

PN ACE-277
100184

Oil Pipeline Tariff Methodology

Kazakhstan

**NIS Institutional Based Services Under the
Energy Efficiency and Market Reform Project
Contract No. CCN-Q-00-93-00152-00
Delivery Order 17**

Central Asian Republics
Regional Energy Sector Initiative

Final Report

Prepared for

U S Agency for International Development
Bureau for Europe and NIS
Office of Environment, Energy and Urban Development
Energy and Infrastructure Division

Prepared by

Hagler Bailly
1530 Wilson Blvd,
Suite 400
Arlington, VA 22209-2406
(703) 351-0300

September 1998

CONTENTS

Executive Summary

Chapter 1 Introduction

| | |
|--|-----|
| The KazTransOil Pipeline System | 1-1 |
| Previous Oil Pipeline Tariff Methodology | 1-2 |

Chapter 2 Accomplishments

| | |
|---|-----|
| Adopted Oil Pipeline Tariff Methodology | 2-1 |
| Milestones | 2-6 |

Chapter 3 Project Evolution

| | |
|---|-----|
| Steering Committee Development | 3-1 |
| Model Construction | 3-2 |
| Trial Demonstration of Tariff Rate Methodology | 3-3 |
| Steering Committee Recommendation of Tariff Methodology | 3-4 |
| Methodology Education and Coordination | 3-4 |
| Public Hearing | 3-7 |
| Adoption and Implementation | 3-8 |
| Ancillary Benefits | 3-8 |

Chapter 4 Lessons Learned & Next Steps

- Appendix A** Ministry of Oil and Gas Request for Project
- Appendix B** Detailed System Background
- Appendix C** Steering Committee Minutes
- Appendix D** System Model
- Appendix E** Trial Tariff Rate Demonstration Report
- Appendix F** Steering Committee Resolution, Recommended Methodology, and Related Recommendation
- Appendix G** Letters of Support
- Appendix H** Sample Cash Flow Analysis
- Appendix I** KazTransOil Proposed Modifications of Methodology
- Appendix J** Review of Modified Methodology
- Appendix K** Astana Meeting Minutes
- Appendix L** KazTransOil Revised Modifications
- Appendix M** Review of Revised KazTransOil Methodology
- Appendix N** USAID Support Letter
- Appendix O** Review of KazTransOil Proposed Equity Rate of Return Factors
- Appendix P** Rate Design Principles
- Appendix Q** Key Market Players
- Appendix R** Asset Valuation for Regulated Utilities
- Appendix S** Compromise Agreement on Rate of Return

Appendix T Procedural Guidance on Holding Public Hearings

Appendix U Minutes of Public Hearing in Astana

Appendix V Approved Methodology In Final Form

Appendix W Letter from n Rostovets

EXECUTIVE SUMMARY

Development of international export markets for Central Asia's abundant oil and gas resources is critical to the economic development and political independence of the Republic of Kazakhstan. A viable pipeline infrastructure which provides transportation services at economic rates, yet achieves a sufficient revenue stream to provide for maintenance, expansion, and capital attraction is vital to that export market development.

On July 12, 1996, USAID received a letter from the Ministry of Oil and Gas Industry (MOGI) requesting technical assistance in the development of an internationally acceptable oil pipeline tariff methodology for the Government of the Republic of Kazakhstan (GOK). Pursuant to USAID's agreement to fund the activity under Delivery Order 17, a steering committee comprised of representatives of KazTransOil (the newly formed national pipeline), KazakhOil, Ministry of Economy and Trade, Anti-Monopoly Committee, the Ministry of Energy and Natural Resources, State Agency for Control of Strategic Resources, Kazakhstan Petroleum Association, and USAID funded consultants, Hagler Bailly, was formed. The steering committee was co-chaired by Kaergeldy Kabylden, Vice President of KazTransOil and by Michael Biddison, Principle and Regional Manager of Central Asia, Hagler Bailly. The initial meeting took place on April 21-22, 1997 with a total of six meetings in 1997.

The creation of the steering committee was a great success. It provided a forum for coordination, direction, and most importantly education among the various government agencies and ministries, industry representatives (both local and international), and Hagler Bailly. From the inception of this project until the methodology was approved, the membership of the steering committee and the agencies themselves underwent extensive change reflecting changes in the government. New members were able to participate and share knowledge and the forum provided the opportunity for the consultants and other parties to educate key communicators in the government. The main source of continuity and institutional memory throughout the entire process was Hagler Bailly.

The outgrowth of the steering committee process was a series of products, each building on the other, which led to the success recently achieved. In addition to the key educational values of the initial meetings, an important early product was a computerized valuation and tariff model of the KazTransOil system. There should be little debate regarding the importance of developing and using accurate cost data in a tariff methodology. In North America, where the cost-recovery methodology has been in existence for as long as there has been a pipeline industry, the rules and regulations defining allowable costs and their use in calculating tariffs have been developed and refined over decades. Tariff related costs in

formerly centrally controlled economies are extremely difficult to assess. This applies for both the valuation of the original investment used in construction and the assessment of annual O&M costs.

Questioning the availability of needed historical data for a definitive assessment of recommended KazTransOil tariffs, a computer simulation of pipeline tariffs following North American regulatory standards was performed. After extensive work with KazTransOil and others, a descriptive inventory of the current operating system was developed which identified size, length, age, and related categorical data. Then, based upon extensive U.S. and Canadian construction data, a replacement cost valuation was established at current construction rates, which was depreciated consistent with the age of the respective sections. This value was further reduced by the rehabilitation costs necessary to update the system to the levels of efficiency of a modern well maintained system. For demonstration purposes, the costs used in the model were absent the reduction of rehabilitation costs. Operation and maintenance costs were similarly modeled. The model facilitated the creation of a total operational model of the national pipeline system from its original three independent operating divisions - presenting one of the first quantifiable overall views of the entire operating system. It provided a single view of an integrated national pipeline operation and it created the opportunity to financially model the costs and possibly the transportation rates necessary to meet operating cost requirements and provide a return on qualifying assets. The fourth Steering Committee meeting on August 20, 1997 was used as a forum to present the completed model and its preliminary results.

In August 1997, Hagler Bailly consultants performed a field audit of the Western Pipeline operating division. This division was one of the three original operating units used to form the national pipeline. It has one of the oldest systems, is the system most extensively used, and produces the largest cash flow for the national pipeline company. Though asset valuation might be questionable, complete operating costs records were available.

In early September 1997, the newly appointed president of KazTransOil, Nourlan Kapparov, requested that Hagler Bailly provide assistance in preparing a presentation to the GOK on the new methodology. Following the success of the presentation, President Kapparov requested a demonstration of the methodology within five days in the creation of rates based upon the best data available. Hagler Bailly modified the asset data from the computer model to reflect the current level of system rehabilitation, supplemented the operational data based upon the field audits and the sketchy records available at the national headquarters, and made economic estimates of a potential rate of return applicable to Kazakhstan. Hagler Bailly delivered the report in a timely fashion and it was warmly received. The regulatory methodology was demonstrated and provided frameworks under which the key rate determination factors could be identified.

The success of the tariff rate demonstration report then led to the preparation of a procedural guide for the implementation of the international tariff methodology. At the October 29, 1997 steering committee meeting, a resolution, the actual tariff methodology, and recommendations from the steering committee were presented and discussed. Additional comments were later incorporated and the final recommended methodology was delivered to the GOK in November 1997.

As mentioned earlier, significant personnel changes occurred among the participants and the operators within KazTransOil. As the steering committee was approaching its conclusion, key people were replaced in the tariff operations of KazTransOil with staff who had not previously participated in the educational aspects of the steering committee meetings, had no previous pipeline experience, no international economic or financial experience, and had no regulatory background. They utilized the body of the recommended methodology, but made significant changes to key factors to formulate an alternative methodology. Among these changes was unjustifiable rates of return based upon rationales that were holdovers from the previous planned economies, using forecasted data. The approach simply did not meet international regulatory standards. In the meantime, other divisions of KazTransOil were supporting the steering committee recommendations and even requested cash flow analysis using the recommended methodology to evaluate the planned construction requirements of the pipeline.

The Anti-Monopoly Committee sought evaluative assistance from Hagler Bailly and rejected the alternative KazTransOil methodology in December 1997. Hagler Bailly prepared detailed critiques of the recommended methodology and alternatives that were proposed by KazTransOil over the next several months into 1998. The period was spent in educating the key decision makers in the Agency for Strategic Planning and Reform, Ministry of Energy and Natural Resources, and the Anti-Monopoly Committee by conducting crucial negotiation meetings with KazTransOil. In the process, the new staff at KazTransOil became better educated on the methodology and additional newly hired KazTransOil staff brought a better understanding of economics and finance. The final modifications to the recommended methodology was a true joint consensus, reflective of both the international requirements for the methodology and tailored to Kazakhstan requirements.

On May 22, 1998, in a nationally televised public hearing, possibly one of the first in the former Soviet Union countries, testimony was heard from Michael Biddison, KazakhOil, KazTransOil, and the Anti-Monopoly Committee. All positively supported the proposed methodology. Hagler Bailly had provided documentation which formed a procedural guide for holding a public hearing, which was extensively followed. The public hearing was chaired by Yerzhan Utembayev, Chairman of the Agency for Strategic Planning and Reform. The importance of the recommended methodology and its crucial impact on oil operations in Kazakhstan called for personal briefings of President Nursultan Nazarbayev on the day.

proceeding the public hearing by Mr. Utembayev. The minutes of the public hearing were jointly signed by those that attended.

On June 5, 1998, the Anti-Monopoly Committee executive board met and formally approved the recommended methodology for the preparation of oil pipeline tariff rates. On July 1, 1998, rates were established based upon this methodology. In adopting a cost-based rate of return methodology, the export surcharge was eliminated, improving the economic viability of exported oil. Additionally, interest has been aroused to establish similar tariff methodology approaches for other natural monopoly industries, such as gas pipelines and distribution utilities.

The adoption of the recommended methodology encompasses a number of key elements, including

- the steering committee approach of the open discussion and debate of the development of tariff methodology and tariffs among interested parties was accepted,
- a return on assets should be the basis for generating revenue and retained earnings for investors as opposed to a markup of expenses which does not include dividends to investors,
- debt and equity financing is considered, used and useful assets are regularized, and fundamental definitions and rate formulas are integral,
- the use of international depreciation calculations are incorporated,
- current rates should be based upon current assets and expenses, rather than speculative ones,
- rates of return should have a fundamental foundation of reasonable rate levels,
- rates of return should be based upon stable risk plus market risk that currently exists,
- rate design should be based upon international principles, including gradualism,
- regulatory authorities must examine all aspects of a rate increase and balance the interests of all parties including the natural monopoly and shippers,
- regulatory proceedings should have public notice, be held in public forums with the opportunity for all parties to attend, should provide the opportunity to receive testimony from all parties, and maintain a public record, and

- decisions of regulatory proceedings should be published

Besides some ancillary benefits, many lessons were learned during this project and next steps in cooperation are recommended

CHAPTER 1

INTRODUCTION

Development of international export markets for Central Asia's abundant oil and gas resources is critical to the economic development and political independence of the Republic of Kazakhstan. A viable pipeline infrastructure which provides transportation services at economic rates, yet achieves a sufficient revenue stream to provide for maintenance, expansion, and capital attraction is vital to that export market development.

On July 12, 1996 USAID received a letter (Appendix A) from the Ministry of Oil and Gas Industry (MOGI) requesting technical assistance in the development of an internationally acceptable oil pipeline tariff methodology for the Government of the Republic of Kazakhstan (GOK). The current oil pipeline system in Kazakhstan reflects user patterns consistent with the integrated oil and gas system of the former Soviet Union. However, with the independence of Kazakhstan, its oil pipeline system needs to be rehabilitated and upgraded. In addition, the presence of foreign producers and shippers in the Kazakhstan pipeline system requires the establishment of an internationally acceptable tariff methodology. The international petroleum industry is accustomed to a tariff methodology which provides full recovery of reasonable operating and capital costs, an equitable rate of return on qualifying assets, transparency in objectively determined tariff rates, and public hearings by an independent regulatory body to resolve all outstanding tariff issues, such as subsidization of government programs.

Sizable investments will be needed in the Kazakhstan pipeline system to bring it up to international operating standards and to accommodate expected changes in domestic transport patterns and export capacities. It is recognized that the GOK is competing with many other oil and gas producing and transit nations to attract needed capital. Those nations that are capable of achieving the transition to international operating and financial regimes in their pipeline systems are likely to be successful in attracting capital.

1.1 The KazTransOil Pipeline System

The Kazakhstan oil pipeline system is composed of three disconnected north-south oriented pipelines, reflective of its supportive status to Russia and southern Central Asia during the former Soviet Union period. Now combined as a state corporation, under the designation of

companies At that time, the three companies were known as YuzNefteProvod (Western), Kenkiyak (Central), and Pavlodar (Eastern) systems

The Western system is the oldest of the three pipelines currently in operation in Kazakhstan It is also the system that carries most of Kazakhstan's crude oil to world markets Placed onstream in the late 1960's and early 1970's, it originally connected some of the early Kazakhstan oil fields to the seaport of Aktau Today, most oil produced in the Buzachi and Mangyshlak Peninsulas is transported north to Atyrau The Atyrau Refinery purchases some oil from predominantly domestic shippers to refine for domestic markets (capacity of 104,000 barrels per day) Foreign shippers and exporters transport oil from Atyrau to Samara and into the Russian pipeline system to world markets The full length of the Western system, from its origin in Kalamkas to the Russian border is approximately 1600 kilometers (kms), or 1000 miles The system has not been adequately maintained and lacks capacity from Atyrau to Samara

The Central system is a small diameter relatively short (800 km or 500 miles) pipeline for limited oil shipments Built in the early 1980's, the system is used to ship condensate and oil from the Kenkiyak and Zhanazhol oil fields to the Orsk Refinery, just north of the Russian border

Originally designed to transport Siberian oil to Central Asian markets, including Kazakhstan, Uzbekistan, and Turkmenistan, the Eastern system is now partially idle From border to border, the line extends over 2100 km (1300 miles), not including a dual spur that connects the Eastern system with the Kumkol Oil field trunk line Today, the northern section of the Eastern system remains in operation, connecting to the Pavlodar Refinery some 200 km south of the Russian border Production from the Kumkol Field is shipped east through the trunk line, then south in the system to the Chimkent Refinery The section between Pavlodar and Karakoin is left idle, as is the southern continuation of the system from the Chimkent Refinery to Uzbekistan (Appendix B)

1 2 Previous Oil Pipeline Tariff Methodology

A primary focus for developing an internationally acceptable oil pipeline tariff methodology is to provide the opportunity to attract financial investment With capital provided from international financial institutions, rehabilitation and integration of the pipeline system can be achieved

The tariff methodology in place at the beginning of this project was developed during an era when central controls, including price controls, were imposed on all sectors of the economy With prices and costs centrally controlled, all Kazakhstan pre-independence cost data was either distorted or simply does not exist Oil pipeline tariff rates in Kazakhstan are set by the Anti-Monopoly Committee (AMC), under its general authority to set tariffs for natural monopolies They were determined by using the same basic profit margin approach that is applied to most of Kazakhstan's other natural monopolies This practice was carried over from the former Soviet Union period The current emphasis on properly pricing tariffs for

Anti-Monopoly Committee (AMC), under its general authority to set tariffs for natural monopolies. They were determined by using the same basic profit margin approach that is applied to most of Kazakhstan's other natural monopolies. This practice was carried over from the former Soviet Union period. The current emphasis on properly pricing tariffs for capital intensive natural monopolies however, reveals the weakness of this basic methodology which relies on local accounting standards and fails to focus on historical costs.

The tariffs determined from the previous methodology was based on projected "budgeted costs" for the coming year, rather than on actual historical cost accounting data. For oil pipelines, the AMC set the tariff based on a complex formula developed by the Ministry of Finance and State Committee on Statistics and Analysis, which considered costs submitted by KazTransOil.

In Western economies, profit margins in non-regulatory settings are "mark ups" on costs and constitute a standard approach to pricing. Used in the context of Kazakhstan's oil pipeline tariffs, this approach is grossly inadequate for the following reasons:

- in capital intensive industries, profit margins do not specifically identify a return on invested capital in service and, as such, there is no objective measure by which to determine the profitability of a given project,
- local accounting practices do not adequately distinguish between earning statement accounts and balance sheet accounts. This includes treating capital expenditures, profit, and repayment of debt as operating expenses, and
- there does not appear to be any concept of a "necessary and proper" level of expenditures for other cost items.

A principal concern is the need to deal with the costs of service, which need proper definition. For example, social costs, that may or may not be legitimate oil pipeline costs, are included in the rate base. These need careful review. While, with some exceptions, direct pipeline Operations and Maintenance (O&M) costs are by and large comparable to those in the West, indirect or administrative costs need close examination, both with regard to their applicability and to their allocation to specific pipelines.

The regulatory structure in Kazakhstan is in a state of flux, due to the transition to a Western oriented market system. The AMC does not have adequate authority nor technical personnel to question costs submitted by the pipeline companies. A cursory review of financial data submitted to the AMC reveals obvious instances where the amounts expended greatly exceed any amounts that would otherwise be considered "necessary and proper." For example, levels of Accounts Receivable for KazTransOil far exceed acceptable levels and constitute a major cause of cash flow problems.

At the same time, the current accounting system appears to allow too much discretion, so the AMC decisions can be justified. For example, a \$330US per ton export surcharge appears to be mainly for repairs that should be capitalized. Treating such export surcharges as an expense, however, is the rule. Tariff decisions also appeared to be aimed at providing adequate cash flow where outside capital is not available. Yet, the percentage of collections from many of the domestic oil pipeline shippers were far from acceptable and improvement in this area would have mitigated but not eliminated the need for higher tariffs.

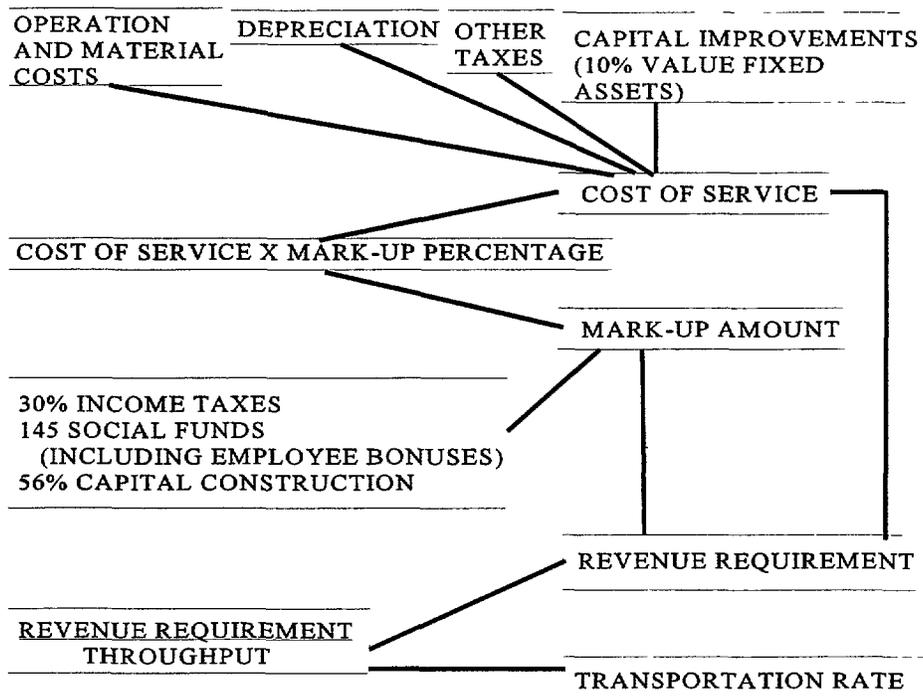
The following chart (Previous Oil Pipeline Tariff Methodology) illustrates the previous approach to rate making. As can be denoted, operations costs and material costs are included, in what would be defined in international methodologies, as the cost of service. Depreciation was also included, but differed from a Western approach, since depreciation was essentially multiplied by the book value of the assets. Other taxes were not inconsistent with the accumulation of non-income taxes in a Western or international methodology. Another element of cost of service was capital improvements. By international standards, this is primarily considered as maintenance. However, the true definition of capital improvements and capital construction is blurred compared to Western practices. Using the previous methodology, capital improvements were established at ten percent of the book value of the fixed assets. As a result, the correlation between the maintenance needs of the pipeline and the value utilized in establishing the rates did not exist, and thus the revenues available for maintenance also did not correlate. Since maintenance funds were low due to the previous methodology, maintenance was not adequate for the upkeep of the system.

This cost of service was then marked-up by a percentage multiplier. KazTransOil would negotiate a mark-up rate with the AMC, usually anywhere between 10-50% of the value of this cost of service. The mark-up amount that resulted, identified as "profit," was then distributed as 30% income taxes, 14% social funds (including employee bonuses), and the remaining 56% capital construction. Capital construction might include projects Western methodologies might consider maintenance.

The mark-up amount, and the cost of service amount, then were totaled to become the revenue requirement, which when divided by the throughput produced KazTransOil's tariff rates on a 1000 ton km basis. The individual branch distances of each system were multiplied by the divisional rate to produce the rate for each branch, termed the "passport" rate.

Fundamentally, the previous oil pipeline tariff methodology did not produce adequate revenues to correlate with maintenance needs, and it did not provide KazTransOil capital for profit and new construction projects.

PREVIOUS OIL PIPELINE
TARIFF METHODOLOGY



CHAPTER 2

ACCOMPLISHMENTS

2.1 Adopted Oil Pipeline Tariff Methodology

Rates developed pursuant to the recommended and adopted oil pipeline tariff methodology should provide for recovery of all expenses identified during the application period, plus provide a return on used and useful qualifying assets. The rate of return represents the weighted cost of capital to service debt requirements and provide returns to equity holders.

The principal formula for the adopted tariff methodology is

$$\text{Tariff Revenues} = \text{Total Costs} + \text{Return on Used and Useful Assets}$$

Total costs represent all of the O&M costs (including corporate administrative costs, personnel labor, and personnel overhead costs), current period depreciation, and taxes.

The assets consist of the book value of the used and useful assets less accumulated depreciation plus working capital. The concept of used and useful assets means that a customer of the oil pipeline should only pay profits to the natural monopoly based upon the assets used to provide the customer's service. The use of accumulated depreciation to reduce the value of the assets means that the customer's rates also reflect the fact that the assets have aged and may not be as useful for providing him service, as if they were newly constructed today. Cash working capital's inclusion in the formula, though usually a small percentage of the total assets compared to the valuation of the physical assets, insures that cash, and goods and materials that can be converted to cash within a year, less current liabilities that may be incurred within a year, are considered as part of the used and useful assets needed to provide customer service covered by the tariff rate.

The determination of the asset valuation was a tough issue. During the course of the investigation, Hagler Bailly was able to gain confidence in the accounting for operational and maintenance expenses through field audits. However, all parties questioned the book valuation of the physical assets of the pipeline system. During the former Soviet Union period, the central planners in Russia would order a plant producing pipeline to ship it to Kazakhstan for installation. There was no free market transaction and the value set for accounting purposes was an administrative decision, which may or may not be relevant to what would normally be the actual cost of the pipeline. When Kazakhstan gained

independence, an accounting conversion was made on the books to reflect asset values. In 1997, the previously independent systems were merged into KazTransOil with three operating divisions. Also, during this period, the Law "On Accounting" was adopted dictating a conversion to international accounting standards. Each transition provided an opportunity for distortion to affect the asset valuation. The Western operating division also owns and operates a water pipeline, which should be separated from the oil pipeline for rate making purposes.

Hagler Bailly recommended "that a qualified oil field engineering and accounting firm, with international experience in oil pipeline property valuations, should contract with KazTransOil to take stock of the physical pipelines and other used and useful infrastructure assets. This firm should be charged with the development of specific priority-based recommendations to improve the overall efficiency, reliability, and productivity of the system."

In December 1997, KazTransOil issued a tender and subsequently hired an international accounting firm to do the asset valuation. However, for regulatory tariff rate development purposes, the asset valuation is flawed. It appears to have been only an accounting desk review for purposes of establishing an inventory, then development of a replacement cost analysis. Replacement cost would be calculated by determining the prices for equipment duplicating the existing system, at today's prices, whether a company constructing such a system today would build it in the same manner, same configuration, or using the same equipment. Additionally, the water pipeline was included in the oil pipeline asset base. No determination was apparently made of the "used and useful" aspects of the system, and yet it is known that the Eastern system, though relatively of recent construction compared to the Western system, virtually is idle. No engineering field assessment was made of the oil pipeline system. The Western system which earns most of the revenues received by KazTransOil is old - more than half of the system is 20 or more years old. It suffered from years of neglect with poor maintenance and replacement. Some portions were even replaced in the past with water pipeline when oil pipeline was not available.

To salvage this asset valuation for rate making purposes a determination of "used and useful" assets must be made, a proper engineering field audit should be done to determine the physical condition of the assets, with appropriate reduction of the replacement valuation, the valuation should be depreciated to reflect the age of the components, and the water pipeline assets need to be segregated from the assets used to determine oil pipeline transport rates. Even then this asset valuation may be inflationary and produce rate shock among the customers. Therefore, the rate design principle of gradualism may be applied. As an example, if the AMC were to use 60-70% of the current book valuation and 30-40% of the reproduction valuation, added together to arrive at a qualifying asset valuation for purposes of setting rates, this would moderate the impact on tariff rates. Over time, as new assets replaced estimated valued assets, the new assets would enter the books at original cost, and the asset base for regulatory purposes would approach normal standards.

The rate of return determination constituted a unique challenge in reaching consensus between KazTransOil, the AMC, and Hagler Bailly. Once the acceptance of a return on assets as a basis for profit was achieved, then difficulties arose in the interpretation of an appropriate rate of return. Some of the difficulty was in communicating the need for a weighted average cost of capital (WACC) but eventually understanding was achieved. WACC is represented by the following formula:

$$\text{WACC} = \frac{\text{Equity Capital} \times \text{Rate of Return}\% + \text{Debt Capital} \times \text{Interest Rate}\%}{\text{Equity Capital} + \text{Debt Capital}}$$

Thus the rate of return is a weighted average of the rates for equity and for debt.

The total amount of the debt capital and the debt interest rate are fairly simple to identify. The rate of long-term debt and preferred stock are the actual fixed rates such as the interest and preferred dividend payments. Short-term construction bridge financing can be included. This is averaged through a similar weighting to arrive at a consolidated average debt capital rate. However, for KazTransOil at the time of the development of the pipeline tariff methodology and calculating initial tariff rates, there was essentially no debt. Therefore, the impact of the debt capital and debt interest rate is extremely negligible. As KazTransOil incurs significant loan debt or issues large amounts of preferred stock to help finance rehabilitation and reconstruction of the system, then debt capital increases in significance. It is not unknown for pipelines in North America to have as high as 70% debt or more. Once understood, this factor was not a significant issue.

The real issue that required a significant breakthrough was the development of a rate of return on the equity in KazTransOil. Most of the GOK steering committee representatives understood the tariff methodology concepts. However, the tariff department at KazTransOil had undergone personnel changes in the Fall of 1997 and were unfamiliar with international concepts. They embarked on an effort to propose highly inflationary calculation procedures in an alternative oil pipeline tariff methodology, partially based upon former Soviet Union approaches and partially based upon a misunderstanding of financial accounting. The resulting proposed rates of return using the KazTransOil alternative methodology were in the neighborhood of 28% and could not be substantiated even with the application of financial techniques or risk evaluation. The recommended regulatory tariff methodology is based upon the establishment of a reasonable rate of return, which is fair to the natural monopoly, customers, government, and other affected parties. Absent regulation, a natural monopoly would raise prices above and beyond a competitive market price and would generally ignore the needs and desires of customers. After an extended period of discussion and debate, with the infusion to KazTransOil by staff with better academic training, a compromise was reached with KazTransOil which adapts a standard international approach to the unique circumstances of Kazakhstan.

17

Commonly, in North American and some European approaches, four methods of determining equity rates of return are frequently considered, with variations. All generally focus on a fairness doctrine which looks at comparable earnings and capital attraction. These concepts encompass the issue of opportunity cost - investors should get returns on equity for investments in natural monopolies equal to returns they would expect for investments of comparable risk - therefore, the natural monopoly needs a return sufficient to attract such investors. In the real world, investors often see regulated natural monopolies as more stable investments, with greater expectations of returns than investments in otherwise comparable non-regulated companies in competitive environments, and will accept lower returns on equity. The four methods of determining equity rates of return are Discounted Cash Flow, Risk Premium, Comparable Earnings, and Capital Asset Pricing (CAPM).

Discounted Cash Flow assumes that the price paid for a share of stock is the present value of the anticipated future cash flow from stock dividends and price appreciation of the value of the stock at the investor's required rate of return. The difficulty for Kazakhstan is gauging investor expectations and requires speculation as to growth rate. With a nascent stock market, no real history of investment, no comparable investment statistics, and the age of KazTransOil as a state company, this approach was not recommended.

Risk Premium assumes that equity rates should be higher than long term debt rates by some factor of risk premium. Again the problem is measurement of the risk premium. At this time, KazTransOil's only significant long term debt agreement is a tentative construction agreement with Chinese National Petroleum Corporation to build an oil export pipeline with a debt rate of 7.5%. In reality, the Risk Premium method is not applicable and was not recommended.

Comparable Earnings is based upon a sample of comparable risk of regulated domestic natural monopolies with similar equity return rates. Comparable statistics for natural monopolies of Kazakhstan do not exist, except possibly the rate of return for Intergas, the gas transmission company. This approach was not recommended.

However, the version, which in modified form was recommended on the basis of the equity rate of return calculation for Kazakhstan, is the CAPM. This method assumes that the equity return is the sum of a risk-free rate of return plus a return to compensate investors for market risk. In a conventional CAPM calculation, the market risk compares the historical returns of the natural monopoly's stock to the returns of the stock market. In practice, this is a historical analysis. Again, Hagler Bailly was faced with no history of equity sales and a negligible stock market history. However, over extensive negotiation with KazTransOil and the AMC, identification of the basic issue was determined and accepted by all parties - stable risk plus market risk. Kept in this stable manner, the resulting approach might have been more easily resolved. However, earlier a recommendation of unbundling of market risk into a series of factors was followed. The difficulty with unbundling is that it opens the door to further

unbundling and it tends to be inflationary. At one point in the discussions, the KazTransOil representatives were proposing that market risk consisted of approximately seven factors which would generate an equity rate of return of 28% in a market where 12-14% using four general risk categories, was much more realistic.

The equity rate of return that was adopted is a sum of the following elements:

- stable risk, defined as current US Treasury 30-year interest rate,
- industry risk for KazTransOil, based on the evaluation of oil pipeline operations in comparison with other sectors in Kazakhstan,
- structural risk for KazTransOil, such as restructuring and privatization, non-payments problems, liquidation of certain transportation routes, regulation, and ability to effectively manage its operations, and
- country risk for Kazakhstan, which includes economic, financial, political, legal, economic, and other macro-variables, such as devaluation of currency.

The resulting equity return methodology is certainly not unique to Kazakhstan. The underlying concept of stable risk plus market risk is a portable concept that can be transferred and adapted to meet other developing country needs in the creation of regulatory equity rates of return in the absence of a viable equity market history.

The final aspects of the methodology are fairly straight forward and not controversial. The revenue requirement is divided by the throughput rate to produce the transportation tariff rate, after a minor adjustment of the revenue increase by a gross-up factor to reflect the tax-on-tax effect. In the case of KazTransOil, this is performed separately for the three major operating divisions. Since these are distance based rates, respective "passport" rates are computed for individual branches on each operating division.

Another issue that needed resolution is the creation of service riders. Some services, such as the heating of oil, are only required by a limited number of customers, therefore all customers should not bear the costs of these services. Recovery of providing significant special services should be based on a cost causative basis. Therefore, in the course of developing tariff rates, specialized costs for clearly identifiable services, such as heating, are separately accumulated in the accounting records. These costs are not included in the operating expenses used to compute the basic transportation rate. However, service rider tariff rates are charged in addition to the basic transportation rate to only the customers that cause the cost. This "service rider" reflects only the incremental cost and does not include a rate of return on qualifying assets.

The adoption of the recommended oil pipeline tariff methodology and all of its specific elements, in concert with a public hearing, was a significant event for Kazakhstan and may constitute the first time something of this nature has been adopted throughout Russia and the NIS

2.2 Milestones

The primary milestones were that a nationally televised public hearing was held approving the recommended oil pipeline tariff methodology on May 22, 1998. On June 5, 1998 the AMC executive board met and formally approved the methodology for the preparation of oil pipeline tariff rates. On July 1, 1998, tariffs were adopted in conformance with the methodology.

Additionally, in adopting a cost based rate of return methodology, the export surcharge was eliminated, which improved the economic viability of exported oil to world markets. The GOK has expressed interest for establishing similar tariff methodologies for other natural monopoly sectors, such as the gas transmission and distribution companies.

The adoption of the recommended methodology encompasses a number of key elements, including

- the steering committee approach of the open discussion and debate of the development of tariff methodology and tariffs among interested parties was accepted,
- a return on assets should be the basis for generating revenue and retained earnings for investors as opposed to a markup of expenses which does not include dividends to investors,
- debt and equity financing is considered, used and useful assets are regularized, and fundamental definitions and rate formulas are integral,
- the use of international depreciation calculations are incorporated,
- current rates should be based upon current assets and expenses, rather than speculative ones,
- rates of return should have a fundamental foundation of reasonable rate levels,
- rates of return should be based upon stable risk plus market risk that currently exists,
- rate design should be based upon international principles, including gradualism,

- regulatory authorities must examine all aspects of a rate increase and balance the interests of all parties including the natural monopoly and shippers,
- regulatory proceedings should have public notice, be held in public forums with the opportunity for all parties to attend, should provide the opportunity to receive testimony from all parties, and maintain a public record, and
- decisions of regulatory proceedings should be published

CHAPTER 3

PROJECT EVOLUTION

3.1 Steering Committee Development

A pipeline steering committee was formed to recommend an oil pipeline tariff methodology to the GOK, based on international practices and standards. The steering committee invited experts from KazTransOil (formerly KazakhNefteProvod), the former Ministry of Economy, the former Ministry of Energy and Natural Resources, KazakhOil, AMC, Agency for Strategic Planning and Reform, Agency for Control of Natural Resources, and Mobil, Chevron, and Oyrx representing the Kazakhstan Petroleum Association (KPA) to participate. The steering committee was co-chaired by Michael Biddison and Kaergeldy Kabylden, Vice President of KazTransOil. All steering committee meeting minutes are contained in Appendix C.

The first steering committee meeting was held on April 21-22, 1997 in Almaty, Kazakhstan. All subsequent meetings were also held in Almaty. The first meeting served to announce that a national oil pipeline company had been formed, later named KazTransOil. Statements of purpose and goals were made by the two co-chairmen, a presentation on international oil and gas regulations was made, a pipeline system status description was presented, data collection elements were defined, and assignments were given to steering committee members for data and information.

The second meeting occurred on June 5-6, 1997. Presentations were made on an earlier USAID financed Kazakhstan pipeline industry study, the functioning of proper tariffs, the Canadian Incentive System on tariff issues, US statistical data, and the physical condition and financial situation of the respective operating divisions of KazTransOil.

The third meeting transpired on July 10-11, 1997. Presentations were made on cost data development for the creation of tariffs, used and useful assets, a preliminary Hagler Bailly computer model to justify tariffs, and the Caspian Pipeline Consortium issues and current status.

The fourth meeting developed on August 20, 1997. The field trip to Aktau was announced and an extensive discussion of the Hagler Bailly computer model followed which identified additional data element requirements.

The fifth meeting was on September 25, 1997. A large number of KPA members were present at the meeting. The initial pipeline tariff report, justifying the recommended tariff methodology and a ballpark tariff rate based on the computer model, was presented in detail. The need for asset valuation was identified, as well as the need to convert the accounting system. Extended discussion ensued by the participants on all of the definitive elements contained in the initial report. The correlation of collected data and the computer model was analyzed.

The sixth and last meeting of the steering committee occurred on October 29, 1997. A draft resolution, the actual tariff methodology, and general principle recommendations were discussed at length. Issues were raised on the creation of an independent oil and gas regulatory agency. Discussions also included the export surcharge, and for the first time some KazTransOil staff raised an alternative rate of return issue, as opposed to the recommended regulatory method. The consensus was that the steering committee approved the recommended tariff methodology and submitted it to the GOK for adoption.

3.2 Model Construction

A computer model was developed by Hagler Bailly consultant, Dr. Helmut Merklein, which utilized theoretical data to approximate the costs of operation and formed a foundation for tariff development and calculations. The asset valuation utilized in the system was based upon a replacement value estimate which Dr. Merklein insisted would have to be adjusted to meet the current state of operation, maintenance, and physical condition of the system. This was one of the first true integrated pictures of the KazTransOil system as a single operating company (Appendix D).

This computer spreadsheet model was designed to calculate reasonable tariffs for expressed sizes of pipelines for expressed years of service. Given the difficulty in obtaining the needed historical data for a definitive assessment of recommended KazTransOil tariffs, this approach was pursued by doing a computer simulation of pipeline tariffs following North American regulatory standards. This process involved the calculation of oil pipeline tariffs for standard lengths of pipelines of various diameters, as they might arise if constructed in North America under competitive conditions.

As constructed, the model retains the economic and political structure of Kazakhstan as of the time the lines were built. This assumes, among other things, that the pipelines were built by the Government, that there was no long-term debt involved in the construction of the pipelines, and that the pipelines were, and for the moment, continued to be under 100% equity ownership, presently belonging to KazTransOil. A model version that permits different debt/equity structures, as well as different depreciation and tax regimes, had been developed earlier and basically could be used for policy analyses and other uses. The cost

estimates for the construction of pipelines in the United States and in Canada contained in the model literally rest on hundreds of individual pipeline construction projects

One important variable in the recommended oil pipeline tariff methodology is pipeline throughput capacity. This is a more elusive variable than one might think at first glance. Hagler Bailly selected throughput rates generally somewhat above those listed by KazTransOil, but below the theoretical rates suggested from computer simulations. Many more assumptions went into the development of the recommended oil pipeline tariff methodology, including the regimented use of 30-year straight-line depreciation.

3.3 Trial Demonstration of Tariff Rate Methodology

During the last week of August 1997, Hagler Bailly consultants traveled to the headquarters of the Western operating division of KazTransOil, in Aktau. This field audit produced the first indication that solid maintenance and operating data was available and provided the opportunity to develop a comparative analysis of the previous tariff methodology to the recommended tariff methodology. This educational tool along with the data obtained from the Western system field audit proved absolutely crucial in the rate design effort that followed in September.

On September 2, Michael Biddison was contacted by President Nourlan Kapparov. Mr. Kapparov was given the opportunity to brief members of the Cabinet of Ministers. He needed supportive documentation from Hagler Bailly on a comparative basis of the recommended tariff methodology, the results of the model, and rationales for modifying the law and tariff operations. A chart of the previous tariff rate methodology compared to the recommended rate design was drafted, using comparable data. As a communication tool this proved highly effective. This briefing led to a meeting with the key officials of KazTransOil to refine the recommended tariff methodology. Hagler Bailly rapidly developed revised briefing materials, which were adopted and incorporated into an afternoon briefing of the Cabinet of Ministers. On September 9, 1997 Hagler Bailly consultants met with President Kapparov and all of the vice presidents of KazTransOil. He requested that Hagler Bailly prepare tariff rate recommendations for the three operating divisions and an average tariff rate for the entire system. He offered the full access of his staff and records, but asked that we provide the requested tariff rates on a timely basis.

On September 10, 1997 the Deputy Minister of Economics approved the recommended tariff methodology. Thus began an intensive effort. A field audit was performed of the pipeline headquarters, which was integrated into the field audit of the Western pipeline system. The final publication, "Proposed Pipeline Tariff Methodology and Recommended Tariff Rates for the Government of the Republic of Kazakhstan," was delivered to KazTransOil on September 17, 1997 (Appendix E).

KazTransOil was extremely satisfied with the Hagler Bailly work and requested a procedures manual be developed. This led to the presentation of the results of the rate analysis and the contents of the procedures manual on September 25, at the fifth steering committee meeting.

3.4 Steering Committee Recommendation of Tariff Methodology

Early October saw continued efforts in the formal drafting of the recommended methodology in a step-by-step guide coordinated with KazTransOil. Additional interest was shown by KazTransOil in utilizing these procedures in strategic planning models and analysis of cash flows.

In mid-October, preparations for the seventh steering committee meeting were begun. The procedures manual was modified, reflecting changes proposed by KazTransOil, and a resolution and additional guiding principles were developed for steering committee approval.

During this period a faction had formed in KazTransOil, proposing an alternative rate of return methodology. Recent employees of KazTransOil, with no background in pipeline business or operations of natural monopolies, and without previous participation in the steering committee, began lobbying for a change from a regulatory rate of return design to a radical departure. The alternative methodology would allow for an exceedingly high rate of return, a high valuation of assets, and a component that would have shippers pay for future construction costs in present tariff rates. Extensive efforts were spent in attempting to abort the KazTransOil alternative methodology.

The seventh and last steering committee meeting on the recommended oil pipeline tariff methodology was held on October 29, 1997. The resolution, the actual methodology, and the recommendations were discussed extensively. On November 11-12, the co-chairmen of the steering committee approved the final changes to the document and submitted it to the GOK.

3.5 Methodology Education and Coordination

At this point, the focus of technical assistance shifted to the AMC, the Ministry of Energy, Industry, and Trade, and the Agency for Strategic Planning and Reform, the key GOK entities with approval authority of the oil pipeline tariff methodology.

25

On November 5, Elena Popandopoula, Head of the Tariff Department of the AMC, briefed the Hagler Bailly consultants on the current status of legislation and government reorganization. Discussions examined the creation of an independent oil and gas regulatory commission, possibly formed from the AMC. The AMC had modified its charter to adopt Hagler Bailly recommendations for the development of an independent regulatory commission. There appeared to be agreement in principle to accept the steering committee recommended tariff methodology. On December 10, Hagler Bailly provided recommendations for changes to the AMC oil pipeline tariff methodology procedural instructions (Appendices F and G). Hagler Bailly was formally requested to join a committee of experts to examine a current gas pipeline tariff filing. December 11, began a series of meetings and discussions on gas pipeline transmission tariffs. Hagler consultants eventually gave a series of recommendations that were acceptable to the AMC and Intergas.

In early and mid-December, in response to a KazTransOil request, Hagler Bailly consultants prepared special spreadsheets to analyze future cash flow for capital construction, utilizing the steering committee recommended tariff methodology. Five scenarios were developed in a sensitivity analysis, examining such factors as used and useful assets, debt versus equity ratios, and repayment schedules. In addition to a short term analysis, a long term analysis through the year 2030 was prepared. The analysis showed that the recommended tariff methodology would provide the necessary capital to support the capital improvement program proposed with the proper mixture of debt and equity financing and with a longer repayment schedule than one year. At the same time, the recommended tariff methodology would produce reasonable rates which could be maintained at relatively stable levels, with only moderate increases over extended periods of time. This latter aspect of rate design insures superior relations with, and acceptance, by shippers of the transportation rates. This exercise introduced to KazTransOil the key concepts of adopting a structured portfolio of debt and equity financing, the importance of negotiating appropriate terms and conditions in addition to tariff rates, and balancing costs with cash flow to maintain stable rates. In performing the analysis, the examination focused on the analysis of a series of data on forecasted capital improvement projects for the operating system. Detailed information was provided for 1998, and general data was provided for an extended period through the year 2030. The value of the recommended tariff methodology allows for a transparent cost based approach to examine future capital improvements and provides an effective tool for planning the most appropriate mixture of financing, between debt and equity, to achieve the capital improvement program.

Hagler Bailly continued to hold training sessions for KazTransOil, discussing all data elements, logic of analysis, and presentation of results - including the impacts on cash flow analysis and the respective shippers rates. KazTransOil expressed satisfaction with the results. A copy of the analysis and spreadsheets is located at Appendix H.

During the mid to late December 1997 period, KazTransOil built support for and filed a rate application which incorporated most of the concepts of the steering committee recommended methodology, but diverged radically with an alternative methodology which incorporated extensive forecasted financial data and extremely inflationary rates of return - the latter not supported in international regulatory structures. This application dominated the educational efforts of the following quarter (Appendix I). The AMC rejected the application and requested technical assistance from Hagler Bailly. In February 1998, Hagler Bailly consultants began an exhaustive series of analyses of the December KazTransOil tariff methodology and tariff rate application and the series of revisions that followed. This was complimented by an extensive series of educational discussions at all levels of government on an individual basis, as well as a group basis. The initial request to analyze the KazTransOil filing derived from the Agency for Strategic Planning and Reform. Initially, the KazTransOil application sought a 28% rate of return. The completed analysis was provided to the Agency for Strategic Planning and Reform on February 14 (Appendix J).

On February 25, 1998 Hagler Bailly received a crucial request from the AMC for analysis support of KazTransOil filing, using the alternative methodology. In addition, Hagler Bailly received a formal request from the Agency for Strategic Planning and Reform to be in Astana to participate in a full forum discussion of the KazTransOil filing. A support letter by USAID Director, Patty Buckles, in support of the recommended methodology was provided to the Agency and the AMC. The Hagler Bailly consultants coordinated support letters from the KPA (Appendix N). On February 26, Hagler Bailly consultants attended the meeting in Astana, chaired by the Vice Chairman for the Agency, with attendance by all the key agencies and ministries. Apparently, KazTransOil had tried to bypass the AMC and proposed their alternative methodology directly to the Agency, after its rejection by the AMC in December. Hagler Bailly presented replete technical analysis, such that the KazTransOil proposal was tabled for further study by the Agency. The AMC immediately moved to reinstate its jurisdiction over tariffs. The Hagler Bailly analysis compared the alternative and recommended methodologies, responded to criticisms, and demonstrated the negative impact that the alternative methodology would have in relation to international norms and on the economy of Kazakhstan (Appendix K).

In early March, detailed analysis was again sought by the AMC and the Agency for Strategic Planning for a revised filing by KazTransOil. The revised filing had moved further in the direction of the Steering Committee recommended methodology (See Appendices L and M).

In late March, Hagler Bailly consultants performed intensive international research on the recommended and alternative tariff methodologies. To be successful in the discussions, it was

necessary to test the actual calculations of applicable returns on equity since Kazakhstan lacked any historical development that would be normally utilized to generate returns on assets of this nature. During this period, questions began to arise concerning a tender issued by KazTransOil to Ernst and Young, an international consulting firm, to value the assets of the system. Concerns were raised that inflated values of assets would be generated, which would effectively serve to balloon transportation tariff rates during a period of decline in oil prices. Consultation was sought by the AMC on asset valuation, and regulatory rate design principles from Hagler Bailly. On April 10, a formal meeting in Astana before the AMC and other ministries resolved many issues in the tariff methodology and narrowed the focus to equity rate of return - with KazTransOil being ordered to work with Hagler Bailly in the development of a Kazakhstan specific solution. A key issue that was resolved at this meeting was the acceptance of Hagler Bailly recommended elimination of the export surcharge on oil. This will equalize the rate treatment of oil transportation throughout the system. Per a request by the AMC, Hagler Bailly prepared guidance in the form of rate design principles to assist them in arriving at rate design decisions (Appendix P).

On April 13, profound meetings were held with KazTransOil financial management. Newly hired, business educated, staff had recently joined the KazTransOil operations and were better able to comprehend the issues involved in the development of an equity rate of return (Appendix O). Eventually, Hagler Bailly and KazTransOil signed a joint letter on April 24, recommending the adoption of the steering committee recommended tariff methodology to the AMC (Appendix S). The difficulties involved the use of a standard regulatory approach, based upon stable risk coupled with unstable risk, however the historical factors available for its calculation in more developed free market societies were not available in Kazakhstan and alternatives had to be developed. Additional guidance was also provided to KazTransOil in considering all the relevant key market players in making rate determinations (Appendix Q). Also, additional guidance was sought by the AMC in terms of reviewing asset valuations (Appendix R).

3.6 Public Hearing

Late April into early May was spent in developing background documents for holding a public hearing - the first of its kind in Kazakhstan, and in early May the review of KazTransOil's final tariff rate application was performed - which did not contain actual proposed rates, but represented the final compromise methodology. Hagler Bailly prepared a template on holding public hearings, which was provided to the Agency for Strategic Planning and Reform. This document provided a blueprint for the conduct of the actual hearing (Appendix T).

The formal public hearing on the oil pipeline tariff methodology was held on Friday, May 22, 1998 in Astana. It was chaired by Chairman Utembayev, Agency for Strategic Planning and Reform. Habar, the national television station filmed segments of the public hearing and broadcast it several times over the weekend. Michael Biddison was the featured USAID spokesperson and made a formal presentation on the benefits of the recommended oil pipeline tariff methodology. He also responded as an expert witness in the proceeding, answering several questions from the Chairman. The minutes to the public hearing are shown in Appendix U. It was the requirement of the Chairman at the public hearing that all parties to the hearing sign the minutes.

3.7 Adoption and Implementation

On June 5, 1998 the recommended oil pipeline tariff methodology was formally and administratively adopted by the GOK (Appendix V). New tariff rates were approved pursuant to the methodology on July 1, 1998.

In the aftermath of the adoption, given the AMC reservations of the asset valuation performed for KazTransOil, they requested that Hagler Bailly perform a review of the recommended asset valuation.

3.8 Ancillary Benefits

June 15th marked a significant re-opening of our activities in the development of gas transmission and distribution tariff rates. Because of the success of the oil pipeline tariff methodology, aggressive activity was sought in the development of similar efforts for gas transmission and distribution. On that date, the Ministry of Energy, Industry, and Trade invited Hagler Bailly, as expert consultants, to attend a gas working group meeting and develop comprehensive rules and regulations on gas transmission and distribution. As part of the process, Hagler Bailly drafted and proposed an umbrella Law "On the Regulation of Oil and Gas," which created an independent oil and gas regulatory authority.

In early July, the AMC became the Committee for the Regulation of Natural Monopolies and Protection of Competition, reporting directly to President Nazarbaev. As such, revised implementation instructions and filing documents for all natural monopolies were being

developed Hagler Bailly spent an extensive amount of time producing far ranging documents based upon the success of the oil pipeline tariff methodology

Hagler Bailly has assumed an expanded role in the development of public tariff and rider sheets, describing tariff terms, conditions, and rates for all services, establishing a shipper/customer complaint process to respond to service issues, recommending a mechanism to resolve non-payments of shippers, and providing quick response services to specific requests from the GOK

CHAPTER 4

LESSONS LEARNED & NEXT STEPS

4 1 LESSONS LEARNED

The principal lesson learned was that the value of providing institutional memory and continuity in the face of constantly changing governmental structures and personnel can be done successfully. Additionally, the practice of patient education and constant communication with government counterparts, which insured translation not only transferred words, but also concepts behind the words, was extremely important. It was also recognized that the steering committee concept was the best means in getting government and industry representation and participation in jointly resolving difficult issues.

USAID should better recognize the competence and professionalism of its consultants in extremely technical/political/economic/social arenas and should provide a proper level of support in obtaining strategic objectives and furthering results. Unfortunately, there were internal fractional divisions within the USAID/CAR MISSION that were less than supportive, creating an atmosphere of conflict noticeable to government counterparts and private investors that participated in the project. This type of environment thrived, due to the backdrop of "teams" assigned to manage consultant activities. This was a lesson learned by Hagler Bailly consultants.

4 2 NEXT STEPS

The primary mission of this project has been achieved. The GOK has formally adopted and implemented an internationally acceptable oil pipeline tariff methodology.

The next steps, in relation to the regulation of natural monopoly pipeline companies, are to continue technical assistance with the AMC in the development of appropriate skills and organizational mechanisms for docketing and record keeping, evaluative tariff reviews, accounting analysis, asset valuation review, financial analysis, forecasting review, rate of return analysis, consumer complaint services, pipeline safety, public hearing examination, legal analysis, and administration. For example, the terms, conditions, and tariff rates for all services should be published as a matter of course, riders for specialized services need to be developed, and other issues related to insuring that the regulation of natural monopolies are transparent and lead to cost efficient natural monopoly service should be instituted.

USAID should also build upon its closely established relationship with KazTransOil to provide technical assistance in evaluating maintenance and new construction projects of the pipeline system. KazTransOil has limited resources and experience in strategic and economic planning, but needs to begin immediately to prepare domestic oil transportation routes for export to world markets. Feasibility studies of alternative pipeline routes and production volume forecasts need to be conducted before rehabilitation and construction projects should earnestly begin.

APPENDIX A

To Barry Primm
From Talgat Seitkazim
Subject MOGI's request translation
Attachment
Date 7/29/26 11 59 AM

July 12, 1996

Dear Mr Primm,

From our conversations with Richard Hildall we learned that USAID is planning to provide a technical assistance to CAR that has a regulatory/management character

To date, Kazak's pipeline customers pay a tariff that have been calculated upon an out-dated methodology and approved by the AMC

An analyses carried out be Price Water House displays that under the conditions of the transition period in Kazakstan, the Northern-American model of tariff calculation is the most suitable for us

The currently existing methodology does not provide conditions of a loan payback and return-to-capital element of investments, as we did not have such categories in the post-Soviet economy at all

Now, when we are in the process of privatization and corporatization of pipeline transportation facilities (we have such a Government's decision), the existing methodology of the tariff calculation does not meet the market-based methodology used in Europe and in the North America

In view of the above, MOGI requests you to consider a possibility to allocate funds (under USAID's technical assistance) to develop and put into practice (after an appropriate coordination and getting approvals in the AMC and the Ministry of finance) a market-based methodology of the tariff formation that would be acceptable for suppliers (pipeline users) of oil and gas, international funding institutions and investors In its turn, our ministry will provide all the necessary information and cooperation in the performance of such a necessary for the sector work

Deputy Minister

A S Lobaev

Hagler Bailly

APPENDIX B

Detailed System Background

There are, in effect, three disconnected pipeline systems in Kazakhstan, all three oriented in a North/South direction. The systems were inherited from the Soviet era and originally designed to meet regional as opposed to national needs. Now combined under one corporate roof under the designation of KazTransOil Pipeline Company, the three systems had been operated until mid-1997 as separate pipeline companies. At that time, they were known as the YuzNefteProvod System, the Kenkiyak System and the Pavlodar System.

The Kazakhstan Pipeline System

YuzNefteProvod

The oldest of the three pipeline systems currently in operation in Kazakhstan is the YuzNefteProvod system. It is also the system that carries most of Kazakhstan's crude oil to market. Placed on stream in the late 1960's and early 1970's, it originally connected some of the early Kazakhstan oil fields to the seaport of Aktau. Today, most of the crude from the fields located on the Buzachi and Mangyshlak Peninsulas is carried North to Atyrau where a medium-sized refinery (capacity of 104,000 barrels per Day) takes on some crude. The remaining crude is pumped North from Atyrau past the Russian border to the Samara refinery and beyond. The full length of the system, from its origin in Kalamkas to the Russian border is approximately 1600 km, or 1000 miles.

The principal trunk line of the YuzNefteProvod system first runs South from Kalamkas, past Aktau and the giant Uzen Field and loops Northward from there past Atyrau to the Russian border. That line has six different sections of varying diameters, from 530 to 1020 mm (21 to 40 inches). The line is old and in badly deteriorated condition. To meet an operational emergency, one line section, stretching over 220 km North of Atyrau, has been replaced in recent years, but with a makeshift line, originally designed as a water line. Between the Uzen Field and Aktau, the line is looped with 130 km of a 530/720-mm line (21/28 inches). Various other minor lines complete the YuzNefteProvod system. These connect individual oil fields with trunk lines or with rail outlets. They range in size from 220 to 530 mm (9 to 21 inches).

Not strictly part of the YuzNefteProvod system but located in the Atyrau Region is the Caspian Pipeline Consortium or CPC line. That line, owned jointly by LukOil, KazakhOil, Chevron and Mobil Oil, runs West from Atyrau to the Russian border, and from there to Novorossiysk on the Black Sea. Its Kazakhstan portion is shown on the preceding map as a dotted line. The CPC line uses in part existing lines, but some interconnecting segments remain to be built, with

completion scheduled by the year 2000

Many of the crudes produced from the Buzachi and Mangyshlak Peninsulas have a tendency to solidify (have a high pour point) or are highly viscous. Pour points go as high as 32 degrees centigrade (90 degrees Fahrenheit) in the case of certain Uzen crudes, and viscosities range up to 280 Centistokes at 20 degrees Centigrade. These crudes require heating to make them amenable to being pumped through pipelines, which makes for complex and costly operations.

Kenkiyak

The Kenkiyak system is a relatively short (800 km or 500 miles) and small-diameter spur (350/530 mm or 13/21 inches). Built in the early 1980's, the line is used to ship condensate and crude oil from the Kenkiyak and Zhanazhol reservoirs to the Orsk Refinery, just North of the Russian border. With viscosities around 10 Centistokes at 20 degrees Fahrenheit and with pour points well below freezing, the crude oil/condensate mixture presents no operational difficulties.

Pavlodar

Originally designed to transport Siberian crudes into and through Kazakhstan into Uzbekistan and beyond, the Pavlodar line is now partly idle. From border to border, the line extends over 2100 km (1300 miles), not counting a dual spur that connects the Pavlodar trunk line with the Kumkol Field which is located approximately 200 km to the West of Karakoin. Today, the northern section of the Pavlodar line remains in operation, leading to the Pavlodar Refinery some 200 km South of the Russian border. In addition, production from the Kumkol Field is shipped through the Kumkol spur to enter the Pavlodar trunk line at Karakoin, some 1100 km (690 miles) to the South of the Pavlodar Refinery. From there, the oil flows in a southern direction to the Shimkent Refinery which supplies the Almaty Region with oil products. The section between Pavlodar and Karakoin is idle most of the time, as is the southern continuation of the line from the Shimkent Refinery to Uzbekistan.

