



**APPROVED BY:
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INSTRUCTION No. 106

ON SAFE PERFORMANCE OF REPAIR WORK AT THE CPC FACILITIES

Revision No. 1

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1. PURPOSE

This instruction establishes requirements for organization and procedure of safe repair work at CPC's hazardous industrial facilities with the aim of doing comprehensive work to reinstate good working order or operability and reinstate resources of technological devices (facilities) as well as components thereof.

2. SCOPE OF APPLICATION

2.1. The Instruction shall be applicable to repair work performed by CPC and contractors' personnel at hazardous industrial facilities.

2.2. CPC Pipeline System repair work (gas hazardous work, hot work, earthwork, work at height, work near power transmission lines, work at underwater crossings, work using motor vehicles, tractors and hoisting equipment, etc.) is categorized as hazardous and shall be performed as per regulatory documents, with issuance of Permit-to-work, authorizations, acts and other required documents, appointment of persons responsible for preparation, organization and performance of work, ensuring safety measures as per the Company's regulatory documents.

3. REGULATORY REFERENCES

The following regulatory documents are referenced herein: 1.

Table 1. List of Regulatory Documents

No.	Regulatory Documents
1	External
1.1	Federal Industrial Safety Rules and Regulations - Safe Performance of Gas Hazardous, Hot and Repair Work, approved by RTN Resolution No. 485 dated 25.11.2017.
1.2	Federal Industrial Safety Rules and Regulations - Safety Rules for Hazardous Industrial Facilities of Trunk Pipelines approved by RTN Resolution No. 520 dated 06.11.2013.
1.3	Construction Occupational Health and Safety Rules approved by Resolution of the RF Ministry of Labor and Social Protection No. 336n dated 1 June 2015
1.4	Construction Norms and Regulations SNIP 12-03-2001 - Construction Safety Requirements. Part I. General Requirements
1.5	Construction Norms and Regulations SNIP 12-04-2002 - Construction Safety Requirements. Part 2. Construction Operations
1.6	RF Fire Safety Arrangements approved by RF Government Resolution No. 390 dated 25.4.2012
1.7	GOST 12.0.003-2015 - System of Occupational Safety Standards. Hazardous and Harmful Production Factors. Classification.
1.8	Industrial Safety Regulations for Hazardous Production Facilities of Oil and Gas Industry, Resolution of the RK Minister of Investment and Development No. 355 dated 30 December 2014
1.9	Industrial Safety Regulations for Trunk Pipeline Operation, approved by Resolution of the RK Minister of Investment and Development No. 354 dated 30 December 2014
1.10	Resolution of the RK Government No. 1077 dated 9 October 2014 - On Approval of the Fire Safety Rules

No.	Regulatory Documents
1.11	RK SNiP 1.03-05-2001 - Construction OHS
2	Internal
2.1	A02-OD-HSE-052, Permit-to-Work Procedure for Arrangements of Hot Works, Gas-Hazardous, Excavation, Repair and Other Hazardous Works
2.2	CPC Oil Pipeline System Operation Safety Rules, VRD CPC 111-12-2012
2.3	Air Monitoring at CPC Facilities Instruction No. 104
2.4	VRD CPC 09.09.2014, Guidelines on Technical Operations of CPC Oil Transportation System
2.5	VRD 34.09.2014, Regulation on Work to Be Performed in the Pipeline Safety Zone
2.6	VRD CPC 61.10.2015, Regulations for Replacement of Defective Sections, Connectors and Valves of the CPC Pipeline System
2.7	VRD CPC 92.03.2017, Regulations for Removing Equipment for Repair, Documenting Pipeline Shutdowns or Reduction of the Volumes for Acceptance, Flow Rates, and Shipment Volumes of Crude Oil, and Execution of Work Performance Plans

4. TERMS, DEFINITIONS AND ABBREVIATIONS

Terms and abbreviations used herein are set out in 2.

