

Technological Task 28	Selection of equipment and technology using chemical reagents for treating wastewater to meet the requirements of ST RK 1627-2007.
Essence of the Problem:	The water treatment technology needs technological changes related to oil extraction and changes in the composition of the water it contains, as well as the cumulative effect of using water with high salt content in the PPD system and increasing the concentration of mineral components. High mineralization of water, the presence of mechanical impurities, and residual hydrocarbon-containing elements lead to reduced production, shortened equipment service life (reduced inter-repair period), deteriorated injectivity of injection wells, thereby reducing the efficiency of PPD systems, and exacerbating the negative impact of other factors (e.g., salt deposition), as well as increasing the negative impact on the environment. The quality of water injected into the reservoir does not meet the requirements of ST RK 1627-2007.
Required technical parameters	<ol style="list-style-type: none"> 1. Collecting necessary information on the current state of the oil preparation system at CPPN and the injection system at BKNS-3. 2. Investigating the injected water to determine parameters that exceed the Standard's requirements. 3. Analyzing the effectiveness of the existing water treatment technological scheme and its individual units, specifically dealing with mechanical impurities, capturing hydrocarbon residues, mineralization control, combating harmful bacteria formation, etc. <ul style="list-style-type: none"> • Developing chemical reagents and dosing technology to improve water treatment quality. • Developing/searching for technical solutions to combat mechanical impurities in water, improving the efficiency of applied purification technologies, using multistage combined systems including cyclonic installations and settling systems. 4. Analyzing the selection of chemical reagents for combating residual oil products under the conditions of CPPN and BKNS-3. <ul style="list-style-type: none"> • Developing a technology for the disposal of residual compositions after deep water treatment. • Developing a system for disinfecting and treating water with bactericides for further injection into the reservoir. • Developing a system for direct or indirect measurement of water quality and the effectiveness of the water treatment technological process, as well as algorithms aimed at improving the efficiency of the treatment system. 5. Justifying and selecting the necessary technology and equipment for treating injected wastewater (according to ST RK 1627-2007). <ul style="list-style-type: none"> • Developing a feasibility study for the implementation and modernization of the water treatment system. • Developing a scientific report.
Scale of the Problem:	Non-compliance with the Standard's requirements leads to the deterioration of the bottomhole zone properties of the injection well, increased wear and tear of the equipment used (pumps, pipelines, tubing, wellhead equipment, etc.), as well as fines imposed by the

	<p>Environmental Code of the Republic of Kazakhstan (EC RK). (what was applied, is being applied, is proposed) Currently, at the field, water preparation for injection into the reservoir is carried out by "settling" in RVS. Currently, the reconstruction of CPPN is underway: the introduction of BUMs (mechanical impurity trap blocks), the introduction of electrostatic dehydrators - potentially reducing the content of mechanical impurities and residual oil products in wastewater. For higher quality purification, a complete system for removing mechanical impurities, residual oil products, hydrogen sulfide-containing bacteria, and oxygen is needed. Installation of combined multi-level purification systems using the cyclonic method (level of trapping mechanical impurities, level of trapping hydrocarbons).</p>
<p>Existing Methods for Solving the Problem:</p>	<ul style="list-style-type: none"> • Developing reagents and a reagent dosing system to improve water treatment efficiency. • Introducing alternative water treatment systems to combat mineralization. • Implementing an automated water quality control system and managing technological water treatment regimes.
<p>Contact Person: Full name, position, phone, email.</p>	
<p>Expert Notes:</p>	