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Technical and Management Advisers to the Petroleum Industry Internationally Since 1962

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5th February, 2008

The Directors
JSC KazMunaiGas Exploration Production
20/1 Kabanbay Batyr Avenue,
Astana 010000
Republic of Kazakhstan

Dear Sirs,

AN ASSESSMENT OF RESERVES AS AT 31st DECEMBER, 2007

INTRODUCTION

Gaffney, Cline & Associates (GCA) has been requested by Joint Stock Company KazMunaiGas Exploration Production (KMG EP), to provide an update, as at 31st December, 2007, to GCA's 31st December, 2006 independent Reserves certification for certain oilfields operated by the production affiliates EmbaMunaiGas (EMG) and OzenMunaiGas (OMG). This letter summarises the main results and conclusions as presented in the full report entitled "An Assessment of Reserves and Resources as at 31st December, 2007" dated January, 2008.

The locations of the main fields are shown in the regional map in Figure 1. The OMG and EMG fields are located in five separate production units, or NGDUs, and under five different contracts. During 2007 the two NGDUs, ProrvaMunaiGas and KulsaryMunaiGas, were combined to form a single NGDU, ZhylyoiMunaiGas; also NGDU's DossorMunaiGas and MakatMunaiGas were merged to form a single NGDU, DossorMunaiGas, as part of an ongoing restructuring programme within KMG EP. For the purposes of this study the Reserves are presented on the basis of the revised grouping. The EMG fields are shown grouped by NGDU in Figure 2. Uaz and Kondybai are located in the Taisogan exploration licence area and for the purposes of this report are included as part of KainarMunaiGas.





GCA has not been requested to perform a site visit, nor has GCA considered this necessary for the purposes of the Reserves evaluation and assessment of NPVs.

KMG EP has made available to GCA a comprehensive data set of technical and commercial information related to field production, operations, well performance and results of new wells and workovers, together with 2008 Budget, 2009 to 2012 Business Plan, oil transportation costs and other financial data pertaining to the fiscal terms applicable to the licences and contracts. In carrying out this review GCA has relied on this information and accepted the representations made by KMG EP.


Production and Reserves are stated in this report principally in tonnes. For comparison with previous submissions, and to be consistent with generally accepted industry standards, the barrel equivalent Reserves are also stated, using the oil density for each field as a basis for conversion.

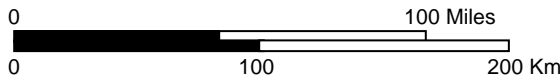


LEGEND

-  Oil Field
-  Gas Field
-  Oil Pipeline
-  Gas Pipeline

**KazMunaiGas
Location Map**

Proj. E1816 Feb 08 Checked  Fig. 1



LEGEND

- Oil Field
- Oil Pipeline
- Gas Pipeline
- - - - Oil Route by Truck

NGDU's

- ZhaikMunaiGas
 - DossorMunaiGas
 - MakatMunaiGas
 - KainarMunaiGas
 - KulsaryMunaiGas
 - ProrvaMunaiGas
- } DossorMunaiGas
- } ZhylyoiMunaiGas

**EmbaMunaiGas NGDU
Fields and Pipeline Infrastructure**

Proj. E1816	Feb 08	Checked	Fig. 2
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A Glossary of abbreviations, some or all of which may be used in this report, is attached as Appendix I. Reserves and Resources have been estimated in accordance with the 2007 Petroleum Resources Management System Definitions and Guidelines (PRMS) of the Society of Petroleum Engineers, World Petroleum Council, American Association of Petroleum Geologists and Society of Petroleum Evaluation Engineers), attached herein as Appendix II.

GCA is an independent energy consultancy specialising in petroleum reservoir evaluation and economic analysis. In the preparation of this report, GCA has maintained, and continues to maintain, a strict consultant-client relationship with KMG EP. The partners and directors of GCA have been, and continue to be, independent of KMG EP in the services they provide to the company, including the provision of the opinions expressed in this report. Furthermore, the partners and directors of GCA have no interest in any assets or share capital of KMG EP or in the promotion of the company.

SUMMARY AND CONCLUSIONS

The Proved, Proved plus Probable and Proved plus Probable plus Possible Reserves of KMG EP estimated by GCA as of 31st December, 2007, together with production and Reserves adjustments since the 31st December, 2006 assessment, are summarised in the following table and presented by field in Tables 1 to 3. The barrel equivalent Reserves are summarised by field in Table 4.

	Proved Mtonnes	Proved plus Probable Mtonnes	Proved plus Probable plus Possible Mtonnes
Total KMG EP	102,113	239,952	282,517

There has been a net increase in Proved Reserves of 8,977 Mtonnes (Adjustment of 18,507 Mtonnes less 2007 production of 9,530 Mtonnes) and a net increase in Proved plus Probable Reserves of 36,784 Mtonnes (Adjustment of 46,314 Mtonnes less 2007 production of 9,530 Mtonnes).

The oil production forecasts corresponding to the Proved and Proved plus Probable Reserves estimates given above are presented in Table 5.

KMG EP continues to achieve planned production levels and to implement Business Plan and Budget targets. This sustained and consistent performance gives added confidence to GCA that future targets should be achievable at a Proved plus Probable level.

Reserves estimates are mostly performance based. The availability of updated development plans on Uzen and Karamandybas, together with other studies and updated Business Plan, have supported the performance based Reserves and enabled material increases to be made.

