations Department
2.13	**ODWG**	Operations Department Risk Management Working Group
2.14	**PHA**	Process Hazard Analysis
2.15	**RAM**	Risk Assessment Matrix
2.16	**RCC**	Risk Control Card
2.17	**Regulations**	Regulatory and legal acts
2.18	**RMS**	Risk Management System (as per the CPC Risk Management Standard)
2.19	**RWG**	Regional Working Group
2.20	**SWOT**	Strength, Weakness, Opportunity, Threats Analysis
2.21	**WEP**	Work Execution Plan

5. GENERAL

5.1 The risk management system is a systematic process of identification of hazards, environmental aspects, and assessment of risks followed by development and maintenance of controls to reduce the risk probability and/or consequences to acceptable level. The risk management system is an integral part of the Company's Safety Culture, and it significantly affects all areas of CPC operations.

5.2 The OD risk management process includes the key stages in accordance with the CPC Risk Management Standard and it is given in Flowchart 1.

Flowchart 1. Risk Management Flowchart



5.3 The OD risk management system covers the following levels of risk management:

- OH&S risks and risks related to environmental aspects;
- production risks;
- risks associated with execution of high-risk works;
- HSE MS systemic risks and opportunities that may affect the MS functioning as a whole.

The flowchart of OD risk management levels is given in Table 3.

Table 3. CPC OD Risk Management Levels

Level	Process	Tool	Recording of risks and controls	CPC document
OH&S risks and environmental aspects	"Zero injury" concept, accident risk management	OD Risk Assessment Matrix Life Saving Rules Observation Cards	List of environmental aspects and OH&S hazards	HSE Management System Manual

Level	Process	Tool	Recording of risks and controls	CPC document
		Process control, audits, inspections Lessons learned and investigation of accidents and near misses using “5 Whys?” and “Cause and Effect Tree”		
	Management of occupational diseases and health risks for employees	Workplace assessment findings Periodic medical checks Sanitary and epidemiological monitoring OD Risk Assessment Matrix Analysis of sick leave certificates and visits to medical stations.	List of environmental aspects and OH&S hazards	HSE Management System Manual
	Environmental aspect management	OD Risk (Environmental Aspect) Assessment Matrix Industrial environmental monitoring Sanitary and epidemiological monitoring Lessons learned and investigation of environmental incidents and near misses using “5 Whys?” and “Cause and Effect Tree”	- List of environmental aspects and OH&S hazards - Environmental Safety Declaration	HSE Management System Manual
	Contractor risk management	Risk level criteria depending on the type of work performed OD Risk Assessment Matrix Contractor HSE Plan	- Contractor HSE Exhibit - Contractor HSE Risks Register	Procedure of Including into Contracts HSE Requirements for Contractors
	Management of significant risks	OD Risk Assessment Matrix Assessment of effectiveness of controls for significant risks	- List of significant environmental aspects and OH&S hazards - Bow-tie diagrams - OD Top Risk Register as part of the CPC Register of Top Business Risks	HSE Management System Manual; this Procedure Company Risk Management Standard
Operation risks (RCC Electronic Register)	Management of risks arising during normal operation	- Assessment of operation risks in accordance with the approved methods of risk calculation in RF and RoK - OD Risk Assessment Matrix - Bow-tie risk assessment methodology - Process control - Assessment of controls effectiveness - RCC Electronic Register - Investigation of equipment malfunctions and failures	- CPC Industrial Safety Declaration - RCC Electronic Register - List of environmental aspects and OH&S hazards - Bow-tie diagrams	this Procedure
	Management of change	HAZID, HAZOP, "what if" analysis	- Action plans based on HAZOP/HAZID findings - Risk Control Cards (RCC) - MoC Form	Management of Change Procedure

Level	Process	Tool	Recording of risks and controls	CPC document
			- Integrated Business Planning Cards	
Risks associated with execution of high-risk works	Risk management for high-risk works	- Work Execution Plan (WEP) - Process flowchart - PtW system - Energy Wheel risk assessment - Checklists to assure the compliance with Life Saving Rules for high-risk works - Targeted toolbox talk - Dynamic risk assessment	- WEP - Permits to Work - Electronic database of checklists	STP 33 Procedure for Organization and Performance of Hot Work, Gas Hazardous Work, Repair Work, Excavation and Other Hazardous Work with Issuance of Work Permits for Preparation and Performance Thereof CPC Safety Instructions Nos. 102-108
Systemic HSE risks and opportunities	Management of systemic HSE risks and opportunities	- SWOT analysis - Assessment of effectiveness of HSE MS functioning - Independent audits - HSE observation cards and checklists	Strategic and annual OD plans IBP Process	HSE Management System Manual

5.4 The OD risk management process is shown in Attachment 1 and implies the following:

- registration of all risks in the electronic Risk Management System as per the Company's Risk Management Standard and this Procedure;
- development of "bow-tie" diagrams for significant OD risks;
- identification of new risks and periodic testing of existing controls (OD Risk Control Cards);
- development of additional risk mitigation measures and further monitoring of the status of residual risks.

5.5 As part of the OD risk management process and to forward new risk controls / improvements of effective controls employees can initiate Risk Control Cards (RCCs) to the RWG for review and further to the ODWG for approval. The approved RCCs are given the respective priority for Activity implementation as part of the Integrated Business Planning (IBP) process or for implementation of the other management decisions that do not require creation of the Activity Card.

5.6 New controls, as well as improvements of existing controls, should be recorded in the RMS OD Electronic Register in the electronic risk cards and corresponding "bow-tie" diagrams as per the CPC Risk Management Standard and this Procedure.

5.7 Controls should be tested on a regular basis to determine their effectiveness and need in timely action to restore / improve them.

6. HAZARD IDENTIFICATION AND CORRESPONDING RISKS

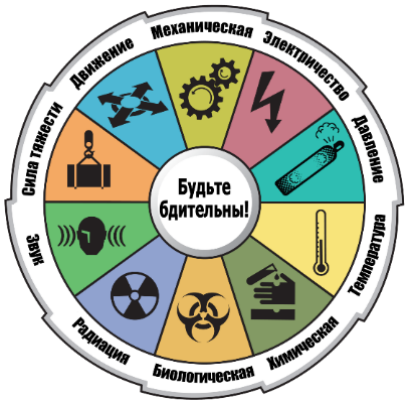
6.1 Hazard identification is the process of recognizing the hazard existence and determining its nature.

The Company distinguishes the following hazards:

- Physical
- Chemical
- Biological
- Psychophysiological
- Social hazards
- Environmental aspects

6.2 The Company uses Energy Wheel shown in Flowchart 2 as a methodological tool to identify hazardous operation factors (see also Attachment 7).

Flowchart 2. Energy Wheel



6.3 It is necessary to determine the following while identifying hazards and environmental aspects:

- Hazards and their sources
- Potential hazardous event and its potential implications for:

• "People" (injuries and diseases of Company/contractor/subcontractor employees and Company visitors);

• "Environment" (direct negative impact in the form of pollution of environmental components and indirect negative impact in the form of extraction and consumption of natural and energy resources);

• "Assets" (direct damage due to asset failure and indirect losses due to equipment downtime (oil pumping reduction or shutdown));

• “Reputation” (influence of impact on public opinion, including stakeholders, about Company’s business);

• “Cost” (potential Company’s losses).

6.4 When determining the possible consequence of a hazard, it is necessary to choose the worst scenario of the most likely consequences.

6.5 In determining hazards, their sources and possible consequences, it is necessary to focus on the following:

- Activities of all persons having access to the workplace, including:

• Personnel of Company's production units and office staff, including those on business trips, carrying out activities on the territory of third parties

• Personnel of contractors/subcontractors working at Company's sites and Company's visitors

- Operation of infrastructure facilities (equipment, buildings and structures)
- Use of materials and substances, including:

• Owned and used by the Company

• Owned and used by contractors / subcontractors under effective contracts.

- Activities in standard conditions of technological processes and work procedures, including:

• Routine operations performed regularly or frequently (including maintenance and repairs, waste accumulation, etc.)

• Ad hoc operations performed on a rare basis (tank cleaning, process pipeline tie-ins, emergency response, etc.)

- Possible emergencies / incidents
- Natural and climatic (ambient air temperature, wind strength, lightning, storms, floods), and geophysical conditions (landslides, mudslides, earthquakes)
- Cultural and political specifics of the regions, where CPC operates
- Human factor that often causes accidents and incidents due to human mistakes or intentional actions.

6.6 When identifying hazards and assessing risks just before work, special attention must be paid to the following factors:

- Personnel readiness to perform a certain task, including:

• Psychological condition (tension, fatigue, lack of concentration)

• Physical capabilities (height, weight, gender)

• State of health (hearing, eyesight, diseases)

• Competence

- Work conditions, including:

• Mode of operation (shift/rotation start/end, night shift)

• Environmental parameters (low or high temperature, precipitation, dusk, fog, wind, ice)

• Functioning of automation and communication equipment (delays in or inaccurate provision of information).

6.7 Hazards and associated risks are identified at different stages of equipment operation and from different sources, for example:

- when conducting a risk assessment prior to work in the course of PtW issue, WEP review, planning of SU&C, shutdown, maintenance, etc.;
- when analyzing technical parameters and remote monitoring system readings (SCADA data, turbine remote monitoring data, LDS data, vibration analysis data, etc.);
- during on-site engineering inspections, based on findings of Standing Commission inspections and targeted inspections conducted by regional and MO specialists, OHS log records;
- based on lessons learned from incidents and near misses;

- during review of observation cards;
- during analysis of process risks conducted with different PHA techniques;
- from reports of external and internal audits of the HSE MS, QMS, and other audits;
- when compiling and revising lists of environmental aspects and HSE hazards, HSE commitments;
- from legislative requirements, including recommendations / citations of regulators;
- from information received from CPC staff, contractors, shareholders and other stakeholders;
- when analyzing external data (from mass media, the Internet, etc.) about hazardous events in other companies;
- from questionnaire surveys, interviews, analysis of internal documentation;
- from other sources.

