



U . S . T R A D E A N D D E V E L O P M E N T A G E N C Y

EXECUTIVE SUMMARY

Phase 1 Feasibility Study for the Bilciuresti Gas Storage

11/30/02

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TDA Activity Number: 2001-70040A

NTIS Number(s):

PB2003-102510

PB2003-102511

Sector: Mining & Natural Resources

Region: Europe

Country: Romania

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1.0 INTRODUCTION

The U.S. Trade and Development Agency (TDA) has entered into a grant agreement with S.N.D.S.G.N. Depogaz S.A., Ploiesti, Romania. Under this grant agreement, a contract was made and entered into by and between S.N.G.N. Romgaz S.A. and PB-KBB Inc., for performing a feasibility study (Phase 1) for doubling the storage capacity of the Bilciuresti field, near Ploiesti, Romania.

The growing gap between the demand and supply for natural gas in the Bucharest–Ploiesti area and the need to better control and direct the flow of gas in the major gas transportation and pipeline distribution networks has prompted this study to more fully understand the limit of the services that can be provided by the Bilciuresti storage field. The proposed project will expand the Bilciuresti Underground Gas Storage (UGS) facility and establish associated gas services for Depogaz. Expansion of the Bilciuresti UGS will help manage the seasonal and daily variations in the gas demand, both domestic and transit, enhance the operational efficiency of the gas transmission system of Romania and address the issue of security of gas supply. A location map of the Bilciuresti field is shown on Figure 1.

PB-KBB employed the services of the following Romanian subcontractors in the performance of this study. They are:

1. Dr. Neculai Pavlovschi
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2.0 SCOPE OF WORK

The project has been divided into eight tasks. Tasks I through VII addresses the technical, economic and environmental aspects of the project. Task VIII is a final report on the results of the work.

Task I: A General Technical Overview of the Storage Facilities

PB-KBB was to visit Depogaz central, field facilities and the various storage sites to access available data and discuss the current and future storage operations. PB-KBB was to conducted a review of the data available and make a general overview evaluation of the current storage field activities, including the geological and reservoir characterization, PVT and other production tests, log analysis, well completions, an evaluation (compared to industry standards) of the current technology now in use at the Bilciuresti facility and a review of the historical performance of the Bilciuresti UGS facility.

Task II: A Technical Evaluation of the National Pipeline System

PB-KBB was to make an evaluation of the national pipeline system in order to make recommendations to upgrade the country's 9,000-mile pipeline network, to ascertain the year round capacity, pressure maintenance and capacity to receive and deliver incremental storage gas volumes required by the expanding gas market, to evaluate the capability of the national market to absorb new gas services and to evaluate the overall capability of the Romanian natural gas system (storage and pipelines) to handle the expanding Romanian gas markets and act as a transit center for the transportation of Russian gas to Bulgaria and the international market.

Task III: A Technical Engineering Evaluation

PB-KBB was to make an engineering evaluation of the well equipment and history (surface facilities specifications, completions, workovers, and plugging records), all geo-mechanical tests and reports, surface piping, geologic data (structure and isopach maps), storage operations (storage reservoir capacity, injection and deliverability capabilities), production history and testing and general field operations (line pressures, max and min flow rates, etc). Based on the results of the engineering evaluation a computer reservoir simulation of the Bilciuresti storage facility was to be developed to evaluate the ultimate working gas and total gas storage capacity and field deliverabilities along with an assessment of the location and number of wells in the field.

Task IV: The Natural Gas Storage and Information System (NGSIS)

PB-KBB was to evaluate the functional responsibilities within Depogaz S.A., the Ministry of Industry and Resources and the natural gas industry in Romania to determine the information needs and flows among the various internal organizations. The task was to include a technical evaluation of and recommendation for the NGSIS design, an evaluation of the availability and application of existing and future hardware and software technology, requirements for the minimum acceptable NGSIS hardware and software (and alternatives), technology transfer to Depogaz through training and teaming relationships. The scope of work was limited to NGSIS between Ploiesti and Bilciuresti storage field.

Task V: Project Finance

PB-KBB was to conduct a detailed evaluation of the financeability of the Bilciuresti storage project by making a financial analysis of the project, which was to include methods by which Depogaz can maximize its cost recovery by subscription services and minimize its foreign exchange outlays. The task was to include commercial structure analysis and an evaluation of the Romanian legal, regulatory and tax structures, an evaluation of gas trading and risk management issues, evaluation of the Romgaz ability to provide financial guarantees if needed by the international financial institutions, and conduct discussions with various public and private lending institutions to determine the best way to obtain debt financing for the Bilciuresti UGS expansion project.

Task VI: Project Economics and Timetable

PB-KBB was to prepare a cost estimate and economic analysis necessary for project development and a timetable for the development of the project. The analysis would include an estimate of the capital costs for the project and a schedule for the work, an estimate of the total gas, working gas, cushion gas and the volume of cushion gas to be purchased along with the final number of wells, evaluation of the field deliverability and cycle-ability, an estimate of operational expense and a project financial pro-forma income statement. A list of U.S. companies that could supply the technical equipment and services required for the Bilciuresti UGS project was included in this task.

Task VII: Initial Environmental Assessment

PB-KBB was to conduct an Initial Environmental Assessment (IEA) to ensure that the potential adverse environmental effects are recognized and remedial action is included in the design of the project, evaluate the impact of the existing and new

UGS facilities and pipelines on the environment and identify the procedures required by Romanian law for the construction of the project.

Task VIII: Final Report

PB-KBB was required to submit an interim report after the completion of the first three months of the study along with reports on a task-by-task basis after the completion of each task. A final report is required that will include the results of all previous tasks, and a plan for implementing the project that addresses the procurement of finance, major equipment and EPC services and a list of potential U.S. sources of supply for purchasing the equipment. The Final report will be organized in two volumes; Volume I as Executive Summary and Volume II containing the detailed report.