# **PETROLEUM DIVISION**



# **DEPARTMENT OF PETROLEUM AND ENERGY**

## **2006 ANNUAL REPORT**

# ON

# PETROLEUM ACTIVITY IN PAPUA NEW GUINEA

Compiled by the Exploration Branch

February 2006

### PREFACE

This Annual Report contains the summary of all the events and corresponding information concerning all activities directly related to the exploration, development and production of petroleum in Papua New Guinea for the year 2006. The events and information contained within are sourced from reports furnished by the operating petroleum companies to the Petroleum Division of the Department of Petroleum and Energy as the regulator, promoter and monitor of all petroleum activities in the country. Also covered and equally important are corresponding non-technical information regarding licence management, policy, legal and landowner issues directly related to the petroleum activities. Confidential information, however, has been excluded. All values are quoted in US dollars to ensure consistency, but where necessary, the Kina currency is used for ease of flow of information and simplicity.

The report serves to provide a continuous and summarised review of the petroleum activities in Papua New Guinea.

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# TABLE OF ABBREVIATIONS

	1
AFE	Appropriation for Expenditure
APF	Agogo Production Facility
APDL	Application for Development Licence
APPL	Application for Petroleum Prospecting Licence
APRL	Application for Petroleum Retention Licence
BBL	Barrel
BCF	Billion Cubic Feet
BHA	Bottom Hole Assembly
BHP	Bottom Hole Pressure
BOPD	Barrels of Oil Per Day
BRT	Below Rotary Table
BWPD	Barrels of Water Per Day
CPF	Central Production Facility (Kutubu)
DEC	Department of Environment and Conservation
FIC	Expenditure Implementation Committee
EIC FPT	Extended Production Testing
EVT	Extended Well Test
EFFD	Front End Engineering Design
GM	Cobe Main Field
	Cas Project Cooperation Sharing Agreement
GFCSA E+	
COP	Cas Oil Patio
GOR	Cobe Production Excility
U C	Incorporated Land Groups
	Kelly Puching
KD km	Kilomotor
	Liquefied Natural Gas
	Land Titles Commission
м	Thousand
MD	Measured Denth
MM	Million
MMSCE	Million Standard Cubic Feet
MMSCED	Million Standard Cubic Feet per Day
MMSCED	Million Stock Tank Barrels
MPDC	Minerals Desources Development Company
MOA	Momorandum of Agroomont
MOA NEC	National Executive Council
NEC NCL	National Executive Council
	I Natul al Gas Liquius
	North West Maron Filed
00000	North-West Moran Filed
OGOC	North-West Moran Filed Original Gas-Oil Contact
OGOC OOIP	North-West Moran Filed Original Gas-Oil Contact Original Oil In Place
OGOC OOIP OPEC	North-West Moran Filed Original Gas-Oil Contact Original Oil In Place Oil Producing and Exporting Countries
OGOC OOIP OPEC OSL	North-West Moran Filed Original Gas-Oil Contact Original Oil In Place Oil Producing and Exporting Countries Oil Search Limited
OGOC OOIP OPEC OSL OWOC	North-West Moran Filed Original Gas-Oil Contact Original Oil In Place Oil Producing and Exporting Countries Oil Search Limited Original Water-Oil Contact
OGOC OOIP OPEC OSL OWOC P&A	North-West Moran Filed Original Gas-Oil Contact Original Oil In Place Oil Producing and Exporting Countries Oil Search Limited Original Water-Oil Contact Plugged and Abandoned Determine Determine
OGOC OOIP OPEC OSL OWOC P&A PCR	North-West Moran Filed Original Gas-Oil Contact Original Oil In Place Oil Producing and Exporting Countries Oil Search Limited Original Water-Oil Contact Plugged and Abandoned Petroleum Cost Reporting
OGOC OOIP OPEC OSL OWOC P&A PCR PDL	North-West Moran Filed Original Gas-Oil Contact Original Oil In Place Oil Producing and Exporting Countries Oil Search Limited Original Water-Oil Contact Plugged and Abandoned Petroleum Cost Reporting Petroleum Development Licence
OGOC OOIP OPEC OSL OWOC P&A PCR PDL PJ	North-West Moran Filed Original Gas-Oil Contact Original Oil In Place Oil Producing and Exporting Countries Oil Search Limited Original Water-Oil Contact Plugged and Abandoned Petroleum Cost Reporting Petroleum Development Licence Peta Joules
OGOC OOIP OPEC OSL OWOC P&A PCR PDL PJ PJV	North-West Moran Filed Original Gas-Oil Contact Original Oil In Place Oil Producing and Exporting Countries Oil Search Limited Original Water-Oil Contact Plugged and Abandoned Petroleum Cost Reporting Petroleum Development Licence Peta Joules Porgera Joint Venture Limited
OGOC OOIP OPEC OSL OWOC P&A PCR PDL PJ PJV PJV PLL	North-West Moran Filed Original Gas-Oil Contact Original Oil In Place Oil Producing and Exporting Countries Oil Search Limited Original Water-Oil Contact Plugged and Abandoned Petroleum Cost Reporting Petroleum Development Licence Peta Joules Porgera Joint Venture Limited Pipeline Licence
OGOC OOIP OPEC OSL OWOC P&A PCR PDL PJ PJV PJV PLL PLT	North-West Moran Filed Original Gas-Oil Contact Original Oil In Place Oil Producing and Exporting Countries Oil Search Limited Original Water-Oil Contact Plugged and Abandoned Petroleum Cost Reporting Petroleum Development Licence Peta Joules Porgera Joint Venture Limited Pipeline Licence Production Logging Tool
OGOC OOIP OPEC OSL OWOC P&A PCR PDL PJ PJV PLL PLT PLT PL	North-West Moran Filed         Original Gas-Oil Contact         Original Oil In Place         Oil Producing and Exporting Countries         Oil Search Limited         Original Water-Oil Contact         Plugged and Abandoned         Petroleum Cost Reporting         Petroleum Development Licence         Peta Joules         Porgera Joint Venture Limited         Pipeline Licence         Production Logging Tool         Petroleum Prospecting Licence
OGOC OOIP OPEC OSL OWOC P&A PCR PDL PJ PJV PLL PLT PLT PPL PRL	North-West Moran Filed         Original Gas-Oil Contact         Original Oil In Place         Oil Producing and Exporting Countries         Oil Search Limited         Original Water-Oil Contact         Plugged and Abandoned         Petroleum Cost Reporting         Petroleum Development Licence         Peta Joules         Porgera Joint Venture Limited         Pipeline Licence         Production Logging Tool         Petroleum Retention Licence

RR	Rig Released
SEG	South East Gobe Field
SEM	South-East Mananda Field
SS	Sub-Sea
STB	Stock Tank Barrel
STB/D	Stock Tank Barrel per Day
ST	Sidetrack
STOIIP	Stock Tank Oil Initially In Place
TCF	Trillion Cubic Feet
TD	Total Depth
TVD	True Vertical Depth
US \$	United States Dollar

# **MONTHLY HIGHLIGHTS**

January	Coordination Branch establishes Exploration Section to assist the Exploration Branch with activities in PPLs
February	<ul> <li>Oil Search submits application for a PDL (APDL No.6) over North West Moran</li> <li>Fugro commences the 2006 Lahara Non-Exclusive 2D Marine Seismic Survey, offshore southern waters of PNG</li> <li>Elk 1 vertical exploration well was spudded in PPL 238 by SPI Interoil</li> <li>The extension of PPL 219 was granted to Oil Search Ltd</li> <li>Tapini Oil Seep Investigation was conducted</li> </ul>
March	First oil produced from South East Mananda Field
April	<ul> <li>Oil prices above US\$70/bbl</li> <li>Douglas 1 vertical exploration well was spudded in PPL 235 by Austral Pacific Ltd</li> </ul>
Мау	<ul> <li>Douglas 1 gas and condensate discovery</li> <li>Abau Oil Seep Sampling was conducted</li> </ul>
June	Elk 1 gas and condensate discovery
July	Arakubi 1 exploration well was drilled in PDL 2 by Oil Search Limited
August	Kumul Terminal First Oil Spill. Shut down in all field production
September	• Roadshow for the PNG Licensing Round in collaboration with Fugro Holdings visits 5 major petroleum centers including Singapore, Calgary, Houston, London and Perth.
October	Normal Operations
November	PPL 261 awarded to Rift Oil Ltd
	PPLs 265 and 277 awarded to New Guinea Energy Ltd
	PPL 281 awarded to Aeques Oil and Gas Ltd
December	North West Moran Development Forum held in Kimbe, West New Britain
	North West Moran EPT expires
	PPLs 285, 286 and 288 awarded to Papua Petroleum Ltd

### Section 1.0 SUMMARY

The Division managed 35 petroleum prospecting licences, 5 petroleum development licences, 3 pipeline licences, 11 petroleum retention licences and 1 petroleum processing facility licence for the year. 7 new licences were awarded, all within the Papuan Basin. 5 licences are operating within the North New Guinea Basin, 1 in the Cape Vogel Basin and the remaining licences operating within the Papuan Basin.

This year saw a dramatic increased intensity in petroleum exploration particularly in the acquisition of geological and geophysical surveys and airborne gravity and magnetic surveys. The increase in exploration activities was first encouraged by fiscal incentives such as the Petroleum Taxation rate introduced by the National Government in 2003. The same number of exploration wells were drilled this year as in the past year. These three wildcat exploration wells were the Douglas-1 and Elk-1, drilled in the Foreland area, and the Arakubi-1 located in the Foldbelt. Both the Foreland wells were gas and condensate discoveries, whilst Arakubi-1 drilling was halted prematurely owing to rig repairs. Vigorous reservoir and drilling management and applications resulted in six development wells drilled in various fields.

In 2006, the Kutubu oil fields oil production averaged 20,719 BOPD, whilst the Moran oil fields averaged 20,539 BOPD and the Gobe fields averaged 12,846 BOPD for the same period. The North West Moran EPT produced 675,193 BBLs. The Hides gas field produced 4.832 BCF of gas for this same period.

The first ever PNG Licensing Round got underway in 2006, commencing with a Roadshow to five major petroleum centers of the world. Under the Ministerial reservation, some 107,000sq kms in and around the Gulf of Papua were reserved for this licensing round. The date for inviting applications is 1 March 2007 with deadline as 13 April 2007.

The Petroleum Division continued its role as the regulator, promoter and monitoring agent of the local petroleum industry. The Division ensured all exploration, development and production activities were carried out within the provisions of the Oil and Gas Act of 1998 and Oil and Gas Regulations of 2002.

### Section 2.0 LICENCE MANAGEMENT

#### 2.1 Licensing Year 2006

Thirty five Petroleum Prospecting Licences (PPLs), five Petroleum Development Licences (PDLs), three Pipeline Licences (PLLs), eleven Petroleum Retention Licences (PRLs) and one Petroleum Processing Facility Licence (PPFL) were active between January to December 2006.

The number of licences operating in 2006 increased with the award of seven new PPLs, all within the Papuan Basin, whilst two other PPL applications were refused. PPL 219 licence application for extension was also granted in early 2006. The award of this extension was critical as it formed part of the most prospective acreage in the country where most of the oil fields have been discovered.

In this same reporting period, there was no licence surrendered. Moreover, thirteen new applications were received (and currently pending reviews). Two of these applications were withdrawn at the request of their respective applicants. Of the remaining applications, twelve are for the grant of a PPL, while the remaining is for a Petroleum Development licence (APDL 6) to facilitate the development of the newly discovered North West Moran oil field.

There are six licences outside of the Papuan Basin. PPLs 245, 248, 249, 252 and 258 are situated in the North New Guinea Basin, whilst PPL 257 is situated in the Cape Vogel Basin. The remainder of the above Petroleum licences are all situated in the Papuan Basin.



#### Figure 2: PPL Trends

# Section 3.0 EXPLORATION AND DRILLING

The total number of surveys conducted this year increased dramatically when compared to previous years. Twenty-one surveys were conducted in various licences. Of these twenty-one surveys, there were four geological surveys conducted, seventeen geophysical surveys consisting of eight seismic surveys - one survey offshore and seven surveys onshore, two ground gravity and magnetic surveys and six airborne surveys. A bathymetry survey was also conducted in the Cape Vogel Basin in the year. **Tables 3.1** and **3.2** contain the summaries of all the field surveys for the year.