Given its original mission to serve as a supply line conveying Siberian crudes to the Pavlodar and Shimkent Refineries, and to provide additional crudes to Uzbekistan, the Pavlodar line is tapered from North to South. From the Russian border to the Pavlodar refinery (capacity of 160,000 barrels per day), the line has a diameter of 1020 mm (40 inches). From there to the Shimkent Refinery in the far South of Kazakhstan, the line diameter is 820 mm (32 inches), and from there to the southern border it is 720 mm or 28 inches.

With a viscosity of about 10 Centistokes at 20 degrees Centigrade and a pour point of minus 35 degrees Centigrade (minus 31 degrees Fahrenheit), plus a density of 840 kg/liter (37 degrees API), this is an ideal crude to pump through pipelines, except for its slightly elevated sulfur.

content of 0.55 percent. The Kumkol crude, by contrast, is fairly viscous (26 Centistokes) and has a pour point well above freezing, at 13 degrees Centigrade (55 degrees Fahrenheit). In fact

the second spur of the dual feeder from Kumkol served to pump Siberian crude oil to Kumkol to mix it with Kumkol oil to reduce the viscosity and the pour point of the mixture. Today, Kumkol crude is being shipped without the addition of Siberian crude oil, through the simple expedient of adding drag-reducing agents.

APPENDIX C

Steering Committee Minutes

MINUTES OF INAUGURAL MEETING

Kaergeldy Kabyldin ("K") Representative of the Ministry of Energy and Natural Resources and Designated Daily Contact Person for Pipeline Tariff Study, Assistant to Deputy Minister A S Lobaev

Ferdinat Mamonov ("Mo") Chief Pipeline Engineer, Ministry of Energy and Natural Resources

Michael Biddison ("B") Regional Manager, Hagler Bailly Consulting, Inc

Helmut Merklein ("Me") Pipeline Consultant, Merklein and Associates, Inc

Svetlana Ivanova Technical Assistant, Hagler Bailly Consulting, Inc

Talgat Seitkazan Technical Assistant, USAID

April 11, 1997

The meeting began with Michael Biddison submitting to Mr Kabyldin the following documents

A listing of data needs for the pipeline tariff study,

A confidentiality agreement, and

A transmittal letter, addressed to Mr Lobaev

These documents became the topic of discussion after K had read them B opened the discussion with the following introductory remarks

B There have been many changes since last meeting, notably in the Oil and Gas Sector which remains in transition at this time We hope that you and Mr Lobaev will remain in your present positions and are looking forward to working with you in developing a pipeline tariff methodology for Kazakhstan

We hear that a joint-stock pipeline company has been created which will pursue commercial operations under state ownership, perhaps the equivalent to Kazakhoil We are prepared to work with you and with appropriate pipeline groups and hope to form a Steering Committee on pipeline tariffs

K We are also looking forward to working with you Prior to starting work, though, we would like for you to submit a more detailed work program The formation and composition of the Steering Committee comes later We can start next week with a first meeting of the Steering Committee We would need to rent office space for our meeting

B Merklein just arrived He will be in Almaty until April 25 We are ready to start right

away. The list of data needs for the pipeline tariff study is just a starter. It could be used as a working paper at the first Steering Committee meeting. We felt that the detailed work program should be developed by the full Steering Committee.

K: There will be no problems as far as data are concerned. Regarding economic and financial data, we are prepared to provide everything you have asked for. However, your request for physical data seems to be too detailed.

Me: The more data we have, the better the resulting tariff methodology and the tariffs themselves.

K: Agreed, but why all these details regarding location? Why do you need to know details regarding pump stations, precise locations of the pipeline, etc.? We have, of course, detailed maps, but they are for official use only. It should suffice for you to know that the pipeline has a certain diameter and capacity, and that it generally runs between points A and B.

B: OK, you must of course feel comfortable with the data you can release. We agree that, as far as physical location, a more general set of data may suffice.

K: So we are agreed on this point.

At this point Mr. Mamonov arrives and is briefed regarding the foregoing discussion by K.

K: To summarize, market and financial data are no problem. Regarding the Price Waterhouse study you requested, it contains commercial information that you should not be privy to. However, the study does contain a section dealing with model tariff calculations, and that section will be made available to you. In any event, too many data is more confusing than helpful.

Now, as to the objectives of the proposed pipeline tariff study, there have indeed been many changes in the Oil and Gas Sector. As mentioned, we now have a National Oil and Gas Company, engaged in the exploration for and production of oil and gas, the Kazakh Oil Company.

On April 2, a similar decree created the Kazakhstan Oil Pipeline Company. To deal with the development of a rational pipeline tariff methodology, we plan to invite 2-3 industry specialists to participate in deliberations of the Steering Committee on pipeline tariffs. K then proceeded to list Ministries and Agencies that should also be represented on the Steering Committee. Mentioned, among others, were the Anti-Monopoly Committee of the Ministry of Economy (in charge of rate setting), the Ministry of Energy and Natural Resources, the Southern Pipeline, the Pavlodar Pipeline, and others, all this subject to confirmation later.

B: We plan to work with the Kazakhstan Petroleum Association ("KPA"). We intend to inform them about these plans and to ask them to nominate 3 representatives to the Steering Committee.

K: That may present us with a problem. There exists a built-in conflict between producers and oil transporters. I would prefer not to have foreign producers on the Steering Group.

B Excluding the foreign producers would not be a good idea. Among other things, this would be in violation of the principles enunciated by Mr. Lobaev, which have caused the US Ambassador to make certain representations to industry groups. I see no danger in their being on the Steering Committee. Remember, we will also be on the group, where we will be representing you.

K Who is that KPA?

B A non-profit organization representing the foreign petroleum companies and chartered under the laws of Kazakhstan.

K There will be ongoing disputes with them on board.

B There won't be, I will personally vouch for that.

Mo These petroleum people have too much influence. We need neutral participants on the Steering Committee, and we asked you to participate in its work on that basis. Besides, we already have a working methodology. Still, we are prepared to give you all the data you need, but of course, all final decisions will be ours.

B We will take our orders from the Government, and in particular from Mr. Lobaev, no question on that. Still, we are firm in our belief that three foreign producers should be represented on the Steering Committee. If you include industry representation you will find industry generally to be supportive of the emerging methodology. These people must be part of the process.

Mo Why Western methodologies? Most oil shipments will be local. We have been dealing with this on a daily basis for the last three years.

B Let us not kid ourselves. You need the good will and the confidence of the oil and gas investors, and to achieve it, you must design and implement a methodology that will be accepted in the international petroleum industry. I am adamant on this point. Most of the major oil companies have a greater budget than most Governments, and you are competing with many other countries in attracting their investment. You cannot afford to ignore their experience and their sensitivities.

K With reference to the work program, the work should begin by doing a survey of international practices of working pipeline methodologies. To save time, parallel work may be begun on the Southern Pipeline to determine the data needs for that line. This would include the definition of costs that should be admitted into the rate base and an appropriate accounting system.

While work is in progress on determining an appropriate tariff methodology, other phases of the pipeline study could be discussed. This would include software design to calculate tariffs, to forecast future loads, etc. This should be done in coordination with industry representatives. From this will emerge a proposal for a specific methodology suitable for Kazakhstan, for submission to the Government.

B Agreed.

K With this in mind, please submit an expanded work program that should include more

detail and specific deadlines

B How about accounting standards?

K You should suggest an accounting methodology as well, but the accounting standards must comply with the accounting system currently in existence under Kazakhstan laws. You may be better off by starting with personnel requirements.

B Agreed. We have funding available to train personnel.

K That is OK with us, but the training must be practical and acceptable to us. No theoretical courses.

The rest of the meeting served the practical purpose of setting short-term deadlines for immediate tasks. These include:

Submission of an expanded work plan, in English and in Russian, by COB Wednesday, April 16

Date of first Steering Committee Meeting on Monday, April 21

Follow-up steps

There was mention of an in-house study, recently completed, dealing with a proposed pipeline tariff methodology. The author of the study is a Mr. Voronin. Try to get a copy.

Get copy of tariff methodology section of Price Waterhouse study.

Get copy of April 2 Decree creating Kazakhstan Oil Pipeline Company.

MINUTES

OF FOLLOW-UP TO INAUGURAL MEETING

Kaergeldy Kabyldin, Representative of the Ministry of Energy and Natural Resources and Designated Daily Contact Person for Pipeline Tariff Study, Assistant to Deputy Minister A. S. Lobaev

| | |
|------------------|--|
| Michael Biddison | Regional Manager, Hagler Bailly Consulting, Inc |
| Helmut Merklein | Pipeline Consultant, Merklein and Associates, Inc |
| Svetlana Ivanova | Technical Assistant, Hagler Bailly Consulting, Inc |

April 16, 1997

The meeting began with Michael Biddison submitting to Mr. Kabyldin a proposed agenda for the founding meeting of the Pipeline Tariff Steering Committee (the "Steering Committee") and a

document entitled Objectives and Long-Term Work Plan, Pipeline Tariff Steering Committee. This document had been prepared in response to Kabyldin's request. The work plan contained three sections, prepared for discussion at the Steering Committee. First, a Statement of Intent outlining the need for the planned overhaul of the Kazakhstan pipeline tariff methodology and the principal characteristics of the methodology to be developed. Second, a rough outline of proposed Committee operating procedures. And third, some of the Committee's expected subtasks and an overall time frame that envisioned a tentative closing date for the development of the tariff methodology by December 31, 1997.

Following a question by Kabyldin and clarification by Biddison regarding the Confidentiality Agreement, which otherwise he and Lobaev found acceptable, the discussion turned to the forthcoming April 21/22 founding meeting of the Steering Committee. Kabyldin said he would send out a notice to invite representatives of the Ministries of Finance and Economy and to the Chief Experts of the Southern Pipeline and the Pavlodar Pipeline. Kabyldin apologized for not being able to attend the meeting himself, since he had to be in Moscow to finalize the CPC Pipeline Agreement. He said he would be represented by Ms. Zakirova, but he indicated that Mr. Lobaev would be present to chair the meeting.

Commenting on the proposed agenda which included a short presentation by Biddison on pipeline regulations in the United States and by Merklein on tariff methodologies in selected countries, Kabyldin indicated his agreement but noted that a second day should be added to give the Kazakhstan Officials an opportunity to present the current status of their tariff methodology. That was agreed to by Biddison. The rest of the brief meeting was devoted to logistical details of the forthcoming meeting. Of note is the name of the representative of the Southern Pipeline, Aktau, which was called in while we were at the meeting. Ms. Anna Vinogradova, Senior Specialist on Pipeline Tariffs. Biddison committed to write a draft letter of invitation to the Kazakhstan Petroleum Association inviting three KPA representatives to become members of the Steering Committee. The letter was to be written for Mr. Lobaev's signature, for delivery by Thursday.

MINUTES OF FORMAL STEERING COMMITTEE MEETINGS

MINUTES OF FIRST MEETING
PIPELINE TARIFF STEERING COMMITTEE
APRIL 21/22, 1997

Day One, April 21

First official meeting of Pipeline Tariff Steering Committee The meeting was opened by Mr Lobaev who had been appointed First Vice President of the newly created Kazakh Oil Pipeline Company The meeting opened with a brief introduction of the Steering Committee members

Lobaev Address

Mr Lobaev opened the meeting by announcing that a National Oil Pipeline Company, KazakNefteProvod, had been established, with Mr Kaynulla Z KASENOV as President and himself as First Vice President (probably what we would call Executive Vice President)

Mr Lobaev said that he would be responsible for tariffs, contracting, expansion, modernization, transportation and technical operations He also mentioned that the responsibility for running KazakNefteProvod no longer rests with the Ministry of Energy and Natural Resources

According to Mr Lobaev, the National Oil Pipeline Company will be a closed-type joint-stock company As a matter of corporate philosophy, the Company will look to the oil suppliers as the principal shareholders, and they will have a first-call transportation right, at a profit Mr Lobaev said that he intends to introduce a new and unified methodology in tariff setting, with the following characteristics

this will be a cost-recovery system with reasonable tariffs for both the transporter and the pipeline user,
there will be a new accounting procedure,
there will be transparency,
the pipeline activities will be public,
there will be Western-style tariffs,
every supplier will know the costs,
the pipeline system will be fully integrated, no South or East Companies, just one pipeline system,
actual tariffs will be set by the Anti-Monopoly Committee

As to accounting, Mr Lobaev reminded his audience that all Kazakh enterprises are currently requested to introduce a newly approved accounting system He stressed that he intended to introduce that system from the start He spoke of the need for tariff zones and for transparency and public exposure Secret tariff calculations, as in the past, will not be tolerated

Mr Lobaev stressed that the North-American tariff model is the most acceptable one to suit Kazakhstan's current situation He pointed out that the Kazakh tariff model, based on the Russian system, as they had used it till now, was not all that different from the American one in

terms of results achieved. If one explicitly accounted for interest costs, depreciation, and allowable profits, the historical Kazakh rate of return of 35% would be close to the Western standard of 15%.

Mike Biddison Address

Legislative-Regulatory Hierarchy

The US has two separate pipeline regulatory systems: Federal and State.

Federal System for shipments across State lines, "Interstate Shipments"

State Systems for oil and gas produced and consumed within a State, "Intrastate Shipments"

Interstate shipments are regulated by an independent regulatory body, the Federal Energy Regulatory Commission, located in Washington, DC.

Intrastate shipments are regulated by individual State Regulatory Commissions of the 50 US States.

Many States have significant volumes of intrastate shipments, such as Texas, Louisiana, New Mexico, California, and others.

We will focus our attention on the US federal system.

Whether Federal or State, regulations are not created in a vacuum. The power to issue regulations is derived from laws which, in turn, are a reflection of the country's policies. A typical legal/regulatory hierarchy, in the US or elsewhere, should look as follows:

Oil and Gas Policies

Oil and Gas Laws and Legislation

Oil and Gas Rules and Regulation

Oil and Gas Contracts and Agreements

Oil and Gas Policies, in the United States, reflect the will of the current and past Presidents and of the US Congress and, through them, the will of the people. The policies are broad general guidelines, the capstone for setting overall government objectives such as infrastructure development and the attraction of investment in the oil and gas sector. These policies are established at the highest level of government.

Oil and Gas Laws and Legislation prescribe the framework of government authority in the sector. Laws (bills at that time) are formulated by the US Congress. They become operative upon the signature of the President. They give a concrete form to the country's oil and gas policies, and

they enable regulatory agencies to develop and adopt rules and regulations in compliance with the objectives and limitations of power enshrined in the laws

Oil and Gas Rules and Regulations are adopted and enforced by the Federal Energy Regulatory Agency ("FERC") With regard to interstate pipeline regulation, these rules cover the mechanics for the management of operations and the setting of tariffs for major pipelines The rules and regulations are very specific, but they retain a significant measure of flexibility that the FERC can use to adjust to changing circumstances by modifying their regulations The design and implementation of such modifications do not require the difficult and time-consuming process of introducing new legislation as long as the newly issued rules and regulations fall within the framework of existing oil and gas laws

Oil and Gas Contracts and Agreements are negotiated and signed by private parties in the oil and gas sector and are based on accepted industry practices and standards

In our discussions with various governments, especially in NIS Countries, we find that there is considerable apprehension regarding the independent status of regulatory agencies To many officials in this region, the term "independent" denotes unlimited power The truth is that the regulatory agencies in the United States, including FERC, are subject to at least three levels of power limitations legal, budgetary, and judicial

Legal FERC must operate within the constraints imposed upon it by the President and the US Congress, in the form of the laws that define the limits of its power

Budgetary The Agency does not set its own budget It must operate within the annual budget set as part of the overall budgetary process of the government That feature constrains the growth of the agency and keeps it at the size considered appropriate for the task defined under the law

Judicial If private parties feel that a FERC ruling oversteps the Agency's legislated authority, they have the right to challenge it in court This is a routine occurrence in the United States where the courts have on various occasions ruled against the FERC

Regulatory Environment

Independence, in terms of the regulatory agencies in the United States, means that the top decision makers are appointed by the Head of Government and confirmed by a legislative body (in the case of the FERC, by the President and the Senate) These regulatory officials have terms of office (FERC 5 years) during which time they cannot be removed, except for criminal

violations, and then only through an impeachment process that has gone through the judicial system

Regulatory officials cannot be removed from office merely because a ruling, duly issued in compliance with their enabling laws, displeases the President. For example, if the President wanted to maintain tariffs at current levels, he could not dismiss FERC officials who voted for an increase in the tariff, so long as that increase is transparent and in accordance with the law. In fact, in accordance with elaborate ex parte laws the President or his representatives are not even allowed to discuss tariff levels with FERC officials.

There followed a discussion of FERC's responsibilities and its composition.

Responsibilities

Adoption and enforcement of rules and regulations regarding safety and tariffs of interstate pipelines

Conservation of natural resources

Collection and maintenance of financial and physical records of pipeline companies

Issuance of pipeline construction and operating licenses and permits

Collection of licensing and permitting fees

Publication of requests from pipeline companies regarding changes in pipeline tariffs

Holding of public hearings, with input from outside interested parties including consumer representatives, and rate determinations in such public hearings

FERC Composition

Five members serving five years on staggered terms

Three members of dominant party, two members of minority party (US has two-party system)

One Member is designated Chairman and so confirmed by the Senate

Strict conflict-of-interest provisions ensure that the members will not

use their public office for private gains,

give preferential treatment to any person or company,

impede government efficiency or economy,

make decisions outside public channels,

act in such a way as to adversely affect the confidence of the public in the integrity of the government

In addition to his regulatory role which he shares equally with the other Commissioners, the

Chairman is responsible for the executive and administrative procedures and operation of the FERC, including

the selection and appointment of FERC staff,
the supervision of personnel employed by or assigned to FERC, with the exception of a limited number of personal staff assigned directly to each Commissioner,
the procurement of supplies and consultants in accordance with the law

Actual Tariffs

Cost-recovery tariffs mean tariffs that will provide the investor of the pipeline the recovery of all invested capital, reimbursement for all operating and maintenance expenses, and a reasonable rate of return on his investment. In the United States, where tariff regulation has undergone considerable development in the recent past, it also means that the user of the pipeline needs to pay only for those services he actually uses. This is assured through a process called "unbundling"

As a general rule, US pipelines no longer purchase oil or gas at the line inlet to sell it at the outlet. Through a process called free access, pipelines simply make space available to any user (on a firm or stand-by basis), and their rates only reflect the charges incurred, plus profits, of transporting the commodity on behalf of the user.

To account for its costs, a pipeline needs to know which costs are properly chargeable to the tariff, and under what accounting rules. Much of the work of this Committee will deal with these two issues. As a general principle, only those costs directly related to the service provided under the pipeline's operating license are allowable as a cost. This places a limit, for example, to the activities of a domestic pipeline wishing to explore foreign markets or ventures. It also restrains what the Commission might consider unneeded advertising which, typically, will be subject to a ceiling. As to accounting rules, things such as work in progress, depreciation, the establishment of mandated financial reserves, and others are issues this Committee will need to address, not to mention the accounting for unbundled activities such as gathering, storage, and direct deliveries to major customers, to name a few.

Why Introduce a Market Oriented Regulatory Tariff System in Kazakhstan?

The current pipeline system in Kazakhstan reflects user patterns that were relevant under the integrated energy system of the former Soviet Union. With Kazakhstan now operating as an independent energy unit, its pipeline system needs to be rebalanced and upgraded. In addition, the presence of foreign producers who will be users of the Kazakhstan pipeline system mandates

the establishment of an operating and tariff methodology that will inspire confidence. This will be true for domestic oil and gas transport as well as exports.

The international petroleum industry has settled and become comfortable with a system that has the following characteristics:

The tariffs are cost-recovery tariffs, providing for full recovery of reasonable operating and capital costs and for an equitable rate of return on investment.

Tariffs are transparent and objective. Suggested tariffs are developed by pipeline companies and submitted for approval at public hearings to an independent regulatory body, using a published accounting system that meets international standards. The methodology in arriving at tariffs will be such that different parties to the system will come up with very similar rates if they do the calculations separately.

The system will be non-political. Cross-industry subsidies, cross-line subsidies, or social subsidies are not permitted to enter the rate base. To the extent that some subsidies (especially social subsidies) are politically or otherwise unavoidable, they will have to be administered through a separate and explicit subsidy program, rather than through hidden or overt increases in pipeline rates.

Substantial investments will be needed in the Kazakhstan pipeline system to bring it up to international standards and to expand it to accommodate expected changes in transport patterns in domestic markets and substantial increases in export capacities. The Government of Kazakhstan will be competing with many other oil and gas producing and oil and gas transit nations to attract the needed capital. Those nations that are capable of achieving the transition to international operating and financial regimes will succeed in attracting the required capital.

Helmut Merklein Address

General Remarks

There is general recognition throughout the world that a pipeline is a natural monopoly with power to impose prices and provide profits that exceed competitive levels.

There are two ways to deal with this problem:

Regulate prices (or tariffs) and the size of a monopolistic enterprise, and/or
Devise market mechanisms that increase the competitive environment.

In the US, both mechanisms are being used. This was the topic presented by Mike Biddison. For the rest of the world, two major events are unfolding at the present time.

First the extraordinary US effort, which is well on its way toward completion, to use the regulatory process as a means of injecting greater competitiveness in otherwise monopolistic markets has not gone unnoticed. The benefit to the various players in the markets, including the consumer, are real and by now historically verifiable. For example, during the heyday of US price controls on natural gas in the late 1970's and early 1980's, there existed a narrow sliver of uncontrolled gas (Section 205 gas, if memory serves correctly) that was selling at \$10 per MCF at the wellhead (roughly \$350 per thousand cubic meters), while prices of other types of regulated gas were so depressed, that otherwise perfectly sound gas wells had to be shut down and, in some cases, permanently abandoned, with irreparable losses of natural gas resources to the US economy. Today, natural gas is selling at prices, adjusted for inflation, that are well below those of the energy crisis following the US embargo of 1974. The World Bank and other generally disinterested and well-meaning institutions are now openly advocating the use of similar market-oriented institutions including, for example, the establishment of independent regulatory agencies empowered to set tariffs in accordance with carefully defined concepts and to introduce competition wherever possible.

Many, but not all, Western nations have begun to see the advantage of greater competition and are in the process of introducing competition in their otherwise monopolistic markets. We will be looking at some of these in a little while.

Second, the area with the largest gas reserves by far, the former Soviet Union, was using a pricing methodology that left pipelines with insufficient cash flows to provide proper maintenance and that led to a deterioration of their transmission system. The system used centrally directed capital allocations at artificially depressed prices rather than the automatic feedback system that is implied in market economies which makes capital available in accordance with positive pricing signals. Insufficient cash flow remains a problem to this day, for reasons this Committee will need to explore if it hopes to come up with workable alternatives.

Antimonopoly Policies in Two Selected Countries

As mentioned, the advent of regulation designed to enhance competition rather than to constrain monopolies is a relatively recent phenomenon in national energy markets. The current status of energy monopoly regulation of this type in two nations with significant natural gas pipeline sectors is briefly described in the text that follows.

Germany

In Germany, all gas transportation is in private hands. There is no state gas company and there is no private company with a dominant role over the entire market such as British Gas in the United Kingdom. In what used to be West Germany, about 27% of domestic consumption was met from German gas production. The rest was imported, with 80% of the imports carried out by three companies, among them Ruhrgas which is by far the largest importer and transporter of natural gas in Germany.

Regulation of the 15 long-distance transporters in Germany is light. Any company may engage in gas transportation, provided it applies for a license. Given Germany's overriding concern with supply security at reasonable prices, the licensing system is intended to protect the public as a whole, rather than the interest of particular firms. Once established, a company will be exposed to very little regulatory direction regarding prices. Germany does allow third-party access to trunklines, but not as liberally as, for example, the United States.

The United Kingdom

No country has made more sweeping changes in the recent past regarding its natural gas market structure than the United Kingdom. Its gas market was privatized in 1986. Of the many changes introduced in the gas market of the United Kingdom is the advent of oil companies as sellers of the gas they produce from the North Sea and which they transport on a carrier basis through the pipeline network of British Gas ("BG"). The first contract under this scenario was signed in February of 1990, providing gas through pipelines owned by BG to a Scottish manufacturing plant. The supplier of the gas is Quadrant Gas, a Shell-Esso joint venture. Quadrant pays a distance-related tariff to have the gas transported.

Under a revision of the Gas Act of 1986, BG is required to publish the prices to be charged and other conditions of supply for gas delivered to major customers under separate supply agreements. On carriage gas, the company must publish general guidelines for companies wishing to have gas carried through the BG pipeline network, giving examples of the carriage charge the company would expect to be paid. This feature is intended to promote price transparency which, of course, has a bearing on the entry of new parties into the market. It was felt by the regulatory authority that a competitor must be able to work out the prospects for sustained profits before he decides to take the risk of entering the market. Without this information, network access is deemed to be pointless.

Other Considerations

Greater competition means reducing charges to recover costs only for services delivered (unbundling). It means operating any pipeline only to the extent that the revenues it generates justify the operation. It means no cross-subsidization.

The new system also needs a new accounting system that permits the development of transparent financial records, including balance sheets, income statements, and flow-of-funds statements. One of the more daunting tasks faced by the Steering Committee is the valuation of the current

pipeline assets. There are at least three valuation methods, none applicable by itself to the Kazakhstan pipeline system. These are:

Discounted Present Value of Future Income Under this criterion, and assuming that business continues as now, the pipeline system would have a negative value since the future income stream would be negative under Western standards, taking into consideration depreciation and interest charges as well as badly needed increases in operation and maintenance expenses.

Historical Costs Net of Depreciation Under this criterion, the value of the pipeline system would likely be too low, since the original capital charges under the old Soviet system probably did not consider capital costs and other expenses. Besides, this criterion would require the conversion of the original currency, Rubles, into Tenge which, during the past transition period and hyperinflation in Russia, would probably be subject to substantial inaccuracy.

Replacement Costs This criterion would yield an unacceptably high value, since the system is functional and can be brought to needed capacity at substantially less than gross roots construction costs.

On the issue of subsidies, that is entirely a Kazakhstan domestic issue, where foreign participants or advisors have no position. Yet, in accordance with Western standards, subsidies must not be charged to the rate base which must reflect true transportation costs. Subsidies, if they are needed for political or humanitarian reasons, should be administered by a separate program, probably by a different Government Agency such as a Ministry of Finance or Ministry of Economy. If subsidies are charged to the tariff rate base, thereby inflating tariffs beyond cost recovery, foreign investors will view this as a disincentive to invest.

General Discussion

Following the remarks by Mr. Lobaev, Biddison and Merklein, a general discussion ensued that brought out various concerns and issues held by the Kazakhstan members of the Steering Committee. One of the dominant themes was the existence and justification of subsidies. It is clear from these discussions that the Western and current Kazakhstan definition of subsidies are at variance. Another topic, peripheral to the pipeline tariff issue itself but of importance to the Kazakhstan Committee members, was the problem of finding time and, if possible, compensation for the additional load imposed on them with this pipeline tariff work. There was general agreement regarding the need for a new accounting system that, among other things, would permit a proper definition and use of depreciation. The enforcement of collections for payments due for oil or gas transmission also seemed a topic of considerable weight.

The meeting adjourned for the day at 6:00 PM and the entire group proceeded to a Chinese restaurant for a convivial dinner with many toasts to, among other things, the success of the Steering Committee and the newly created KazakhNefteProvod.

Tue Apr 22 - Continuation of Steering Committee Meeting

Two new Steering Committee members showed up on the second day. They were Ms. Klara Rakmatova of the Information and Analytical Center which is attached and gives advice to the Office of the President, and Bob Williams, Manager of Regulatory Affairs at TengisChevrOil.

and former manager of a pipeline and terminal facility in Alaska

The first half of the meeting was dedicated to presentations by Kazakhstan Committee members

Presentation by Kazakhstan Committee Members

There are three independent pipeline systems within Kazakhstan. This is why the oil in Kazakhstan has transportation limits as the lines are not interconnected. For this reason, it is necessary to have oil swaps with Russia. All the pipelines are state property and not currently subject to privatization.

1) The Western Kazakhstan Pipeline System (operated by YuzNefteProvod) is the oldest system and runs from Uzen to Atyrau to Samara. This line is approximately 1,200 km long and has a capacity of 10.5 Million Tonnes per Annum (MMTA). The portion of the line from Tengiz to Grozhny will be transferred to CPC. The Uzen oil entering the system has a pour point of 3 degrees Celsius and thus the line needs heating. This line was commissioned in the mid-1970's. Typically, the life of a pipeline is estimated to be 25-30 years. This pipeline has many problems

- it is old,
- it has no telecommunications system
- a portion of the line is currently under water
- the Caspian Sea level is continuing to rise

When determining the level of tariffs, one must consider the state of the lines, required investments, depreciation, and social support needed for employees.

2) The second line under discussion is the Zhanazol-Kenkiyak-Orsk line (Aktyubinsk Region). There are two lines in this system (350mm and 500mm), with a length of 400 km and a capacity of 6.5 MMTA. This line was originally built to supply crude from the Aktyubinsk Region to the Orsk refinery. Currently, the line carries 2.5 MMTA of crude. This pipeline will never be fully operational because of the limitations of the Orsk refinery. The Orsk refinery has old processing equipment and not only lacks the technology to process the Aktyubinsk area crude but also has difficulty in transporting product from the refinery.

In addition to the 2.5 MMTA which are being pumped to Orsk from the Aktyubinsk region, another 360 MTA are shipped from Zhanazol directly to Middle Bestamak (180 km). From Middle Bestamak, crude is sent by rail to Chimkent.

3) The third line is the Eastern Pipeline from Omsk to Pavlodar to Chimkent to Chardzhou (through Uzbekistan to Turkmenistan). Also included in this system are two spur lines to the Kumkol Field. Due to the high viscosity of the Kumkol crude, it was necessary for one line to supply Western Siberian crude as a diluent (30-50%) to Kumkol for mixing. The blend would be returned to the main line. The capacity of the line from Kumkol is 20 MMTA. The design capacity of the entire system was based on supplying crude to the Pavlodar refinery, the Chimkent refinery and on to Uzbekistan and Turkmenistan to the Chardzhou refinery. Today, Uzbekistan and Turkmenistan no longer require Russian crude, thus the throughput in the line system has been reduced by 1/3 of its previous volume including the total shutdown of the line beyond Chimkent. Up until 1992, Kazakhstan received 12 MMTA of Western Siberian crude.

Now, Kazakhstan is only receiving 3 MMTA of crude from Western Siberia all of which is refined at Pavlodar. For this reason, the 1000 km pipeline between Pavlodar and Karakoin, where the Kumkol spur line meets the Eastern Pipeline, is idle. As a result of the loss of Western Siberian crude south of Pavlodar, the pipeline company is now using friction-reducing agents to facilitate the pumping of Kumkol crude. The loss of Western Siberian crude and the resulting need to use friction-reducing agents has caused operations costs to increase.

The 1000 mm line from Omsk to Pavlodar has a capacity of 40 MMTA and is only pumping 3 MMTA to Pavlodar. The 1000 km line from Pavlodar to Karakoin has a capacity of 23 MMTA and is currently idle. The line from Kumkol to Karakoin to Chimkent has a capacity of 23 MMTA and is currently only pumping 2.5 MMTA. The original plan was to ship 13 MMTA to Pavlodar and 10 MMTA to Chimkent. Today, the company is only shipping 3 MMTA to each. Of the 3 MMTA refined at Chimkent, 360 MTA is from Aktyubinsk.

Earlier this year, the Pavlodar Refinery was shut down for 3 months, and the pipeline lost 900 MTA of transported volumes.

Today, because of the low throughput through some lines and non-operation of others, we must focus on the safety and environmental issues associated with these lines.

There are also two new global pipeline projects in Kazakhstan, CPC and the proposed line connecting Kumkol to Western Kazakhstan. In an economic assessment conducted by Price Waterhouse, it was concluded that it is too early to construct the proposed line between Western Kazakhstan and Kumkol since more oil is needed to justify the project and gas privatization should come first.

When determining a tariff methodology, we should also take into account current developments on the CPC line.

Non-payment of tariffs is a major problem. Aktyubinsk is the largest non-payer and owes about 2,000,000 Tenge. Others are paying with commodities rather than currency. Food may be delivered to employees rather than currency. As a result of all the bartering, it became necessary to create a new supply group to distribute commodities to remote areas.

Steering Committee Guidance

After the lunch break, Mike Biddison asked for guidance from the Steering Committee as regards issues of immediate importance to the Group and the work that needs to be done. Bob Williams responded with the suggestion that the Committee needed a vision of what the tariff methodology looked like. To develop such a vision, it was suggested that all relevant issues be listed and discussed, including social costs, maintenance costs, accounting systems, etc. This was done with the aid of a series of clip charts that are reproduced in the following.

ISSUES TO BE CONSIDERED BY THE STEERING COMMITTEE

Data Collection including

Physical Characteristics of the Pipeline (KazakhNefteProvod)

1 Volumes (KazakhOil, Munaigas, and KazakhNefteProvod,)

Historical 1991

- Present 1997
- Forecast 2005
- 2 Tariffs (Methodology and Values, KazakhOil and KazakhNefteProvod)
 - Historical
 - Present
 - Forecast
 - 3 Historical Costs
 - Capital Costs
 - Operating Costs
 - 4 System or Plan of Accounts (Future)
- Ability of the Pipeline to Recover Costs
 - Environmental
 - Safety
 - Communications
 - Rehabilitation
- Gravity Banks in Pipelines
 - High Quality/Low Quality Oil
- Regulatory Issues
 - Payment Enforcement (Penalties)
 - Other Agencies with Jurisdiction of Pipeline (Local, State)
- Accounting/Auditing
 - Historical
 - Going-Forward Basis
- Tariff Elements
 - Operations and Maintenance (Including Quality Issues)
 - Administration and General Expenditures
 - Financing
 - Subsidies
 - Return on Investment
 - Capital
 - Depreciation
 - Taxes
 - Norms and Standards
- List of International Tariff Elements (Foreign Companies)

DELIVERABLES

Data Gathering

- 1 Actual Costs and Tariffs in
 - a) Kazakhstan
 - b) Three Other Countries
- 2 Tariff Methodology
 - a) Kazakhstan
 - b) Three Other Countries
- 3 Comparison of Tariffs on Tonne/Km Basis

Overall Responsibilities and Deadlines

Hagler Bailly will be the data collection point The International Oil Companies will provide data and methodology Report and data due by June 2

Meeting was adjourned at 4 30 PM Next Meeting Thursday, June 5 same place

MINUTES OF SECOND MEETING
PIPELINE TARIFF STEERING COMMITTEE
JUNE 5/6, 1997

THURSDAY JUNE 5

Mike Biddison Welcoming Remarks

Chairman Lobaev was out of town and, therefore, unable to attend the meeting He was represented by Mr Kabyldin, Vice President of KazNefteProvod (Kazakhstan Pipeline Company) In Lobaev's absence, Vice Chairman Mike Biddison gave the welcoming remarks Mr Biddison presented Mr Lobaev's apologies for the latter's absence, and he invited Mr Kabyldin to join in the opening remarks

Mr Kabyldin's Remarks

This being Kabyldin's first attendance at the Steering Committee Meeting (he was in Moscow during the Committee's first meeting to negotiate the CSC Agreement), he introduced himself and proceeded to point out that the development of an internationally acceptable tariff methodology was of great importance to Kazakhstan He reminded his audience that the oil and

gas pipeline companies in Kazakhstan had been developing and administering their own tariff methodologies since 1991, and that the companies depended on these tariffs as their only source of income. These methodologies, he suggested, have by now become obsolete and needed reviewing and changing. Some of the important characteristics regarding the new tariffs were an objective methodology that would incorporate the principle of cost recovery and a fair rate of return.

Mr. Kabyldin expressed his satisfaction in having industry representatives on the Steering Committee. These, for the most part prospective shippers, would complement the representation of Kazakh Oil Pipeline which as of a few weeks ago was the exclusive owner of all oil pipeline assets in Kazakhstan. Mr. Kabyldin reiterated that tariff-setting procedures would be transparent and known to the public. He expressed his desire to work with the foreign producers.

Biddison Housekeeping Matters

Because many of the participants at this meeting were new, Mr. Biddison invited those present to spend a minute or two in introducing themselves. This was especially important for the Kazakh delegates who needed to get acquainted with several new foreign oil company representatives. Mr. Lobaev, upon Hagler Bailly's request, had agreed that additional foreign company representatives could be present at the Steering Committee meetings, but with observer status, with active participation restricted to three official KPA representatives as originally agreed on.

Presentation by Mr. Bob Batt

Dr. Batt had earlier written a USAID-financed analysis of the Kazakhstan pipeline industry, working as a subcontractor of Booze, Allen, Hamilton. He began by pointing out that, in his view, the existing Kazakh pipeline tariff structure was inadequate because it was still burdened with some of the old Soviet-style methodology. For example, the tariff system, among other things, provided for the establishment of a "profit margin" on Operating and Maintenance (O&M) costs. To the extent that Western pricing methodologies deal with margins (or mark-ups), these are added to the cost of goods sold. The old Soviet system did not include a return on invested capital, which in the case of the extremely capital-intensive pipeline industry, would be viewed as a major deficiency in the West. As a general rule, Dr. Batt said, mark-ups have their place in Western economies, but they are generally limited to small retail businesses. They are wholly inadequate in a complex and capital-intensive industry such as the pipeline industry.

Dr. Batt pointed out that, in theory, one could use the mark-up procedure to establish a rate of return on invested capital, but such a procedure would be difficult and somewhat arbitrary. In

any event, Dr Batt stressed that the rate of return to the investor must be viewed as an important component of any market-oriented tariff methodology

As a second problem, Dr Batt pointed out that the accounting system in Kazakhstan did not reflect the true costs of pipeline operations. He acknowledged that a new accounting system was being introduced for all of Kazakhstan. This new accounting system, according to Dr Batt, was a big improvement over the past, but there are still problem areas for pipeline accounting even under the new system. Major improvements over the old system include an accrual mechanism and a better and more clearly delineated balance sheet and profit and loss statement, the concept of capital accounts, and others. On the weak side, guidelines for the new accounting system are vague, a rule-making process remains to be defined, the existing accounting board, while it has the power to do so, nevertheless has not gotten into a rule-making mode. Another weakness of the system is that certain rules are still set by outsiders. For example, some of the old normative rules are still in existence, and these rules lack flexibility, there is no definition of what constitute "necessary and proper" pipeline expenditures. All of these problems are compounded by the fact that, for the most part, the pipelines operate below capacity.

Dr Batt proceeded to point out that the new tariff methodology must have the flexibility to handle innovative systems and technologies. His principal concern was the need to deal with the costs of service, which need proper definition. For example, social costs that may or may not be legitimate pipeline costs were included in the rate base. These needed careful review. While, with some exceptions, direct pipeline O&M costs are by and large comparable to those in the West, indirect or administrative costs need close examination both as regards their applicability and their allocation to specific pipelines.

The overall return, according to Dr Batt, is the return to both shareholders and debt holders. In Kazakhstan, there is no true market indicator of either of these terms, but some estimate is possible, since the Government of Kazakhstan has recently issued (short-term) debt in world markets and the market has set a rate on that debt. This will go a long way in establishing a country-risk premium. Individual investors may add additional premiums to reflect their specific risk perceptions. Such an approach may not be totally objective but it is a beginning.

Dr Batt reiterated remarks made at the preceding meeting by Helmut Merklein, regarding the difficulty of establishing the value of the existing pipeline system. He pointed out that such a valuation is all but impossible unless and until the system has been stabilized, including the development and implementation of a sound tariff methodology. One item in particular that needs attention in all this is the type and level of taxation in Kazakhstan. Once the tax structure is clearly defined, the calculation of a fair and reasonable pipeline tariff should be no problem.

Overall, according to Dr Batt, there are three components that need attention in the development of a sound cost-based tariff

Establish allowable pipeline costs, in cooperation with regulatory authorities

Determine the value of the pipeline assets currently in service As mentioned, this will be difficult in the short run, but can eventually be done without a problem Meanwhile, a transitional valuation will be needed, until stabilization occurs

Establish a market-based rate of return Until such a rate has been set in the market, an approximate rate of return can be developed

As regards the allocation of costs, all users of the pipeline should share these in relation to the services they actually receive In short, there should be no discrimination of customers However, there can be different tariffs under different conditions, such as spot versus long-term tariffs Any differential in such tariffs must be transparent and justifiable For example, long-term tariffs benefit the pipeline by providing long-term stability of operations

In addition, all operating units must operate on their own respective economic merits, i e , there must be no cross-subsidization Dr Batt listed two examples of cross-subsidization of Kazakh pipelines First, the Eastern line is underutilized and may not be in a position to generate sufficient revenue to exist, and second, the water line in the Western Sector probably does not generate the revenue it needs to stand on its own

Overall, Dr Batt seemed optimistic in believing that a mutually acceptable pipeline rate would eventually emerge from the Steering Committee's deliberations There are just too many parties with coincident interests in having a viable pipeline system in place They all want

Reasonable tariffs consistent with services delivered

The uniform application of tariffs to all users

A stable and predictable tariff level

A rational and transparent methodology with defined recourse for tariff disputes

In the end there is, according to Dr Batt, a market-defined envelope within which the final tariff must fall The tariff must be high enough to provide a reasonable return to the investor, and it must be low enough to not depress the net-back value at the well head below a risk-compensated return to the oil producer

Dr Batt then addressed the time frame of the proposed tariff structure He pointed out that the

development of a tariff methodology is a long-term proposition. It would be self-destructive to try to solve long-term problems of this nature with short-term expedients such as changes in the rate of taxation or the institution of untested social subsidies. One thing to keep in mind, according to Dr. Batt, was the possibility that, one day, part or all of the pipeline may be privatized, as may be the shippers, and the pipeline may be owned by more than one private entity.

Other issues deal with the restructuring of the pipeline system. Much of this has been done such as, for example, the recent creation of the Kazakh Oil Pipeline Company that now holds all of Kazakhstan's oil pipeline assets within one company. However, different segments of the system have different operating characteristics and costs and may need to have their respective tariffs developed separately. Finally, addressing the collection process, Dr. Batt said that, no matter how well developed the tariff methodology, the system will not work unless the collection process is complete. Part of the problem, according to Dr. Batt, was that under Government policy, State Enterprises selling to State Enterprises could not enforce payment. Until that problem is solved, any tariff methodology, no matter how well thought out, is useless.

After Dr. Batt's remarks, there followed a lively debate, led by Mr. Kabyldin who asked what the rate of return should be on invested capital. Batt responded by saying that raising long-term debt would be difficult at this time. For equity financing, he expected investors to hold out for something on the order of 20%. Certainly, according to Dr. Batt, things have changed for the better for the Republic of Kazakhstan, since Kazakhstan has now raised short-term debt in world capital markets.

One of the Kazakh participants asked about cross-subsidization, especially with regard to assets used below capacity or not currently in use, but where there is a reasonable expectation that they will be used in the foreseeable future. Dr. Batt responded by saying that ordinarily you would remove that asset from your asset base, but that, depending on circumstances, you could mothball the asset and charge out its maintenance cost. In any event, use at less than capacity would reduce the value, and the asset base, of the asset in question.

At that stage, Mr. Bob Williams with TengizChevrOil offered an example from his pipeline experience in North America. Mr. Williams managed a company that, at the time, had 2 lines, one very small line with a throughput of about 70 tonnes per day. On that line, as shipping became expensive, the shipper used rail and trucking instead. A second and larger line was subject to substantial throughput declines as time went by, and they were down to some 20% of design. There were no roads or railroads nearby, so there was no alternative. The end result was that the shippers purchased the line for their own private use.

Questioned for additional details about the Aktau water line and the degree of non-collection Dr Batt responded as follows

With regard to the Aktau water line, there was no segregation of water line data and oil line data. For example, the maintenance crews for both the water line and oil line were the same, paid for through oil line tariffs. Without adequate and separate accounting, it is impossible to pin down the exact amount of the subsidy. Also, the revenue received from the water operations was very low. What's more, the water system is in poor shape and needs substantial capital injections and maintenance work.

With regard to collections, Dr Batt stated that his original report may be overstating the missing collections, since it ignores barter, i.e., the payment for shipments through withholding of some of the crude being shipped. As mentioned, part of the collection problem was the Government's policy under which State Enterprises did not have to pay each other. One solution may be the pre-payment or, in the case of systematic abuse, the right for the pipeline to refuse shipment.

Presentation by Mr Mike Biddison

Following Dr Batt's review of the Kazakh oil pipeline tariff system, Mr Biddison dealt primarily with the way tariffs are developed in the United States. Mr Biddison began by reminding the audience that Mr Lobaev had mentioned that the Kazakh Oil Pipeline Company is scheduled for ultimate privatization, with shares to be sold to private investors and shippers. This led to a discussion of the various types of risks involved in acquiring and operating a pipeline. Mr Biddison pointed out that there are four key factors that must be taken in consideration when designing pipeline tariffs. These key factors are

Financial Integrity The cash flow generated from tariff revenues must be sufficient to ensure that pipeline operators are able to meet their financial obligations throughout the economic life of the pipeline.

Project Economics The returns to equity holders and lenders must be sufficient to compensate them for all risks of the project.

Third-Party Acceptance The level of tariffs and other commercial arrangements must be acceptable to third parties, including shippers, producers, and Government Authorities.

Flexibility The tariff-setting procedures must be sufficiently flexible to respond to changes in the business environment over the economic life of the pipeline.

Mr Biddison reminded the audience that tariffs cannot be applied until after a pipeline is in operation and has become what is commonly referred to as a "used and useful asset" This means that very substantial investments have to be made and negative cash flows have to be incurred for long periods of time These must be financed by infusions of equity funds and credits All of these transactions will need to be public and transparent The eventual tariff methodology, according to Mr Biddison, may be either a conventional cost-recovery mechanism, or it may be market based As mentioned, cost-recovery means that all costs that are "fair and reasonable" (including administrative, operational and maintenance expenses), plus fair returns to investors and lenders, must be recovered through the tariff mechanism, and these cost must be allocated fairly among the pipeline users Market based tariff methodologies, in contrast, are set in relation to a user's alternative cost of the service he receives However, cost-based versus market-based are not simple alternatives Market-based factors do play a significant role in cost-based systems since the shippers cannot in the long run pay more than their service is worth Similarly, cost factors are relevant in market based systems

Mr Biddison then turned to the topic of risk apportionment The two prevalent risks are price or tariff risks and throughput risks Tariff risks reflect the uncertainty whether tariffs can be high enough to recover all costs over a very long period of time, while at the same time being at a level that the market will bear Throughput risks reflect the uncertainty that the pipeline's capacity volume may not be available over the economic life of the line

In the United States, according to Mr Biddison, several methods are used to deal with risks, including take or pay arrangements and differential rate designs incorporating demand and commodity charges Demand charges, under such an arrangement, are basically monthly set-asides of capacity and payable whether that capacity is used or not, while commodity charges are per-unit charges for oil actually moved through the line In addition, there are service quality differentials such as firm and interruptible service For firm service, the shipper pays a higher monthly demand charge as a component of the overall tariff

Other risks, according to Mr Biddison, include inflation risks and political risks such as changes in legislation that impact the tariffs after they have been put in place These political risks might include the ex-post imposition of subsidies, externalities or taxes, and they might well loom big in the eyes of the investors

Turning to the cost-of-service formula, Mr Biddison pointed out that, in accordance with North American practice and with accepted international standards, the cost of service consists of "fair and reasonable" pipeline operating expenses plus a rate of return on the rate base That rate base is the net present value of the total "used and useful" plant and equipment, including an allowance for funds used during construction

In the United States, the Federal Energy Regulatory Commission or FERC is the regulatory authority responsible for, among other things, pipeline operations for lines that cross State lines (interstate pipelines). Applications for tariff requests are made with FERC. These applications list estimated costs (for new lines) or historical costs (for rate changes on existing lines) including operating and maintenance costs, return on rate base, and taxes. The rate filings which are used to back up requests for rate changes generally contain nine months of historical costs and three months of projected costs. If non-controversial, the filings may be settled by FERC staff, subject to approval by the FERC Commissioners, or they may be subject to a full-fledged hearing before the Commission. In either case, interested third parties may file protests. A full hearing is likely to include a preliminary review or audit of the applicant's books. The full hearing route may take up to nine months from the original rate submission to a final FERC decision. That decision can be appealed through the courts.

In summary, Mr. Biddison submitted four recommendations:

The introduction of a tariff based on cost of service, but competitive with alternative modes of transportation.

The use of a levelized uniform rate indexed only to inflation, i.e., constant in real terms.

The development of sufficient flexibility in the tariff system so adjustments can be made at a later point in time for inflation, for efficiency improvements, and for other unforeseen events.

The tariff should not be burdened with social costs and other externalities, except for those that are absolutely essential to keep the pipeline operations going.

Presentation by Mr Helmut Merklein The Canadian Incentive System

Following Mr Biddison's review of the US regulatory system regarding oil pipeline tariffs, Mr Merklein addressed the system currently in use in Canada He briefly mentioned that the Canadian system is similar to the US system in many respects The regulatory authority in Canada is the National Energy Board (NEB) It has many features in common with the US FERC, including

Independence from political influence

Up to 9 Board Members who have seven-year terms of office

Board Members cannot be removed from office except in case of malfeasance

Board Members may be re-appointed one time

With respect to pipeline tariffs, the NEB has moved faster than the United States towards market-based tariffs, including a greater emphasis on negotiated settlements and incentive systems According to the NEB, cost-of-service systems leave little incentive to the pipelines to seek higher revenues through improved capacity utilization or improved operating efficiencies, simply because increased revenues or cost savings achieved through such means are passed on to the pipeline user, without any benefit to the pipeline In contrast, cost savings achieved in an incentive system are shared between the pipeline and shippers, providing incentives for all parties to actively strive for and support improvements

Mr Merklein made the point that the overall purpose of regulating monopolies is the prevention of the abuse of monopoly power In a brief deviation from the specific topic of pipeline tariffs, and responding to concerns voiced on earlier occasions, Mr Merklein elaborated on the theme of monopolistic versus competitive market structures He reminded the audience that the issue of being competitive is not so much one of competing with another pipeline or mode of transportation In a broader, macroeconomic, sense, the issue is to develop in Kazakhstan a generally competitive market structure where all resources compete for all uses In such a structure, the creative genius of competing individuals and companies will develop new markets offering better products at affordable prices, for the benefit of all It will also create new and better paying jobs, release unprecedented purchasing power throughout the economy, and generate a healthier Kazakh economy overall Regulatory activities, if implemented correctly, will avoid the misallocation of national resources, will prevent the distortion of business decisions and will reduce the regulatory burden on the regulated industry The incentive system is especially well suited for a noticeable reduction in regulatory burdens since it involves the

one-time establishment of a base tariff which is then adjusted automatically for a number of years through the appropriate use of indexation for inflation

The original tariff destined for use in an incentive system generally incorporates many of the cost-recovery features, including the use of uniform accounting procedures, a rate base reflecting the depreciated book value of the pipeline facilities and other factors mentioned by other speakers. Mr. Merklein took a brief excursion at this point to make sure that the concept and purpose of depreciation is well understood by the audience, that purpose being the perpetuation of a company's and a nation's capital assets. The original tariff of an incentive system also includes an estimate of future volume throughputs, a statutory definition of allowable costs, the establishment of a target rate of return, and the development of conventional revenue requirements. The one difference is that these numbers are arrived at through negotiations between interested parties (the pipeline and shippers) before the rate application is filed with the regulatory authorities. Given the negotiated nature of this approach, the final settlement regarding tariffs is likely to approach market levels and is certain to recover incurred costs.

Once the tariff has been agreed upon, a suitable index is selected (the Consumer Price Index in Canada, the Producer Price Index minus 1.0% in the US), to escalate the tariff year after year, without further hearings in the matter. In Canada, these escalations normally are scheduled for a period of five years, without additional NEB input. As mentioned, the incentive system needs a mechanism under which the pipeline and the shippers share increases in revenues or cost reductions. Under the NEB rules, three such mechanisms exist. These are

Capacity Sharing,
Transportation Revenue Variance, and
Cost Performance Benefit Sharing

Capacity Sharing is intended to give an incentive to all pipeline parties to maximize the capacity utilization of the pipeline. Under negotiated standards of one typical pipeline, the Inter Provincial Pipeline Company (IPL), the line's capacity is defined to be 89 percent of the pipeline's design capacity. If the pipeline achieves a throughput volume higher than this standard, the additional revenue is shared between the pipeline and the shippers as follows. The pipeline retains 75% of the increased revenue, while 25% is passed on the shippers through an appropriate reduction in next year's tariff, subject to a power allowance to account for the increased use of pumping power needed for the higher throughput volume. This procedure involves quarterly throughput calculations that are used as a basis for discussions between the various pipeline parties.

The Transportation Revenue Variance deals with various problems regarding differences

between forecast and actual throughput volumes. If the shippers supply less than the forecast throughput volumes, there will be a reduction in revenues which triggers an automatic compensatory increase in tariffs. Changes in throughput mix can also trigger a variance from forecast revenues. For example, the IPL contract mentioned earlier contains a negotiated differential rate based on deviations from standard crude oil density and viscosity. IPL's density scale is reproduced below as an illustration.

For a heavy crude (905-927 kg/cub meter), there is a 20.00% premium on the tariff.
For a medium crude (875-905 kg/cub meter), there is an 8.00% premium on the tariff.
For a standard density crude, called light petroleum (800-875 kg/cub meter), the tariff is at par.
For gasoline and condensates (600-800 kg/cub meter), there is an 8.00% discount on the tariff.
For NGL (up to 600 kg/cub meter, but subject to a minimum vapor pressure constraint of 1100 kilopascals at 37.8 degrees centigrade), there is a 10.00% discount on the tariff.

A similar differential scale exists for viscosity differentials (but none exists for sulfur content). Clearly, the negotiated tariff assumed some reasonable density and viscosity mix. If the actual mix deviates from the forecast mix, an automatic adjustment of the revenue requirement will take place, with a rate adjustment the following year.

The Transportation Revenue Variance also contains an automatic tariff adjustment for those cases where the average length of haul is at variance from the forecast average length. These adjustments are straight pass-through adjustments, subject only to a power allowance.

The Cost Performance Benefit Sharing feature deals with increased earnings resulting from improved operating efficiencies of the pipeline. Under straight cost-recovery, these cost savings are passed on to the shippers, via tariff reductions. Hence there is no incentive for the pipeline to become more efficient. Under the NEB rules for the IPL pipeline, on the other hand, the savings in costs are shared between the pipeline and the shippers in a two-tier sharing arrangement as follows:

Under the negotiated tariff agreement, IPL has a threshold earnings level of \$51.5 million for the period 1995 to 1999. The pipeline will retain all of that amount up to the agreed-upon level. Under the cost performance benefit plan, savings and concomitant increases in earnings up to \$6.5 million per year are shared 60% by the pipeline and 40% by the shippers. For earnings increases beyond the negotiated \$6.5 million, the sharing between the pipeline and the shippers will be fifty-fifty. Again, the shipper's share is passed on through an appropriate reduction in tariffs in subsequent years.

Other features of the negotiated incentive tariff system include a small allowance for normal

losses of oil during shipping operations. The negotiated standard in the IPL system is 1/20th of 1.0% (or 0.05%) of the crude volume being shipped. This crude accrues to the pipeline as compensation for reasonable losses under prudent pipeline operations. In theory, the pipeline can sell the oil to third parties, but in practice the buyer is almost invariably the original shipper, so that the actual transaction becomes a mere financial adjustment.

Non-routine adjustments provide flexibility for compensatory payments for unexpected and unexpectable events that are beyond the control of the pipeline operating with reasonable care. An earthquake rupturing the line, for example, would trigger such a non-routine adjustment in revenue requirements and tariffs. To keep all parties from having to examine the applicability and amount of endless numbers of non-routine events and to keep the pipeline from making frivolous claims, a materiality threshold is agreed upon, below which no such claim can be made.

Following Mr. Merklein's presentation, a brief discussion ensued. Questions from Committee Members generally dealt with the structural and procedural set-up of the NEB and with its level of authority. For example, the question was asked whether the NEB has the right to step in and change the tariff even if the pipeline and the shippers have arrived at a negotiated tariff? The answer: yes, otherwise there could be collusion to the effect that the pipeline might share part of its monopolistic rent with the shippers. Another example was whether the pipeline and shippers could go to the NEB for a review and settlement in the event they are unable to arrive at a negotiated tariff. The answer was yes.

In that context, Mr. Merklein elaborated on the critical issue of the valuation of the existing Kazakh pipeline facility. He re-iterated that a discounted cash flow valuation made on this day would yield a negative present value and he cautioned his audience that they should not enter the valuation proceedings with a fixed value in mind. Given the neglected status of the pipelines and the failure to make full collection for services rendered, the pipeline facility may well turn out to be lower than book value. Citing an example from the US power sector, he explained how the market devalues assets that fail to perform according to expectations, by reducing the value of the company's shares if they are traded on a stock exchange, or through bankruptcy proceedings if they are not. Such an automatic market revaluation system does not exist in Kazakhstan, but Mr. Merklein felt that the audience should be aware of this mechanism and keep it in mind when dealing with the valuation issue of the Kazakh pipeline system.

Presentation by Mr. Helmut Merklein: Statistical Information

The Steering Committee had requested certain statistical information regarding pipelines in North America. Mr. Merklein's second presentation was given in response to that request. The data were presented in part as Tables and in part as graphs. They included

Average Pipeline Construction Costs for 1995-1996 pipeline construction in the United States and Canada, for lines longer than 5 miles. The unit chosen was US dollars per kilometer, listed and plotted by line diameter. The information was essentially based on published Oil and Gas Journal Data which, in turn, had been originally collected by the US Government. As always, there were some apparent anomalies in the data such as, for example, the fact that 48"-diameter pipelines were less costly than 42" pipelines during the reference period. This and other anomalies spawned a discussion regarding the reasons for such deviations (building in or near urban areas, river crossings, difficult mountainous terrain, etc.) The discussion served to remind the audience that statistical data such as these cannot be regarded as reliable indicators of expected construction costs in Kazakhstan or, for that matter, in the North American area of origin. Reference was made to the FERC practice of estimating pipeline construction costs as part of original tariff proceedings. After completion of the project, FERC compares the construction costs actually incurred with the pre-construction estimate. The difference between estimates and final costs are often substantial.