Table 2. Terms and Abbreviations

No.	Term / Abbreviation	Term Definition / Abbreviation Meaning
1	Terms	
1.1	Repair	work aimed at reinstatement of good working order or operability of technological devices and reinstatement of industrial facilities, as well as components thereof.
1.2	Customer	CPC, its regional division or, as the context may require, its authorized representative.
1.3	Contractor	organization, which has executed a contract/services agreement with CPC at the CPC facilities, or, as the context may require, its authorized representative.
1.4	Work Execution Plan	A document identifying authorized persons, work procedure and sequence, OHS and Fire Safety measures, as well as CPC Pipeline System integrity ensuring measures, as developed in compliance with the CPC regulatory documents
1.5	Procedure	A02-OD-HSE-052, Permit-to-Work Procedure for Arrangements of Hot Works, Gas-Hazardous, Excavation, Repair and Other Hazardous Works
1.6	CPC, Company	Caspian Pipeline Consortium
1.7	MAC	Maximum allowable concentration

5. REPAIR WORK PROCESS DESCRIPTION

5.1. Repair work at CPC's hazardous industrial facilities comprises comprehensive work to reinstate good working order, operability, resources of technological devices as well as components thereof.

5.2. All repair work shall be performed in compliance with the appropriate regulatory documentation.

5.3. The standard list of repair work at the CPC facilities is set out in Exhibit 7 to the A02-OD-HSE-052, Permit-to-Work Procedure for Arrangements of Hot Works, Gas-Hazardous, Excavation, Repair and Other Hazardous Works

5.4. There are the following types of repair work:

- scheduled repair;
- unscheduled repair;
- emergency response.

5.5. The scheduled repair work includes the work performed as per the design documentation for the facility, standard technical documents of the manufacturer of technological devices and technical documentation of the operator including step-by-step quality control of repair work, among others using technical diagnostics as well as comprehensive and individual testing.

5.6. A decision to perform planned repair is made based on assessment of technical condition of the CPV Pipeline System equipment and structures in accordance with Section 8.1 of VRD CPC 09.09.2014, CPC Oil Pipeline System Operation Regulations.

5.7. Repair work at the Trunk Pipeline shall be performed in accordance with annual plans of defect elimination at appropriate pipeline sections developed every year in the regions. Defects are included in the above plans based on the results of the most recent in-line inspection (ILI) of the pipeline section in question. Annual defect elimination plans stipulate repair timeline, defect Nos., locations and descriptions, type, parameters and availability of repair structures recommended for installation.

5.8. The planned scopes of repairing the Trunk Pipeline equipment and facilities shall be substantiated and accepted with due regard for the report of their technical condition.

5.9. Planned repair of the PS equipment shall be performed in compliance with passports and operation instructions of particular equipment as well as with due regard for current operational parameters, Maximo data and actual technical condition based on the results of diagnostics, instrumentation readings or operational control results.

5.10. The unscheduled repair covers the work associated with the equipment failure or unsatisfactory technical condition thereof.

5.11. The emergency response is the work performed to the minimum required extent in order to restore the facility's safe operability.

5.12. The repair work is performed in two stages:

- Stage I - preparatory work;
- Stage II - repair work.

5.13. Performance of repair work at the Trunk Pipeline shall be prepared organizationally and technically.

5.14. Procedure for and timeline of repairing the Trunk Pipeline facilities located in one right-of-way with other utilities or crossing them shall be agreed upon with operators of such utilities.

5.15. The Permit-to-work approved by all stakeholders as well as the Regional Manager's resolution stipulating administrative and technical actions to be taken in case of the equipment's loss of containment, shall form the basis for the taking down for repairs.

5.16. The resolution shall specify the work supervisor as well as persons responsible for preparatory work and for actions required to ensure safety of work in the course of repair, and also timeline for shutdown, decommissioning for repair and recommissioning of facility / equipment, including technological devices, utilities for operation.