**TABLE 1
SUMMARY OF PROVED RESERVES
AS AT 31ST DECEMBER, 2007**

NGDU Field	Total Proved Reserves at 31 st December, 2006 Mtonnes	Production Mtonnes	Adjustments Mtonnes	Total Proved Reserves at 31 st December, 2007 Mtonnes	Proved Undeveloped Mtonnes
OzenMunaiGas					
Uzen	66,540	6,324	14,581	74,798	5,741
Karamandybas	4,361	400	658	4,618	808
NGDU ZhaikMunaiGas					
Kamyshitovoye SW	2,207	236	108	2,079	129
Zaburunye	1,562	202	141	1,501	114
Zhanatalap	1,641	169	72	1,544	172
Kamyshitovoye SE	1,139	143	190	1,186	30
Balgimbayev	766	99	191	858	35
Gran	658	68	23	613	157
Novobotinskoye	54	6	23	72	33
Rovnoye	83	10	11	84	24
NGDU ZhilyoiMunaiGas					
Nurzhanov	3,830	386	432	3,876	193
Prorva West	667	78	102	691	128
Dosmukhambetskoye	579	59	116	636	132
Aktyube	230	25	54	260	77
Teren Uzyuk	808	81	81	808	0
Akingen'	488	74	79	493	0
Kisimbai	529	40	-179	311	0
Kulsary	55	8	5	52	0
Koshagyl	46	4	-3	39	0
Tyulyus	28	3	-2	23	0
Karaton Koshkimbet	62	7	5	59	0
Akkuduk	188	28	33	193	33
NGDU KainarMunaiGas					
Moldabek East	2,239	428	886	2,698	690
Zholamanov	473	62	48	459	0
North Kotyrtas	97	18	8	87	0
Uaz/Kondybai	0	13	86	73	0
NGDU DossorMunaiGas					
Botakhan	1,234	227	506	1,514	49
Karsak	438	44	0	394	0
Altykul	127	17	39	149	0
Baichunas	63	9	11	65	0
Bek Bike	22	3	1	20	0
Dossor	10	1	-1	7	0
Iskine	1	0	0	1	0
Komsomolskoye	8	1	0	8	0
Koshkar	40	5	3	38	0
Tanatar	27	4	8	31	0
Makat East	1,622	220	128	1,531	0
Makat	22	2	0	20	0
Zholdybai North	191	27	60	223	11
TOTAL	93,136	9,530	18,507	102,113	8,554

Numbers may not add up due to rounding

Nurzhanov, Prorva West, Dosmukhambetskoye, and Aktyube formerly NGDU ProrvaMunaiGas

Teren Uzyuk, Akingen', Kisimbai, Kulsary, Koshagyl, Tyulyus, Karaton Koshkimbet and Akkuduk formerly KulsaryMunaiGas

Makat East, Makat and Zholdybai North formerly MakatMunaiGas

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TABLE 2
SUMMARY OF PROVED PLUS PROBABLE RESERVES
AS AT 31ST DECEMBER, 2007

NGDU Field	Reserves at 31 ST December, 2006 Mtonnes	Production Mtonnes	Adjustments Mtonnes	Reserves at 31 ST December, 2007 Mtonnes
OzenMunaiGas				
Uzen	142,928	6,324	40,533	177,137
Karamandybas	8,531	400	2,716	10,847
NGDU ZhaikMunaiGas				
Kamyshtovoye SW	6,090	236	170	6,023
Zaburunye	3,629	202	243	3,671
Zhanatalap	4,520	169	114	4,465
Kamyshtovoye SE	2,961	143	527	3,345
Balgimbayev	1,440	99	1,010	2,350
Gran	1,521	68	189	1,642
Novobotinskoye	113	6	77	184
Rovnoye	168	10	-10	148
NGDU ZhylyoiMunaiGas				
Nurzhanov	9,216	386	335	9,165
Prorva West	1,139	78	192	1,252
Dosmukhambetskoye	1,079	59	340	1,360
Aktyube	423	25	21	420
Teren Uzyuk	1,585	81	-438	1,066
Akingen'	773	74	-10	690
Kisimbai	1,117	40	-654	423
Kulsary	119	8	-42	69
Koshagyl	109	4	-48	56
Tyulyus	63	3	-29	31
Karaton Koshkimbet	112	7	-22	82
Akkuduk	273	28	13	258
NGDU KainarMunaiGas				
Moldabek East	5,633	428	-19	5,186
Zholamanov	850	62	30	818
North Kotyrtas	112	18	24	118
Uaz/Kondybai	59	13	339	385
NGDU DossorMunaiGas				
Botakhan	2,726	227	785	3,284
Karsak	1,148	44	-253	851
Altykul	246	17	84	313
Baichunas	116	9	10	118
Bek Bike	50	3	-9	39
Dossor	22	1	-8	13
Iskine	2	0	0	2
Komsomolskoye	18	1	-2	16
Koshkar	89	5	-14	70
Tanatar	50	4	13	59
Makat East	3,764	220	-54	3,491
Makat	55	2	-5	47
Zholdybai North	318	27	165	456
TOTAL	203,168	9,530	46,314	239,952

Numbers may not add up due to rounding

Nurzhanov, Prorva West, Dosmukhambetskoye, and Aktyube formerly NGDU ProrvaMunaiGas

Teren Uzyuk, Akingen', Kisimbai, Kulsary, Koshagyl, Tyulyus, Karaton Koshkimbet and Akkuduk formerly KulsaryMunaiGas

Makat East, Makat and Zholdybai North formerly MakatMunaiGas

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**TABLE 3
SUMMARY OF PROVED PLUS PROBABLE PLUS POSSIBLE RESERVES
AS AT 31ST DECEMBER, 2007**