Pipeline Construction Cost Composition for five large US Pipeline in 1995. These data, too, were based on US Government data, as published by the Oil and Gas Journal.

Pipeline Operating and Maintenance Costs, as of December 1996, for two US pipeline companies (Texaco and Shell). The data showed that, for these two representative pipeline companies, Operating Expenses run around 30% of overall pipeline expenses, compared to 20% for Maintenance Expenses, and 50% for General Expenses. Clearly, that is in part a matter of FERC accounting conventions.

Selected North American Pipeline Tariffs, in terms of US dollars per metric ton ("tonne") per 100 kilometers. These tariffs came from a discussion paper published by the Joint Commission on Economic and Technological Cooperation, the so-called Gore/Chernomyrdin paper. The tariffs shown, all cost-based tariffs, varied from US\$0.31 to \$0.77 per tonne per 100 km. The tariff variations reflect to some considerable extent the differences in construction costs discussed earlier.

FRIDAY, JUNE 6

This day was set aside for presentations from the Kazakh side. Ms. Vinogradova discussed current operations of their YuzNefteProvod pipeline system, and Ms. Yakovleva talked about the Pavlodar pipeline.

Presentation by Ms. Vinogradova

The YuzNefteProvod system was established in 1992. The system had all of its assets transferred to it over the last five years. Prior to 1992, the YuzNefteProvod pipeline system was part of the USSR Transneft system, whose financing and asset creation had all been effected through central planning operations. At that time, there was a provision for the systematic maintenance of the line.

YuzNefteProvod began to analyze cost-based tariff methodologies using 1991 as its base year. That was the last year when operations were considered to be stable. The actual tariff analysis was performed by a Moscow Research Institute (VNHOENG), which developed and introduced a new tariff methodology in 1992, based on transportation services only, i.e., not dealing with equity oil. That methodology remains in force to this day.

In 1993, payments for transportation services were suspended and payment arrears mounted rapidly. This eventually affected the pipeline's entire cost and expenditure pattern. Prior to 1994, funds expended for capital repairs constituted approximately 20% of total pipeline costs (this is roughly equivalent to US Maintenance Expenditures). However, due to losses in revenues associated with the non-payment policy as promulgated by the Government, the Pipeline Company limited its capital repair expenditures to those repairs that were absolutely essential for the continued operation of the pipeline. Routine maintenance and other preventive expenditures such as pipeline quality checks were ignored. As a result, YuzNefteProvod is now three years in arrears as regards pipeline maintenance and faces a backlog of maintenance work that can no longer be postponed.

In the 1991 base year, depreciation expenditures constituted 25% of the total pipeline costs (compared to about 8.3% in the United States). These depreciation expenditures were the pipeline's principal source of funds for replacing worn-out assets. By 1994, the reduction of pipeline assets due to inflation had brought the depreciation level down to 2% of total pipeline costs.

YuzNefteProvod conducted a re-evaluation procedure over the last few years, but this has not restored the balance sheet value of the total pipeline plant to its real level. In 1996, the company valued its total pipeline plant at US\$119 million. This compares to a value assessment of US\$231 million, net of depreciation, conducted by Ernst and Young, for just a portion of total plant, a 454 km pipeline section from Tengiz-Atyrau to the Russian border.

Starting in 1997, YuzNefteProvod's collection performance showed some improvement since the company began to use barter arrangements in lieu of cash payments. These barter deals involve the use of parts of oil or oil product shipments that are seized and sold in the market, in lieu of current cash payments. Revenues so generated are used to reduce accrued payment arrears. This

barter procedure has generated considerable amounts of cash that permitted the pipeline to spend 220 million Tenges for capital repairs and other purposes in the first quarter of 1997. Still, YuzNefteProvod has operated at a loss during the first quarter of 1997, due to sharp cost increases. This in the face of tariffs that were established in 1994 which have not changed since, in spite of dramatic changes in the economic environment. Under the Government's non-payment policy, tariffs were actually charged but collections were inadequate to cover expenditures. These nominal tariffs created phantom profits with consequent tax obligations that were not in line with the real profit situation. YuzNefteProvod is fully aware of the need to review and reconsider the existing tariff methodology and to increase tariffs.

Presentation by Ms. Yakovleva

The Priirtyshsk-Shymkent and Zhanazhol-Orsk pipeline system consists of two lines that are operated by the Pipeline Association of Kazakhstan and Central Asia (the Pavlodar Pipeline Association). The Priirtyshsk-Shymkent section is operated at 24% of design capacity. For example, in 1991 a total of 17 million tonnes were shipped through the line, compared with an estimated 2.5 million tonnes in 1997. The Aktyubinsk Line is operating at a steady rate of 2.5 million tonnes per year.

Throughput volumes of the Priirtyshsk-Shymkent pipeline have been decreasing over the last years, as has the cost of maintaining the line. At present, the volume of oil pumped to the Pavlodar refinery is 3.0 million tonnes per year, based on pipeline company records, but the precise volume is not known. The reductions in annual oil volumes shipped by the producer resulted in a reduction in maintenance costs (due to reduced wages and numbers of employees). Still, the current tariff collection covers only those expenses that are absolutely essential to keep the line in operation. The cost of pipeline quality checks, tank battery checks, and the replacement of automation or telemechanical equipment is not included in the company's tariff. In addition, drag reducing agents that are used in the pipeline's operations are not an allowable expense, since their inclusion would create high tariffs that would not be approved by the Anti-Monopoly Committee. All in all, substantial payment arrears have hampered the pipeline's ability to maintain the system, even though the recent introduction of crude-oil barter payments has helped. Current expenditures, as mentioned, are limited to those that are absolutely indispensable. For example, capital repairs have been running at about 50% of what is really needed.

Crude oil shipments through the Kumkol-Chimkent section are running at about 2.6 million tonnes a year. Only about 700 kilometers of that line are in operation. The tariff Kumkol-Chimkent is 350 Tenge per tonne. The addition of friction-reducing agents costs 2

Tenge per tonne and is paid for by the oil producer

General Discussion and Establishment of Next Steps

Co-Chairman Biddison raised the question regarding the steps the Steering Committee would like to see taken by the next meeting, scheduled for July 10 and 11. Mr. Kabyldin responded by saying that the Kazakh counterparts would like to have the consulting team review their list of allowable expenditures. In addition, they would like to see suggestions developed regarding a tariff methodology they can live with. Mr. Kabyldin repeated his comments from the previous meeting regarding his preference for a North American tariff model, perhaps in combination with their current system. He mentioned that, just to keep their pipeline system in operation, they will need to inject some \$370 million between now and the year 2000. Kabyldin said he would need advice in finding a source for this money and he mentioned that a 20% return on equity seemed acceptable. He also mentioned the need for an additional \$1.0 billion for new pipeline construction, including pipelines to new fields now under development or to be developed later.

Asked by Dr. Batt regarding a cross-reference of their accounts under the old and new accounting codes, Mr. Kabyldin said these are published in their Bulletin of an Accountant. But he also proposed that the Kazakh experts prepare a list of allowable costs that would be compatible with their new accounting code. This document was to be provided, in translation, by July 23, at which time Mr. Maruszewski could meet in Almaty with various experts from different parts of the country. This group would be prepared to spend a week in going over these data. Mr. Kabyldin also mentioned that all of these experts report to Mr. Kinasov with Kazakh Oil Pipeline Company.

Mr. Kabyldin also asked the advisors to comment on and make recommendations regarding the methodology currently used in Kazakhstan of calculating pipeline profits. That methodology, according to Mr. Kabyldin, is based on the following formula:

$T = C + P + \text{Tax}$, where

T = Total Operating Expense,
C = Operating Cost,
P = Profit, and
Tax = Taxes

Operating costs in the preceding formula, according to Mr. Kabyldin, will be in accordance with the new accounting and regulatory system. Profits, under this methodology, are defined as follows:

Profit = % of Operating Cost + % of Equity Capital + % of Debt Capital in Pipeline

Mr Merklein agreed to comment on the preceding cost and profit formulations, and offered to provide in addition alternative formulations

DELIVERABLES

Kazakhstan Pipeline Company

June 23 Set of Allowable Costs for Discussion and Review by Hagler Bailly

Hagler Bailly

July 10 Written Proposal Regarding

Hagler Bailly Analysis of KazTransOil's Proposed Operating Cost Data

Hagler Bailly Analysis of their Proposed Profit Formula and any Suggestion We May Have

NEXT MEETING

July 10 and 11, 1997, at 10 00 AM, same place

MINUTES OF THIRD MEETING
PIPELINE TARIFF STEERING COMMITTEE
JULY 10/11, 1997

DAY ONE, JULY 10

Chairman Lobaev Opening Remarks

Chairman Lobaev informed the Steering Committee Members that a new President has been appointed for KazakhNefteProvod. His name is Mr. Kapparov, an economist who came from the private sector. The new President's policy will be to maximize cash flow and profits. Mr. Lobaev stated that the new President, being a young man, is not burdened by the old command-performance management style. Mr. Kapparov has assured Mr. Lobaev that he is giving the highest priority to the development of a rational oil pipeline tariff methodology, thus assuring this USAID project the continued attention at the highest level of management and the Government. Mr. Lobaev reiterated his previous commitment to continue current discussions in an open and uninhibited manner.

Mike Biddison

Mr. Biddison opened the discussion by delineating our deliverables for the next Steering Committee Meeting scheduled for August 20. These deliverables will include a recommendation regarding a workable pipeline tariff methodology, a set of tentative oil pipeline tariffs, and a working computer model specific to Kazakhstan and which incorporates the best features of current North American practices. Looking beyond the immediate time horizon, Mr. Biddison assured the Steering Committee Members that Hagler Bailly Services, Inc., will give continued support to Mr. Lobaev in getting these recommendations implemented by January 1, 1998. However, Mr. Biddison stressed the fact that more data are needed for us to come to closure on our tariff work, and he urged the Committee Members to do what they can to provide the required data in a timely fashion. He pointed out that Mr. Merklein will be in Almaty for the following week to visit pipeline officials and to work with them in getting the required data.

Mr. Biddison pointed out that the data that will eventually be needed include things such as the current physical condition of the line, design capacities and physical characteristics, as well as financial data. He emphasized that an attempt will be made to incorporate in our proposed tariff methodology an incentive system and other features that may be important to the pipeline and to shippers. This would include quality banks, a discussion of subsidies and cross-subsidies, accounting and auditing procedures, a regulatory framework, and an assessment of current

collection problems. Mr. Biddison stressed the need for flexibility so that changes can be incorporated in the system after better data become available that may expose design weaknesses. He proposed that, at the next meeting, Hagler Bailly would explain and the Steering Committee would jointly refine the proposed tariffs as best they can, while adhering to the principle, enunciated by Mr. Lobaev, of working in a transparent environment.

Following Mr. Biddison's remarks, Chairman Lobaev stressed the need for KazakhNefteProvod to take into consideration existing standards and norms including future expenditures in excess of past costs to assure proper maintenance of the lines and to deal with the issue of non-payments. KazakhNefteProvod has failed to collect from shippers a total of 2.5 billion Tenge (\$33 million). This compares to a KazakhNefteProvod debt of 1.2 billion Tenge (\$16 million). Mr. Lobaev reiterated the need to ignore past shortfalls of maintenance expenditures and to focus instead on current and future maintenance requirements. However, he also stressed that, as a matter of principle, KazakhNefteProvod is prepared to fully adhere to Western standards if his proposed approach is found to be out of line since KazakhNefteProvod is committed to getting away from the socialist approach. In so doing, the company is prepared to accept incentive systems and other Western pipeline features.

Following the Chairman's remarks, Co-Chairman Biddison introduced Dr. Bhamy Shenoy and there followed a general round of introductions, after which Mr. Maruszewski took the floor to discuss his work in fitting KazakhNefteProvod's cost data into a Western style cost-of-service format. His prepared text is given as follows:

EVALUATION OF KAZAKHNEFTEPROVOD'S TARIFF METHODOLOGY AND KAZAKHNEFTEPROVOD COST DATA USED IN CALCULATING NORTH AMERICAN COST OF SERVICE

KazakhNefteProvod's tariff methodology has been in use since 1992 and all tariff rate increases are approved by the Anti-Monopoly Committee. During his discussions with KazakhNefteProvod staff, Mr. Maruszewski found that per-book cost data are not used in calculating their tariffs. Instead they use a combination of planned expenses and statistical trends which they have developed over the years. What numbers they use depends upon their objective. With fuel and power increases and a problem collecting their tariffs, they are continuously filing rate increases in hopes that the higher rates would generate enough revenue to cover the necessary operating costs. Shippers who can pay are charged the higher rate. In their tariff calculations they may show expenses for a major maintenance project, but that doesn't mean the repairs were done. This is a good example of where planned expenses are used. The person who calculates the tariff may occasionally use per-book costs for comparisons. Mr. Maruszewski

reviewed the tariff calculations for the Pavlodar, Aktau and Kenkiyak-Orsk pipelines. The Pavlodar and Kenkiyak-Orsk pipelines were presented as single integrated pipeline systems and the tariff calculations include the estimated cost of operating a section of pipeline that is idle between Karakoin and Pavlodar.

What the Aktau pipeline calls planned accumulation (income) and the Pavlodar pipeline calls profit is simply a markup and is calculated by multiplying the total expenses by 0.35. From this amount local and income taxes are paid, and there is an amount dedicated to new construction, maintenance of facilities for social purposes, encouragement payments under the 1997 Agreement and a road fund. Many of these items should be included above as operating expenses and not part of profit.

During his review, Mr. Maruszewski was not able to trace the amounts shown in their exhibits to specific accounts. He was led to believe that he would receive good numbers to review and determine whether the accounts were conducive to use in the North American tariff methodology. What he did receive were numbers created to serve the purpose of increasing tariffs. Mr. Maruszewski pointed out that he could not conduct a proper evaluation, unless he received the per-book amounts with their appropriate account numbers.

Mr. Maruszewski's conclusion at this stage is that KazakhNefteProvod's tariff methodology has served its purpose. However, with privatization likely to come soon, the time has come to make a change. Privatization requires transparency, reliable cost data, and cost-based rates that are rational and equitable, i.e., that there be no discrimination between shippers. What he has been shown does not fulfill any of these requirements.

To start the required change, laws must be passed establishing an independent regulatory commission with the authority to develop the necessary rules and regulations under which the pipelines would operate and be regulated. These rules must establish

A system of accounts that is compatible with the North American tariff methodology

A tariff methodology

Filing requirements for (1) rate increases and (2) tariff rules and regulation changes

A systematic procedure for filing protests and complaints. A shipper must have the legal right to protest any part of the tariff or to file a complaint against a pipeline.

Clarity as to what will be included in the tariff. It should among other items include the rates per 100 t-km and rules affecting the rates or the services provided. In other words, the shipper should be able to look at a tariff and know what his total costs will be for his shipment and what the penalty is for delinquency or non-payment.

A requirement for each pipeline to file annually a certified financial report.

During his sessions with KazakhNefteProvod staff Mr Maruszewski demonstrated how to calculate the North American cost of service. The Pipeline Company staff was favorably impressed with the simplicity of the methodology. Their comments were that, until and unless drastic changes are made, their present-day accounting is not conducive to the Western methodology.

In his demonstration, Mr Maruszewski used cost numbers from the Aktau pipeline tariff calculation. He suggested that the costs were not correctly identified or classified. He was not given the account numbers from which these costs were obtained. This exercise was done to illustrate a methodology and was not meant to be a recalculation of Aktau's tariff. Mr Maruszewski submitted that his presentation does not represent any one of the three pipelines that he reviewed.

Following Mr Maruszewski's remarks, the discussion turned to current tariff practices. One of the Kazakh Steering Committee Members took issue with a remark, as she understood it, which claimed that "shippers who are capable of paying are subject to higher tariffs". The Kazakh Official stated that this is not correct as all shippers are subject to identical tariffs.

At that stage Mr Keith Simpson, Mobil Oil Kazakhstan, Inc, took the floor to explain that, as he understood matters, KazakhNefteProvod undertakes from time to time to file for higher tariffs to cover shortcomings due to non-payment by some shippers. Mr Lobaev responded by saying that the rate increases requested by KazakhNefteProvod merely reflect inflation which, in the not so distant past, ran as high as 100 percent per year.

The general discussion then turned to the issue of idle pipes. Dr Shenoy suggested that a pipeline operator should not get paid for a newly built pipeline that is not being used. Mr Lobaev responded that, to KazakhNefteProvod, this is a political issue, since the company did not build the lines but inherited them from the former Soviet Union. Hence, the company suffers from poor decisions by a former Government. Dr Shenoy interjected that these are not the shippers' problems. Still, Mr Lobaev assured the Steering Committee Members that, in spite of all problems faced by KazakhNefteProvod, there will be a single tariff, and that tariff will apply to the entire system. Mr Lobaev suggested that KazakhNefteProvod will not sell off segments or parts of the pipeline system. Rather, the plan is to sell shares of the entire system, which is currently subject to a depreciation rate of 15% over 33 years. The company expects to charge each shipper a small surcharge which will be used to keep the entire system in operating condition.

Dr Shenoy at this point introduced a hypothetical situation, involving three sections of pipeline

Section A which operates at 50% of capacity, Section B located between A and C, which is completely idle, and Section C which is used at full capacity. Dr. Shenoy stated that, under the proposed tariff methodology, the shipper of Section A will be subject to a higher tariff than the shipper at Section C, and that the pipeline owner rather than the shippers will have to bear the entire cost of maintaining the unused Section B. To this Mr. Lobaev responded that he envisions a uniform tariff for the entire hypothetical system, suggesting that dissatisfied shippers are always free to use other alternatives, including shipment by rail. To this, Mr. Maruszewski interjected that, under North American standards, this would be an unjust and unreasonable tariff. One of the KPA Members, Mr. Conrad with Oryx Energy Company, supported Mr. Maruszewski's position by raising the following three specific objections to Mr. Lobaev's handling of the hypothetical situation:

There should not be one tariff for the entire Kazakh system
No payment should be collected from active assets to maintain idle assets
The shipper does not really have a realistic alternative to shipping by pipeline

Mr. Conrad felt that the disregard of the three preceding objections in setting pipeline tariffs would in effect establish KazakhNefteProvod as a monopolistic pipeline operator.

Dr. Shenoy summed up the differences that had emerged during this discussion by stating that these kinds of differences will always surface between shippers and pipeline owners. Given the generally monopolistic power held by the pipelines, this is the reason why, in the Western world, a balancing and mediating authority is generally established. In North America, this authority takes the form of an independent regulatory commission, empowered by law to render decisions regarding the establishment of just and reasonable tariffs.

OIL PIPELINE TARIFFS - A COMPUTER MODELING APPROACH

After a brief lunch break, Mr. Merklein took the floor and introduced a few preliminary runs of the tariff model he was in the process of developing.

Based on a concept he had developed in connection with earlier work on Russian pipelines and on Russian exploration and production activities, and realizing that the original cost data would not be reliable, Mr. Merklein built a model that essentially served as a standard for pipelines in Kazakhstan. Using data from North America, he estimated what the cost would be to build and operate oil pipelines of different diameters and throughput capacities in a competitive environment. Choosing a hypothetical 42-inch standard line 1000 kilometers in length, he estimated likely land and right-of-way costs and line construction costs from data originally

assembled for the United States and Canada by the US Federal Energy Regulatory Commission (FERC) Adding reasonable estimates of pump station construction costs, interim financing costs and line fill, the total asset base at the beginning of the line's operating cycle was US\$1 17 billion

In a first Table this asset base was put through a variable depreciation cycle for the base case as follows Land and right-of-way were considered non-depreciable The line itself, not counting the pump stations, was made subject to a 30-year straight-line depreciation regime The pump stations were assumed to run on a 10-year life cycle Accordingly, they were treated under a 10-year straight-line depreciation regime, and were replaced two times during the 30-year line cycle, the first time in the 11th year of operation and the second time in the 21st year This arrangement lead to an annual depreciation charge for the entire system of \$44 43 million

A second Table was constructed to reflect annual costs of service including a first cut of an overall 35% of corporate taxes for KazakhNefteProvod Assuming a targeted Real Internal Rate of Return of 15 0%, the revenue requirements under those cost and rate-of-return conditions were calculated and, for a standard throughput volume of 80 percent of design capacity, a pipeline tariff was calculated for the entire life cycle of the line These calculations assumed that 60% of the asset structure was equity financed, and the rest secured through long-term debt

The required income before taxes consisted of annual depreciation charges, estimated Operating and Maintenance costs (O&M costs), and debt on the non-equity portion of the assets These debts were assumed to be paid over 20 years, at 12 0% Given the assumed parameters, these costs were fixed over the life cycle of the line, leaving taxes and return on equity to balance the target rate of return against the resulting tariff Given the assumed 15 0% internal rate of return and the first-cut tax rate of 35%, the first-year tariff came out at \$5 27 per 1000 tonne-kilometers As expected, that tariff would decline over the life cycle of the pipeline, because the interest on non-equity funding was coming down and deleted entirely from the cost structure after the 20th year of operation, and because the asset base itself was declining with time Thus, over the 30-year life cycle, the tariff declined to \$1 81 per 1000 tonne-kilometers in their last year of operation This tariff decline was illustrated with a computer-generated graph

Having thus established the base case, several excursions from the norm were undertaken and the effect on the tariff were calculated These excursions included

A sensitivity case for low throughput volumes With all other parameters remaining exactly as in the base case, the effect of low throughput volumes on tariffs was calculated over the life cycle of the standard line Compared to the base case throughput of 80% of design capacity, the line was assumed to operate at 50% of standard operating levels (or 40% of design capacity) As it

turned out the penalty of not operating the line at capacity is severe. The resulting tariff nearly doubled to \$10.37 per 1000 tonne-kilometers in the first year, up from the base tariff of \$5.27 per 1000 tonne-kilometers. This near-doubling of the tariff was characteristic for the entire life cycle of the pipeline.

A second sensitivity case was used to investigate the impact on tariffs of high production costs. With all other parameters remaining the same as those of the base case, the effect of high O&M costs on tariffs was calculated over the life cycle of the standard line. Compared to the base case costs of \$30.0 million per year, the line was assumed to operate at double the cost, or \$60.0 million per year. This excursion resulted in an increase in tariffs, but not nearly as severe as the earlier low-throughput case. Doubling O&M costs brought on an 11% increase in tariffs, to \$5.87 per 1000 tonne-kilometers in the first year, up from the base tariff of \$5.27 per 1000 tonne-kilometers. While the high O&M costs produced higher-than base costs over the entire life cycle of the line, the percentage deviation from the tariff base also increased with time, from the aforementioned 11% in the first year of operation to 33% in the last year.

A third sensitivity case was used to investigate the impact on tariffs of a different depreciation regime. Kazakhstan allows a 25% percent declining balance depreciation on pipeline assets. With all other parameters remaining the same as those of the base case, the 25% declining balance depreciation regime was used to calculate its effect on tariffs over the life cycle of the standard line. Given the extraordinarily high depreciation charges in the first few years of such a rapidly declining depreciation regime, and the fixed nature of all component costs other than taxes, the resulting non-compensated tariff came out to be \$7.34 per 1000 tonne-kilometers in the first year. It declined rapidly thereafter, to as low as \$0.69 per 1000 tonne-kilometers at the end of the 30-year cycle. That case was not shown in graphic form since the early high tariff and subsequent low tariffs are not generally allowed under North American practice. Instead, a so-called levelized tariff for a 25% declining balance depreciation rate was developed which produced a first-year tariff of \$4.69 per 1000 tonne-kilometers and which declined in the 30th year to \$1.73 per 1000 tonne-kilometers. The problem with that approach is that the high depreciation charges during the first few years leave no room for taxes and force a 5-year tax holiday which does not appear to be attractive to the Government of Kazakhstan.

Following Mr. Merklein's presentation, Mr. Lobaev raised several points. Noting the 19.2% required income on equity before taxes, he asked how this squared with the stated target internal rate of return of 15%. The answer was that out of that 19.2% on return on equity, the Government will take its assumed 35% tax.

Another question dealt with the mechanism of debt payment. The interest payments on the debt

covering 40% of the asset base was charged to O&M costs, but the return of principal did not show anywhere on the Table. The answer was that the return of principal on borrowed funds comes out of depreciation which is part of the explicit O&M cost and thus a partial component of the tariff.

Further discussion and comments from foreign Members of the Steering Committee brought out that the overall tax case is more complicated than a straight 35% on return on equity and, in any event, if totaled, that it is closer to 40%. Mr. Merklein promised to take a more detailed look at the tax situation and to adjust the model accordingly. As a general observation, Mr. Merklein pointed out that high taxes will raise tariffs and, therefore, reduce the net-back value of crude oil in the ground. This could kill marginal fields and destroy part of Kazakhstan's resource base as potential investors will see their return on exploration and production activities reduced. With their opportunity costs thus raised, investors are likely to respond by taking their investment dollars elsewhere in the world.

After Mr. Merklein's presentation, Mr. Lobaev took the floor. Using the example of the Kalunkas to Samara pipeline which he drew on a flip chart, Mr. Lobaev discussed the options of establishing different kinds of tariffs on the basis of the following scenarios:

Separate tariffs for each individual section reflecting that section's asset base, cost of service, and throughput.

Two combinations of sections or branches, a northern and a southern branch, with an average tariff for each branch.

One tariff for the whole Kalunkas to Samara pipeline system, with average tariff for that system. O&M costs applied to individual sections, with investments shared proportionally by the entire system.

With regard to point four above, Mr. Conrad with Oryx Energy Company asked whether Mr. Lobaev envisioned the sharing of capital just on the line under discussion or throughout the Kazakhstan pipeline system. Mr. Lobaev replied that it would apply to all of Kazakhstan if it can be made to work out satisfactorily.

Mr. Lobaev then turned to the issue of pipeline valuation. He mentioned that their own early estimate had been that the entire Kazakhstan pipeline system was worth 16 billion Tenge (\$213 million), for a total length of 10,000 kilometers. He pointed out that a subsequent Ernst and Young evaluation had put a value of \$231 million on just the 462 kilometers of pipeline which had been transferred to the Caspian Pipeline Consortium (CPC). That methodology was based on replacement cost minus accumulated depreciation minus rehabilitation expenses. Using these

valuation criteria, Mr Lobaev stated that the value of the entire KazakhNefteProvod pipeline system was worth US\$1.5 billion, after applying US\$1.0 billion for rehabilitation. To finance that kind of rehabilitation, Mr Lobaev felt that the current tariff of \$5.50 per 1000 tonne-kilometers might have to be approximately doubled to \$10.00 per 1000 tonne-kilometers. He felt that the required funds might come either through a ten-year loan or through the injection of equity capital by shippers.

In summing up, Mr Lobaev reiterated that additional funds will be required in view of the fact that maintenance has been neglected in the past, and that KazakhNefteProvod anticipates collecting these funds through tariffs.

DAY TWO, JULY 11

This meeting was chaired by the Cochairman, Mike Biddison. It was held primarily for the purpose of communicating to the Kazakh Members of the Steering Committee that Hagler Bailly needs a substantial amount of additional information to successfully and meaningfully come to closure on the proposed tariffs. Mr Maruszewski and Mr Merklein each distributed and discussed a set of additional data that they would need in their respective work. In particular, Mr Maruszewski requested that the assets be described so that what in Western thinking would be classified as unrelated costs would be clearly identifiable. There was general agreement among the Kazakh Steering Committee Members that delivery of the required data should present no difficulty. The only exception would be financial and cost data by section, since the pipeline is currently going through a restructuring phase and the accounting and cost data have not yet been segregated to reflect the new structure.

Toward the end of the session, Mr Keith Simpson with Mobil Oil Kazakhstan, Inc., rose to provide additional information regarding the valuation of the CPC purchase. He stated that CPC had purchased the line for \$231 million, but that this amount does not and should not represent the market value of the pipeline. This transaction took place prior to the restructuring of the earlier CPC, in which the Governments of Kazakhstan, Russia, and Oman were the only partners. On restructuring, oil company members did not audit or agree that this was an appropriate price. They only agreed to abide by the previous agreement. Assets were transferred to CPC, but there was no monetary transaction. The amount involved is considered the Kazakhstan portion of consolidated CPC debt. That \$231 million was for the acquisition of a working line. In the event rehabilitation funds are needed to bring the line to working conditions, the required funds will be deducted from the \$231 million. Once CPC has a positive cash flow, it will begin to pay its debt to Kazakhstan. Mr Simpson concluded with the statement that "no sense of market value is implied by the \$231 million value."

Mr Biddison closed the meeting by agreeing to a request by Mr Conrad with Oryx Energy Company, and with no objection from the floor, to move the meeting date to Wednesday/Thursday August 20 and 21, with the possibility to extend the meeting into Friday if needed Mr Biddison then reiterated the deliverables for the next Steering Committee Meeting as shown below

DELIVERABLES

A draft tariff methodology for review and discussion at the meeting

An initial analysis and evaluation of four tariff alternatives for the Kalunkas to Samara pipeline system as well as actual tariffs as proposed by Mr Lobaev, to wit,

Separate tariffs for each individual section reflecting that section's asset base, cost of service, and throughput

Two combinations of sections, a northern and southern branch, with an average tariff for each branch

One tariff for the whole Kalunkas to Samara pipeline system, with an average tariff for that system

O&M costs charged to individual section, with investments shared proportionally by the entire system

DATE AND TIME OF NEXT MEETING

Wednesday/Thursday, August 20 and 21, with the possibility to extend the meeting into Friday if needed

MINUTES OF FOURTH MEETING
PIPELINE TARIFF STEERING COMMITTEE
AUGUST 20, 1997

Mr Biddison's Address

The meeting opened with a brief introduction of new Steering Committee members. Following this introduction, Mr Biddison went on to remind the participants that this fourth meeting of the Pipeline Tariff Steering Committee will focus on the proposed tariff methodology, to be presented by Mr Merklein. He reiterated that Hagler Bailly Consulting, Inc, will have the tariff methodology ready for final presentation by October 1, as per schedule. He suggested that a question and answer period following Merklein's presentation should go a long way in resolving lingering questions. Mr Biddison also alerted the Committee Members that some of the Hagler Bailly tariff team members are scheduled to take a trip to Aktau during the week of August 25, to gather information on cost accounting. That information will be indispensable for the development and implementation of a long-term tariff methodology beyond the simulation method now under development by Merklein.

Merklein's Presentation

Mr Merklein reminded the Committee Members that the original task of the Steering Committee was and continues to be to show how pipeline tariffs are regulated in North America, and how this regulatory approach could be adapted for use in Kazakhstan. He pointed out that the Hagler Bailly team was pursuing that objective on two parallel courses. One approach was to use historical Kazakhstan cost data as carried on their accounting system and to adjust these data to fit the new Kazakhstan accounting system. It was hoped that the evolving accounting concept could be taken one step further in adapting the data to a Kazakhstan accounting system that would meet Kazakhstan's future regulatory requirements. Such a system would have to be in line with international standards of transparency and accountancy, so that the people of Kazakhstan and as well as interested foreign investors could understand the tariff rules. This would permit them to deal with confidence with the Regulatory Agency that is expected to be created in the foreseeable future.

Merklein pointed out that it would be difficult to obtain the needed historical data on time for a definitive assessment of recommended KazkhNefteProvod tariffs. As a result, a second approach was being pursued simultaneously, by doing a computer simulation of pipeline tariffs following

North American regulatory regimes This process involves the calculation of oil pipeline tariffs for standard length pipelines of various diameters, as they might arise if constructed in North America As expected, Merklein's model shows that the unit transmission cost per ton of oil declines as the pipeline diameter rises Other than using North American cost and regulatory data, Merklein's model retains the economic and political structure of Kazakhstan as of the time the lines were built This assumes, among other things, that the pipelines were built by the Government, that there was no long-term debt involved in building the lines, and that the lines were under 100% equity ownership, presently belonging to KazakhNefteProvod

Merklein's cost estimates for the construction of pipelines in the United States and in Canada literally rest on hundreds of individual pipeline construction projects His source of information is the Oil and Gas Journal, for last year's cost data as well as for cost data going back in time over a period of ten years, but these data came originally from the US Regulatory Agency responsible for pipelines, the Federal Energy Regulatory Commission (FERC) To remove part of the short-distance bias inherent in the data, Merklein only considered pipeline projects of five miles or more in length (8 kilometers or more), but even with that adjustment, a substantial short-term bias remained In addition, to remove any data bias that might be introduced by outliers, he removed the two highest and the two lowest data points for each line diameter Since the remaining lines still contained many projects some 10 to 20 kilometers in length, the remaining short-term bias was removed by reducing the resulting average construction costs by 15% The final pipeline construction costs so developed were close to the high end of a range of Kazakhstan cost estimates

Much of the information presented by Mr Merklein was in the form of tables and graphs The base case involved a 42-inch line (nominally 1020 mm) Construction costs as used in the model are current replacement costs, a standard use of cost data in an environment characterized by great uncertainty This approach simulates original construction costs subject to inflation which is implicitly contained in FERC's tariff system The model also assumes a straight-line depreciation regime over the expected 30-year life cycle of the lines, as well as an Internal Rate of Return (IRR) of 15%

The case for each diameter line was presented with the aid of two large tables, a detailed year-by-year depreciation table and a tariff table which, among other things, listed the target IRR of 15% A graph was used to summarize the final tariff for each model scenario Merklein went over both tables column by column, and he displayed the resulting graphs by overhead projector As expected in a cost recovery system where the asset base declines over the years through depreciation, the tariffs were subject to decline with time However, Merklein pointed out that the tariff decline shown may be exaggerated, mostly because substantial portions of past maintenance costs, especially on older lines, had to have been capitalized and added to the asset

base. The model does not make allowance for this fact, and indeed one of the tasks of the team scheduled to go to Aktau was to find out what if any major line replacements may have taken place in the past.

Merklein also pointed out that he had not been able to discover whether and where the lines, especially those located in the Western Aktau/Atirau Region, were sequential and where there may have been looped sections or one-way spurs off the main trunk lines. As a result, Merklein suggested that his proposed tariffs needed further discussion and revisions, including an estimation of viscosity and heating surcharges. Based essentially on tariff data developed for individual line sections, suggested tariffs were calculated by a process of cumulation for three types of systems: individual lines, company-wide systems, and an overall Kazakhstan tariff. However, Merklein pointed out that a Kazakhstan-wide tariff was not what he would recommend, because such a tariff is inconsistent with the concept of cost recoveries. A Kazakhstan-wide uniform tariff entails social and pipe-to-pipe cross subsidies which, on their own merit, might be justifiable but which do not fit in a cost-recovery type of tariff structure.

Mr. Merklein expressed his appreciation for the assistance he had received from representatives of KazakhNefteProvod and from foreign oil companies that had provided badly needed pipeline data. He expressed his conviction that the data he developed in the process are realistic reflections of pipeline cost data and tariffs as found in North America.

Mr. Merklein noted that he still needed assistance to get information in 2 areas:

What major capital investments have been made in the past in Kazakhstan, especially on the older lines, and

What rehabilitation investment would be required for each section of the existing lines to bring them to sound operating condition.

Turning to the issue of pipeline sections not currently in operation, or sections with very low throughput volumes relative to their design capacities, these are the cause of considerable distortion. For example, if the actual throughput volume of a given line section were 50% of design, it would cost roughly twice as much to ship a ton of oil through the system. Under North American regulatory rules, it would not be fair, nor would it be acceptable, to make the shipper assume the excess costs due to under-capacity utilization of the lines.

One by-product of the suggested tariff calculations was an estimate of the current book value of the Kazakhstan pipeline system which came out at \$1.8 billion. That number is, however, subject to discounting for unused lines and for lines running at less than capacity.

In closing, Merklein requested assistance from the representatives of the Aktau and Pavlodar pipeline systems to spend a day in going over and correcting the pipeline configurations currently used in the model

Q's & A's

Keith Simpson, Mobil Oil Kazakhstan, Inc I see a need to review and, if necessary, to correct some data on various pipeline sections regarding diameters, locations, purpose, etc Merklein agreed to meet with Mobil representatives to review these data

Rassima Zakirova, KazakhNefteProvod My first comment is that the sections are not sequential in all parts Where they are not sequential, appropriate corrections should be made My second comment is that by establishing the base tariffs and by interpolating the diameter and recalculating the base tariffs again we will not recover costs because at present there are no sections which operate at maximum design capacity Our pipelines do not generally operate at throughput capacities of 80 percent of design I think the figures produced by your model should be treated as a first approach to actual tariffs, and then we will make corrections depending on the load of the pipeline

Helmut Merklein As regards pipeline configurations, I will be happy to meet with you to review my current configuration which, as I pointed out, needs correction As regards throughput volumes, 80% of the average US throughput range is at the top of your design range There may be room for improvement along the lines you suggest, since we did not know the tensile strength and other Russian-made pipeline characteristics

Rassima Zakirova The tensile strength is defined when the pipeline is designed, whereas the throughput rate is a function of crude oil volumes available for shipment Remember that Russia reduced its shipments of oil to be pumped and there are many other reasons

Helmut Merklein It is my understanding that Kazakhstan and other NIS Countries are unintended victims in this process of Russian volume reductions In the US, the capital value of the pipeline would be reduced if such a case arose

R Zakirova As far as I know, in the US they calculate their actual operating and maintenance costs without reference to design capacities They then calculate revenue requirements based on design capacities These are then divided by actual throughput volumes to obtain allowable tariffs In such a system, if the throughput is 10% of design, I will have no users The users will think it more profitable to send their oil by railroad

H Merklein In reality it will be difficult to find an alternative to pipelines in Kazakhstan According to the US FERC, it would not be allowed to introduce upward adjustments of tariffs simply to compensate for low throughput volumes As you will remember the objective of this study is to estimate what your pipelines tariffs would be if they were subject to the North American system of tariff regulation

R Zakirova If our throughput volumes are 50% or 60% of the design load, we will have to include the excess costs in our tariffs In Aktau there are two parallel lines The initial intent was to ship one quality oil by one of the parallel lines and the oil of different quality by the other parallel line As it turns out, the oil production rate in the Region declined below the combined line capacities We are currently pumping all of our oil through one spur which is 400 km in length, and the current tariff is \$3 The size of this one spur is sufficient for our operations For 1000 km, the tariff would be \$6 50 to \$8 00 The volume adjustment in this tariff was considered to be justifiable and it was approved by the Anti-Monopoly Committee It is natural that a tariff of \$11 50 may frighten away the user The parallel system does not imply big expenses as compared with the sequential lines I agree that we should specify all the details The sum of tariffs by sections, when they are added, will change the tariffs

Helmut Merklein suggested that a meeting be held the next day to compare current Kazakhstan tariffs with the draft tariffs of his model (Note The meeting was held, and some changes have resulted from it)

R Zakirova I gave you data on the actual and design throughput capacity Therefore 80% is not a standard situation There may not be any standard now We can calculate tariffs based on the current situation and on the costs and compare them with the standard and get a compromise "golden" average for the period of formation

Helmut Merklein The world standard for day-by-day pipeline operations is approximately 90% of design capacity For Kazakhstan we lowered it to 80% I would suggest that your pipeline system be adjusted to improve your cost standards rather than the other way around, whereby cost data are would be adjusted to fit the pipeline configuration The model we have developed is a real model reflective of hundreds of pipelines currently in operation throughout the United States and Canada

Jerry Durbin, Mobil Oil Co With regard to these tariff numbers, for each section, segment, or affiliate, the numbers will have multiple origins and destinations You should know them, because just the figure of \$18 does not mean anything if we do not know origins and destinations You should do more than showing configuration and specify each origin and destination Oil may be pumped and delivered to the same point, there might be cross

movements from Aktau to Atyrau, etc

Rassima Zakirova I gave you our tariffs by sections and we will provide you with the specific data on origins For example if Oryx Energy Company loads oil in Kalamkas, how much will it cost them to ship it to Samara or to Atyrau?

Jerry Durbin I agree, we need not only origins and destinations but the route and how much investment will be required to expand shipping capacity

Helmut Merklein We are at an interim point in our rate discussions Of course, we will design and eventually present a tariff table that takes into consideration actual shipping origins and destinations

Keith Simpson I agree that the tables should be adjusted to correct for parallel lines, and we will ask ourselves if adding is relevant or not We should consider those cases where costs are lower because the lines are of substantial length (500-plus kilometers)

At this stage, Mike Biddison suggested that it was time for lunch He asked the participants to refocus the discussion after lunch by dealing with the 5 alternatives defined by Mr Lobaev at the previous meeting These included tariffs for each section, for individual pipeline systems, for affiliates, for Kazakhstan as a whole, etc

After the lunch break, the discussion again turned to some of the issues raised during the Merklein presentation

Ms T Solomina How do you calculate depreciation? We have the system in which profits are increased by the depreciation value Is your system different from ours?

Helmut Merklein It is similar Depreciation is meant to recover all construction costs incurred over the life cycle of the pipeline However, for tax purposes, depreciation is a cost and, therefore, not subject to taxation For example, if your cash flow including depreciation is \$100, and depreciation is \$20, taxable profits under our system would be \$80

Ms Solomina There should be an increase in the cash flow, so depreciation is treated as a cost In general, there are several approaches to depreciation One approach is to allocate construction costs equally over the life of the facility, another approach is to consider depreciation like in the tax system calculating depreciation as a function of the remaining capital base, but accelerate it within the first periods, as envisioned within our tax system

Mr Merklein I have reviewed your depreciation and tax code and believe, unless corrected by your experts, that straight line depreciation is permitted for pipelines

Ms Solomina Straight-line depreciation may be used within the book accounting system, but if it differs from our tax accounting system, it should be treated in a different way

Mr Merklein turned to the participants in general and asked whether, in their experience, straight-line depreciation has been used in Kazakhstan pipeline accounting

Ms Solomina Since January 1, depreciation can be calculated as in the taxation system

There followed a discussion regarding a new decree that envisions a 50% turn-over to the Government of profits of natural monopolies The question was asked how this would affect KazakhNefteProvod

Mr Merklein From what I have heard so far, since KazakhNefteProvod is the exclusive owner of the pipeline system at present, there may be no effect, other than a reduction of cash flows and profits to the company If foreign companies are invited to acquire part of the pipeline company's assets, the new decree will strongly affect the situation

Ms Solomina What is the starting point when calculating the model?

Mr Merklein The driving mechanism throughout the model was a target rate of return (IRR) of 15%, on the assumption that KazakhNefteProvod would want to attract foreign investors

Ms Solomina What is the IRR in North America on the average?

Mr Merklein For natural gas pipelines the regulatory rate of return on investment runs around 11 to 12% For oil pipelines it is somewhat less, on the order of 8 to 9%, but I would have to verify the latter numbers

Ms Solomina Do you think a 15% IRR for Kazakhstan is OK, in the sense that it will encourage foreign investors to come?

Mr Merklein That depends on the investor Why should a sophisticated private investor wish to invest in building a pipeline in Kazakhstan at 8% if he can buy virtually risk-free US Government bonds or Bank Certificates of Deposits in the United States currently yielding 7 to 8%? There are basically three ways to raise pipeline funds in Kazakhstan

Through a public tender by sending an invitation to every potentially interested investor, generally through an advertisement in a widely published financial paper,
Through the World Bank or other multilateral or bilateral donors, generally at lower than market interest rates, and
By inviting oil shippers to buy shares in the pipeline system they will need to bring their oil to market

Ms Solomina What is the period to recover costs for construction and development?
According to the cash flow approach, it is 30 years

Mr Merklein If funds can be raised on a loan basis, 15 to 20 years are more realistic terms

Ms Solomina In how many years can it be repaid?

Mr Merklein As I said, 20 years would be a credible term, provided that the tariffs are genuinely based on cost recovery and administered by a independent agency with international credibility

Jerry Durbin If crude oil is to be delivered to the market, there would be no average The tariff would depend on the specific project at hand The volumes can dictate the time for repayment

Mr Merklein suggested that a meeting be arranged with Ms Solomina to discuss the new decree regarding a 50% deduction from monopoly profits (Note In a subsequent phone call, the meeting was set for Tuesday, August 26)

Galina Yakovleva Tomorrow we will meet and review all the details I suggest that in the future Hagler Bailly provide advance copies of all tables and numbers like those we received today, prior to the next Steering Committee Meeting, so that we might make corrections and introduce amendments and adjustments If September 25 is the first day of the next Steering Committee Meeting, then the materials should be sent to all members no later than September 22

Bob Williams What about debt? It is missing in the model We should know the effect of current debts on the tariff calculation

Galina Yakovleva You can learn about debts when you get to Aktau As a rule, our accounts receivable are in excess of our accounts payable The debt is not paid due to a pervasive non-payment situation, but eventually it will be paid We say that the debt is a reality, but it has nothing to do with tariffs On July 1, Anna Vinogradova from the South Affiliate of

KazakhNefteProvod applied to the Anti-Monopoly Committee to raise tariffs because they could not recover costs. Last year a cash method was used. When we consider major repairs there is deformation since these repairs are funded from profits.

Rassima Zakirova We worked with Mr Maruszewski who was assisting us in distributing costs to different accounting items such as operational, administrative and other costs.

Mike Biddison As I said in the beginning, we will focus on both the model and the accounting side. Our accounting efforts are the reason why we are sending our people to Aktau. We have specifically brought Mr Claude Eggleton to provide guidance in this area. Mr Kabyldin advised us to go there as well. We know that Mr Merklein's figures are early estimates and as such are not error-free. Hence our attempt to collect actual historical data in Aktau. But the purpose of today's meeting was to introduce the methodology and to hear your response.

Galina Yakovleva Then I misunderstood. I thought Hagler Bailly's figures were based on our actual figures.

Mr Merklein The cost numbers are simulated, and physical characteristics are actual.

ISSUES TO BE CONSIDERED

Meet with Ms G Yakovleva, R Zakirova and T Solomina on Thursday, August 21 to discuss pipelines configurations and other details.

Send materials for the Fifth Steering Committee Meeting no later than September 22 for the Committee Members so they can familiarize themselves with the materials and prepare their comments and suggestions.

The next Steering Committee Meeting to be conducted on Thursday, September 25, where the final draft of the tariff methodology with actual tariff numbers will be presented.

MINUTES OF FIFTH MEETING
PIPELINE TARIFF STEERING COMMITTEE

SEPTEMBER 25, 1997

Mr K Kabyldin, Chairman
Mr M Biddison, Cochairman

Mr Biddison opened the meeting with a brief introduction of the attendants. As had been the pattern throughout, the work of the Steering Committee had attracted increasing interest and respect, so much so that there were more people present and more organizations represented on each succeeding meeting including this Fifth Meeting of the Oil Pipeline Tariff Steering Committee.

Following the introduction of attendants, Mr Biddison informed the participants that the deadline for the development of an acceptable pipeline tariff methodology and suggested tariffs had been shortened unexpectedly by the Government. In an attempt to be responsive to the Government's new time schedule, the Hagler Bailly consulting team had essentially completed its methodology work and had put it in writing under significant time pressure, with polishing and augmentation of final text to follow. As regards the oil pipeline tariff suggestions, they were just that, suggestions which were likely to be reviewed and changed by the Kazakhstan authorities. With that, he gave the word to Chairman Kabyldin.

Mr Kabyldin took note of the many oil producers that were represented at the Fifth Meeting of the Pipeline Tariff Steering Committee. Their numbers, he suggested, were a solid indication of the importance they attached to the work of this Committee. Mr Kabyldin pointed out that the principal objective of the Steering Committee had been the development of an acceptable pipeline tariff methodology that should be transparent and fair to all participants, yet in line with Kazakhstan laws and regulations, especially with its new market-oriented accounting procedures. He emphasized that their current tariff methodology had not been questioned since its inception, even though it was clear to all that it was completely inadequate in meeting the new demands placed on it as a result of the industry's intimate contacts with the Western World.

As to the Hagler Bailly report, Mr Kabyldin reinforced Mr Biddison's view that the recommended tariffs will be taken under advisement by KazTransOil, formerly KazakhNefteProvod, and undoubtedly by other Governmental Authorities, including the

Anti-Monopoly Committee, where they will be debated and quite possibly revised

Mr Kabyldin also pointed out that the pipeline work is far from finished. He said that one missing element is a thorough valuation of the pipeline assets. In addition, the conversion to Kazakhstan's new accounting system and, within that system, the classification of expenses to fit the suggested tariff methodology still remain to be done and he expressed the hope that the accounting work will be ready for implementation by the beginning of 1998.

Mr Kabyldin finished his remarks by expressing his appreciation to the Hagler Bailly consultants and to the foreign producers for their cooperation in this gargantuan task and he gave firm assurances that the recommended tariff methodology will be accepted in designing future oil pipeline tariffs.

Mr Biddison responded by assuring Mr Kabyldin that the Hagler Bailly team views its report as a working draft, and that the team is looking forward to receiving additional comments of KazTransOil's professional staff for review and incorporation. He pointed out that a first version of the report had been submitted to KazTransOil a week ago and that some of their recommendations and comments, as well as similar comments by the Kazakhstan Petroleum Association (KPA), had already been incorporated. The reason for taking the unusual step in submitting a redlined working paper was to facilitate the work of all participants in assessing the changes that had been suggested in the past week and that had been incorporated in the revised draft document.

Mr Biddison proceeded to explain the reason for the unexpected acceleration of the work of the Hagler Bailly working team since the preceding meeting of the Pipeline Tariff Steering Committee. Following the Fourth Meeting of the Steering Committee on August 20, the new President of KazTransOil, Mr Kapparov, was requested to give a presentation on pipeline tariffs to the Government of Kazakhstan on Friday, September 5. This presentation was part of an overall review of natural monopoly tariffs currently under development in the Republic of Kazakhstan. At that meeting, all natural monopolies were advised to submit their newly proposed tariffs by September 15.

Mr Kapparov responded to his Government's request by calling USAID the following Monday and requesting that the Hagler Bailly tariff work be pursued on an accelerated basis. An early draft report was well received by Mr Kapparov. This brought on a period of unusually hectic work in close cooperation with representatives of KazTransOil and, to some extent, with the KPA. As a result, the report was moved forward at breakneck speed. Meetings were also held with the Anti-Monopoly Committee and other Government Organizations to discuss the draft report under development and the proposed tariff methodology it contained. Finally, the Hagler

Bailly team was asked to develop a hands-on instruction booklet for use by Government Officials likely to be involved in pipeline tariff work, notably KazTransOil and the Anti-Monopoly Committee. Mr. Biddison pointed out that a first draft of this instruction manual is nearing completion. With this, the meeting was turned over to Dr. Bhamy Shenoy who gave a comparison of the existing and proposed tariff methodologies and an analysis of the Hagler Bailly recommended tariff rates.

Dr. Shenoy began his presentation by pointing out that the costs used in the Hagler Bailly analysis are in effect KazTransOil projected costs as used in their application for higher rates submitted to the Anti-Monopoly Committee (AMC). Under the tariff methodology currently in effect, there are four cost categories. These are (1) Depreciation, (2) Capital Improvement, (3) Operations and Materials, and (4) Other Taxes. However, the item labeled "Capital Improvements" is what under the proposed methodology would be called "Maintenance Expenditures". These four cost categories add up to "Total Expenses" and are subject to a "Profit Margin" (actually a mark-up) to be negotiated with the AMC. The sum of Total Expenses and Profits, divided by the anticipated throughput, yields the tariff as calculated under the current system.

Dr. Shenoy proceeded to explain that, under the newly proposed tariff structure, the Total Cost of Service includes the following factors: Operating Expenditures, Maintenance Expenditures, Local and General Administrative Expenses and Overhead, Return on Assets, and Income Tax. As under the existing system, the Pipeline Tariff is equal to the Total Cost of Service divided by Total Throughput. Using overhead projections, Dr. Shenoy then went on to show in some detail where the current and the proposed cost of service elements differed.

Focusing his attention on the Western and most important pipeline system in Kazakhstan, YuzNefteProvod, Dr. Shenoy pointed out that the total throughput capacity of the system is 61.8 billion tonne-kilometers per year, compared to an actual throughput rate of 13.2 billion tonne-kilometers. The actual rate is based on the pipeline performance over the first six months of 1997, extrapolated for the rest of the year, and it corresponds to a capacity utilization of 21.3%. Applying that utilization rate to the computer-calculated book value of the YuzNefteProvod system yields a discounted book value of \$166 million.

The YuzNefteProvod system consists of a large number of individual pipeline sections that are anywhere between 28 years and 1 year old and that, accordingly, have a remaining depreciation life of 2 to 29 years. Choosing 20 years as an acceptable remaining depreciation cycle for the system as a whole, and opting for straight line depreciation, the rate of return on asset then is that book value divided by twenty, for the remaining 20 years of the overall life cycle of the system. Dr. Shenoy pointed out that, under existing tax law, a 25% declining balance depreciation regime

is the allowable ceiling, but he recommended that, for tariff rate determinations, a 20-year straight line depreciation rate be used for all existing YuzNefteProvod assets. As regards future investments in pipeline construction, Dr. Shenoy recommended that a 30-year SLD regime be applied, and that miscellaneous auxiliary equipment be depreciated at whatever rates apply under current law.

The book value of the remaining YuzNefteProvod asset base is a factor not only in determining the rate of depreciation, which is a cost-of-service element, but also in calculating the return on asset. Using a 15% internal rate of return as the opportunity cost of foreign investors, that is the factor used on the remaining asset base as the return on assets, which is another cost-of-service element. Dr. Shenoy pointed out that working capital, defined as line fill plus accounts receivable minus accounts payable should be considered as part of the asset rate base. In the case at hand, line fill belongs to the shippers, as ascertained from KazTransOil. Based on a quick analysis of the remaining elements of working capital which were found to be relatively insignificant, accounts receivable and payable were not included in the asset rate base. However, Dr. Shenoy recommended that working capital be included in future applications. Be this as it may, the Hagler Bailly calculated tariff under this system was \$7.32 per 1000 tonne-kilometers, compared to KazTransOil's request for a tariff rate of \$7.97.

Looking at the system as a whole, the overall utilization rate is 12.3%, for a discounted book value for all of Kazakhstan's pipeline facilities of \$228.8 million. This compares to an earlier KazTransOil book value of \$150 million. The Hagler Bailly team certainly does not recommend the application of one tariff for the entire country, since this would involve cross-subsidization from fully utilized to idle lines, with shippers especially on the YuzNefteProvod system contributing financially to the maintenance of the partially idle Pavlodar system. Still, in response to a specific request, an equivalent country-wide tariff was calculated at \$7.93 per 1000 tonne-kilometers.

Other discussion points in Dr. Shenoy's presentation dealt with an analysis of the impact of deviations from the base case on tariffs. For example, a sensitivity analysis of throughput rates on tariffs revealed that, under the proposed system, the tariff in the YuzNefteProvod system would come down from \$7.32 per 1000 tonne-kilometers at the current utilization rate of 21.3% to \$6.67, if that rate rose to 40%. A similar analysis of the impact of different rates of return showed that, for the country as a whole, the pipeline tariff, calculated to be \$7.93 per 1000 tonne-kilometers at 15%, would be reduced to \$7.32 at 12% and to \$6.73 at 9%.

Because the proposed tariff under the new system includes substantial funds needed for improvement of the pipeline system, as requested by KazTransOil, the proposal contains a significant rate increase. To mitigate the rate shock, Dr. Shenoy suggested the introduction of a

two-year transition period during which the rate would be allowed to rise gradually as follows (tariffs in \$ per 1000 tonne-kilometers)

| Pipeline System | FY 1998 | FY 1999 |
|-----------------|---------|---------|
| YuzNefteProvod | \$6 40 | \$7 32 |
| Pavlodar | \$8 80 | \$9 68 |
| Aktyubinsk | \$10 40 | \$11 37 |

Dr Shenoy completed his formal presentation by pointing out that these are overall tariffs that do not consider specific cost items such as those associated with pumping high-viscosity crudes or crudes with high pour points, nor do they consider separate terminalling or tankage charges. These types of unbundled tariffs can and should be introduced after appropriate adjustments and tracking have been made possible through the introduction of KazTransOil's new accounting system.

Mr Biddison then took the floor to remind the audience that the tariffs are, at best, preliminary suggestions to KazTransOil which reserves the right to make appropriate adjustments. However, he felt that the suggested tariff methodology is firm and nearly complete, except for an instruction manual that will be prepared in response to a specific request by KazTransOil.

Mr Shanbaev, Agency for Strategic Resources and Control: One very important consideration for us is the need to hold tariffs down to an absolute minimum. How will you justify the suggested increases in tariffs?

Dr Shenoy: The tariff will be cost-of-service based and it will be transparent. Accordingly, there will be no padding of expenses. Having said this, the producers will have to address the issue how this tariff will affect their operations.

Mr Shanbaev: How accurate do you believe these numbers are?

Dr Shenoy: We have made adjustments to KazTransOil numbers where appropriate. For example, we imposed a 40-45% ceiling on O&M costs, as a percentage of total revenue. In addition, our team went to Aktau to review the books of YuzNefteProvod to make sure that extraneous costs, such as those associated with the operation and maintenance of the water pipeline, are not included. Having said that, we agree that there may be places where further reductions in O&M costs might be possible. As regards the 15% return on equity we have proposed, that number was never used by KazTransOil.

Mr Shanbaev: We believe that we need a more thorough research for Kazakhstan cost estimates.