5.17. An authorized representative of CPC shall perform general coordination of repair work during the repair period.

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5.18. Repair work at the Trunk Pipeline facilities shall be performed as per the detailed design developed by the design institute and successfully passed the established expert examinations and/or the work execution plan developed by the contractor or specialized entity and approved by the CPC management. Performance of repair work without work execution plan and duly issued Permit-to-work and other authorization and supporting documents shall not be permitted.

5.19. Prior to the work commencement CPC shall execute land allocation documents with approval of land reclamation terms if required, and notify owners of the right-of-way structures of the commencement and timeline of the pipeline repair.

5.20. The major repair of Trunk Pipeline facilities shall commence after the CPC management's written Permit-to-work for the right to conduct the work is handed over to the Contractor, after the regional Operations finish organization and preparatory measures and the Contractor accepts the pipeline's section for repair.

5.21. Repair for technical reasons of PS facilities shall be conducted based on the diagnostics results.

5.22. The repair is supported by keeping regulatory, as-built, operational databases, generation of regular reports on equipment run-hours, keeping database of failures, retaining repair organization / performance documentation in electronic format.

5.23. Regional Operations divisions and contractors shall be responsible for preparation of equipment and handover thereof for repair, control of repair quality, acceptance after repair, as well as timely and correct filling-in of repair documentation as per manufacturer's instructions.

5.24. Medium, major and other types of repair shall be performed in accordance with contract agreements and effective instructions for operation of CPC facilities.

5.25. When the repair is inadvisable the equipment shall be dismantled and written off in accordance with established procedure.

5.26. In case of emergency response work requiring prior technical investigation, CPC shall develop a work execution plan for emergency response and hand it over to the contractor.

5.27. Keeping records of knowledge testing in ensuring safety in the course of job duties performance shall be an obligatory requirement for specialists and personnel of CPC and contractors.

5.28. Specialists and personnel of CPC and contractors engaged in hot work shall be appraised in accordance with the Regulations on Organization of Training and Knowledge Assessment of Workforce of Entities Supervised by the Federal Environmental, Technological and Nuclear Supervision Service approved by RTN resolution No. 37 dated 29 January 2007.

6. REPAIR WORK SAFETY REQUIREMENTS

6.1. Repair Permit-to-work Issuance Procedure

6.1.1. Repair work at the CPC facilities may be performed only subject to availability of a Permit-to-work for repair work issued for the entire repair work period as well as Permit-to-works for other types of hazardous work issued in compliance with the scopes of work to be performed.

6.1.2. The list of persons responsible for organization and performance of hazardous work at the CPC facilities is set out in Section 10 of the Procedure.

6.1.3. The Permit-to-work for repair work at the CPC facilities shall be issued in accordance with Section 2 of the Procedure.

6.1.4. A stage-by-stage chart of Permit-to-work issuance is specified in Exhibit 1 to the Procedure.

6.1.5. Keeping safety knowledge testing records as part of job duties performance shall be an obligatory requirement for CPC and contractor's personnel.

6.1.6. Specialists and personnel of CPC and contractors engaged in hot work shall be appraised in accordance with the Regulations on Organization of Training and Knowledge Assessment of Workforce of Entities Supervised by the Federal Environmental, Technological and Nuclear Supervision Service approved by RTN resolution No. 37 dated 29 January 2007.

6.2. Preparatory Work for Repair

6.2.1. Preparatory work for the repair at the facility shall be performed in compliance with the duly developed plan of preparatory work.

6.2.2. Plan of preparatory work shall define the preparation of process facility or equipment, process pipelines, utilities for repair work and shall be compiled by the Company in accordance with process regulations, operations / repair instructions and shall cover the sequence of efforts aimed at elimination of harmful substances from the facility or equipment, disconnection from operating equipment, pipeline and utilities systems and, depending on characteristics of harmful substances therein, flushing, steaming, inert gas and air purging. Preparatory Plan shall be approved by the Company's representatives when reviewing the Work Execution Plan.