NGDU Field	Reserves at 31 ST December, 2006 Mtonnes	Production Mtonnes	Adjustments Mtonnes	Reserves at 31 ST December, 2007 Mtonnes
OzenMunaiGas				
Uzen	208,968	6,324	-115	202,530
Karamandybas	10,479	400	2,465	12,544
NGDU ZhaikMunaiGas				
Kamyshitovoye SW	7,031	236	484	7,279
Zaburunye	4,556	202	175	4,530
Zhanatalap	5,167	169	166	5,164
Kamyshitovoye SE	4,023	143	75	3,955
Balgimbayev	2,005	99	885	2,791
Gran	1,705	68	400	2,037
Novobotinskoye	167	6	100	261
Rovnoye	197	10	15	202
NGDU ZhylyoiMunaiGas				
Nurzhanov	11,086	386	-9	10,691
Prorva West	1,555	78	123	1,599
Dosmukhambetskoye	1,550	59	192	1,683
Aktyube	550	25	6	531
Teren Uzyuk	2,144	81	252	2,316
Akingen'	1,149	74	73	1,148
Kisimbai	2,052	40	-1,272	741
Kulsary	152	8	-42	102
Koshagyl	126	4	-19	103
Tyulyus	77	3	-25	50
Karaton Koshkimbet	137	7	7	137
Akkuduk	340	28	58	371
NGDU KainarMunaiGas				
Moldabek East	10,630	428	-2,003	8,200
Zholamanov	968	62	304	1,210
North Kotyrtas	147	18	30	159
Uaz/Kondybai	602	13	50	639
NGDU DossorMunaiGas				
Botakhan	3,161	227	1,432	4,366
Karsak	1,368	44	-184	1,140
Altykul	291	17	144	417
Baichunas	139	9	23	153
Bek Bike	56	3	-3	51
Dossor	24	1	-7	17
Iskine	3	0	0	3
Komsomolskoye	21	1	1	21
Koshkar	102	5	-5	91
Tanatar	61	4	21	78
Makat East	4,759	220	42	4,581
Makat	60	2	0	58
Zholdybai North	387	27	209	570
TOTAL	287,996	9,530	4,051	282,517

Numbers may not add up due to rounding

Nurzhanov, Prorva West, Dosmukhambetskoye, and Aktyube formerly NGDU ProrvaMunaiGas

Teren Uzyuk, Akingen', Kisimbai, Kulsary, Koshagyl, Tyulyus, Karaton Koshkimbet and Akkuduk formerly KulsaryMunaiGas

Makat East, Makat and Zholdybai North formerly MakatMunaiGas

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TABLE 4
SUMMARY OF RESERVES REPORTED IN BARRELS
AS AT 31ST DECEMBER, 2007

NGDU Field	Proved MBbls	Proved plus Probable MBbls	Proved plus Probable plus Possible MBbls
OzenMunaiGas			
Uzen	552,836	1,309,234	1,496,914
Karamandybas	34,132	80,172	92,711
NGDU ZhaikMunaiGas			
Kamyshitovoye SW	15,643	45,318	54,763
Zaburunye	10,574	25,858	31,907
Zhanatalap	11,204	32,393	37,462
Kamyshitovoye SE	8,528	24,046	28,431
Balgimbayev	6,039	16,536	19,636
Gran	4,773	12,779	15,853
Novobotinskoye	563	1,447	2,053
Rovnoye	596	1,057	1,442
NGDU ZhylyoiMunaiGas			
Nurzhanov	27,865	65,880	76,850
Prorva West	4,940	8,951	11,430
Dosmukhambetskoye	4,701	10,055	12,438
Aktyube	1,935	3,123	3,953
Teren Uzyuk	5,536	7,305	15,867
Akingen'	3,559	4,974	8,282
Kisimbai	2,236	3,043	5,330
Kulsary	367	489	720
Koshagyl	282	403	737
Tyulyus	174	238	380
Karaton Koshkimbet	423	587	974
Akkuduk	1,470	1,964	2,822
NGDU KainarMunaiGas			
Moldabek East	19,154	36,819	58,214
Zholamanov	3,324	5,925	8,766
North Kotyrtas	655	892	1,197
Uaz/Kondybai	528	2,786	4,622
NGDU DossorMunaiGas			
Botakhan	11,334	24,590	32,691
Karsak	2,697	5,825	7,803
Altykul	1,042	2,192	2,924
Baichunas	472	857	1,117
Bek Bike	144	275	361
Dossor	52	93	121
Iskine	11	18	23
Komsomolskoye	54	112	147
Koshkar	272	506	661
Tanatar	223	425	559
Makat East	11,545	26,327	34,551
Makat	142	337	415
Zholdybai North	1,587	3,243	4,052
TOTAL	751,611	1,767,073	2,079,179

Numbers may not add up due to rounding

Nurzhanov, Prorva West, Dosmukhambetskoye, and Aktyube formerly NGDU ProrvaMunaiGas

Teren Uzyuk, Akingen', Kisimbai, Kulsary, Koshagyl, Tyulyus, Karaton Koshkimbet and Akkuduk formerly KulsaryMunaiGas

Makat East, Makat and Zholdybai North formerly MakatMunaiGas

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**TABLE 5
OIL PRODUCTION FORECAST TO 2046**