7. RISK ANALYSIS AND ASSESSMENT

7.1 Risk is the combination of the probability of exposure to a hazard (or an environmental aspect) and the severity of consequences.

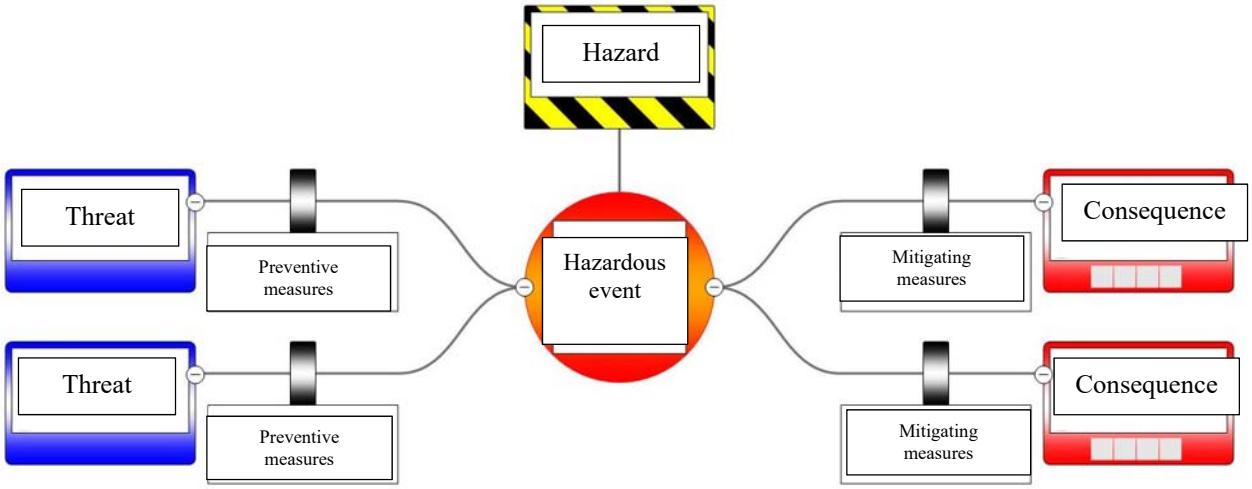
7.2 Risk analysis

7.2.1 When analyzing the risk, it is necessary to identify the causes and consequences for the risk occurrence. According to the CPC Risk Management Standard and this Procedure the OD shall review the risk circumstances using a bow-tie diagram.

7.2.2 The development of a "bow-tie" diagram is mandatory for high-level risks (red zone) and risks, which in turn can be included in CPC top risks. The development of a "bow tie" diagram for moderate and low risks (yellow and green zones) is optional. In the OD these diagrams are generated in the electronic RMS database.

Examples of bow-tie elements are given in Flowchart 6.

Flowchart 6. Risk elements used for the bow-tie diagram analysis.



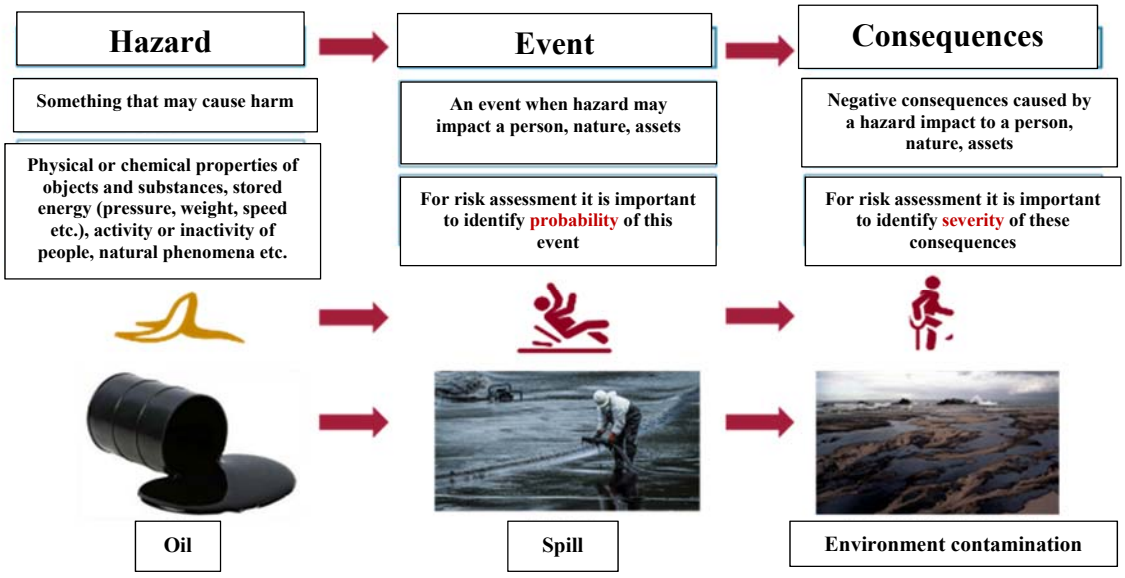
7.2.3 The event under review / its different scenarios should have certain probability to take place. Occurred events (incidents) are used for the risk analysis and risk assessment to determine the likelihood that a similar event could happen again. Statistical data from verified sources (e.g., data from Emercom, Rostechnadzor, Labor Inspection, materials of RF/RoK regulatory authorities, engineering data, data from the International Association of Oil and Gas Producers IOGP, etc.) are also used to determine the probability. The risk is assessed taking into account all existing functioning controls.

7.2.4 The effectiveness of controls must be evaluated (tested) on a regular basis. Test results shall be considered during risk assessment.

7.3 Risk Assessment

7.3.1 Risk must be assessed comprehensively, simultaneously taking into account the probability of a negative event and the severity of consequences (see Flowchart 3).

Flowchart 3. Risk components



7.3.2 Risk assessment includes the following:

- Identification of the hazard-related risk level
- Its comparison with the set criteria (requirements) and making a decision about the risk acceptability.

7.3.3 The Company uses two types of assessments for OD risks:

- Quantitative risk assessment
- Qualitative risk assessment.

7.3.4 Quantitative risk assessment

Quantitative risk assessment, as a rule, is carried out by specialized firms at the design stage according to the methods set forth in regulatory documents (hereinafter “RD”). The results of such risk assessments are documented in industrial and fire safety declarations, HSE safety justifications. As decided by the Company's management, quantitative risk assessment can be conducted at any stage of operations.

7.3.5 Qualitative risk assessment

Qualitative methods of risk assessment, due to their ease of use, are the most common ones compared to quantitative methods. Qualitative risk assessment is usually performed at the stages of production activities. For qualitative methods of risk assessment in the Company the following risk acceptability criteria are applied:

- The requirements of external and internal regulations for safe operation of facilities and equipment and production operations;
- The Risk Assessment Matrix (hereinafter “RAM”) given in Attachment 2.

7.4 Risk Assessment Matrix

7.4.1 There is the following sequence of risk assessment and RAM use:

- Determine level risks
- Evaluate risk acceptability.

7.4.2 The RAM allows you to determine the level of risk for a particular hazardous event based on two risk components:

- Impact (potential severity) of incident consequences (damage)
- Probability of an accident with such consequence.

7.4.3 The risk, the level of which is determined with the RAM, can be attributed to one of three zones:

- Red (high)
- Yellow (moderate)
- Green (low)

7.4.4 **The impact (severity of incident consequences)** is determined on the scale from "0" to "5" for the following objects of impact:

- «People» – category for assessment of potential impact on the health and safety of staff, contractors, population;
- «Environment» – category for assessment of environmental impact (air, water, land) and ecology;
- «Assets» - category for assessment of impact on the Company’s assets;

- «Reputation» – category for assessment of impact on the public opinion, including stakeholders, about Company's business;
- «Cost» – category for assessment of potential Company's losses.

7.4.5 The probability of a hazardous event is determined on the scale of "1" to "5", taking into account statistical data on similar incidents with the same consequences that have occurred before.

The probability of a particular hazardous event is always the same for all five consequences categories.

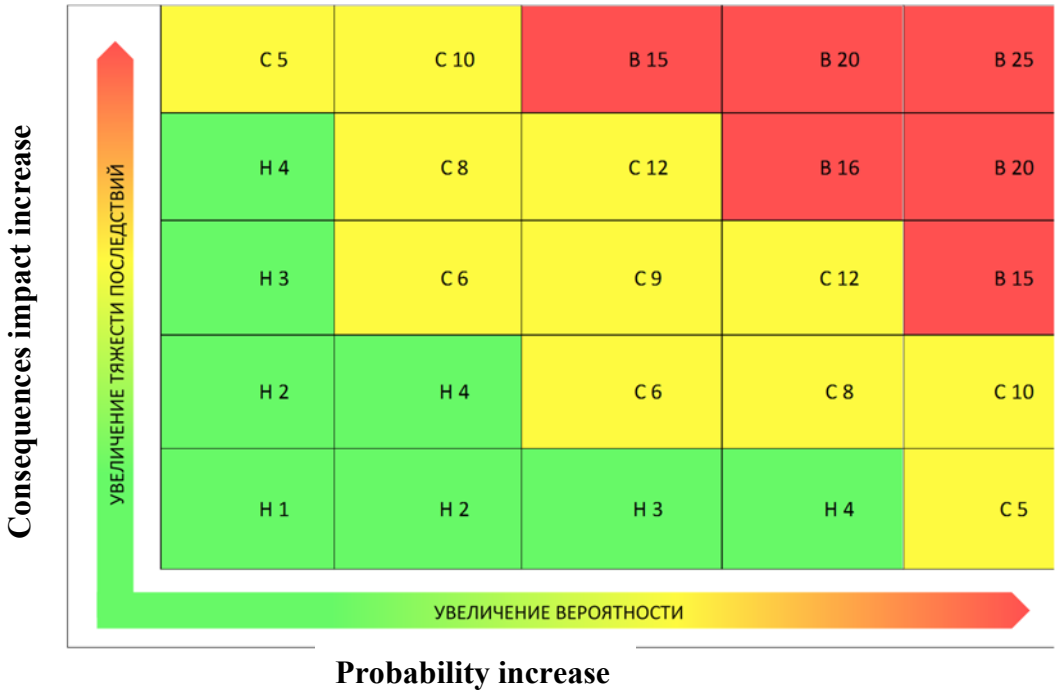
1	2	3	4	5
Highly Unlikely Has happened once or not at all in the industry Less than once in 1000 years (<10-3 /year)	**Unlikely** Has happened several times in the industry Once every 1000-100 years (10-2 to 10-3 /year)	**Possible** Has happened once before in the Company Once every 100-10 years (10-1 to 10-2 /year)	**Likely** Has happened several times before in the Company Once every 10-2 years (10-1 to 5×10-1 /year)	**Highly Likely** Similar event has occurred once or more in the Company in the last 2 years Once every 2 years and more (>5×10-1 /year)