Eggleton Points out that the Hagler Bailly team went to great lengths to balance the interests of the pipeline and the shippers Explains in some detail the steps taken in this area

Ms Zakirova, KazTransOil It has never been the objective to have the consulting team calculate actual tariffs for us In fact, we were not too happy when the tariff tables were published by them The main objective was the development of an acceptable methodology We are looking forward to working with the Hagler Bailly consultants in developing tariffs that will be acceptable to the shippers and to us

Mr Simpson, Mobil Oil Speaking for Mobil only, I have certain concerns regarding these suggested tariffs These tariffs seem to meet the objective of attracting foreign investors, but they fail to meet the true objectives of the country and the producers The substantial increase in tariffs shown here may be damaging We view pipelines as strategic assets in a macro system The two areas we need to focus on are (1) the profit level of the utility and (2) the book value of the pipeline system which in this case is based on replacement value

Mr Biddison We have discussed all of these issues and have worked hard to find an appropriate balance This has been an excellent forum for the discussion of these and other potentially contentious issues We hope that the Steering Committee will continue to meet and that, in addition, informal meetings will take place between producers and KazTransOil

Dr Shenoy The number we have put on the table are in some way misleading, because they do not reflect our suggestion of a concurrent rate reduction elsewhere I am referring to the KazTransOil-imposed export surcharge of \$3.30 per tonne Half of that surcharge goes to the State, and half is retained by KazTransOil where it is used to augment its maintenance funds Our proposed tariff already includes all required maintenance charges so that, under the proposed system, the retention of at least the KazTransOil half of the export surcharge would amount to double-dipping We have proposed that at a very minimum the KazTransOil half of the surcharge be eliminated, but we really are convinced that KazTransOil would be well advised to do away with the entire surcharge altogether

Paul Davis, USAID What is needed is a reasonable rate of return on investment, as reflected in this report As far as I can see, there are two issues that warrant discussion

The reasonableness of the internal rate of return used here, and
The investor's opportunity costs

As far as I can tell, the consultants have considered these The challenge will be to come up with the best reasonable cost possible We will be working with KazTransOil to develop these

Mr Shanbaev One more point In accordance with the proposed tariff methodology, tariffs will come down if throughput goes up Does the pipeline have an interest in reducing tariffs if and when that happens?

Merklein First, the independent regulatory agency we have been advocating throughout these proceedings would see to it that tariffs will go down when throughput rises And second, we still intend to eventually introduce an incentive system similar to the one in effect in the United States and in Canada Such an incentive system will make it profitable for the pipeline, within a regulated framework, to increase throughput or to improve operating efficiencies, for the financial benefit of both the pipeline and the producer/shipper

Williams, TCO To increase throughput, you need producers If tariffs are too high, you will slow the growth in production and in pipeline throughput Hence tariffs, if raised too high, can be self-defeating

Following Dr Shenoy's presentation and question and answer session, the following five specific topics were taken up

Asset Valuation, Merklein

Rate of Return, Shenoy

O&M Expenses, Eggleton

Tariff Computer Model and its Relation to Subsequent Tariff Work, Merklein

Line Fill and Working Capital, Shenoy

A Regarding asset valuation, Merklein explained why the internationally accepted method of discounted replacement value was chosen To begin with, most of the Kazakhstan pipeline system was built under the Soviet System, with funding denominated in rubles and directed from Moscow The ruble has had its problems of inflation and multiple devaluations, so that a conversion to modern-day Tenges or dollars is nearly impossible Even if it were, the prices used at the time were distorted in a centrally controlled economic environment Thus construction costs based on prices set by Government fiat would fail to reflect the pipeline system's original value

These problems are not new to analysts dealing with former Soviet Union industrial systems, and they have largely been resolved by estimating what it would cost today to build a similar system, if it were to be built on the basis of competitive world prices obtained by tender For example, if a pipeline with a historic life cycle of 30 years were to cost \$500 million today, and if it was constructed 20 years ago, then, based on a 30-year straight-line depreciation regime, its value today would be $\$500(1-20/30)$ or \$167 million If fully utilized and in good operating

condition, that would be an acceptable book value for the system at least for tariff-setting purposes. If neither of the two conditions mentioned above apply, appropriate adjustments would have to be made. In the Kazakhstan pipeline case, where the system was valued at depreciated replacement values line by line and section by section, an adjustment was made for capacity utilization, bringing the unadjusted book value of \$1.9 billion to \$229 million.

This book value is not to be confused with what the pipeline system might be worth in terms of current market value. Given the significant exploration, rehabilitation and production development work currently under way in Kazakhstan, oil production, and with its capacity utilization, is bound to rise with time. Certainly, a potential buyer of the system would estimate what that increase capacity utilization would be over time, and would adjust his going-in negotiating position accordingly.

B. Regarding the rate of return used in this discussion, Dr. Shenoy provided some detail on how the 15% rate of return was derived for Kazakhstan. Starting with a risk-free long-term US Government bond which during the last four decades had yielded about 7.0%, he assessed an industry risk premium at two percent, a structural risk premium at three percent, and a country risk premium at three percent, for a total risk premium of eight percent. Adding the various risk premiums to the risk-free yield of 7 percent yields the 15-percent risk used in the Hagler Bailly tariff work. Dr. Shenoy pointed out that the World Bank had used that same risk factor of 15% on oil and gas operations in Russia, as mentioned earlier by Merklein.

The industry risk premium covers risks uniquely associated with pipeline operations. It is a measure of the compensation an investor would have to be given to allocate his capital to pipelines rather than risk-free US Government bonds. The two-percent premium assessed on Kazakhstan pipelines is about the same as that in the United States. The structural risk covers things such as the uncertain nature of the current and future corporate structure of KazTransOil, which has been formed less than half a year ago and whose ultimate structure is at the moment unknown, even though there is reason to believe that the company will undergo partial or total privatization. This risk also includes non-payment problems currently encountered by the pipeline. The country risk includes all those risks that are associated with the unresolved legal and regulatory issues that pose potential risks to investors, including potential future exchange rate problems and problems currently encountered in related industries such as the unsecured reallocation of petroleum products to the agricultural sector during the spring seeding and fall harvesting seasons.

Dr. Shenoy's remarks regarding the rate of return used in the tariff analysis triggered an unexpected reaction from some of the oil companies present. From the outset, the Hagler Bailly team had suggested that a rate of return of 15% is appropriate for use in assessing the Kazakhstan

pipeline tariff. Of the oil companies present at the various Steering Committee Meetings and elsewhere, one, Mobil Oil, had suggested consistently that 15 percent is too high and that something on the order of 9 percent is more appropriate. One other oil company, Unocal, had indicated with equal consistency that 15 percent may be too low and had suggested something on the order of 20 percent.

Mr. Simpson with Mobil began the rate-of-return debate by asking whether the World Bank rate of return was for exploration and production operations. The answer, provided by Merklein, was that this rate was for rehabilitation projects in well established oil fields, and therefore provided a zero geological risk. Mr. Simpson proceeded to state that the rate of return is really a strategic issue. That at the government level, rather than at the pipeline company level, a decision would need to be made as to whether profits through pipeline operations were more important than the development and production of oil reserves. Regarding the structural risk factor used by Hagler Bailly consultants, Mr. Simpson pointed out that no one knew whether the company really would be privatized or not and that, therefore, the privatization risk does not enter the picture. Regarding the customers' inability to pay, Mr. Simpson pointed out that the pipeline now had the authority to withhold crude oil in lieu of payment and that, for the two reasons enunciated above, the structural risk factor of 3 percent was unacceptable.

With regard to the three percent country risk, Mr. Simpson felt that the various international oil companies had already answered that question by their very presence in Kazakhstan. He mentioned that the Kazakhstan Government had issued bonds in international money markets and that their offering was oversubscribed. There is no shortage of capital moving freely into the country, according to Mr. Simpson, and the absence of a regulatory commission made the country more rather than less attractive, so the three percent country risk simply does not apply.

That leaves the two-percent industry risk which, added to the basic 7 percent yield on risk-free bonds, should give an overall rate of return of 9%.

Mr. Conrad with Oryx Energy Company then took the floor to state that he and his company were in complete agreement with the statement just made by Mr. Simpson. He suggested that the tariff had the non-payment issue backwards. Instead of raising tariffs to compensate for non-collectibles, which in essence rewards the pipeline company for not collecting on its accounts receivable and penalizes the paying shipper, this would be handled in the West by a bad-debt add-on charge to the unreliable shipper.

Dr. Batt, speaking for Unocal, then took the floor to point out that the pipeline industry in Kazakhstan is not the same as in the United States. He brought up one additional risk, not

mentioned in the Hagler Bailly tariff discussion, and that was the risk that Russia might not in the future accept Kazakh crude oil for delivery to export markets

Mr Biddison with Hagler Bailly interjected at that point that he could not see any investor, including oil producers and pipeline operators, investing in Kazakhstan for a mere 9% rate of return

Mr Conrad with Oryx suggested that a tariff based on actual throughput is methodologically not acceptable. He felt that the risk of declining or generally below-capacity throughput rates is the pipeline company's risk and should not be born by the shippers

Dr Shenoy reminded his audience that the rates are based on projected costs and do not consider increases in throughput rates. If the throughput rates were to rise, the more likely scenario, the tariffs would come down

In response to Mr Simpson's argument regarding the structural risk that there was no guarantee that the pipeline would be privatized and that therefore the privatization risk does not apply, Merklein asked rhetorically what risk should be applied if the company remained a state-owned enterprise

Mr Williams, speaking on behalf of Chevron, suggested that investments in pipelines are generally not made to make money but to move crude oil. He pointed out that foreign investors coming to Kazakhstan for the purpose of making a substantial rate of return on its pipeline system and subsequently repatriating their profits would drive producers out of the country. He suggested that the pipeline would better serve its own interests and those of the producers by using debt-money where every dollar secured goes into the pipeline rather than partially to the Government, via taxation on profits

Ms Zakirova, KazTransOil, pointed out that foreign investors cannot ignore the risks mentioned in the Hagler Bailly study. She said that she agreed with Dr Shenoy's suggestion regarding the need to eliminate the export surcharge

Mr Eggleton suggested that it would be good for all concerned to have KazTransOil's reaction to the suggested 15% rate of return on investments in Kazakhstan pipelines, since until now, the discussion has been dominated by Western companies

Ms Zakirova responded that this was a new concept for KazTransOil and that, for this reason, they relied on the judgment of Hagler Bailly consultants

Mr Simpson, addressing the risk (first mentioned by Dr Batt) that Russia might not in the future accept Kazakh crude oil for delivery to export markets, acknowledged that Russia had control over the export of oil from Kazakhstan. However, he suggested that the argument was irrelevant. Russia currently has an export quota system for Kazakh crude of over 7 million tonnes per year out of its total production of 21 million tonnes. Moreover, Kazakhstan is the number two recipient of investment funds among all former Soviet Blocks States. About 60% of that investment is in up-stream oil and gas ventures. Given this stream of investments from all over the world, Russia will be unable to unilaterally close its outlets to Kazakh oil. If it did, the world at large would put pressure on Russia to re-open and maintain its crude-oil outlets.

C O&M costs were the next subject, addressed by Mr Eggleton. Building on Dr Shenoy's earlier presentation, Mr Eggleton added that under the Kazakhstan system expenses normally associated with operations and maintenance enter the revenue and rate design from a number of points. One such source is normally termed a capital improvement fund and is used mostly for maintenance construction work. This amount is limited to no more than 10 percent of book asset value. In addition, operations and maintenance has a separate line item as part of operating expenses.

As mentioned by Dr Shenoy, once all operating expenses are accumulated, a percentage mark-up is applied to them, following negotiations with the Anti-Monopoly Committee. That mark-up includes allowances for income taxes, true capital improvements, other costs that, under a Western system, would be considered part of operations and maintenance, capital maintenance expenditures that exceed the 10% ceiling mentioned earlier, and other expenditures. Even part of the export surcharge that is levied on producer revenues can be used for capital maintenance and improvement.

In our tariff effort, we placed an upper boundary on operations and maintenance costs, consistent with international pipeline experience, for the purpose of calculating tariff rates.

D The Computer Model and its Relation to Subsequent Work was the topic addressed by Mr Merklein. This spreadsheet model was designed to calculate reasonable tariffs for given sizes of pipelines in operation for given years of service. Mr Merklein pointed out that the Hagler Bailly team had been pursuing that objective on two parallel courses. One approach was to use historical Kazakhstan cost data as carried on the cost accounting records of KazTransOil, and to adjust these data to fit the new Kazakhstan accounting system. It was hoped that the accounting concept could eventually be taken one step further in adapting the data to a Kazakhstan accounting system capable of meeting the Country's future regulatory requirements. Given the difficulty in obtaining the needed historical data in time for a definitive assessment of recommended KazTransOil tariffs, a second approach was pursued simultaneously, by doing a

computer simulation of pipeline tariffs following North American regulatory standards. This process involves the calculation of oil pipeline tariffs for standard length pipelines of various diameters, as they might arise if constructed in North America under competitive conditions. As expected, the model shows that the unit transmission cost per ton of oil declines as the pipeline diameter rises.

As constructed, the model retains the economic and political structure of Kazakhstan as of the time the lines were built. This assumes, among other things, that the pipelines were built by the Government, that there was no long-term debt involved in building the lines, and that the lines were and for the moment continue to be under 100% equity ownership, presently belonging to KazTransOil. A model version that permits different debt/equity structures as well as different depreciation and tax regimes has been developed earlier and is basically ready for policy analyses and other uses, following minor adaptations to assure conformity with the model of this report.

The cost estimates for the construction of pipelines in the United States and in Canada contained in this model literally rest on hundreds of individual pipeline construction projects. To remove part of the short-distance bias inherent in the 1995/6 data, several adjustments were made to the raw data, as described in some detail in the full report to be published later.

One important variable in the oil pipeline tariff model is pipeline throughput capacity. This is a more elusive variable than one might think at first glance. Hagler Bailly selected throughput rates generally somewhat above those listed by KazTransOil, but below the theoretical rates suggested from computer runs.

Many more assumptions went into the development of the Kazakhstan pipeline tariff model including a regime of 30-year straight-line depreciation.

In discussions with Kazakhstan counterparts the modeling team detected a fundamental discrepancy in the definition of profits. Merklein emphasized that tariff rates must be designed in such a way as to make sure that the investor, equity or debt, will achieve the rate of return he has been accorded through his negotiations. To the extent that the investor's profits will be taxed, he must be assured a pre-tax rate of return high enough to pay the taxes due the Government and to retain a cash flow high enough to meet his agreed-upon after-tax rate of return. In Kazakhstan, by contrast, a mark-up procedure was used, as mentioned earlier by Dr Shenoy. This mark-up was negotiated between the pipeline and the tariff-setting agency, the Anti-Monopoly Committee.

The model was used and various runs were made that will be presented in the final report.

Given the recent shortening of the deadlines in delivering both a viable methodology and suggested tariffs, the book values calculated by the model for the various Kazakhstan pipeline divisions (YuzNefteProvod, Aktyubinsk, and Pavlodar), and adjusted for capacity utilization were used as the asset base in the final regulatory tariff calculations

E Line fill and working capital, the last of the five specialty topics, was addressed by Dr Shenoy who reiterated that working capital, defined primarily as line fill plus accounts receivable minus accounts payable should be considered as part of the asset rate base. As mentioned, according to KazTransOil, line fill belongs to the shippers. A quick analysis of the remaining elements of working capital suggested that they were relatively insignificant. Accordingly, the part of working capital represented by accounts receivable minus accounts payable was not included in the asset rate base. Dr Shenoy used the occasion to remind KazTransOil staff that capital should be included in future applications.

Mr. Claude Eggleton gave the final presentation of the day, discussing the Procedures Manual that is being jointly written with the staff of KazTransOil. He opened his presentation by reviewing the chain of events that led to development of the procedures manual. The first link in the development of this effort was Merklein's computerized model. This provided the foundation for the second effort which was the creation of bench mark rates which were considered by KazTransOil and provided the stimulus for them to request our assistance in a joint effort to create a procedures manual. That manual should follow the style and format of the document now being utilized by the Anti-Monopoly Committee in their rate applications procedures. The staff of Hagler Bailly used a publication that had been previously filed by Yuznefteprovod (the Southern Pipeline) as a standard format.

The focus of the efforts by the consultants is to place the tools in the hands of the Staff of KazTransOil to assist them in utilizing the recommended return-on-rate-base tariff design and still meet their filing requirements for the Anti-Monopoly Committee. The ultimate document will not be written by the consultants but by the Staff of KazTransOil, with guidance by Hagler Bailly consultants, to fit their needs within their own working and regulatory environment.

The basic document follows the form of the Anti-Monopoly Committee with a definitions section, general section, procedures, etc. Our definitions section is extensive and has been moved to an Appendix. The consultant definitions are provided to illustrate and improve the understanding of the concepts described in the step-by-step procedures in the manual. The staff of KazTransOil is reviewing and adapting this terminology to meet its accounting structure, tax structure, and other rules and regulations.

In addition to the definitions appendix, there are three other appendices. One appendix will be a sample transportation tariff sheet which will make transparent the applicability, availability rates, and terms and conditions. A second sample will be a tariff rider sheet, that is, an add-on rate to provide cost recovery to the pipeline company from the shipper that caused the cost. The sample rider will be a heating rate. The purpose of a tariff sheet is to make clear to potential and current customers not only the rate itself, but the terms and conditions under which the service will be provided.

Mr. Eggleton then presented a series of viewgraphs that showed the fundamental formulas used in a rate calculation. These are shown as follows:

CASH + SUPPLIES & MATERIALS + OIL INVENTORIES + PREPAID DEPOSITS =
WORKING CAPITAL

WORKING CAPITAL - CURRENT LIABILITIES = NET WORKING CAPITAL

(BOOK VALUE OF PHYSICAL ASSETS - ACCUMULATED DEPRECIATION) + NET
WORKING CAPITAL = RATE BASE ASSETS

RATE OF RETURN X RATE BASE ASSETS = RETURN ON ASSETS

OPERATING EXPENSES + MAINTENANCE EXPENSES + ADMINISTRATIVE &
GENERAL EXPENSES = TOTAL OPERATING EXPENSES

DEPRECIATION LINE PIPE + DEPRECIATION PUMPING EQUIPMENT +
DEPRECIATION TRUCKS
+ DEPRECIATION OF ALL OTHER DEPRECIABLE PROPERTY = TOTAL
DEPRECIATION

ROAD TAX + ENVIRONMENTAL TAX + UNEMPLOYMENT TAX + OTHER
APPLICABLE TAXES = TAXES OTHER THAN INCOME TAX

TOTAL OPERATING EXPENSES + DEPRECIATION + TAXES OTHER THAN INCOME
TAXES =
TOTAL EXPENSES OTHER THAN INCOME TAXES

TOTAL CURRENT OPERATING REVENUE - EXPENSES OTHER THAN INCOME
TAXES = TAXABLE INCOME

TAX RATE APPLICABLE DURING THE TEST YEAR = INCOME TAX RATE

INCOME TAX RATE X CURRENT TAXABLE INCOME = CURRENT INCOME TAXES

RETURN ON ASSETS + EXPENSES OTHER THAN INCOME TAXES + CURRENT
INCOME TAXES = REVENUE REQUIREMENT

REVENUE REQUIREMENT = TRANSPORTATION RATE
THROUGHPUT

Mr Eggleton continued by indicating that the work is currently in draft for both the consultants and the counterparts on the staff of KazTransOil. Following the original request of the President of KazTransOil, Mr Nourlan Kapparov, to proceed with this procedural manual, Mr Kabyldin, Vice President of KazTransOil, provided effective leadership and coordination for both the consultants and primary authors of the work on the part of the pipeline. Mr Eggleton further noted the excellent support and demonstrated capabilities of Ms R Zakirova, Manager Investment Department, KazTransOil, who is acting as the KazTransOil primary author of the adapted materials. Mr Eggleton, in addition, commended the efforts of Ms S Mamyrbaeva, Vice-President of Finance who, though new to the overall methodology effort, has provided valuable insight into the progress of the manual.

Mr Eggleton also acknowledged the efforts of Mr Joseph Fischl to convert the current accounting system to the new accounting system. Mr Eggleton described the tariff and accounting efforts as mutually reinforcing and designed to provide the staff of KazTransOil with the tools to meet their needs of proposing new rates by the end of the year.

Mr Biddison then took the floor to remind the audience that little attention had been given to the all-important issue of providing an appropriate legal and regulatory environment within which the tariff methodology, now accepted in principle by KazTransOil, could flourish. He mentioned the need for an independent regulatory commission and pointed out that work along these lines was being pursued in parallel in connection with the natural monopoly law now under discussion within the Government of Kazakhstan.

Dr Batt, Unocal, in a wrap-up comment, reinforced Mr Biddison's remarks regarding the creation of an independent regulatory commission. He expressed his satisfaction that the Hagler Bailly project was taking steps to implement a program along the lines he had recommended in his preliminary study of the preceding fall. However, he indicated that he was disappointed that

political considerations have delayed the formation of the independent regulatory agency, that funding and start-up of assistance in the accounting conversion has been delayed until now, and that apparently no effort has been made to attract funding from multilateral lending agencies for the rehabilitation and reorganization of the water system on the Western pipeline operations. The latter, although not directly subsidized, still represents a potential problem to pipeline operations.

105

MINUTES OF SIXTH MEETING
PIPELINE TARIFF STEERING COMMITTEE
October 29, 1997

Mr Michael Biddison opened the meeting by explaining its principal purpose. He advised the audience that Hagler Bailly Services, Inc, had developed a Resolution which was to be submitted to the Government of the Republic of Kazakhstan, together with suggested methods and recommendations.

Mr Biddison then gave the floor to the Chairman of the Steering Committee, Mr Kabyldin, Vice-President of KazTransOil. Mr Kabyldin mentioned that the suggested methods represent many months of work of the Steering Committee members. He reminded his audience that the major objective of the project was to develop a transparent, cost-based methodology in accordance with international standards and practices, that would be acceptable to all interested parties.

Michael Biddison then asked all present participants of the Steering Committee to introduce themselves. After the introductions Michael Biddison asked all the participants to make comments, express concerns and to suggest any changes to the Resolution and the two attachments - the Methods and the Recommendations. Mr Biddison explained that the Resolution is a statement of facts covering mainly the different stages of the Steering Committee activities and the major issues it faced during its deliberations. He reminded the audience that the tariff methodology is to be approved by the beginning of 1998. Prior to being submitted to the Government of Kazakhstan, the Resolution, the Methods, and the Recommendations had to be approved by the Steering Committee Members.

The Steering Committee Members started a detailed discussion of all the points of the Resolution, the Methods and the Recommendations. Mr Ed Smith stated that in general it is an excellent achievement that Hagler Bailly/USAID has come up with such a set of documents.

The Steering Committee Members made a number of different suggestions and comments on the documents submitted. To provide more time for deliberation, it was decided that all the participants would send their final comments to Hagler Bailly/USAID in writing by COB on October 31, 1997.

Michael Biddison also stated that it is important to furnish additional detailed instructions on the use of the methodology. The AMC is supposed to get these detailed instructions to derive sound tariff rates. The new detailed instructions should replace the former instructions.

Ms Mamyrbayeva from KazTransOil mentioned that the more detailed methodology should be applicable not only to the existing oil pipelines but also to the CPC and CNPC projects

Ms Grigorieva from the AMC stated that the proposed methodology should be applicable also to gas pipelines and waterlines

Michael Biddison made the point that these carefully crafted documents are designed to give the proper messages to the Government of Kazakhstan so that it would be clear what needs to be done to effect the transition to a new system of pipeline tariffs. There followed a discussion regarding the need to specify what particular government bodies are responsible for certain actions, such as the approval of the new proposed methodology, the elimination of the export surcharge, etc. For example, Mr Dimitrov suggested to name the Ministry of Energy, Industry and Trade instead of the more generic designation of "Government of Kazakhstan". Mr Kinasov suggested to put the Agency for Development, Strategic Planning and Reforms in the place of the Anti-Monopoly Committee. It was decided to reflect on these issues and to come up with later suggestions. Mr Steve Levorne mentioned that there is concern about using a wrong agency in any of these documents.

Mr John Merritt from Unocal suggested to go through the whole methodology

Then there was a discussion on the oil and gas regulatory agency that was to be established in the future. Michael Biddison addressed the subject of the regulatory commission and explained that the word "independent" does not imply complete independence. He gave an example of how it works in the USA and mentioned as an example that there are 5 Commissioners in the USA State Regulatory Commission, that the Commission cannot be coerced by industry or political forces, that the decisions taken are based on a majority of votes cast in public hearings. Mr Biddison mentioned that USAID supports the idea of establishing such a regulatory agency in Kazakhstan that could handle a whole portfolio of oil and gas issues.

Mr Steve Levorne asked if all of this has been reflected in the Draft Law on Natural Monopolies

Ms Grigorieva mentioned that at the moment there are a lot of structural changes within the Government of Kazakhstan. She mentioned that within a period of 10 days it will be decided what status the Anti-Monopoly Committee will have, whether it is going to be an independent agency or not.

The question was raised if Hagler Bailly's suggestions are to establish one single regulatory agency that would be handling not only oil and gas but other natural monopoly sectors as well. Ms Mamyrbayeva expressed her idea that it should be one single entity. Michael Biddison

explained that our proposal first is to set up a regulatory agency for the power sector and then separately, for the oil and gas sector since these two sectors have vastly different issues to handle. Then a question was raised about the funding mechanism of this agency. Mr. Kinasov made a statement that the funding should be from the government budget and Ms. Grigorieva agreed to that too. Michael Biddison explained that the funding of the regulatory agency should be made from a small tariff component.

John Merritt asked what was meant by the upstream activities of the Regulatory Agency. He mentioned that he thought the Regulatory Commission would regulate only pipelines. Michael Biddison explained that the Regulatory Commission would regulate not only the pipelines but that it should also handle licensing, permits, safety and health regulations, conservation issues, tariff issues, etc. It was decided to work on the formulation of the provision on the establishment of the oil and gas regulatory agency in Kazakhstan.

Ms. Grigorieva mentioned that the Anti-Monopoly Committee also has a number of comments. It was reiterated that all the comments should be submitted in writing by COB on Friday, October 31, 1997. It is clear that the new methodology should provide for the recovery of all costs, but the Anti-Monopoly Committee has a special procedure which is currently in force. How to go about it? Would it be necessary to change all the existing instructions? If the new proposed methodology is to be introduced by January 1, 1998, all pertinent information would have to be submitted to the Anti-Monopoly Committee by December 1, 1998.

Thom Dimitrov stated that this is exactly the reason why this meeting is so important and that it is suggested to replace all of the existing documents. Michael Biddison reiterated that all the existing instructions will need to be changed.

Ms. Mamyrbayeva stated that the language of the Recommendations should be changed. If we recommend something to the Government of Kazakhstan, we cannot require it to take certain actions. She suggested that the Steering Committee can make recommendations to the Government of Kazakhstan, but that it cannot order it to do anything, so, instead of saying "The Government of Kazakhstan should" it is better to use such phrases as "it is suggested, it is recommended, etc."

The issue of the assets valuation was also raised. Michael Biddison mentioned that this is the most critical issue. David Skeels from British Gas made the point that it is difficult to state that there are internationally acceptable standards governing the valuation of assets. It was suggested that the shippers and the pipeline company should hold negotiations regarding the value of the pipeline company assets. Ms. Mamyrbayeva stated that it would not be correct for the shippers to be involved in the assets valuation. Neither the pipeline company, nor the shippers should decide

what the assets are worth. This is not going to be done by KazTransOil. It is going to be an independent company doing an engineering, technical, and financial auditing that will evaluate the assets. The value so determined will be entered into KazTransOil's accounting records.

Mr. Ed Smith stated that there has been already a precedent of the asset valuation in the CPC Project. This valuation was done by Bechtel, and Ernst & Young Company, and later the value was certified by the Russian and Kazakhstan parties. Ms. Mamyrbayeva stated that nobody should object to this. Mr. Biddison stated that this issue had been discussed at a number of meetings where we also discussed the utilization factor of used and useful assets.

Further discussion was held on the export surcharge. Ms. Grigorieva from the Anti-Monopoly Committee and Mr. Kinasov from KazTransOil spoke about the history of the establishment of this export surcharge. It was stated by Mr. Kinasov that this surcharge is used for special programs. The Anti-Monopoly Committee controls the way this export surcharge is used. In any event, the export surcharge does not really work, since for those special programs the pipeline system required \$2.30 per tonne of oil exported. However, since 50% of the surcharge was taken by the state, only \$1.65 was left for the program which is not enough. Michael Biddison mentioned that it is strongly recommended that the export surcharge be dropped from the suggested methodology. The new methodology provides for recovery of all reasonable costs. Steve Levorne added that this is the purpose of the new methodology. Michael Biddison stated that under the export surcharge regime the shippers are paying an extra \$1.65 to the government and don't receive any benefit for that. Mr. Kabyldin, the Vice-President of KazTransOil suggested to write down in the recommendation that the export surcharge should be eliminated after the new tariff methodology is approved. Michael Biddison suggested to name the exact document in accordance with which the export surcharge was adopted.

It was also mentioned that USAID is prepared to fund further Steering Committee meetings so that this work would be continued. It was reiterated that Hagler Bailly/USAID is ready to consider all of the written comments of the meeting participants submitted by the COB deadline of Friday, October 31, 1997, and to send the revised version to all the participants.

Mr. John Merritt mentioned that it would be difficult to remove from the rates all the hospitals, nurseries, bakeries and other entities that are not related to pipeline services. Ms. Mamyrbayeva and Mr. Kabyldin mentioned that these expenditures are treated separately. Michael Biddison explained that this issue had been discussed at a number of meetings and that Hagler Bailly experts had visited Aktau. Besides, subsidies and cross subsidies will be minimized. Claude Eggleton explained that water line and oil pipeline costs are easily segregated. As for company towns - they are going to be placed under the authorities of other government agencies.

Mr Eggleton then addressed issues relating to the proposed methodology. He mentioned that this methodology is the result of the joint effort of KazTransOil and Hagler Bailly. Mr Eggleton discussed each of the formulas used in the methodology. He expressed the hope that the methodology would be finally approved by the Anti-Monopoly Committee and other authorized bodies.

Mr Ed Smith raised the question about the way depreciation is going to be charged and what would happen in case of excess- or under-earnings. Mr Eggleton mentioned that the main purpose of the methodology was to retain the methodology as simple and as broad as possible. It should be a generic document to be accepted by the Anti-Monopoly Committee and used for future applications, but if the Steering Committee Members feel that such small details should be included, than a recommendation in writing should be made.

Mr Ed Smith asked if it is implied that KazTransOil should adjust its rate of return in the future.

Claude Eggleton explained that KazTransOil would submit its application and the Anti-Monopoly Committee or some other regulatory body would consider it. Mr Smith gave an example and said that if 1 million dollars was invested for several years and the risk went down, the rate of return should not go down. Claude Eggleton answered that Hagler Bailly recommendation was to reconsider the tariffs not more than once a year, but since the inflation rate is high, it should probably take place once every quarter of the year. Ed Smith suggested to fix the rate of return for several years but to adjust costs in accordance with the inflation rate.

Then, Ed Smith raised the issue of the different metric systems used and he spoke about differences in weight, density, cubic meters, barrels and gravity. Claude Eggleton responded that this concern is very well understood and this issue would be considered in the instructions. Ed Smith mentioned that TCO is losing \$1.75 per barrel due to the differences in the metric system. Ms Mamyrbayeva mentioned that the pipeline system also gets smaller volumes due to the differences in the metric system.

Ms Solomina raised the issue of the rate of return calculations. She informed the Steering Committee Members that there were some disputes between KazTransOil and Hagler Bailly. The KazTransOil proposal is to calculate the rate of return using the Internal Rate of Return. According to Ms Solomina, this is a more sophisticated technique, which would allow KazTransOil to make some assumptions and to forecast future cash flows, whereas the rate of return is a more simplified technique. This, in any event, is the point of argument between KazTransOil and the Hagler Bailly consultants. Ms Solomina mentioned that KazTransOil would submit its own written recommendations.

Michael Biddison responded by stating that the presented documents would be refined and relevant changes to the documents could still be made. Once again it was mentioned that the main purpose of the methodology is to ensure the principle of transparency, to elaborate tariff rates that would be reasonable, to provide for the recovery of the costs of all used and useful assets, and to provide a fair rate of return to investors. It is important that KazTransOil gets support from all parties on these documents so that they would be approved by the Government of Kazakhstan. Mr. Biddison also mentioned that Hagler Bailly was prepared to work closely with KazTransOil and that a final version of these documents would be written with all the important issues resolved.

The meeting was adjourned at 16:30.

APPENDIX D

MODEL EXCURSIONS OIL PIPELINE TARIFF MODEL

BASE CASE PARAMETERS 42-Inch Line
Zero Inflation
Zero Funds Used During Construction (FUDC)
100% Equity Ownership
30-Year Straight-Line Depreciation
Internal Rate of Return of 15.0%
Volume Standard
Operating and Maintenance Costs Standard

MODEL EXCURSIONS

FIRST-YEAR TARIFFS, Dollars per 1000 Tonne-Kilometers

| | |
|----------------|--------------------------------------|
| Base Case | \$6.32 |
| Excursion I | 10% IRR \$4.80 |
| Excursion II | Volume 50% of Standard \$12.64 |
| Excursion III | O&M Cost 50 % of Standard \$5.63 |
| Excursion IV | O&M Cost 150 % of Standard \$7.00 |
| Excursion V | Line Size of 36 Inches \$7.81 |
| Excursion VI | Line Size of 30 Inches \$9.67 |
| Excursion VII | Line Size of 24 Inches \$12.82 |
| Excursion VIII | Line Size of 16 Inches \$19.26 |
| Excursion IX | Line Size of 8 Inches \$40.97 |

INTRODUCTION

This draft report serves many purposes. Its main objective is to provide a cursory description of the oil pipeline tariff model which is being developed under the auspices of the United States Agency for International Development. The model is being submitted to Officials of Kazakhnefteprovod and other Members of the Steering Committee on Oil Pipeline Tariffs (the "Steering Committee"). As regards Kazakhnefteprovod, the model will be delivered with a short introductory course to Company Officials, so they will have a chance to familiarize themselves with it and to prepare comments they may have in time for the next Steering Committee Meeting scheduled for September 25. These company officials will also be asked to try to close any gaps that may remain in the delineation of the overall Kazakhnefteprovod oil pipeline system.

The model will also be delivered to Oil Company Officials, so they have time to understand well in advance the recommendations Hagler Bailly Consulting, Inc., will be forwarding to Kazakhnefteprovod and other Government Officials.

Finally, the draft report reiterates some of the broader recommendations that have been made from time to time in the course of our tariff work in Kazakhstan, and it delineates what steps remain to be done after the model has been accepted.

THE MODEL

The original task of the Hagler Bailly Consulting Team on oil pipeline tariffs was and continues to be to show how pipeline tariffs are regulated in North America, and how this regulatory approach could be adapted for use in Kazakhstan. The Team is pursuing that objective on two parallel courses. One approach is to use historical Kazakhstan cost data as carried on the cost accounting records of Kazakhnefteprovod, to adjust these data to fit the new Kazakhstan accounting system and, hopefully, to take the accounting concept one step further in adapting the data to a Kazakhstan accounting system capable of meeting the Country's future regulatory requirements. In addition to conformance to Kazakhstan law, such a system will have to be in line with international standards of transparency and accountancy, so that the people of Kazakhstan and as well as interested foreign investors can understand the tariff rules and deal with confidence with the Kazakhstan Regulatory Agency that will be recommended by the Hagler Bailly Team and that is expected to be created in the foreseeable future.

Given the difficulty in obtaining the needed historical data in time for a definitive assessment of recommended KazkhNefteProvod tariffs, a second approach is being pursued simultaneously, by doing a computer simulation of pipeline tariffs following North American regulatory standards. This process involves the calculation of oil pipeline tariffs for standard length pipelines of various diameters, as they might arise if constructed in North America under competitive conditions. As expected, the model shows that the unit transmission cost per ton of oil declines as the pipeline diameter rises.

Other than using North American cost and regulatory data, the model retains the economic and political structure of Kazakhstan as of the time the lines were built. This assumes, among other things, that the pipelines were built by the Government, that there was no long-term debt involved in building the lines, and that the lines were and for the moment continue to be under 100% equity ownership, presently belonging to Kazakhnefteprovod. A model version that permits different debt/equity structures as well as different depreciation and tax regimes has been developed earlier and is basically ready for policy analyses and other uses, following minor adaptations to assure conformity with the model of this report.

The cost estimates for the construction of pipelines in the United States and in Canada contained in this model literally rest on hundreds of individual pipeline construction projects. The source of this information is the Oil and Gas Journal, for 1995/6 cost data, Figure 1, as well as for cost data covering all pipeline construction projects in the United States and most in Canada going back in time over a period of ten years. All of these data came originally from the US Regulatory Agency responsible for interstate pipelines, the Federal Energy Regulatory Commission (FERC).

To remove part of the short-distance bias inherent in the 1995/6 data, the model only considers pipeline projects five miles or more in length (8 kilometers or more), but even with that adjustment, a substantial short-term bias remains. To remove any data bias that might be introduced by outliers of the ten-year data series, the two highest and the two lowest data points were removed for each line diameter. Even after that correction, the data base still contained many projects some 10 to 20 kilometers in length. That short-term bias was removed by derating the resulting average construction costs by 15%. The final pipeline construction costs so developed were close to the high end of a range of Kazakhstan cost estimates. The more important construction cost series used in developing this model are shown in Figure 2, including the Oil and Gas Journal data mentioned before, a theoretical model run by a major oil company, and some Kazakhstan data. The final selection, shown by a heavy dark line in Figure 2, closely parallels the Kazakhstan high estimates.

One important variable in the oil pipeline tariff model is pipeline throughput capacity. This is a more elusive variable than one might think at first glance. There are theoretical engineering models that permit the prediction of throughput capacities as a function of

various variables, including line diameter, line pressure, oil viscosity, and others Hagler Bailly did indeed run one of these models (mostly for an assessment of viscosity surcharges in pipeline tariffs), but models generally produce a range of throughput capacities for a variety of reasonable assumptions and, in any event, they fail to account for the fact that a pipeline cannot be expected to run continuously without interruption, year-in and year-out

Hagler Bailly selected throughput rates generally somewhat above those listed by Kazakhnefteprovod We believe that the Kazakhnefteprovod rates are within reason, but the listed rates generally seem to reflect the fact that most Kazakhstan crudes have characteristics, such as high viscosities and high pour points, that require more horsepower or bigger line diameters for given throughput rates or, conversely, that for given diameters and horsepower inputs, have reduced rates A downward correction for high-viscosity or high-pour point crudes is very reasonable engineering, but in a cost recovery regulatory

205

SLUG FIGURE 1
Construction costs 1995/6

PIPELINE.XLS

Figure 1

PIPELINE CONSTRUCTION COSTS

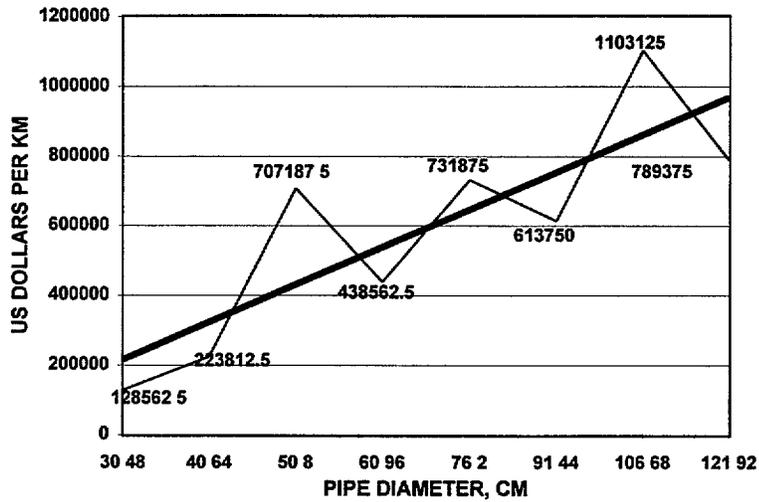
For Distances Greater than 5 Miles (8 km)

1995-1996

| Diameter | | Number o Projects | Average Length | | Cost | |
|----------|-------|----------------------|----------------|-----------|--------------|--------------|
| Inches | cm | | Miles | Kilometer | US\$/Mile | US\$/km |
| 12 | 30.5 | 2 | 14.6 | 23.4 | \$ 205 700 | \$ 128 563 |
| 16 | 40.6 | 1 | 109.5 | 175.2 | \$ 358 100 | \$ 223 813 |
| 20 | 50.8 | 5 | 53.8 | 86.1 | \$ 1 131 500 | \$ 707 188 |
| 24 | 61.0 | 10 | 41.6 | 66.6 | \$ 701 700 | \$ 438 563 |
| 30 | 76.2 | 2 | 16.5 | 26.4 | \$ 1 171 000 | \$ 731 875 |
| 36 | 91.4 | 3 | 64.3 | 102.9 | \$ 982 000 | \$ 613 750 |
| 42 | 106.7 | 5 | 26.1 | 41.8 | \$ 1 765 000 | \$ 1 103 125 |
| 48 | 121.9 | 2 | 49.1 | 78.6 | \$ 1,263 000 | \$ 789 375 |

Source Oil and Gas Journal Nov 25 1996 pp 39-58

US PIPELINE CONSTRUCTION COSTS



| Pipe Diameter | | Cost US\$/km |
|---------------|-------|-----------------|
| Inches | cm | |
| 12 | 30.5 | \$ 128 562.5 |
| 16 | 40.6 | \$ 223 812.5 |
| 20 | 50.8 | \$ 707 187.5 |
| 24 | 61.0 | \$ 438 562.5 |
| 30 | 76.2 | \$ 731 875.0 |
| 36 | 91.4 | \$ 613 750.0 |
| 42 | 106.7 | \$ 1 103 125.0 |
| 48 | 121.9 | \$ 789 375.0 |
| 56 | 142.2 | |

Call 206-635 7070
6 00AM-6 00PM Pacific Time

For Equation use scatter diagram
For Presentation use line graph

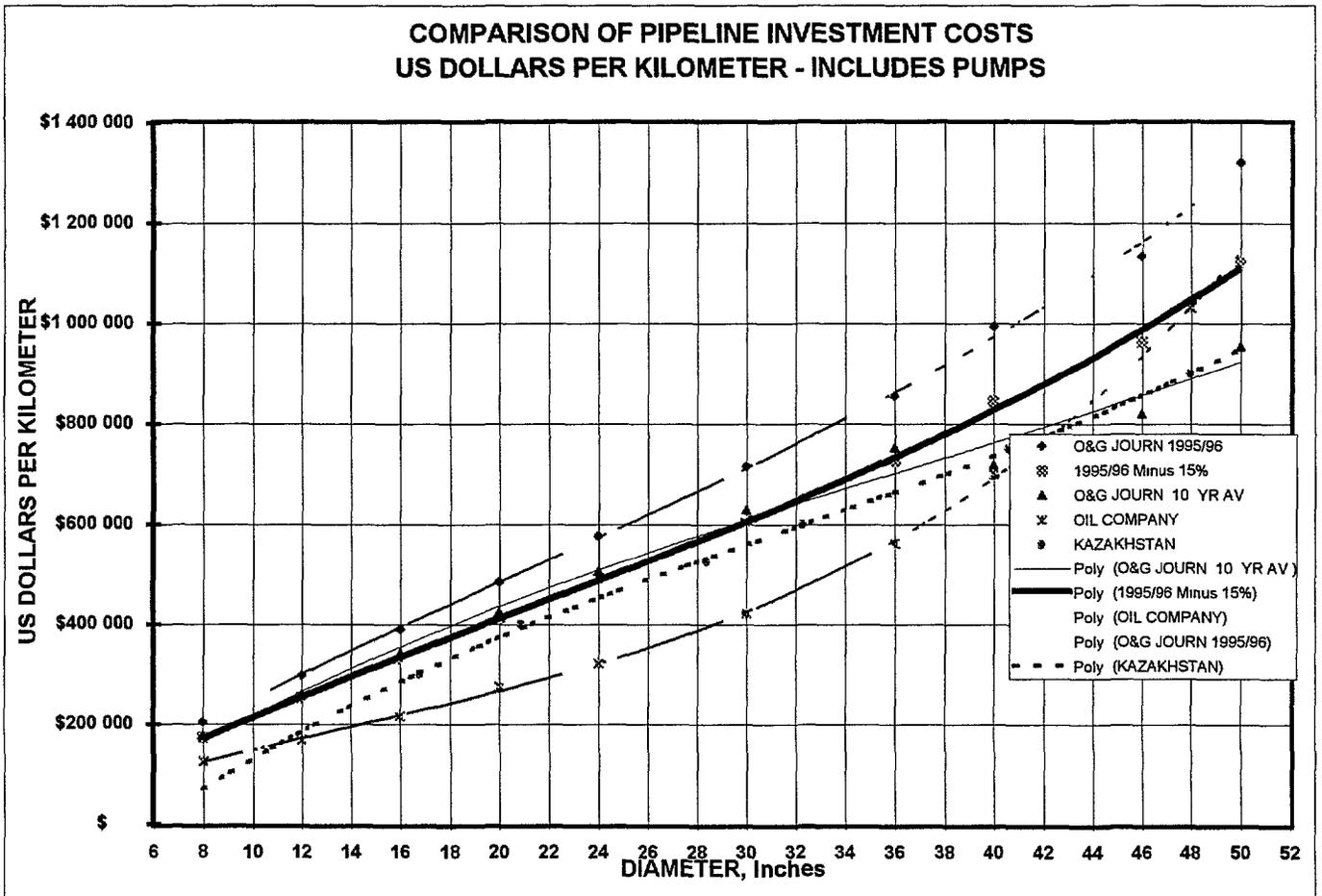
117

SLUG FIGURE 2
Final Construction Costs

Figure 2

**COMPARISON OF PIPELINE INVESTMENT COSTS
US DOLLARS PER KM, INCLUDES PUMPS**

| DIAMETER | O&G JOURN | | O&G JOURN 10 YR AV | OIL COMPANY | KAZAKHSTAN |
|----------|--------------|----------------------|-----------------------|----------------|------------|
| | 1995/96 | 1995/96 Minus 15% | | | |
| 8 | \$ 204 332 | \$ 173 682 | \$ 177 395 | \$ 125 000 | |
| 12 | \$ 297,310 | \$ 252 713 | \$ 259 574 | \$ 168 750 | |
| 16 | \$ 390,287 | \$ 331 744 | \$ 341 753 | \$ 215 625 | |
| 16.8 | | | | | \$ 300 000 |
| 20 | \$ 483,265 | \$ 410 775 | \$ 423 932 | \$ 275 000 | |
| 20.9 | | | | | \$ 400 000 |
| 24 | \$ 576,242 | \$ 489 806 | \$ 506 111 | \$ 321 875 | |
| 28.4 | | | | | \$ 525 000 |
| 30 | \$ 715 703 | \$ 608 347 | \$ 629 379 | \$ 421 875 | |
| 32.3 | | | | | \$ 600 000 |
| 36 | \$ 855 163 | \$ 726 889 | \$ 752 648 | \$ 562 500 | |
| 40 | \$ 994 634 | \$ 845 439 | \$ 718 623 | \$ 700 000 | |
| 40.6 | | | | | \$ 750 000 |
| 46 | \$ 1 134 098 | \$ 963 984 | \$ 819 386 | | |
| 48 | | | | \$ 1 031 250 | \$ 900 000 |
| 50 | \$ 1,320 052 | \$ 1 122,044 | \$ 953 737 | | |

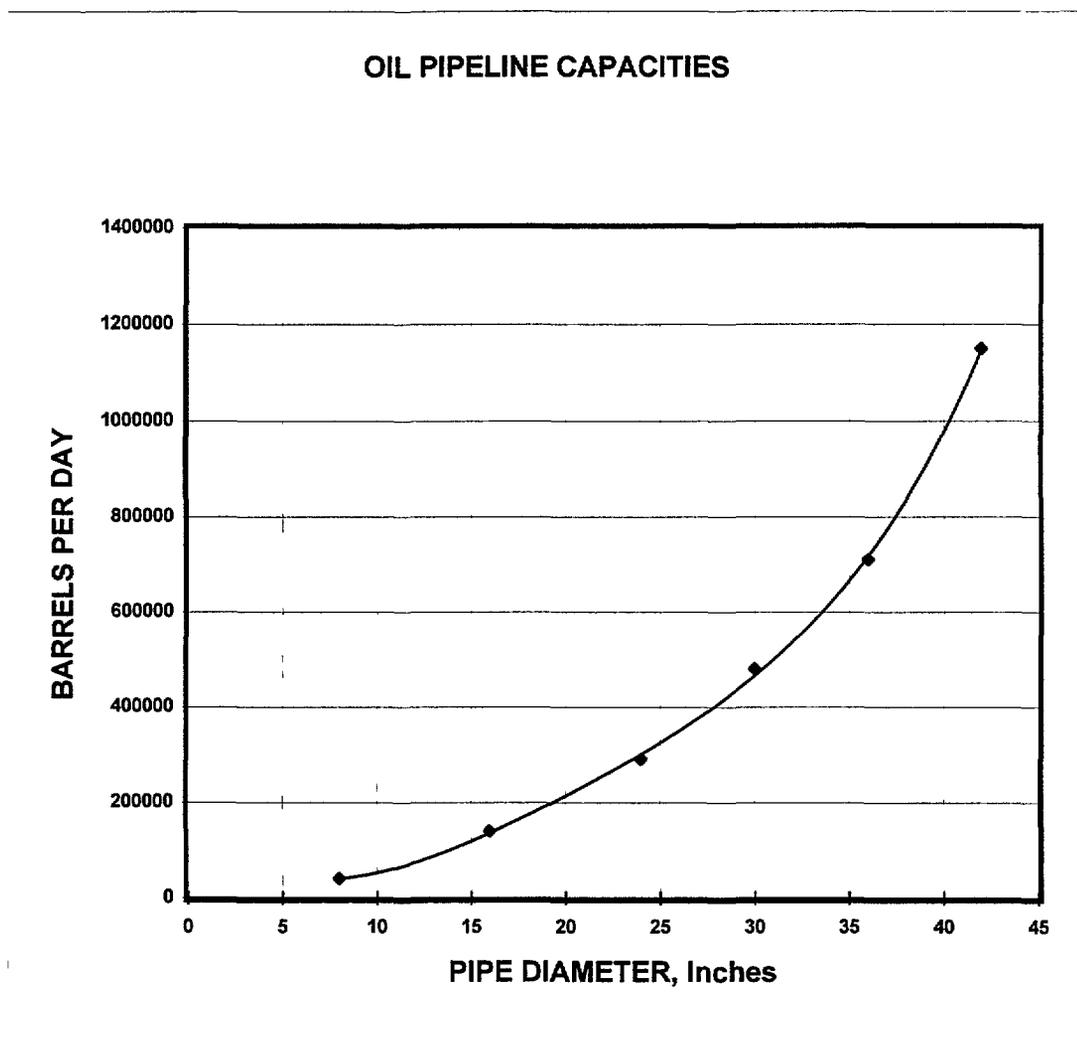


RESULT ACCEPT OIL AND GAS JOURNAL 1995/96 MINUS 15% (TO COMPENSATE FOR SHORT LINE BIAS)

SLUG 3
Figure 3
Oil Pipeline Capacities

FIGURE 3

OIL PIPELINE THROUGHPUT CAPACITIES
KAZAKHNEFTEPROVOD



| Diameter Inches | Throughput Capacity | |
|--------------------|---------------------|------|
| | Bbls/D | T/Yr |
| 8 | 32 000 00 | 1 6 |
| 16 | 128 000 00 | 6 4 |
| 24 | 288 000 00 | 14 4 |
| 30 | 472 500 00 | 23 6 |
| 36 | 712 800 00 | 35 6 |
| 42 | 1 058 400 00 | 52 9 |

121

**OIL PIPELINE TARIFFS AND LINE VALUATION
KAZAKSTAN PIPELINE SYSTEM**

AKTAU/ATYRAU REGION

PRINCIPAL LINE KALAMKAS SAMARA

| SECTION | DIAMETER | | LENGTH KM | IN SERVICE | | BASE TARIFF | | SURCHARGES | | OVERALL TARIFF \$/Ton | VALUE PIPE \$ Miln | PREV INVESTM \$ Miln | REHAB INVEST \$ Miln | CAP UTIL N FACTOR | VALUE \$ Miln | OVERALL TARIFF Tenge/Ton | AMC Teng/Ton | Difference M&A AMC | | | |
|----------------------|----------|------|--------------|------------|-------|----------------|----------------|------------------|-------------------|--------------------------|-----------------------|-------------------------|-------------------------|----------------------|------------------|-----------------------------|-----------------|--------------------|--------------|----------------|-------------------|
| | mm | In | | SINCE | YEARS | \$/1000KM | \$/Ton | VISCOS \$/Ton | HEATING \$/Ton | | | | | | | | | Teng/Ton | Teng/Bbl | \$/Bbl | |
| Kalamkas Karazhanbas | 530 | 20 9 | 62 | 1981 | 16 | \$ 10 90 | \$ 0 68 | \$ 0 01 | \$ 0 01 | \$ 0 70 | \$ 15 | \$ | \$ | 1 0 | \$ 15 | 52 19 | 20 50 | To Marine Terminal | | | Kalamkas Karazhan |
| Karazhanbas-1 Aktau | 720 | 28 3 | 202 | 1979 | 18 | \$ 6 60 | \$ 1 37 | \$ 0 01 | \$ 0 01 | \$ 1 39 | \$ 58 | \$ | \$ | 1 0 | \$ 58 | 104 62 | 67 50 | 68 71 | 9 28 | \$ 0 12 | bas-Aktau |
| Aktau Uzen | 530 | 20 9 | 142 | 1976 | 21 | \$ 8 80 | \$ 1 25 | \$ 0 01 | \$ 0 01 | \$ 1 27 | \$ 24 | \$ | \$ | 1 0 | \$ 24 | 95 22 | 42 00 | 53 22 | 7 19 | \$ 0 10 | Uzen |
| Uzen-Atyrau | 1020 | 40 2 | 697 | 1976 | 21 | \$ 3 94 | \$ 2 75 | \$ 0 01 | \$ 0 01 | \$ 2 77 | \$ 248 | \$ | \$ | 1 0 | \$ 248 | 207 46 | 234 00 | 28 54 | 3 59 | \$ (0 05) | Atyrau |
| Atyrau Km Station | 1020 | 40 2 | 222 | 1994 | 3 | \$ 6 49 | \$ 1 44 | \$ 0 01 | \$ 0 01 | \$ 1 46 | \$ 185 | \$ | \$ | 1 0 | \$ 185 | 109 56 | | | | | Km Km Station |
| Km Station 919 | 720 | 28 3 | 313 | 1978 | 19 | \$ 6 56 | \$ 2 05 | \$ 0 01 | \$ 0 01 | \$ 2 07 | \$ 84 | \$ | \$ | 1 0 | \$ 84 | 155 50 | 179 00 | 86 05 | 11 63 | \$ 0 16 | Station |
| TOTALS | | | 1638 | | | | \$ 9 54 | | | \$ 9 66 | \$ 614 | | | | \$ 614 | 724 44 | 543 00 | 181 44 | 24 52 | \$ 0 33 | TOTALS |
| AVERAGES | | | | | | #DIV/01 | | | | #DIV/01 | | | | | | | | | | | AVERAGES |

AKTAU UZEN LOOP

| | | | | | | | | | | | | | | | | | | | | | |
|-----------------|-----|------|----|------|---|----------|---------|---------|---------|---------|-------|----|----|-----|-------|-------|-------|-------|------|---------|-----------------|
| Aktau Zhetysbay | 720 | 28 3 | 15 | 1990 | 7 | \$ 9 23 | \$ 0 14 | \$ 0 01 | \$ 0 01 | \$ 0 16 | \$ 7 | \$ | \$ | 1 0 | \$ 7 | 11 88 | | | | | Aktau Zhetysbay |
| Aktau Zhetysbay | 530 | 20 9 | 49 | 1990 | 7 | \$ 13 34 | \$ 0 65 | \$ 0 01 | \$ 0 01 | \$ 0 67 | \$ 18 | \$ | \$ | 1 0 | \$ 18 | 50 52 | 24 50 | 37 61 | 5 12 | \$ 0 07 | Aktau Zhetysbay |
| Zhetysbay Uzen | 530 | 20 9 | 63 | 1996 | 1 | \$ 15 30 | \$ 0 96 | \$ 0 01 | \$ 0 01 | \$ 0 98 | \$ 28 | \$ | \$ | 1 0 | \$ 28 | 73 79 | 22 50 | 51 29 | 6 93 | \$ 0 09 | Zhetysbay Uzen |

| | | | | | | | | | | | | | | | | | | | | | |
|-----------------|--|--|------------|--|--|----------------|----------------|--|--|----------------|--------------|--|--|--|--------------|---------------|--------------|--------------|--------------|----------------|-----------------|
| TOTALS | | | 127 | | | | \$ 1 76 | | | \$ 1 82 | \$ 53 | | | | \$ 53 | 136 20 | 47 00 | 89 20 | 12 05 | \$ 0 16 | TOTALS |
| AVERAGES | | | | | | #DIV/01 | | | | #DIV/01 | | | | | | | | | | | AVERAGES |

AKTAU/ATYRAU REGION MINOR LINES

| | | | | | | | | | | | | | | | | | | | | | | | |
|--|-----|------|------------|------|----------------|----------------|---------|---------|---------|----------------|---------------|----|----|---------------|--------|-------|--------|-------|---------|-----------------|--|-----|--------|
| Prorva (Tengiz) | 530 | 20.9 | 103 | 1986 | 11 | \$ 12.05 | \$ 1.24 | \$ 0.01 | \$ 0.01 | \$ 1.26 | \$ 32 | \$ | 10 | \$ 32 | 94.59 | | | | | | Prorva (Tengiz) | 18 | 223 |
| Prorva (Tengiz) | 325 | 12.8 | 3 | 1988 | 11 | \$ 21.84 | \$ 0.07 | \$ 0.01 | \$ 0.01 | \$ 0.09 | \$ 1 | \$ | 10 | \$ 1 | 6.41 | | | | | | | | |
| OPSS Koschagyl Kulsary | 325 | 12.8 | 133 | 1980 | 17 | \$ 18.20 | \$ 2.42 | \$ 0.01 | \$ 0.01 | \$ 2.44 | \$ 18 | \$ | 10 | \$ 18 | 183.05 | 46.00 | 137.05 | 18.52 | \$ 0.25 | | OPSS- Koschagyl Kulsary | 8.7 | 128.10 |
| Martyshy Atyrau | 630 | 20.9 | 86 | 1988 | 11 | \$ 12.05 | \$ 1.04 | \$ 0.01 | \$ 0.01 | \$ 1.06 | \$ 28 | \$ | 10 | \$ 28 | 79.22 | 28.50 | 50.72 | 8.85 | \$ 0.09 | | Martyshy Atyrau | 8 | 119 |
| Konsomolsk Makat Dossor | 220 | 8.7 | 48 | 1985 | 12 | \$ 29.61 | \$ 1.42 | \$ 0.01 | \$ 0.01 | \$ 1.44 | \$ 6 | \$ | 10 | \$ 6 | 108.10 | 16.00 | 92.10 | 12.45 | \$ 0.17 | | Konsomol sk Makat Dossor | | |
| Makat | 220 | 8.7 | 34 | 1981 | 6 | \$ 34.77 | \$ 1.18 | \$ 0.01 | \$ 0.01 | \$ 1.20 | \$ 4 | \$ | 10 | \$ 4 | 90.16 | | | | | | Makat | | |
| Iskine- Jastakada | 250 | 9.8 | 19 | 1981 | 16 | \$ 26.18 | \$ 0.50 | \$ 0.01 | \$ 0.01 | \$ 0.52 | \$ 3 | \$ | 10 | \$ 3 | 38.81 | | | | | | Iskine Jastakada | 10 | 20 |
| Sargamye Tengiz Shleyfy 677KM Atyrau (Refinery) | 530 | 20.9 | 26 | 1980 | 7 | \$ 13.34 | \$ 0.35 | \$ 0.01 | \$ 0.01 | \$ 0.37 | \$ 9 | \$ | 10 | \$ 9 | 27.51 | | | | | | Sargamye Tengiz Shleyfy 677KM Atyrau (Refinery) | 0 | 0 |
| 677kKm AR (Mang) | 530 | 20.9 | 27 | 1979 | 18 | \$ 9.77 | \$ 0.28 | \$ 0.01 | \$ 0.01 | \$ 0.28 | \$ 6 | \$ | 10 | \$ 6 | 21.28 | | | | | | 677kKm AR (Mang) | | |
| 677kKm AR (Mart) | 400 | 15.7 | 26 | 1969 | 28 | \$ 8.45 | \$ 0.22 | \$ 0.01 | \$ 0.01 | \$ 0.24 | \$ 1 | \$ | 10 | \$ 1 | 17.98 | | | | | | 677kKm AR (Mart) | | |
| TOTALS | | | 535 | | | \$ 9.35 | | | | \$ 9.57 | \$ 112 | | | \$ 112 | | | | | | TOTALS | | | |
| AVERAGES | | | | | #DIV/0! | | | | | #DIV/0! | | | | | | | | | | AVERAGES | 814 | | |
| | | | | | | | | | | | | | | | | | | | | | 53 | | |
| | | | | | | | | | | | | | | | | | | | | | 112 | | |

12

regime, where each crude is allocated its true cost of transport, Western practice generally assigns throughput values for standard crudes that are more easily pumped. A subsequent downward adjustment in throughput capacities is then used to calculate a tariff surcharge for high-viscosity oils, with or without additional charges for required heating.