	Oil Production Rate, tonnes/day	
	Proved	Proved plus Probable
2008	25,967	26,056
2009	25,458	25,911
2010	25,007	25,755
2011	24,470	25,593
2012	23,948	25,297
2013	23,229	24,932
2014	22,132	24,536
2015	21,089	24,217
2016	20,082	23,949
2017	19,101	23,701
2018	17,207	23,436
2019	14,486	22,825
2020	12,717	22,035
2021	4,869	21,298
2022	-	20,604
2023	-	19,771
2024	-	18,822
2025	-	17,948
2026	-	16,914
2027	-	16,177
2028	-	15,494
2029	-	14,858
2030	-	13,880
2031	-	13,344
2032	-	12,843
2033	-	12,374
2034	-	11,935
2035	-	11,522
2036	-	10,892
2037	-	10,525
2038	-	10,181
2039	-	9,858
2040	-	9,386
2041	-	9,105
2042	-	8,840
2043	-	8,591
2044	-	8,358
2045	-	8,136
2046	-	7,505
Total Mtonnes	102,113	239,952

Notes:

1. Proved Reserves are curtailed by Contract Expiry.
2. Numbers may not add up due to rounding.

Checked:



Approved:



DISCUSSION

Most of the OMG and EMG fields are in a mature stage of development and both the Proved and Proved plus Probable Reserves can be derived based on performance history with a reasonable degree of confidence. As in previous evaluations, GCA has generally based its Reserves assessment on an analysis of the fractional oil trends, as well as the field and individual well decline performance. GCA has also included the benefits from new wells and special treatments in both estimating Reserves and production levels. Provision is made for the future Budget and Business Plan drilling and special treatments programme for the period 2008 to 2012. In the Proved plus Probable scenario, GCA has also taken into consideration development plans beyond 2012 where they have been approved. Estimated Reserves are checked against oil in place (STOIIP) estimates, where available, to ensure that ultimate recovery factors are reasonable and within accepted ranges.

For both Uzen and Karamandybas, updated field development studies were provided by KMG EP which enabled GCA to modify its own assumptions regarding future drilling, recovery factors and production profiles. The improved performance of many of the fields has also justified amending the decline rates, which for some of the smaller fields, has resulted in large percentage swings in Reserves.

The remaining oil is recovered within the term of the licence in the Proved scenario. In the Proved plus Probable scenario, the production has been taken out to 2046 on the assumption that the contracts will be extended. The Proved and Proved plus Probable forecasts of oil production for the aggregate OMG and EMG fields are summarised in Table 5.

Historical oil production and the long term production forecasts for the Proved and Proved plus Probable Reserves are plotted for the aggregate OMG and EMG fields in Figure 3. The historical and forecast production for OMG are plotted in Figure 4.

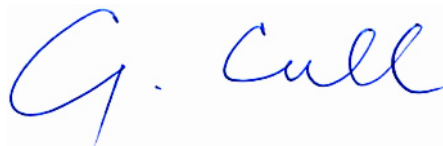
BASIS OF OPINION

This assessment has been conducted within the context of GCA's understanding of the effects of petroleum legislation, taxation, and other regulations that currently apply to these properties. However, GCA is not in a position to attest to property title, financial interest relationships or encumbrances thereon for any part of the appraised properties.

It should be understood that any determination of Reserve volumes, particularly involving petroleum developments, may be subject to significant variations over short periods of time as new information becomes available and perceptions change.