### 3.1 Geological Field Mapping

Four geological surveys were conducted in 2006. SPI InterOil conducted the *Aure Scarp, Pio Scarp and Wabo Creek Mapping Project* in PPL 238 where a total of 69.9km was traversed and hand specimens collected for biostratigraphic and strontium isotope chronostratigraphic studies. Kirkland Ltd (NGE) conducted the *Ramosa Geological Survey* in PPL 269 where field geological mapping was conducted over a length of 50km. Oil Search Ltd conducted the *2006 Greater Barikewa Field Survey* in PRL 9 on behalf of the licensee, Barracuda Ltd and traversed a total of 39.25km. A fourth geological survey the *2006 Geology Survey*, was conducted in PPL 258 by 3D-Geo on behalf of the licensee, Transeuro Energy Corp and a total of 21km of traverse was undertaken. The surveys are summarized in **Table 3.1** and a graphical representation of the yearly geological surveys since 1995 is shown in **Figure 2.** 

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Licence/P ermit	Operator	Geographic / Tectonic Area	Name/ Contractor	Line Length - Km	Cost US\$
PPL 238	SPI (208) InterOil Ltd	Gulf Province Papuan Basin, Onshore	AURE SCARP, PIO SCARP AND WABO CREEK MAPPING PROJECT Oil Min Field Services/CSIRO	39.20km	<b>439,742.39</b> (Cost also covers the Elk & Aure Scarp gravity & magnetic data acquisition)
PRL 09	Barracuda Ltd	Gulf and Southern Highlands Provinces	2006 GREATER BARIKEWA FIELD SURVEY Oil Search Ltd	39.25km	341,000.00
PPL 269	Kirkland Ltd (NGE)	Western Province Papuan Foreland Basin, Onshore	RAMOSA GEOLOGICAL FIELD MAPPING SURVEY (Phase 1) 3DGeo Survey	50.00km	267,000.00
PPL 258	Transeuro Energy Corporation	East Sepik Province North New Guinea Basin, Onshore	PPL 258 GEOLOGY SURVEY 2006 3D-Geo Survey	21.00km	56,608.00
TOTAL				149.45km	\$1,077,350.39

Table 3.1:Geological Surveys

Figure 3.1: Yearly Geological Surveys



### 3.2 Geophysical Field Surveys

Seventeen geophysical surveys were conducted for the year, which is a prominent increase compared to the previous year. Eight of these surveys were seismic surveys of which only one, the "*Lahara Non-exclusive 2D Marine Seismic Survey*", was conducted offshore by Fugro-Multiclient Services Ltd. The remaining seven seismic surveys were conducted onshore in various licences. The *Mosa Deep and Libano Seismic Survey* although activity commenced in December 2006, has actually continued into 2007 therefore the statistics will not be included in the 2006 report. Of the six airborne gravity and magnetic surveys conducted during the year, two were combined gravity and magnetic data acquisition surveys, one aeromagnetic survey and three aerogravity surveys. The surveys are summarized in **Table 3.2** and the graphical representations of the yearly seismic and aeromagnetic surveys since 1996 are shown in **Figures 3.2** and **3.3**.

The objective of the offshore *Lahara Non-exclusive 2D Marine Seismic Survey* was to compile a database for the southern waters of Papua stretching from the Western Province to the Milne Bay Province in preparation for the 2006 Licensing Round. 2-D seismic data was acquired over the areas reserved by the Minister as well as in offshore licences – PPLs 234, 236, 244, 254, 255, 256 and PRL1. A total length of 12,972.38km was acquired.

The *Damami River Seismic Survey's* objective was to better define the subsurface structure and exploration risk of the Honinabi Lead to mature this feature as a potential future-drilling target. A line length of 80.73km was acquired.

The *Aure Seismic Survey* was an extension of the Aure Seismic and Supplement Surveys that were approved and conducted in 2005 by SPI Interoil Ltd. The survey's aims were to control subsurface

structures, detect shallow targets, establish orientation, geometry, and dip of Aure Fault, locate the proposed thrust below Rhino prospect and determine the depth of the limestone objective. A total line length of 128km was acquired.

The *Tainia Seismic Survey* was aimed at linking previous seismic grids acquired by Conoco (1991, *Tarim Seismic Survey*) and Chevron (1989, *Maipe Seismic Survey*). A length of 52.93km was acquired.

The *Yalis Seismic Survey* was acquired to extend seismic coverage over the PPL 267 permit area and to identify closures that required follow-up. The aim of this survey was to enable the operator to identify leads that could be matured to prospect status, then drillable status. A line length of 78.4km was acquired.

The *2006 Rentoul River Seismic Survey* was a follow-up seismic acquisition in the Mogulu area of the recently completed *Damami River Seismic Survey* in PPL 239 and was aimed at providing better structural definition of the Mogulu Leads and confirming the validity of the structure indicated on gravity. A line length of 198km was acquired.

The *Douglas Seismic Survey* objectives were to mature the Pukpuk prospect to drillable status, to further refine the size of the Douglas structure and also to optimise appraisal locations along the northern lobe of the Douglas closure.

The *Elk Ground Gravity and Magnetic Data Acquisition* and the *Aure Scarp, Pio Scarp and Wabo Creek Ground Gravity and Magnetic Data Acquisition surveys* were acquisitions along the Elk seismic lines to constrain sub-surface structures in the areas. Line lengths of 16.7km and 150.3km were acquired respectively for these two surveys.

Licence Area	Operator	Geographic Area	Name/Survey Type/Contractor	Line Length Km	Cost (US\$)				
SEISMIC SURVEYS									
PPL 235 Onshore	Foreland Oil Ltd	Western Province	Douglas Seismic Survey Oilmin	54km	1,500,000				
PPL 238 Onshore	SPI InterOil Ltd	Gulf Province	Aure Seismic Survey Oilmin	128km	1,401,416				
PPL 239 Onshore	Oil Search Ltd	Western Province	2006 Damami River Seismic Survey Velseis Pty Ltd	80.73km	2,812,000				
PPL 239 <b>Onshore</b>	Oil Search Ltd	Western Province	2006 Rentoul River Seismic Survey Oilmin	198km	5,326,000				

Table 3.2: Geophysical and Aeromagnetic Surveys

Reserved Areas <b>Offshore</b>	Fugro MCS	Gulf of Papua, Port Moresby Trough, Coral Sea	Lahara Non-Exclusive 2D Marine Seismic Survey Fugro	Reserved Blocks 3549.09 PPL 234 1737.32 PPL 236 16.07 PPL 244 304.52 PPL 254 2381.53 PPL 255 2019.26 2697.13 PRL 1 102.76 Outside Permits 164.70	A total line length of 12,972.38	20,000,000	
PPL 269 <b>Onshore</b>	Kirkland Ltd (NGE)	Western Province	Tainia Seismic Survey ECL-RPS Energy Seismic Consultants	52.93km		1,915,000	
PPL 267 Onshore	Roebuck Ltd (NGE)	Western Province	Yalis Seismic Survey ECL-RPS Energy Seismic Consultants	74km		930,000	
PPL 219 PDL 2 <b>Onshore</b>	Oil Search Ltd	Southern Highlands Province	Libano-Mosa Deep Survey Oil Field Services Ltd	60km		2007 Reporting	
TOTAL				13,560	.04km	\$33,884,416	
		GRAVI	TY/MAGNETIC SURVE	YS			
PPL 237	SPI InterOil	Gulf Province	Elk Ground Gravity Data Acquisition Oilmin	8.7k	m		
Onshore	Ltu		Elk Ground Magnetic Data Acquisition Oilmin	8.0k	ĸm	(Costs covered in the Aure Scarp	
PPL 238	SPI InterOil	Gulf Province	Aure Scarp, Pio Scarp & Wabo Creek Ground Gravity Data Acquisition	78.3	km	mapping program cost)	
Onshore	Ltd		Aure Scarp, Pio Scarp & Wabo Creek Magnetic Data Acquisition Survey Oilmin	72.0	km		
TOTAL				167	km	\$333,650	
	A	IRBORNE (GR	AVITY and MAGNETIC	) SURVEY	s		
PPL 237 Onshore	SPI Interoil Ltd	Gulf Province	Era-Vailala High Resolution Gravity & Magnetic Survey Sander Geophysics Ltd	4,025.	1km	433,161	

PPL 238 Onshore	SPI Interoil Ltd	Gulf Province	Era-Vailala High Resolution Gravity & Magnetic Survey Sander Geophysics Ltd	6,450.7km	866,323			
PPL 259 Onshore	Transeuro Energy Corp	Western Province	2006 Aeromagnetic Survey Sander Geophysics Ltd	7,896km	800,000			
PPL 267 Onshore	Roebuck Ltd (NGE)	Western Province	Aerogravity Survey Sander Geophysics Ltd	5,401km	500,000			
PPL 268 Onshore	Engelberg Ltd (NGE)	Western Province	Aerogravity Survey Sander Geophysics Ltd	3,811km	360,000			
PPL 269 Onshore	Kirkland Ltd (NGE)	Western Province	Aerogravity Survey Sander Geophysics Ltd	5,457km	404,000			
TOTAL				33040.8km	\$3,363,484			
	BATHYMETRY SURVEYS							
PPL 257 Offshore	Transeuro Energy Corp	Oro Province	2006 Bathymetry Survey SeaScape	2000km	320,000			
TOTAL				2000km	\$320,000			

Figure 3.2: Yearly Seismic Survey Length







### 3.3 Geochemical

No geochemical surveys were undertaken this year.

### 3.4 Drilling and Rig Activities

#### 3.4.1 Summary of Exploration Wells

There were three onshore exploration wells drilled in 2006, namely Elk 1, Douglas 1 and Arakubi 1 respectively. Elk 1 and Douglas 1 wells were later sidetracked after encountering mechanical problems in their respective holes. Drilling activities on Arakubi 1 ceased as the rig mast was discovered to be severely cracked whilst jarring operations were applied. As a result, the well was plugged and abandoned and the rig was moved off location for a total repair on its equipment.

Both Elk 1 ST1 and Douglas 1 ST1 were successful gas and condensate discovery wells that were plugged and suspended for later development. The three exploration wells were spudded on 19 February, 4 April and 10 July 2006, respectively.

**Table 3(a)** shows the exploration wells drilled in 2006-2007. There were no offshore exploration wells drilled in 2006. The total footage of the exploration wells drilled was 5374m (17,631.2 ft) at a total cost of US\$ 49.84MM.

#### Elk 1

Elk 1, located in the Gulf Province of PNG, was a vertical exploration well drilled by InterOil (SPI) Ltd in its PPL 238 licence area. Drilling commenced on 19 February 2006 at 0300 hours. The total depth (TD) of 1007.2m MD was reached on 23 June 2006 when mechanical faults (stuck pipe) were encountered in the hole.

After unsuccessful attempts to free up and or induce movement of the drill string, a decision was reached by management to severe the string and initiate a sidetrack of the same well.

#### Elk 1 ST1

The Elk 1 ST1 well resumed its directional drilling operations on the 27 July 2006 after kicking off at 1401m and directionally drilled to TD at 1983m MD. As drilling operations could not be pursued any further due to the significant well control issues faced at this depth, it was finally decided that the potential of the well was to be flow tested and completed.

After applying various well control techniques the flow of formation fluids into the wellbore was finally contained and Elk 1 ST1 well was flow tested. The flow test results proved the well to be a gas and condensate discovery.

InterOil's Rig 2 was released on the 23 November 2006 at 1830 hours at a total well cost of US\$28.400MM.

#### Douglas 1

Douglas 1 was a vertical exploration well drilled in PPL 235 by Rift Oil PLC using the Coral Sea – 1 Heliportable Rig. The well was drilled onshore of the Papuan Foreland Basin in the Gulf Province of PNG to test the hydrocarbon potential of the Toro Sandstone and deeper Jurassic/Triassic reservoirs within the mapped Douglas closure.

Douglas 1 was spudded on 4 April 2006 at 1700 hours and drilled to a depth of 503m when circulation was lost and the BHA became stuck. Following an extended period of attempting to free stuck pipe the decision was made to sidetrack the well.

#### Douglas 1 ST1

Douglas 1 ST1 was kicked off from 97m on 21 April 2006 and reached a total depth of 1978m BRT on 26 May 2006.

Open hole wireline logging was conducted over the 8-1/2" and 6" hole sections. Following evaluation of the logs and formation pressure measurements, Douglas 1 ST1 was cased and suspended as a gas condensate discovery in the Toro and Alene sandstones.

The cumulative well cost was US\$11.936 MM. Rift Oil Limited released the Coral Sea – 1 Rig on 30 September 2006.

### Arakubi 1

The Arakubi 1 was a vertical exploration well drilled in PDL 2. Toro sand was the primary target and the secondary target was the Iagifu sand. The well objectives were to evaluate and acquire data by penetrating the Toro reservoir in the Arakubi prospect.

The well was spudded on 10 July 2006 and reached a TD at 1413m. Constant stuck pipe problems were encountered while reaming in the hole in an attempt to get to section TD. After pulling the string out of the hole a visual inspection of the rig discovered significant cracks on the rig mast.

Decision was reached to plug and abandon (P&A) the well. The well was plugged and abandoned on 8 August 2006. At the time of P&A the actual well cost was US\$9.506MM from an AFE cost of US\$11.389MM.

WELL I.D.	LICENSEE	PPL / PDL	SPUD DATE	R.R. DATE	T.D. (m.MD)	FOOTAGE DRILLED (m)	RESULT	COST US\$ (Million)	TYPE OF SIDETRACK (GEO/MECH)
Elk 1 ST1	InterOil	PPL 238	19/02/06	28/11/06	1,983	1,983	Gas & Cond.	28.40	Mechanical
Douglas 1 ST1	Austral Pacific	PPL 235	4/04/06	30/09/06	1,978	1,978	Gas & Cond.	11.936	Mechanical
Arakubi 1	Oilsearch	PDL 2	10/07/06	8/08/06	1,413	1,413	P&A	9.506	NA
TOTAL						5,374		49.842	

Table 3.3: Exploration Wells Summary

#### 3.4.2 Summary of Development Wells

All the development wells drilled in 2006 were in the SE Mananda , SE Gobe and Gobe Main development fields. A total of six wells development wells were drilled in 2006 in the South East Mananda, South East Gobe and Gobe Main development fields. Five of these wells were completed as oil producers whilst one was plugged back and abandoned.