6.2.3. The Work Execution Plan shall be developed for the performance of repair work and define work processes, quality of performance thereof, specific work locations, mechanisms and tools, number of workforce, protection means, schedule, resources and measures of safe work performance.

6.2.4. The use by the contracting organization of stationary lifting facilities and the connection to the existing networks of electricity, compressed air, steam, and water for repairs is allowed with the permission of CPC at the request of the direct contractor's head with a corresponding entry in the repair Permit-to-work. Connection to / disconnection from the power supply network(s) shall be performed by the operator.

6.2.5. Connection to the power grids of mobile electric receivers of the contracting organization for repairs, as well as disconnection after completion of work is performed by the electrical engineering staff of KTK with a record in the operational log.

6.2.6. Workers operating the facility shall prepare it for repair under the supervision of a person responsible for preparation and handover of the facility for repair, as per the process regulations, operation and safe repair instructions.

6.2.7. Upon completion of preparatory work it is necessary to check completeness and quality of performance, test the air in the process facility or equipment, process pipelines, utilities and commence handing the facility over for repair.

6.2.8. Air monitoring shall be performed in accordance with Instruction # 104 for tests of air at CPC facilities.

6.2.9. Repair work locations shall have warning fencing with warning signs installed. Special lighting shall be provided for night time.

6.3. Safety arrangements during the repair work

6.3.1. Safety arrangements during the repair work shall be put into effect in accordance with a duly developed work execution plan.

6.3.2. It is prohibited to commence repair work without a Permit-to-work for repair and other hazardous work duly issued in accordance with the approved scope of work.

6.3.3. Operators of the facility or equipment, technological devices, utilities may not perform any work at the above after handover of the above for repair as per the acceptance act.

6.3.4. Repair work performers shall perform the work only at locations specified in the Permit-to-work for repair work

6.3.5. Repair work performers may not stay at other facilities being repaired.

6.3.6. It is prohibited to use metal and reinforced concrete structures of buildings as supports for hoisting and movement of equipment and the components (units) thereof without calculation of structural integrity of the above structures.

6.3.7. In the event of changed situation at the repair area (excessive MAC, leakages of oil products) or at the adjacent operating facility, the repair work performers shall immediately stop the work,

move to a safe place and report to the direct work supervisor or the person responsible for preparation of the facility for repair.

6.3.8. The work may be resumed only after the reasons for changes of situation in the repair area are identified and eliminated subject to approval of the work supervisor and the person responsible for the facility's preparation for repair, as well as the head of structural division of the facility under repair.

6.3.9. In the course of repair work it is recommended that passages to fire hydrants as well as to the territory of the facility being repaired shall not be cluttered with materials.

6.4. Procedure of the facility's acceptance after repair and commissioning thereof

6.4.1. Upon completion of repair work the facility shall be tested in accordance with the technical rules, federal industrial safety standards and regulations, technical documentation of equipment manufacturers as well as CPC regulatory acts.

6.4.2. PS equipment accepted for operation after repair shall be tested and may be deemed as accepted for operation upon completion of operational testing (running test) within:

6-8 hours – upon routine repair;

72 hours – upon medium and major repair.

6.4.3. The following shall be established for the equipment accepted after major repair as per effective regulatory documents: date of the next diagnostics, after-repair warranty period or after-repair warranty run-to-failure.

6.4.4. In the event of positive test results the facility repair quality is assessed and the facility is put into operation.

6.4.5. Upon completion of repair work (before the facility is put into operation) the contractor that finished the repair work shall hand over to the CPC the entire as-built documentation characterizing quality of the completed repair work as stipulated by the TOR for work performance and acceptance.