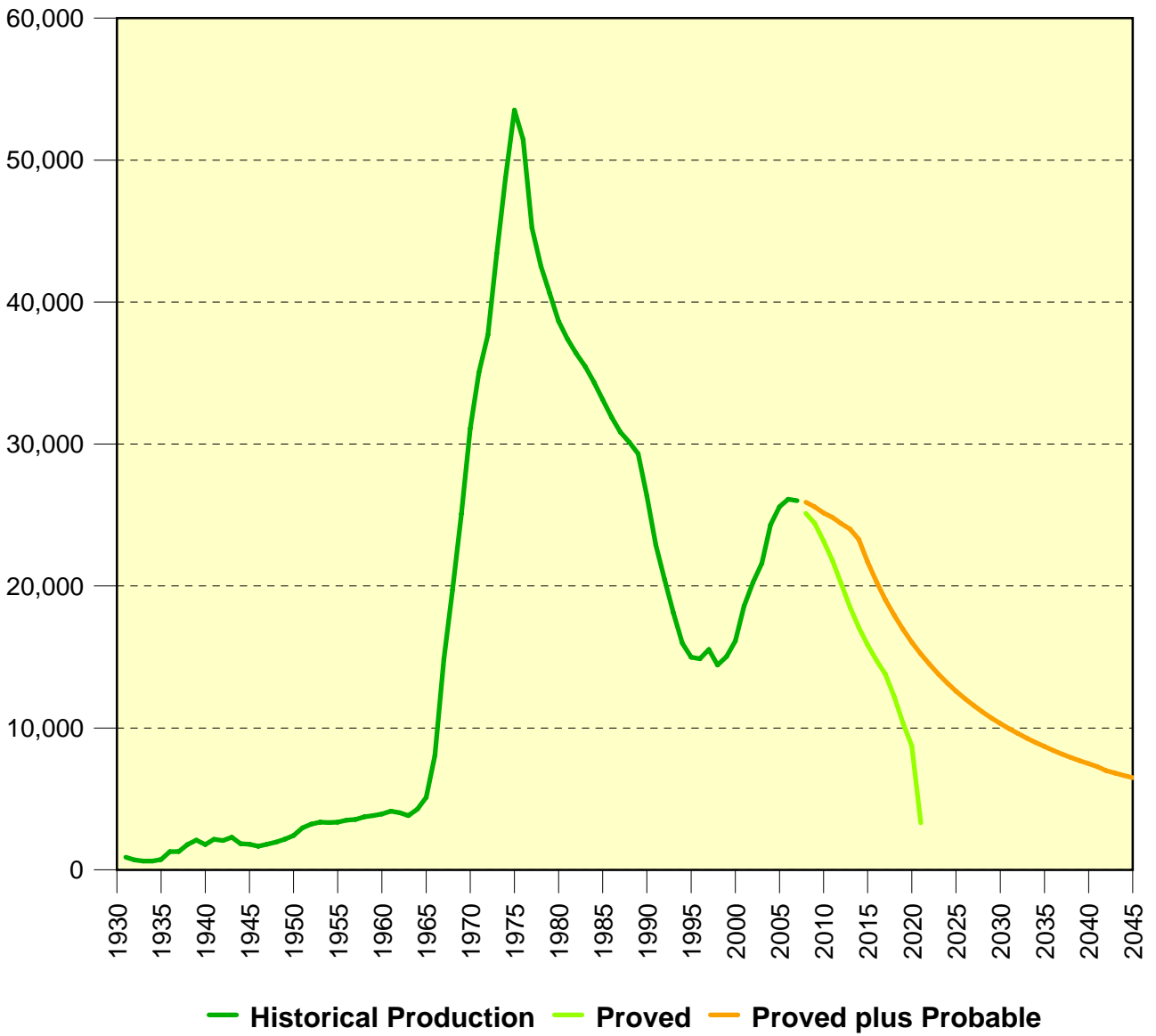
Yours faithfully

GAFFNEY, CLINE & ASSOCIATES



Geoff Cull
Regional Chief Executive Officer


Oil Production, Tonnes/day



KazMunaiGas Historical and Forecast Oil Production			
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Oil Production, Tonnes/day



OzenMunaiGas Historical and Forecast Oil Production			
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APPENDIX I

Glossary

GLOSSARY

List of key abbreviations used in this report.

%	Percentage
Bbl	Barrels
CAPEX	Capital Expenditure
CT	Corporation Tax
E&A	Exploration & Appraisal
EMG	EmbaMunaiGas
EPT	Excess Profits Tax
G&A	General and Administrative costs
GOR	Gas Oil Ratio
IRR	Internal Rate of Return
km	Kilometers
km ²	Square kilometers
KzTg	Kazakh Tenge
m	Metres
m ³	Cubic metres
m ³ /day	Cubic metres per day
MKzTg	Thousand Kazakh Tenge
Mm ³	Thousand Cubic metres
Mm ³ /day	Thousand Cubic metres per day
MMm ³	Million Cubic metres
M	Thousand
MM	Million
Mtonne	Thousand tonnes
MMtonne	Million tonnes
NGL	Natural Gas Liquids
NPV	Net Present Value
OMG	OzenMunaiGas
OPEX	Operating Expenditure
p.a.	Per annum
PVT	Pressure volume temperature
STOIIP	Stock tank oil initially in place
t/day	Tonnes per Day
U.S.\$	United States Dollar

APPENDIX II

**Petroleum Resources Management System
Definitions and Guidelines**

Society of Petroleum Engineers, World Petroleum Council, American Association of Petroleum Geologists and Society of Petroleum Evaluation Engineers

Petroleum Resources Management System

Definitions and Guidelines (¹)

March 2007

Preamble

Petroleum resources are the estimated quantities of hydrocarbons naturally occurring on or within the Earth's crust. Resource assessments estimate total quantities in known and yet-to-be-discovered accumulations; resources evaluations are focused on those quantities that can potentially be recovered and marketed by commercial projects. A petroleum resources management system provides a consistent approach to estimating petroleum quantities, evaluating development projects, and presenting results within a comprehensive classification framework.

International efforts to standardize the definition of petroleum resources and how they are estimated began in the 1930s. Early guidance focused on Proved Reserves. Building on work initiated by the Society of Petroleum Evaluation Engineers (SPEE), SPE published definitions for all Reserves categories in 1987. In the same year, the World Petroleum Council (WPC, then known as the World Petroleum Congress), working independently, published Reserves definitions that were strikingly similar. In 1997, the two organizations jointly released a single set of definitions for Reserves that could be used worldwide. In 2000, the American Association of Petroleum Geologists (AAPG), SPE and WPC jointly developed a classification system for all petroleum resources. This was followed by additional supporting documents: supplemental application evaluation guidelines (2001) and a glossary of terms utilized in Resources definitions (2005). SPE also published standards for estimating and auditing reserves information (revised 2007).

These definitions and the related classification system are now in common use internationally within the petroleum industry. They provide a measure of comparability and reduce the subjective nature of resources estimation. However, the technologies employed in petroleum exploration, development, production and processing continue to evolve and improve. The SPE Oil and Gas Reserves Committee works closely with other organizations to maintain the definitions and issues periodic revisions to keep current with evolving technologies and changing commercial opportunities.

The SPE PRMS document consolidates, builds on, and replaces guidance previously contained in the 1997 Petroleum Reserves Definitions, the 2000 Petroleum Resources Classification and Definitions publications, and the 2001 "Guidelines for the Evaluation of Petroleum Reserves and Resources"; the latter document remains a valuable source of more detailed background information.,

These definitions and guidelines are designed to provide a common reference for the international petroleum industry, including national reporting and regulatory disclosure agencies, and to support petroleum project and portfolio management requirements. They are intended to improve clarity in global communications regarding petroleum resources. It is expected that SPE PRMS will be supplemented with industry education programs and application guides addressing their implementation in a wide spectrum of technical and/or commercial settings.