7.4.6 **Risk rating**

Risk is ranked based on the risk assessment and it is calculated by the formula "Impact (severity of consequences)" x "Probability":

High Risk – score range from 15 to 25– red zone
Moderate Risk – score range from 5 to 12 - yellow zone
Low Risk – score range from 1 to 4 – green zone
(See Flowchart 4)

Flowchart 4. Risk Matrix Flowchart



The highest impact score among all categories is selected to determine the rating.

7.4.7 **Example:** Impact on “Assets” is ranked 4, “People” - 1, “Environment” - 3, each of the “Cost” and “Reputation” categories are scored 2. The probability of an event subject to effective controls is scored 2. In this case the highest level of impact is 4 (“Assets”) multiplied by 2 (Probability) = 8. The risk is rated as moderate.

7.4.8 **Acceptable risk level** is the residual risk mitigated to the level that the Company may accept given the applicable legal requirements and international practices, as well as the organization's own HSE policy, and when further risk reduction is not technically, organizationally, or economically feasible or appropriate.

Risk acceptance criteria with the RAM use are given in Flowchart 5 and Table 4.

Flowchart 5. Acceptable risks level criteria

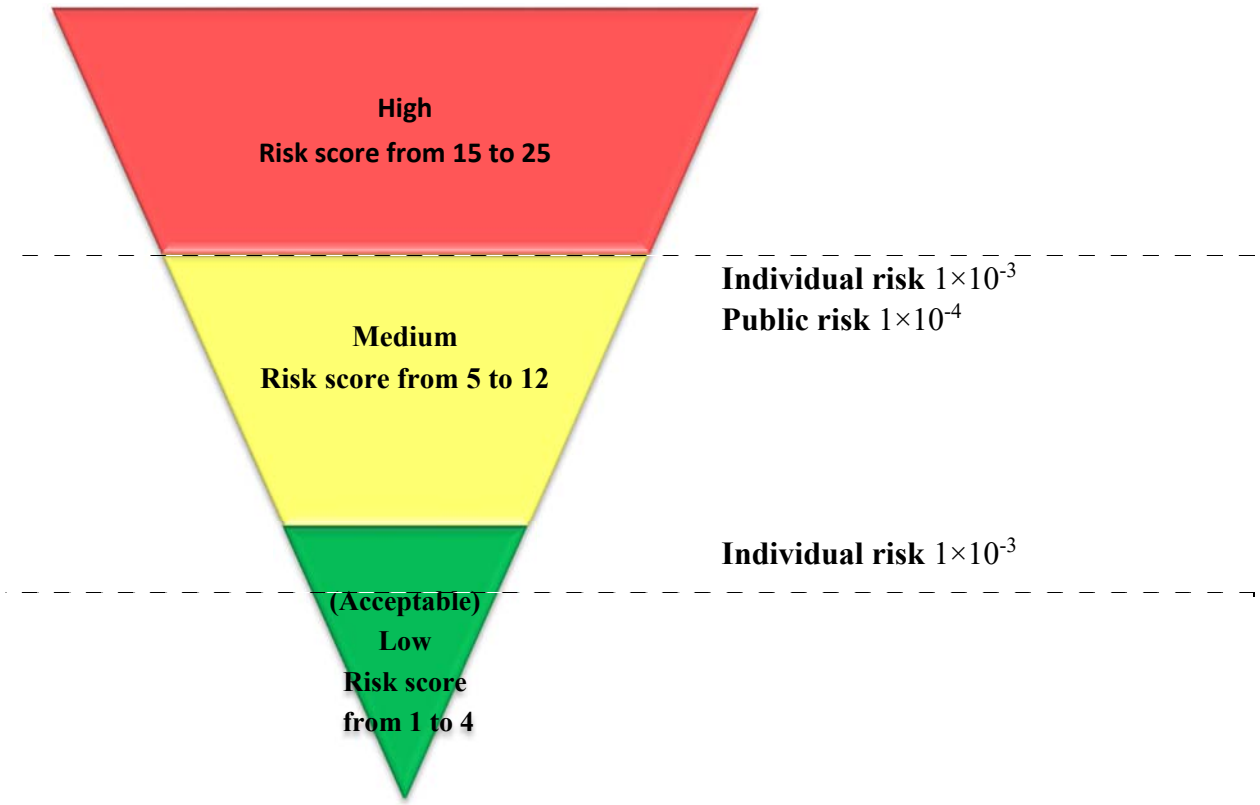


Table 4. Criteria for risk managing depending on score

Risk Level (Zone color)	Interval	Risk analysis	Risk management action	Further analysis required
Green (low)	1-4 (H1-H4)	Risk management doesn't require significant improvement of controls	Minimum operational control	Mitigation plan shall also be developed for low risks if the implementation of such plan does not require to distract resources necessary for mitigation of higher level risks. Control over the residual risk.
Yellow (medium)	5-12 (C5-C12)	Risk management requires improvement if further risk mitigation actions are technically, organizationally or economically feasible or appropriate.	Identification and implementation of additional hazard reduction measures with the use of a hierarchy of controls to reduce the magnitude of risks to the level of the green zone.	Monitoring whether risks are at the acceptable level
Red (high/significant)	15-25 (B15-B25)	Risk management requires considerable improvements	It is necessary to apply a bow-tie diagram or similar methodology to develop and implement further risk reduction measures to an acceptable level of residual risk.	Development of additional actions It is disallowed to carry out work without implementing measures to achieve an acceptable level of risk, taking into account the feasibility of risk reduction measures from a technical, organizational or economic standpoints.

7.4.9 The risk owner determines whether the risk level is acceptable in view of set goals and tasks by comparison of the level of a residual risk with the risk level that the Operations management is ready to accept. The decision whether the risk level is acceptable shall be properly justified, documented and approved by the decision of the Regional Working Group (RWG) and the Operations Department Risk Working Group (ODWG). When analyzing the need for development / implementation of the additional action plan to further reduce the risk level, costs and economic benefits should be analyzed.

8. DEVELOPMENT AND IMPLEMENTATION OF CONTROLS AND IMPROVEMENT OF EFFECTIVE CONTROLS

8.1 Controls

8.1.1 Depending on the risk level the following controls should be planned and implemented to reduce it to/maintain it at the **acceptable** level:

- **Preventive controls** ensuring that the frequency of negative events is maintained or reduced;
- **Mitigating/recover controls** reducing or mitigating the magnitude of negative consequences of the hazard occurrence (reducing the severity of consequences).

Note: the above response and recovery measures are documented in design documentation (detection and alarm systems), emergency response plans, firefighting plans, occupational health and safety instructions, evacuation plans, and in the OD risk register.

8.2 Controls hierarchy

8.2.1 Control are divided into the following groups (in decreasing order of their effectiveness as per Flowchart 7):

- Hazard exclusion, including:

• Exclusion of the use (storage) of hazardous substances;
• Exclusion of the use of hazardous equipment;
• Exclusion of a process or its part;
• Process automation;
• Use of labor saving machinery.

- Replacement of hazards with less harmful ones, including:

• Replacement of hazardous equipment with less hazardous one;
• Replacement of hazardous materials with less hazardous ones.

- Isolation of hazards and use of engineering solutions, including:

• Installation of safety locks and alarms, means of collective protection;
• Fencing or isolation of equipment, hazardous parts and components;
• Installation of forced ventilation and cleaning for work with harmful or toxic substances.