Many more assumptions go into the development of a pipeline tariff model and into specific excursions from the base case of the model. This includes in particular depreciation and taxes. We have assumed 30-year straight-line depreciation in this model, even though new legislation suggests declining balance depreciation with an upper limit of 25%. From runs of earlier model versions we know that for an industry as capital intensive as pipelines, a 25% declining balance depreciation provides an enormous up-front cash flow to the investor, and that is supposed to act as an incentive to attract investment funds for pipelines.

However, in an environment where the investor is to be assured of a targeted internal rate of return (we used 15% for Kazakhstan) and where the methodology is premised on full cost recovery, the high depreciation rates in the early years drive early tariffs up to levels that may impose hardships on the shipper/producers whose net back value at the wellhead will be substantially reduced.

There are ways to mitigate ("levelize") the impact of high declining balance depreciation rates, but they involve the temporary setting aside of cash flows for some claimant. If outside commercial funds are involved in the financing of pipeline projects, it is unreasonable to expect that commercial lenders will step aside to facilitate early recoveries by equity investors. In the contrary, commercial lenders will make sure that their cash flows, consisting of interest payments and return of invested capital will be met first, before they authorize the use of their funds for such projects.

Operating and Maintenance Costs ("O&M Costs") must be met, almost by definition, to maintain a viable pipeline system. Reducing O&M efforts to meet other pressing financial obligations may have been a problem in the past in Kazakhstan, but such a policy is self-defeating and will not be permitted if outside lenders enter the picture.

There are, in effect, only two parties that could conceivably forego early payments to facilitate levelized depreciation regimes: the equity holder or the Government. Since the equity holder was singled out as the party that should receive the encouragement of high early-year cash flows through high declining-balance depreciation rates, it would seem self-defeating to expect that same investor to step aside, via spaced-out profits for example. In any event, such a delay of investor profits would raise his vulnerability to unexpected unfavorable events and thus would drive up his risk premium. That in turn would drive up tariffs which, in a cost recovery regime, would incorporate reasonable risk premiums on the investors' rate of return.

125

Reasonably, the only party available to forego early returns in the interest of levelizing high depreciation rates is the Government itself, via tax holidays that may last for two to three years, or reduced tax receipts for longer periods. This may be a good deal for the Government, but more often than not Governments are reluctant to agree to major tax concession for the purpose of attracting investors. Be this as it may, we conclude from this brief interlude that this model, with non-equity funding re-introduced, could be used to analyze the effect for all parties of this and other tax policies. In the meantime, we are using a 30-year straight line depreciation rate mostly because that has been historically the rate that was used and that brought us to where we are today.

In discussions with our Kazakhstan counterparts we have detected a fundamental discrepancy in their and our definition of profits. This is not the time to introduce the notion of profits as they are understood in the West since we are primarily pursuing here the introduction and the functioning of the tariff model. A detailed discussion of that subject will be part of our final report, to be sure. Suffice it here to point out that tariff rates must be designed in such a way to make sure that the investor, equity or debt, will achieve the rate of return he has been accorded through his negotiations. To the extent that the investor's profits will be taxed, he must be assured a pre-tax rate of return high enough to pay the taxes due the Government and to retain a cash flow high enough to meet his agreed-upon rate of return. This is best illustrated in connection with the discussion of our base case, a 42-inch line, 1000 kilometers in length, and subject to the investment, O&M costs, depreciation regimes, rate of return and tax regimes as specified. The actual Tables are reproduced in the Appendix.

THE BASE CASE

Much of the information contained in the model is in the form of tables and graphs. The base case involves a 42-inch line (nominally 1020 mm). Construction costs as used in the model are current replacement costs, a standard use of cost data in an environment characterized by great uncertainty. This approach simulates original construction costs subject to inflation which is implicitly contained in FERC's tariff system. As mentioned, the model also assumes a straight-line depreciation regime over the expected 30-year life cycle of the lines, as well as an Internal Rate of Return (IRR) of 15%.

An alternative to the use of replacement costs would have been the original construction costs, augmented by whatever capital maintenance or expansion projects might have taken place over the years. This would have been a difficult task, since the lines were originally built under central control performance, with funds paid out of Moscow, and at prices that, typically, would have been distorted by price controls and artificial allocation systems. Moreover, the pipelines were financed in a different currency, rubles, that have undergone

spiraling inflation and uncertain exchange rates, so that a tracing of costs in Kazakhstan Tenge or U S dollars would have been all but impossible

The case for various standard diameter lines is presented in this report with the aid of two large tables, a detailed year-by-year depreciation table and a tariff table which, among other things, lists the target IRR of 15%. A graph is used to summarize the final tariff for each model scenario. A description of each table, column by column, is given later in this report.

As expected in a full-cost recovery system where the asset base declines over the years through depreciation, the tariffs are also subject to decline with time. However, this tariff decline may be exaggerated, in part because tariffs tend to rise with inflation and because, under some US regulatory rules, FERC Opinion 154-B to be exact, the asset base itself may be permitted to be adjusted for inflation. Neither case is shown here, but the possibilities are mentioned for completeness.

The depreciation table for the base case is simple enough, given the absence of outside debt funding. Shown for the 30-year assumed life cycle of a pipeline are, first, the construction costs which, over a construction period of two years, add up to \$880 million for the assumed length of 1000 kilometers for the 42-inch base-case line. There is no outside funding, or to put it more succinctly, there was none under the original regime, so that the loan provision for interim financing during construction remain unused in the pre-1988 NIS environment. Adding the line fill to construction costs establishes the actual rate base, \$934, for this 42-inch pipe.

Of that amount, the value of the land that was acquired and the right of way, along with the line fill, are not depreciable and, therefore, deducted from the total asset base to obtain a depreciable asset base of \$836 million. That amount, spread evenly over 30 years, the expected life of the pipeline, results in an annual depreciation charge of \$27.87 million.

In the West, depreciation is a mechanism designed to recover the original investment for the equity owner of the system. Using an economist's broader perspective, depreciation on a macroeconomic level can be said to serve the purpose of perpetuating the capital structure in a nation. Be this as it may, the beginning-of-year asset values and the annual depreciation charges are picked up in the second table that deals with the various cost items of a regulated tariff regime.

Among these costs, operating and maintenance costs are those that are required to run and maintain the pipeline system. There appear to be fundamental differences between Western and Kazakhstan thinking in the definition and application of these costs, and part of the Hagler Bailly task will be to sort out these differences and to try to assist in the development

of a system in Kazakhstan that resembles Western practices and thus inspires investor confidence

Since interim funding during construction has been ruled out, this version of the model carries interest and principal payments at zero. The required income on equity before taxes is sized so that, after payment of taxes, the target rate of return to the investor will be maintained. This is done on a discounted future cash flow basis in this model, rather the approach an investor would take, but in actual regulatory practice the required income is calculated on a year-by-year basis. In those cases where indexing of the tariff is allowed, the required income is calculated at recurring intervals, such as every five years.

The cost of service in any given year, then, consists of all those cash flows that are required to produce the desired rate of return. These costs include annual depreciation charges, O&M costs, the investor's rate of return and, if present, any interest charges due banks or long-term debt providers, plus all taxes due the various branches of Government. That cost of service for the base case amounts to \$153 million in the first year. Divided by the throughput rate for this pipe, the cost of service yields the tariff needed for continued operation.

Also shown, in the last column, are the negative cash flows of the first two years which must be offset by positive flows in such a way as to achieve the desired rate of return on a discounted basis.

THE KAZAKHNEFTEPROVOD SYSTEM

Shown in the table entitled "Oil Pipeline Tariffs and Line Valuation" is a schematic representation of what the tariffs look like when calculated with the spreadsheet model. In the end, the numbers shown in this table are simulated numbers, and they must not be taken at face value. We believe that they are a good first approximation of what one might expect tariffs to be in Kazakhstan if they were developed under a Western cost-recovery regime, but nothing replaces the need for Kazakhnefteprovod to collect its own historical cost data in a way that lends itself to use in a regulatory regime. These data, collected with precision and in accordance with rules and regulations that are yet to be established, are the only reliable and precise source for the establishment of pipeline tariffs.

Most of the lines, and probably all the major lines of Kazakhnefteprovod (with the possible exception of the Aktyubinsk system) are covered in this table, which has been arranged by pipeline district. In the Aktau/Atyrau District, for example, the most important line starts in Kalamkas and stretches 1638 kilometers to the Russian border at Samara. We will explain the table by going over this particular line.

The first few columns in the Tariff Table provide historical information of significance to the model. The diameter of the line is the primary determinant of throughput capacity, its length is a direct tariff variable which is expressed for the most part in terms of monetary units per tonne-kilometer. The years in service designate where on the depreciation curve the line falls and how much of its book value remains undepreciated, for inclusion in the tariff base. The first column of the base tariff comes directly from the model which provides a tariff for a unit length of pipeline, 1000 km. The mechanics of running that model will be explained later.

Clearly, if a section of line is one fifth the length of the model's unit length, as in the Karazhanbas to Aktau section, the actual tariff to be paid for one tonne of oil moving through that section is one fifth of the base tariff. Thus, in the cited case, the base tariff of \$6.80 per 1000 tonne-kilometers is reduced to an actual tariff of \$1.37 per tonne.

In our final presentation we will stop the tariff schedule here, and we will deal with viscosity and heating surcharges as add-ons. Time does not permit to formally include the viscosity charges now (at six o'clock in the morning after an all-night work session and hours before the work is due for delivery), but for the reader's information, we will suggest a surcharge of 20% for high-viscosity crude that has a viscosity range of 100-250 centistokes while in the pipe. For medium-viscosity crude, 20-100 centistokes, our suggested surcharge will be 8%.

These values are based on the terms of an actual tariff, the Interprovincial Pipeline, Inc. tariff, that was approved by the National Energy Board in Canada in December of 1996. However, an independent check based on actual model runs, using a commercial program (Dwight's QUICK PIPE AND QUICK WALL), confirmed the reasonableness of the viscosity provision. In running the Dwight's model it was assumed that the oil in the pipe from Kalambas to Samara runs at an average temperature of 40 degrees Celsius, which reduces the very high Kalambas and Karazhanbas viscosities (170 and 280 centistokes, respectively, at 20 degrees Celsius) to the 8% range.

The heating surcharge has not yet been established, pending arrival of relevant cost data from Aktau. These data exist and have in part been delivered, but finalization is a few days away. We do not expect heating charges to be a major burden per tonne shipped through the system, even though in terms of the district's total operating cost, they appear to run at around 14%.

This may be a good time to repeat our earlier caveat that these are model results and are, therefore, to be taken with caution. Still, the results are close to current charges. For average property crudes, i.e., crudes that will not be subject to viscosity and heating surcharges, the model-suggested cost of running one barrel of crude oil through 1000 miles of pipeline would be 33 cents higher than at present. That information comes from the last

few columns of the Oil Pipeline Tariff Table, where model tariff results are compared with actual tariffs

Part of the fall-out of the model are the book values of the system, again based on depreciated replacement values. These are not market values, and they must not be taken as such. The column labeled "Value Pipe" lists the depreciated book value of each section of pipe. For the entire line, its sum of \$614 million is low for the simple reason that the system is old, around 20 years for most sections, and therefore about two thirds depreciated. The fallacy of using book value as synonymous with Market value comes clear when one looks at the book value of the Pavlodar system, which is about 50% higher than that of the Kalamkas-Samara line even though large sections of the line are idle.

Still, the summation of all book values captured in the model, runs around \$1.8 billion. This number may change as small sections of lines and perhaps a major Aktyubinsk section not captured here are added. No value has been assigned as yet to the capital utilization factor which might result in reduced values to reflect idle or grossly underutilized lines.

RUNNING THE MODEL

A diskette is being provided with this text that contains the model itself, written on Microsoft Office Excel, Version 5.0a. In its default mode, the model will calculate 30-year straight-line depreciation schedules for lines of the following diameters: 8, 16, 24, 30, 36, 42 inches. That table will automatically be generated in the worksheet entitled "DEPRECIATION".

The worksheet "COSTOFSERV" calculates the tariffs and book values of these diameter lines in conjunction with the depreciation table. One command, then, generates the two tables that are reproduced in the Appendix for various line diameters. Interpolation, currently using a stand-alone subroutine, will find values for line sizes that fall between the standard US sizes, as all Kazakhstan line diameters will. A graph depicting the newly calculated tariff is automatically generated beginning on line 88 of the Tariff Table.

The command to run the model, and various sub-options such as different profit rates, or different interest rates on the expanded model that allow for debt funding, different types of depreciation, again not allowed here, different prices of crude oil, etc., are listed in the worksheet entitled "VARIABLES". To generate tables for different size lines, the table entitled "CRITICAL PIPELINE PARAMETERS USED IN TARIFF MODEL" is the principal driver. To generate a depreciation schedule and tariff table for, say, a 24-inch line, simply copy the 24-inch column from the right side of the table and paste it onto the column labeled "OPERATOR" which is located on the left. The model will do the rest, except that there is a tendency to drift slowly away from the target rate of return, say, from the desired rate of

15.0% to 15.1% or 14.9% For accuracy and consistency, the 15.0% target can be reintroduced by engaging the "SOLVER" in the tools menu of the spreadsheet

APPENDIX E

**CENTRAL ASIAN REPUBLICS OIL AND GAS
SECTOR REFORM PROGRAM
DELIVERY ORDER NO 17**

**REPORT OF THE STEERING COMMITTEE ON
PIPELINE TARIFF METHODOLOGY**

**United States Agency for International Development
Regional Mission to Central Asia
97a Furmanova Street
Almaty, Kazakhstan 480009**

**USAID, Bureau for Europe and the New Independent States
Energy and Infrastructure Division, Room 4440
Department of State
Washington, DC 20523**

September 15, 1997

**THE CONTENTS AND RECOMMENDATIONS BY THE USAID
CONSULTANTS CONTAINED IN THIS REPORT DO NOT NECESSARILY
REPRESENT THE POSITION OF THE UNITED STATES GOVERNMENT**

Table of Contents

| | |
|--|--------------|
| Introduction | 4 |
| Guiding Principles | 5 |
| Rationale Behind the Proposed Methodology | 7 |
| Calculation Procedures | 10 |
| Presentation of Results | 12 |
| Conclusions/Recommendations | 18 |
| Attachments Tables 1-8 | 21-29 |

Introduction

On July 12, 1996 the United States Agency for International Development (USAID) received a letter from the Ministry of Oil and Gas Industry (MOGI) requesting technical assistance in the development of an internationally acceptable oil pipeline tariff methodology for the Government of the Republic of Kazakhstan. The letter further requested that USAID assist in "putting into practice" a proposed tariff methodology that would be acceptable to customers, international funding institutions, and investors. USAID agreed to fund the requested assistance and immediately undertook a background assessment of the current situation through meetings and the development of an initial report entitled "Proposed Pipeline Tariff Model and Methodology for the Republic of Kazakhstan"

After several discussions with representatives of the former MOGI and the newly created National Oil Pipeline Company "KazakhNefteProvod" (the direct counterpart), it was decided that an Oil Pipeline Tariff Methodology Steering Committee would be formed to conduct periodic meetings and develop a recommended tariff methodology and proposed tariff rates by October 1, 1997. Representatives of KazakhNefteProvod, KazakhOil, the Ministry of Economy and the Trade, Anti-Monopoly Department, the Ministry of Energy and Natural Resources, the State Agency for Control of Strategic Resources, the Kazakhstan Petroleum Association, and USAID consultants were invited to participate on the Steering Committee. The USAID consultants were requested to co-chair the meetings, prepare presentations on relevant subjects, develop meeting agendas, focus on meeting assignments and deliverables, and ultimately recommend the oil pipeline tariff methodology and proposed tariff rates to the Steering Committee.

The initial meeting of the Steering Committee took place on April 21, 1997, where it was agreed that the recommended oil pipeline tariff methodology and corresponding tariff rates should be developed according to internationally acceptable standards and practices, based on cost-of-service principles, and that they should allow for a competitive rate of return in order to attract investors. In addition, the methodology was to be objective and balanced towards the interests of customers, financial institutions, and investors. Furthermore, the recommended methodology was to be transparent in the determination of tariff rates, thus cost-justified. At this meeting and the three subsequent sessions that followed, topics of discussion included alternative tariff methodologies for consideration, the need for an independent regulatory commission to determine tariffs and oversee operations of the oil and gas sector, transition to a new accounting system, concerns over subsidies and cross-subsidies, determination of a

competitive rate of return, that would attract foreign investment and financial institutions assigning a proper valuation of pipeline assets for rate-making purposes defining data and information needs to properly analyze the system, current operating conditions and plans for rehabilitation and construction, and several other important issues

The USAID consultants concentrated on meetings with counterparts and representatives of the Steering Committee, gathering information and data, developing a working computer model to simulate cost and pricing scenarios, researching Kazakhstan legal and regulatory issues and conducting a field review of accounting and operational books of YuzNefteProvod in Aktau Kazakhstan There was very close cooperation with representatives of KazakhNefteProvod the Ministry of Economy and Trade, the Anti-Monopoly Department, and the Kazakhstan Petroleum Association in discussions and negotiations of all of the important concerns

It should be noted that due to an unanticipated request from the Government of Kazakhstan, the deadline for submittal of this recommendation for an oil pipeline tariff methodology and proposed tariff rates was accelerated to September 15, 1997 To meet the new deadline, non-substantive shortcuts had to be taken, mostly abbreviating this report which, nevertheless, contains all substantive findings developed in the context of this work Accordingly, this report contains all of the Steering Committee input and the entire body of the substantive work done by the USAID consultants, according to the data and information made available

Guiding Principles

Fundamental to the development of any oil pipeline tariff methodology and determination of subsequent rates is the utilization of certain basic concepts At the heart of these principles is the introduction of the concept of a return on investment The concept is fundamental to the construction of an internationally acceptable natural monopoly tariff This concept of a return on investment is the prime motivational foundation by which a natural monopoly will attract investors An investor, by making his capital available to the company, will obtain a share of the profits earned by that company and a share in the ownership of that company

The Kazakhstan methodology of tariff rate development currently in force does not directly encompass the concept of providing income to the investor The closest concept is a factor termed under the Kazakhstan methodology as "profit" This term "profit", however, does not have the same conceptual meaning as the international understanding of the word In the Kazakhstan application this is a price mark-up of operating expenses from which income taxes, social costs (including support for line camp community expenses, salary supplements to employees, etc), and major capital expenditures can be drawn Even here there is no set

schedule of costs. The allocation of funds is a function of negotiation between the natural monopoly and the Anti-Monopoly Department of the Ministry of Economy and Trade.

Under current Kazakhstan pipeline tariff procedures, the value of the rate base affects the tariff only indirectly and on a limited basis. The term rate base is used here in the conventional sense; it represents the investor-supplied plant facilities and other investments required in supplying utility service to shippers. In the case of KazakhNefteProvod, this term would reflect the value of the pipelines, pumps, and other major physical facilities used in the transportation of oil. In developing operating expenses under current procedures, ten percent of the value of the rate base is set for capital facility maintenance and included in the operating expenses. Further, a complex series of depreciation schedules is used and applied to the elements of the rate base to produce depreciation rates for inclusion in operating expenses. Thus the value of the rate base is only used to create operating expenses against which a mark-up (or "profit") is applied.

The implementation of an internationally acceptable pipeline tariff methodology is no absolute guarantee of return of income to investors. Under Western procedures, a natural monopoly generally submits its recommendations for rate changes to an independent regulatory commission for approval. The regulatory commission reviews the recommendations of the company and grants or rejects the request, or it approves a reduced level of increase. In the West, a natural monopoly can appeal an unfavorable decision to the same regulatory commission with supplemental evidence to support its original application. If the natural monopoly, once again fails to be successful in obtaining the increase it seeks, it can appeal that decision to an independent civil court system. The courts can support or deny the regulator's decision. The courts may only provide guidance to the independent regulatory commission within the boundaries established by laws, decrees, and regulations.

Once the tariff rate has been approved, the natural monopoly has the opportunity to earn that rate of return to recover operating expenses through prudent business practices. Under internationally acceptable tariff methodologies, these approved tariffs remain in effect until the natural monopoly submits a new application for a tariff rate adjustment.

Management and operating efficiencies dictate year-to-year the natural monopoly's revenues. A company with poor operations may earn a lower rate of return on its approved tariff, and an efficiently operated company may earn a larger return. Income taxes paid under Western regulatory tariff procedures are a function of the net income after expenses. Depreciation as part of expenses provides the recovery of invested capital. Net income is the source of cash flow that provides a return of income to investors, and it is one of several sources of funds that may be tapped for capital improvements.

Control of a pipeline system and its tariffs are exerted by the Government through an independent regulatory commission. That commission acts as a surrogate for competitive market forces to insure that the pipeline does not take unfair monopolistic advantage of its customers.

An internationally acceptable pipeline tariff methodology provides investor confidence because the investor's income is based on the extent of his ownership of the pipeline's assets coupled with a proven and tested regulatory regime. The Kazakhstan pipeline tariff methodology, which bases profit on operating expenses and does not convey the concept of compensatory return on income to investors, does not establish the confidence that is needed to attract investors nor to inspire shippers to make infrastructure investments in production. In fact, a system that uses mark-ups on operating expenses as "profits" will be viewed by the international investment community as counterproductive in the sense that it provides a premium for inefficiency: the greater the operating expenses, the higher the allowable profits, which is just the opposite of the Western regulatory approach that puts pressure on the pipeline to reduce operating expenses. Confidence in the fairness and stability of the regulatory system will be a major factor in getting investors to choose a pipeline over the myriad investment opportunities throughout the world. Equally importantly, fairness and stability promote confidence among producers regarding long-term prospects for shipping oil at reasonable tariffs and they act as major incentives in the development and production of marginal natural resources that would otherwise remain untapped.

Rationale Behind the Proposed Methodology

In proposing the new methodology to compute pipeline tariff rates, the USAID consultants; utilized the following assumptions and considerations:

Rate of Return

The USAID consultants recommend an internal rate of return of 15 percent on the value of used and useful assets. This rate of return, which has also been used by the World Bank on similar oil and gas projects in Russia, is of sufficient interest to attract investors which the current Kazakhstan methodology fails to do. Following international convention, these assets are defined as replacement costs, after depreciation, based on a 30-year straight-line depreciation (SLD) regime which, historically, has been in use in Kazakhstan and in the former Soviet Union. By contrast, the current Kazakhstan pipeline tariff methodology includes only some of the costs of investment. As mentioned under the current Kazakhstan methodology, "profit" is calculated as a mark-up over a mix of capital and operating expenses that represent only a fraction of the value of total capital construction costs.

The function of the return on rate base normally is to provide a natural monopoly with the capital to retire past projects to secure funds for future capital investment through retained earnings, and to provide dividends as income to investors. The amount of the dividend each year is established by the management of the natural monopoly under the guidance of the company's board of directors.

The rate of return for investors in international oil pipelines should consider the following elements:

- Basic rate of return on capital employed (the price of money),
- Additional return required to reflect industry risk,
- Additional return required to reflect risks regarding the corporate and financial structure of the company within the industry, and
- Additional return required to reflect country risk (political, economic, legal, regulatory, etc.)

To estimate the basic rate of return, the yield on capital employed with minimum risk has been used (30-year U.S. treasury bonds). During the last four decades the yield on these types of bonds has averaged seven percent, except during relatively short periods of high inflation.

Since oil pipeline investments are usually not as risky as investments in exploration and development, an acceptable industry premium required is two percent. In contrast, the industry premium for certain exploration and development investments may be higher than ten percent. Rank wildcats in relatively unexplored areas of low prospectivity can have exploratory risks of several hundred percent.

Depending upon the characteristics of the industry and the specific corporate and financial structure of the company, an additional premium may be required. KazakhNefteProvod is a newly formed Government-owned joint stock company that is to be restructured and privatized in the near future. However, at this time the development of the corporate and financial structure has not been determined. Obviously, there is risk and uncertainty in any new Government start-up company which may undergo significant change in preparation for privatization. In addition, if many of the customers are unable or unwilling to pay for services in a timely manner or pay by barter as opposed to Kazakhstan Tenge (KZT), as is the case for KazakhNefteProvod, then the risk premium to investors could be very high. For example, it is widely known that a large percentage of customers of the Kazakhstan power sector is either unable or unwilling to pay for services, with the result that the structural risk factor in that industry may be as high as six to eight percent. With KazakhNefteProvod however, even though many customers do not pay in currency, a mechanism is in place to make payment in-kind by offering an appropriate portion of the oil being shipped through the system. This barter

1-29

mechanism leads to higher costs incurred by KazakhNefteProvod since they must sell the oil in order to receive revenue. Based upon uncertainties due to the structural changes of the company and problems encountered in the collection of payments, it is not unreasonable to assign a structural risk factor of three percent.

Given the relative uncertainty in the development of the economy and concerns over issues needing resolution in the Government structure of Kazakhstan (among other oil and gas sector concerns, a lack of an independent regulatory commission to determine tariff rates and oversee industry activities), a country risk premium of three percent is certainly justifiable. In contrast, the country risk premium is zero percent for the United Kingdom, the United States, and Canada and up to five percent for some developing African nations and politically sensitive countries such as Afghanistan.

The USAID consultants have therefore concluded that a recommended rate of return of 15 percent for KazakhNefteProvod is quite appropriate. In contrast, regulated rates of return for oil pipeline companies in low risk countries (such as the U.S.) are generally eleven percent, and investments for oil pipelines in very high risk countries, are considered to be at least 20 percent.

Rates Of Return for Oil Pipeline Investments

| | High Risk (Kazakhstan) | Low Risk (U.S.) | Very High Risk (Afghanistan) |
|-------------------------|---------------------------|--------------------|---------------------------------|
| Basic return on capital | 7.0 | 7.0 | 7.0 |
| Industry risk | 2.0 | 2.0 | 2.0 |
| Structural risk | 3.0 | 2.0 | 6.0 |
| Country risk | 3.0 | 0.0 | 5.0 |
| Total Return | 15.0% | 11.0% | 20.0% |

Valuation of Rate Base

The most contentious issue in any determination of tariff rates using internationally acceptable methodologies is the proper valuation of the rate base to be considered for establishing a return on investment and the application of depreciation. The USAID consultants recommend that a qualified oil field engineering and accounting firm, with international experience in oil pipeline property valuations, should contract with KazakhNefteProvod to take stock of the physical pipelines and other used and useful infrastructure assets. This firm should

also be charged with the development of specific priority-based recommendations to improve the overall efficiency, reliability, and productivity of the system. Still, having taken into consideration the physical inventory and condition of the pipeline assets, all valuations remain a matter of judgment. Two such experienced teams are likely to come up with different and quite possibly radically different values.

Absent the data from a formal physical audit, inspection, and survey, the USAID consultants made an estimate of the value of the property in the following manner. A computer model was developed which utilized current average construction costs to build a similar system in North America, based upon the pipeline diameter and length and other infrastructure considerations. Those costs were projected back to the period when the individual pipeline segments were constructed. Then, based upon the respective age of the individual segments, the value was depreciated to a current valuation. This methodology would assume that maintenance levels and replacement of structures were performed at normal levels throughout the life of the property. Moreover, the methodology ignores economic and technical changes that have incurred in the normal course of events. To make allowance for these changes, for the poor level of system maintenance and, in particular, for the under utilization of current pipeline capacity, the USAID consultants proceeded to develop a discount mechanism to be applied against the pipeline values so derived. The Kazakhstan pipeline system operates at very low throughput capacities compared to similar oil pipelines in North America. Capacity levels in North America generally are at or near 90 percent of absolute design capacity. For operational and rate-making purposes, and making allowance for the difficulty in emulating international operating efficiencies in the short term, an operating efficiency of 80 percent was considered a reasonable standard for Kazakhstan operational efficiencies. By dividing the actual throughput of the line by the 80 percent operational throughput, the USAID consultants developed a discounting factor to reduce the depreciated value of the rate base.

The reason that a pipeline could be operating at a reduced throughput is that shippers have ceased utilizing the pipeline. A very conservative estimate of the property book value was caused by inflation and a lack of a timely re-evaluation. Moreover, the initial value of the pipeline assets was significantly below international levels due to the low cost of local materials, equipment, and labor, compared with international prices.

This book value is likely to be lower than what a formal physical valuation might produce, especially if the evaluation incorporates the statistical probability of future increases in throughput rates which seem inevitable, given the level of current exploratory efforts throughout the country. Still, the USAID-determined book value is above that currently carried by KazakhNefteProvod. The current book value provided by KazakhNefteProvod is questioned even internally, since it was determined in 1992 after Kazakhstan's independence. There is little

doubt that the current book values of KazakhNefteProvod were established from artificial values developed under the former socialist system. Since then, the valuation of assets have not been adjusted to reflect inflation and currency changes. A re-evaluation of pipeline assets was conducted several times by the introduction and use of an inflation coefficient for a given period.

The USAID consultants have adopted their conservative estimate in the absence of other credible valuations of the property as an interim base for the establishment of tariffs. Whether a formal physical valuation will be performed or not, it is recommended that a probabilistic evaluation be conducted along the lines indicated above. Based on these considerations, the USAID consultants have determined the book value of the entire KazakhNefteProvod oil transmission pipeline system (consisting of 5422 kilometers) to be 228.8 million United States dollars (USD).

Calculation Procedures

With the establishment of the rate base valuation, an internationally acceptable tariff methodology can be used to calculate tariff rates. The fundamental equation is return on rate base plus expenses equals the revenue requirement. This amount divided by the throughput establishes the tariff rate.

$$\text{Return on Rate Base} + \text{Expenses} = \text{Cost of Service} = \text{Revenue Requirement}$$

$$\frac{\text{Revenue Requirement}}{\text{Volume of Throughput}} = \text{Tariff Rate in USD Per 1000 Tonne-Kilometers}$$

In the simplest terms, the above formula produces a shipping or transmission tariff rate. In this instance, the throughput is calculated in 1000 tonne-kilometers, which reflects the weight of crude oil moved per distance. Thus, the same quantity of oil transported twice as far will be charged a total shipping cost that is twice as much.

Rate Structures

At the request of KazakhNefteProvod, the USAID consultants developed three rates for the respective primary operating divisions of the company. These divisions are the YuzNefteProvod (or Southern or Aktau/Atyrau) system, Aktyubinsk (or Central) system, and Pavlodar (or Eastern) system. An overall weighted average tariff rate was also determined for the total KazakhNefteProvod system. Ultimately, the USAID consultants would prefer to fine-

142

tune each individual system to establish individual rates for each major trunk line in the three mentioned systems. Time constraints have not allowed the creation of such rates.

Further, the USAID consultants recommend the development of a menu of services to be offered and billed by KazakhNefteProvod beyond rate base services. This introduces the concept of unbundling in which specific services would be provided to a customer under a cost-causation basis, in consideration of providing customer choices in services utilized. Under this internationally accepted concept, customers pay for their real cost of oil transportation which generally varies due to the quality of the oil. In the same vein, customers do not pay for services that are not required. Ultimately, the USAID consultants recommend the establishment of rate base tariffs and a series of "add-on-riders." A base rate transportation tariff would not include the costs associated with heating, storing, or shipping high viscosity oil, or any other special services required by the customer (receipt and delivery terminaling, tankage charges, etc.). These services should be charged through riders that are added to the base rate. The customers who need these services should pay for these services in addition to basic transportation services.

It is the opinion of the USAID consultants that the Government of Kazakhstan should consider, as a next step, an incentive-based tariff methodology for certain customers that may desire an alternative to the proposed cost-of-service methodology. The incentive-based methodology would ensure the same standards that have been introduced (transparency, objectivity, balance, no subsidies, etc.). However, this alternative methodology could be offered to customers that desire special services or may have significant impact on KazakhNefteProvod operations. As an example, incentive tariff rates could be offered and negotiated with customers that guarantee payments or prepay in advance, provide large volume shipments, agree to long-term shipping contracts, reserve capacity on a firm or interruptible basis, offer low-interest loans for asset maintenance and rehabilitation, purchase shares in KazakhNefteProvod, and a number of other considerations.

Depreciation

Usually in the case of a pipeline investment, a 30-year SLD rate is used for determining tariff rates, as opposed to a shorter period that might be used for income tax computation. This is done to mitigate rapid declines in tariff rates over the life of the depreciating asset. In the case of KazakhNefteProvod, both the original and the current value of the used and useful assets are not known. Therefore, it is not possible to apply the 30-year SLD rate in the manner that should be applied. Since many of the KazakhNefteProvod assets are old (up to 21-years), a strong argument can be made that a very short life span should exist for depreciation purposes (possibly only 10-years). As a compromise between these two extreme positions (SLD rates for 30-years or 10-years), the USAID consultants have opted to use a 20-year SLD. This 20-year depreciation

rate is meant to apply only to currently existing assets. New assets are to be subject to conventional 30-year rates.

Operations and Maintenance Expenses

If all the costs associated with operations and maintenance submitted by KazakhNefteProvod were accepted by the USAID consultants, they would total 92.1 million USD. However, these costs were not fully accepted, since the percentage of total operations and maintenance costs to total revenues is considerably higher than the generally accepted international industry standards. The USAID consultants decided to limit the costs included for rate design to those attributed to the KazakhNefteProvod Operations and Materials account. It is known that there are at least two other accounts (Capital Improvements and Mark-Up or Profit) that have components of operations and maintenance costs within them.

Taxes

In calculating taxes for this methodology, the USAID consultants used the actual taxes paid for local and miscellaneous purposes as indicated in the accounting records for KazakhNefteProvod. Using the current methodology, a ratio of 35 percent is termed as "profit", which the USAID consultants cite as "mark-up" and this was taken from the total operating expenses. An income tax rate of 30 percent was applied to the 35 percent mark-up. To restate this another way, income taxes were calculated to be (under this example) 10.5 percent of operating expenses. The 35 percent mark-up varied with authorizations. For example, up to 50 percent and as low as eight percent could be considered. Currently, it appears that income taxes are now applied to the remainder of funds received after all expenses are paid. This is not altogether dissimilar from the international application of income tax to net income after subtracting expenses, other taxes, and depreciation from current revenues. Therefore, the USAID consultants have applied a 30 percent income tax rate to the net income in the proposed rate methodology.

Presentation of Results

Based upon the preceding theoretical and analytical input, the USAID consultants present their results in the form of the attached eight accompanying tables. All proposed tariff rates are expressed in both KZT and USD at a rate of 75 KZT=1 USD. It should be noted that the proposed tariff rates that are recommended in accordance with internationally acceptable methodologies do not include any export surcharges or the application of the Kazakhstan value added tax (VAT), which is currently at 20 percent. Also, when provided opportunities to conduct research of KazakhNefteProvod accounting records, the USAID consultants disallowed costs that

were not directly related to the oil pipeline business. On a preliminary basis, there was little evidence of subsidies and cross subsidies of outside activities that were being supported by oil pipeline tariffs.

Table 1 presents the results of a step-by-step calculation of the tariff rates pursuant to the USAID consultant's understanding of the current KazakhNefteProvod calculation procedure. The table indicates throughput in million tonne-kilometers by operating division, and the respective cost items that constitute the revenue requirement under this system.

The costs represented are actual costs for the first six months of 1997 and estimated costs for the remainder of the year. The estimated costs are a repetition of the values for the first half of the year. These data were all that were readily available in the short time frame provided for a quick inspection by the USAID consultants. With sufficient time, the USAID consultants would have preferred to use an actual test year consisting of July 1996 through June 1997. Another alternative, also not available due to time constraints, would have been to examine several forecast periods, focusing on increased maintenance costs and other likely changes. From those alternatives, a more precise cost basis could have been developed by selecting the most likely scenario and combining actual data. The USAID consultants used the best information available to them at the time. All cost data provided by KazakhNefteProvod for purposes of this report are projected costs.

Table 1 results are summarized as

Tariff Rates Based Upon Current Kazakhstan Methodology

| | KZT Per 1000 Tonne-Kilometers | USD Per 1000 Tonne-Kilometers |
|----------------|-------------------------------|-------------------------------|
| YuzNefteProvod | 598 | 7.97 |
| Pavlodar | 722 | 9.63 |
| Aktyubinsk | 617 | 8.23 |

The lowest tariff rate derived by using adjusted cost data under the current Kazakhstan methodology is 7.97 USD per 1000 tonne-kilometers for YuzNefteProvod, which is a 45 percent increase over current rates.

In the derivation of the design and proposed tariff rates, the USAID consultants have not included the export surcharge nor have they increased the proposed tariff rates to include the

145

Kazakhstan VAT With regard to the "export surcharge" the consultants have determined that it is in fact levied by KazakhNefteProvod It currently amounts to 3 30 USD per ton Fifty percent of this surcharge (1 65 USD) is transferred to the Government of Kazakhstan as an export tax The remainder of this surcharge is retained by KazakhNefteProvod to be used as additional maintenance and rehabilitation funds Since the recommended tariff rate design methodology provides for full operation and maintenance funding and additionally the return on rate base is intended to provide funds for capital improvement, the USAID consultants recommend that the entire export surcharge be eliminated

Table 2 represents a similar calculation, using the recommended internationally acceptable methodology In making this calculation, not all of the actual costs provided by KazakhNefteProvod were used The combination of costs in the markup include elements which normally are in operations and maintenance However, when included with other operations and maintenance items, the total costs proved excessive according to normal pipeline operational cost relationships The results of Table 2 are summarized as

Comparative Tariff Rates

| | International USD Per 1000 Tonne-Kilometers | Kazakhstan USD Per 1000 Tonne-Kilometers |
|----------------|--|---|
| YuzNefteProvod | 7 32 | 7 97 |
| Pavlodar | 9 68 | 9 63 |
| Aktyubinsk | 11 37 | 8 23 |
| Entire System | 7 93 | 8 25 |

Table 2 indicates that the tariff rate recommended by the USAID consultants for the whole system is 7 93 USD per 1000 tonne-kilometers, which is four percent below the level currently being requested by KazakhNefteProvod

Table 3 is an economic analysis which demonstrates the net effect on the cash flow to KazakhNefteProvod According to this table, the revenue requirement of 133 4 million USD under the recommended methodology is approximately equal to the revenues requirement under the current Kazakhstan methodology However, the two methodologies differ considerably in

arriving at their respective revenue requirements. Since the rate base is different for both approaches, the amount of total depreciation is also different.

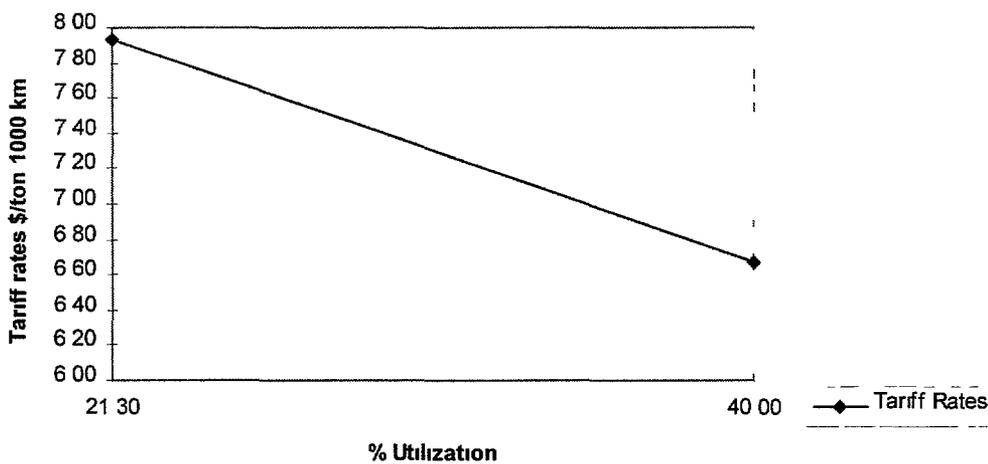
Table 4 examines the rate impacts of the proposed international tariff rate design, the current Kazakhstan tariff rate design, and a modification of the proposed international tariff rate design. The latter, referred to as the Proposed Alternative Case in the Table, eliminates the upper cost barrier of 48 percent of total revenues that the USAID consultants used on operations and maintenance expenses. The KazakhNefteProvod accounting system accumulates costs which would ordinarily be considered as operations and maintenance expenses, if properly classified in three areas: (1) operations and materials, (2) capital improvements, and (3) as part of the mark-up of the total operating expenses, including income taxes. If these costs had been accepted by the consultants for rate design purposes, the resulting operations and maintenance expenses would have totaled 57 percent of the total revenue requirement. Until the revised Kazakhstan accounting system has been implemented and all such costs have been classified, the consultants recommend constraint for rate design purposes to the amount of operations and maintenance costs accepted by industry standards.

Table 4 also demonstrates the results for KazakhNefteProvod as a whole, and proceeds in the first column through the consultant recommended rate methodology with limitations on total operations and maintenance costs at a level of 48 percent of the total revenue. This provides a design tariff rate of 7.93 USD per 1000 tonne-kilometers with a cash flow of 46.3 million USD. Column 2 proceeds through a current Kazakhstan rate design formula, using the total amount of expenses as submitted by KazakhNefteProvod, and produces a transportation rate of 8.25 USD per 1000 tonne-kilometers and a cash flow of 29.8 million USD. Column 3, which is cited as the Proposed Alternative Case, follows the proposed methodology, but includes all potential operations and maintenance expenses as provided by KazakhNefteProvod. As mentioned earlier, the result of this calculation is a rate of 9.62 USD per 1000 tonne-kilometers and a cash flow which remains unchanged from the consultant proposed rates.

Still, the cash flow amount of 46.3 million USD to KazakhNefteProvod under the recommended methodology is 55 percent higher than what would be available under the current Kazakhstan methodology, and a proportion of this amount would provide urgently needed funds to invest in maintenance and rehabilitation. It should be pointed out that only a portion of the total cash flow is available, since the Government of Kazakhstan adopted on August 1, 1997 Resolution No. 1207 "On Improving Effectiveness of State Property Management", which effectively grants the State not less than 50 percent of KazakhNefteProvod's net profit. With this Resolution in place, it is obvious that this level of increase in cash flow is still not enough to meet the current requirements of KazakhNefteProvod, due to years of negligence and underfunding of the system.

Graph 1 demonstrates the results of increasing the utilization rate of the YuzNefteProvod system from 21.3 percent to 40.0 percent. The required tariff rates in Table 5 using a target rate of return of 15 percent, decline from 7.32 USD per 1000 tonne-kilometers to 6.67 USD per 1000 tonne-kilometers as a result of the stipulated increase in through-put rates. At the same time the cash flow available to KazakhNefteProvod increases from 33.4 million USD to 63.2 million USD. This results from the fact that fixed costs are now spread over a larger throughput. This is a win-win situation for both customers and investors of the pipeline.

Graph 1 Tariff Rates/ Utilization Factor for YuzNefteProvod



Both Graph 2 and Table 6 demonstrate the results of using a different rate of return on tariff rates. As expected, the tariff rates are lower for nine percent and twelve percent, as compared to a 15 percent rate of return. The tariff rates are 6.73 USD and 7.32 USD per 1000 tonne-kilometers for the nine percent and twelve percent rate of return cases, respectively. These rates are 20 percent and eight percent below the recommended tariff rate of 7.93 USD per 1000 tonne-kilometers. Higher tariff rates will improve the cash flow of KazakhNefteProvod. However, higher tariff rates affect the profitability of shippers (i.e., customers). Increases in transportation tariff rates can directly translate into shorter production lives of oil fields and result in lower total overall revenues to Kazakhstan. It is certain that Kazakhstan will get more revenues from increased oil production rather than from unrealistically high tariff rates on pipeline operations.

Graph 2 Tariff Rates / Rate of Return for the System

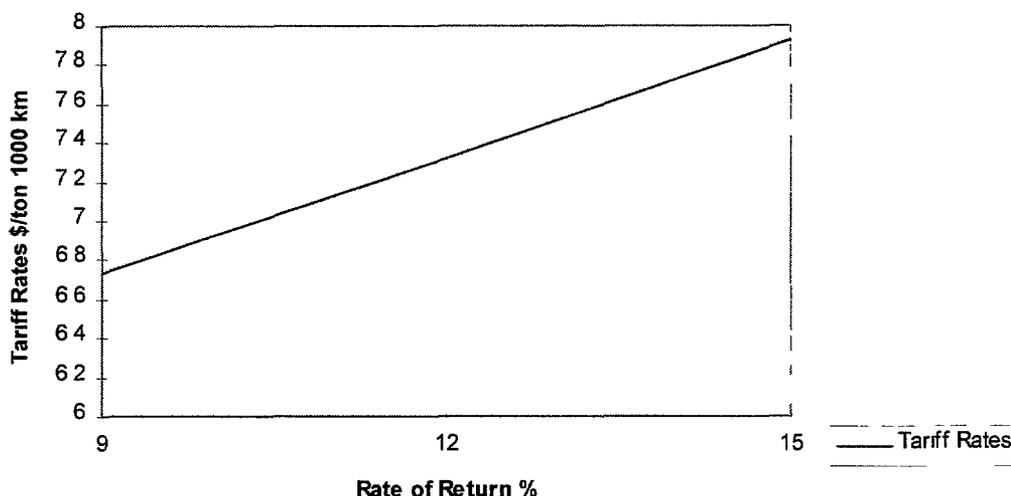


Table 7 clearly demonstrates why the recommended internationally acceptable methodology should be considered over the current Kazakhstan oil pipeline tariff methodology. Since the Kazakhstan methodology does not clearly demonstrate a percentage rate of the return to investors, the tariff rates based on this methodology result in a negative discounted rate of return. The Kazakhstan methodology generates a cash flow of 9.4 million USD per year versus 20 million USD by the recommended international methodology. Both, however, have the same level of operations and maintenance and capital improvement costs of 18.9 million USD. The mark-up amount of 8.2 million USD provided under the Kazakhstan methodology is too low to ensure the required level of cash flow needed for a positive rate of return.

The USAID consultants recognize that the recommended tariff methodology may generate rates that are significantly above those currently charged by KazakhNefteProvod on an operational systems basis. To reduce the potential for "rate shock" to customers, it is recommended that design tariff rates be gradually introduced. The results of this recommendation are shown in Table 8. As an example, a general YuzNefteProvod system tariff rate of 6.40 USD per 1000 tonne-kilometers is recommended for fiscal year (FY) 1998, with a follow-up increase to the design tariff rate of 7.32 USD per 1000 tonne-kilometers in FY1999. In a similar fashion, the recommended tariff rates for the Pavlodar system are 8.80 USD per 1000 tonne-kilometers for FY1998, and 9.68 USD per 1000 tonne-kilometers for FY1999. The tariff rates for the Aktyubinsk system are 10.40 USD per 1000 tonne-kilometers for FY1998 and 11.37

USD per 1000 tonne-kilometers for FY1999. From an overall perspective for KazakhNefteProvod, the impact of providing for the graduation of tariff rates in this manner is to produce a net cash flow for FY1998 of 35.6 million USD and for FY1999 of 46.3 million USD. The overall average rates for KazakhNefteProvod will be 7.00 USD per 1000 tonne-kilometers for FY1998, and 7.93 USD per 1000 tonne-kilometers for FY1999.

Conclusions/Recommendations

1. The tariff methodology recommended by the USAID consultants is an internationally acceptable cost-of-service rate-of-return based methodology, which meets the basic requirements of transparency, objectivity, and balance in fixing tariff rates of a monopoly.
2. The proposed tariff rate levels, though higher than current tariff rates, may not suffice to provide the necessary cash flow for urgently needed maintenance and capital projects, due to the low throughput utilization of the system. This shows that increases in tariffs are not the solution to raising the required cash flow. However, the introduction of an internationally accepted and proven tariff methodology will instill confidence in the international financial community to facilitate additional non-equity funding.
3. In determining these proposed tariff rates, the USAID consultants have assumed that KazakhNefteProvod will incorporate needed efficiencies and cost-cutting activities in all areas and direct as much effort as possible into maintenance and rehabilitation of used and useful assets.
4. Balanced against the needs of the system are the cost impacts and the concept of "rate shock" on customers. The USAID consultants recommend that the proposed rates be graduated over time. Using the rate design principle of "gradualism", the USAID consultants recommend the following rates for FY1998:

Recommended Tariff Rates for FY1998 (USD per 1000 tonne-kilometers)

| | |
|----------------|-------|
| YuzNefteProvod | 6.40 |
| Pavlodar | 8.80 |
| Aktyubinsk | 10.40 |
| Entire System | 7.00 |

5 Using the proposed methodology with the current data and information that was made available, the USAID consultants recommend the following tariff rates for FY1999

**Recommended Rates for FY1999
(USD per 1000 tonne-kilometers)**

| | |
|----------------|-------|
| YuzNefteProvod | 7 32 |
| Pavlodar | 9 68 |
| Aktyubinsk | 11 37 |
| Entire System | 7 93 |

6 The USAID consultants recommend that a qualified oil field engineering and accounting firm experienced in the valuation of existing oil field infrastructure perform a physical inspection of the system, assign a value to used and useful assets, establish the useful life of the assets, and provide recommendations to improve the overall efficiency and productivity of the system. USAID also recommends that full conversion of KazakhNefteProvod to International Accounting Standards be undertaken as soon as possible to ensure that its financial reports accurately reflect its costs of operation. USAID currently has available technical experts that can assist KazakhNefteProvod with such conversion and provide it with training in international accounting practices.

7 The USAID consultants recommend that KazakhNefteProvod conduct informal meetings with their customers and obtain direct input on the proposed increase for tariff rate levels. The customers may be willing to support higher-investments, if KazakhNefteProvod can guarantee the elimination of bottlenecks, an improvement in operating efficiency, and increased reliability in a relatively short time frame. This cooperation would enable the customer to get more oil shipments to market, resulting in increased cash flow and income.

8 The USAID consultants recommend that the proposed tariff rate methodology be refined to develop a complete menu of tariffs on a cost-causation basis, that KazakhNefteProvod serve as a model for the transition to Kazakhstan's revised accounting standards, and that KazakhNefteProvod build a foundation to offer alternative incentive tariff rates to customers,

9 USAID consultants are recommending that the current KazakhNefteProvod levied export surcharge be eliminated once the new tariffs are in place. The proposed

methodology allows for the recovery of all costs, approved fees and taxes and provides a fair rate of return

10 The USAID consultants strongly recommend that an independent regulatory commission be created to ensure that the oil pipeline tariff methodology is properly structured and that tariff rate decisions are made in a transparent forum without undue political or industry influence. The independent regulatory commission should have regulatory authority over oil and gas sector operations.

11 The USAID consultants believe the pipelines of Kazakhstan are a strategic asset. An evaluation should be conducted by the Republic to determine how the pipeline system should be used to maximize the value of strategic resources and assets. Funds from the dividends, taxes, and royalties collected through the production of mineral resources must be balanced against the funds collected from pipeline taxes and dividends.