It is understood that these definitions and guidelines allow flexibility for users and agencies to tailor application for their particular needs; however, any modifications to the guidance contained herein should be clearly identified. The definitions and guidelines contained in this document must not be construed as modifying the interpretation or application of any existing regulatory reporting requirements.

The full text of the SPE PRMS Definitions and Guidelines can be viewed at:
www.spe.org/specma/binary/files/6859916Petroleum_Resources_Management_System_2007.pdf

¹ These Definitions and Guidelines are extracted from the Society of Petroleum Engineers / World Petroleum Council / American Association of Petroleum Geologists / Society of Petroleum Evaluation Engineers (SPE/WPC/AAPG/SPEE) Petroleum Resources Management System document ("SPE PRMS"), approved in March 2007.

RESERVES

Reserves are those quantities of petroleum anticipated to be commercially recoverable by application of development projects to known accumulations from a given date forward under defined conditions.

Reserves must satisfy four criteria: they must be discovered, recoverable, commercial, and remaining based on the development project(s) applied. Reserves are further subdivided in accordance with the level of certainty associated with the estimates and may be sub-classified based on project maturity and/or characterized by their development and production status. To be included in the Reserves class, a project must be sufficiently defined to establish its commercial viability. There must be a reasonable expectation that all required internal and external approvals will be forthcoming, and there is evidence of firm intention to proceed with development within a reasonable time frame. A reasonable time frame for the initiation of development depends on the specific circumstances and varies according to the scope of the project. While 5 years is recommended as a benchmark, a longer time frame could be applied where, for example, development of economic projects are deferred at the option of the producer for, among other things, market-related reasons, or to meet contractual or strategic objectives. In all cases, the justification for classification as Reserves should be clearly documented. To be included in the Reserves class, there must be a high confidence in the commercial producibility of the reservoir as supported by actual production or formation tests. In certain cases, Reserves may be assigned on the basis of well logs and/or core analysis that indicate that the subject reservoir is hydrocarbon-bearing and is analogous to reservoirs in the same area that are producing or have demonstrated the ability to produce on formation tests.

On Production

The development project is currently producing and selling petroleum to market.

The key criterion is that the project is receiving income from sales, rather than the approved development project necessarily being complete. This is the point at which the project “chance of commerciality” can be said to be 100%. The project “decision gate” is the decision to initiate commercial production from the project.

Approved for Development

A discovered accumulation where project activities are ongoing to justify commercial development in the foreseeable future.

At this point, it must be certain that the development project is going ahead. The project must not be subject to any contingencies such as outstanding regulatory approvals or sales contracts. Forecast capital expenditures should be included in the reporting entity’s current or following year’s approved budget. The project “decision gate” is the decision to start investing capital in the construction of production facilities and/or drilling development wells.

Justified for Development

Implementation of the development project is justified on the basis of reasonable forecast commercial conditions at the time of reporting, and there are reasonable expectations that all necessary approvals/contracts will be obtained.

In order to move to this level of project maturity, and hence have reserves associated with it, the development project must be commercially viable at the time of reporting, based on the reporting entity’s assumptions of future prices, costs, etc. (“forecast case”) and the specific circumstances of the project. Evidence of a firm intention to proceed with development within a reasonable time frame will be sufficient to demonstrate commerciality. There should be a development plan in sufficient detail to support the assessment of commerciality and a reasonable expectation that any regulatory approvals or sales contracts required prior to project implementation will be forthcoming. Other than such approvals/contracts, there should be no known contingencies that could preclude the development from proceeding within a reasonable timeframe (see Reserves class). The project “decision gate” is the decision by the reporting entity and its partners, if any, that the project has reached a level of technical and commercial maturity sufficient to justify proceeding with development at that point in time.

Proved Reserves

Proved Reserves are those quantities of petroleum, which by analysis of geoscience and engineering data, can be estimated with reasonable certainty to be commercially recoverable, from a given date forward, from known reservoirs and under defined economic conditions, operating methods, and government regulations.

If deterministic methods are used, the term reasonable certainty is intended to express a high degree of confidence that the quantities will be recovered. If probabilistic methods are used, there should be at least a 90% probability that the quantities actually recovered will equal or exceed the estimate. The area of the reservoir considered as Proved includes:

- (1) the area delineated by drilling and defined by fluid contacts, if any, and
- (2) adjacent undrilled portions of the reservoir that can reasonably be judged as continuous with it and commercially productive on the basis of available geoscience and engineering data.

In the absence of data on fluid contacts, Proved quantities in a reservoir are limited by the lowest known hydrocarbon (LKH) as seen in a well penetration unless otherwise indicated by definitive geoscience, engineering, or performance data. Such definitive information may include pressure gradient analysis and seismic indicators. Seismic data alone may not be sufficient to define fluid contacts for Proved reserves (see "2001 Supplemental Guidelines," Chapter 8). Reserves in undeveloped locations may be classified as Proved provided that the locations are in undrilled areas of the reservoir that can be judged with reasonable certainty to be commercially productive. Interpretations of available geoscience and engineering data indicate with reasonable certainty that the objective formation is laterally continuous with drilled Proved locations. For Proved Reserves, the recovery efficiency applied to these reservoirs should be defined based on a range of possibilities supported by analogs and sound engineering judgment considering the characteristics of the Proved area and the applied development program.