- Organizational measures and warning signs, including:

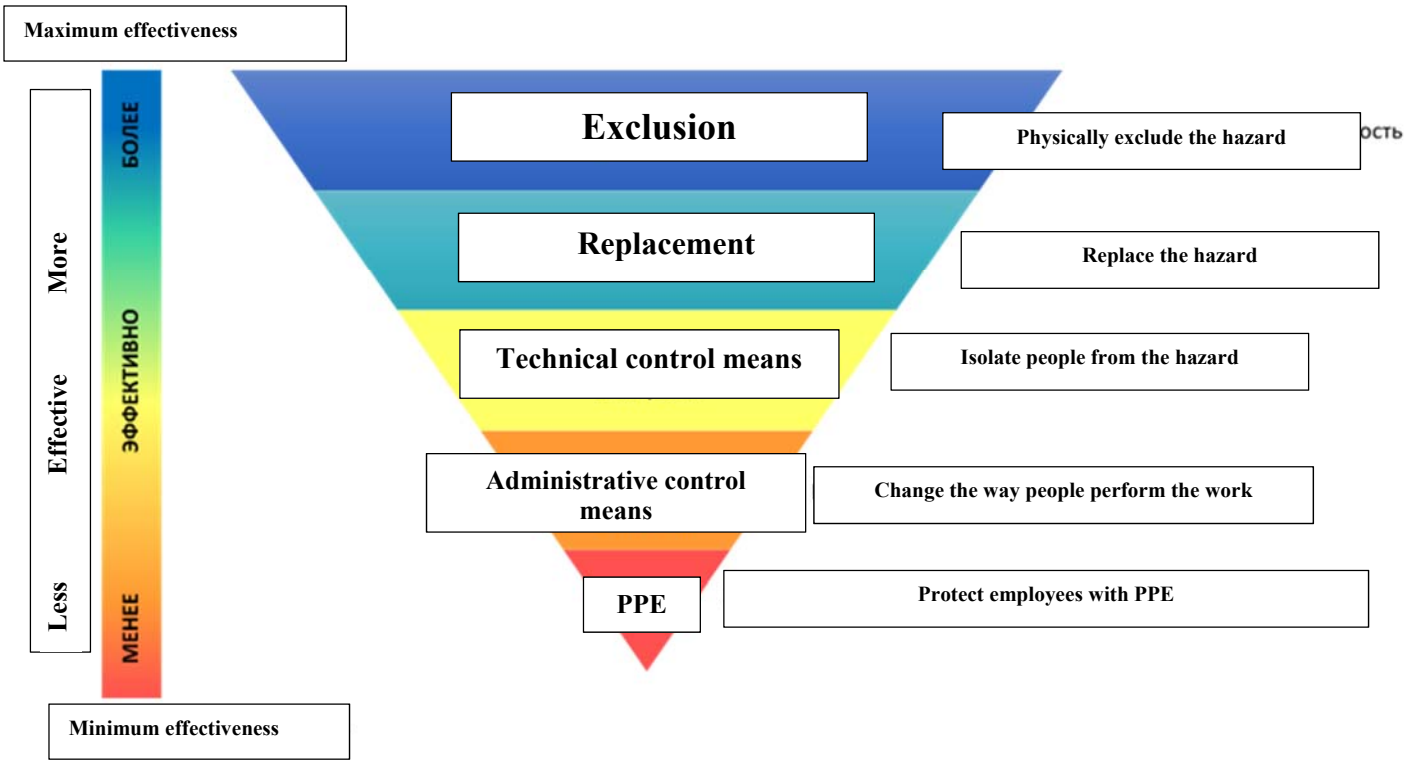
• Documentation of necessary requirements in the process documentation, safety instructions and other documents;
• Staff awareness and competence;
• Observance of working/rest hours;
• Use of warning signs.

- Use of PPE (protective clothing, safety shoes, safety harness, etc.).

• Before PPE is used, it is necessary to conduct a detailed risk assessment of the workplace and to fill in a PPE register. This register contains information on the types of PPE approved for use at Company's production sites.
• When selecting PPE it is necessary to bear in mind that the PPE itself can be dangerous (for example, the use of dark and thick overalls can lead to heat stroke in hot weather).

8.2.2 The order in which controls should be considered based on their effectiveness in controlling risks is called the Hierarchy of Controls (see Flowchart 7).

Flowchart 7. Controls Hierarchy



8.2.3 In most cases, the cost and effectiveness of risk management measures decrease as you move from the base to the top of the inverted pyramid.

8.3 Assessment of effectiveness of controls

8.3.1 It is recommended to conduct the following analysis while assessing the effectiveness of controls:

- Evaluate how effectively the existing controls are functioning and whether they are key ones (controls, which effective functioning reduces the level of risk to an acceptable level);
- If any control fails to function, analyze the presence of compensating control barriers;
- Assess the need for new controls/ actions to strengthen existing controls.

8.3.2 The effectiveness evaluation is divided into the following categories:

No.	Categories of controls effectiveness assessment:
1	Satisfactory
2	Minor improvements needed
3	Significant improvements needed

8.3.3 Following the analysis, it is necessary to develop additional actions/controls to reduce risks with deadlines, needed resources needed and appointed action parties specified.

8.3.4 In selection of activities, it is necessary to consider:

- Whether actions are technically feasible, justified and have a significant effect on risk reduction, with priority given to those measures that have the greatest effect at the lowest cost;

- The possibility of new and modified hazards associated with the implementation of planned activities. In such cases, it is necessary to assess risks as part of the change management process in accordance with the Management of Change Procedure before implementing measures.

8.3.5 If it is necessary to finance actions to implement new or improve existing controls for OD risks, the IBP Procedure should be also followed.

9. RECORDS

9.1 Tools for risk recording

9.1.1 The following tools are used to record OD risks:

- RMS OD Electronic Register in SharePoint being a set of electronic Risk Cards with relevant "bow tie" diagrams for significant risks (red zone). Registration and analysis of medium and low risks (yellow and green zones) is also carried out in the RMS OD Electronic register, while the development of "bow-tie" diagrams is not mandatory.;
- List of significant Environmental Aspects and OHS hazards, as well as the Reduction Plan for associated risks;
- Operations Risk Register designed to record Risk Control Cards (RCC) to be further integrated with the Electronic RMS Database following the ODWG decision;
- Tools used in the process to manage operations risks associated with high-risk works;
- SWOT analysis is performed to assess the HSE MS systemic risks and capabilities, which may affect the functioning of the whole management system.

9.2 List of significant environmental aspects and OHS hazards, as well as the Mitigation Plan for associated risks

9.2.1 The process of risk registration and update of the Lists (registers) of Environmental Aspects and OHS Hazards is regulated by the CPC-R/K Health, Safety and Environment Management System (HSE MS) Manual. The template of the Register of Environmental Aspects and OHS Hazards, Assessment of Associated Risks and Opportunities is given in Attachment 5.

Notes: upon modification of the OD Electronic RMS Database, these Lists (Registers) will be further integrated with the RMS OD Electronic register. Current Lists (Registers) will be migrated to the new system of recording OHS risks, including environmental aspects. All significant environmental aspects and OHS hazards will be represented in the RMS OD Electronic register in the format of bow-tie diagrams.

9.3 OD Risk Register designed to record Risk Control Cards (RCC)

9.3.1 To document the insufficiency of risk controls at the Company's facilities, a system of Risk Control Cards (RCC) is used. The RCC template is given in Attachment 3 hereto and is uploaded into the RMS – Template directory in Intranet.

The RCC contains the following sections:

- The general information (description of the issue/controls/additional action required/action party/facility it is applicable to, etc.);
- The section providing the link to the Risk within the RMS OD Electronic register and the corresponding control (if the control was specified there earlier);
- Information re risk and its assessment;
- Proposed action plan and preliminary required resources.

9.3.2 The RCC should be endorsed by the following persons:

- Chairman of the Risk Management RWG of a corresponding region;
- Chief Company expert in the relevant discipline.

- Upon approval, the Card should be sent to the ODWG Coordinator (Moscow office) to add it to the agenda of the regular meeting of the OD Risk Management Working Group (ODWG). The RCC must contain a complete set of materials for consideration and decision-making by the OD management (photographs, reports, acts, etc.).

9.3.3 The ODWG Coordinator shall send the card to other regions to RWG Chairpersons to determine whether it is applicable to other regions. If applicable, the RWG Chairperson of a respective region also signs the card and specifies what facilities are to be added to the applicability of control under consideration.

9.3.4 After the RCC is approved at the ODWG meeting a respective control/action to improve the existing control is to be recorded in the Operations Risk Register (the Table format is given in Attachment 4) with its further upload to the RMS OD Electronic register for the purpose of recording it as a control for the corresponding risk, or for the purpose of introducing a new measure to improve the control for its further tracking.

9.3.5 Quarterly ODWG meetings discuss OD risks, make decisions on introduction of new and strengthening of existing controls, review the status of actions to reduce significant risks, approve OD new risks. The agenda of ODWG meetings may be expanded to review the findings of the analysis of root causes of incidents/malfunctions, observation cards, violation trends found by HSE/SC audits. During its meetings, the ODWG reassesses OD risks and resolves whether risks/controls should be included in the Company's top risks for consideration by the CPC Management Team (MT).

9.3.6 Decisions of ODWG members are documented in ODWG minutes by the ODWG Coordinator. Minutes are to be endorsed by ODWG members with the following approval. Minutes are uploaded to the RMS OD Electronic Register

9.4 **Management of operations risks associated with high-risk works**

9.4.1 OD production risk management (hereinafter referred to as PRM) is a system of HSE risk management at production facilities and sites for organization and execution of safe works at all stages: work preparation, work execution and work completion.

9.4.2 The production risk management system has the following elements:

- Work planning;
- Assessment (analysis) of safety risks;
- Permit to Work system;
- Organization of simultaneous operations;
- Check of WTL and crew competence;
- Inspection of equipment, tools and accessories used;
- Targeted toolbox talks;
- Work progress monitoring;
- Dynamic Risk Assessment;
- Interference in unsafe situations - “Stop Work Authority” (see Attachment 8), (observation cards);
- Personal Protection Equipment (PPE);
- Lessons learned.

9.4.3 For high-risk works the risks and hazards shall be documented in the Work Execution Plan (WEP), and during work preparation, prior to and in the course of work in the Permit-to-Work. Safeguards protecting employees from hazardous and harmful production factors identified by the workplace assessment are to be specified in the WEP in accordance with the Procedure on development, documenting, approval of the work execution plans and process flowcharts for the types of work during implementation of CPC E&P projects.