TABLE 1

PROPOSED TARIFF ACCORDING TO OLD SYSTEM

| | Aktau-Atyrau | | Pavlodar | | Aktyubinsk | |
|----------------------------|--------------|--------|----------|--------|------------|--------|
| Throughput mm km tonnes | 13,193 00 | | 2656 | | 976 | |
| | MM tenge | MM \$ | MM tenge | MM \$ | MM tenge | MM \$ |
| Depreciation | 348 6 | 4 6 | 280 4 | 3 7 | 60 2 | 0 8 |
| Capital Improvements | 941 7 | 12 6 | 340 4 | 4 5 | 88 9 | 1 2 |
| Total O&M | 3,501 0 | 46 7 | 1,001 4 | 13 4 | 264 6 | 3 5 |
| Taxes | 425 9 | 5 7 | 172 8 | 2 3 | 48 3 | 0 6 |
| Total Expenses | 5,217 1 | 69 6 | 1,795 0 | 23 9 | 462 1 | 6 2 |
| Markup | 2,056 3 | 27 4 | 123 3 | 1 6 | 140 0 | 1 9 |
| Income Tax | 616 9 | 8 2 | - | - | - | - |
| Total Revenue | 7,890 4 | 105 2 | 1,918 3 | 25 6 | 602 1 | 8 0 |
| Tariff (1,000 km t) | t 598 | \$7 97 | t 722 | \$9 63 | t 617 | \$8 23 |

TABLE 2

PROPOSED TARIFF ACCORDING TO NEW SYSTEM

| | Aktau-Atyrau | Pavlodar | Aktyubinsk |
|--|--------------|--------------|--------------|
| Design Capacity according to the model | | | |
| MM km tonnes | 61,837 0 | 68,925 00 | 6,360 0 |
| Actual Throughput | | | |
| MM km tonnes | 13,193 0 | 2,656 00 | 976 00 |
| % Utilization | 21 3 | 3 9 | 15 3 |
| Value of the Pipeline based on the model (\$ MM) | 779 | 980 | 162 |
| Derated Value (\$ MM) | 166 2 | 37 8 | 24 8 |
| | MM \$ | MM \$ | MM \$ |
| Depreciation (5%) | 8 3 | 1 9 | 1 4 |
| O&M | 46 7 | 13 4 | 3 5 |
| Taxes | 5 7 | 2 3 | 0 6 |
| Income Tax | 10 8 | 2 4 | 1 7 |
| Return on Equity (15%) | 25 1 | 5 7 | 3 9 |
| Cost of Service | 96 6 | 25 7 | 11 1 |
| Tariff Rates | | | |
| \$/ 1,000 km t | 7 32 | 9 68 | 11 37 |
| Tenge / 1,000 km t | 549 | 726 | 853 |
| Cash Flow \$ MM | 33 4 | 7 6 | 5 3 |

NOTE Calculations of tariffs given in the table should be considered an example

TABLE 3

ECONOMIC ANALYSIS

| | |
|---|-----------------|
| Total depreciated investment of the whole system (3 divisions) based on the model | \$ 1,921 MM |
| Total design capacity according to the model | 137 122 MM km t |
| Actual Throughput | 16,825 MM km t |
| % Utilization | 12 3% |
| Derated Value | \$228 8 MM |

| | NEW SYSTEM | OLD SYSTEM |
|----------------------------------|--------------|--------------|
| | \$ MM | \$MM |
| Depreciation | 11 6 | 9 2 |
| O&M | 63 6 | 63 6 |
| Taxes | 8 6 | 8 6 |
| Capital Improvement | NA | 18 3 |
| Income Taxes | 14 9 | 11 7 |
| Return on Equity (after tax 15%) | 34 7 | NA |
| Mark Up | NA | 27 4 |
| Cost of Service | 133 4 | 138 8 |
| TARIFF RATES | | |
| \$/ 1000 km t | 7 93 | 8 25 |
| Tenge / 1,000 km t | 595 | 619 |
| Cash Flow | 46 3 | 29 8 |

155

TABLE 3

ECONOMIC ANALYSIS

| | |
|---|-----------------|
| Total depreciated investment of the whole system (3 divisions) based on the model | \$ 1 921 MM |
| Total design capacity according to the model | 137 122 MM km t |
| Actual Throughput | 16 825 MM km t |
| % Utilization | 12 3% |
| Derated Value | \$228 8 MM |

| | NEW SYSTEM | OLD SYSTEM |
|----------------------------------|--------------|--------------|
| | \$ MM | \$MM |
| Depreciation | 11 6 | 9 2 |
| O&M | 63 6 | 63 6 |
| Taxes | 8 6 | 8 6 |
| Capital Improvement | NA | 18 3 |
| Income Taxes | 14 9 | 11 7 |
| Return on Equity (after tax 15%) | 34 7 | NA |
| Mark Up | NA | 27 4 |
| Cost of Service | 133 4 | 138 8 |
| TARIFF RATES | | |
| \$/ 1000 km t | 7 93 | 8 25 |
| Tenge / 1,000 km t | 595 | 619 |
| Cash Flow | 46 3 | 29 8 |

TABLE 4

ECONOMIC ANALYSIS

| | |
|---|-----------------|
| Total depreciated investment of the whole system (3 divisions) based on the model | \$ 1,921 MM |
| Total design capacity according to the model | 137,122 MM km t |
| Actual Throughput | 16,825 MM km t |
| % Utilization | 12.3% |
| Derated Value | \$228.8 MM |

| | NEW SYSTEM | OLD SYSTEM | NEW SYSTEM CASE 1 |
|-----------------------------------|--------------|--------------|-------------------|
| | \$ MM | \$MM | \$MM |
| Depreciation | 11.6 | 9.2 | 11.6 |
| O&M ¹ | 63.6 | 63.6 | 92.1 |
| Taxes | 8.6 | 8.6 | 8.6 |
| Capital Improvement (Maintenance) | NA | 18.3 | NA |
| Income Taxes | 14.9 | 11.7 | 14.9 |
| Return on Equity (after tax 15%) | 34.7 | NA | 34.7 |
| Mark Up ² | NA | 27.4 | NA |
| Cost of Service | 133.4 | 138.8 | 161.9 |
| TARIFF RATES | | | |
| \$/ 1000 km t | 7.93 | 8.25 | 9.62 |
| Tenge / 1,000 km t | 595 | 619 | 722 |
| Cash Flow | 46.3 | 29.8 | 46.3 |

¹ O&M - in the new system maintenance is included and in the old system it is not included

² Mark Up - includes capital construction, new equipment R&D, social development fund and bonus fund

TABLE 5

PROPOSED TARIFF ACCORDING TO NEW SYSTEM

A Sensitivity Case Aktau-Atyrau Utilization Goes Up

| | |
|--|--------------|
| Design Capacity MM km tonnes | 61,837 |
| Actual Throughput MM km tonnes | 24,735 |
| % Utilization | 40% |
| Value of the Pipeline based on the model (\$ MM) | 779 |
| Derated Value (\$ MM) | 312 |
| | MM \$ |
| Depreciation (5%) | 15 6 |
| O&M | 75 3 |
| Taxes | 7 0 |
| Income Tax | 20 1 |
| Return on Equity (15%) | 47 0 |
| Cost of Service | 165 0 |
| Tariff Rates | |
| \$/ 1,000 km t | 6 67 |

TABLE 6

PROPOSED TARIFF ACCORDING TO THE NEW SYSTEM

A Sensitivity Case to Reflect the Use of Different Rates of Return

| | RATES OF RETURN | | |
|----------------------------------|-----------------|--------------|--------------|
| | 9% | 12% | 15% |
| Depreciation | 11 6 | 11 6 | 11 6 |
| O&M | 63 6 | 63 6 | 63 6 |
| Other Taxes | 8 6 | 8 6 | 8 6 |
| Income Tax | 8 9 | 11 8 | 14 9 |
| Return on Equity | 20 6 | 27 5 | 34 7 |
| Cost of Service | 113 3 | 123 1 | 133 4 |
| Tariff Rate \$/1,000 km t | 6 73 | 7 32 | 7 93 |

TABLE 7

WHY SHOULD WE USE THE NEW SYSTEM

Total Investment \$ 100 MM

Throughput 7,000 MM km t

| | OLD SYSTEM | NEW SYSTEM |
|----------------------|-------------|-------------|
| Depreciation | 3 3 | 3 3 |
| O&M | 8 9 | 18 9 |
| Capital Investment | 10 0 | 0 0 |
| Other Taxes | 1 0 | 1 0 |
| Income Tax | 0 0 | 7 2 |
| Mark Up 35% | 8 2 | 0 0 |
| Return on Equity | 0 0 | 16 8 |
| TOTAL | 31 4 | 47 2 |
| Cash Flow | 9 4 | 20 |
| DCF Rate of Return | negative | 15% |
| Tariff \$/1,000 km t | 4 49 | 6 74 |

TABLE 8

RECOMMENDED TARIFF RATES AND CASH FLOW

| | 1998 | | 1999 | |
|----------------------|--------------------------|--------------------|--------------------------|--------------------|
| | Tariff \$/ton 1000 km | Cash Flow \$ MM | Tariff \$/ton 1000 km | Cash Flow \$ MM |
| Aktay-Atyrau | 6 40 | 24 90 | 7 32 | 33 40 |
| Pavlodar | 8 80 | 6 00 | 9 68 | 7 60 |
| Aktyubinsk | 10 40 | 4 70 | 11 37 | 5 30 |
| Entire System | 7 00 | 35 60 | 7 93 | 46 30 |

APPENDIX F

RESOLUTION

WHEREAS, the United States Agency for International Development (USAID) received a request from the former Ministry of Oil and Gas Industry of the Government of the Republic of Kazakhstan to provide technical assistance in the development and implementation of an internationally acceptable oil pipeline tariff methodology,

WHEREAS, USAID agreed to provide such assistance and designated Hagler Bailly (USAID consultants) to cooperate with KazTransOil (formerly KazakhNefteProvod) as consultant for the project,

WHEREAS, KazTransOil is an independent state-owned company and operator of the Government of the Republic of Kazakhstan oil pipeline transportation system, serving as a common carrier and allowing open access for all shippers of oil,

WHEREAS, KazTransOil and USAID agreed to form an Oil Pipeline Tariff Methodology Steering Committee (Steering Committee) to provide guidance and direction in the development of an acceptable oil pipeline tariff methodology,

WHEREAS, KazTransOil chairs the Steering Committee, whose designated members included the former Ministry of Economy and Trade, through its Anti-Monopoly Department, the former Ministry of Energy and Natural Resources, the former State Agency for Control of Strategic Resources, KazakhOil, the Kazakhstan Petroleum Association (including representatives from British Gas, Chevron, Mobil Oil, Oryx Energy, Unocal, and others), and USAID,

WHEREAS, the initial meeting of the Steering Committee was convened on 21 April 1997, for the purpose of defining the Guiding Principles to be used in the development of the tariff methodology,

WHEREAS, these Guiding Principles include (i) a cost of service rate of return tariff methodology that is acceptable to customers, international funding institutions, owners, and investors (ii) only fair and reasonable administrative, operations, and maintenance costs allowed in the rate base, (iii) a transparent tariff development process, (iv) objective tariff rates representing a balance of interests, (v) only used and useful assets allowed in the rate base, (vi) establishment of a foundation for alternative tariff methodologies would be established, and (vii) implementation of the new accounting system that complies with international standards by KazTransOil,

WHEREAS, the USAID consultants, pursuant to the ongoing advice and guidance of the Steering Committee collected data and information, conducted research, and negotiated key issues to develop a recommended oil pipeline tariff methodology based upon the Guiding Principles,

WHEREAS, at the fifth Steering Committee meeting on 25 September 1997, the final draft recommendation of the oil pipeline tariff methodology was presented in a report and accepted in principle by KazTransOil and the Steering Committee members,

WHEREAS, the undersigned agree that the attached "Methods For Calculating Tariffs For Pumping Oil Through The Pipelines" (Attachment 1) meets the Guiding Principles as established by the

Steering Committee, and that the proper implementation of this recommended oil pipeline tariff methodology will contribute to reliable and effective oil transportation, for the mutual benefit of oil producers and shippers and the Republic of Kazakhstan oil pipeline transportation sector,

WHEREAS, adoption of the recommended oil pipeline tariff methodology, which meets world-class practices and standards, would be considered by the international investment community as another progressive step in the transition towards a sound market economy for the Republic of Kazakhstan, now therefore

BE IT RESOLVED THAT, the undersigned recommend that the “Methods For Calculating Tariffs For Pumping Oil Through The Pipelines” be adopted by the Government of the Republic of Kazakhstan and fully implemented by the beginning of Fiscal Year 1998, and

BE IT FURTHER RESOLVED THAT, the undersigned endorse the adoption of the Steering Committee “Recommendations For The Oil Pipeline Tariff Methodology” (Attachment 2) by the Government of the Republic of Kazakhstan, which will serve to enhance the effectiveness of the methodology

Executed this ___ day of November 1997

ATTACHMENT 1

**METHODS
FOR CALCULATING TARIFFS
FOR PUMPING OIL THROUGH THE PIPELINES**

**PRODUCTION UNIT KAZTRANSOIL
AND ITS OPERATING DIVISIONS**

1 GENERAL PROVISIONS

1.1 The transportation tariff calculations proposed under this methodology provide for the recovery of all operating costs and a return on rate base

1.2 In order to produce fair and reasonable tariff rates for shippers, pipeline transportation tariffs shall be calculated as a sum of a base transportation rate and various riders for additional services. The base transportation rate is charged for standard / basic services provided to all shippers. Riders are charged for additional services related to storage, loading, heating of highly viscous oil, treatment of oil with friction agents to reduce pour point temperature, usage of additives to reduce hydraulic losses and to increase pipeline throughput, usage of corrosion inhibitors to minimize corrosive environment in a pipeline, compounding (blending) of oil to obtain certain crude characteristics required by users (salt content, pour point, density, etc), and other similar technological processes

Each shipper shall pay only for the services provided by the pipeline transportation natural monopoly and used by the shipper

1.3 Rate of return shall be calculated as a certain percentage of the value of the used and useful assets

1.4 All costs shall be directly assigned, or allocated, into three major expense categories

- (1) operating expenses,
- (2) maintenance expenses,
- (3) and general and administrative expenses (see Appendix 2)

Costs shall be assigned into expense categories which will be accumulated for the basic crude oil transportation rate by section, and each of the individual riders

Joint and shared costs, such as wages of headquarters staff shall be allocated to each operating division, then attributed to individual line segments

1.5 All property shall be recorded and separately specified in the accounts of a pipeline natural monopoly and shall be written out of the accounts when the property is retired and/or replaced (See Appendix 3)

1.6 Transportation throughput and the volumes which require heating, ship and railroad loading, storage, etc , will be specified in total for the whole of the pipeline natural monopoly , separately for all of its divisions, and within each of its divisions, and shall be recorded in tonnes and/or tonne-kilometers depending on the type of services provided

1 7 Depreciation shall be recorded, pursuant to Kazakhstan laws, decrees, and regulations and approved depreciation schedules, in accounts consistent with the property accounts established to record property assets

2 THE PROCEDURE FOR TARIFF RATE REVISIONS

The pipeline transportation natural monopoly shall apply for tariff rates on 1 December every year. However, to reflect significant changes in cost, the pipeline transportation natural monopoly may apply as needed and justified. The rate of return shall not change more than once on an annual basis. Upon rate approval, the natural monopoly shall operate under those rates until such time as the economic conditions require the pipeline company to seek additional increases. The pipeline company seeking an increase should submit the following documents to the authorized rate-setting authority:

2 1 Records, reflecting historical actual data of the natural monopoly's experience for the previous period (12 months) (in the case of a new service, forecasted data for an appropriate period should be provided),

2 2 Calculations for justification of the new tariff rates

2 3 The actual data should include

2 3 1 The throughput data for each category of tariffs for the specified period, compiled in accordance with the provisions of this document

2 3 2 A list of the total cost of service, by line section, for the test period consisting of

- (1) Operation and maintenance costs
 - (a) operation expenses
 - (b) maintenance expenses
 - (c) administrative and general expenses

- (2) Depreciation

- (3) Taxes Other Than Income Taxes

- (4) Amount of return on assets with supporting documentation for the rate of return

- (5) Income Taxes

2 3 3 These costs must be separated into the respective transportation rate categories and tariff rider categories as follows:

- (1) Total operation and maintenance costs that relate to the special riders shall be separated and subtracted from the other operations, maintenance, and general expenses. This should be performed for the heating tariff and loading tariff, and any other special tariffs sought by the pipeline such as a viscosity tariff.

(a) For example, to produce a rate for a heating tariff, add the fuel used for heating, the wages of the employees who operate the furnace, an allocation of maintenance employee wages, and an allocation of social insurance and other personnel related overhead costs related to the employees time identified for this rider

(b) This amount should not be included in the costs included for the development of the main (or trunk) pipeline transportation rate

(2) The remainder of the total operating costs, the depreciation associated with the physical assets of each pipeline system and an allocation of common physical assets to each pipeline type, the taxes associated with the individual pipeline system, and the amount of return and income taxes associated with the three primary systems should be compiled on an individual basis. Within types of systems (for example, trunk lines) this data should be compiled on a sectional basis

2 3 4 The natural monopoly shall provide a statement of assets which shall be taken into consideration for the transportation rate calculation and shall consist of the following

(1) beginning balance of property values minus accumulated depreciation

(2) working capital, including cash, materials and supplies, prepayments, and oil inventory owned by the natural monopoly,

(3) and accumulated capital such as accumulated deferred income, customer advances in aid of construction, and customer deposits

2 3 5 The natural monopoly shall provide a statement of all revenues for a specific period in accordance with the revenue accounting categories and shall also provide specific information for those categories that require an increase. A natural monopoly's total revenues shall be used to meet its revenue requirement and these revenues would include interest earned from financial institutions, and any other directly related sources of capital, such as the oil export surcharge fee

2 4 The application and calculations for the a base transportation rate shall include

2 4 1 The application shall compute the return on rate base by multiplying the rate of return times the rate base assets

Cash + Supplies and Materials + Pipeline Owned Oil Inventory + Prepaid Deposits = Working Capital

Working Capital - Current Liabilities = Net Working Capital

(Book Value of Assets - Accumulated Depreciation) + Net Working Capital = Rate Base Assets

Rate of Return x Rate Base Assets = Return on Assets

2 4 2 The application shall compute the total operating expenses by adding the costs of operations, maintenance, and general and administrative expenses together

Total Operating Expenses = Operations Expenses + Maintenance Expenses + Administrative and General Expenses

2 4 3 The application shall compute the total depreciation by adding together all the separate depreciation amounts for the individual pipes, pumps, etc - depreciated in accordance with current approved depreciation schedules

Depreciation = Depreciation Line Pipe + Depreciation Pumping Equipment + Depreciation Trucks + Depreciation of All Other Depreciable Property

2 4 4 The application shall list the total of all taxes other than income taxes

Taxes Other Than Income = Road Tax + Environmental Tax + Unemployment Tax + Other Applicable Taxes

2 4 5 The application shall compute the total expenses other than income taxes by adding the total operation and maintenance expenses, the depreciation, and taxes other than income

Total Expense Other Than Income = Total Operating Expenses + Depreciation + Taxes Other Than Income

2 4 6 The application shall compute the taxable income and income tax

Taxable Income = Total Current Operating Revenues - Expenses Other Than Income Taxes

Income Tax Rate = Tax Rate Applicable During Current Year
Current Income Taxes = Income Tax Rate x Current Taxable Income

2 4 7 The application shall compute for comparison purposes the current rate of return by taking the total current operating revenues, subtracting total operating expenses other than income taxes, and subtracting current income taxes to equal current net operating income Current net operating income divided by the rate base equals the current rate of return

Total Current Operating Revenues - Total Operating Expenses Other Than Income - Current Income Taxes = Current Net Operating Income

Current Net Operating Income = Current Rate of Return
Rate Base

2 4 8 The application shall compute the total revenue requirement or total cost of service

Revenue Requirement = Return on Assets + Expenses Other Than Income Taxes + Income Taxes

2 4 9 The application shall compute the amount of the revenue increase by subtracting the current revenues from the revenue requirement

Revenue Increase = Revenue Requirement - Current Revenues

2.4.10 The application shall calculate the new transportation rates by dividing the revenue requirement for each service by the respective throughputs

**Revenue Requirement = Transportation Rate
Throughput**

Appendix 1

Terms and Definitions

Amortization - the gradual extinguishment of an amount in an account by distributing such amount over a fixed period, over the life of the asset or liability to which it applies, or over the period during which it is anticipated the benefit will be realized

Book Cost - the amount at which assets are recorded in the accounts, without deduction of related provisions for accrued depreciation, amortization, or for other purposes

Cost-based Tariff - the formal document which establishes terms, conditions and rates for the delivery of service in which the rate is constructed as closely as possible based on the real cost of providing the service plus a return on rate base

Depreciation - the loss in service value not restored by current maintenance and incurred in connection with the consumption or prospective retirement of property in the course of service from causes against which the natural monopoly is not protected by insurance, and the effect of which can be forecast with a reasonable approach to accuracy

Gathering line - a system for the gathering and collection of oil, oil products and other commodities from oil field, refinery, or other sources and delivery to the storage tanks or intake side of the manifold of the trunk line

Heating rider - the cost of heating in tonne-kilometers or 1000 tonne-kilometers oil to improve its flow characteristics

Loading rider - the cost of loading of one tonne of oil into tank cars or a tanker at the given loading point

Net Working Capital - working capital less current liabilities

Pipeline tariff - a formal document which established the terms, conditions, and rates under which a pipeline transportation natural monopoly provides services to its customers. The rate is usually expressed as cost per tonne, per tonne-kilometer, or per 1000 tonne-kilometer

Product line tariff - a separate tariff for the transshipping of refined products as opposed to crude oil

Rate Base - the current value of the plant and equipment owned by a natural monopoly plus the net working capital

Rate Of Return - a percentage multiplied times the value of the rate base, which represents the opportunity to earn income to provide dividends to investors and to retain earnings for the natural monopoly - the retained earnings may be used to retire past capital investments and provide for future capital investments

Rider - an additional charge added to the base transportation rate to cover the costs of special expenses incurred by the natural monopoly as a result of the shippers special requirements

\Return On Equity - represents the value computed as net income after expenses divided by the total equity of the natural monopoly

Return On Investment - represents the situation when an investor provides capital to a natural monopoly or other enterprise and receives a percentage of that capital in return as a share of net income

Salvage Value - the amount received or estimated to be received from property retired less any expenses incurred in connection with the sale or preparing the property for sale, or, if retained, the value at which the recovered material is chargeable to the material and supplies account or other appropriate account

Service Life - the period between the date that property is placed in service and the date of its retirement

Service Value - the book cost less the actual or estimated net salvage value of property

Storage Rider - the cost of storing of one tonne of oil in storage tanks for specified period of time

Straight-Line Method - applied to depreciation and amortization accounting, means the plan under which the service value of property is charged to expense, and credited to the related accrued depreciation or amortization account, through equal monthly charges during the service life of the property

Tariff Revenue - the revenues received from customers of a natural monopoly's services as a result of charging the approved tariff rates

Viscosity Rider - the cost of transporting oil of high or medium viscosity through a natural monopoly pipeline system, which results from additional costs

Working Capital - the cash, supplies and materials, pipeline owned oil inventory and any pre-paid deposits which represent the readily convertible sources of funds that a natural monopoly may need to meet immediate needs

Appendix 2

Detail of Accounts

Subaccounts should be established for each category of costs listed in this appendix as a subordinate item in accordance with the newly established accounting system of Kazakhstan

Property Accounts

Right of way, e g , a section of right away

Line pipe - pipe used for transmission of petroleum should be recorded in separate accounts from pipe dedicated to gathering systems, refined products, etc

Line pipe fittings - as associated with the line pipe recorded in item 1 above

Pipeline construction cost pertaining to a unit of line pipe

Buildings, for example, a complete building, an entire roof, a complete fire escape, a complete heating system, an elevator complete with operating mechanism

Boilers

Pumping Equipment, for example, a complete engine with or without foundation, a complete pump with or without foundation, or a power-transmission system

Machine tools and machinery, for example a machine tool, a foundation special to a machine, a motor, generator, steam engine, pump, ventilating fan, or other similar equipment, a coal-handling system, an ash-handling system, a furnace, and a boiler

Other station property which was charged to the pipeline property account

Oil tanks, for example a complete oil tank with or without grade and fire walls, a fire wall, a tank grade

Delivery facilities, for example, a motor, generator, engine, pump, or similar equipment, a delivery-pipe system, a complete wharf, a section of wharf, a pile cluster or dolphin, a complete loading or unloading rack, or a complete railroad siding

Communications systems, for example, a complete switchboard

Telegraph and telephone outside plant, for example, a continuous section of one kilometer of aerial wire, a section of 350 meters of aerial cable, a section of 150 meters of submarine cable, a section of 150 meters of conduit, a continuous section of 35 poles, or a case of equipment, such as loading coil or autotransformer

Radio and wireless equipment, for example, a transmitting set, a receiving set or an antenna, complete or without supports

Office Furniture and Equipment, for example, each complete item of furniture or equipment the book cost of which was charged to the pipeline property account, such as - desk, chair, table, davenport, typewriter computing machine, rug, carpet, or other floor covering for one room

Vehicles and other work equipment, for example,, a passenger automobile or truck with or without a body, a tractor, a pole derrick, power winch, earthboring machine, or trailer

Other property, for example, each complete item of property the book cost of which was charged to the pipeline property account which has not been listed elsewhere

Total Operating Expenses

Operations expenses include

salaries and wages, including pay for holidays, vacations, sick leave, and similar payroll disbursement for employees directly engaged in transportation operations, supplies and expenses, outside services, operating fuel and power, and oil losses and shortages

Maintenance includes

salaries and wages, supplies and expenses, outside services, and maintenance materials

General includes

salaries and wages of executives, general office personnel and others not classified to operations and maintenance, supplies and expenses, outside services, rentals, depreciation and amortization, pensions and benefits, insurance, casualty and other losses, and pipeline taxes of all kinds, except income taxes, relating to pipeline property, operations, privileges, and licenses

Appendix 3

SAMPLE TARIFF SHEET

The following is a sample tariff sheet and is provided in an advisory capacity only

Original Sheet No _____
KazTransOil
Almaty, Kazakhstan

CRUDE OIL OR TRUNK TRANSMISSION TARIFF

Availability

This service is available, on an equal basis, from KazTransOil to all Shippers, provided that KazTransOil has sufficient capacity to receive from or on behalf of Shipper, and deliver to or for the Shipper, and who

desires transportation services,

IV executed a transmission agreement, and

V complies with the provisions of this rate schedule and all other applicable provisions of the complete tariff

Applicability

Service under this tariff is available to transmit crude oil over the pipelines trunk lines to connection with other pipelines, and to onshore terminaling, storage, and offshore terminaling. The crude oil may be received from the shipper's gathering system, storage system, another pipeline, rail or dock facilities

Rate

The following rates are applicable to the line sections as specified

Section 1 - From xxx to xxx - \$xx xx per 1000 tonne-kilometer

Section 2 - From xxx to xxx - \$xx xx per 1000 tonne-kilometer

Retainage Adjustment

A percentage, in the amount of x%, of all throughput shall be retained by KazTransOil to cover measurement error and line losses

Special Conditions

a All charges made pursuant to this tariff are subject to the application of the value added tax, which shall be applied to the total amount of this invoice and added to the invoice
Invoices rendered under this tariff are net and will be increased by 10%, if net invoice is not paid within 30 days from the date of the bill

174

Service rendered under this tariff is subject to Rules and Regulations in effect at the time of the service provision

Issued by xxxxxxxx
Issued on xxxxxxxx

Effective xxxxxx

SAMPLE RIDER SHEET

In the development of transportation tariffs, it is common to develop riders to specify special terms and rates which should be added to the basic transportation rate to tailor the provision of service to meet the needs of the customer. The following is a sample tariff rider and is provided for illustration purposes only.

Original Sheet No. _____

KazTransOil

Almaty, Kazakhstan

HEATING TARIFF RIDER

Availability

This service is available, on an equal basis, from KazTransOil to all Shippers, who desire transportation services,

VI have the capability of delivering oil into the pipeline operating system,

VII have executed a transmission agreement with the pipeline, and

VIII comply with the provisions of this rate schedule and all other applicable provisions of the complete tariff

Applicability

Crude oil delivered to the pipeline which requires heating due to pour point or due to viscosity will be charged a rate in addition to the base transportation rate to recover the costs of heating the oil. Oil which does not require heating, or oil transported on operating lines without heating ability, will not be charged the heating rider.

Rate

The rate is as follows

\$ x xx per Thousand Tonne-Kilometers

Special Conditions

All charges made pursuant to this tariff rider are subject to the application of the value added tax, which shall be applied to the total amount of this invoice and added to the invoice.

Invoices rendered under this rider are net and will be increased by 10%, if net invoice is not paid within 30 days from the date of the invoice.

Service rendered under this rider is subject to Rules and Regulations in effect at the time of the service provision.

Issued by xxxxxxxx

Effective xxxxxx

Issued on xxxxxxxx

Appendix 4

Rate of Return

Establishing a rate of return for rate-making purposes is a regulatory concept designed to produce an amount of funds to pay the natural monopoly's investors for the use of their money. A fair and reasonable rate of return will enable the natural monopoly to meet debt and equity obligations and be able to continue to attract capital. The rate of return should not be so low as to impair the natural monopoly's ability to attract capital, nor should it be so high as to be unreasonable compared to earnings of similar investments involving comparable risk.

In a regulatory system of rate design, great dependence is made on using historical and real costs. Rates of return should rely as much as possible on simple methods that require as few unreliable estimates as possible. This does not mean that the natural monopoly is inhibited in any way from using various financial planning calculations such as simple payback, or internal rate of return, or others, for budgeting or capital asset planning.

In developing a rate of return for rate-making purposes the following elements should be considered

the basic rate of return for capital employed, the additional return required to reflect industry risk, the additional return required to reflect the corporate and financial structure risk of the company within the industry, and, the additional return required to reflect country risk (political, economic, legal, regulatory, etc.)

In order to insure stability of tariff rates, all rates are recommended to be benchmarked in US dollars. Rates are to be paid in Kazakhstan Tenge in accordance with the exchange rate on the day of financial transaction.

The basic rate of return is established using the interest rate paid on the most stable capital investment available. In this particular case, international markets support the use of 30-year US treasury bonds as a foundation for the establishment of rates of return. This is referred to as the "risk free" or free of default factor. An investor in these securities would expect that at the end of the investment period the original investment plus interest will be received.

The additional return required to reflect industry risk is a measure of the uncertainties of the industry in comparison to other industries. That is, will a natural monopoly operating an oil pipeline transportation system be less likely to be able to repay an investment than another more stable business. In the oil and gas sector, investments in pipelines are usually not as risky as investments in oil and gas exploration.

Structural risk depends upon the characteristics of the industry and the specific corporate and financial structure of the natural monopoly. To the extent that indices are compiled or available, these indices can be examined to determine the default rates on businesses of this nature. In addition to these indices, an individual examination of the corporate and financial structure and the natural monopoly's ability to obtain revenues to meet its expenses must be performed.

Country risk includes variables that affect the ability of the natural monopoly to repay investment due to

potential problems arising from political, economic, legal, and regulatory changes. These changes can affect the ownership of the assets, the operations of the natural monopoly, and its cash flows and returns on investment. During an unstable political period within a country, investors may not be confident of the government's legal and regulatory framework within which the natural monopoly operates. Political risk increases when political governance is in turmoil, democratic institutions are immature and inexperienced and corruption exists. Economic uncertainty can be generated by conflicting or unclear monetary policy, fiscal policy, balance of payments and exchange rate policy, economic protectionism, economic development policies, and changing taxation structures.

An independent oil and gas regulatory agency would consider the sum of these four factors to determine an appropriate rate of return in the preparation of rates for a natural monopoly.

ATTACHMENT 2**RECOMMENDATIONS FOR THE OIL PIPELINE TARIFF METHODOLOGY**

It is recommended that

- 1) The Government of the Republic of Kazakhstan adopts the “Methods For Calculating Tariffs For Pumping Oil Through The Pipelines” (Methods) and elaborates detailed “Instructions For Using The Oil Pipeline Tariff Methodology” (Instructions) The existing current instructions would need to be replaced and brought into compliance with the recommended oil pipeline tariff methodology
- 2) The Government of the Republic of Kazakhstan creates an independent Oil and Gas Regulatory Agency (not subject to undue political and industry influence) that includes within its portfolio of responsibilities the objective regulation of tariffs consistent with the Resolution Guiding Principles
- 3) “The Tariff Surcharge For Oil Export”, which was adopted on 23 December 1996 by joint Decrees No 7/122 of the Ministry of Oil and Gas Industry and No 1-2942 of the State Committee on Antimonopoly and Pricing Policy of the Government of the Republic of Kazakhstan, is eliminated after implementation of the recommended pipeline tariff methodology
- 4) the Government of the Republic of Kazakhstan eliminates KazTransOil from the Attachment to Resolution No 1207 “On Improving Effectiveness of State Property Management”, which was adopted on 1 August 1997, so that KazTransOil is not required to make payments of no less that 50 percent of net profit to the Government budget
- 5) KazTransOil undertakes a full conversion to the new accounting system adopted by the Government of the Republic of Kazakhstan, which incorporates international accounting standards
- 6) KazTransOil conducts meetings with their shippers to
 - resolve sensitive tariff and pricing issues
 - IX enhance investment opportunities
 - X create loans for infrastructure development
 - XI ensure payment schedules are maintained
 - XII prioritize needed rehabilitation and expansion efforts
- 7) The Oil Pipeline Tariff Methodology Steering Committee continues to meet regularly to
 - refine the recommended methodology and develop the detailed “Instructions For Using The Oil Pipeline Tariff Methodology”
 - XIII design transparent tariff sheets and riders
 - XIV unbundle special pipeline services according to costs
 - XV assist in the promotion and implementation of the recommended methodology
 - XVI introduce alternative tariff methodologies for certain circumstances

APPENDIX G

ORYX

**Oryx Kazakhstan
Energy Company**
Office No 6
Interhotel Dostyk
Kurmangazy Street 36
Almaty, 480021
Republic of Kazakhstan
Telephone (3272)636868
Telefax (3272) 63-68-68

Mr Nourlan D Kapparov
President, KazTransOil
84 A Gogol Street
Almaty, Kazakstan

December 1, 1997

Re Tariff Rates

Dear Mr Kapparov,

It has come to my attention that there may be some consideration being given to utilizing a tariff methodology that funds planned future capital construction projects out of current oil pipeline tariffs and incorporates some form of internal rate of return. While this form of tariff methodology may have a sense of comfort to you and your colleagues as it more closely resembles the old Soviet style of establishing pipeline tariffs, I urge you to take a close look at the work done by Hagler Bailly in conjunctions with the input from the tariff committee. While I don't agree with all the specifics utilized in their recommended tariff methodology and tariff calculations, the fundamentals are well founded in internationally recognized regulatory principles to tariff methodologies and tariff calculations. As such, the recommendations of Hagler Bailly can serve as a very good start on a transition toward full implementation of such principles.

I have worked with the Federal Energy Regulatory Commission (FERC) for four years and with Oryx Energy Company and its predecessor company for 17 years. (The FERC is the USA's independent regulatory body responsible for the oversight of oil and gas pipeline tariffs). In these 20 years of experience I have not run across oil, or natural gas, tariff rates based on funding PROJECTED capital projects and including a concept of internal rates of return, except for oil pipelines in the Former Soviet Union.

Internationally recognized methodologies recoup the cost of capital projects AFTER the construction is completed based on the principle of the asset being used or useful. If the capital project is funded entirely from debt, the cost of the debt (principal and interest) is fully recovered by its inclusion as a cost in the tariff calculation. If the project is entirely funded from equity, a return component, based on risk calculations for the industry, with appropriate add-ons for other risk factors, is included in the tariff calculations. If the project is funded from both debt and equity the tariff calculation is adjusted accordingly. The company is free to earn a higher internal return if it can manage to operate with lower costs and/or higher throughput than those used in the tariff calculations.

Oryx has been producing oil in Kazakhstan since 1995. With our development work at Arman and our anticipated success in our exploratory efforts on our Mertvyı Kultuk acreage, we hope to be producing a substantially larger amount of oil in Kazakhstan in the future. Also, we continue to evaluate other opportunities for oil production in Kazakhstan. For these reasons we are very interested in oil transportation in Kazakhstan. Our main concerns include having a long term stable environment wherein we can feel secure in being able to transport our oil and that the tariff rates will remain reasonably stable. If we can not transport our oil or, the cost of doing so raises substantially, we risk not recovering our investment in producing the oil. If this happens its likely we will invest some place else where we can recover our investment and earn a reasonable return.

Oryx is pleased to see the formation of the tariff committee and the willingness of KazTransOil (KTO) to utilize an internationally recognized tariff methodology. Doing so begins to provide the stable environment mentioned above because it provides the basis for western banks to provide funds for pipeline rehabilitation and such tariff methodologies do not generally encounter substantial variations in tariff rates over a period of several years.

I applaud the efforts KTO is making to provide dependable transportation facilities and good service. This is evidence, in part by enlisting Hagler Bailly to advise KTO regarding tariff methodologies, the formation of the tariff committee to bring impacted parties in on the process as well as the hard work of many of its employees. I sincerely believe this is the right direction and I encourage you to continue on this path in lieu of adopting some hybrid of the Soviet style of determining tariffs.

I wish you and KTO much success.

Best regards,

William A. Conrad
Manager, International Marketing

TENGIZCHEVROIL
Hyatt Regency Rahat Palace Hotel
Business center, 5th floor
29/6 Satpaev Street
Almaty 480070 Kazakhstan
Tel (7-3272) 50 78 61
(7-3272) 50 78 62/63/64
(7-3272)581-1430/31 (int-1)
Fax (7-3272) 50 78 60
(7-3272)581-1437 (int-1)

United States Agency for International Development
Consultant Hagler Bailly

Att Oil Pipeline Tariff Methodology Steering Committee

It was our pleasure to serve on the Steering Committee as representatives of Chevron, Mobil and Tengizchevroil. We believe the work of the committee is an excellent foundation for the future building of the pipeline regulatory structure in Kazakhstan. The cooperation of Government, Kazakhstan and International experts on this committee highlighted a useful process for reaching understanding on such important issues.

We have reviewed the Resolution and Recommendations that conclude the initial work of the Steering Committee. We can state for Chevron, Mobil and Tengizchevroil that, we agree with the methodology offered to the Republic. The methodology provides a means to identify and calculate the factors that result in a tariff for pipeline transportation. This methodology is consistent with those used in other countries. We further support the eight (8) recommendations attached to the Methodology. It is very important that an independent pipeline transportation agency be created to assure an open and impartial review of tariff accounting and to resolve any disputes between the pipeline companies and the shippers.

Furthermore, we would like to state that we believe there should be a Republic Government Strategic policy related to oil pipeline transportation. The Republic is an owner of strategic resources that have great present and future value to the people of Kazakhstan. We believe one of the ways to preserve and enhance that value is to use the pipeline system as a utility to move oil in the most efficient and low cost method. This will allow valuable capital resources to remain with the national and international oil field companies for continued rapid development of oil production for the benefit of the investors and the Republic.

Chevron, Mobil and Tengizchevroil are prepared to assist in any future work of the committee or work to help the Republic develop the oil transportation systems that will serve our mutual interests.

Sincerely,

Robert Williams
Chevron & Tengizchevroil

Sincerely

Keith Simpson
Mobil Oil Kazakhstan

EXXON VENTURES (CIS) INC

8, Melnichnaya Str , 480100 3rd floor, Almaty, Kazakhstan
Tel 7 3272 608-255/256 Fax 7-3272 608-257

December 1, 1997

Mr Nurlan D Kapparov
President of "KazTransOil"
84A, Gogol Street
Almaty, Kazakhstan

Dear Mr Kapparov,

This is to confirm Exxon's support for the pipeline tariff methodology developed by the Oil Pipeline tariff Methodology Steering Committee chaired by KazTransOil and whose members include the former Ministry of Economy and Trade, though it's Anti-Monopoly Department, the former Ministry of Energy and Natural Resources, the former State Agency for Control of Strategic Resources, KazakhOil Petroleum Association, and USAID

The methodology proposed in the Steering Committees document "Methods for Calculating Tariffs for Pumping Oil Through the Pipelines" is generally consistent with internationally acceptable oil pipelines tariff principles which provide for cost based tariffs that are mutually fair to shippers and pipeline operators We encourage its adaptation in that form

Best regards

Barry Sauve

182

Unocal International Energy Ventures Ltd
Kabanbai batyr 7A
480100 Almaty Kazakhstan
Telephone 61-36-65 61 82 29 61 71 79
Facsimile 581 1556

UNOCAL

Robert B Tallyn
Vice President and
Resident Manager

December 1, 1997

Mr Nourlan D Kapparov
President
KazTransOil
84A Gogol Street
Almaty, Kazakhstan

Re Pipeline Tariffs

Dear Mr Kapparov

Unocal would like to indicate our full support the work and recommendations of the USAID, KazTransOil, Kazakh Petroleum Association Pipeline Tariff Committee as outlined in their final report and more specifically in the Resolution prepared by this group

We believe that it is in the best interest of everyone involved, the Government of Kazakhstan, KazTransOil and the oil producers and shippers to have fair, transparent and world standard method of calculating pipeline tariffs We believe that this is what this group has recommended be adopted here in Kazakhstan

It is our experience from our operations around the world that regulated oil tariff rates are not normally based upon any form of internal rate of return for establishing tariff rates Forecasted capital construction is normally not included in current rates until construction is completed and the asset is used and useful by the natural monopoly

Unocal sincerely hopes that your Government will allow you to adopt the recommended methodology as outlined by the Pipeline Tariff Committee If there is anything Unocal can do to assist KazTransOil in the future please let me know

Sincerely

Bob Tallyn

APPENDIX H

CASH FLOW ANALYSIS FOR CAPITAL IMPROVEMENTS ON THE KAZTRANSOIL SYSTEM

Summary

Results

The analysis shows that the proposed methodology would provide the necessary capital to support the capital improvement program proposed with the proper mixture of debt and equity financing, and with a longer repayment schedule than one year. At the same time the methodology will produce reasonable rates which can be maintained at a stable level or have moderate increases which should satisfy customers.

Analysis Background

In performing the attached analysis, the examination focused on the analysis of a series of data on forecasted capital improvement projects for the operating system. Detailed information was provided for 1998, and general data was provided for an extended period through the year 2030. The analysis used the methodology proposed by the pipeline steering committee to examine the potential cash flow produced to meet the forecasted capital improvement programs.

The value of the methodology allows for a transparent cost based approach to examining future capital improvements and provides an effective tool for planning the most appropriate mixture of financing among debt and equity to achieve the capital improvement program. An additional benefit of the methodology is that it provides the capital planner with the ability to design rates which provide for levelized rates or to gradually increase rates. This aspect of rate design insures superior relations with and acceptance by the shippers of the transportation rates.

The analysis included a base case presentation pursuant to conditions provided by KazTransOil, then a series of cases with conservative modifications up to and including through the year 2030.

The analysis demonstrates that the methodology will produce the required cash flow and with appropriate adjustment of the terms of the debt.

Five sample cases are demonstrated.

1. The Base Case Analysis, titled Data Provided by KazTransOil, takes the detailed information for 1998, including the operating divisions such as YuzNefteProvod, and copies the mathematical relationships for the years 1999 and 2000. Fundamentally, detailed investment data was provided for 1998, and consolidated data was provided through the year 2030. The capital budget for the year 1998 was assigned to equity funding and to debt.

funding The capital improvement projects would not be completed and operational until the second year and thus could not be included in the qualifying asset base as useful until the second year The conditions established by KazTransOil was that the principal of the loan or debt must be paid back in one year The interest rate on debt was established at 18% The asset values were provided by KazTransOil for the company in total and each of the three major operating divisions The throughput levels were provided by KazTransOil for the years 1997 - 2000 Water pipeline projects, the Chinese pipeline project, and the work with the condensate pipeline extension for AGIP were not included in the analysis

2 The Revised Operating Division Case, titled Assumes No Allocation Of Project Financing To Pavlodar and Aktyubinsk Except Overall, changes the assumptions for 1999 and 2000 for the operating divisions for KazTransOil and Pavlodar to presume that the majority of divisional capital improvements will be made on YuzNefteProvod All other conditions remain the same as case one

3 The 70% Debt/30% Equity Case, titled 70% Debt and 30% Equity Financing of Capital Improvements, changes the debt and equity relationship from the two previous cases, which were approximately 42% debt and 58% equity, to 70% debt and 30% equity All other conditions remain the same as case two

4 The 70%/30% With 5 Year Loan Payout Case, changes the payback period from one year to five years The debt related capital improvement projects are included in the assets when the property becomes useful All other conditions remain the same as case three

5 The 33 Year Case has the same title as the preceding case but uses all the general data available on an average basis through the year 2030 All other conditions remain the same as case 4

Calculation Assumptions

In first addressing the question, which has been raised in the past, the impact of the export surcharge would be to reduce the total revenue requirement and thus lower the transportation rate For this analysis, the revenue from the surcharge was not considered

The assets are reduced each year by the accumulated depreciation by subtracting last year's depreciation, They are increased by adding in the capital improvements whether from debt or equity that become useful during the year

The return is the revenue the company earns by multiplying the return percentage times the qualifying assets This revenue is used by the pipeline to pay for past capital improvements, to be saved for future capital improvements, and to be used to provide dividends to investors For

this example, it was assumed that return for years 1998 and beyond were equal to the actual revenues received that year for purposes of calculating taxes

The initial percentage used for the rate of return is the equity rate of return identified in the steering committee report in September. Now since the company proposes to adopt debt financing then the return on qualifying assets is computed as the weighted cost of capital as discussed in the footnote of the tables. Debt percentages higher than equity percentages will cause an increased return rate.

Cash flow represents the sum of depreciation and return, and represents the cash available to the company above operating expenses to meet its investment needs. Annual cash flow represents the cash generated during that year minus loan principal payments and minus equity payments made during the year. Cumulative cash flow is the sum of the previous years net cumulative case flow plus this year's case flow.

Other analysis conditions are discussed in the footnotes to the tables.

INSERT SPREADSHEETS

APPENDIX H

CASH FLOW ANALYSIS FOR CAPITAL IMPROVEMENTS ON THE KAZTRANSOIL SYSTEM

Summary

Results

The analysis shows that the proposed methodology would provide the necessary capital to support the capital improvement program proposed with the proper mixture of debt and equity financing, and with a longer repayment schedule than one year. At the same time the methodology will produce reasonable rates which can be maintained at a stable level or have moderate increases which should satisfy customers.

Analysis Background

In performing the attached analysis, the examination focused on the analysis of a series of data on forecasted capital improvement projects for the operating system. Detailed information was provided for 1998, and general data was provided for an extended period through the year 2030. The analysis used the methodology proposed by the pipeline steering committee to examine the potential cash flow produced to meet the forecasted capital improvement programs.

The value of the methodology allows for a transparent cost based approach to examining future capital improvements and provides an effective tool for planning the most appropriate mixture of financing among debt and equity to achieve the capital improvement program. An additional benefit of the methodology is that it provides the capital planner with the ability to design rates which provide for leveled rates or to gradually increase rates. This aspect of rate design insures superior relations with and acceptance by the shippers of the transportation rates.

The analysis included a base case presentation pursuant to conditions provided by KazTransOil, then a series of cases with conservative modifications up to and including through the year 2030.

The analysis demonstrates that the methodology will produce the required cash flow and with appropriate adjustment of the terms of the debt.

Five sample cases are demonstrated:

1. The Base Case Analysis, titled Data Provided by KazTransOil, takes the detailed information for 1998, including the operating divisions such as YuzNefteProvod, and copies the

mathematical relationships for the years 1999 and 2000. Fundamentally, detailed investment data was provided for 1998, and consolidated data was provided through the year 2030. The capital budget for the year 1998 was assigned to equity funding and to debt funding. The capital improvement projects would not be completed and operational until the second year and thus could not be included in the qualifying asset base as useful until the second year. The conditions established by KazTransOil were that the principal of the loan or debt must be paid back in one year. The interest rate on debt was established at 18%. The asset values were provided by KazTransOil for the company in total and each of the three major operating divisions. The throughput levels were provided by KazTransOil for the years 1997 - 2000. Water pipeline projects, the Chinese pipeline project, and the work with the condensate pipeline extension for AGIP were not included in the analysis.

2. The Revised Operating Division Case, titled "Assumes No Allocation Of Project Financing To Pavlodar and Aktyubinsk Except Overall," changes the assumptions for 1999 and 2000 for the operating divisions for KazTransOil and Pavlodar to presume that the majority of divisional capital improvements will be made on YuzNefteProvod. All other conditions remain the same as case one.

3. The 70% Debt/30% Equity Case, titled "70% Debt and 30% Equity Financing of Capital Improvements," changes the debt and equity relationship from the two previous cases, which were approximately 42% debt and 58% equity, to 70% debt and 30% equity. All other conditions remain the same as case two.

4. The 70%/30% With 5 Year Loan Payout Case, changes the payback period from one year to five years. The debt related capital improvement projects are included in the assets when the property becomes useful. All other conditions remain the same as case three.

5. The 33 Year Case has the same title as the preceding case but uses all the general data available on an average basis through the year 2030. All other conditions remain the same as case 4.

Calculation Assumptions

In first addressing the question, which has been raised in the past, the impact of the export surcharge would be to reduce the total revenue requirement and thus lower the transportation rate. For this analysis, the revenue from the surcharge was not considered.

The assets are reduced each year by the accumulated depreciation by subtracting last year's

depreciation. They are increased by adding in the capital improvements whether from debt or equity that become useful during the year

The return is the revenue the company earns by multiplying the return percentage times the qualifying assets. This revenue is used by the pipeline to pay for past capital improvements, to be saved for future capital improvements, and to be used to provide dividends to investors. For

this example, it was assumed that return for years 1998 and beyond were equal to the actual revenues received that year for purposes of calculating taxes

The initial percentage used for the rate of return is the equity rate of return identified in the steering committee report in September. Now since the company proposes to adopt debt financing then the return on qualifying assets is computed as the weighted cost of capital as discussed in the footnote of the tables. Debt percentages higher than equity percentages will cause an increased return rate

Cash flow represents the sum of depreciation and return, and represents the cash available to the company above operating expenses to meet its investment needs. Annual cash flow represents the cash generated during that year minus loan principal payments and minus equity payments made during the year. Cumulative cash flow is the sum of the previous years net cumulative cash flow plus this year's cash flow

Other analysis conditions are discussed in the footnotes to the tables

INSERT SPREADSHEETS

APPENDIX I

Approved

Agency of the Republic of Kazakhstan
for Strategic Planing and Reforms,
Minister of the Republic of Kazakhstan
----- E Utembaev
----- 1997

Approved

Minister of Finance
of the Republic Kazakhstan
-----A Pavlov
----- 1997

Provisions

on Standard Tariff Calculation for Pumping of Oil, Oil Products and Water
via Trunk Lines of the Republic of Kazakhstan

1 Scope and Application

- 1 1 This Provisions contain the system of main principles, criteria and methods for calculation of tariffs for pipeline transportation/pumping (loading, preparation and storage) of oil, oil products and water
- 1 2 The purpose of the Provisions is to provide conditions for economically efficient operations of pipeline companies, timely and proper repair and rehabilitation works to maintain the safe operation of trunk pipelines
- 1 3 Provisions are designed for the use by
- pipeline companies, joint stock companies and other legal entities, irrespectively of type of ownership, which are deemed Kazakhstan natural monopoly business entities, prices for their products and services subject to state regulation,
 - state, regional and local governmental bodies and other entities, which supervise the activities of pipeline companies,
 - shippers,
 - developers of investment projects related to construction and modernization of pipelines
- 1 4 The provisions are based on internationally accepted approaches to calculating tariffs and prices for the products of natural monopolies. The basic approach is the establishment of fixed rate of return on qualified assets of the company and (or) debt capital
- 1 5 The provisions stipulate application of the software, which implement calculation principles and methods

2 Basic Terminology and Definitions

- 2 1 Pumping tariff (basic tariff rate) means cost of pumping of 1 ton by a fixed route
- 2 2 Specific pumping tariff rate means cost of pumping of 1 t km
- 2 3 Tariff entity means pipeline company or its units, the specific pumping tariff calculated within their boundaries
- 2 4 Surcharge means additional charge accrued to basic pumping tariff rate to cover costs of additional services provided by the company
- 2 5 Loading surcharge means cost of loading of 1 ton of oil at a certain loading point

- 2 6 Reloading surcharge means cost of reloading of 1 ton at a certain reloading point
- 2 7 Surcharge for oil heating means cost of 1 t km oil heating to ensure transportation
- 2 8 Viscosity surcharge means pumping cost of 1 t km of oil of high and medium viscosity requiring additional power expenses
- 2 9 Storage surcharge means storage cost of 1 ton of oil in a tank during a certain period of time

3 General Provisions

The following basic provisions consistent with laws of the Republic of Kazakhstan and applicable international standards lie in the basis of tariff calculations for transportation services

- 3 1 Transportation tariffs shall ensure required recovery of costs of pumping operations (reloading, loading, preparation, storage) under standard conditions of pumping¹ and formation of standard return, sufficient for rehabilitation and modernization of production assets involved
- 3 2 Calculations of transportation tariffs are based on tariff revenue determined according to the following formula

Tariff Revenue = Total Costs +Standard Return (return on assets) +Taxes

- 3 3 Total costs shall include all operation and maintenance costs, depreciation, diagnosing expenses, costs of capital repair, insurance, administrative and general costs, as well as payment of all taxes and customs fees and duties, envisaged by tax and customs regulations of the Republic of Kazakhstan
- 3 4 Standard return included into tariff shall ensure regular operation of pipeline system, and accomplishment of rehabilitation, technical improvement and modernization of basic production assets, as well as opportunity for repayment of loans attracted for that purpose

¹ Note Standard conditions of pumping mean continuous intake, transportation and delivery without warrants and quality monitoring during mixture pumping, in compliance with shipper's guidelines regarding the change of the route in case of limited shipment (when such limitations occur due to other reasons than the pipeline company fault, shippers shall compensate for the losses of transportation companies)

- 3 5 Standard return within the tariff shall be limited by the established rate of return (real internal rate of return - RIRR) on qualified assets of pipeline company in accordance with the officially published inflation rate for the calculation period
- 3 6 IRR shall be established during the first year of the introduction of the methodology based on the calculations, accounting for the plan of mandatory repair and rehabilitation works, reconstruction and technical improvement of pipeline system, as well as attraction, if necessary, of debt capital for this purpose There should be serious grounds for revision of rate of return, such as hyperinflation, significant changes in tax laws, assets evaluation, volume of oil pumped, abandonment of certain pipeline routes
- 3 7 Tariff revenue from operating pipelines shall not include new pipelines construction costs During the process of new pipeline project design, return required for the cost-recovery shall be included into the tariff revenue
- 3 8 Transportation tariffs shall be calculated as a tariff rate for transportation and variety of surcharges**, corresponding to specific costs related to additional services provided to shippers (reloading, loading, preparation, heating, storage, etc)

4 Basic Tariff Elements

4 1 Costs

- 4 1 1 During the formation of tariffs for pipeline services, consideration shall be given to the costs determined in accordance with Accounting Standards approved by the National Accounting Commission of the Republic of Kazakhstan, current tax laws and regulations, and Special Procedure for formation of prices for products (works, services) produced and distributed by natural monopoly business entities
- 4 1 2 Costs plan of the tariff entity shall be based on the analysis of the previous period of business activity, and the work plan for the next period, taking into account projected inflation rate for basic raw materials, power, increase of the minimum wages
- 4 1 3 For the purpose of tariff calculation, all costs shall be divided into basic costs, which are the base for the calculation of the basic transportation tariff rate, and additional costs related to additional services provided to shippers (reloading, loading, preparation, storage, heating, etc)
- 4 1 4 Centralized administrative and general business costs of the whole company, including those of communication, bank services, loan interests, advisory services, etc shall be distributed among tariff entities of the company to be included into tariff in proportion to the throughput
- 4 1 5 Depreciation of current and acquired capital assets is based on their value and approved depreciation standards, in accordance with the current tax legislation of the Republic of Kazakhstan

4 2 Return

4 2 1 In tariff calculation the amount of return is determined on the basis of regular needs of enterprise for rehabilitation, technical improvement and reconstruction. The amount of return is limited by the fixed rate of return for the qualifying assets of the pipeline company.

4 2 2 Assets of the pipeline company include equity present value and net working assets.

4 2 3 Present value of assets is determined as residual cost of capital assets, considering depreciation, write-off and introduction of new capital assets.

4 2 4 Net working assets are determined as follows:

**Cash + Materials + Oil and Oil products,
owned by the company, + Advance payments - Current Payables**

4 2 5 Standard return, included into tariffs, is determined by the RIRR in amount of 15% of the cost of qualifying assets of the pipeline company, and of debt capital during the calculation period.

4 2 6 Current rate of return can be estimated using cash flow tables during the given period, or in a simplified way, using the following formula²:

Current rate of return (%) = Current net return / Present value of assets,

where,

Current rate of return = Total amount of current revenue - Amount of total expenses, income tax not included - Current income tax

taking into account the official published inflation rate for the given period.

² Examples of tariff calculation with use of cash flow tables to achieve fixed IRR for equity and debt capital are given in Appendices 1,2. Calculations are performed in compliance with "Temporary Provisions on Standards for Estimation of Economic and Financial Efficiency of Investment Projects, proposed for inclusion into the State Investment Program" approved by the Resolution of the Ministry of Economy and Trade of the Republic of Kazakhstan on June 27, 1997, No 113a to implement the Resolution of the Government of the Republic of Kazakhstan No 528, dated April 10, 1997, and in accordance with the key principles of the Methodology of tariff calculation, developed by USAID.

5 Tariff Calculation

5 1 Calculation of basic tariff rates for pumping within the boundaries of a tariff entity via 1-section is made according to the following formula

$$T_1 = (TB/\tilde{A}) \cdot A_1,$$

where,

TB - total planned tariff revenue for the given tariff entity,

\tilde{A} - total planned throughput for the given tariff entity,

A_1 - length of the tariff section 1, km

5 2 Calculation of Surcharges on Basic Tariff Rates

6 2 1 Surcharges for additional services, provided by a pipeline company, shall be calculated individually for each type of service, taking into consideration relevant expenses

6 2 2 Surcharge for loading (unloading, reloading, storage, technological treatment) of oil shall be calculated and approved for each loading station (unloading station, storage facility and reloading station) in Tenge per 1 ton of oil according to the following formula *

$$HH_1 = TBH_1/O,$$

where,

TBH₁ - planned tariff revenue for 1-loading station (unloading, reloading, storage, treatment),

O - loaded (unloaded, reloaded, stored, treated) volume

6 2 3 Planned tariff revenue for loading (unloading, reloading, storage, technological treatment) for 1- loading station (unloading station, storage facility and reloading station) is calculated according to the following formula

$$TBH_1 = \zeta \hat{I}_1 \cdot (\hat{O} \hat{A} / \zeta),$$

where,

$\zeta \hat{H}_1$ - expenses per 1-loading station (unloading, reloading, storage, treatment),

TB - planned company revenue,

ζ - total company expenses, taxes not included

6 2 4 Surcharge for loading (unloading, reloading, storage, technological treatment) for an individual shipper is calculated with consideration of the loading station and volume loaded according to the following formula

$$HH = HH_1 \times O_1,$$

where,

HH - amount of surcharge for loading (unloading, reloading, storage, technological treatment) for an individual shipper,

HH₁ - amount of surcharge for loading (unloading, reloading, storage, technological treatment) of 1 ton of oil per 1-loading station (unloading, reloading station, storage facility, treatment station)

O - loaded (unloaded, reloaded, stored, treated) volume of oil

6 2 5 Surcharge for oil heating shall be calculated in Tenge per km and approved for every tariff entity within its boundaries. The calculation is made according to the following formula

$$\hat{H}_1 = \hat{O}\hat{A}_1 / \tilde{A},$$

where,

$\hat{O}\hat{A}_1$ - planned tariff revenue for oil heating per 1-tariff entity,

\tilde{A} - total throughput of oil, which requires heating, for 1-tariff entity, or total throughput of oil with medium and high viscosity

6 2 6 Planned tariff revenue for oil heating (viscosity) is determined for 1-tariff entity according to the formula

$$\hat{O}\hat{A}_1 = \zeta I_1 \delta \hat{O}\hat{A} / \zeta,$$

where,

ζI_1 - planned expenses for oil heating per 1-tariff entity,

$\hat{O}\hat{A}$ - planned company revenue,

ζ - total company expenses, taxes not included

6 2 7 Surcharge for oil heating (viscosity) for individual shippers per 1-tariff entity is calculated with consideration of the amount of shipment and length of the route according to the following formula

$$\hat{H} = \hat{H}_1 \delta \hat{I} \delta A,$$

where,

- ĪĪ - surcharge for oil heating for shippers,
ĪĪ₁ - surcharge for heating of 1 ton of oil per 1 km for 1-tariff entity,
Ī - volume of shipments,
A - length of the route, km

7 Procedure for Tariff Revision and Approval

Tariff rates shall be revised not oftener than once a quarter. Tariffs shall be revised when deviation of amounts of actual throughput or expenses from the planned values exceeds 10 %

A company, intending to revise its tariffs, shall submit the documents to the authorized regulatory body, which contain actual data on its activities during the previous period (3-12 months) and calculations, justifying new tariff rates

Submitted documents, justifying new tariffs, shall include

- 7 1 Actual and projected data on total throughput and services, provided by the company, and its major branches, for the previous calculation period and for projected one
- 7 2 Actual and projected amount of tariff revenue from basic operations of the company and its major branches, during the previous calculation period and for projected one
- 7 3 Actual and projected amount of tariff revenue, including cost, return and taxes for the whole company and its branches during the previous calculation period and for projected one
- 7 4 Information on the company assets to be considered when calculating tariffs should include the following
 - (1) historic cost of assets minus accrued depreciation
 - (2) working capital, including cash, materials, advance payments and oil, owned by the company
 - (3) accrued deferred expenses
- 7 5 Total depreciation amount of basic tariff entities, calculated by totaling of individual depreciation rates for individual pipelines, pumps etc, depreciated in accordance with the current depreciation schedules

7 6 Plans of capital repair, technical improvement, modernization and reconstruction for the entire company and its branches during the planned period and implementation of those during the previous calculation period

7 7 Financial Statement

Attachment #1

Case of cash flow table design for calculation of basic specific tariff rates for pumping of oil, oil products and water via pipelines

Items

- 1 Throughput, mln T * km
- 2 Specific tariff, tg/t * km
- 3 Tariff revenue mln tg
- 4 Tariff revenue with VAT, mln tg
- 5 Total costs, mln tg
including
- 6 Equity investment, mln tg
- 7 Debt assets, mln tg
- 8 O&M Costs, mln tg
including
raw materials
power
fuel
wages fund
capital repair
current repair
other expenses (including overheads)
- 9 Depreciation, total, mln tg
including
depreciation of current assets
of acquiring
- 10 Loan residue
- 11 Loan payments
- 12 VAT, 16.7% of gross income
- 13 Road Fund, 0.5% of (gross income -VAT)
- 14 Property tax, 1%
- 15 transport tax
- 16 Land tax
- 17 Social, medical insurance, pension fund 30% of ??
- 18 Employment fund, 2% of ??
- 19 Other taxes and fees
- 20 Customs fees
- 21 Rate of price escalation, %
- 22 Rate of inflation, %
- 23 Taxable income, mln tg
- 24 Income tax, 30%
- 25 Dividends

- 26 Tax on dividends, 1%
- 27 Return
- 28 Cash flow
- 29 Accumulated cash flow
- 30 Real internal rate of return (RIRR), %
- 31 NPV 10%, 15%, 20%, mln tg
- 32 Total revenue from the project
- 33 State's share of return
- 34 Company's share of return

where line (2) = (3) (1)

line (3) = (5) + (27) + (26) + (24)

line (27) = (23) - (24) - (26)

line (23) = (3) - (5)

line (32) = (33) + (34)

line (33) = (12) + (13) + (14) + (15) + (16) + (17) + (19) + (20) + (24) + (26)

line (34) = (28)

line (28) = (27) + (9)

line (29) = (28) = (29)**

For substantiation of new rates the following documents shall be submitted to the regulatory body

- 1 The main table of cash flows, reflecting tariff calculations aimed to achieve 15% IRR
- 2 Additional tables of cash flows, reflecting IRR after reinvestment of part of return (or debt capital) in implementation of the plan of mandatory rehabilitation works, technical improvement and reconstruction of production assets **

* More detailed explanations to calculations terms and definitions is given in attachmnet 2

**Special condittons of operation of pipelines and tanks require the letter to be replaced or reconstructed within 30-year period of pumping station equipment and communication means - 20-year period Therefore average annual volume of rehabilitation estimated in current prices shall approximate 30% of current pipelines and tanks, and 5% of current pumping station equipment and communication means

APPENDIX J

EXECUTIVE SUMMARY

COMPARATIVE ANALYSIS STEERING COMMITTEE RECOMMENDED OIL PIPELINE TARIFF METHODOLOGY VERSUS KAZTRANSOIL DRAFTED RESOLUTION ON STANDARDS OF TARIFF CALCULATIONS FOR PUMPING OIL, OIL PRODUCTS, AND WATER

A steering committee - with representation from KazTransOil, various government ministries including representatives of the AntiMonopoly Committee, KazakhOil, the Kazakhstan Petroleum Association, and USAID - were commissioned pursuant to a request of the Government of the Republic of Kazakhstan to provide technical assistance in the development and implementation of an internationally acceptable pipeline tariff methodology. The Steering Committee finalized a resolution and a recommended tariff methodology in November 1997, and submitted this to the appropriate government agencies. Subsequently, KazTransOil filed a different Resolution on Standards with accompanying rate information.