Probable Reserves

Probable Reserves are those additional Reserves which analysis of geoscience and engineering data indicate are less likely to be recovered than Proved Reserves but more certain to be recovered than Possible Reserves.

It is equally likely that actual remaining quantities recovered will be greater than or less than the sum of the estimated Proved plus Probable Reserves (2P). In this context, when probabilistic methods are used, there should be at least a 50% probability that the actual quantities recovered will equal or exceed the 2P estimate. Probable Reserves may be assigned to areas of a reservoir adjacent to Proved where data control or interpretations of available data are less certain. The interpreted reservoir continuity may not meet the reasonable certainty criteria. Probable estimates also include incremental recoveries associated with project recovery efficiencies beyond that assumed for Proved.

Possible Reserves

Possible Reserves are those additional reserves which analysis of geoscience and engineering data indicate are less likely to be recoverable than Probable Reserves

The total quantities ultimately recovered from the project have a low probability to exceed the sum of Proved plus Probable plus Possible (3P), which is equivalent to the high estimate scenario. When probabilistic methods are used, there should be at least a 10% probability that the actual quantities recovered will equal or exceed the 3P estimate. Possible Reserves may be assigned to areas of a reservoir adjacent to Probable where data control and interpretations of available data are progressively less certain. Frequently, this may be in areas where geoscience and engineering data are unable to clearly define the area and vertical reservoir limits of commercial production from the reservoir by a defined project. Possible estimates also include incremental quantities associated with project recovery efficiencies beyond that assumed for Probable.

Probable and Possible Reserves

(See above for separate criteria for Probable Reserves and Possible Reserves.)

The 2P and 3P estimates may be based on reasonable alternative technical and commercial interpretations within the reservoir and/or subject project that are clearly documented, including comparisons to results in successful similar projects. In conventional accumulations, Probable and/or Possible Reserves may be assigned where geoscience and engineering data identify directly adjacent portions of a reservoir within the same accumulation that may be separated from Proved areas by minor faulting or other geological discontinuities and have not been penetrated by a wellbore but are interpreted to be in communication with the known (Proved) reservoir. Probable

or Possible Reserves may be assigned to areas that are structurally higher than the Proved area. Possible (and in some cases, Probable) Reserves may be assigned to areas that are structurally lower than the adjacent Proved or 2P area. Caution should be exercised in assigning Reserves to adjacent reservoirs isolated by major, potentially sealing, faults until this reservoir is penetrated and evaluated as commercially productive. Justification for assigning Reserves in such cases should be clearly documented. Reserves should not be assigned to areas that are clearly separated from a known accumulation by non-productive reservoir (i.e., absence of reservoir, structurally low reservoir, or negative test results); such areas may contain Prospective Resources. In conventional accumulations, where drilling has defined a highest known oil (HKO) elevation and there exists the potential for an associated gas cap, Proved oil Reserves should only be assigned in the structurally higher portions of the reservoir if there is reasonable certainty that such portions are initially above bubble point pressure based on documented engineering analyses. Reservoir portions that do not meet this certainty may be assigned as Probable and Possible oil and/or gas based on reservoir fluid properties and pressure gradient interpretations.

Developed Reserves

Developed Reserves are expected quantities to be recovered from existing wells and facilities.

Reserves are considered developed only after the necessary equipment has been installed, or when the costs to do so are relatively minor compared to the cost of a well. Where required facilities become unavailable, it may be necessary to reclassify Developed Reserves as Undeveloped. Developed Reserves may be further sub-classified as Producing or Non-Producing.

Developed Producing Reserves

Developed Producing Reserves are expected to be recovered from completion intervals that are open and producing at the time of the estimate.

Improved recovery reserves are considered producing only after the improved recovery project is in operation.

Developed Non-Producing Reserves

Developed Non-Producing Reserves include shut-in and behind-pipe Reserves

Shut-in Reserves are expected to be recovered from:

- (1) completion intervals which are open at the time of the estimate but which have not yet started producing,
- (2) wells which were shut-in for market conditions or pipeline connections, or
- (3) wells not capable of production for mechanical reasons.

Behind-pipe Reserves are expected to be recovered from zones in existing wells which will require additional completion work or future re-completion prior to start of production. In all cases, production can be initiated or restored with relatively low expenditure compared to the cost of drilling a new well.

Undeveloped Reserves

Undeveloped Reserves are quantities expected to be recovered through future investments:

- (1) from new wells on undrilled acreage in known accumulations,
- (2) from deepening existing wells to a different (but known) reservoir,
- (3) from infill wells that will increase recovery, or
- (4) where a relatively large expenditure (e.g. when compared to the cost of drilling a new well) is required to
 - (a) recomplete an existing well or
 - (b) install production or transportation facilities for primary or improved recovery projects.

CONTINGENT RESOURCES

Those quantities of petroleum estimated, as of a given date, to be potentially recoverable from known accumulations by application of development projects, but which are not currently considered to be commercially recoverable due to one or more contingencies.

Contingent Resources may include, for example, projects for which there are currently no viable markets, or where commercial recovery is dependent on technology under development, or where evaluation of the accumulation is insufficient to clearly assess commerciality. Contingent Resources are further categorized in accordance with the level of certainty associated with the estimates and may be sub-classified based on project maturity and/or characterized by their economic status.

Development Pending

A discovered accumulation where project activities are ongoing to justify commercial development in the foreseeable future.