9.4.4 While issuing a Permit-to-Work, it is necessary to take into account hazards and environmental aspects, and required relevant controls in accordance with CPC instructions defining safety measures for preparatory and main high-risk works. Standard hazards and safety measures are listed in Attachment 16 “Checklist-Based Risk Assessment” to CPC STP 33.04.2021.

9.4.5 In addition, the Work Team Leader (WTL) is to fill in the form of dynamic risk assessment being a part of a Permit to Work, where he provides answers to the questions whether existing controls are sufficient to ensure safe work. The methods of dynamic risk assessment are described in Attachment 11 “Daily Clearance Form” to CPC STP 33.04.2021. The Guidelines for identifying hazards and risks at work and dynamic risk assessment in Attachment 6. Materials of the training course "Identification of hazards and controls with Energy Wheel” are given in Attachment 7.

9.5 SWOT analysis to assess HSE MS systemic risks and opportunities

9.5.1 The purpose of SWOT analysis is to analyze and streamline information about external and internal factors of the company's HSE activities. The findings of this analysis are taken into account in decision-making and they provide a basis for determining the key components of a unified HSE Management System. The process of conducting and recording the findings of SWOT analysis are regulated by HSE MS 06, A02-OD-HSE-164 “SWOT Analysis Procedure”.

10. RISK MONITORING AND REASSESSMENT

10.1 Monitoring and control by Risk Owner

Monitoring and control by Risk Owner includes the following:

- Monitoring of the status of mitigation actions of a relevant risk;
- Timely update of the earlier developed action plan to reflect internal and external changes;
- Submission of required risk information to the RWG/ODWG Coordinator;
- Change of controls effectiveness level;
- Participation in risk analysis and review, including formal risk reassessment and determination of a residual risk, control of the residual risk;
- Determination of an acceptable risk level jointly with the ODWG.

10.2 Monitoring and control at the RWG/ODWG level

10.2.1 Regular monitoring and control of significant OD risks should be carried out on an ongoing basis at the RWG level. If necessary, a schedule for OD risk review may be drawn up on a quarterly basis (taking into account the level of OD risks, changes in internal and external risk factors that lead to emergence of new risks or affect the level of existing risks).

10.2.2 High and top risks are to be reassessed at least once a year, moderate and low risks are reassessed as decided by the ODWG, taking into account the effectiveness of existing controls, changes in external and internal factors, including the Company's business processes, but at least once every 3 years for moderate risks and once every 5 years for low risks.

10.2.3 To properly keep RMS OD Electronic Register and prepare ODWG quarterly meetings ODWG Coordinator shall participate in monitoring process together with RWGs, HSE specialists and Risk Owners on the following:

- Monitoring of the risk mitigation actions status including control over making URL references to the Activity cards within IBP;
- Monitoring of the existing controls testing process;
- Monitoring of the existing controls effectiveness assessment;
- Monitoring of the incidents, potential incidents and faults;
- Monitoring of the Observation cards and internal inspections/audits findings;
- Monitoring of the risk reassessment process;
- Monitoring of the OD risks changes that affect OD Key risks.

10.2.4 Risks are reassessed with participation of the Risk Holder at ODWG meetings with consideration of the following data:

- Availability and effectiveness of existing controls using the bow-tie diagrams for significant risks;
- Results of internal and external audits;
- Incidents and near misses;
- Status of actions in respect to existing controls.

10.2.5 Controls are to be monitored at all stages of the life cycle of facilities, equipment and operations as follows:

- By heads of departments and project managers during control of implementation of HSE plans aimed at reducing or maintaining the level of risk (at least once a year for high risks, at least once every 3 years for moderate risks and at least every 5 years for low risks);
- By persons participating in HSE inspections and audits, including the Process Control for key controls effectiveness assessment and assessment of their compliance with internal and external regulations;
- By work team leaders during on-going control of their implementation;
- By heads of subdivisions when analyzing preparedness for potential emergency response based on drills, inspections and actions in emergency situations.

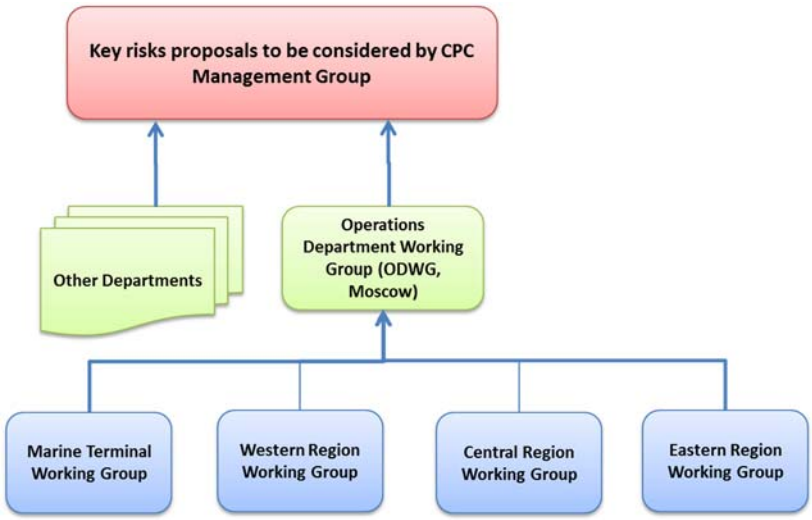
10.2.6 Monitoring results are documented in relevant reports, cards, checklists and meeting minutes.

11. IMPLEMENTATION AND TRACKING OF ACTION IMPLEMENTATION STATUS

The status of implementation of new control/improvement of the existing control is tracked automatically in the RMS OD Electronic Register linked to an IBP process Activity Card (AC) if applicable.

12. OBLIGATIONS AND AUTHORITY

12.1 The organization chart of OD Risk Management Working Groups is the following:



12.1.1 ODWG and RWG members are appointed by a Company management's resolution.

12.2 OD Risk Management Working Group (ODWG, Moscow)

12.2.1 The ODWG conducts meetings not less than once a quarter in the Moscow Office with Regions via teleconference.

WG position	Job title	Function
ODWG Chairperson	General Manager, Operations	Organizes the ODWG work
Deputy ODWG Chairman:	General HSE Manager	Coordinates risk management activity in OD Holder of Operations Risk Register
ODWG Members	Technical Director General Manager, Oil Movements and Commerce Procurement Manager Deputy General HSE Manager (Holder of OD Risk Management Procedure) Manager, Standards and Information (ODWG Risk Coordinator) HSE MS Specialist (ODWG Risk Coordinator)	Review and assess risks, approve new risks and their owners, review the status of implementation of measures to reduce approved risks; reassess risks; review RCCs coming from RWGs and decide whether it is necessary to implement additional controls or improve existing controls; perform an analysis of their possible link to the approved top risks, if necessary, add additional controls to the effective Top Risks.
ODWG Coordinator	Manager, Standards and Information HSE Management Systems Specialist	Provides methodological support within the OD risk management process; Coordinates the management of OD risks, including RWG work; Keeps and updates risk registers in the RMS (environmental aspects and OD HSE hazards)

		Registers and reviews Risk Control Cards (RCC), checks their correctness, checks links with a RMS risk and controls, evaluates the risk level and effectiveness of controls; Prepares and conducts ODWG meetings, keeps Minutes; Keeps and updates the risk control registers (operations risks).
Involved specialists from other fields of activity if needed	Heads, managers and specialists from different fields of activities depending on issues concerned including RWG Coordinators and Manager, Integrated Business Planning.	Discussions on possible technical solutions to introduce additional controls or improve the existing ones.

ODWG obligations:

- Approve new risks and their owners as well as ensure proper management of these risks in line with requirements hereof;
- Make decisions on the need to implement additional/improve existing controls coming from RWGs in the Risk Control Card system;
- Decide whether to approve preliminary costs and whether to prepare an IBP process Activity Card to implement risk mitigation measures;
- Appoint Action Parties to improve risk controls;
- Review the implementation status of approved risk mitigation measures to ensure proper monitoring and to make appropriate and timely adjustments. High OD risks shall be reviewed as a priority;
- Reassess risks based on completed mitigation actions / during risk mitigation with consideration of changes in internal and external factors;
- For all significant high risks conduct the analysis of risk causes, including their potential relation to approved Top Risks and, if required, update the controls for existing Top Risks;
- Complete a review to define the list of high risks (risks scored 15-25) to be reviewed by the CPC Management Team, and prepare required information in line with requirements hereof.

ODWG Decision-Making Process:

- The decisions shall be made collectively based on opinions of all meeting attendees. The Chair shall have a right of deciding vote in case of any differences between the attendees. Any attendee of the meeting disagreeing with a decision made shall have a right for a special opinion that shall be minuted and shall be an integral part of the minutes.
- For ODWG meeting it is required to have quorum of: ODWG Chair, Deputy Chair and two standing ODWG members (or their designees in accordance with DoAs) or without the ODWG Chair but with 4 standing ODWG members (or their designees in accordance with DoAs). OD Risk Coordinator is not a part of decision-making.

ODWG rights:

- Engage any Company personnel and specialists in maintaining the risk management system;
- Communicate to the Company's Management Team its recommendations on risk management issues and inclusion of additional controls in the Company's approved Top Risks.

12.3 Regional Risk Management Working Group (RWG)

The RWG conducts meetings in its Region on a monthly basis.

WG position	Job title	Function
RWG Chairperson	O&M Manager	Organizes and leads RWG work
RWG Members	Deputy O&M Manager Maintenance Manager Lead HSE Engineer Regional specialists by discipline	Participate in risk assessments and development of bow-tie charts for significant OD risks; Assess the effectives of controls; Review and approve Risk Control Cards to introduce new and reinforce existing controls to reduce risks.
RWG Coordinator	A specialist appointed by the resolution.	Checks the RCC, preliminary assesses a risk, prepares documents for a RWG meeting; Organizes the preliminary review of a CRR and a relevant risk by discipline experts with support of the ODWG Coordinator; Convenes RWG meetings; Keeps RWG minutes, if necessary; Sends approved RCCs to the ODWG coordinator

RWG obligations:

- Review the implementation status of the region's approved risk mitigation measures to ensure proper monitoring and to make appropriate and timely adjustments. High risks shall be considered as a priority;
- Evaluate the effectiveness of risk controls, review and approve RCCs initiated in the Region;
- Assess regional OD risks;
- Discuss possible options to mitigate risks, select the best proposals as part of the RCC process and send proposed solutions to the ODWG for review.