**Table 3.4** shows the development wells drilled in 2006. The total footage of the six development wells drilled was 12,736.9m (41,787.7 feet) and at a collective cost of US\$60.574MM.

#### South East Gobe 12

The SEG 12 well was spudded on 4 February 2006 at 0315 hours using Parker Drilling Rig 140 and reached a TD of 2,460.0m MD.

After log evaluations of the target reservoirs, SEG 12 was completed as an oil producer at a total well cost of US\$9.152MM from an AFE of US\$8.032MM. The actual cost accounted for costs incurred during rig move and final completion of the well. Rig 140 was released thereafter on 27 March 2006 at 0500 hours.

### South East Gobe 13

The SEG 13 well was spudded on 30 April 2006 at 2030 hours using the same rig that drilled and completed the SEG 12 well and reached a TD of 2,401m MD in the production hole.

After evaluation of logs in the reservoir section, decision was made to sidetrack the well. To initiate the sidetrack, 150m of cement plugs were set from 2,401m to 1,813m. Operations on SEG 13 ceased after cementing equipment were pulled out of the hole.

The actual well cost was US\$5.463MM from an AFE cost of US\$9.397MM.

### South-East Gobe 13 ST1

The South-East Gobe 11 well was spudded on 4 March 2005 and reached TD at 2,265m MD.

After evaluation of logs, the SEG 11 well was completed as an oil producer at a total well cost of US\$16.272MM from an AFE of US\$12.491MM. The cost included rig move and final completion of the well. The rig was released thereafter on 17 May 2005 at 1330 hours.

#### South East Gobe 14

The SEG 14 well was spudded on 29 June 2006 at 1200 hours using the same Parker Drilling Rig 140 and reached a TD of 2670m MD.

After log evaluations of the objective reservoirs, SEG 14 was completed as an oil producer with plans for conversion to a water injector. The actual well cost was US\$10.283MM from an AFE cost of US\$12.294MM. Rig 140 was released thereafter at 0715 hours on 4 August 2006.

#### South East Mananda 3

The SEM 3 well was spudded at 0730 hours on 12 July 2005. This was one of the SEM wells that were batch drilled using OSL Rig 2, along with SEM 4 and SEM 5 wells. A total of 113 days were spent drilling this well. The well reached TD at 2855m on 12 May 2006.

After log evaluations, the well was completed as an oil producer. A total cost well cost of US\$18.725MM from an AFE cost of US\$9MM. Rig 2 was released at 2400 hours on 26 May 2006.

#### South East Mananda 4

The SEM 4 well was spudded at 1600 hours on 31 July 2005. It must be noted that a total of 126 days were spent off SEM 4 location and later when drilling resumed on SEM 4 a TD of 2669m was reached on 8 January 2006.

After log evaluations of the Toro C reservoir, SEM 4 was completed as an oil producer at a total cost well cost of US\$12.067MM from an AFE cost of US\$7.500MM. Rig 2 was released at 2400 hours on 1 February 2006.

#### South East Mananda 5

The SEM 5 well was spudded on 15 August 2005 at 0400 hours and reached well TD at 2542m MD. SEM 5 was left suspended pending further obtained information from the other two wells to allow a decision on the future of the SEM 5 well.

After drilling SEM 3 and SEM 4, it was decided to complete the SEM 5 well. The well was completed at an actual cost of US\$16.952MM from an AFE cost of US\$7.500MM. Rig 2 was released on 11 April 2006 at 1600 hours.

### Gobe Main (GM) 7

The GM 7 well was spudded on 24 August 2006 at 1100 hours using the same Parker Drilling Rig 140 and it reached a TD of 2670m MD.

After log evaluations of the objective reservoirs, GM 7 was completed as an oil producer at an actual well cost of US\$10.516MM. Rig 140 was released thereafter at 2400 hours on 3<sup>rd</sup> October 2006.

WELL ID	LICENSEE (Operator)	PPL / PDL	SPUD DATE	R.R. DATE	T.D. (m.MD)	FOOTAGE DRILLED (m)	RESULT	COST US\$ (MM)	TYPE OF SIDETRACK (GEO/MECH)
SE Gobe 12	OSPL	PDL 4	4/02/06	27/03/06	2460	2460	Oil	9.152	N/A
SE Gobe 13	OSPL	PDL 4	30/03/06	27/04/06	2210	2210	Water	5.463	Geological
SE Gobe 13	OSPL	PDL 4	30/04/06	5/06/06	2862	2862	Water	7.532	Geological
SE Gobe 14	OSPL	PDL 4	29/06/06	4/08/065	2670	2670	Oil	10.283	NA
SE Mananda	OSPL	PDL 2	31/07/05	01/02/06	2669	2669	Oil	12.067	NA
SE Mananda 5	OSPL	PDL 2	15/08/05	11/04/05	2542	2542	Oil	16.952	NA
TOTALS						15,413		61.449	

Table 3.4:Development Drilling Summary

## 3.5 PNG Petroleum Drilling History

The Papuan Basin is currently the most explored and developed of the five petroleum basins in PNG. The Papuan Basin has had a total of just over **300** wells drilled to date, since the commencement of exploration in PNG. With the exception of the historic Marienberg well in the Sepik, all discoveries have been in the Papuan basin. **Table 3.5** contains a summary of all the discoveries to date (in the Papuan Basin) and **Figure 3.4** illustrates the number of wells drilled from 1995 to 2006.

Table 3.5:Summary of Discoveries to Date

ORIGINAL	ORIGINAL	FIELD	DISCOVERY	CURRENT	CURRENT	CURRENT TYPE OF		PROVINCE
LICENCE/ PERMIT	OPERATOR		YEAR	LICENCE/ PERMIT	OPERATOR	DISCOVERY	IN FIELD	
Permit 37	Island Exploration	Barikewa	1958	PPL 189	Barracuda	Gas	2	Gulf
Permit 37	APC	Bwata	1960	PPL 191	Barracuda	Gas/ Condensate	1	Gulf
Permit 12	APC	Iehi	1960	PPL 189	Barracuda	Gas	1	Gulf
Permit 39	Phillips	Uramu	1968	PPL 188	Oil Search	Gas	1	Gulf
PPL 18	Niugini Gulf Oil	Juha	1983	APRL 2	Chevron	Gas/ Condensate	3	Western

PPL 17	Chevron	Kutubu	1986	PDL 2	Chevron	Oil / Gas	47	SHP
PPL 27	BP	Hides	1987	PDL 1	Oil Search/	Gas/	4	SHP
				PPL 138	Esso	Condensate		
PPL 100	Chevron	SE Hedinia	1987	PDL 2	Chevron	Gas	5	SHP
PPL 82	IPC	Pandora	1988	PRL 1	IPC	Gas	2	Gulf
PPL 100	Chevron	Usano	1989	PDL 2	Chevron	Oil	2	SHP
PPL 100	Chevron	Agogo	1989	PDL 2	Chevron	Oil	1	SHP
PPL 27	BP	Angore	1990	PPL 138	Esso	Gas/ Condensate	1	SHP
PPL 81	BP	Elevala	1990	PPL 157	Santos	Gas/ Condensate	1	Western
PPL 101	Chevron	P'nyang	1990	APRL 3	Chevron	Gas/ Condensate	2	Western
PPL 81	BP	Ketu	1991	PPL 157	Santos	Gas/ Condensate	1	Western
PPL 56	Command	SE Gobe	1991	PDL 3	Chevron	Oil / Gas	5	SHP / Gulf
PDL 2	Chevron	SE Mananda	1991	PDL 2 / PPL 161	Chevron	Oil / Gas	2	SHP
PPL 100	Chevron	Gobe Main	1993	PDL 4	Chevron	Oil / Gas	6	SHP
PPL 138	BP	Paua	1995	PPL 138	Esso	Oil	1	SHP
PDL 2, PPL161/138	Chevron	Moran	1996	PDL 2, PPL 61/138	Chevron	Oil	4	SHP
PPL 157	Santos	Stanley	1999	PPL 157	Santos	Gas	1	Western
PPL 193	Oil Search	Kimu	1999	PPL 193	Oil Search	Gas	2	Western
PDL 4	Chevron	Saunders	2002	PDL 4	Chevron	Oil	1	Gulf
PPL 160	Santos	Bilip	2002	PPL 190	Santos	Oil	1	Gulf
PDL 2	Chevron	Kutubu	2005	PDL 2	Oilsearch	PB & ST	23	SHP
PDL 2	Chevron	Kutubu	2005	PDL 2	Oilsearch	Oil & Gas	23	SHP
PDL 4	Chevron	SE Gobe	2005	PDL 4	Oilsearch	Oil	11	SHP
PDL 2	Chevron	SE Mananda	2005	PDL 2	Oilsearch	Oil	5	SHP
PPL 235	Rift Oil	Douglas	2006	PPL 235	Rift Oil	Gas/ Condensate	1	Gulf
PPL 238	InterOII	Elk	2006	PPL 238	Interoil	Gas/ Condensate	1	Gulf



Figure 3.4: Chart Showing Total Yearly Development & Exploration Wells

### Section 4.0 FIELD DEVELOPMENT

#### 4.1 Hides

During the year, Hides produced a total of 5101.846 MMSCF of gas. The total liquid production was 120,747.58 BBLs of condensate, which yielded 67,389.98 BBLs of naphtha, 22,819. 67 BBLs of diesel and 7,491.13 BBLs of residue.

#### GAS CONDENSATE:

The gas condensate is stored on site in tanks and used for feedstock in their Microstills.

#### NAPHTHA:

Naphtha is supplied to PJV and held in storage on their site. Some of it is "re-delivered", i.e. sold on to Gigara Development Corporation (GDC) a landowner company who on-sell it. Approximately 5590 BBLs of naphtha is sold to Porgera Joint Venture (PJV) and approximately 480 BBLs naphtha is sold to GDC on a monthly basis.

#### DIESEL:

Approximately 1500 BBLs of diesel was sold to GDC, 85 BBLs diesel sold to PJV and 90 BBLs diesel to Camp & Community. These numbers do vary due to road conditions, access and local "clan politics".

Camp and Community includes company vehicles, Police, Hospital (Ambulance) and Landowner vehicles on a gratis basis.

#### **RESIDUE:**

Residue is used to fire the Microstill furnaces and Waste Garbage Incinerator. Any excess is incinerated in a high temperature incinerator.

The Hides Gas plant's concern during the year was the shutdown of the processing gas plant during the Month of November for some days. This was due to the sabotage of a power pylon connecting the PJV gold mine and some maintenance carried out at the Microstills. Apart from this, the year's production was good compared to the previous year. Routine checks, preventative maintenance and maintenance to the micro-stills and other process equipment were on going throughout the year.

Pipeline inspections and pigging operations were also on going during the year.



Figure 4.0: Hides Monthly Liquid Production Graph

## Section 5.0 PRODUCTION

**Kutubu** produced a total of 5,626,802 BBL in 2006 at an average daily production rate of 20,719 BOPD. The production decreased by 1, 482,963 BBLS this year due to loading problems at the marine terminal, which caused a total field shutdown due to full storage tanks at the Central Processing Facility. This production curtailment lasted between 10 and 31 August. Production from the wells started again on the last day of the month as soon as loading resumed.

Total **Moran oil** field production for 2006 was 6,820,077 BBL. Total gas produced from the Moran field was 19,322,347 MSCF. Oil production averaged at 20,539 BOPD, which was an increase of 4,129 BOPD, compared to 2005 as a result of new additional wells (M11, M12 and M13) brought on line in 2006.

**NW Moran** oil field produced at an average oil rate of 2,988 STB/D. In 2006 oil production from NW Moran EPT was 675,193 BBL and associated gas production was 928,125 MSCF. NW Moran 1X well experienced minimum down time through the year due to mechanical problems. The NW Moran 1 ST5 reservoir pressure monitoring is on going and the results will help determine necessary zonal changes as well as designing production optimization programs for the Digimu Block J/K reservoir. NW Moran 1X was shut in when the EPT permit expired on 16 December 2006.

Total oil production from the **Gobe** fields in 2006 was 3,881,431 BBL at an average rate of 12,846 BOPD. Total volume of gas produced was 10,753,194 MMSCF with Gobe Main and SE Gobe producing 23,912,102 MSCF. Oil production in Gobe was steady at around 323,453 BBL per month.

**Gobe Main** contributed a total of 1,065,855 BBL averaging at 3,882 BOPD and **South East Gobe (SEG)** produced a total of 2,815,576 BBL of oil averaging at 8,964 BOPD. There has been an increase of 128,367 BBL from PDL 4 compared to last year which was attributed mainly to the temporary 91 MMSCF per week flare consent and continued swing well management.

**South East Mananda (SEM)** wells were brought on line on 27 March 2006 with a total production of 774,170 BBL with an average rate of 2,758 BOPD. Total gas produced from the South East Mananda field was 2,791,790 MMSCF. All SEM wells were shut in a number of times during the year due to restrictions at the marine terminal and landowner related issues. SEM 1X has not flowed since 22 July due to production problems.

Regular wellhead sampling were conducted to monitor for sand production and to optimize chemical injection rates.

