



SUMMARY OF FINDINGS OF THE ADAPTATION PROJECT ASSESSMENT

Intended for:

JSC INK-Capital

Date:

30.11.2021

ACRONYMS AND ABBREVIATIONS

ICMA - International Capital Market Association

JSC - Joint Stock Company

HP - High pressure

SCU - Screw compressor unit

GCU - Gas compressor unit

BCS - Booster compressor station

BPS - Booster pumping station

INK - Irkutsk Oil Company

LP - Low pressure

NG - Natural gas

APG - Associated petroleum gas

SAP - Smart automation system

DSG - Dry stripped gas

CGTP - Complex gas treatment plant

CPF - Crude (oil) processing facility

SCGTP - Sour crude and gas treatment plant

NAPGTP - Natural gas and APG treatment plant

NGL - Natural gas liquids

YOGCF - Yarakinsky oil, gas and condensate field

INTRODUCTION

The INK-Capital Group (INK-Capital), including its main operating company - Irkutsk Oil Company Limited (INK), is fully aware of the potential environmental consequences of its oil and gas projects, and is committed to develop the most efficient, technically and economically viable solutions to minimize the negative impact on the environment.

INK-Capital confirms its intention to develop and implement projects in the area of sustainable development of the Russian Federation wherever possible in relation to its activities.

As part of its Gas Business Development Programme, INK is gradually developing schemes to manage associated petroleum gas generated during oil production, such as gas processing and reinjection into productive horizons. In 2009 INK initiated its first projects under the Gas Business Development Programme supported inter alia by the special-purpose loan from the shareholder of JSC INK-Capital - the European Bank for Reconstruction and Development.

The development of the Yarakinsky oil, gas and condensate field (YOGCF) provides for construction and operation of several crude oil processing facilities. These facilities generate associated petroleum gas (APG) as a by-product of the commercial oil production process. The Project is divided into several stages and provides for processing and utilization of a part of APG to avoid flaring and recover the valuable components, and two types of gas reinjection: into the oil reservoir and into the gas horizon (the Project). The Project is being developed by INK.

By its purpose and scope the Project can be recognized as an adaptation project in accordance with the Government Decree of September 21, 2021 No. 1587 "On Approval of Criteria for Sustainable (incl. Green) Development Projects in the Russian Federation and Requirements for the Sustainable (incl. Green) Development Projects Verification System of the Russian Federation".

JSC INK-Capital engaged Environ Consult CIS, LLC (formerly Ramboll CIS, LLC) to analyse the scope and environmental effects of the adaptation project. The assessment is conducted on the results of the Project documentation review and the assessment of the Project effects in terms of reducing the environmental impact and meeting the requirements for adaptation projects.

This Summary report has been prepared on base of the Adaptation Project Assessment Report prepared by Environ Consult CIS with all reasonable care and diligence, and taking account of the Services and the Terms agreed between Environ Consult CIS and INK-Capital. This Summary report is intended for disclosure of the information of the Adaptation Project characteristics.

PURPOSE OF THE PROJECT

At the global level, the Russian Federation is the leader by the volume of flaring of associated petroleum gas. However, the country is applying consistent efforts to develop legislation and economic tools for carbon regulation, such as encouraging reduction of APG flaring in general. At the level of oil and gas companies, integration programmes are being developed for the oil and gas projects to facilitate more complete processing of the extracted crude.

INK-Capital is fully aware of the potential environmental consequences of its oil and gas projects, and develops the most efficient, technically and economically viable solutions to minimize the negative impact on the environment. INK-Capital is committed to develop and implement projects in the areas of sustainable development of the Russian Federation wherever possible in relation to its activities.

As part of its Gas Business Development Programme, INK is gradually developing schemes to manage associated petroleum gas generated during oil production, such as gas processing and reinjection into productive horizons.

The development of the Yarakinsky oil, gas and condensate field provides for construction and operation of several crude oil processing facilities. These facilities generate APG as a by-product of the commercial oil production process. The Project of INK-Capital at YOGCF provides for several stages of APG processing and utilization instead of flaring, whereas valuable components will be recovered, and two types of gas reinjection will be applied: into the oil and gas horizons (the Project).

The method of developing gas and condensate fields while reservoir pressure is maintained by reinjecting gas into the productive horizon is known as "cycling process". Maintaining reservoir pressure prevents retrograde condensation in the productive horizon and release of high-boiling hydrocarbons from reservoir gas, which constitute gas condensate. Re-injection of APG into the oil reservoir also boosts the pressure and thus contributes to the yield of hard-to-recover oil.

A project for reinjection of associated petroleum gas resulting from separation of reservoir fluid, as well as its products, is currently being implemented. The INK Project facilities also provide for recovery of fractions from the produced gas to be used or sold as a product.