Rights:

- Engage any personnel of Company’s Region to maintain the risk management system;
- Provide for ODWG review its recommendations on the issues related to risk/nonconformity management work.

12.4 Risk Control Card Initiator

Obligations:

- Document the problem (new threat, missing control, ineffective operation of the control, proposal to improve effectiveness of the control) and the proposed solution to mitigate risk, i.e., prepare a Risk Control Card;
- Obtain the RCC approval by a relevant RWG;
- Participate in risk assessment process;
- Send the completed RCC and supporting documents to the RWG/ODWG Coordinator;
- Revise the RCC, submit additional materials if the RCC was rejected by the RWG/ODWG;

- If requested, inform the RWG/ODWG about the status of risk mitigation/elimination;

Rights:

- Bring issues regarding OD risks to RWG meetings (if the risk relates to the Moscow office, to the ODWG meeting);
- Participate in RWG meetings.

12.5 **Action parties**

Obligations:

- Implement measures to introduce new or improve existing controls to mitigate OD risks;
- Inform the RWG/ODWG/Initiator about the action progress;
- Specify the action status in the RMS.

Rights:

- Obtain funds, advice and assistance from specialists by discipline as needed;
- Participate in RWG/ODWG meetings.

12.6 **Risk control card requiring urgent review**

12.6.1 If urgent response to a risk/nonconformity is required, the RWG must urgently gather for a meeting and, if the region cannot deal with it with own resources, initiate a risk/nonconformity control card and specify in the respective cell that the card requires 'urgent review'.

12.6.2 An issue is accepted for urgent review only if the risk is high, arose suddenly, was not previously acknowledged.

12.6.3 The criteria for the ODWG to accept a risk/nonconformity for urgent review:

✓ *Risk of accident at an industrial facility/office is very high, on which basis Company personnel /contractor representatives are prohibited to work / work is suspended;*

✓ *Risk of identified hazard development into an incident/emergency is very high, on which basis a process equipment/facility was taken out of operation based on instructions from a duly authorized party.*

12.6.4 The ODWG Coordinator must immediately send out the risk control card for urgent review to all ODWG members and arrange an urgent ODWG meeting. An urgent card shall be reviewed within 3 days.

12.6.5 The decision on urgent cards can be made in the form of absentee voting via email.

12.6.6 Following an urgent meeting or electronic absentee voting, ODWG Minutes, which promptly record the decision and appoint responsible parties, are to be drawn.

13. ANALYSIS OF RISK MANAGEMENT PROCESS

13.1 The results of hazard identification and OD risk assessment, as well as the monitoring of implementation of risk management measures are subject to streamlining and annual review as part of the OD RMS analysis by the Company's management in accordance with ISO 14001 and ISO 45001 international standards requirements.

13.2 The OD Key Risk Register is monitored by the ODWG Coordinator and agreed by Risk Owners, General HSE Manager, OD Head. The ODWG Coordinator interacts with the assigned specialist from the ICT and informs about the changes in the OD Risk Register that affect OD Key risks for the Company management consideration (a process detailed description is given in STP CTC 42.07.2019 "Risk Management Standard").

14. AWARENESS AND TRAINING

14.1 To minimize the human factor on the probability of hazardous events it is essential to ensure awareness and adequate perception of risks by each CPC employee and contractors to maintain a high level of Company's safety culture.

14.2 For this purpose, the Company:

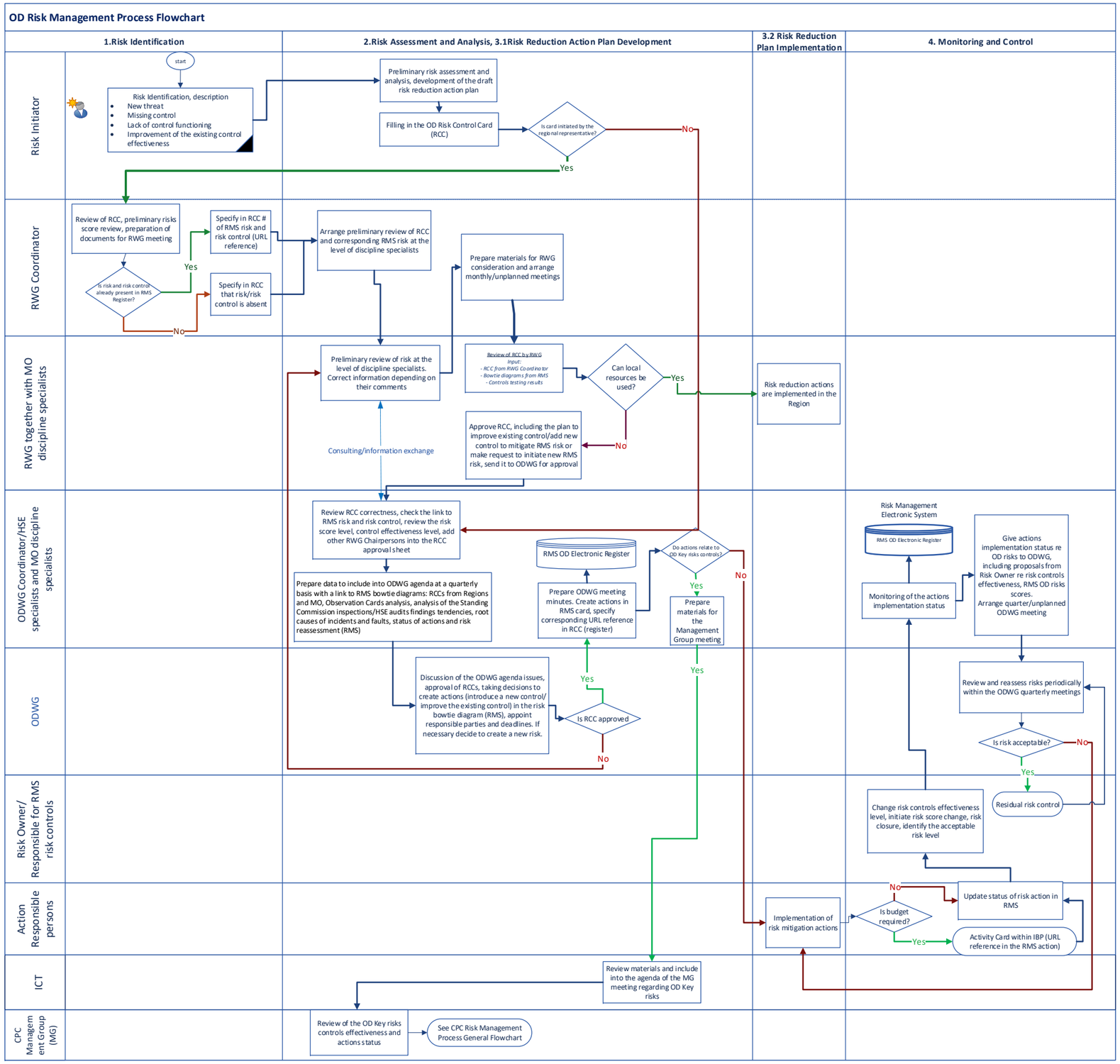
- establishes requirements and hires competent staff;
- informs employees of hazards, potential consequences and controls, including during HSE briefings;
- conducts personnel and practical exercises in safe work techniques;
- involves personnel in identification of hazards and risk assessment (use of observation cards, bow-tie diagrams, etc.)
- uses visual aids, including visualization of the goals, actions and responsibilities of Company's top managers (personal commitments, CPC web site, company app, information bulletins, videos, email notifications).
- reviews, analyzes hazards and consequences, applies risk management measures with contractors at meetings.
- Motivates employees to comply with safe working conditions and demonstrates HSE leadership (KPI's for employees, "Safety Culture Promotion Leader" award, etc.).
- Personnel training in risk assessment and bow-tie techniques, etc.
- Prior to work, the results of hazard identification, risk assessment and management actions are communicated to all employees engaged in work.