The attached provides a detailed article by article review of the KazTransOil filing and its differences from that proposed by the Kazakhstan Government steering committee.

Fundamentally, the KazTransOil Resolution provides for approximately a 200% increase in transportation rates, exclusive of additional surcharges that are added for loading and heating oil.

Additionally, the KazTransOil documents ignore all the revenues currently available to the pipeline to meet its revenue requirement. Once a revenue requirement is developed, current revenues, the value of bartered oil income, and the oil export surcharge are used to reduce the total revenue requirement, and the resulting difference defines the amount of increase that should be granted the pipeline.

The differences between the recommended methodology and the KazTransOil methodology, included in its Resolution, are extensive. The principle differences are in the manner of the calculation of the return on qualifying assets, the use of extensive forecasted and estimated data, and the construction of the loading and heating surcharges.

KazTransOil proposes a rate of return that they identify as a "Real Internal Rate of Return", which they set at 15%. This is not equivalent to the recommended methodology's rate of return on qualifying assets of 15%. To produce the equivalent rate impact, the rate of return through the recommended methodology would have to be above 30%. This gross inflation of rate results from the misapplication of temporary provisions issued by the Ministry of Economy in June.

1997 on standards for estimation for investment projects. It is entirely inappropriate to apply investment calculation procedures to regulated public utilities for establishing returns on qualifying pipeline assets. Such investment procedures incorporate extensive subjective estimates of future economic conditions. They are not sanctioned internationally for the use of establishing rates of return for public utilities and setting rates.

The KazTransOil application incorporates the future costs of proposed construction in current rates. Internationally accepted rate design structures provide that, for setting rates, the assets should be used and useful. Customers deserve fair rates based upon the actual costs of equipment used in providing them service.

Lastly, surcharges to shippers should be limited to the actual incremental costs caused by the provision of the specialized service. The expenses of the additional services should be charged those who use them - such as the loading of oil. Shippers who do not use these services should not be charged those costs. The expenses used to calculate the surcharges should not be included in the basic transportation rate. The surcharges should not be the source of additional return on assets for the pipeline in duplication of the return provided through the basic transportation charge. The KazTransOil methodology violates all of these recommended principles.

Fundamentally, the KazTransOil proposed resolution and methodology produces vastly inflated rates which would cripple oil production in Kazakhstan by pricing the delivered product beyond marketable prices in world markets. It is not an acceptable international methodology and significantly differs from the recommendations of the Steering Committee commissioned by the Government of Kazakhstan.

COMPARATIVE ANALYSIS STEERING COMMITTEE RECOMMENDED OIL PIPELINE
TARIFF METHODOLOGY VERSUS KAZTRANSOIL DRAFTED RESOLUTION ON
STANDARDS OF TARIFF CALCULATIONS FOR PUMPING OIL, OIL PRODUCTS AND
WATER

1 The KazTransOil (KTO) filing covered pumping of oil, oil products and water via trunk lines in the Republic of Kazakhstan. The Steering Committee recommendation was that the tariff methodology should separate oil and refined oil transportation, and that water transportation should be treated as a separate matter. In the KTO filing, water is included into the definitions and discussions, but not separately analyzed to produce transportation rates. Water transportation is primarily a function of YuzNefteProvod and not prevalent across the system. If oil transportation rates are applied to the transportation of water, this will cause huge increases in water rates to potable water users such as those in the cities, and to well drillers who use the water in oil production. This will cause significant social and oil production cost increases. Oil transportation rates are not appropriate for water transportation. The cost basis for developing water rates are different.

2 The first section of the KTO application is termed Scope and Application and covers Articles 1.1 through 1.5.

a These Articles provided that the rates produced through this procedure will also be used for water transportation. As mentioned previously, this will cause severe economic hardship on consumers of water as well as users of water for oil production. Though most of the principles of oil tariff methodology are applicable to water pipeline operation, there are key differences that normally necessitate a separate methodology and rate design.

b KTO included language in this section, Article 1.3, to indicate that the provisions are for the use of designers of investment projects related to construction and modernization. The normal regulatory system of tariffs is intended to provide a return, on qualifying assets, which will be utilized by the management of the company for a variety of uses, for example, retention for future capital construction. However, a proper tariff methodology is intended to provide only for recovery of operating expense, and a return on qualifying assets that are currently being used. Future capital construction expenses should not be included in current rates as driving factor. This is the accepted international practice for regulated public utilities. Future investments and capital improvements are a separate function of management and capital budgeting - not part of the rate development process. The capital budget planner develops financing plans using the current stream of revenues, and revenues deriving from debt, to plan future construction and modernization. This insures that rates to current users are fair and reasonable.

205

3 Section 2, Terminology and Definitions which covers Articles 2 1 through 2 9, in the KTO application is a limited list of definitions. Since KTO changed the procedure for calculation of return on qualifying assets to a method described as Real Internal Rate of Return (RIRR) (which utilizes forecasted inflation rates) and since this calculation procedure is not acceptable internationally for regulated public utilities, this section should have provided a detailed definition of what was intended by the use of RIRR, and defined how it was calculated.

4 Section 3, General Provisions, covers Articles 3 1 through 3 8, in the KTO application.

a Article 3 1, in the KTO application, included the provision that tariff rates would include the formation of a standard return sufficient for rehabilitation and modernization of production assets involved. This violates the recommended methodology principle that return should be based upon useful assets and current operating expenses. Forecasted rehabilitation and modernization should not be included in current rates because the customers pay for the use of assets that do not exist or may not ever exist. These inflated rates may in turn cause the customers to reduce shipments because they may not be able to market their oil at competitive prices in the world markets. The reduced transportation that results may mean that the pipeline company will not be able to meet its current operating costs.

b KTO Article 3 2 contains a basic formula for calculating revenue from tariffs and, as such, is not in disagreement with the recommended methodology.

c KTO Article 3 3 contains a description of total costs as listed in the formula in Article 3 2. As long as these are current expenses, these provisions are not in conflict with the recommended methodology. However, as filed, the KTO Article is in disagreement with Article 3 2. In the formula in 3 2, "taxes" are separate from "total costs". In 3 3, taxes are included in total costs.

d KTO Article 3 4 is not in conflict with the recommended methodology as long as this is not interpreted to mean that forecasted interest rates and inflation, nor forecasted construction costs are included in the standard return. The current rate of return on assets should not be driven by future capital construction needs.

e KTO Article 3 5 is the primary area of disagreement with the Steering Committee recommended methodology. Instead of proposing a standard return on qualifying assets as utilized by international regulated public utilities, the KTO application proposed what they termed a "real internal rate of return - RIRR". The RIRR seems to result from an attempt to develop an internal rate of return, which is commonly used in capital budgeting to analyze the potential economic viability of individual capital improvement projects. This RIRR was not calculated consistent with the calculation of an IRR, and no known regulated public utility is authorized to compute a return on qualifying assets in this manner.

f KTO Article 3 6 continues the discussion of the RIRR, indicating that it will be derived based upon future repair, rehabilitation, and reconstruction of the pipeline system. It also provides for increases in rates, based upon factors such as hyperinflation, changes in tax

laws, volume of oil pumped, liquidation of certain pipeline routes, and assets valuation. It is not clear in the KTO filing whether these factors could induce a lower rate of return, but it is implied that the rate will increase, because of these factors. If the volume of oil pumped decreases as the result of the vastly increased transportation rates, the implication is that the rate of return would be increased to raise the rates, which in turn would cause a reduction in the volume of oil pumped, and continue this process in a death spiral to the point that revenues fall to levels wherein the pipeline cannot be operated. The Steering Committee recommended rate of return is designed to be based as much as possible on current costs and known facts. The recommended return on qualifying assets should be sufficient to provide a reasonable equity return that would attract investors, provide capital for improvements, and lastly would not be so high as to unduly burden the customers with unreasonable rates.

g. KTO Article 3.7 indicates that during construction, the construction costs would not be included in operating costs for the computation of rates. Under the KTO proposal, KTO would have already collected these construction costs through rates when the project was in the planning stage. There is no guarantee that the previously collected construction costs correlate to the actual construction costs incurred, or how this disagreement in costs would be resolved. Since the new pipelines are already fully paid by the shippers, under the KTO proposal, the value of these assets should not be included in qualifying assets for the development of rates. Under the Steering Committee recommended methodology, construction costs of new pipeline systems, once they become operational are included in the value of qualifying assets against which a return is assessed. Under the recommended procedure, shippers pay for assets that actually support the services that they receive.

h. KTO Article 3.8 indicates that tariffs are established on the basis of a basic transportation rate and surcharges are added in the form of riders for specialized services that are in addition to the basic transportation service, such as loading, heating, and storage. This principle is not in disagreement with the principles of the recommended methodology. It is fundamental under the Steering Committee recommended methodology that the costs associated with any riders or surcharges should not be included in the calculation of the basic transportation charge. Only the incremental costs, caused by the service covered by the surcharge, should be included in the surcharge or rider, and only those customers pay for the specialized services who require the service.

5. Section 4, in the KTO proposal is titled "Basic tariff constituent elements". It consists of two major subsections - 4.1 Costs and 4.2 Return. Article 4.1 is broken into subordinate Articles 4.1.1 - 4.1.5.

a. Article 4.1 Costs

(1) KTO Article 4.1.1 indicates that tariffs will be constructed in accordance with the approved Accounting Standards and the laws of Kazakhstan. The recommended methodology would not disagree.

(2) KTO Article 4 1 2 indicates that cost plans shall be based on an analysis of the preceding period and the work plan for the next period with forecasted increases. The recommended methodology indicated that 12 months of historical data would be required or in the case of a new service forecasted data might be accepted. The difficulty of accepting forecasted data is to introduce large degrees of unreliability into the analysis. With regular filings, 12 months of actual data would reasonably respond to changing economic conditions.

(3) KTO Article 4 1 3 indicates that basic costs and special rider costs would be separately accounted. This is not in disagreement with the recommended methodology.

(4) KTO Article 4 1 4 indicates that centralized administration costs will be distributed among the operating division costs based upon the throughputs of the respective divisions. The recommended methodology indicated that the distribution should take place, but did not specify the allocator. Common allocators are throughput or total divisional administrative expenses. This KTO proposal is not in contravention to the recommended methodology.

(5) KTO Article 4 1 5 indicates that depreciation shall be in accordance with Kazakhstan approved legislative standards. This does not contradict the recommended methodology. The common industry standard for transmission pipe and major related equipment is straight line depreciation.

b Article 4 2 Return

(1) KTO Article 4 2 1 indicates that the amount of the return is based upon the needs of the enterprise for rehabilitation, etc., and that the return rate is applied against the involved assets of the pipeline company. This is not in agreement with the recommended procedure, as long as the intent of this Article is to include forecasted capital construction in developing the rate of return.

(2) KTO Article 4 2 2 indicates the assets include the current value of the equity and net working assets - this agrees with the recommended methodology.

(3) KTO Article 4 2 3 indicates that the current value is the depreciated production assets plus any new production assets - this agrees with the recommended methodology as long as it is understood that the new production assets must be used and useful, that is, actually operating as part of the pipeline system during the period over which the rates are computed.

(4) KTO Article 4 2 4 presents the net working capital formula in the same form as the recommended methodology.

(5) KTO Article 4 2 5 represents the greatest departure from the recommended methodology by seeking a RIRR in the amount of 15%. This is not the same as the regulatory rate of return computed at 15%. The regulatory rate of return equivalent to the KTO proposal is 20% - 40%, depending upon the calculation procedure. Comparing the KTO tariff rates to preliminary tariff rate calculations - based upon the recommended methodology - a regulatory rate of return of 32% would have been required to achieve the same level of transportation tariff.

rates. The KTO proposed tariff rate was a 200% increase over current rate levels. Apparently the KTO use of the RIRR is based upon the Standards for Investment Projects issued by the Ministry of Economy in June of 1997. Investment projects are a function of capital budgeting in a regulated public utility and are in no way a direct component of the calculation of a regulated public utilities rate of return on qualifying assets. This section is not in keeping with the Steering Committee recommended tariff methodology.

(6) KTO Article 4.2.6 includes the formula identified in the recommended methodology, but indicates the use of inflation rates in the formula, which disagrees with the Steering Committee recommended methodology.

6. Section 5 of the KTO proposal is titled "Calculation of tariff". It consists of Articles 5.1 and 5.2, with Article 5.2 divided into Subordinate Articles 5.2.1 - 5.2.7.

a. KTO Article 5.1 provides the formula for the calculation of the tariff rate per section of pipeline. The KTO proposal uses planned revenue and planned throughput to make the calculation. The recommended methodology depended upon actual throughput and an allocation of the actual revenue requirement.

b. KTO Article 5.2 provides Subordinate Articles for the calculation of surcharges to the basic tariff rates.

(1) KTO Subordinate Article 5.2.1, as stated, is in keeping with the philosophy embodied in the recommended methodology, however its application in the following subordinate Articles is not in keeping with the recommended methodology.

(2) KTO Article 5.2.2 is not in keeping with the philosophy of the recommended methodology. The KTO proposal would set a loading rate based upon a planned revenue divided by loading volumes. The recommended methodology would require that the separate incremental expenses necessary to perform the loading be compiled and that total expense amount be divided by the tons of loaded material to arrive at a loading rate. Surcharges should not be a source of profit - only recovery of incremental expenses from those customers that cause the expense. The expenses used to calculate this surcharge should not be included in the expenses used to calculate the basic transportation rate in Article 5.1.

(3) KTO Article 5.2.3 calculates the planned revenue for the loading tariff by dividing the expenses for loading by the pipelines total expenses, and multiplying this times the pipelines total planned company revenues. This means that there will be double recovery of some cost factors. This violates the cost causation philosophy of the recommended methodology and over recovers the pipeline's revenue requirement. A footnote to this section indicates that the calculation of the surcharges can be corrected with consideration of the maximum allowed tariff revenue. This is not indicated elsewhere and there may not be any actual mechanism to adjust surcharges, but this would indicate that customers being billed under the surcharge are overpaying for the service and subsidizing the basic transportation revenue. There is no discussion of a refund mechanism to return excessive collections to customers. This violates the

recommended methodology

(4) KTO Article 5 2 4 simply demonstrates the calculation of an individual shippers surcharge based upon the preceding two subordinate Articles. The total concept, as proposed, violates the principles established in the recommended methodology.

(5) KTO Article 5 2 5 indicates that a surcharge for heating oil will be calculated and approved for every tariff entity within its boundaries. Articles 5 2 5, 5 2 6, and 5 2 7 follow the same pattern and suffer from the same flaws as did Articles 5 2 2, 5 2 3 and 5 2 4. They also violate the principles established in the recommended methodology. Additionally, it is not clear from the KTO proposal whether all shippers will be charged the heating surcharge or only those needing the service. Both lead to over recovery of income requirements in violation of cost causation. The former will lead to vastly excessive over recovery of income requirements, especially from those shipping light crude oils.

7 Section 6 is titled the Procedure for tariff revision and approval. It includes Articles 6 1 through 6 7. It provides that rates will be filed quarterly, and filed more often when the actual throughput or expenses deviate from the planned values by 10%. The individual Articles list the documents to be provided to support the tariff revisions. The documents include the actual and planned data. The recommended methodology provides for annual applications, though more often than annual were allowed, if the economic situation of the pipeline necessitates - though no more often than quarterly would be expected. Additionally, the recommended methodology provides that the return on qualifying assets should not change any more often than annually. Shippers need some assurance of continuity in transportation rates. They must plan for delivery to world markets and need stability in transportation rates in order to make the economic decisions necessary to decide to produce and ship their crude oil. Additionally, approving governmental authorities such as the Antimonopoly Committee and the Agency for Strategic Planning should not be overburdened with excessive and unnecessary filings of rate increase requests. They should not have successive filings made before adequate time for review is completed. Basing rate applications on subjective forecasts will lead to numerous filings - if the pipeline adheres to its proposed 10% guideline.

APPENDIX K

MINUTES OF PIPELINE TARIFF MEETING INSTITUTE FOR STRATEGIC STUDIES AKMOLA, FEBRUARY 26, 1998

Chairman Mr Alexander I Andryuschenko, Vice Chairman, Agency for Strategic Planning and Reforms
Present Mr Rakhim Nurgazimov, Head of Transport Dept , Agency for Strategic Planning and Reforms
Ms Gaziza Baramysova, Head of Tariff Department, Ministry of Energy
Ms Elena Popandopoulo, Head of Price Regulation Dept , Anti-Monopoly Committee, Agency for Strategic Planning and Reforms
Ms Tatyana Solomina, Head of Tariff Dept , KazTransOil
Mr Amir Sykhanberdin, Head of Analysis and Monitoring Dept of Economy, Agency for Strategic Planning and Reforms
Mr Ivan Kuzmenkov, Head of Investment/Industry Dept , Ministry of Finance
Ms Aigerim Zulkasheva, Head of Complex Evaluation of Investment Projects Dept , Agency for Strategic Planning and Reforms
Mr Kairat Mukhamediev, Deputy Head of State Policy of National Development Dept , Agency for Strategic Planning and Reforms
Ms Svetlana Ivanova, Hagler Bailly
Mr Claude Eggleton, Hagler Bailly
Mr Helmut Merklein, Hagler Bailly

The meeting was opened at 4 00 PM by Mr Andryuschenko who stated that his office had received a proposal from KazTransOil describing a new tariff methodology the pipeline intended to use and a proposed pipeline tariff He had also received a tariff methodology proposal from USAID that had been transmitted to his Agency by the US Embassy These two proposals had many features in common, but they also differed significantly in some important aspects The reason for the meeting was to have the proponents of the respective methodologies present their proposals for general review and discussion, so that a final decision could be taken in light of the arguments that had been put forth by all parties

Mr Andryuschenko noted that the Anti-Monopoly Committee was not yet present but suggested that the discussion be conducted anyhow and he invited KazTransOil to begin the discussion by stating its case (Ms Popandopulo with the Anti-Monopoly Committee arrived about forty minutes later)

Ms Solomina then took the floor She noted that KazTransOil had been working with Hagler Bailly and the Steering Committee until September/October of 1997, and that there had been no basic disagreements at that time She pointed out that in September she had received a floppy

disk with a tariff model from Mr Merklein and that KazTransOil had basically agreed with the model which used the internal rate of return as the driving mechanism

In October, Hagler Bailly started to use a different and significantly simplified version of the model, which based its tariff calculations on revenue requirements Ms Solomina stated that KazTransOil had reservations about the revenue requirement model and that these had been conveyed to Hagler Bailly, which chose not to take them into consideration One reason KazTransOil decided to proceed with a model of its own was that the Company needed to have economic evaluators built into the model that would enable it to monitor the economic efficiency of its operations

Ms Solomina emphasized that the KazTransOil methodology is based on justified costs and justified profits She said that there was no basic disagreement on costs, but there is a significant discrepancy as regards allowable profits She said that the Hagler Bailly formula defines profit as a percentage of the asset base, which she believes is at odds with current legislation As an example, Ms Solomina said that a Resolution dated August 1, 1997, requires that 50 % of the Pipeline Company's profits must be allocated to the State Budget Since International standards require a corporate profit rate of 11 to 12%, this requirement imposes the need to charge a rate of return of 22 to 24%, i e , double the international standard Following further assertions of things that are not right with the Hagler Bailly model, the Chairman reminded Ms Solomina that she should focus her remarks on the KazTransOil methodology, as the Hagler Bailly representatives were present and would undoubtedly present their own methodology in due time

Ms Solomina proceeded by saying that profits, in the Hagler Bailly methodology, are monies that the Pipeline Company can keep at its discretion She stated, apparently confusing profits and cash flows, that KazTransOil is not free to use depreciation at its discretion Article 48 of Kazakhstan's tax legislation, for example, states that all capital improvements are to be done from profits This principle is at the heart of the KazTransOil methodology, while the Hagler Bailly formulation is incompatible with the Pipeline Company's investment program

Turning to some of the problems KazTransOil was facing on the Western Line, Ms Solomina pointed out that the line was 60% depreciated The principal problem faced on that line was nonpayment by users of the line and the fact that depreciation allowances had to be used for things other than rehabilitation As regards the valuation used in their calculations, Ms Solomina said that they used the temporary resolution of the Minister of Economy She pointed out that an international accounting firm (Ernst & Young) had been selected to do a definitive valuation of the pipeline assets and that their estimate would be used in a revised tariff

Ms Solomina stated that their internal rate of return is 13% of asset value With reference to their financial tables (which all participants at the meeting had received, except the Hagler Bailly representatives) she said that their re-investment rates are shown on page 2 There was talk of a 5% depreciation rate and a rate of return of 4% that the Hagler Bailly representatives (and possibly the other participants as well) failed to understand In any event, Ms Solomina stated that KazTransOil's re-investment policy attempted to retain the Company's asset value at a

constant level

Beyond the regulatory aspects of KazTransOil's proposed methodology, Ms Solomina claimed that their methodology provides a mechanism by which to monitor the Company's financial performance over time. Moreover, she claimed that their methodology would enable the Company to attract debt capital to cover additional investment requirements. Interest on debt capital so acquired, at whatever level, would be carried as additional cost, according to their proposed methodology. She finished her presentation by suggesting that the Internal Rate of Return is a perfectly usable regulatory criterion for the Anti-Monopoly Committee. Following Ms Solomina's remarks, the discussion was opened for general questions. Some of the questions that were raised are shown in the following:

Q-1 What about throughput rates?

A We forecast a stable increase of 1.8 percent.

Q-2 Do you propose to use the same methodology for water lines?

A We see no difference in principle.

Q-3 (Ms Popandopulo) Why does the Steering Committee not continue its work?

A The Committee still needs to work out differences in the proposals, using smaller working groups.

Mr Andryuschenko then reminded the participants that the purpose of this meeting was to decide on methodology, rather than on a tariff rate, and he proceeded to invite the Hagler Bailly representatives to state their case.

Claude Eggleton responded by thanking the Chairman for this opportunity to respond. He reminded the audience that the Steering Committee was created at the request of the Government of Kazakhstan, that it had broad representation by industry and government officials, and that it was chaired by KazTransOil. The Steering Committee's focus, according to Mr Eggleton, was on a Western Regulatory Methodology. He reminded the audience that a pipeline was a natural monopoly with nearly unlimited market power to charge injurious rates and that, for that reason, Pipeline Companies needed to be regulated. In regulating such natural monopolies, the basic philosophy is to allow the recovery of basic cost and the achievement of reasonable profits.

As regards the recovery of expenses, Mr Eggleton confirmed that Ms Solomina was correct in saying that there are no basic disagreements between the two methodologies under review.

There are, however, three points where disagreements do exist. These are:

The value of the assets of the company. The original Merklein model did indeed arrive at a number which we had to adjust. That was done following our trip to Aktau where we reviewed the accounting information of the Western Pipeline Company and found that they had an up-to-date and reliable set of data that was certainly preferable to the theoretical number developed under the Merklein model. We determined that it was reasonable to use

KazTransOil's current book value until the Ernst and Young information becomes available.

The Hagler Bailly Rate of Return formulation. The basic formula we used in essence states that the tariff is equal to the company's expenses and profits divided by the throughput rate. He then

went on to explain the concept of a weighted rate of return on capital in those cases where the company's assets are financed through both equity and debt funding. As regards the 15% rate of return on equity suggested by the Hagler Bailly team, as originally proposed by Dr. Shenoy, that suggestion has been thoroughly vindicated by the market, given Kazakhstan's recent bond sale at 14.8%.

Cash flow. Mr. Eggleton reminded his audience that KazTransOil's cash flow consists primarily of its profits and depreciation. As regards the Government's decision to withdraw 50% of the company's profits, that leaves the remaining 50% plus depreciation for rehabilitation and new investments.

Mr. Eggleton also briefly addressed the concept of unbundling, pointing out that they envisioned the use of surcharges for viscosity and pour-point problems associated with certain crude oils. The surcharges computed under the Steering Committee proposal reduced total expenses and charged on a cost-causative basis. The KazTransOil proposal just increases rates by surcharges without compensating offsets from the basic tariff rate. He finished his presentation by suggesting that the IRR approach is a valuable financial tool in its own right, but that there is no known Regulatory Authority that use it for tariff regulations.

Mr. Merklein then took the floor. He began by inserting that the 14.8% bond rate of the Kazakhstan Government mentioned by Mr. Eggleton was an auction rate, set by the market, i.e., by objective forces at work throughout the world, rather than by Government fiat. As a result, this rate was a solid indicator of the various risks associated with investments in Kazakhstan and a perfect confirmation that the Hagler Bailly suggested rate of return was on target.

Coming to the so-called IRR versus the regulatory rate of return models, he reminded the audience that Hagler Bailly was under great pressure to produce a methodology on short notice. Accordingly, a deliberate decision was made to pursue the tariff problem on a dual course: Develop reasonable data from the World's most reliable data base, the United States and Canada, while at the same time reviewing KazTransOil cost data for accuracy and completeness. The idea had been all along to use the actual data, provided these were found to be reliable and usable, rather than the theoretical information developed by a simulation model. It was not until September of 1997 that members of the Hagler Bailly team had a good chance to review the financial data base in Aktau. The data it contained were found to exceed expectations and the decision was then taken to proceed with the actual financial information rather than the theoretical data from the Merklein model.

Responding to some areas of confusion he felt were reflected in the presentation of the KazTransOil methodology, Mr. Merklein turned to a discussion of some fundamental issues regarding depreciation and profits. He pointed out that, in Western thinking, depreciation served the purpose of maintaining the capital assets of a company and, by extrapolation, of a nation. To meet that fundamental function, depreciation must not be perverted by using it for different purposes as had been done in the case of Kazakhstan's pipeline system.

Profits, on the other hand, are by rights incomes that accrue to the owners of the Company. That

means shareholder in a privately owned corporation, and it means the Government of Kazakhstan in the case of KazTransOil. The Board of Directors in a Western Environment meets from time to time to decide how to dispose of its profits. This generally means that the Directors exercise their options to withdraw all of the profits for distribution to shareholders, to retain all of the profits in the corporation for general use or for specific projects, or they opt to withdraw some of the profits and to retain the rest. When the Government of Kazakhstan decided to allocate 50% of the pipeline company profits to its general budgets, that is the equivalent of a Corporate Board of Directors deciding to distribute half the profits to shareholders and to retain the other half within the Corporation. There is nothing wrong in principle with such a decision, except that it should be kept in mind that the retained 50% of KazTransOil's profits is new capital, which should not be used for operational or other non-capital purposes. Such investments will raise the asset base of a pipeline and will tend to offset wholly or in part, the shrinkage of the asset base through depreciation.

In essence, then, the Government of Kazakhstan is committed through the allocation of 50% of KazTransOil's profits to re-investments in the Company to provide growth and future financial viability to the system. However, that money may or may not be sufficient to finance the required rehabilitation needs which may still have to be financed through debt funding. Coming back to the perception of two alternative models presumably offered by Hagler Bailly, Mr. Merklein reiterated that among the 50-odd Regulatory Authorities in the United States and Canada regulating some 200 gas and 150 oil pipelines, none use the Internal Rate of Return as their regulatory tool. The Merklein model would have been an acceptable proxy for a first approach to determining reasonable tariffs in Kazakhstan, to be replaced in any event in a year or so, after a reliable accounting system had been implemented within KazTransOil. However, the discovery of reasonable accounting records within KazTransOil enabled the Hagler Bailly team to proceed directly to the basic regulatory methodology used throughout the Western world, and that is the methodology to use in Kazakhstan if the Government's directive to introduce Western tariff methodologies is to be taken seriously.

Following Mr. Merklein's remarks, there followed a brief discussion during which Mr. Eggleton, re-enforced by Mr. Merklein, pointed to the precarious position Kazakh wellhead prices were in and the slim margin in which they operated. A substantial increase in pipeline tariffs would make Kazakh crude that much more vulnerable in world markets and might force a reduction to dangerous levels of Kazakh wellhead prices.

Chairman Andryuschenko, in summarizing, asserted that the Hagler Bailly methodology would only allow the recovery of operating costs and would deprive KazTransOil of future investments, to the effect that in due time there would no longer be a KazTransOil Company. This view seemed to reflect a basic misunderstanding of the Hagler Bailly proposal. His characterization as "blackmail" of Hagler Bailly's reference to the slim operating margins currently in existence did not appear to reflect a balanced assessment of what had been said. Mr. Eggleton pointed out that in December, for the KTO investment department, he developed a 30-year cash flow using the

recommended tariff methodology debt and equity financing, the actual planned capital improvements, and demonstrated sufficient cash flow to meet capital requirements and even produced excess capital. Be this as it may, Chairman Andryuschenko concluded the meeting by stating that this had been a fruitful discussion and that, from what had been said, a decision on the final tariff methodology to be used was not at hand. He suggested that the Steering Committee, in its present or in altered form, be brought back to life for a thorough vetting of the problems at hand and, hopefully for a merger of the two proposals that would preserve the best features of both.

APPENDIX L

Approved

Agency of the Republic of Kazakhstan
for Strategic Planning and Reforms,
Minister of the Republic of Kazakhstan

----- E Utembaev

----- 1997

Provisions

on Standard Tariff Calculation for Pumping of Oil, Oil Products and Water via
Trunk Lines of the Republic of Kazakhstan

1 Scope and Application

- 1 1 This Provisions contain the system of main principles, criteria and methods for calculation of tariffs for pipeline transportation/pumping (loading, preparation and storage) of oil, oil products and water
- 1 2 The purpose of the Provisions is to provide conditions for economically efficient operations of pipeline companies, timely and proper repair and rehabilitation works to maintain the safe operation of trunk pipelines
- 1 3 Provisions are designed for the use by
- pipeline companies, joint stock companies and other legal entities, irrespectively of type of ownership, which are deemed Kazakhstan natural monopoly business entities, prices for their products and services subject to state regulation,
 - state, regional and local governmental bodies and other entities, which supervise the activities of pipeline companies,
 - shippers,
 - developers of investment projects related to construction and modernization of pipelines
- 1 4 The provisions are based on internationally accepted approaches to calculating tariffs and prices for the products of natural monopolies The basic approach is the establishment of fixed rate of return on qualified assets of the company and (or) debt capital
- 1 5 The provisions stipulate application of the software, which implement calculation principles and methods

2 Basic Terminology and Definitions

- 2 1 Pumping tariff (basic tariff rate) means cost of pumping of 1 ton by a fixed route
- 2 2 Specific pumping tariff rate means price (cost) of pumping of 1 t * km
- 2 3 Tariff entity means pipeline company or its units, the specific pumping tariff calculated within their boundaries
- 2 4 Tariff rider (Surcharge) means additional charge accrued to basic pumping tariff rate to cover costs of additional services provided by the company

- 2 5 Loading surcharge means cost of loading of 1 ton of oil at a certain loading point
- 2 6 Reloading surcharge means cost of reloading of 1 ton at a certain reloading point
- 2 7 Surcharge for oil heating means cost of 1 t * km oil heating to ensure transportation
- 2 8 Viscosity surcharge means pumping cost of 1 t * km of oil of high and medium viscosity requiring additional power expenses
- 2 9 Storage surcharge means storage cost of 1 ton of oil in a tank during a certain period of time

3 General Provisions

The following basic provisions consistent with laws of the Republic of Kazakhstan and applicable international standards lie in the basis of tariff calculations for transportation services

- 3 1 Transportation tariffs shall ensure required recovery of costs of pumping operations (reloading, loading, preparation, storage) under standard conditions of pumping¹ and formation of standard return, sufficient for rehabilitation and modernization of production assets involved
- 3 2 Calculations of transportation tariffs are based on tariff revenue (cost of service) determined according to the following formula

Tariff Revenue (Cost of service) = Standard (Regulated) Return + Payments to the Dividend Fund + Income Tax + Total Costs (excluding income tax)

3 3 Total costs shall include all operation and maintenance costs, depreciation, diagnosing expenses, costs of production assets repair, not leading to the increase of the value of assets (capitalization), insurance, administrative and general costs, as well as payment of all taxes and customs fees and duties,

Note Standard conditions of pumping mean continuous intake, transportation and delivery without warrants and quality monitoring during mixture pumping, in compliance with shipper's guidelines regarding the change of the route in case of limited shipment (when such limitations occur due to other reasons than the pipeline company fault, shippers shall compensate for the losses of transportation companies)

envisaged by tax and customs regulations of the Republic of Kazakhstan, excluding income tax

3 4 Standard return included into tariff shall ensure proper regular operation of pipeline system, and accomplishment of rehabilitation, technical improvement and modernization of basic production assets, as well as opportunity for repayment of loans attracted for that purpose

3 5 Standard return within the tariff shall be limited by the established rate of return (internal rate of return - IRR) on qualified assets of pipeline company

3 6 IRR shall be established during the first year of the introduction of the methodology based on the calculations, accounting for the plan of mandatory repair and rehabilitation works, reconstruction and technical improvement of pipeline system, as well as attraction, if necessary, of debt capital for this purpose There should be serious grounds for revision of rate of return, such as hyperinflation, significant changes in tax laws, assets evaluation, volume of oil pumped, abandonment of certain pipeline routes

3 7 Tariff revenue from operating pipelines shall not include new pipelines construction costs During the process of new pipeline project design, return required for the cost-recovery shall be included into the tariff revenue

3 8 Transportation tariffs shall be calculated as a tariff rate for transportation and variety of surcharges, corresponding to specific costs related to additional services provided to shippers (reloading, loading, preparation, heating, storage, etc)

4 Basic Tariff Elements

4 1 Costs

4 1 1 During the formation of tariffs for pipeline services, consideration shall be given to the costs determined in accordance with Accounting Standards approved by the National Accounting Commission of the Republic of Kazakhstan, current tax laws and regulations, and Special Procedure for formation of prices for products (works, services) produced and distributed by natural monopoly business entities

4 1 2 Costs plan of the tariff entity shall be based on the analysis of the previous period of business activity, and the work plan for the next period, taking into account projected inflation rate for basic raw materials, power, increase of the minimum wages

- 4 1 3 For the purpose of tariff calculation, all costs shall be divided into basic costs, which are the base for the calculation of the basic transportation tariff rate, and additional costs related to additional services provided to shippers (reloading, loading, preparation, storage, heating, etc)
- 4 1 4 Centralized administrative and general business costs of the whole company, including those of communication, bank services, loan interests, advisory services, etc shall be distributed among tariff entities of the company to be included into tariff in proportion to the throughput
- 4 1 5 As one of the other cost components, depreciation of the used capital assets is determined in accordance with the current Standards of Accounting of the Republic of Kazakhstan

4 2. Return

- 4 2 1 In tariff calculation the amount of return is determined on the basis of regular needs of enterprise for rehabilitation, technical improvement and reconstruction. The amount of return is limited by the fixed rate of return for the qualifying assets of the pipeline company
- 4 2 2 Used and useful assets of the pipeline company include the real value of the basic production assets, determined on the basis of the independent International Auditing Company assets revaluation and net working capital, required for the pipeline transportation services
- 4 2 3 Net working capital are determined as follows

**Cash + Materials + Oil and Oil products,
owned by the company, + Advance payments - Current Payables**

- 4 2 5 Standard return, included into tariffs, is determined by the IRR in amount of 15 % of the cost of qualifying assets of the pipeline company during the calculation period
- 4 2 6 Current rate of return can be estimated using cash flow tables during the given period, or in a simplified way, using the following formula²

Examples of tariff calculation with use of cash flow tables to achieve fixed IRR for equity and debt capital are given in Appendices 1,2. Calculations are performed in compliance with "Temporary Provisions on Standards for Estimation of Economic and Financial Efficiency of Investment Projects, proposed for inclusion into the State Investment Program" approved by the Resolution of the Ministry of Economy and Trade of the Republic of Kazakhstan on June 27 1997, No 113a to implement the Resolution of the Government of the Republic of Kazakhstan No 528 dated April 10, 1997, and in accordance with the key principles of the Methodology of tariff calculation, developed by USAID

Current rate of return (%) = Current net return / Current value of assets,

where,

Current net return = Total amount of current revenue - Amount of total expenses, including income tax and payments to the dividend fund -

5 Tariff Calculation

5 1 Calculation of basic tariff rates for pumping within the boundaries of a tariff entity via 1-section is made according to the following formula

$$T_1 = (TA / \bar{A}) \delta A_1,$$

where,

TA - total tariff revenue from pumping oil through the given tariff entity,

\bar{A} - total (cumulative) planned throughput for the given tariff entity,

A_1 - length of the tariff section 1, km

5 2 Calculation of (Riders) Surcharges on Basic Tariff Rates

5 2 1 Surcharges for additional services, provided by a pipeline company, shall be calculated individually for each type of service, taking into consideration relevant expenses

5 2 2 Surcharge for loading (unloading, reloading, storage, technological treatment) of oil shall be calculated and approved for each loading station (unloading station, storage facility and reloading station) in Tenge per 1 ton of oil according to the following formula ²²

$$HH_1 = TA H_1 / O,$$

Note calculation of surcharges for loading, unloading, reloading, storage, treatment and heating can be adjusted by the maximum admissible tariff revenue on the fixed rate of return

where,

TAH_1 - tariff revenue for 1-loading station (unloading, reloading, storage, treatment)
 O - loaded (unloaded, reloaded, stored, treated) volume

5 2 3 Tariff revenue for loading (unloading, reloading, storage, technological treatment) for 1- loading station (unloading station, storage facility and reloading station) is calculated according to the following formula

$$TAH_1 = \frac{CI_1 \cdot O}{C},$$

where,

CI_1 - expenses per 1-loading station (unloading, reloading, storage, treatment),
 TA - company revenue,
 C - company expenses, taxes not included

5 2 4 Surcharge for loading (unloading, reloading, storage, technological treatment) for an individual shipper is calculated with consideration of the location of loading station and volume loaded according to the following formula

$$HH = HH_1 \times O,$$

where,

HH - amount of surcharge for loading (unloading, reloading, storage, technological treatment) for an individual shipper,
 HH_1 - amount of surcharge for loading (unloading, reloading, storage, technological treatment) of 1 ton of oil per 1-loading station (unloading, reloading station, storage facility, treatment station)
 O - loaded (unloaded, reloaded, stored, treated) volume of oil

5 2 5 Surcharge for oil heating shall be calculated in Tenge per one ton per km and approved for every tariff entity within its boundaries. The calculation is made according to the following formula

$$\dot{H}_1 = \frac{\dot{OAI}_1}{\bar{A}},$$

where,

\dot{OAI}_1 - tariff revenue for oil heating per 1-tariff entity,
 \bar{A} - total (throughput) throughput of oil, which requires heating, for 1-tariff entity, or total throughput of oil with medium and high viscosity

5 2 6 Tariff revenue for oil heating (viscosity) is determined for 1-tariff entity according to the formula

$$\hat{O}AI_1 = \hat{C}I_1 \cdot \hat{\delta} \hat{O}A / \hat{C},$$

where,

$\hat{C}I_1$ - expenses for oil heating per 1-tariff entity,

$\hat{O}A$ - company revenue,

\hat{C} - total company expenses, taxes not included

5 2 7 Surcharge for oil heating (viscosity) for individual shippers per 1-tariff entity is calculated with consideration of the amount of shipment and length of the route according to the following formula

$$\hat{H} = \hat{H}_1 \cdot \hat{\delta} \hat{I} \cdot \hat{\delta} A,$$

where,

\hat{H} - surcharge for oil heating for shippers,

\hat{H}_1 - surcharge for heating of 1 ton of oil per 1 km for 1-tariff entity,

\hat{I} - volume of shipments in tons,

A - length of the route, km

6. Procedure for Tariff Revision and Approval

Calculation and regulation of the tariffs for the pipeline services, rendered by a utility-a natural monopoly shall be performed by a regulatory entity, authorized by the Government of the Republic of Kazakhstan

Tariff rates shall be revised not oftener than once a quarter Tariffs shall be revised when deviation of amounts of actual throughput or expenses from the planned values exceeds 10 %

A company, intending to revise its tariffs, shall submit the documents to the authorized regulatory body, which contain actual data on its activities during the previous period (3-12 months) and calculations, justifying new tariff rates

Submitted documents, justifying new tariffs, shall include

6 1 Actual and projected data on total throughput and services, provided by the company, and its major branches, for the previous calculation period and for projected one,

6 2 Actual and projected amount of tariff revenue from basic operations of the company and its major branches, during the previous calculation period and for projected one,

6 3 Actual and projected amount of tariff revenue, including cost, return and taxes for the whole company and its branches during the previous calculation period and for projected one,

- (1) 6 4 Information on the company assets to be considered when calculating tariffs should include the following historic cost of assets minus accrued depreciation
- (2) working capital, including cash, materials, advance payments and oil, owned by the company minus company liabilities

6 5 Depreciation, charged in accordance with the specific type of assets

6 6 Plans of capital repair, technical improvement, modernization and reconstruction for the entire company and its branches during the planned period and implementation of those during the previous calculation period

6 7 Financial Statement

2025

Attachment #1

Case of cash flow table design for calculation of basic specific tariff rates for pumping of oil, oil products and water via pipelines

Items

Revenues

- 1 Throughput, mln T km
- 2 Specific tariff, tenge/t * km
- 3 Tariff revenue mln tenge
- 4 Tariff revenue with VAT, mln tenge

Costs

- 5 Capital investments (Total)
which include
Used and useful production assets
Equity financing (reinvestments) without a %
Debt capital
- 6 Total costs, mln tenge
including
 - 6 1 Operating and Maintenance expenses, including
raw materials
power
fuel
wages fund
repair
other expenses (including general and administrative)
 - 6 2 Depreciation
 - 6 3 residual value of assets
 - 6 4 Loan payments
 - 6 5 Total tax and customs fees and duties, including
VAT,
Road Fund
Property tax
Transport tax
Land tax
Social, medical insurance, pension fund
Employment fund,

6 6 Other taxes and fees

- 6 7 Customs fees
- 7 Taxable income, mln tg
- 8 Income tax
- 9 Net income
- 10 Dividends - 50 % from the net income
- 11 Return
- 12 Cash flow (cumulative)
- 13 Internal rate of return (IRR), %
- 14 NPV 5%,10%,15%,20%, mln tg
- 15 Total revenue from the project (feasibility of the project)
- 16 State's share of return
- 17 Company's share of return

where line (2) = (3) (1)

line (4) = (6) +(8) +(10) +(11)

line (6) = (6 1) + (6 2) + (6 4) + (6 5) + (6 6) + (6 7)

line (10) = (9) / (2)

line (9) = (7) - (8)

line 7 = (4) - (6)

line 11 = (9) - (10) + (6 2) - (5)

line 15 = (16) + (17)

line (16) = (6 5) + (8) + (10) in money terms and in % to line 15

line 17 = (11) in money terms and in % to line 15

For substantiation of new rates the following documents shall be submitted to the regulatory body

- 18 The main table of cash flows, reflecting tariff calculations aimed to achieve 15% IRR
- 19 Additional tables of cash flows, reflecting IRR after reinvestment of part of return (or debt capital) in implementation of the plan of mandatory rehabilitation works, technical improvement and reconstruction of production assets *

*Special conditions of operation of pipelines and tanks require the letter to be replaced or reconstructed within 30-year period, of pumping station equipment and communication means - 20-year period Therefore average annual volume of rehabilitation estimated in current prices shall approximate 30% of current pipelines and tanks and 5% of current pumping station equipment and communication means

APPENDIX M

Hagler Review of Revised Methodology

EXECUTIVE SUMMARY

COMPARATIVE ANALYSIS STEERING COMMITTEE RECOMMENDED OIL PIPELINE TARIFF METHODOLOGY VERSUS KAZTRANSOIL DRAFTED RESOLUTION ON STANDARDS OF TARIFF CALCULATIONS FOR PUMPING OIL, OIL PRODUCTS, AND WATER

A steering committee - with representation from KazTransOil, various government ministries including representatives of the AntiMonopoly Committee, KazakhOil, the Kazakhstan Petroleum Association, and USAID - were commissioned pursuant to a request of the Government of the Republic of Kazakhstan to provide technical assistance in the development and implementation of an internationally acceptable pipeline tariff methodology. The Steering Committee finalized a consensus resolution and a recommended tariff methodology in November 1997, and submitted this to the appropriate government agencies. Subsequently, KazTransOil filed a different Resolution on Standards with accompanying rate information, which they revised and resubmitted in February, 1998.

The attached analysis provides a detailed article by article review of the KazTransOil filing and its differences from that proposed by the Kazakhstan Government steering committee. The following summary details key points of the analysis:

- (1) The KazTransOil Resolution provides for over a 200% increase in transportation rates, exclusive of additional surcharges that are added for loading and heating of oil. In the sample sheets attached to the KTO application, the rate identified is 1.05 Tenge per tonne kilometer (\$13.89 per 1000 tonne kilometer) compared to the current rate of 0.345 Tenge per tonne kilometer (\$4.56 per 1000 tonne kilometer @ 75.6 Tenge per USD).
- (2) The KazTransOil documents ignore all the revenues currently available to the pipeline to meet its revenue requirement. Under the Steering Committee recommendation, once a revenue requirement is developed, current revenues, the value of bartered oil income, and the oil export surcharge should be used to reduce the total revenue requirement, and the resulting difference should define the amount of increase that should be granted the pipeline.
- (3) The impact of the KazTransOil proposed "Internal Rate of Return" of 15%, would be to more than double the recommended methodology's regulatory 15% rate of return.

on qualifying assets to a level above 30%. The announced intent of the KazTransOil "Internal Rate of Return" is to incorporate the future costs of proposed construction in current rates. Internationally accepted rate design structures provide that, for setting rates, the assets should be serviceable assets actually in use. Customers deserve fair rates based upon the actual costs of equipment used in providing them service. The Steering Committee recommended procedure provides the opportunity to finance capital construction through debt and equity without ruinously raising rates based upon hypothetical 15 year estimated costs.

(4) The KazTransOil proposal for surcharges on shippers do not match actual incremental costs caused by the provision of the specialized service. The expenses of the additional services - such as the loading of oil - should be charged only to those who use them. The expenses used to calculate the surcharges should not be included in the basic transportation rate.

(5) KazTransOil, in addition to the return on qualifying assets, also now includes the payment of dividends to the only stockholder (the Government of Kazakhstan) as a component of the transportation rate. International methodology prescribes that dividends to shareholders are paid from the return on qualifying assets. Since the dividend payment to the government is 50% of profit, then in accordance with the KazTransOil proposal, effectively the level of return is multiplied by 1.5.

(6) The KazTransOil methodology proposes to use, as qualifying assets, the re-evaluation asset-value study (study is currently underway, though not expected to be completed by April 1, 1998) estimates without apparent consideration of acceptance of those results by appropriate Kazakhstan government accounting and regulatory agencies. The sample calculations use an asset value for the system based upon a computer model developed last Summer by USAID consultants, however the values were not adjusted downward based upon the refurbishment costs of the system. The Steering Committee recommended methodology indicates that the qualifying asset value for computation of return should be that value currently listed on the approved accounting records of the company that is used and useful for providing transportation service. Using any asset value other than that listed in the official accounting records produces unrealistic and unsubstantiated results.

(7) The KazTransOil proposal included two attachments, with sample calculations, for the major operating division of the company. These examples are seriously flawed. In addition to calculation errors and unsupported data, the two data sheets are supposed to illustrate differing IRR calculations, but the transportation rates do not vary from one

example to the other. The transport rates do not appear to be supported by the data. Without appropriate illustrations of this methodology, there is simply no basis for accepting this radical departure from international standards.

Fundamentally, the KazTransOil proposed resolution and methodology produces vastly inflated rates which would cripple oil production in Kazakhstan by pricing the delivered product beyond marketable prices in world markets. The KazTransOil methodology is not an acceptable international methodology and significantly differs from the recommendations of the Steering Committee commissioned by the Government of Kazakhstan.

COMPARATIVE ANALYSIS STEERING COMMITTEE RECOMMENDED OIL PIPELINE
TARIFF METHODOLOGY VERSUS KAZTRANSOIL DRAFTED RESOLUTION ON
STANDARDS OF TARIFF CALCULATIONS FOR PUMPING OIL, OIL PRODUCTS, AND
WATER

1. The KazTransOil (KTO) filing covered pumping of oil, oil products and water via trunk lines in the Republic of Kazakhstan. The Steering Committee recommendation was that the tariff methodology should separate oil and refined oil transportation, and that water transportation should be treated as a separate matter. In the KTO filing, water is included into the definitions and discussions, but not separately analyzed to produce transportation rates. Water transportation is primarily a function of YuzNefteProvod and not prevalent across the system. If oil transportation rates are applied to the transportation of water, this will cause huge increases in water rates to potable water users such as those in the cities, and to well drillers who use the water in oil production. This will cause significant social and oil production cost increases. Oil transportation rates are not appropriate for water transportation. The cost basis for developing water rates are different.

2. The first section of the KTO application is termed Scope and Application and covers Articles 1.1 through 1.5.

a. These Articles provided that the rates produced through this procedure will also be used for water transportation. As mentioned previously, this will cause severe economic hardship on consumers of water as well as users of water for oil production. Though most of the principles of oil tariff methodology are applicable to water pipeline operation, there are key differences that normally necessitate a separate methodology and rate design.

b. KTO included language in this section, Article 1.3, to indicate that the provisions are for the use of designers of investment projects related to construction and modernization. The normal regulatory system of tariffs is intended to provide a return, on qualifying assets, which will be utilized by the management of the company for a variety of uses, for example, retention for future capital construction. However, a proper tariff methodology is intended to provide only

for recovery of operating expense, and a return on qualifying assets that are currently being used. Future capital construction expenses should not be included in current rates as a driving factor. This is the accepted international practice for regulated public utilities. Future investments and capital improvements are a separate function of management and capital budgeting - not part of the rate development process. The capital budget planner develops financing plans using the current stream of revenues, and revenues deriving from debt, to plan future construction and modernization. This insures that rates to current users are fair and reasonable.

3 Section 2, Terminology and Definitions, which covers Articles 2.1 through 2.9, in the KTO application is a limited list of definitions. Since KTO changed the procedure for calculation of return on qualifying assets to a method described as Internal Rate of Return (IRR) (which utilizes forecasted inflation rates) and since this calculation procedure is not acceptable internationally for regulated public utilities, this section should have provided a detailed definition of what was intended by the use of IRR, and defined how it was calculated.

4 Section 3, General Provisions, covers Articles 3.1 through 3.8, in the KTO application.

a Article 3.1, in the KTO application, included the provision that tariff rates would include the formation of a standard return sufficient for rehabilitation and modernization of production assets involved. This violates the recommended methodology principle that return should be based upon useful assets and current operating expenses. Forecasted rehabilitation and modernization should not be included in current rates because the customers pay for the use of assets that do not exist or may not ever exist. These inflated rates may in turn cause the customers to reduce shipments because they may not be able to market their oil at competitive prices in the world markets. The reduced transportation that results may mean that the pipeline company will not be able to meet its current operating costs.

b KTO Article 3.2, as revised in February 1998, contains a formula for calculating revenue, now termed cost of service, from tariffs which is in disagreement with the recommended methodology. The revised methodology has inserted the description of "regulated" to the term "standard return" and appropriately corrected conflicting language from the previous version concerning income taxes. However, the revised version dramatically increases the profit or return to be included in the tariff rates. The formula now includes "payments to the Dividend Fund" as an additional element. Since the payment to the Dividend Fund is established at 50% of the return, then effectively any return rate established for the pipeline is automatically increased by 50% when rates are calculated. Thus, in the KTO terminology, an IRR of 15% would actually be 22.5%, while the equivalent, to this IRR, normal regulatory rate of return, in terms of net rate level, would increase from 20% - 40% to 30% - 60% (Note: The Steering Committee discussions only considered a 15% regulatory rate of return.) The Steering Committee recommended methodology indicates that dividends to shareholders should be paid from the return on qualifying assets. As the only shareholder, the

Government of Kazakhstan should be paid its dividends from the return on assets

c KTO Article 3 3, as revised in February, 1998, contains a description of total costs as listed in the formula in Article 3 2. As long as these are current expenses, these provisions are not in conflict with the recommended methodology.

d KTO Article 3 4 is not in conflict with the recommended methodology as long as this is not interpreted to mean that forecasted interest rates and inflation, nor forecasted construction costs are included in the standard return. The current rate of return on assets should not be driven by future capital construction needs.

e KTO Article 3 5, as amended in February, 1998, is the primary area of disagreement with the Steering Committee recommended methodology. Instead of proposing a standard return on qualifying assets as utilized by international regulated public utilities, the KTO application proposed what they termed an "internal rate of return - IRR". The IRR seems to result from an attempt to develop an internal rate of return as commonly used in capital budgeting to analyze the potential economic viability of individual capital improvement projects. This IRR was not calculated consistent with the calculation of an IRR as commonly used in financial analysis, and no known regulated public utility is authorized to compute a return on qualifying assets in this manner.

f KTO Article 3 6 continues the discussion of the IRR, indicating that it will be derived based upon future repair, rehabilitation, and reconstruction of the pipeline system. It also provides for increases in rates, based upon factors such as hyperinflation, changes in tax laws, volume of oil pumped, liquidation of certain pipeline routes, and assets valuation. KTO indicates that their proposed IRR will also attract debt capital. Since there is no mechanism described in the KTO application to incorporate debt interest into a weighted cost of capital calculation, it is not clear how the proposed IRR will attract debt capital. It is not clear in the KTO filing whether these factors could induce a lower rate of return, but it is implied that the rate will increase, because of these factors. If the volume of oil pumped decreases as the result of the vastly increased transportation rates, the implication is that the rate of return would be increased to raise the rates, which in turn would cause a reduction in the volume of oil pumped, and continue this process in a death spiral to the point that revenues fall to levels wherein the pipeline cannot be operated. The Steering Committee recommended rate of return is designed to be based as much as possible on current costs and known facts. The recommended return on qualifying assets should be sufficient to provide a reasonable equity return that would attract investors, provide capital for improvements, and lastly would not be so high as to unduly burden the customers with unreasonable rates.

g KTO Article 3 7 indicates that during construction, the construction costs would not be included in operating costs for the computation of rates. Under the KTO proposal, KTO would have already collected these construction costs through rates when the project was in the planning stage. There is no guarantee that the previously collected construction costs correlate to the actual construction costs incurred, or how this disagreement in costs would be resolved. Since

the new pipelines are already fully paid by the shippers, under the KTO proposal, the value of these assets should not be included in qualifying assets for the development of rates. Under the Steering Committee recommended methodology, construction costs of new pipeline systems once they become operational are included in the value of qualifying assets against which a return is assessed. Under the recommended procedure, shippers pay for assets that actually support the services that they receive.

h. KTO Article 3.8 indicates that tariffs are established on the basis of a basic transportation rate and surcharges are added in the form of riders for specialized services that are in addition to the basic transportation service, such as loading, heating, and storage. The principle of surcharges does not disagree with the recommended methodology, however the KTO application of this principle does disagree. It is fundamental under the Steering Committee recommended methodology that the costs associated with any riders or surcharges should not be included in the calculation of the basic transportation charge. Only the incremental costs, caused by the service covered by the surcharge, should be included in the surcharge or rider, and only those customers pay for the specialized services who require the service.