The total oil production for the year 2006 was 17,777,764 BBL at an average production rate of 48,705 BOPD. The monthly average production was 1,494,376 BBL and a total of 138,226 MMSCF of associated gas was produced.

#### Hides

During the year, Hides produced a total of 4840.380 MMSCF of gas. The total liquid production was 122,513.27 BBL of condensate, which yielded 72,830.24 BBL of naphtha, 22,453.62 BBL of diesel and 8,163.44 BBL of residue.

#### **Gas Condensate**

The gas condensate is stored on site in tanks and used for feedstock in the microstills on-site.

#### Naphtha

Naphtha is supplied to Porgera Joint Venture (PJV), the operator of the Porgera Gold Mine situated in neighbouring Enga Province and is held in storage on site. Some of this naphtha is "re-delivered" by being sold on to Gigara Development Corporation (GDC) a landowner company who on-sell it. Approximately 5590 BBL Naphtha is sold to PJV and approximately 480 BBL naphtha are sold to GDC on a monthly basis.

#### Diesel

Approximately 1500 BBL of diesel was sold to GDC, 85 BBL of diesel was sold to PJV and 90 BBL of diesel was supplied to camp and surrounding community. These numbers can vary due to road conditions, and access. Camp and Community includes company vehicles, Police, Hospital (Ambulance) and landowner vehicles on a gratis basis.

#### Residue

Residue is used to fire the Microstill furnaces and waste garbage incinerator. Any excess residue produced is incinerated at high temperatures.

The major concern at the Hides Gas plant during the year was the shutdown of operations at Porgera. As a result, gas to PJV during the month of January was on a reduced load. In April, PJV Power-station was on low load due to maintenance work being done at Porgera. In July a fallen transmission line disrupted gas transmission to the mine. As a result of all these events, the year's production was not as comparable to the previous year.

Routine checks, preventative maintenance and maintenance to the micro-stills and other process equipment was on going through out the year. The pipeline inspection and pigging operations were also on going during the year.

**Tables 5.1** through to **5.6** and **Figures 5.1** through to **5.6** summarize the monthly and yearly figures for the Hides, Kutubu, Gobe Main, South East Gobe, Moran and the South East Mananda fields in 2006. **Figure 5.7** shows the yearly production history and forecast. Furthermore, **Table 5.8** displays the yearly oil and gas production and **Figure 5.8** shows the graph for the yearly oil and gas production since 1991.

## 5.1 Hides

	GAS			LIQUID		
MONTH	Total Production	Total sales	Condensate	Naphtha	Diesel	Residue
	(MMSCF)	(MMSCF)	(BBL)	(BBL)	(BBL)	(BBL)
January	266.98	266.98	6,510.20	3,585.19	977.83	683.59
February	374.86	374.86	9,359.04	5,507.68	1,672.62	519.02
March	422.67	422.67	10,256.27	6,825.11	1,643.36	803.01
April	433.29	433.29	10,606.04	6,659.41	1,713.02	805.65
May	455.22	455.22	11,402.31	6,713.46	1,711.98	867.08
June	437.33	437.33	11,408.02	6,863.41	1,888.94	810.37
July	415.40	415.40	10,836.08	6,611.19	1,946.40	803.35
August	465.99	465.99	12,075.48	6,922.70	2,534.80	914.06
September	423.19	423.19	10,880.58	5,834.04	1,986.90	532.97
October	424.84	424.84	10,962.47	6,622.47	2,249.94	599.80
November	410.22	410.22	10,380.07	5,732.31	2,305.62	476.60
December	302.48	302.48	7,836.66	4,953.26	1,822.22	347.94
TOTALS	4,832.46	4832.456	122,513.23	72,830.24	22,453.63	8,163.45

Table 5.1: Hides Monthly Gas Production

**Note:** Total condensate is not equal to total sum of liquid products, as it is an average account for the amount of condensate sent direct to PJV turbines



Figure 5.1: Hides Monthly Gas Production Graph

# 5.2 Kutubu

	MONTHLY	MONTHLY	CUMULATIVE OIL	CUMULATIVE GAS	AVG. DAILY	AVG.DAILY	
MONTH	OIL PRODUCTION	GAS PRODUCTION	PRODUCTION	PRODUCTION	OIL RATE	GAS RATE	
	BBL	MSCF	BBL X 1000	MMSCF	BOPD	MSCFD	
JANUARY	597,007	7,064,059	296,927.100	956,465.900	22,438	289,563	
FEBRUARY	517,271	6,422,849	297,444.400	962,888.700	21,745	302,999	
MARCH	619,202	7,396,788	298,063.600	970,285.500	23,605	303,626	
APRIL	563,826	7,383,318	298,627.400	977,673.500	23,123	324,815	
MAY	504,369	6,735,796	299,131.800	984,409.300	20,068	279,579	
JUNE	353,095	5,279,924	298,980.500 982,953.40		18,879	301,520	
JULY	518,562	6,889,515	300,003.702	996,827.349	20,311	289,345	
AUGUST	30,016	4,503,334	300,303.863	1,001,330.682	24,796	367,095	
SEPTEMBER	495,272	7,419,804	300,703.140	1,008,750.487	19,034	301,086	
OCTOBER	469,657	7,049,658	301,172.797	1,015,800.144	17,935	282,977	
NOVEMBER	482,465	7,234,731	300,937.969	1,012,275.316	18,485	292,032	
DECEMBER	476,061	7,142,195	301,055.383	1,014,037.730	18,210	287,504	
YEARLY AVERAGE	460.000	6 710 164			20 740	201 0 15	
	468,900	6,/10,164			20,719	301,845	
YEARLY TOTALS	5,626,802	80,521,971					

Table 5.2: Kutubu Monthly Production



Figure 5.2: Kutubu Monthly Oil Production Graph

# 5.3 Gobe Main

	MONTHLY	MONTHLY	CUMULATIVE OIL	CUMULATIVE GAS	AVG. DAILY	AVG.DAILY
MONTH	OIL PRODUCTION	GAS PRODUCTION	PRODUCTION	PRODUCTION	OIL RATE	GAS RATE
	BBL	MSCF	BBL X 1000	MMSCF	BOPD	MSCFD
JANUARY	110,281	1,049,527	24,218.10	95,421.40	4,223	44,348
FEBRUARY	101,534	823,511	24,319.64	96,244.91	4,267	38,113
MARCH	105,736	1,210,699	24,425.37	97,455.61	3,958	48,506
APRIL	93,692	1,087,900	24,519.07	98,543.51	3,705	44,901
MAY	77,571	942,656	24,596.64	99,486.17	3,659	48,192
JUNE	86,159	1,012,791	24,682.80	100,498.96	3,872	49,850
JULY	93,138	948,023	24,775.93	101,446.98	3,847	42,141
AUGUST	62,515	67,338	24,838.45	102,120.36	4,064	43,213
SEPTEMBER	97,090	1,175,795	24,935.54	103,296.15	4,328	52,152
OCTOBER	85,674	121,607	25,021.21	104,512.22	4,539	53,611
NOVEMBER	71,223	1,176,131	25,092.44	105,688.35	2,937	50,279
DECEMBER	81,242	1,137,216	25,173.68	106,825.57	3,184	48,800
YEARLY						
AVERAGE	88,821	896,099			3,882	47,009
YEARLY						
TOTALS	1,065,855	10,753,194				

### Table 5.3:Gobe Main Monthly Production



Figure 5.3: Gobe Main Monthly Production Graph

### 5.4 South East Gobe

	MONTHLY	MONTHLY	CUMULATIVE OIL	CUMULATIVE GAS	AVG. DAILY	AVG.DAILY
MONTH	OIL PRODUCTION	GAS PRODUCTION	PRODUCTION	PRODUCTION	OIL RATE	GAS RATE
	BBL	MSCF	BBL X 1000	MMSCF	BOPD	MSCFD
JANUARY	248,650	2,072,159	31,976.08	131,315.36	8,520	74,531
FEBRUARY	230,526	1,695,530	32,206.61	133,010.89	8,628	65,173
MARCH	236,568	2,192,119	32,443.18	135,203.01	8,176	78,648
APRIL	247,271	2,021,991	32,690.45	137,225.00	9,293	76,726
MAY	203,295	1,775,490	32,893.74	139,000.49	9,874	86,026
JUNE	260,674	1,995,985	33,154.42	140,996.48	9,860	77,801
JULY	267,942	2,375,311	33,422.36	143,371.79	9,507	88,268
AUGUST	170,549	1,465,259	33,592.91	144,837.05	9,427	82,163
SEPTEMBER	255,386	1,901,413	33,848.29	146,738.46	9,339	74,090
OCTOBER	242,646	2,138,552	34,090.94	148,877.01	8,651	81,542
NOVEMBER	224,574	2,058,977	34,315.51	150,935.99	8,065	77,070
DECEMBER	227,496	2,219,317	34,543.01	153,155.31	8,225	85,474
YEARLY AVERAGE	234,631	1,992,675			8,964	78,959
YEARLY TOTALS	2,815,576	23,912,103				

 Table 5.4:
 South East Gobe Monthly Production



Figure 5.4: S.E. Gobe Monthly Oil Production Graph

## 5.5 Moran

	MONTHLY	MONTHLY	CUMULATIVE OIL	CUMULATIVE GAS	AVG. DAILY	AVG.DAILY
MONTH	OIL PRODUCTION	GAS PRODUCTION	PRODUCTION	PRODUCTION	OIL RATE	GAS RATE
	BBL	MSCF	BBL X 1000	MMSCF	BOPD	MSCFD
JANUARY	646,527	2,303,410	35,270.48	93,689.44	22,111	72,913
FEBRUARY	656,275	2,132,423	35,926.75	95,821.86	25,535	73,280
MARCH	607,559	1,702,477	36,192.68	97,092.35	21,405	55,271
APRIL	612,328	1,901,276	36,805.01	98,993.63	21,145	60,924
MAY	506,102	1,331,361	37,311.11	100,324.99	21,851	52,850
JUNE	412,497	1,061,319	37,723.61	101,379.29	21,930	54,198
JULY	603,727	1,204,844	38,327.19	102,584.14	22,310	44,616
AUGUST	147,205	390,159	38,474.40	102,974.30	19,863	50,941
SEPTEMBER	663,511	1,497,371	39,137.73	104,461.48	21,404	48,302
OCTOBER	589,755	1,570,899	39,727.49	106,032.38	2,848	7,586
NOVEMBER	690,635	2,082,981	40,418.12	108,115.36	22,279	67,193
DECEMBER	683,956	2,143,827	41,102.08	110,259.19	23,793	76,219
	568,340	1,610,196			20,539	55,358
YEARLY TOTALS	6,820,077	19,322,347				

#### Table 5.5:Moran Monthly Production



Figure 5.5: Moran Monthly Oil Production Graph

## 5.6 South East Mananda

	MONTHLY	MONTHLY	CUMULATIVE OIL	CUMULATIVE GAS	AVG. DAILY	AVG.DAILY
MONTH	OIL PRODUCTION	GAS PRODUCTION	PRODUCTION	PRODUCTION	OIL RATE	GAS RATE
	BBL	MSCF	BBL X 1000	MMSCF	BOPD	MSCFD
JANUARY						
FEBRUARY						
MARCH	1,728	32	0.00	0.00	1,012	1,875
APRIL	91,550	162,836	93.28	166.04	4,525	10,258
MAY	61,834	176,700	155.11 342.69		4,160	10,691
JUNE	60,213	200,841	217.05	217.05 546.70		17,397
JULY	111,010	398,219	326.11	937.30	5,008	16,252
AUGUST	46,955	191,910	373.06	1,129.21	3,200	12,860
SEPTEMBER	87,760	296,069	460.82	1,425.28	3,803	12,430
OCTOBER	89,238	337,808	550.06	1,763.09	1,229	4,653
NOVEMBER	106,071	468,530	656.13	2,231.62	4,396	18,200
DECEMBER	117,812	555,676	773.94	2,787.29	3,995	18,860
ILANLI AVLKAGL	77,417	278,862			3,739	12,348
YEARLY TOTALS	774,171	2,788,621				