15. LIST OF ATTACHMENTS

List of Attachments is given in the Table below

Attachment #	Title	Location
1.	OD Risk Management Flowchart	Attached to this Procedure
2.	CPC Risk Assessment Matrix	Attached to this Procedure
3.	Risk Control Card (RCC)	Attached to this Procedure
4.	Template of the Risk Control Card (CRR) Register – (temporary Excel format)	Attached to this Procedure
5.	Template of the Register of Environmental Aspects and OHS Hazards, Assessment of Associated Risks and Opportunities	Attached to this Procedure
6.	Guidelines for identifying hazards and risks at work. Dynamic risk assessment	Archived together with the files for this Procedure
7.	Training course materials “Identification of hazards and controls with Energy Wheel”	Archived together with the files for this Procedure
8.	Stop Work Authority Card	Archived together with the files for this Procedure
9.	OD Risk Management General Flowchart	Archived together with the files for this Procedure

ATTACHMENT 1 OD RISK MANAGEMENT FLOWCHART



ATTACHMENT 2. OD RISK ASSESSMENT MATRIX

Impact						Score: 1 - 4		Score: 5 -12	Score: 15 - 25	
Score	**Cost, $m**	**People**	**Environment**	**Assets**	**Reputation**	**LOW RISK**		**MEDIUM RISK**	**HIGH RISK**	
5	>50	**Fatalities** **Single or Multiple fatalities**	Long-term or **massive damage** to the environment. *Oil spill more than 10000 t. to land *Oil spill more than 5000 t. to water, nature reserve territory, in the inhabited area * Emissions of pollutants into the atmosphere exceed the established emission limit values, the concentration of pollutants exceed the MPC within wildlife protected areas and|or in the residential areas and/or complaints of residents of the smell of oil products outside the SPZ * Impact on specially protected biological resources that led to death and/or loss of natural environment's individual components as well as loss of self-restoring capacity / * Impact on water resources that led to the complete exhaustion thereof * Land contamination with no possibility of restoration thereof subject to the target use standards	**Massive damage** Destruction of several main equipment items at the process transportation line (MT TF tanks); fire at the process facilities expanding to the adjacent process facilities; shutdown of the facility pending repair completion (the start date unknown); governmental commission is involved in the incident investigation. Damage / unavailability of assets resulting in * emergency shutdown of the pipeline for the period of greater than 14 days. * massive reduction of throughput volumes.	**Massive damage** Long-term significant damage of Company's reputation. * International media * International concern * High level of concern and action by federal authorities	**A1 (5)**	**A2 (10)**	**A3 (15)**	**A4 (20)**	**A5 (25)**
4	10-50	**Major injury** Life threatening injuries Occupational illnesses. (invalidity)	Medium-term **major damage** to the environment. *Oil spill 5000 to 10000 t. to land *Oil spill 500-5000 t. to water, nature reserve land, in the inhabited area * Emissions of pollutants into the atmosphere exceed the established emission limit values, the concentration of pollutants exceed the MPC outside Sanitary Protection Zone (SPZ) and/or complaints of residents of the smell of oil products outside the SPZ * Impact on specially protected biological resources that led to death and/or loss of natural environment's individual components as well as loss of self-restoring capacity / * Impact on water resources with violation of statutory water consumption standards with contamination, with loss of self-restoratory capacity * Disturbance of land resources, land contamination but with the possibility of target use retained * Waste management with no waste disposal / placement methods	**Major damage** Damage (loss of integrity) of several main equipment items (>50% including utility lines), destruction of a vessel or a PS tank); the equipment cannot be taken out of technological process for the duration of the repair without shutting down the technological process (over 3 days) ,fire at the process facilities, technological line, expanding to the adjacent process facilities. Damage / unavailability of assets resulting in * emergency shutdown of the pipeline for the period of more than 3 days, but less than 14 days * medium-term significant reduction of throughput volumes.	**Major damage** Medium-term significant damage of Company's reputation. * Federal media * National concern * Medium level of concern and action by federal authorities	**B1 (4)**	**B2 (8)**	**B3 (12)**	**B4 (16)**	**B5 (20)**
3	5-10	**Moderate injury** Days away from work injuries	**Moderate damage** to the environment. * Underground waters contamination *Oil spill 500 to 5000 t. to land * Oil spill 1-500 t. to water, nature reserve territory, in the inhabited area * Emissions of pollutants into the atmosphere exceed the established emission limit values, while the concentration of pollutants is within the MPC and/or complaints of residents of the smell of oil products * Impact on biological resources that led to natural environment's changes, exceeding the natural variability limits. The natural environment is capable of complete self-restoration. * Impact on water resources with excess over established standards of water utilization and retention of the self-restoratory capacity * Disturbance of land resources within the established land utilization standards, deterioration of land quality but with the possibility of target use retained * Waste management with exceeding the established standards and without the effective waste disposal / placement contracts	**Moderate damage** Single damages of the main technological equipment, deformation of a vessel or a PS tank (without loss of integrity), loss of flanges joints integrity which can be repaired, the equipment can be taken out of technological process for the duration of the repair or expertise (certification) without shutting the technological process down (up to 3 days) minor fire inside the diking without expanding to the adjacent process facilities. Damage / unavailability of assets resulting in * emergency shutdown of the pipeline for the period 1-3 days * moderate reduction of throughput volumes.	**Moderate damage** Moderate damage of Company's reputation. *Federal and regional mass media * Regional concern * Regional authorities involvement	**C1 (3)**	**C2 (6)**	**C3 (9)**	**C4 (12)**	**C5 (15)**
2	1-5	**Minor injuriy** Medical treatments Restricted work cases	**Minor damage** *Short-term damage to the environment. *No polluting any water source. *No long lasting consequences. * Oil spill 1 to 500 t. to land * Emissions of pollutants into the atmosphere within the established emission limit values, while the concentration of pollutants is within the MPC, complaints of residents of the smell of oil products * The impact on biological resources, resulting in changes in the natural environment, does not exceed the limits of natural variability, the natural environment is completely self-healing. * Impact on water resources with excess over established standards of water utilization, with no contamination, with the retention of the self-restoratory capacity * Disturbance of land resources within the established land utilization standards, no land quality deterioration * Waste management with exceeding the established standards and within the effective waste disposal / placement contracts	**Minor damage** The main equipment is intact (no loss of integrity), the damage can be easily repaired; some instruments are damaged; possible to switch over to back-up equipment for the repair duration. Damage / unavailability of assets resulting in * emergency shutdown of the pipeline for the period of less than 1 day * short - term insignificant reduction of throughput volumes	**Minor damage** Short-term moderate damage of Company's reputation. * District / local and social media * Local concern * Local authorities involvement	**D1 (2)**	**D2 (4)**	**D3 (6)**	**D4 (8)**	**D5 (10)**
1	<1	**Slight injury** First aid rendered by facility staff	**Slight damage** *Damage only on the territory of the facility and in the facility systems. *Oil spill less than 1 t. to land * Emissions of contaminants to the atmospheric air is within the established standards * Impact on biological resources with no changes to the natural environment/ * Utilization of water resources within the established water utilization standards * Utilization of land resources within the established land utilization standards * Waste management within the established norms and within the effective waste disposal / placement contracts	**Slight damage** Failure of any process equipment will not lead to the destruction (loss of integrity) of a system element, fire is unlikely. The failure can be fixed within a shift duration. Local property damages (buldings, constructions) Minimum impact to the throughput volumes.	**Slight damage** Short-term insignificant damage of Company's reputation * Local media, posts in social media * Local public awareness but no discernible concern * Minimum involvement of local authorities	**E1 (1)**	**E2 (2)**	**E3 (3)**	**E4 (4)**	**E5 (5)**
						1	**2**	**3**	**4**	**5**
						Highly Unlikely Has happened once or not at all in the industry Less than once in 1000 years (<10-3 /year)	**Unlikely** Has happened several times in the industry Once every 1000-100 years (10-2 to 10-3 /year)	**Possible** Has happened once before in the Company Once every 100-10 years (10-1 to 10-2 /year)	**Likely** Has happened several times before in the Company Once every 10-2 years (10-1 to 5×10-1 /year)	**Highly Likely** Similar event has occurred once or more in the Company in the last 2 years Once every 2 years and more (>5×10-1 /year)

Impact – the cumulative effect of the event occurring shall be categorized as follows using the category that is considered most severe for the impact score rating.

Probability – the likelihood of the event occurring.

Note: Risk equals the multiplication of Impact that an event will have multiplied by the Probability of the event occurring. (Risk = Impact x Probability) Probability should be based on the worst probable event taking account of existing control measures and NOT the worst possible event.

ATTACHMENT 3. RISK CONTROLS CARD (RCC)

Карточка мер контроля риска (КМКР) ДЭ OD Risk Controls Card (RCC)				**№**	
Текущая дата Current Date		**Инициатор (ФИО, должность, подразделение) Initiator, (Name, Position, Subdivision)**		**Экстренное рассмотрение РГДЭ?/ Emergency review by ODWG? (выберите из списка/ select from the list)**	
Регион/ Region (выберите из списка/select from the list)					
Объект(ы)/ Facility(ies)					
В чем проблема? Какая мера контроля необходима?/ (Какое улучшение необходимо к существующей мере контроля?) (Макс. 3 предложения)/ **What the problem is? What Control Measure is needed?/ (What improvement of the existing Control is needed?)** (max. 3 sentences)					
К карточке прилагаются подтверждающие материалы (фото, акт, файл, дефектная ведомость и т.д.)/ Confirmation is attached to card (picture, act, file, punch list etc.)				Согласование **Менеджера, Главного/ Ведущего специалиста по направлению** Agreed by **Discipline Manager, Chief or Lead Specialist**	
К каким объектам еще применимо? What other facilities is it applicable to?				Согласование Председателя по рискам **Региона инициатора** Agreed by Risk Chairman of the **Region-Initiator**	
				Подпись Председателя РГ по рискам **другого Региона** (если применимо) Signature of **Another Region** Risk Chairman (if applicable)	
				Подпись Председателя РГ по рискам **другого Региона** (если применимо) Signature of **Another Region** Risk Chairman (if applicable)	
				Подпись Председателя РГ по рискам **другого Региона** (если применимо) Signature of **Another Region** Risk Chairman (if applicable)	
Увязка с риском ДЭ Электронной Системы Управления Рисками (СУР)/ Connection to OD Electronic Risk Management System (ERMS)					
Название и № риска из СУР ERMS Risk Title and #					
№ существующей меры контроля (барьера) из СУР # of the existing control (barrier) from ERMS					