The Project benefits will include a notable decrease in APG flaring, increased reservoir pressure in productive formations and, hence, enhanced extraction rate of natural gas and oil, as well improved recovery of C3+ fraction of gas.

LIST OF THE PROJECT FACILITIES

The Project facilities include the facilities which are intended solely for handling, processing and utilization of APG and injection of DSG, and would not be implemented without the Project, namely:

- High pressure APG pipelines from the first stage separation to the booster compressor stations;
- Low pressure APG pipelines from the second stage separation to the SCUs of the respective oil refining plants;
- CPF SCU, SCGTP SCU, BPS SCU;
- BCS-3;
- Natural-pressure transport system for high pressure APG from CPF, SCGTP and BPS to BCS-1;
- Pressurized transport system for low pressure APG from SCU to BCS-1;
- BCS-1;
- Pressurized APG transport system from BCS-1 to the APG receiving unit of NAPGTP-3.6;
- Pressurized APG transport system from BCS-3 to the APG receiving unit of NAPGTP-3.6;
- APG receiving unit and APG processing facilities of NAPGTP-3.6;
- APG pipelines from the Gas Receiving Unit to NAPGTP-3.6;
- DSG pipelines from NAPGTP-3.6 to compressors at the CGTP CS;
- Compressor stations;
- DSG pipelines from the CGTP CS to the gas distribution unit;
- Pressurized APG transport system from BCS-1 to the APG receiving unit of CGTP-2;
- Pressurized APG transport system from BCS-3 to the APG receiving unit of CGTP-2;
- APG receiving unit and APG processing facilities of CGTP-2;
- APG pipelines from the Gas Receiving Unit to CGTP-2;
- DSG pipelines from CGTP-2 to the compressor station of CGTP-2;
- DSG pipelines from the compressor station of CGTP-2 to the gas distribution unit;
- Gas distribution unit;
- HP DSG pipelines from the gas distribution unit to the injection wells;
- Pipelines and facilities for reinjection of APG into the oil reservoir;
- Injection wells for reinjection into the gas horizon;
- Injection wells for reinjection into the oil reservoir;
- Methanol injection system to inhibit hydration in high pressure gas pipelines;
- Internal process pipelines at the well pads;
- Power supply, automation and instrumentation systems of the cycling process facilities.

A more detailed list of investment objects along with financial information is included in Appendix A (Table A-1 with a summary of costs) and Table A-2 with a cost schedule as a separate Excel file.

The costs incurred by INK in the framework of the Project implementation:

Groups of facilities	Costs in 2019, mln. RUR	Costs in 2020, mln. RUR	Costs in 2021, mln. RUR
Pipelines for APG injection into the oil reservoir	-	33.90	394.70
Pipelines and compressor stations for cycling-process	20.61	292.18	587.92
Booster compressor station-1	25.83	18.26	6.58
Booster compressor station-3	21.27	1,312.87	841.78
Facilities of gas treatment at YOGCF (NAPGTP-3.6)	6.36	108.67	22.53
Facilities of APG collection and transport at crude oil processing	2.45	41.39	4.46
Facilities of gas processing at YOGCF (CGTP-2) and injection facilities	1,027.38	2,862.87	2,008.52
Total annually	1,103.89	4,670.14	3,866.51
Total incurred costs (the Project)			9,640.54

CONCLUSION ON THE PROJECT CHARACTERISTICS

The key characteristics and benefits of the Project are listed below.

Table 5.1. Characteristics of the Adaptation Project

Purpose of the Project	Comprehensive utilization of APG and DSG, including reinjection into productive formation, aimed at reducing pollutant and GHG emissions
APG uses	<ul style="list-style-type: none"> ✓ Recovery of valuable components for subsequent enhanced processing; ✓ Reinjection into the oil reservoir to increase the extraction rate of the hard-to-recover oil; ✓ Reinjection into the gas horizon to improve the gas extraction performance; ✓ Energy generation of on-site needs of the YOGCF facilities.
Environmental effect	Prevention of gross emission of 3.14 million tons of major pollutants (reduction of potential emissions by 94.7%)
	Prevention of GHG emissions of 134.7 million tons of CO_{2e} (reduction of potential emissions by 92.1%)
Compliance with ICMA environmental objectives	<p>Pollution prevention and control</p> <p>Climate change adaptation</p>
Compliance with ICMA criteria	The applicable criteria are met
Compliance with the sustainability goals of the RF	<p>Goal No. 9 "Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation"</p> <p>Goal No. 12 "Ensure sustainable consumption and production patterns"</p> <p>Goal No. 13 "Take urgent action to combat climate change and its impacts"</p>
Compliance with the adaptation project criteria	The applicable criteria are met
Compliance with BAT	Compliance with BAT for APG utilization methods (ITS 28-2017 Oil production) and APG processing methods (ITS 50-2017 Processing of natural and accompanying gas)

Based on the assessment results, it can be concluded that the Project meets the requirements for adaptation projects.