### Table 5.6: South East Mananda Monthly Production



Figure 5.6: South East Mananda Monthly Oil Production Graph



Figure 5.7: Yearly Oil Production Showing History and Forecast

## 5.7 Others

Table 5.7:	Yearly Oil and Gas Production since 1991
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YEAR	KUTUBU YEARLY OIL PROD	KUTUBU YEARLY GAS PROD.	GOBE MAIN YEARLY OIL PROD	GOBE MAIN YEARLY GAS	S. E. GOBE YEARLY OIL	S. E. GOBE YEARLY GAS PROD.	NWM EPT YEARLY OIL	NWM EPT YEARLY GAS	SE MANANDA YEARLY OIL PROD.	SE MANANDA YEARLY GAS	MORAN YEARLY OIL PROD.	MORAN YEARLY GAS PROD.	TOTAL OIL PRODUCTION	TOTAL GAS PRODUCTION
	BBL	MSCF	BBL	MSCF	BBL	MSCF	BBL	MSCF	BBL	MSCF	BBL	MSCF	BBL	MSCF
1991	68,162	84,532											68,162	84,532
1992	19,314,212	16,951,949											19,314,212	16,951,949
1993	45,883,975	49,059,949											45,883,975	49,059,949
1994	44,077,868	58,666,246											44,077,868	58,666,246
1995	36,344,233	61,184,516											36,344,233	61,184,516
1996	38,640,602	65,343,500											38,640,602	65,343,500
1997	27,592,364	66,960,036											27,592,364	66,960,036
1998	18,926,771	69,562,381	3,568,005	8,568,296	3,539,421	6,718,805					3,445,286	6,403,723	29,479,483	91,253,205
1999	15,210,458	77,238,216	6,109,245	12,333,827	6,402,314	15,032,976					4,298,414	8,519,774	32,020,431	113,124,793
2000	11,985,875	77,528,038	5,497,312	11,665,081	4,827,260	16,112,863					3,124,070	7,048,093	25,434,517	112,354,075
2001	9,607,802	75,276,974	2,635,005	11,873,584	4,548,431	13,280,821					4,244,244	9,492,554	21,035,482	109,923,933
2002	7,759,851	77,897,708	1,961,814	11,488,765	3,697,018	12,788,514					3,144,086	8,120,984	16,562,769	110,295,971
2003	7,355,608	82,912,796	1,772,286	11,105,424	3,397,974	18,884,792					4,921,071	15,431,663	17,446,939	128,334,675
2004	6,552,222	84,791,755	1,446,375	12,125,889	2,621,193	21,378,237					4,874,683	17,899,235	15,494,473	136,195,116
2005	7,091,513	86,475,178	1,111,074	13,408,486	2,684,188	22,474,800	238,220	294.085			6,041,000	17,120,764	17,165,995	139,773,313
2006	5,626,802	80,521,971	1,065,855	10,753,194	2,815,576	23,912,103	, 675,193	, 928,125	774,171	2,788,621	6,820,077	19,322,347	17,777,674	138,226,361
TOTAL.	<u>302,038,3</u> 19	<u>1,030,455,7</u> 45	<u>25,166,97</u> 1	<u>103,322,5</u> 46	<u>34,533,3</u> 75	<u>150,583,9</u> 11	913,413	<u>1,222,21</u> 0	774,171	2,788,621	<u>40,912,93</u> 1	<u>109,359,1</u> 37	<u>404,339,180</u>	<u>1,397,732,170</u>



*Figure 5.8: Yearly Oil and Gas Production since 1991* 

### Section 6.0 SPECIAL PROJECTS

#### 6.1 PNG GAS TO AUSTRALIA PROJECT

The PNG Gas Project participants have recently completed an intensive review of development options for the PNG Gas Project, which commenced when APC withdrew from building the Australian portion of pipeline in mid-2006.

The Project partners have fully evaluated a range of other development options for gas at Hides and Kutubu and have identified a number of projects that have demonstrably higher value and return potential than the PNG Gas Project to Australia. These projects include the sale of gas for a Liquefied Natural Gas (LNG) or petrochemical development, which take advantage of a material increase in world gas and oil prices.

In light of the superior returns that may be achieved from these alternative opportunities, the PNG Gas Project participants have agreed to suspend work on the Project and concentrate development of the Hides and Kutubu resource into higher value projects.

It is clear that alternative development options, including LNG, petrochemicals and other in-country options are now demonstrably more attractive and cannot be ignored. The gas prices that can be realised from these projects are not constrained by the local market conditions in Eastern Australia, which are dominated by large volumes of competitively priced coal.

Although it is disappointing that activities have ceased on the PNG Gas Project, the alternative development options now represent an opportunity to deliver superior returns, and will add significant medium and long-term value and growth potential for Papua New Guinea.

Substantial gas resources have been discovered in PNG and active exploration and appraisal programmes are being pursued to prove up more gas that will be available for contract. Core gas reserves for development are defined at Hides/Angore and Kutubu, with a range of other fields potentially available for resource support.

ExxonMobil recently completed initial studies that have demonstrated the attractiveness of an LNG development based on the Hides/Angore fields as the core gas resource. Discussions have been initiated with the Kutubu and Juha field groups to potentially join ExxonMobil and the Hides Joint Venture in this proposed development.

The Kutubu Joint Venture also reviewed a number of commercial options to develop its gas and liquids resource and is well placed in having a range of potentially attractive options in LNG, petrochemicals and straight gas sales to major new resource projects. Kutubu represents a valuable resource and infrastructure hub for any development.

Oil Search and British Gas (BG) have recently completed an initial evaluation of an LNG development, based on the Kutubu resource, backed by one or more of the other gas fields in the Oil Search portfolio. This project would commence with an initial 3-4 mtpa plant (similar in size to others in BG's portfolio) and associated infrastructure, to be optimized based on gas resource and plant efficiency. The objective is to deliver LNG to the market as early as possible, with a target of first deliveries in 2012. Commercial discussions are now taking place with BG to refine the potential project structure and the terms of BG's possible entry.

In parallel with the LNG development options, the Kutubu Joint Venture also reviewed the supplying of gas to a Methanol/DME plant in Port Moresby, led by Mitsubishi Gas Chemical (MGC) and Itochu (ITC). MGC/ITC are finalising their initial feasibility analysis and, subject to closure of gas supply terms, are planning to be in full engineering and design by the end of 2007, with a project investment decision at the end of 2008 and first production in 2011.

Negotiations between relevant parties are also at an advanced stage for the supply of gas to a fertilizer development plant led by Oswal Industries, which is planning to build a world scale plant in Port Moresby with first production also planned for 2011.

Other proposals for gas supply have been received from a number of petrochemicals/GTL and industry users. These are being evaluated but are seen to be of lower priority than the LNG, methanol and fertilizer opportunities as described above. Evaluation of delivering CNG from Kutubu, or an associated field, to niche markets are currently tasks at hand.

Appraisal drilling at the Juha field is underway at the time of this report and the resource is seen as having valuable potential in supporting an LNG development in the medium term. The Juha JV will actively pursue early development of the Juha field, including liquids cycling, if reserves delineation, is successful.

It is anticipated that the Kutubu Joint Venture will have completed its assessment of the various development alternatives by mid 2007, having fully evaluated commercial proposals from project developers and gas buyers.

#### 6.2 LICENSING ROUND

The Department of Petroleum and Energy (DPE) is carrying out its first petroleum licensing round over the vacant areas as shown in **Figure 6.1** on the map. The area includes the Gulf of Papua, Papuan Plateau, the Moresby Trough and parts of the Coral Sea. A seismic survey has been carried out over the area this year. This is of great importance as data acquired from this survey will promote the southern coastal and offshore areas for oil and gas exploration.

In September 2005, the Minister for Petroleum and Energy officially announced the reservation of certain blocks of the offshore area. It was planned that these blocks would be subject to a formal invitation under the Oil and Gas Act for applications as part of the forthcoming licensing round towards the end of 2006 and early 2007.

This followed the introduction by the Government of reduced tax rate as an "incentive rate petroleum operations" meaning petroleum operations arising from a petroleum prospecting licence granted during the period 1 January 2003 to 31 December 2007 and also in respect of a Petroleum Development Licence granted on or before 31 December 2017. The rate of tax in respect of income from incentive rate petroleum operations is 30% of the taxable income. This is a significant decrease from normal petroleum operations, indeed worldwide as the income of which is currently assessed at 50% of taxable income for petroleum projects established prior to 1 January 2001 and 45% for projects thereafter.

The Government's objective was to offer the petroleum industry access and the opportunity to explore the hydrocarbon potential of PNG. It is also the Government's intention to actively encourage and work together with new explorers who are interested in entering into one of the most prospective, but still under explored areas of Papua New Guinea.

To date, exploration in the offshore area of PNG has been sporadic and mainly focused in the shallower waters of the Gulf of Papua with only several small sub-commercial gas and gas condensate discoveries made over the last 30 years as a result of the few exploration wells drilled. Despite limited well control and scarcity of seismic data, the onshore, shallow and deepwater offshore areas still offer a frontier region opportunity with a number of large structures capable of holding significant volumes of hydrocarbons.

A new major regional study based upon new data has been conducted in the offshore areas and has identified a variety of new Palaeozoic to Recent play types. Geological conditions that have resulted in a number of the onshore discoveries are also predicted to be present.

A new and possibly thicker Permian petroleum system similar to the hydrocarbon producing provinces in Eastern Indonesia has also been recognised, significantly improving the prospectivity and questioning previously established ideas about the area. New exploration targets possibly sourced by a variety of hydrocarbon-prone source rocks have been identified in many areas some of which are suitable for drilling by companies active in the region.

Early in 2006 a major seismic contractor conducted a large non-exclusive survey in areas not previously covered by seismic data under a scientific consent provided by the Government. This seismic survey acquired over 12,000kms over a four-month period. A non-exclusive seismic survey has never been undertaken in PNG before, despite such surveys becoming increasingly important on a global scale in key exploration areas. The benefit is that the contractors, in addition to oil companies, active in the area take the exploration risk and thereby fast track the exploration cycle by initially providing a larger seismic data
coverage. This data was then marketed worldwide to interested oil companies in late 2006 focusing on the reserved acreages. The intention of the long application period and preparation of data packages was to allow new explorers, the chance to familiarise themselves with the geology, data and the new attractive fiscal terms offered in Papua New Guinea.

Many of the areas considered for the 2006 release have never been analysed by any petroleum prospecting licensees and as such are true frontier areas with unknown potential.

The licensing round was formally opened in September 2006 by the Petroleum and Energy Minister, Sir Moi Avei in Singapore. The Minister announced that application opening date was 1 March 2007 and closing 13 April 2007. The announcements would follow by early second quarter 2007 on the successful applicants.

# 6.3 NAPANAPA OIL REFINERY

#### **General Overview**

The NapaNapa oil refinery operated by InterOil Limited is the first downstream petroleum project to have been granted a Petroleum Processing Facility Licence (PPFL) by the Government in February 2000. It is located 4km across the eastern side of Port Moresby harbour. The NapaNapa refinery was commissioned in the third quarter of 2004 and started its first full year of production in 2005. Major events this year included a full refinery inspection and cleaning of equipment, turnaround and revamp projects.

#### **Design Configuration**

The refinery was originally designed to process 32,500 BBPD of light sweet crude similar to the Kutubu crude. A capacity test run carried out in the last quarter of 2006 proved that crude unit capacity could be safely raised to 34,500 BBPD on selected crude type. The refined products are;

- Liquefied Petroleum Gas (LPG Propane and Butane)
- Naphtha (Light, Mixed and Heavy)
- Jet fuel and kerosene
- Gasoline (Unleaded)
- Diesel, and marine diesel
- Low Sulphur Waxy Residue (LSWR)

Heavy naphtha is converted into reformate in the reforming unit which then is blended with butane and light naphtha to produce gasoline.

Products	Volume (BBL)
LPG	13,676
Naphtha	1,030,936
Gasoline	339,698
Kerosene (Jet fuel)	554,286
Diesel	2,555,800
LSWR	463,894
Export	1,482,311
PNG use	4,228,610

# Table 6.1: Production and Product Disposition

#### **Crude Supply**

There were eight different crude feedstock including the Kutubu crude processed as part of the refinery's optimisation program. The refinery is currently processing on average 20,000BBPD of low sulphur, high middle distillate yield crude imported from abroad. A total of 5,240,278BBL of crude oil has been imported and processed at the refinery to yield the products shown in **Table 6.1** excluding fuel usage and losses.

#### Marketing

PNG remains the principal market for the refinery products with the exception of naphtha and low sulphur waxy residue. Naphtha is exported to the Asian market in two grades, the light naphtha and mixed naphtha. These are then utilised as feedstock for petrochemical plants. The consumption of diesel product has increased in the local market as reflected in the high diesel production from **Table 6.1**.

The import parity price for each of the refined products produced and sold locally is calculated by adding the costs that would typically be incurred to import such a product to the average posted price for such a product in Singapore as reported by Platts. The additional costs include insurance and freight, landing charges, losses incurred in the transportation of refined products, demurrage and taxes.

# 6.4 ASSET DATABASE PROJECT

The Petroleum Asset Data Base (AssetDB) Project was an incentive of the Gas Development and Technical Assistance Fund provided by the World Bank to properly manage and safe-guard more than 70,000 petroleum data in the Department's physical repositories. Under the World Banking funding the project commenced in June 2002 and lapsed at the end of September 2006. However, the project was further extended for another year under the Short Term Contract of Employment for National Contract Employees of the National Public Service.

The project utilises a highly specialised petroleum asset management software, known as the AssetDB to integrate and consolidate different databases and physical repositories within the Department, into a single and centrally located database. AssetDB is a physical records management software package designed by Schlumberger Oil Company to assist oil companies manage their Exploration and Production physical records. This is intended to enhance efficiency in management and quality control of the data contained therein.

The project is envisioned to assist in the promotion of PNG's potential in the Oil and Gas Industry by allowing public access to the country's million dollar petroleum data and potential (acreage) on the World Wide Web. It includes establishing an integrated Data Base Management System (DBMS) using various geological, database and internet technologies.

Since its inception the project has embarked on bar coding and populating the database with records of all physical data types. This will be followed by data transcription of all physical data sets to electronic format, which will be made available for public referencing via web interface, and this will be known as the "Decision Point". This *Decision Point* will be for purposes such as enticing potential foreign oil companies to invest in the oil and gas industry in the country.