Risk Assessment (Impact*Probability) taking all existing controls into account

Impact						**Probability**				
People	**Environment**	**Assets**	**Reputation**	**Cost, mln. $**		**Highly Unlikely** Has happened once or not at all in the industry Less than once in 1000 years (<10-3 /year)	**Unlikely** Has happened several times in the industry Once every 1000-100 years (10-2 to 10-3 /year)	**Possible** Has happened once before in the Company Once every 100-10 years (10-1 to 10-2 /year)	**Likely** Has happened several times before in the Company Once every 10-2 years (10-1 to 5×10-1 /year)	**Highly Likely** Similar event has occurred once or more in the Company in the last 2 years Once every 2 years and more (>5×10-1 /year)
						1	2	3	4	5
Fatalities Single or Multiple fatalities	Long-term or **massive damage** to the environment. *Oil spill more than 10000 t. to land *Oil spill more than 5000 t. to water, nature reserve territory, in the inhabited area * Emissions of pollutants into the atmosphere exceed the established emission limit values, the concentration of pollutants exceed the MPC within wildlife protected areas and|or in the residential areas and/or complaints of residents of the smell of oil products outside the SPZ * Impact on specially protected biological resources that led to death and/or loss of natural environment's individual components as well as loss of self-restoring capacity / * Impact on water resources that led to the complete exhaustion thereof * Land contamination with no possibility of restoration thereof subject to the target use standards	**Massive damage** Destruction of several main equipment items at the process transportation line (MT TF tanks); fire at the process facilities expanding to the adjacent process facilities; shutdown of the facility pending repair completion (the start date unknown); governmental commission is involved in the incident investigation. Damage / unavailability of assets resulting in * emergency shutdown of the pipeline for the period of greater than 14 days. * massive reduction of throughput volumes.	**Massive damage** Long-term significant damage of Company's reputation. * International media * International concern * High level of concern and action by federal authorities	>50	5					
Major injury Life threatening injuries Occupational illnesses. (invalidity)	Medium-term **major damage** to the environment. *Oil spill 5000 to 10000 t. to land *Oil spill 500-5000 t. to water, nature reserve land, in the inhabited area * Emissions of pollutants into the atmosphere exceed the established emission limit values, the concentration of pollutants exceed the MPC outside Sanitary Protection Zone (SPZ) and/or complaints of residents of the smell of oil products outside the SPZ * Impact on specially protected biological resources that led to death and/or loss of natural environment's individual components as well as loss of self-restoring capacity / * Impact on water resources with violation of statutory water consumption standards with contamination, with loss of self-restorator capacity * Disturbance of land resources, land contamination but with the possibility of target use retained * Waste management with no waste disposal / placement methods	**Major damage** Damage (loss of integrity) of several main equipment items (>50% including utility lines), destruction of a vessel or a PS tank); the equipment cannot be taken out of technological process for the duration of the repair without shutting down the technological process (over 3 days) ,fire at the process facilities, technological line, expanding to the adjacent process facilities. Damage / unavailability of assets resulting in * emergency shutdown of the pipeline for the period of more than 3 days, but less than 14 days * medium-term significant reduction of throughput volumes.	**Major damage** Medium-term significant damage of Company's reputation. * Federal media * National concern * Medium level of concern and action by federal authorities	10-50	4					
Moderate injury Days away from work injuries	**Moderate damage** to the environment. * Underground waters contamination *Oil spill 500 to 5000 t. to land * Oil spill 1-500 t. to water, nature reserve territory, in the inhabited area * Emissions of pollutants into the atmosphere exceed the established emission limit values, while the concentration of pollutants is within the MPC and/or complaints of residents of the smell of oil products * Impact on biological resources that led to natural environment's changes, exceeding the natural variability limits. The natural environment is capable of complete self-restoration. * Impact on water resources with excess over established standards of water utilization and retention of the self-restoratory capacity * Disturbance of land resources within the established land utilization standards, deterioration of land quality but with the possibility of target use retained * Waste management with exceeding the established standards and without the effective waste disposal / placement contracts	**Moderate damage** Single damages of the main technological equipment, deformation of a vessel or a PS tank (without loss of integrity), loss of flanges joints integrity which can be repaired, the equipment can be taken out of technological process for the duration of the repair or expertise (certification) without shutting the technological process down (up to 3 days) minor fire inside the diking without expanding to the adjacent process facilities. Damage / unavailability of assets resulting in * emergency shutdown of the pipeline for the period 1-3 days * moderate reduction of throughput volumes.	**Moderate damage** Moderate damage of Company's reputation. *Federal and regional mass media * Regional concern * Regional authorities involvement	5-10	3					

Minor injuriy Medical treatments Restricted work cases	**Minor damage** *Short-term damage to the environment. *No polluting any water source. *No long lasting consequences. * Oil spill 1 to 500 t. to land * Emissions of pollutants into the atmosphere within the established emission limit values, while the concentration of pollutants is within the MPC, complaints of residents of the smell of oil products * The impact on biological resources, resulting in changes in the natural environment, does not exceed the limits of natural variability, the natural environment is completely self-healing. * Impact on water resources with excess over established standards of water utilization, with no contamination, with the retention of the self-restoratory capacity * Disturbance of land resources within the established land utilization standards, no land quality deterioration * Waste management with exceeding the established standards and within the effective waste disposal / placement contracts	**Minor damage** The main equipment is intact (no loss of integrity), the damage can be easily repaired; some instruments are damaged; possible to switch over to back-up equipment for the repair duration. Damage / unavailability of assets resulting in * emergency shutdown of the pipeline for the period of less than 1 day * short - term insignificant reduction of throughput volumes	**Minor damage** Short-term moderate damage of Company's reputation. * District / local and social media * Local concern * Local authorities involvement	1-5	**2**					
Slight injury First aid rendered by facility staff	**Slight damage** *Damage only on the territory of the facility and in the facility systems. *Oil spill less than 1 t. to land * Emissions of contaminants to the atmospheric air is within the established standards * Impact on biological resources with no changes to the natural environment/ * Utilization of water resources within the established water utilization standards * Utilization of land resources within the established land utilization standards * Waste management within the established norms and within the effective waste disposal / placement contracts	**Slight damage** Failure of any process equipment will not lead to the destruction (loss of integrity) of a system element, fire is unlikely. The failure can be fixed within a shift duration. Local property damages (buldings, constructions) Minimum impact to the throughput volumes.	**Slight damage** Short-term insignificant damage of Company's reputation * Local media, posts in social media * Local public awareness but no discernible concern * Minimum involvement of local authorities	<1	**1**					

	Risk level (select from the list)	**Score**		**Risk level (select from the list)**	**Score**
People			**Reputation**		
Environment			**Cost, mln $**		
Assets					
			Total score:		

Предлагаемый план реализации / Proposed Implementation Plan

Какие мероприятия необходимы для введения меры контроля? (укажите шаги) **What actions are needed to introduce the control measure? (specify steps)**	

Что понадобится? **What will be needed?** (напротив требующегося раздела указать информацию: требуется/не требуется)/cpecify "required/not required" opposite to the corresponding section)	**Инженерная проработка/Engineering survey**		**Поставка оборудования длительного срока изготовления/ Delivery of long time manufactured equipment**	
	Дополнительное обследование/Additional research		**Работы выполнимы в рамках текущего ТО/ Work can be performed within current maintenance**	
	Анализ опасности технологического процесса/PHA		**анов трубопровода или объекта НПС/РП/БС/ Pipeline or PS/TF/SF Shutdown**	
	Проект/Design project		**Вывод оборудования из эксплуатации/ Equipment Decommissioning**	
	Землеотвод/Land allocation		**Наличие сезонных видов работ (напр., потребуется определенная температура воздуха и т.д.)/ Seasonal types of work (e.g., certain air temperature etc.)**	
	Экспертиза ПБ/Safety expert review		**Реализация - Своими силами/ Implementation - on CPC own**	
	Изменение проектной документации/ Change of design documentation		**Реализация - с привлечением существующего подрядчика/ Implementation - involving the existing contractor**	
	Корректировка внутренней нормативной документации/Internal regulations amending		**Понадобится новый подрядчик/New contractor will be needed**	
	Обучение/Training		**Разовая работа/ One-off work**	
	Закупка (дополнительная)/Purchase (additional)			
	Закупка - замена существующего/ Purchase - replacement of the existing			
	Закупка нового/Purchase of new			

ATTACHMENT 4. TEMPLATE OF THE RISK CONTROL CARD (RCC) REGISTER – (TEMPORARY EXCEL FORMAT)

№	Объект, Регион	Опасность, причина потенциального опасного события *(ссылка на причину риска СУР)*	Опасное событие *(ссылка на риск СУР)*	Предлагаемая мера контроля *(ссылка на меру контроля СУР)* Мероприятие	Ссылка на карточку	Дата карточки	Инициатор	Люди	ОС	Активы	Репутация	Стоимость	Итоговая	Решение РГДЭ	Ответственные лица, Сроки	Статус выполнения
#	Facility, Region	Hazard, Cause of Potential Hazrdous Event *(link to RMS risk cause)*	Hazardous Event (link to RMS risk)	Proposed Control *(link to RMS Control)* Action	Link to card	Card date	Initiator	People	Environment	Assets	Reputation	Possible direct Damage	Total	ODWG Decisions	Responsible persons, Deadlines	Implementation Status

ATTACHMENT 5. TEMPLATE OF THE REGISTER OF ENVIRONMENTAL ASPECTS AND OHS HAZARDS, ASSESSMENT OF ASSOCIATED RISKS AND OPPORTUNITIES

№	Профессия, группа профессий	Вид деятельности	Объекты регионка	Опасный фактор/экологический аспект (Потенциально-опасное событие)	Ссылка на нормативный документ/ Обязательство соответствия	Причина риска	Последствия/Воздействие на человека и ООС	Люди	ООС_	Активы	Репутация	Ущерб	Вероятность	Оценка аспекта ООС	Риск	Уровень ЗА и ОФ	Постоянные Меры Контроля (барьеры)	Основное ответственное лицо за эффективность барьера	Эффективность барьеров	Мероприятия по улучшению барьеров	Сроки	Основной исполнитель	Тяжесть последствий	Вероятность	Остаточный риск	Возможность