6.4.6. Upon completion of repair the facility shall be accepted for operation as per the acceptance act and admitted for operation upon verification of process diagram assembly, blinds removal, containment testing of the systems, serviceability check of control, alarm, management and emergency shutdown systems, efficiency and actuation time of interblock shutdown devices, operability of fire containment and fire prevention means as well as operability and required efficiency of ventilation systems, the installed electric equipment's compliance with regulatory technical documents re configuration of electric installations.

6.4.7. Completeness and quality of as-built repair documentation, state of the facility's territory and workstations, readiness of CPC operating personnel for their main duties and other requirements stipulated by regulatory and technical documentation shall be checked.

7. LIST OF EXHIBITS

List of exhibits hereto is set out in Table 1.

Table 1. List of Exhibits

Exhibit	Title
1.	REVISIONS LOG
2.	LIST OF PRE-WORK ORGANIZATIONAL ARRANGEMENTS

EXHIBIT 2 - LIST OF PRE-WORK ORGANIZATIONAL ARRANGEMENTS

Prior to work commencement the Contractor shall:

1. Provide information on persons responsible for work performance, preparation for work performance, work performance supervisor (when the work is done by a subcontractor) (send by email or provide in hard copy):

- copies of industrial safety exam reports - with certification items depending on the specific work type;
- copies of occupational health exam reports;
- copies of basic fire safety exam reports; off the job test reports for personnel in charge of hot work at sites;
- copies of electrical safety access qualification level (if work is done in electrical installations);
- copy of a resolution on appointment of a Work Team Leader, Person in Charge of Work Preparation, Work Supervisor, Person in Charge of Air Tests (depending on the type and scope of work);
- when planning work at height: copy of report on safety category assignment for working at height (group 2);
- if required, additional documents confirming qualification of employees by types of work planned;
- when induction course is conducted to gain of access to the CPC facilities, provide original certificates in the aforementioned areas (provision of industrial safety qualification certificate is not necessary).

2. Provide information on work performers (send by email or provide in hard copy):

- copies of occupational health exam reports;
- copies of qualification exam reports for professions supervised by Rostekhnadzor (depending on the specific work type);
- copies of basic fire safety exam reports; off the job test reports for personnel performing hot works at sites (welders etc.);
- copies of electrical safety access qualification level (if work is done in electrical installations or involves power tools etc.);
- when planning work at height: copy of report on safety category assignment for working at height (group 1);
- if required, additional documents confirming qualification of employees by types of work planned;
- resolution, letter regarding secondment of personnel to the site to perform the work;
- when induction course is conducted to gain of access to the CPC facilities, provide original certificates in the aforementioned areas.

3. Provide passports and/or service logs (if necessary on CPC representatives request) for all applied equipment, tools, devices, etc. in the course of work confirming their registration with supervisory authorities (if necessary), timely maintenance and technical certification.

4. Submit Work Execution Plan for approval.

5. Make sure certified PPE are available and are used in accordance with the CPC requirements (safety suits for specific activities, safety footwear with protected toes, hard hat, safety glasses, gloves for specific work types, safety harness for working at height (type D) and other PPE as required for the specific work).

6. Establish a system for preventing the contractor's employees from using mobile telephones and photo and video recording devices in the PS operational zone.

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7. Submit a letter to the Region and/or MT management to provide access for personnel and issue a Permit-to-work to perform the work at the CPC Trunk Pipeline facility.
8. Make sure the contractor's personnel take an induction course organized by CPC.
9. Have traffic routes to the work sites, parking areas, tools, equipment and materials storage areas approved by CPC site manager.
10. Issue the Permit-to-work for the repair work performance, as well as Permit-to-works for other types of work as per the Lists approved in the CPC Region and/or MT, depending on the scopes of work planned.
11. Make sure the work sites have enough safety signs, fencing, first aid kits, primary fire extinguishing equipment.
12. Ensure availability of spark arresters on the vehicles entering the CPC industrial facility's territory.
13. Take preparatory measures stipulated by Permit-to-work for CPC-R WR facilities.
14. The above List may be supplemented depending on the type of the work to be performed on sites.