AssetDB Project has three phases. In the order of priority:

- Phase 1 include bar coding of all petroleum related hard copy reports existing in the Petroleum Division;
- Phase 2 include digitising of all hard reports to be converted to electronic documents and;
- Phase 3 include online availability of PNG petroleum data on the World Wide Web.

At the end of 2006, only Phase One has been worked on and it was estimated that over 70,000 petroleum data exist in the Petroleum Division, of which 45,000 have been accounted for and recorded into the AssetDB. The AssetDB staff are currently populating the database with the remaining reports and anticipated completion of the task towards the mid of 2007.

# Section 7.0 RESERVES

All the petroleum reserves discovered to date are located in the Papuan Basin, both onshore and offshore. The table below provides an update on the oil reserves figures for PNG.

Field	Category	OOIP	Recovery Factor	Ultimate Recovery	Cum. Oil Prod as Of DEC 2006	Remaining Reserves
		MMSTB		MMSTB	MMSTB	MMSTB
	1P		0.562	336.11		35.055
	2P		0.58	346.976		45.921
Kutubu	3P	598.482	0.606	362.876	301.055	61.821
	1P	185.853	0.246	85.011		43.909
n	2P	227.046	0.319	110.045		68.943
Moran	3P	345.024	0.406	140.095	41.102	98.993
	1P		0.25	40.921		6.378
	2P		0.265	43.311		8.768
SE Gobe	3P	163.613	0.312	51.06	34.543	16.517
	1P		0.345	28.809		3.636
Gobe	2P		0.371	30.992		5.819
Main	3P	83.5	0.428	35.73	25.173	10.557
	1P		0.069	3.105		2.331
SF	2P		0.112	5.63		4.856
Mananda	3P	45.021	0.254	11.417	0.774	10.643

Table 7.1: PNG Oil Reserves

NB. Saunders field within PDL 4 is now shut in due to limited production of crude oil.Cumulative production from this field is 24 000 BBL.

### 7.1 Kutubu Reservoir Engineering (PDL 2)

Reservoir engineering work in 2006 was mainly aimed towards identifying oil pockets around the Kutubu field. The Operator has determined that the future of this field will driven by two major efforts; studies to identify infill drilling opportunities and workovers.

Priority studies as identified by the Operator included the Usano Study, Hedinia Digimu study, I3X8X block simulation studies, Agogo Digimu study, Agogo Toro study, Iagifu 6X sidetrack and Main Block Toro simulation study to determine whether there is sufficient drainage.

The ongoing work from these studies has provided the Operator with work plans and further infill development strategies that will extend oil production from this field. It has also been realized that the work continued from 2005 with regards to the studies and evaluation work using the MPLT (Memory Production Logging Tool) and MPNN (Memory Production Neutron-Neutron) has greatly assisted the

Operator by identifying candidate wells within the Kutubu field that may require well work to target previously bypassed oil bearing sands.

In addition, non-rig well work such as fishing operations, zone changes and Shut-in Bottom Hole Pressure Surveys (SBHP) continue to assist the Operator in its efforts to maintain Kutubu production.

Figures 7.1(a) and 7.1(b) illustrate the production for Kutubu in terms of the forecast and actual rates.



Figure 7.1(a): Kutubu Reserves Forecast (2P) and Actual Rates (Agogo Inclusive)

Figure 7.1(b): Kutubu Oil Rates for 2006



**Figure 7.1(b)** demonstrates the production rates achieved for Kutubu in 2006. Average production can be seen to lie at 17,000BOPD. The sharp drop in August 2006 was due to the oil spill that occurred at the Kumul Marine Terminal

# 7.2 Gobe Reservoir Engineering (PDL 4)

Gobe reservoir engineering work for 2006 as with 2005 has been limited mainly to continued swing well optimization and the drilling of new wells to locate more oil reserves. The operator has been provided an approval from the DPE for an ongoing four-month period to increase gas flare rates from the approved 3MMSCFD to 13MMSCFD. This increase in the flare consent has resulted in increased production, as target swing wells are kept on-line for longer periods of time.

Four wells have been drilled within South East Gobe to target oil within the SEG "Wedge Area". The wells drilled are respectively SEG 12 (currently a producer), SEG 13 and SEG 14, both of which were drilled as potential producers however due to the lack of oil reserves, both have been converted to water injection wells, and finally GM7, completed as an upper Iagifu producer.

The small satellite field, the Saunders field remains shut in for an extended period after a cumulative production of only 24,000BBL.

#### **Production Optimisation**

The swing well program continues to be the main ongoing study where gauges are being used to gather the flow line pressures (FLP) and tubing head pressure data on selected wells during flowing and shut in periods so that this data could be used to optimize the swing well cycles for these wells. Approvals by the Department to allow an increase in flare rates at the GPF combined with the above mentioned study have complimented the increase in production.

Figure 7.2 represents the oil rates achieved for the Gobe field in 2006.



Figure 7.2: Gobe Production Forecast and Actual Rates for 2006

# 7.3 Moran Reservoir Engineering (PDL 5)

In 2006 Moran production continued to flow through the EWT and EPT lines as per the alleviation of backpressure on producers. Gas injection rates were continually optimized to maintain injection rates at or above 80MMSCFD.

The drilling of Moran 12, Moran 13 and also the production from M7ST1 have contributed to the overall increase in production in the Moran field. The Moran field has also been able to test the use of hydraulic sliding sleeves. This technology allows for the opening and closing of sliding sleeves to be done at surface when changing from one zone to another and will result in less downtime and reduction in well intervention risks.



Figure 7.3(a): Moran Production Forecast and Actual Rates for 2006

The Moran Geo-model was updated to assist the Operator to optimize production and determining infilldrilling opportunities. Simulation studies undertook test different test scenarios with gas injection into the Moran field and the resulting effects on production attained from the field. The Operator has commenced choking back on high GOR wells such as M10 to reduce back pressure on constant producers. Some variations in production rates have been due to:

- 1. Problems with the gas injection well M8 wax build-up being experienced in the tubing. This problem is currently being worked on with wax inhibition trials.
- 2. Hydrates formation in M2ST2 C1 and C2.
- 3. Compressor shut-downs

#### North West Moran

Reservoir engineering work on this section of the Moran field remains within production of oil while observing pressure decline within acceptable levels and also the use of gas lift where necessary. Zone changes at the NW Moran 1 have ensured good rates from this well.

#### 7.4 SE Mananda (PDL 2)

First oil was produced from this field on 27 March 2006. The field is producing from SEM 1X, SEM 4X and SEM 5X. This field is currently producing at an average of between 2,000 to 3,000 BOPD.

As this field was initially forecasted to produce at rates of 10,000 BOPD, it is highly unlikely that these rates will be realized. There continues to be problems with hydrates formation and effective gas lift to the wells to assist production. As a direct result of the appraisal wells drilled and the decrease in available reserves, there has been a resultant decrease in post-drilling reserves figures for this field.



Figure 7.4: South East Mananda Forecast and Actual Production Rates

#### 7.5 **Gas Fields**

Hides is a large onshore gas field, located in the central Papuan Foldbelt. Minor production for gas sales to the Porgera Gold Mine for electricity commenced in late 1991. Minor amounts of condensate are also refined on site and sold locally. Full field development of Hides and other fields are contingent upon the viability of markets as envisaged in major gas export projects. Table 7.2 gives a summary of all known gas fields.

ſ		-	07000	07000	0115	Ga	as Reserve	s I	Cond	ensate Res	erves
Field	Discov. Year	Type	MMBO	MMBO	BCF	1P BCF	2P BCF	3P BCF	1P MMB	2P MMB	3P MMB
Pandora	1988	Gas	-	-	1,110	511	644	893	-	-	-
Pasca		Gas	-	29	435	-	160		-	6	-
Uramu	1968	Gas	-	-	178	-	92	122	-	-	-
Kimu	1999	Gas	-	-	4	-	3		-	-	-
Barikewa	1958	Gas	-	-	759	-	605	692	-	-	-
lehi	1960	Gas	-	-	104	-	11	72	-	-	-
Bwata	1960	Gas/Cond	-	-	139	48	66	128	-	-	-
Gobe	1992		257	-	708	-	-	476	-	-	-
Kutubu	1986		552	-	2,166	-	-	1,522	-	-	-
Moran	1996		259	-	539	147	219	377	-	-	-
SEMananda	1991	Oil/Gas	84	-	307	-	-	221	-	-	-
Angore	1990	Gas/Cond	-	100	6,951	-	3,328	5,881	-	5	33
Hides	1987	Gas/Cond	-	182	9,584	3814	5,371	7,513	57	101	300
Juha	1983	Gas/Cond	-	269	5,293	638	1,536	3,805	32	38	90
Elevala	1990	Gas/Cond	-	35	611	-	433	526	-	3	15
Ketu	1991	Gas/Cond	-		704	-	18	585	-	-	16
Pnyang	1990	Gas/Cond	-	23	3,439	-	1,160	2,554	-	9	16
TOTAL			1,152	638	33,031	5,158	13,646	25,367	89	162	470

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#### Table 7.2:PNG Gas Fields

### 7.6 Forecast Production Profiles

The figure below represents forecast oil production from 2006 to the end of field life for the current producing fields – Kutubu, Moran, Gobe Main, SE Gobe, SE Mananda and Agogo fields.

The Kutubu curve shows that this field is expected to plateau at current rates due to operators current work programs and the benefits attained from work undertaken in 2003 and 2005.

The Gobe field is on a steeper decline as can be expected with Gobe Main nearing its expected field life and economic limits. SE Gobe is expected to reach its end of field life in 2025 this remains to be seen with infill drilling and well work optimization.

Moran oil field was expected to attain its plateau production rates in October 2006 with increased gas injection rates and planned development wells to be drilled. The forward projection sees this field becoming the more prominent field taking over the reigns from the declining Kutubu field.





# Section 8.0 POLICY

There are separate disciplines within the Policy Branch. Herewith are some of the major tasks the units were involved in for the year 2006.

#### 8.1 White Paper on Downstream Processing of PNG Gas

The White Paper on Downstream Petroleum Processing of PNG Gas presents the Government's intention to encourage and promote downstream petroleum activities in the country. This is aligned with the Government's overall desire of encouraging export-based industries, which is consistent with the Medium Term Development Strategy (MTDS) of the Government.

The policy sets out three interconnected strategies:

*First strategy* is to encourage the development of the PNG Gas Project. This will see the development of gas reserves in the central highlands of PNG and transportation via an export pipeline to customers in Australia. This project if ever eventuated, would have the potential of being the largest commercial investment in PNG and a catalyst for further commercialization of gas resources.

The *second strategy* is to ensure the PNG Gas Project facilitates the development of the domestic processing industries that utilizes natural gas as a feedstock. This may not be restricted to LPG fractionation, methanol, DME, ammonia, urea, synthetics and LNG production.

The *third strategy* is to expand gas fired electricity as a means to supply energy that is affordable, reliable and sustainable, which is necessary to fuel growth in the national economy. The White Paper is expected to be presented to Parliament in 2007 by the Minister for Petroleum and Energy.

#### 8.2 Fiscal Incentives

The Policy/Economics Branch played a significant role in the Government's decision to introduce the new fiscal incentives towards the end of 2002. The incentives included reduction of corporate tax from the standard rates of 50% (for projects developed before 2001 and 45% for projects developed after 2001) to 30% and the complete removal of Additional Profit Tax (APT). The incentives are effective for a five-year period, commencing from 1 January 2003 to 31 December 2007. For companies to qualify for the incentives they must apply for, and be awarded a PPL in that five-year period, and that any discoveries emanating from these licenses must be developed on or before 2017.

The Policy Branch has been actively participating in the promotion of the fiscal incentives and participated in the promotion of the 2006 PNG Licensing Round of the 15 areas reserved offshore southern PNG waters. The Branch also made representations at the *2006 Asia Upstream Conference* in Singapore and at the *APPEA* Conference and Exhibition in Australia in early 2006. The Assistant Director – Policy Branch was appointed the Assessment Team Leader for the Licensing Round. The Branch continues to assist the

Department in combined promotional efforts, ensuring the successful completion of the first ever-licensing round.

## 8.3 Financial Analysis

The Policy Branch as part of its ongoing activities continues to assist in the review, evaluation and analysis of applications for petroleum prospecting licenses. The Branch reviews, evaluates and analyses the finances of oil companies applying for a new license, renewal or variation of a licence. Submission of financial reports of companies applying for a licence is required as part of the application. This information is reviewed and evaluated in line with the applicants' work programs. This assists the Branch to establish whether or not the applicant has adequate finances at its disposal to implement the work programs over the life of the licence tenure. The views and recommendations formed from the analysis are provided to the Petroleum Advisory Board through the briefs prepared by the Exploration and Licence and Administration Branches.

# 8.4 PNG Gas Project Financing

#### 8.4.1 State's Participation in the Project

The Government has approved exercising a 22.5% equity participation option available to the State in respect to the development of the Hides gas/condensate field (PDL-1). As Hides gas will represent approximately 50% of the PNG Gas Project, the PNG equity interests in Hides will reduce by half when measured as equity in the PNG Gas Project's upstream development component (namely the wells, gathering lines and associated production facilities in the gas fields). When current landowner and provincial government equity interests in Kutubu, Gobe and Moran are also taken into account, the total PNG participation interest in the upstream would be 14.27%.