The project is seen to have reasonable potential for eventual commercial development, to the extent that further data acquisition (e.g. drilling, seismic data) and/or evaluations are currently ongoing with a view to confirming that the project is commercially viable and providing the basis for selection of an appropriate development plan. The critical contingencies have been identified and are reasonably expected to be resolved within a reasonable time frame. Note that disappointing appraisal/evaluation results could lead to a re-classification of the project to “On Hold” or “Not Viable” status. The project “decision gate” is the decision to undertake further data acquisition and/or studies designed to move the project to a level of technical and commercial maturity at which a decision can be made to proceed with development and production.

Development Unclassified or on Hold

A discovered accumulation where project activities are on hold and/or where justification as a commercial development may be subject to significant delay.

The project is seen to have potential for eventual commercial development, but further appraisal/evaluation activities are on hold pending the removal of significant contingencies external to the project, or substantial further appraisal/evaluation activities are required to clarify the potential for eventual commercial development. Development may be subject to a significant time delay. Note that a change in circumstances, such that there is no longer a reasonable expectation that a critical contingency can be removed in the foreseeable future, for example, could lead to a reclassification of the project to “Not Viable” status. The project “decision gate” is the decision to either proceed with additional evaluation designed to clarify the potential for eventual commercial development or to temporarily suspend or delay further activities pending resolution of external contingencies.

Development Not Viable

A discovered accumulation for which there are no current plans to develop or to acquire additional data at the time due to limited production potential.

The project is not seen to have potential for eventual commercial development at the time of reporting, but the theoretically recoverable quantities are recorded so that the potential opportunity will be recognized in the event of a major change in technology or commercial conditions. The project “decision gate” is the decision not to undertake any further data acquisition or studies on the project for the foreseeable future.

PROSPECTIVE RESOURCES

Those quantities of petroleum which are estimated, as of a given date, to be potentially recoverable from undiscovered accumulations.

Potential accumulations are evaluated according to their chance of discovery and, assuming a discovery, the estimated quantities that would be recoverable under defined development projects. It is recognized that the development programs will be of significantly less detail and depend more heavily on analog developments in the earlier phases of exploration.

Prospect

A project associated with a potential accumulation that is sufficiently well defined to represent a viable drilling target.

Project activities are focused on assessing the chance of discovery and, assuming discovery, the range of potential recoverable quantities under a commercial development program.

Lead

A project associated with a potential accumulation that is currently poorly defined and requires more data acquisition and/or evaluation in order to be classified as a prospect.

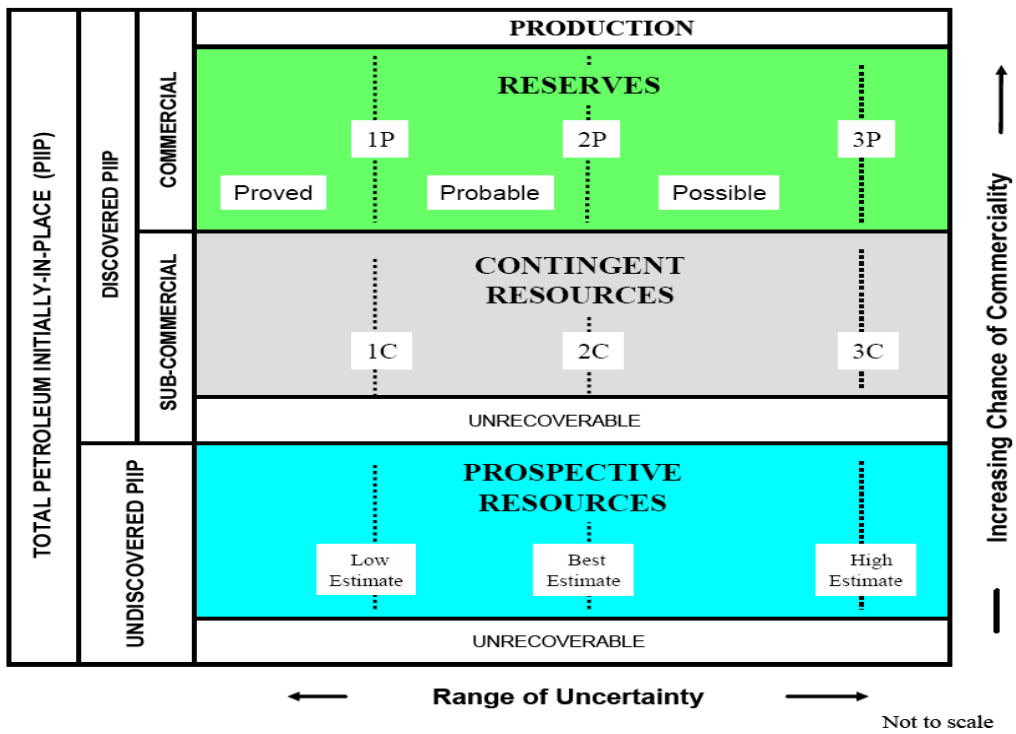
Project activities are focused on acquiring additional data and/or undertaking further evaluation designed to confirm whether or not the lead can be matured into a prospect. Such evaluation includes the assessment of the chance of discovery and, assuming discovery, the range of potential recovery under feasible development scenarios.

Play

A project associated with a prospective trend of potential prospects, but which requires more data acquisition and/or evaluation in order to define specific leads or prospects.

Project activities are focused on acquiring additional data and/or undertaking further evaluation designed to define specific leads or prospects for more detailed analysis of their chance of discovery and, assuming discovery, the range of potential recovery under hypothetical development scenarios.

RESOURCES CLASSIFICATION



PROJECT MATURITY