5. Section 4, in the KTO proposal is titled "Basic tariff constituent elements". It consists of two major subsections - 4.1 Costs and 4.2 Return. Article 4.1 is broken into subordinate Articles 4.1.1 - 4.1.5.

a. Article 4.1 Costs

(1) KTO Article 4.1.1 indicates that tariffs will be constructed in accordance with the approved Accounting Standards and the laws of Kazakhstan. The recommended methodology would not disagree.

(2) KTO Article 4.1.2 indicates that cost plans shall be based on an analysis of the preceding period and the work plan for the next period with forecasted increases. The recommended methodology indicated that 12 months of historical data would be required or in the case of a new service forecasted data might be accepted. The difficulty of accepting forecasted data is to introduce large degrees of unreliability into the analysis. With regular filings, 12 months of actual data would reasonably respond to changing economic conditions.

(3) KTO Article 4.1.3 indicates that basic costs and special rider costs would be separately accounted. This is not in disagreement with the recommended methodology.

(4) KTO Article 4.1.4 indicates that centralized administration costs will be distributed among the operating division costs based upon the throughputs of the respective divisions. The recommended methodology indicated that the distribution should take place, but did not specify the allocator. Common allocators are throughput or total divisional administrative expenses. This KTO proposal is not in contravention to the recommended methodology.

(5) KTO Article 4.1.5, as amended in February, 1998, indicates that depreciation of used capital assets shall be in accordance with the current Standards of Accounting of the

Republic of Kazakhstan This does not contradict the recommended methodology The common industry standard for transmission pipe and major related equipment is straight line depreciation

b Article 4 2 Return

(1) KTO Article 4 2 1 indicates that the amount of the return is based upon the needs of the enterprise for rehabilitation, etc , and that the return rate is applied against the involved assets of the pipeline company This is not in agreement with the recommended procedure, as long as the intent of this Article is to include forecasted capital construction in developing the rate of return

(2) KTO Article 4 2 2, as revised in February, 1998, indicates the used and useful assets include the real value of the basic production assets, determined on the basis of the independent international auditing company assets revaluation and net working capital The Steering Committee recommended methodology indicates that the KTO's accounting book value of assets less accumulated depreciation plus net working capital should be the qualifying assets used for rate purposes It is doubtful that the asset reevaluation can be completed prior to April 1, 1998, with accompanying field inspections Additionally, before the reassessment value can be placed on KTO's accounting books, the appropriate agencies for approval of accounting adjustments would need to endorse the change The AntiMonopoly Committee as the tariff approving agency should also consider, if the reassessment is dramatically higher than the current book value, gradually allowing, possibly over more than one year, inclusion of the re-appraisal value into the qualifying assets for purposes of rate creation in order to reduce rate shock to the transportation customers

(3) KTO Article 4 2 3, in the revised February, 1998, version was deleted and not replaced

(4) KTO Article 4 2 4, as revised in February, 1998, presents the net working capital formula in the same form as the recommended methodology

(5) KTO Article 4 2 5, as revised in February, 1998, represents the greatest departure from the recommended methodology by seeking an IRR in the amount of 15% This is not the same as the regulatory rate of return computed at 15% The regulatory rate of return equivalent to the KTO proposal is 20% - 40%, depending upon the calculation procedure The KTO proposed tariff rate was a 200% increase over current rate levels Apparently the KTO use of the IRR is based upon the Standards for Investment Projects issued by the Ministry of Economy in June of 1997 Investment projects are a function of capital budgeting in a regulated public utility and are in no way a direct component of the calculation of a regulated public utilities rate of return on qualifying assets This section is not in keeping with the Steering Committee recommended tariff methodology

(6) KTO Article 4 2 6, as amended in February, 1998, has made a number of changes to the formula identified in the recommended methodology , The February revision subtracted the payments to the dividend fund from current revenues to arrive at the current net

return As indicated in the discussion of article 3 2 above, dividends paid to shareholders should be paid from KTO's return on assets This amended article disagrees with the Steering Committee recommended methodology

6 Section 5 of the KTO proposal is titled "Calculation of tariff" It consists of Articles 5 1 and 5 2, with Article 5 2 divided into Subordinate Articles 5 2 1 - 5 2 7

a KTO Article 5 1, as amended in February, 1998, provides the formula for the calculation of the tariff rate per section of pipeline The KTO proposal uses planned cumulative throughput to make the calculation As illustrated on the example attached to the application, the KTO approach would use the estimated throughput for a 15 year period The recommended methodology depended upon actual throughput and an allocation of the actual revenue requirement The original KTO proposal used planned tariff revenues for calculation The word "planned" has been struck from the description of tariff revenue

b KTO Article 5 2 provides Subordinate Articles for the calculation of surcharges to the basic tariff rates

(1) KTO Subordinate Article 5 2 1, as stated, is in keeping with the philosophy embodied in the recommended methodology, however its application in the following subordinate Articles is not in keeping with the recommended methodology

(2) KTO Article 5 2 2, as amended in February, 1998, is not in keeping with the philosophy of the recommended methodology The KTO proposal would set a loading rate based upon a tariff revenue divided by loading volumes The recommended methodology would require that the separate incremental expenses necessary to perform the loading be compiled and that total expense amount be divided by the tons of loaded material to arrive at a loading rate Surcharges should not be a source of profit - only recovery of incremental expenses from those customers that cause the expense The expenses used to calculate this surcharge should not be included in the expenses used to calculate the basic transportation rate in Article 5 1

(3) KTO Article 5 2 3, as amended in February, 1998, calculates the revenue for the loading tariff by dividing the expenses for loading by the pipelines total expenses (not including taxes), and multiplying this times the pipelines total company revenues This means that there will be double recovery of some cost factors This violates the cost causation philosophy of the recommended methodology and over recovers the pipeline's revenue requirement A footnote to this section indicates that the calculation of the surcharges can be corrected with consideration of the maximum allowed tariff revenue This is not indicated elsewhere and there may not be any actual mechanism to adjust surcharges, but this would indicate that customers being billed under the surcharge are overpaying for the service and subsidizing the basic transportation revenue There is no discussion of a refund mechanism to return excessive collections to customers This violates the recommended methodology

(4) KTO Article 5 2 4, as amended in February, 1998, simply demonstrates the calculation of an individual shippers surcharge based upon the preceding two subordinate

Articles The total concept, as proposed, violates the principles established in the recommended methodology

(5) KTO Article 5 2 5, as amended in February, 1998, indicates that a surcharge for heating the transported oil will be calculated per one ton per kilometer, and approved for every tariff entity within its boundaries Articles 5 2 5, 5 2 6, and 5 2 7 follow the same pattern and suffer from the same flaws as did Articles 5 2 2, 5 2 3, and 5 2 4 They also violate the principles established in the recommended methodology Additionally, it is not clear from the KTO proposal whether all shippers will be charged the heating surcharge or only those needing the service Both lead to over recovery of income requirements in violation of cost causation The former will lead to vastly excessive over recovery of income requirements, especially from those shipping light crude oils

7 Section 6 is titled the Procedure for tariff revision and approval It includes Articles 6 1 through 6 7 It provides that rates will be filed quarterly, and filed more often when the actual throughput or expenses deviate from the planned values by 10% The February, 1998, revision, indicates that the calculation and regulation of the tariffs shall be performed by an authorized Kazakhstan regulatory entity It now appears that KTO will not file a proposed tariff rate, but depend upon the regulatory authority to specify for the natural monopoly utility the appropriate rate This places the burden of justifying the transportation and surcharge rates is on the regulatory agency as opposed to KTO The individual Articles list the documents to be provided to support the tariff revisions The February revision to the proposal modifies the definition of depreciation, but no discernible difference is noted The documents include the actual and planned data The recommended methodology provides for annual applications, though more often than annual were allowed, if the economic situation of the pipeline necessitates - though no more often than quarterly would be expected Additionally, the recommended methodology provides that the return on qualifying assets should not change any more often than annually Shippers need some assurance of continuity in transportation rates They must plan for delivery to world markets and need stability in transportation rates in order to make the economic decisions necessary to decide to produce and ship their crude oil Additionally, approving governmental authorities such as the Antimonopoly Committee and the Agency for Strategic Planning should not be overburdened with excessive and unnecessary filings of rate increase requests They should not have successive filings made before adequate time for review is completed Basing rate applications on subjective forecasts will lead to numerous filings - if the pipeline adheres to its proposed 10% guideline

8 Numerous and extensive changes were made to the sample calculation attached to the KazTransOil proposal, between that proposed at the end of 1997 and in early 1998 The two KTO attachments with sample calculations for the western operating division of the company were to illustrate different impacts using a 4 26% IRR and 13 15% IRR, though the proposed

methodology specifies a 15% IRR. These examples are seriously flawed. A number of cells in the worksheets have calculation errors, and there are a number of obvious gross errors. For example, the net present value table, listed on the worksheets, increases the NPV with increasing discount rates, when they should decrease. The explanatory notes to the worksheet simply do not correlate with the actual worksheet. The qualifying asset value used for calculation are the unadjusted computer model results, mentioned earlier in this discussion. The operating expenses do not correlate with known values. Most importantly, the transportation tariff rate does not seem to be derived from the values listed on the work sheet. It is set at 1.05 Tenge per ton kilometer. It never changes in value throughout the 15 years shown on the worksheet. Attachment 1 indicates an IRR of 13.15% and Attachment 2 indicates an IRR of 4.26%, yet both worksheets indicate the exact same transportation rate. The rate should have changed with the change in IRR if the written KTO methodology is followed. As an illustration of the methodology, the attachments are totally without value. Without appropriate illustrations of this methodology, there is simply no basis for accepting this radical departure from international standards.

APPENDIX N

February 20, 1997

Minister and Chairman Yerzhan Utembayev
Presidential Agency for Strategic Planning and Reform of the Republic of Kazakhstan
92 Abai Street
473000 Akmola

Subject Oil Pipeline Tariff Methodology

Dear Minister Utembayev

In November, 1997, a steering committee, commissioned by the Government of Kazakhstan to provide technical assistance in the development and implementation of an internationally acceptable oil pipeline tariff methodology finalized and submitted a resolution and a recommended tariff methodology to the appropriate Kazakhstan agencies. Subsequently, KazTransOil filed a significantly different Resolution on Standards with accompanying rate information.

The impact on rates by the KazTransOil filing, according to the shippers, is a 200% increase. Because of concerns raised by a number of parties, the AntiMonopoly Committee only approved a 6.1% increase, though KazTransOil continues to lobby for significant increases.

USAID urges you to formally adopt the steering committee recommended oil pipeline tariff methodology, which we strongly believe is in the best interests of Kazakhstan, KazTransOil, and the shippers.

The goal of a tariff and rate design methodology is to generate adequate revenues to permit the oil pipelines to recover operating costs and earn a reasonable return on investment, while providing a reasonable net back value to producers and the national and regional governments. Fair and predictable tariff and rate design methodologies consider the interests of all stakeholders and help forge economic progress.

Transparent predictable transportation tariff systems, tariff stability, guaranteed pipeline access, and reasonable rates motivate potential investors to commit large scale capital to energy projects. Economically viable projects require tariffs that support internationally competitive levels of efficiency and profitability. With economic efficiency, revenues should increase to the transportation utility. As uneconomic tariff rates rise, such as those proposed by KazTransOil, the net back cost to producers rises to point that the final delivered market price for the oil in world markets is not competitive. Production activities and investment will then be curtailed, reducing transportation revenues for KazTransOil, and royalties and fees for Kazakhstan.

Once again I would like to strongly urge you to adopt the methodology as outlined by the steering committee. If you would like an in-depth briefing, I would be pleased to provide members of my staff, and the USAID consultants who assisted the steering committee, to meet with you and respond to your questions.

Sincerely,

Patricia Buckles
USAID Regional Director for
Central Asia

APPENDIX O

Examination of KTO Proposed Principles of Determining the Rate of Return

Factor one - 30 year US T-bills

It is fair to consider this a risk free investment foundation, however if the inflation risk of Kazakhstan is also to be considered then other considerations are necessary. The inherent factors in the US T bill rate are a real rate of return plus a long term inflationary risk. As of April 1998 the US T bill rate for 30 year term bonds is 5.9%. Since the current inflationary rate in the US is between 4% and 5%. Given expected past and future stability, the investor probably perceives that over the long term life of the investment that the current inflation rate is a fair proxy for the inflationary risk, therefore the real rate of return is 0.9 to 1.9% return. Inherent in the US investor inflationary risk is a portion of country risk and a portion of world inflationary risk. Therefore the appropriate starting point for calculation is the real rate of return expectation which should be adjusted by relevant country factors. Thus this factor should be established at 0.9 to 1.9% maximum.

Factor two - industrial risk of US pipeline investment

Simply not relevant. There are a large number of pipelines with significantly different operating characteristics. One cannot utilize this as an additive factor for a pipeline in Kazakhstan. If one adopts a US pipeline risk structure one logically has to also adopt the resulting calculation for equity risk that US pipelines receive in total which go as low as 7%.

Factor three - country risk

This is a relevant factor. There are political risks, inflationary risks, currency risk, and other economic risks that are inherent in operating in any particular country. Three percent is a very conservative number.

Factor four - structural risk

There is only one operating pipeline in Kazakhstan so the structural risk and the industrial risk are combined. Fundamentally then this defaults to a fundamental measure of the uncertainties of the pipeline in comparison to other industries in Kazakhstan. Given that the principal pipeline shippers are primarily wholesale customers who have a higher probability to pay than retail customers, the structural/industrial risk for the pipeline is much lower than for a distribution utility. A factor of 2% to, at the outside, 3% should be considered. The discussion that KTO proposed basing it on forecasted impacts of the construction of export pipelines should actually

in reverse of the interpretation made by KTO Increasing export routes will increase throughput in net total Increasing throughput increases revenues and reduces investor risk

Factor five and six - industrial risk and environmental risk

The supporting description discussion normal management risks - not investor risks - that are inherent in the operations of a pipeline business and whose costs are already considered in the tariff rate methodology The company has the opportunity to meet its financial needs by receiving a return on equity, cash flow from depreciation included in rates, and has the ability to incur debt to address its operating needs

Factor seven - Tenge devaluation

Since the currency is regularly adjusted the value is essentially an inflationary adjustment reflecting the perceived difference in the inflation rate of Tenge as opposed to other currency Inflation is already considered in the development of country factor Further from a matching principle, if 30 term US T-bills are a basis for calculation then any inflationary adjustment should be considered on a long term basis As evidence from the financial records in this country, the long term inflationary rates for Kazakhstan are an exponentially declining factor Therefore, the current inflation rate expectation should not be used but a rate extrapolated to the future which demonstrates the soundness of financial policies followed to date

The overall all rate of return as evidence by a re-examination of factors following the KTO discussions would indicate that a rate of return in the range of 3.2% to 7.9% is a more realistic range of return The natural gas pipeline operator for Kazakhstan made a rate application in December 1997 This company has been privatized and may reflect an investor's expectation for a reasonable rate of return for investment in Kazakhstan The requested rate of return was between 8% and 9% Since gas pipelines and oil pipelines share many common operating characteristics then a rate of return for KTO of 8% is not unreasonable

APPENDIX P

RATE DESIGN PRINCIPLES

A regulatory authority in deciding the final rate, that it approves for use by a regulated pipeline, utilizes standard methodologies to develop a preliminary rate. The regulatory authority then examines the rate level and evaluates the policy requirements that it has as the regulatory approval agency. The authority has at least three interests that it attempts to balance in approving the final rate. It must consider whether the rate is in the best interest of pipeline, in the best interests of the customer, and in the best interest of the country. Regulated public pipeline rates are not set in the same manner as an unregulated business. As a natural monopoly its rates must be set in the best interests of a number of factors not just based upon maximizing the revenues to the pipeline.

It arriving at the final decision, it utilizes a series of rate principles. The following are common ones that are considered, but the list is not limited to only those discussed.

The first principle is achieving the revenue requirement. The regulatory authority should consider whether the rate will realistically achieve the revenue requirement, for example, is the rate high enough that normal throughputs will produce sufficient revenues to cover the pipeline's operating costs and provide a return. Is the rate too high, even though produced by standard calculations - will the rate cause throughput to decline and not allow the pipeline to achieve its revenue requirement.

A second principle is gradualism and continuity. In trying to achieve the revenue requirement will the rate increase cause "rate shock". That is, will the increase be so large as to cause the shipper to reconsider its use of the pipeline transportation system. The customer, even though pipeline transportation may be ordinarily the most cost efficient, may select other means to deliver his product to market. For example, the shipper may have the option of using railroad transportation or water transportation. This may be driven by the market contracts that the shipper already has in place which will not allow him to achieve a delivered product price in a world market - if the increased transportation rate is fully implemented at one time. The shipper may choose to shut in his production until such time as the shipper can adjust its contracts, since these contracts may be for delivered product several months later. However, if the rate increase is only allowed in small increments - still achieving the total increase, but spread over a long period of time - it provides the time for the shipper to adjust his operations and accommodate the increase.

Other principles that are considered are

fairness - rate structures, except in special, justified cases supported by clearly articulated reasons, should require no class of customers to pay more than the costs of serving that class,

socio-economic - what will be the consequences of the rate change on the society and the economy,

efficiency - do these rate levels reflect efficient use of the pipelines facilities and resources or do the rate levels result from misuse or mismanagement, and generally are these rates cost-based and reflect the cost to the society of the consumption of resources that produce the pipeline service,

value of service - is the service valuable to the customer and is there a demand for the service,

competitive service - are there competitive services that shippers will seek at increased price levels,

political impact - what are the political impacts of the new rates,

ability of customers to pay - even if the economic equations develop a rate level, if the customers do not have the ability to pay the rate, then the revenue requirement may not be achievable,

safety and environment - will the rates allow the pipeline to operate in a safe and environmentally prudent manner,

maximization of investment - has the pipeline maximized its potential for investment in a manner which will increase its revenues without causing increases in rates and has it sought outside investment that facilitates achieving its revenue requirement without causing increases in rates,

simplicity - are the rate designs simple, easy for shippers to understand and to make appropriate decisions about use, and easy for the pipeline to administer,

and, lastly, stability - do the rates produce stability in the flow of revenues or will the consequence of these rates produce instability

Every rate decision may not address every one of these principles, and the regulatory authority may also adopt other principles on which to base decisions based upon public policy. However, the regulatory authority should try to consider as many factors and principles, as possible, prior to rendering a decision on the final rates granted a pipeline

APPENDIX Q

CONSIDERATIONS FOR THE GOVERNMENT OF THE REPUBLIC OF KAZAKHSTAN AND KAZTRANSOIL COMPANY FOR DETERMINING TRANSPORTATION TARIFFS

The Key Market Players

- I Kazakhstan Government
- II Oil Producers - shippers
- III Kazakhstan Pipeline System - KazTransOil system is the only pipeline company in Kazakhstan - a natural monopoly

1 It is important to pursue the balance of the interests of all parties

- The Government of Kazakhstan has to evaluate all the pros and cons of the new tariff approach

The Government of Kazakhstan is

- 1) the owner of the pipeline system,
 - 2) the owner of KazakhOil, and,
 - 3) the recipient of all taxes, royalties, bonuses and other fees
- The GOK should evaluate all of the sources of its revenues and try to find the optimum balance. If the GOK acts exclusively in the interests of a pipeline company, which is a tool for shipping oil produced, it will lead to a disbalance of interests and to a decrease of the netback values to the producers, including KazakhOil, decrease in throughput - which will result in the decrease of the KazTransOil revenue and decrease of the budget revenues in terms of taxes, royalties, bonuses and other payments. If it acts exclusively in the interests of the oil producers, it will not ensure an efficient transportation mechanism and reliability of oil shipments.
 - The new tariff approach should not create a disincentive for the oil producing companies to

invest in Kazakhstan oil production or to their decision to divest. On the contrary, it should stimulate the attraction of the foreign investment into all sectors of the Kazakhstan industry.

2 The tariffs should be competitive

Irrespective of all the factors that should be considered in the process of determination of the level of the rate of return

- Tariffs should be competitive in comparison with the other transportation means,
- Tariffs should be competitive enough so that the oil produced in Kazakhstan can be sold at the world markets at the competitive prices

3 In accordance with the recommendations of the Steering Committee, tariffs should provide for the recovery of all the justified costs and provide for a fair rate of return for the pipeline company. At the same time, since KazTransOil is the only pipeline company in Kazakhstan at the moment, it should be treated and regulated as a natural monopoly and it should offer transportation services at least cost

- There is a big demand in the services of KazTransOil from the side of the shippers, so, there is almost no competition risk for the company

4 Macroeconomic factors should be considered in the process of the new rates application. Gradualism is one of the basic principles used by a regulatory authority

In order not to cause a price shock on the side of the shippers, consumers of oil products, refineries, etc., a gradual approach should be utilized in respect to the use of

- the new evaluation numbers for the production assets,
- the rate of return with all the risks consideration

The whole system can not be changed overnight

5 Forecasted data should only be used in the tariffs of a natural monopoly on a limited basis

Tariffs of a natural monopoly can not encompass all potential the forecasted projections in the rate of return

The indicators for the forecasted probable projects can not be considered and all added cumulatively in today's rate of return and ultimately in the tariffs, especially taking into consideration that some of these projects are not even scheduled to start in the next 3-4 years (e g Chinese line)

Forecasted emergencies should not be a part of the return. In case of an emergency debt capital should be used to cover the reconstruction. After a new piece of a pipe becomes used and useful, its value shall be added to the value of all production assets, thus, the return on the assets and the depreciation charges shall be increased respectively.
Tariffs must be set on the actual data as much as possible

The sources of the company capital are the return, depreciation charges and debt capital. It's up to the financial budgeting department to make a decision with respect to preventing accidents or emergencies by using debt or equity capital. It is in the interests of the pipeline company and its owners to do everything on its own so that it would provide the shippers with a good reliable service as a result of which there would be a larger throughput, which would lead to a lower tariff rate, a larger revenue and a larger return eventually

Other considerations include -

- 1) utilization of debt capital - repairs or reconstruction - higher throughput - higher revenue
- 2) it is important to do a sensitivity analysis in order to see the impact of the tariff changes
- 3) it is important to consider if KazTransOil could be operated under management of a firm which would prove that it can operate at lower costs and at a lower tariff (e g Unocal proposal)
- 4) it would be important to consider the use of the other means of transportation by the oil producing companies e g the use of railroads, barges and tankers
- 5) it would be important to see the tariff revenue of KazTransOil for the last year and to compare it with the projected revenue, so that there would be an idea of an increase in revenues and resources for all the needed works
- 6) with the increase assets valuation and adjusted depreciation, even if a rate of return on the qualifying assets is moderate, it would already cover necessary works

7) Tractebel's rationale with regard to the rate of return and consideration of all the risk factors resulted in a rate of return in the amount of approximately 8 %

APPENDIX R

ASSET VALUATION FOR REGULATED UTILITIES

Asset valuation of regulated natural monopoly property for the purposes of establishing public utility rates is performed differently generally than normal commercial valuations of property. At the heart of the valuation process is the consideration that the assets being valued form the foundation of the establishment of public rates. These rates must be in the best interests of all parties concerned - the natural monopoly, the customers of the natural monopoly, and the country's overall economy.

Even if the regulatory authority accepts the asset valuation it may not allow consideration of the entire rate base for purposes of establishing rates. A fundamental consideration is whether the assets are used and useful. What this means is that customers paying natural monopoly rates should not pay a return on assets for property which has no function in providing service to the broad base of customers.

Valuation describes the process of placing a Tenge price on the natural monopoly's property and facilities. Three basic techniques for measuring the value of a company's investment are common. The common techniques are the original cost method, the reproduction cost method, and the prudent investment method. No technique is perfect and using one in a particular case does not exclude the possibility of using one of the others in another case or using a combination of more than one technique. The overall foundation for the regulatory organization decision to accept a technique is the foundation that the rates must be in the best interests of all parties.

Reproduction Cost

The reproduction cost method disregards past prices and considers only the cost of reproducing the property at the present time. Reproduction means that the cost is set based on building a duplicate of the system at current prices for materials, equipment and labor. One question that must be asked is whether reproduction should be computed with exact replacement of the current equipment. Or, should reproduction be based upon a reproduction cost using a model based upon the most modern technology and design concepts. The argument in support maintains that the regulated public monopoly, like an unregulated commercial business, live in the present and not in the past. The opposing argument is that no sensible commercial business owner would reproduce property which was out of date or inefficient by modern standards. Competition in normal commercial business operations forces an unregulated business to meet the efficiency standards of its rivals or fail. The regulatory authority must provide the force that is lacking for a natural monopoly without competition. Natural monopoly customers should not be required to pay profits on out-of-date utility property values based on reproduction costs. The regulatory

authority if it accepts reproduction cost must adjust the values before using these asset valuations for producing rates

In periods of inflation of construction costs, reproduction costs produce rates that will generally always be higher than original costs. In periods in which construction costs are stable or falling, then reproduction valuations may produce rates which would be below that produced by original cost valuations. The question that has also to be considered is whether the reproduction valuation must be performed each time rates are under consideration since reproduction costs are a function of the current market and market prices change regularly.

When reproduction valuations are performed they normally compute the reproduction costs of the system as it exists today. Then straight line depreciation is performed on the valuation to approximate its age. Then the expenses for rehabilitation of the system should be subtracted. Reducing the valuation by depreciation assumes that maintenance and improvement of the system has been performed at amounts consistent with the depreciation levels. If maintenance and improvement have not been performed then the reproduction valuation must be reduced to reflect the current status of the system. Additionally, the regulatory authority needs to eliminate from the valuation any property that is not used and useful. Reproduction assumes that the system will be operated at the design capacity. If portions of the system are not used to actually serve the regulated customers or so vastly reduced from design capacity then those portions should be removed from the valuation or reduced in valuation to reflect their current status of operation. In the case of the latter, one approach would be to reduce the valuation based upon the utilization of the system. However, this is only a proxy and should not ordinarily be used on a regular rate setting basis.

If the reproduction valuation would significantly differ from the original cost or the book valuation of the property, and would thus produce rates radically different from current rates, the regulatory authority may only allow part of the qualifying assets to be used for rate setting purposes - gradually over time allowing more of the qualifying assets to be used for establishing future rates. One compromise approach is to use 60% to 70% of the current book valuation and 40% to 30% of the reproduction valuation, added together, to arrive at a qualifying asset valuation for purposes of setting rates. Then over time greater percentages of the reproduction value would be considered.

APPENDIX S

April 24, 1998

Ms Elena Popandopulo
Chief, Pricing Department
AntiMonopoly Committee
Agency for Strategic Planning and Reform
Government of Kazakhstan

Subject The Issue of Determining the Rate of Return in the Oil Pipeline Tariff Methodology

Dear Ms Popandopulo

In accordance with the direction that you provided April 10, 1998, to Ms Saule Mamyrbayeva and Mike Biddison at the working group meeting on pipeline tariff methodology in Akmola, designated representatives of KazTransOil and USAID consultants met on April 13 and April 15, 1998, to discuss the methodology for identifying the rate of return on assets

The staff of KazTransOil and the USAID representatives agreed to recommend to you the following methodology guidance for your consideration

- (1) The proper derivation of the pipeline rate of return on qualifying assets is the weighted cost of capital (debt capital and equity capital)
- (2) The return on equity portion, of the weighted cost of capital calculation, should consist of the sum of the following elements
 - (a) the current US Treasury 30 Year interest rate,
 - (b) industry risk for a pipeline company in Kazakhstan
 - (c) the structural risk for a pipeline in Kazakhstan which is based upon the uncertainties of a corporate financial structure of this sector of industry
 - (d) and, country risk for Kazakhstan which includes variables that affect the ability of the pipeline to repay investment due to potential problems arising from political, economic, legal, and administrative problemsin case it is impossible to approve point 4, an additional indicator will be used - a tenge devaluation coefficient for the current year
- (3) The approved methodology will not list any percentage factors assigned to the factors listed in (2) above Upon application for a rate increase, KazTransOil will provide written supporting testimony recommending factors This testimony will be made available to customers and other interested parties At a public hearing before the AntiMonopoly Committee, KazTransOil, customers, and other interested parties, such as the Ministry of Energy, Industry, and Trade, shall present testimony in support of their respective proposals for setting this rate The AntiMonopoly Committee shall render a decision based upon the evidence before it and shall establish the appropriate rate of return based upon the weighted cost of capital including the elements listed in (2) above

(4) To improve the stability of the revenues, the rates should be published in US dollars. The payments should be made in tenge in accordance with the Kazakhstan National Bank exchange rate on the day of payment. The payments shall be made in tenge in accordance with the National Bank exchange rate on the day of payment.

The following parties agree to this joint representation of agreement:

J Michael Biddison
Regional Manager
Hagler Bailly
USAID Energy Consultant

S Mamyrbayeva
Vice-president
KazTransOil

APPENDIX T

PUBLIC HEARINGS

Purpose

Regulated natural monopolies must operate for the public good of all parties. One of the key features of insuring this public good is that all proceedings concerned with the creation of policy and with the establishment of rates are formalized in open public forums in which all involved and interested parties have the opportunity to examine the evidence and present their views.

Procedural

The basic steps are

- 1 Schedule a public hearing
- 2 Publish notice
- 3 Detail issues
- 4 Convene hearing
- 5 Chair meeting by decisionmaker
- 6 Register witnesses
- 7 Give each party adequate opportunity to provide evidence
- 8 Provide opportunity for rebuttal
- 9 Record all evidence
- 10 Provide date that opinion will be rendered
- 11 Indicate procedure for appeal
- 12 Issue formal decision of the results of the hearing with a list of actions taken and an effective date of the change

In terms of scheduling a public hearing, the key regulatory authority needs to ascertain the affected service territory of the natural monopoly's operations. If the customer base is limited and has the opportunity to convene at a central location, then only a single hearing may be required. In the case of a distribution natural monopoly territory, then hearings should be scheduled in each of its major operational territories.

Public notice needs to be performed to insure that as many affected parties as possible are aware of the proposed changes and have sufficient advanced notice to examine the issues and prepare response. Generally at least two weeks notice is considered minimum. Longer periods may be necessary if the issues are very complex. If the number of customers are limited, for example,

two hundred or less, then having the natural monopoly send a notice to each customer by letter, FAX or other individual means is appropriate. In the case of a larger regulated natural monopoly with hundreds or more individual customers, then printing at least two announcements, spaced at intervals, in newspapers of large general distribution in the areas serviced. Additionally, notice should be sent to those public agencies which might have an interest in the proceeding, for example, the Ministry of Energy, Industry and Trade, or local Anti-Monopoly Committees. The notice should list the time, location, subject matter of the hearing. It should also list the name and telephone number of a person responsible at the regulatory authority, in this case the Anti-Monopoly Committee, for providing information on the hearing. This individual will maintain a mailing list of all parties expressing interest in the hearing which may be used later to provide copies of any decisions issued. This individual will maintain a list of parties and number of individuals expected to attend the hearing.

The notice, and any subsequent information provided as the result of inquiry, should detail the issues in as concise a summary as possible. For example, if the application is for a rate increase, then the current rate and the proposed increased rate should be listed, as well as any major changes in the services being provided. If the hearing is for the purpose of adopting methodology or other policy changes, the key points should be summarized. If direct inquiries are made of the regulatory authority, the authority should be able to provide the option to make available the complete rate application, methodology, or policy change.

The hearing when convened should be held in a space sufficient to allow attendance by as many people who can be reasonably expected to attend, based upon those pre-registered and based upon expectations by the regulatory authority. The chair person or persons should have a prominent position at the front of the room to be able to be seen and heard and to be able to hear and see the participants as much as can be reasonably expected. A person should be designated as a recorder. The recorder should make notes on all statements made by any witnesses at the hearing and any statements made by the chair persons or panel. This person should keep copies of any written testimony provided by the witnesses or other parties to the hearing. The recorder person will keep these notes and copies as part of an official record which the chair or chair panel can review after the hearing and from which copies can be made in response to inquiries by the parties attending the hearing or other interested parties who could not attend the hearing. The recording person will also register all witnesses that propose to speak at the hearing. Records of hearings should be kept for at least two years to act as a reference for future decisions by the regulatory authority and for future examination by outside parties.

Some one or more than one person who is a key decision maker or makers for the regulatory authority should act as chair person (s) for the hearing. The chair should call the meeting to order at the appropriate time, announce the purpose for the hearing, and state the rules under

257

which they will conduct the hearing. Then a summary of the matters to be considered at the hearing should be made. In the case of a rate increase by the regulated natural monopoly, then the natural monopoly should have a witness explain in detail the increase and any changes in services. In the case of a policy change, such as the establishment of a new tariff methodology, then a representative of the regulatory authority or such other person as the authority designates would present the details. Which ever the situation, the chair or chair persons may ask questions of the witness for the record. When satisfied, the chair can ask if any one attending the hearing has questions of the witness. The chair then calls upon each questioner in turn and allows the questions and answers to be heard for the official record. Questions should be specifically directed to the witnesses statements and answers. Questioners from the attendance should not present evidence at that time. Following the initial witness, the chair then asks the recorder the names of other parties who wish to give evidence. The same procedure is followed as for the initial witness. This activity follows throughout the recorder's list of witnesses. At the completion of the list, the chair can ask the attendees if there are any additional witnesses who wish to speak. If any, then they are given the opportunity as above.

It should be emphasized that this is an administrative hearing and not a legal hearing, so the chair does not have to strictly adhere to the strict procedures of a formal legal hearing. The chair should maintain order in the meeting and follow common rules for managing a large meeting. This is an official function whose record will be made public and should be representative of the dignity and importance that the proceeding represents.

The chair of the meeting should conclude the meeting by summarizing the meeting, indicate when the decision on the evidence would be published, and procedure that will be followed if anyone desires to appeal the decision. A contact person should be identified with phone number and/or address from whom a copy of the decision can be obtained.

The official decision should indicate a list of the actions taken and the effective date of the implementation of the changes. If higher authority must approve the decision, then the recommendations should be identified and the date the decision was forwarded with an expectation of the date a final opinion would be issued. The recorder will use the list of attendees at the hearing to send copies of the decision, plus such other parties as the chair deems appropriate. The decision will also direct the regulated natural monopoly to notify its customers of the change, in the same manner as previously described.

Any appeals made should be based upon the matters discussed at the hearing, and any appeal hearing should be follow similar procedures as discussed above.

203

APPENDIX U

MINUTES

of the Meeting (Public Hearing) for the discussion of the pipeline tariff methodology

Astana

May 22, 1998

Present

E A Utembaev - Chairman of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan

Michael Biddison - Regional Manager for Central Asia, Hagler Bailly/USAID

Setlana Ivanova - Assistant Regional Manager for Central Asia, Hagler Bailly/USAID

Claude Eggleton - Senior Advisor for Oil and Gas, Hagler Bailly/USAID

Dobie Langenkamp - Senior Advisor for Oil and Gas, Hagler Bailly/USAID

Nurlan D Kapparov - President, KazakhOil

K R Zhumin - Department Head, New Projects Department, KazakhOil

Saule Mamyrbaeva - Vice- President, KazTransOil company

Oleg Kinasov - Vice- President, KazTransOil company

Tatiana Solomina - Chief manager for tariff regulation, KazTransOil company

Serikzhan Utegen - Department Head, KazTransOil company

Kusamov - KazakhCaspishelf representative office, Director

K Keldzhanov - Department Head, Oil and Gas Department, Ministry of Energy, Industry and Trade

Gaziza Baramysova - Division Head, Pricing Division, Ministry of Energy, Industry and Trade

Nikolai V Radostovets - Chairman, Committee for the Antimonopoly and Pricing Policy

Elena N Popandopulo - Department Head, Tariff Regulation Department, Committee for the Antimonopoly and Pricing Policy

Svetlana P Grigorieva - Deputy Department Head, Department for the Regulation of the Natural Monopolies, of the Committee for the Pricing and Antimonopoly Policy

S B Tanirbergen - Director of the Department for Strategic Planning

Birzhan B Kaneshev - Department Head, Department for the Strategy of Infrastructure Development

Secretaries

V V Shevkunova

A K Bultaeva

E Utembaev Agenda - Oil Pipeline Tariff Methodology - first, the floor will be given to Mr Michael Biddison, Regional Manager, Hagler Bailly, then, KazTransOil company representatives

Hagler Bailly

254

will show a video clip - the state of a pipeline on the Mangyshlak peninsula This will be followed by an exchange of opinions The Meeting will be concluded by the

Committee for the Pricing and Antimonopoly Policy, and the Agency for Strategic Planning and Reforms

Michael Biddison It is important to get the methodology in place and to approve it at this Public Hearing The methodology has been developed by the Steering Committee with the participation of the USAID consultants The committee included the representatives of the Government, Ministries, and representatives of the oil producing companies Beginning in 1997, monthly meetings were held to discuss the developed methodology At the end of 1997, the methodology was submitted for an approval The basic principles of the methodology are it is based on the international standards, it objectively balances all the needs of different parties, including shippers, it is transparent (the opportunity to discuss tariffs), it allows KazTransOil to recover its costs for their services and to get a return in order to attract investors

The new oil pipeline tariff methodology is based upon the principle of the objective recovery of total justified costs, including all taxes The calculation of the return is based upon the qualifying assets

The proposed methodology is based on the principle of the economic justification of the costs and the return

To be more specific, with regard to the methodology, variable tariff components are subject to negotiations Market indicators should be taken into consideration Tariffs should not consider future construction of the pipelines

Utambaev There is a belief, that your consulting firm represents only the interests of the American oil producing companies, and intentionally aims to keep the tariff rates down It seeks to maximize the return of the oil producing companies, and to cause the pipelines condition to deteriorate so that the pipeline could be transferred under a concession contract to American companies Would you comment on this?

Biddison I have been working in Kazakhstan for more than two years, and I have close contacts with the Government As for our intentions, we would like to see KazTransOil a strong self-sustainable company Interests of the local oil producers should not also be harmed We believe, that the new methodology has obvious advantages in comparison with the previous one KazTransOil shall receive a return, which will be conducive for the growth of the company's

255

capital

Our main goal is to ensure the balance of interests of all parties involved, to make a decision, which will be agreed upon by all parties. The activities, that I am pursuing here, are not a new area for me. I have worked in regulatory bodies of the USA, I was involved in the regulation of the oil and gas companies and regulation of the natural monopolies. I would like to assure you, that working in Kazakhstan, we do not have any political agenda, our activities are aimed at serving Kazakhstan in the best manner to ensure economic growth.

Utambaev: Would you be able to roughly compare current tariff rates for the oil transportation in the USA, Europe, Russia, Kazakhstan and other countries, and to evaluate to what extent the tariff rates in Kazakhstan are lower than average tariff rates worldwide?

Biddison: Unfortunately, I don't have the data with me. I will try to submit you the data for transportation of crude oil as soon as it is available.

We believe that the tariffs need to be raised, because presently KazTransOil can not cover its costs. This is one of the requirements, demonstrated in this methodology.

Utambaev: What is your opinion, do the tariff rates require a one-time increase or the rates should be increased gradually?

Biddison: Tariffs should be raised gradually, but still, all the KazTransOil's operating and maintenance costs should be covered. This will allow the company to maintain the system in the working order. Operating and maintenance costs should be discussed at hearings similar to the present one.

As for the principle of gradualism for raising tariffs, it should be applied to the two major factors: the value of assets and the rate of return.

Utambaev: You mentioned that financial auditing is not sufficient, that it is necessary to have a technical (engineering) audit.

Biddison: This specific work needs to be done for consideration of the assets re-evaluation, which is done differently for rate-making purposes than for commercial purposes.

As for the technical inspection, it should be done in any event in order to prioritize those works that need to be done for rehabilitation and maintenance works.

Utambaev: Are you familiarized with the draft law "On the Natural Monopolies", which is being discussed at the Parliament?

Biddison I have not read the latest version, but as a former commissioner of a regulatory body of the USA I would like to mention, that, at this moment in Kazakhstan, a mechanism for regulating power and oil and gas sector does not exist. Such an agency should be a legal body and it should be independent.

Watching a video clip The video was showing the bay at the Mangyshlak peninsula. Formerly it was a hollow. When the Caspian sea started to raise, that section of the pipeline found itself under the water. Water undermined the soil and the pipeline started to move. As the result, several twists of the pipeline occurred, which caused a specific emergency situation. By now KazTransOil has resolved this problem. Water will be pumped through the pipeline again. This situation occurred due to the fact, that during the last twelve years there haven't been any repairs done to maintain this section. This happened to the pipeline that pumps fresh water. In case the current situation with the collections is retained and the pipeline company revenues are kept at the same level, and in case it happens to an oil pipeline, that may lead to the economic and environmental consequences.

Mamyrbayeva The existing legislation on the issues of regulating natural monopolies does not fit the actual economic situation. When setting the tariff rates, certain costs are not being considered (VAT and inflation). There must be a definition of a so-called "excessively high return of a natural monopoly".

All of the existing factors have created a necessity to develop a new scientifically justified pipeline tariff methodology. The methodology should consider the feasibility studies for the pipelines. The assets re-evaluation should be done. This will lead to an increase of depreciation charges, but they will be realistic for maintaining the system at its current level.

The company pursues the principle of setting a transparent tariff policy. The company efforts will be aimed at cost reduction, which are a part of the tariff. This will be activated through the bidding process and tenders.

Utambaev: What is your opinion of excluding the non-used assets, in this case I mean the Eastern branch.

Mamyrbayeva Currently the tariffs are calculated per each of the divisions (branches) separately. Pavlodar-Karakom section will not be considered in calculating the rate of return.

Utambaev When should the tariff be raised, and by how much?

Mamyrbayeva We believe, that the tariffs should be raised as of July 1, and as of October 1.

Utambaev Are you sure that the tariff would remain competitive in this case?

Mamyrbaeva Yes, I am sure

Utambaev Have you evaluated (assessed) a potential cost of oil shipments by barges through the Caspian sea?

Utengen In our company, this work has just been started. In accordance with different evaluations, TransCaspian transportation of oil to Baku and to Makhachkala is roughly USD 4 to 8 per metric tonne.

Utambaev A ceiling should be set and then the prices could be decreased within the framework of the competition.

Mamyrbaeva Rates and tariffs should be flexible, taking into consideration the risk criteria. There are no reasons to set up a fixed rate of return.

Utambaev What is the attitude of the companies to the main principles of the proposed methodology?

Solomina The presented version of the methodology is the result of the joint efforts of KazTransOil and Hagler Bailly consultants. The main principles, specified by Michael Biddison, are followed in the proposed methodology and are commonly accepted in the international practice. The basic principles are the recovery of the costs, that are objectively required, for operating and obtaining of a justified rate of return on the invested capital. For pipeline companies it means the used assets. For a natural monopoly a justified rate of return allows the enterprise to get a justified return, and a regulatory body sets an economically justified criterion to regulate activities of a natural monopoly.

Zhumun It goes without saying, it is important for the oil producers that the pipeline system is technically reliable and thus, nonetheless the fact, that the introduction of the new methodology will lead to an increase of the tariffs, we consider it necessary to approve the new methodology.

Radostovets I believe, that the new oil pipeline tariff methodology should be approved.

At the same time, its implementation would require a gradual approach, and strict monitoring.

In accordance with the calculations of the Antimonopoly committee, in case of implementing the new methodology (taking into consideration the new value of assets) and in case

an export surcharge is eliminated, prices for the local customers may go up by more than two times. It is important to take measures to mitigate the impact on the users when implementing such an increase.

The main reason of the tariff increase is to rehabilitate and repair the pipeline and to maintain it in the working order. Oil producing companies are also interested in this.

As for the results of the assets re-evaluation, the analysis of the re-evaluation is necessary, and will be conducted. It should be considered, that this work has been accomplished by one of the most reputable international consulting firms.

There will be no automatic increase of prices to the level of inflation. The prices shall depend upon the changes of costs, the rate of return and the volumes of shipments. The volume increase - is the most important factor of tariff decrease.

The Law "On Natural Monopolies" has been adopted by the Parliament. It envisages openness (publicity), transparency of tariffs, availability of tender purchases. These are compulsory requirements for all the natural monopolies.

Kaneshev Deriving from the strategic plans of development and 3-year state plans, approved by the government Resolution, concrete measures have been determined with regard to KazTransOil and KazakhOil companies. Considering the forthcoming growth of production volumes, the perspective increase of the volumes of oil shipments, specific activities have been planned.

The proposed methodology is universal and complies with the strategy of the companies development.

DECISION

To approve the methodology as a whole. The approval should be performed in accordance with the current legislation.

E. Utembaev

Biddison

Kapparov

Kinasov

Kusamov

Keldzhanov

Radostovets

Kaneshev

Secretariat

V Shevkunova

I A Bultaeva

Approved by
(Signature)
S Kurmangaliev,
Deputy Chairman of
the Committee for the
Pricing and Antimonopoly
Policy, Agency for Strategic
Planning and Reforms

Oil Pipeline Tariff Methodology
for Transmission via Trunk Lines
of the Republic of Kazakhstan

Oil Pipeline Tariff Methodology approved at the Public Hearing signed by the Committee for the Antimonopoly and Pricing Policy and sent to the Ministry of Justice for the final approval/ June 1998

Oil Pipeline Tariff Methodology, approved at the Public Hearing, signed by the Committee for the Antimonopoly and Pricing Policy, and sent to the Ministry of Justice for the final approval/ June, 1998

1 Scope and Application

1.1 This Methodology contains the system of main principles, criteria and methods for calculation of tariffs for oil pipeline transportation/ pumping (loading, technological preparation and storage)

1.2 The purpose of the Methodology is to provide conditions for economically efficient operations of oil pipeline companies, including timely and proper repair and rehabilitation works to maintain the safe operation of trunk pipelines

1.3 The methodology is designed for the regulation of the tariff rates for the transportation services pumping (loading, technological treatment and storage) of oil by a transportation company -

- for the economic entities - natural monopolies of the Republic of Kazakhstan, regardless of their type of ownership

1.4 The basic principles of the methodology of calculation of prices and the tariff rates are as follows

- recovery of the objectively required costs
- rate of return on the used and useful assets of an enterprise

Oil Pipeline Tariff Methodology approved at the Public Hearing signed by the Committee for the Antimonopoly and Pricing Policy and sent to the Ministry of Justice for the final approval/ June 1998

2 Basic Terminology and Definitions

2 1 Pumping tariff (basic tariff rate) means cost of pumping of 1 tonne of oil by a fixed route

2 2 Specific pumping tariff rate means price (cost) of pumping of 1000 tonne kilometers

2 3 A tariff entity means a pipeline company or its divisions, the specific pumping tariff calculated within their boundaries

2 4 A tariff rider means an additional charge accrued to the basic pumping tariff rate to cover costs of additional services provided by the company

2 5 A specific tariff for loading/unloading of oil (a loading rider) means cost of loading of 1 tonne of oil at a certain loading point

2 6 A specific tariff for heating (a heating rider) means cost of heating of 1 tonne of oil per 1000 km to ensure its transportation

2 7 A specific tariff for storage (a storage rider) means a storage cost of 1 tonne of oil in a tank during a month

3 General Provisions

The following basic provisions consistent with laws of the Republic of Kazakhstan and applicable international standards lie in the basis of tariff calculations for transportation services

Oil Pipeline Tariff Methodology approved at the Public Hearing signed by the Committee for the Antimonopoly and Pricing Policy and sent to the Ministry of Justice for the final approval/ June 1998

3 1 Transportation tariffs shall ensure the objectively required recovery of costs of pumping operations (loading, technological treatment, storage) under standard conditions of pumping¹ and a competitive rate of return on the used assets of the pipeline company

3 2 Calculations of transportation tariffs are based on the tariff revenue (cost of service) determined according to the following formula

$$\begin{array}{l} \text{Tariff Revenue} \\ \text{(Total Cost of service)} \end{array} = \text{Total Costs} + \text{Return on Used and Useful Assets}^2$$

3 3 Total costs shall include all operation costs, depreciation, diagnosing expenses, costs of production assets repair, insurance, payments of the debt capital interest, administrative and general costs, other necessary costs, as well as payment of all taxes and customs fees and duties, envisaged by tax and customs regulations of the Republic of Kazakhstan

3 4 The profit, included into a tariff, shall ensure proper operation of a pipeline company, including accomplishment of rehabilitation technical improvement and modernization of basic production assets

3 5 Tariff revenue from operating pipelines shall not include new pipelines construction costs

3 6 Transportation tariffs shall be calculated as a basic tariff rate for transportation services and variety of riders, related to the specific costs related to additional services provided to shippers (loading, unloading, technological preparation, heating, storage, etc)

3 7 Shippers should pay only for the services they receive

¹ Note Standard conditions of pumping mean continuous intake transportation and delivery without warrants and quality monitoring during mixture pumping in compliance with shipper s guidelines regarding the change of the route in case of limited shipment (when such limitations occur due to other reasons than the pipeline company fault shippers shall compensate for the losses of transportation companies)

² Note without consideration of the assets, used for the provision of additional services

264

4 Basic Tariff Elements

4 1 Costs

4 1 1 During the formation of tariffs for pipeline services, consideration shall be given to the costs determined in accordance with Accounting Standards and other normative legal and regulatory acts on price regulation of natural monopolies, approved and registered in an orderly manner

4 1 2 Calculation of costs for each tariff division shall be based on the analysis of the previous period of business activity, and planned throughputs for the calculation period

4 1 3 For the purpose of tariff calculation, all costs shall be divided into basic costs, which are the base for the calculation of the basic transportation tariff rate and additional costs related to additional services provided to shippers (loading, unloading, technological preparation, storage, heating, etc) The costs of additional service shall not be included to the costs used for calculation of basic transportation tariff rate

4 1 4 Centralized administrative and general business costs of the whole company, including labor costs, communication, payments for consulting and bank services, loan interests, etc , shall be allocated among divisions of the company to be included into tariff in proportion to their throughput

4 1 5 Depreciation charges for the used production assets, included into the costs, shall be determined in accordance with the current Standards of Accounting of the Republic of Kazakhstan

4 2 Return

4 2 1 The amount of return within the tariff shall be limited to the fixed rate of return on the qualifying (used and useful) assets of the pipeline company and shall be determined according to the following formula

$$\text{Return} = \text{Used and Useful Assets} \times \text{Rate of Return}$$

Oil Pipeline Tariff Methodology approved at the Public Hearing signed by the Committee for the Antimonopoly and Pricing Policy and sent to the Ministry of Justice for the final approval/ June 1998

4 2 2 The rate of return shall be established by an authorized regulatory entity in the process of consideration of tariff application according to the criteria stipulated in Attachment # 1

4 2 3 Used and useful assets of the pipeline company include total rehabilitated value of the basic production assets minus accumulated depreciation plus net working capital, required for the pipeline transportation services

To calculate the return on the specific types of services (additional services), only those assets shall be considered, that are used for the provision of these specific services

4 2 4 Net working capital is determined as follows

$$\text{Net working capital} = \text{Cash} + \text{Goods and Materials} - \text{Current Liabilities}^*$$

4 2 5 Actual rate of return shall be determined according to the following formula

$$\text{Actual Rate of Return (\%)} = \frac{\text{Actual Net Income}}{\text{Depreciated Value of Assets}}$$

where

$$\text{Actual Net Income} = \text{Total Actual Tariff Revenue} - \text{Total Actual Costs,}$$

$$\text{Depreciated Value of Assets} = \text{Initial Value of Assets} - \text{Accumulated Depreciation} + \text{Net Working Capital}$$

* Specification of items for calculating the net working capital is given in Appendix 3

Oil Pipeline Tariff Methodology approved at the Public Hearing signed by the Committee for the Antimonopoly and Pricing Policy and sent to the Ministry of Justice for the final approval/ June 1998

266

5. Tariff Calculation

5.1 Calculation of the basic tariff rates for pumping oil

5.1.1 Specific tariff for oil pumping shall be calculated for each tariff entity (pipeline company division) separately per 1000 tonne kilometers in Tenge according to the following formula

$$YT_i = \frac{TA}{\tilde{A}} \cdot 1000,$$

where

TA - total tariff revenue from pumping oil through the given tariff entity, in mln Tenge,

\tilde{A} - total cumulative throughput for the given tariff entity, in mln tonne/kilometers

5.1.2 Calculation of the basic tariff rates for pumping oil through an i-section of the given tariff entity shall be done in Tenge per 1 tonne of oil in accordance with the following formula

$$T_i = \frac{YT_i \times D}{1000},$$

where

YT_i - specific tariff for pumping oil through the given tariff entity, in Tenge per 1000 tonne kilometers

D_i - length of an i- tariff section, in kilometers

Oil Pipeline Tariff Methodology approved at the Public Hearing signed by the Committee for the Antimonopoly and Pricing Policy and sent to the Ministry of Justice for the final approval/ June 1998

5 2 Calculation of Riders to the Basic Tariff Rates

5 2 1 Calculation of riders for additional services, provided by a pipeline company, shall be calculated individually for each type of service based on tariff revenue, determined according to the following formula

$$\text{Tariff Revenue from Additional Service} = \text{Total Costs of Additional Service} + \text{Return on Assets Used for the Provision of Additional Service}$$

5 2 2 Specific tariff for loading (unloading, storage, technological treatment) of oil shall be calculated and approved for each loading station (unloading station, storage and treatment

facility) in Tenge per 1 tonne of oil according to the following formula

$$YTH_i = \frac{TAH_i}{O},$$

where

TAH_i - tariff revenue for an i-loading station (unloading, storage, treatment), in thousand Tenge,

O - total volume of loading (unloading, storage, treatment) in thousand tonnes

5 2 3 Calculation of a rider for loading (unloading, storage, technological treatment) of oil for individual shippers is calculated with consideration of the location of a loading station and volume loaded according to the following formula

Oil Pipeline Tariff Methodology approved at the Public Hearing signed by the Committee for the Antimonopoly and Pricing Policy and sent to the Ministry of Justice for the final approval/ June 1998

$$HH = YTH_i \times O,$$

where

YTH_i - a specific tariff for loading service (unloading, storage, technological treatment) of 1 tonne of oil per an i-loading station (unloading station, storage facility, treatment station)

O - loaded (unloaded, stored, treated) volume of oil, in tonnes

5 2 4 A specific tariff for oil heating shall be calculated in Tenge per 1000 tonne kilometers and approved for every tariff division within its boundaries. The calculation is made according to the following formula

$$YTI_i = \frac{\dot{O}AI_i}{\bar{A}} \times 1000,$$

where

$\dot{O}AI_i$ - tariff revenue for oil heating per an i-tariff entity, in mln Tenge,

\bar{A} - total accumulated throughput of oil heated for an i-tariff entity, in mln tonne/kilometer

5 2 5 Calculation of a rider for oil heating for individual shippers per an i-tariff entity shall be calculated with consideration of the amount of shipment and length of the route according to the following formula

Oil Pipeline Tariff Methodology approved at the Public Hearing signed by the Committee for the Antimonopoly and Pricing Policy and sent to the Ministry of Justice for the final approval/ June 1998

$$\hat{\Pi} = \frac{YTI_1}{1000} \hat{\sigma} \hat{I} \hat{\sigma} A,$$

where

YTI_1 - a specific tariff for oil heating of 1000 tonne kilometer for an 1- tariff entity, in Tenge,

\hat{I} - volume of oil heated, in tonnes,

A - length of a route, in kilometers

Appendix 1

Methods of Calculating the Rate of Return

1 The pipeline rate of return on qualifying assets shall be calculated as the weighted cost of capital in accordance with the following formula

$$\text{WACC} = \frac{\text{Equity Capital}^{**} \times A\% + \text{Debt Capital}^{****} \times B\%}{\text{Equity Capital} + \text{Debt Capital}}$$

where

A - a rate of return on the Equity capital of the company,

B - an interest rate for Debt capital

2 The return on equity portion should consist of the sum of the following elements

2 1 The current US Treasury 30 Year interest rate,

** The amount of the equity capital shall be determined by the amount in the company accounting records, in the Section - "Equity capital"

* In case the pipeline company is using several loans, the calculations shall be made similarly for all the loans with the respective interest rates

2 2 Industry risk for a pipeline company in Kazakhstan, which shall be based on the evaluation of uncertainty of the repayment of investments in comparison with the other more stable industry sectors in Kazakhstan

2 3 The structural risk for a pipeline in Kazakhstan, which is based upon the uncertainties of a corporate financial structure of this sector of industry, related to the possible restructuring of the pipeline company, non-payments problems, liquidation of certain transportation routes, ability of the pipeline company to effectively manage its operations

2 4 Country risk for Kazakhstan which includes variables that affect the ability of the pipeline to repay investment and to ensure the return on these investments due to potential problems arising from political, economic, legal, and administrative problems

2 5 A Tenge devaluation coefficient for the current year

Appendix 2

Specification of the net working capital components

1 Cash

- 1 1 Short term financial investments
- 1 2 Money transmittal (due)
- 1 3 Cash at the special bank accounts
- 1 4 Cash in the Letters of Credit
- 1 5 Cash at a hard currency account
- 1 6 Cash in the company's cashier's office

2 Goods and other material supplies

- 2 1 Materials
- 2 2 Uncompleted production
- 2 3 Goods

3 Current Liabilities

- 3 1 Short term loans
- 3 2 Taxes due
- 3 3 Accrued costs
- 3 4 Trade liabilities (other creditor's debts)

213

APPENDIX W

Committee of the Republic of Kazakhstan
for Regulation of Natural Monopolies and
Protection of Competition

473000, Astana
Abai street, 92
Telephone 33 42 50, Fax 33 45 60

To Mr Michael Biddison
Regional Manager
for Central Asia and Kazakhstan
Hagler Bailly Consulting, Inc

No 14-02/732

July 8, 1998

Dear Mr Biddison!

We inform you that the new oil pipeline tariff methodology, developed with the active participation of Hagler Bailly consultants, has been implemented by the present time

In this connection we would like to ask you to assist the Committee by means of providing a training program at one of the large U S oil pipeline companies in order to learn about the practical implementation of the above mentioned methodology

We would like you to assist us within the framework of technical assistance, provided by the U S Agency for International Development

Thank you for your assistance

N Radostovets
Chairman