The Gas Project Developers have offered PNG an additional stake of between 15% and 30% in the project pipeline infrastructure. If the State were to acquire the additional interest, this would require the State to raise additional finance to participate in the gas project.

However, it is unlikely the State will secure additional finance for such infrastructure. The State has indicated that it will not be able to raise necessary finance for an Additional Infrastructure Interest and instead have the option deferred until post-construction.

The PNG Gas Project has now suffered a delay after APC (AGL/Petronas Consortium), constructors of the Australian segment of the project, announced in the last quarter of 2006 that due to high construction cost, it would halt all activities pertaining to the gas pipeline project. The Policy Branch is currently examining the fallback position of PNG if the PNG Gas Project is aborted. A number of alternative gas-based projects can be promoted but the Branch will undertake more work in 2007 to identify and support projects, which are economically credible for development.

#### 8.4.2 Financing

Financing of the State's participating interest in the PNG Gas Project is led by the Department of Treasury, supported by Department of Petroleum and Energy and the PNG Gas Coordination Office. A finance committee, chaired by ExxonMobil, is coordinating the project financing. The PNG Government engaged Macquarie Bank to undertake phase one work which included providing strategic advice on Hides (partial) sale, identify debt funding and political risks insurance, development of ownership structure for the State and a detailed work plan and schedule. This financing plan was submitted in late June 2005. The stage two assignments, among others, involved the implementation of the financing plan including review of the plan itself. This work continued in 2006, which led to the identification of potential financiers such as the Asian Development Bank and European Investment Bank. The Government pursued these avenues of discussions.

From current calculations the State would require more than US\$400MM to participate in the upstream sector of the Gas Project. The Government approved the setting aside of K400MM (US\$120MM) from the 2005 Budget towards equity requirements with the balance of equity requirements to be sourced externally. The Government also allocated K100MM in the 2006 Budget.

#### 8.5 Legal Issues

#### 8.5.1 Amendments to Oil and Gas Act

In 2006 amendments proposed were specific to the PNG Gas Project to give comfort to the Project sponsors on the security of tenure and their ability to carry out early works. The security of tenure is vital for the financing aspects of the project hence it is important that the changes were made in the Act to provide that security and ultimately comfort to potential financiers of the Gas project. Provisions were also included for a single development forum to be held for the PNG Gas Project to deal with the Gas Project Cooperation and Sharing Agreement (GPCSA) and the distributions of benefits arising from the development of the PNG Gas Project to project area landowners and affected Local-Level Governments and affected Provincial Governments. Two other important changes to the Act considered as necessary for the delivery of the Gas project were the changes relating to additional rights of entry of a licensee and the introduction of provision relating to the pre-submission of information.

Other amendments will be considered for introduction to Parliament early in 2007.

#### 8.5.2 Gas Agreement Amendment

The project scope as envisaged in the original PNG Gas Project Gas Agreement executed on 6 June 2002, has changed considerably, hence changes need to be made to the Gas Agreement. The parties held numerous meetings on the changes throughout 2005 and hope to conclude a restated Gas Agreement by mid-2006. The restated Gas Agreement remains outstanding.

#### 8.5.3 Gas Project Co-operation and Sharing Arrangements

A revised draft was circulated in early 2006 but was not concluded due to uncertainties surrounding the future of the PNG Gas Project and other issues that were not concluded by the Coordination Branch and the Gas Coordination Office.

#### 8.5.4 Court Cases

The Legal Services represents the Department in cases that are before the District Court and has compiled monthly case updates on cases involving the Department. The updates are based on court appearances made and also after receiving updates from the Department of Attorney General on cases that are heard in the National Court.

The updated reports are then circulated to the officers concerned in the Coordination Branch.

### 8.6 Environment

The Environment unit within the Policy Branch is tasked with a general monitoring role to ensure that activities related to oil and gas exploration, development, production and marketing, comply with the environmental requirements within the Oil and Gas Act as well as other relevant environmental legislations of Papua New Guinea.

#### 8.6.1 Environmental Policy

This year the Unit undertook several policy initiatives to address key areas requiring additional guidelines such as: environmental data acquisition; environmental management guidelines for petroleum prospecting activities; gas flaring and project decommissioning. A draft Decommissioning Policy has been completed and is due for circulation whilst additional reviews are underway for a PPL Policy Guideline and a Gas Flaring Policy.

#### 8.6.2 Environmental Monitoring and Compliance

Reviewing environmental plans, environmental permits, socio-economic impact studies and environmental reports from the industry, continue as the Unit's main monitoring tasks. Notable amongst these has been the involvement in the preliminary Environmental Impact Assessment (EIA) stage of the PNG Gas project with the Department of Environment and Conservation (DEC) and Exxon Mobil, up till mid 2006. A consolidated Environmental Plan is now with DEC, pending approval.

No major field visits and audits were undertaken this year on project operations, with the exception of the Kumul Terminal Oil Spill incident in early August. An environmental scientist and the Chief Inspector from the Department were part of the investigation team assessing the environmental impacts of the incident. Subsequent reports of this investigation have been presented to the Department.

The Unit is also in preparatory stage of establishing an in-house waste management database for upstream and downstream petroleum activities. An initial request for waste emission data has been lodged with the Napa Napa Oil Refinery and a similar plan for upstream activities is proposed.

#### 8.6.3 Environmental Liaison

The Unit continues to liaise with both government and non-government organizations on environmental issues pertinent to the industry. A prime involvement is with DEC's pilot project on Persistent Organic Pollutant (POPs), from which important information on chemical usage in the Petroleum Industry were provided including contribution to the final reviews of the National Implementation Plan (NIP). In addition, the Unit maintains its participation in this year's Joint Advisory Council (JAC) annual meeting, which matters concerning the Moratorium on exploration/drilling activities within the PNG-Australian border as well as discussions on environmental concerns for the proposed PNG Gas Project.

# 8.7 Economics

### 8.7.1 Oil Prices

International crude oil prices have remained high above US\$60 per barrel in the first quarter of 2006 and moved higher above US\$70 per barrel in April and remained there up till November, before falling just below US\$60 in light of production cuts by OPEC.

Various factors together contributed to the high oil prices. These include a lack of available capacity across the oil supply chain in production, lack of refinery upgrading and transportation infrastructure, surging demand in emerging economies and apparent insensitivity of consumers to the price signals. Moreover, uncertainties related to weather like hurricanes and geopolitical problems in Iran, Iraq, Venezuela and Nigeria increased activities in the commodities market.

Month (2005)	Average Price
	(US Dollar/barrel)
January	63.95
February	64.05
March	63.03
April	70.49
Мау	73.66
June	69.81
July	71.40
August	73.56
September	68.74
October	62.40
November	59.42
December	58.01

### Table 8: Monthly averages for the Kutubu Light Crude





The higher oil prices have meant higher input costs into the refined petroleum products, which is then passed onto the consumers, resulting in an increase in the general cost of goods and services. On the other hand, higher oil prices lift the oil revenue for the oil producers in PNG and the producers maybe then be able to re-invest in other petroleum activities in the country while the government would see an increase in the tax and royalty returns.

### 8.7.2 PNG Gas Project Economic Model

The PNG Gas Project concept is to extract gas from the gas fields in the Southern Highlands of PNG for export to Australia for industrial, commercial and residential energy consumption. The project involved an upstream gas production and processing project located in PNG and a downstream gas transportation project made up of a dry gas pipeline and associated facilities in Australia.

The Project's economic benefits to PNG would include capital investment, recurrent expenditure, boost to export, employment, boost to exploration and production activity, opportunity for State participation, tax revenue, development levy, royalty, direct compensation and local business dividends among other benefits.

By mid 2006, FEED was completed, however, there were two main obstacles that prevented commencement of the project.

1. The required foundation volume to take the projected 6,115PJ was not reached. There was still more work required to lure more foundation customers.

2. The capital costs of building the pipeline has escalated dramatically due to high price of steel.

Exxon Mobil announced towards the end of 2006 that the PNG-Australia Gas Project would not proceed as planned. However, Exxon Mobil are now looking at the option of shortening the pipeline route in Australia to connect with the Western Australian hub in a bid to reduce costs and increase customer demand. The final decision on the Gas Project may be made in early 2007. Another option that Exxon Mobil as operator is looking at is the option of an LNG project. This LNG project proposal is most likely to replace the PNG-Australia Gas Project.

#### 8.7.3 Petroleum Cost Reporting

All petroleum companies are required to furnish reports under the Act. In line with this provision, a petroleum cost reporting database was established in the Policy Branch. The licensees are required to submit to the Department their capital and operating costs incurred solely or jointly, and to ensure consistency in each reporting period. The Department then utilizes this data to monitor the cost trend. Different forms have been structured for different costs whereby licensees can enter costs and reports: Form 1 (a) relates to Joint Venture Exploration Billing Cost Summary Form 2 (a) relates to Joint Venture Development Cost Summary Form 2 (b) relates to Joint Venture PPL or PDL Operating Cost Summary Form 2 (c) relates to Joint Venture Petroleum Processing Facility Summary Form 3 relates to Sole Cost Summary Form 4 relates to Royalty Net Back.

The licensees are required to supply the data six monthly. Upon receipt of the data the Policy Branch enter the information for analytical and reporting purposes.

In 2006, contact details were updated and reminder letters sent out to all the companies to furnish their reports, some dating back to 2003. An acknowledgement receipt was also developed, however at year's end only five companies had responded.

There remains a need to store PCR data and set up a user-friendly PCR database using Microsoft Access to enable efficient storage, analysis and retrieval of data.

### 8.7.4 North West Moran Project Economic Model

North West Moran (NWM) commenced under EPT on 16 September 2005 and ceased on 15 September 2006. The Department granted a further 3-month extension, which expired on 16 December 2006.

Oil Search Ltd has submitted an application for a PDL over NWM. As of July 2006, the total accumulated production from NWM under the EWT was 613, 172 BBL.

The same terms of royalty applied on Moran PDL5 may apply on NWM under EPT. Although it is producing under EPT from PPL219, in pursuant to Section 159, royalty should be paid to the State 2% royalty of the above barrels of oil produced. Therefore, applying the prevailing prices, royalty for the period September 2005 to July 2006 is some K574,900. This should be held by the Operator of PPL 219 in a suspense account to be backdated when a PDL is granted by the state. Under the EWT, there is no current development agreement.

The Economic Unit was advised to look at two possible scenarios regarding the North West Moran Oil project. These options were:

- 1. Stand alone Project This would allow NWM to be developed as a single project (PDL6). However, the economic indicators were not favorable due to a limited oil reserve.
- 2. NW Moran PDL 6 unitized with PDL5 Moran. This would significantly improve the overall production of the oil reserves and extend the life of the production.

A Development Forum is required under the Act before the Department can grant a Petroleum Development Licence. To this end, the Department advised the developer, Oil Search Ltd to proceed with Option Two and a Development Forum was held in Kimbe, however certain issues remain unresolved, thus a Forum proper was deferred to a later date.

#### 8.7.5 Royalty

Section 158 of the Act permits the Minister for Petroleum and Energy to determine the value of petroleum after considering any information provided by the licensee or any other information that the Minister deems as relevant. Following the determination of the value, and in accordance with Section 159 of the same Act, various discussions and agreements are reached between the State, the Operator of the Joint Venture and the Project Area Landowners, the operator pays 2% of the Wellhead value of all petroleum produced from the area to the State as Royalty.

Moreover, in accordance with Section 168 of the Act and further subject to Section 169, the State grants the royalty benefit to the project area landowners, affected Provincial Governments and the affected Local Level Governments. The royalty is distributed among these parties in line with the distribution formula that they have previously agreed upon.

In 2006 the developers paid to the State a total royalty of K52.42MM to the project area landowners, the affected Local Level Governments and the affected Provincial Governments. The royalty paid has been only for the months from January to November 2006, from the Kutubu, Moran, Gobe and Hides projects.



# Figure 8.1

Representation of Royalty paid per Project in 2006 (% Only)

# Table 8.1

Royalty Data paid per Project in 2006

Project Area	Kina Amount (MM)
Kutubu	20.46
Moran	19.96
Gobe	11.48
Hides	0.52
Total	52.42

The royalty paid in 2006 was higher than 2005 receipts due to higher prices and increased production from the Moran petroleum development project.

# Figure 8.2: Year 2006 Oil Price Graph



# Section 9.0 COORDINATION

# 9.1 Overview

# 9.1.1 Branch Objectives

The Coordination Branch is responsible for the coordination of petroleum development issues with local communities. The specific roles of the Branch include:

- Liaising with impacted communities including the provincial and local level governments to ensure that all issues relating to petroleum projects are addressed and relevant information is disseminated;
- Organizing and coordinating meetings with representatives of both the National and Provincial Governments, Industry, Landowner Associations, and Project area communities to discuss land and community issues affecting specific petroleum projects;
- Planning and coordinating the staging of Development Forums for new petroleum projects and the review of Project Memorandum of Agreements relating to existing projects;
- Reviewing social impacts on developments and preparing programs for community assistance or inclusion in development agreements and MOAs;
- Assisting and overseeing landowner identification and related social mapping work undertaken by Developers in the petroleum license areas;
- Ensuring that royalty benefits and equity benefit payments are made to the correct beneficiaries and disbursed in a given timeframe;
- Ensuring infrastructure projects and non-cash benefits are fairly distributed in the project areas.

### 9.1.2 Branch Milestones

Milestones achieved during the year include:

- Establishment of the Exploration Section to monitor operations in current PPL
- Effective facilitation of issues towards the issuance of APDL 6 North West Moran Project.
- Decreased number of landowners coming to Head office
- Purchase of a new project vehicle for the Moro field Office.

# 9.2 Kutubu Project

The Kutubu project was generally quiet in 2006, with landowner issues very minimal.

One notable event was the flow of Oil from the South East Mananda field. South East Mananda landowners have not held amicable discussions and there remains division among the current beneficiaries and other members of the three ethnic groups, as well as an internal leadership dispute.

Two liaison officers and a senior co-coordinator deal with the Kutubu Project with the assistance of one contracted officer. The liaison officer is based in Kikori and is responsible for all Kikori landowner and project related issues.

All royalty payments to beneficiaries are now administered by MRDC. DPE now oversees and authorizes the release of payments only. There are less Kutubu landowners coming to the Coordination Office with grievances than in previous years. Internal landowner politics and political play has hindered completion of the Kutubu MOA Review and signing of the Revised Gulf MOA.

# 9.3 Gobe Project

This year 2006, the projects main issues were centered on court cases instituted by creditors against landowners, Landowners against DPE (State), Internal ILG disputes and leaderships.

Outstanding issues are still current and include the Lands Titles Commission (LTC) rehearing; Ministerial Determination Revocation, Royalty payment and leadership tussle in ILGs. The issues are yet to be resolved, however, attempts were made to resolve some of the above issues. The Lands Titles Commission and DPE jointly made submission to NEC to have the rehearing of Gobe landownership dispute instituted.

This year saw the release of royalty payment to the land groups, which was administered by MRDC. The Department maintained its position on the *no third party* payment policy so the ILG had to settle their creditors through their lawyers. Leadership tussles and elections petitions are internal ILG matters and the onus is on the landowners to utilize their ILG constitutions to settle these issues. The Department only monitors these issues and advices upon request.

It is hoped that there will be a final settlement of most of these issues in the near future, particularly the long awaited landownership dispute and Gobe MOA review, which in turn would assist to mitigate other issues.

### 9.4 Moran Project

The year 2006 was a challenging year for the Moran Petroleum Project. The 2005 Moran Equity as declared again by MRDC was paid to all beneficiaries. This was a continuation from the first dividend windfall for the beneficiaries in 2004. The seven Local Level Governments (Hulia, Nipa, Lower Wage, Upper Wage, Komo, Bosavi and Kutubu) also received their equity payments from MRDC.

The first three Moran Royalty payments that were initially parked under the Department of Finance Trust Account Section before the enactment of the Act were eventually transferred to MRDC. All royalty payments are now administered by MRDC as per the new Act. The Department has administered royalty payments to the seven LLGs and Southern Highlands Provincial Governments. Royalty payments from January to July 2006 were paid to the beneficiaries and royalty payments from August to December 2006 are still with the Department of Finance Trust Account section.

The Nano Webo and Yumbi ILGs Court Case is still pending with the National Court. Since the engagement of the permanent Liaison Officer in the field, there have been a limited number of visits by landowners to the Branch.

The Funds for the Moran MOA were transferred to the Department's accounts section from the Department of National Planning and Monitoring. The EIC approved the names of the Contractors who were then paid accordingly.

#### 9.5 North West Moran Project

The NW Moran 1 well was drilled in 2003 in PPL 219 to appraise the NW part of the Moran Structure. The results indicated the same oil discovered in PDL 5 extended out into PPL 219, specifically Block 1933. The operator, OSL applied to test the NW Moran well and an EPT was granted for a period of 1 year, expiring on 15 September 2006 and further extended for another 3 months, expiring 16 December 2006. Since then the extension of EPT had been revoked. OSL then submitted an application for a PDL for Block 1933 in February 2006. Benefits from this project have since been held in trust until a PDL is granted.

A social mapping report submitted by OSL, identified the legitimate landowning clans in NWM project. The Department following the submission engaged Ecosystems Management Ltd (EML) to review the social mapping report and conduct further ground truthing exercise to verify the various legitimate landowner clans. This exercise resulted in a final number of clans as 19 from an initial representation of 22.

The identification of clans within block 1933 is still an issue of contention between the Department and the OSL in regards to the exact number of clans. Meanwhile, landowners have also submitted their own list of landowner clans to the Department for endorsement and registered four Associations for recognition.

The State will decide whether to exercise its rights of 20.5% acquisition in the project based on the project economics, however it will acquire the 2% for the landowners.

As a lead up to the granting of the PDL over APDL6 the Department convened a development forum in Kimbe on 16 November 2006. However due to landowner dissatisfaction over landowner representation the forum was used as a pre-forum process in educating landowners on the project economics and the scale of the project.

It is anticipated that 2007 will see a successful outcome as the branch attempts to finalize the process in grant of the PDL for NW Moran project.

## 9.6 Hides Project

The year was challenging year with many issues and activities addressed and for both the current Hides Gas to Porgera Electricity project and the PNG Gas Project. The Hides Liaison team was able to manage all projects related issues and a liaison officer was based at the project site, thus there was no project disruption throughout the year.

Two sets of royalty payments were executed in the year. The first payment totaling in excess of K200,000 for period July to December 2005 was disbursed to landowners in mid May while the second set of payment totaling K250,000 for the period January to June 2006 was paid in October. The payments went smoothly.

One major achievement was the agreement on the Tabu clan's royalty distribution formula. The Tabu clan receives about 12% of royalty under the Tuguba tribe. The clan successfully addressed its royalty distribution in a meeting during the payment in October 2006.

In 2006, more than K18.2MM of MOA funds have been paid out to more than 20 landowners companies in PDL 1 to implement various MOA projects in the area.

By mid 2006, a total of K2.2 million MOA funds were paid to 10 contractors within the Hides PDL 1 area to implement specific projects. These projects were monitored in the month of September and the results but found to be dissatisfactory. Most of the earmarked projects were never implemented and for the few that were, they were not satisfactorily implemented. Strict monitoring of these funds is required to ensure that the MOA funds are not abused.

In December 2006, a total of K15MM out standing MOA funds were paid out to more than 10 contractors. It has now been decided that monitoring on the implementation on each specific project will be done on a quarterly basis in 2007.

The landowner business company PEJV received K1MM in June for the construction of the Kulu Puba road and some construction work has been done on the road.

The proposed Gas project has raised high expectations within potential beneficiaries of PDL 1, Hides 4 and Angore. These people frequented the Department through out the year pursuing Gas issues. Many clans formed and registered incorporated land groups (ILG) with Investment Promotion Authorities on their own accord, as a means to channel any Gas Project benefits.

### 9.7 Exploration

The exploration section was established in January 2006 to assist the Exploration Branch in monitoring exploration activities conducted by the licensee in all current petroleum prospecting licenses. A liaison officer has being assigned to manage the section.

The main activity is to ensure that the licensee comply with the requirements under the Act specifically Section 47 (Social Mapping and Landowner Identification Studies) and Section 118 (Compensation). The

section is also tasked to assist the geologists collect seep samples and carry out education awareness on the management and processes involved in petroleum operations to the landowners, LLG and Provincial Governments.

This section was involved in the following awareness exercises:

- March April, conducting of awareness to coastal villages along the Gulf, Central and Milne Bay Provinces in regards to the Lahara Offshore Seismic Survey conducted by Fugro from February to June 2006 along the Papuan coastline.
- October December, successful completion of educational awareness on the management and the processes involved in the petroleum industry to the Madang, Eastern Highlands, Simbu, East Sepik, Sandaun and Gulf Provincial Governments and Administrations.

#### 9.8 Other Issues

#### 9.8.1 MOA Project Funds

This year saw a total of more than K39MM paid to various contractors in the Hides, Moran, Kutubu, Gobe and Gulf landowners for projects under MOA commitments.

The management of the funds has been controlled by the EIC at the Department of National Planning and Monitoring Office. There have been no proper records of the total funds paid to contractors as Project Coordinators were not consulted in verification and endorsement of projects funded. It was noted that 80% of this year's project funding were paid to projects that were not listed in the various signed MOA Agreements. This has led to landowners confronting officers demanding funds for MOA projects as per signed MOA agreement that were missed out.

### 9.8.2 PNG Gas Project

Gas negotiations and the fast-tracking of the PNG Gas Project was at its peak between October to December 2005. Between February and May 2006, a major field exercise was undertaken for three months in a rolling plan method where the coordinators monitored and managed the issues and the level of landowner support. This particular field campaign was aimed at reducing numbers of landowner representatives who would be attending the Gas Project Development Forum. This Forum was intended to be concluded by June 2006, prior Gas Project sanction.

There were five different lists of landowner representatives from Hides to the Omati landfall, where the Gas Project pipeline will run undersea. In total, the Department arrived at a number between 200 and 300 representatives of leaders, including female representatives, who would represent the 20,000 or so impacted landowners.

In July 2006, progress became slow in the PNG Gas Project due to commercial reasons, and most landowner activities together with the field exercises were also stalled.

In August 2006, all landowners were advised that there was an indefinite delay in the Gas Project and hence all GPCSA matters and proposed Development Forum for the PNG Gas Project would be delayed indefinitely. In December there was increasing opinion that the PNG Gas Project was to be shelved and the all fieldwork in relation to the PNG Gas Project would cease.

The major objectives achieved in 2006 are as follows:

- Landowner acceptance for the GPCSA and support for the PNG Gas Project
- Six months of field trips accident-free and zero loss
- Tentative landowner leader listing for GPCSA forum
- Landowner Identification and Benefits Distribution (LIBD) mechanism developed
- Main clan listing for the entire gas project area was generated through social mapping information
- NEC Decision approved funds for outstanding Oil MOAs through PNG Gas Project Co-ordination Office
- Business Development (BD) Grants approved for Gas Project by NEC through PNG Gas Project Coordination Office submissions.

# Section 10.0 CONCLUSION

Exploration activities have picked up pace this year. Respective operators undertook significantly more field activities then in previous years and more wells were drilled despite no discovery being made. The tax incentives introduced in 2003 are bearing fruit with licensees who took advantage of this opportunity now commencing active fieldwork. Aggressive development drilling programs have enabled the sustained life of the fields despite their natural decline.

The country's petroleum industry has received a boost to sector investment interest, which is expected to ramp up in the coming year through a new major study regionally extensive study of the petroleum systems of offshore areas. The Ministerial reservation of blocks of large portion of these offshore areas has set the tone for exciting times ahead for the local industry with a Licensing Round to be hosted in 2006.

With the successful completion of construction works at the first ever local refinery this year, the Napa Napa refinery located on the eastern side of Port Moresby Harbour is now receiving crude feedstocks and refining to produce local naptha, gasoline, jet fuel and diesel. The same operator has continued with its ambitious multi-well program in the hopes of a discovery that will enable it to process from upstream through to downstream.

The PNG Gas Project has successfully entered the FEED stage and design and construction work are on going. The Project aims to produce around 6 TCF of gas and the Project proponents have commitments of around 215 PJ per annum comprised of five significant foundation load customers. The risk remains of customers once again dropping their commitments to PNG gas, especially if there is any slippage in the project schedule and the targeted date for first gas deliveries of mid-2009.

Without doubt, PNG's oil and gas resources and PNG as a potential for previously untested deepwater plays will come into the spotlight in light of the Minister's official reservation of blocks offshore this year. The licensing round in collaboration with Fugro's reprocessed and newly acquired speculative data promises interest for the industry in the coming months.

# PETROLEUM EXPLORATION STATISTICS

(d)

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
NEW PPL's GRANTED (a)	12	16	6	5	4	5	5	8	1	7	6	5	9	4	3	2	1	10	8	10	8	(est) 10
PPL's EXPIRED, SURRENDERED OR CANCELLED	3	4	1	5	2	12	8	13	6	2	7	3	5	3	1	4	4	9	1	0	0	0
TOTAL NUMBERS OF PPL's (b)	21	33	38	38	40	33	30	25	20	25	25	22	27	28	27	23	17	18	26	29	36	46
TOTAL NUMBER OF BLOCKS						2684	2143	1283	995	1130	1395	1372	1494	1535	1508	1066	1020	1111	2136	2405	3137	4001
TOTAL AREA UNDER LICENCE (KM <sup>2</sup> )						228140	182155	109055	84575	96050	118575	116620	126990	130475	122148	90610	87308	89991	173016	84159	254097	324081
NEW PDL's GRANTED	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0	1
PDL'S EXPIRED, SURRENDERED OR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL NUMBER OF PDL's	0	0	0	0	2	2	2	2	2	2	4	4	4	4	4	5	5	5	5	5	5	6
TOTAL NUMBER OF BLOCKS (PDL)	0	0	0	0	16	16	16	16	16	16	21	21	21	21	21	22	22	22	22	22	22	23
NEW PLL's GRANTED	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
TOTAL PLL's GRANTED	0	0	0	0	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3
NEW PRL's GRANTED		0	0	0	0	0	0	0	0	0	0	0	1	0	4	0	3	0	2	1	0	0
TOTAL NUMBER OF PRL's		0	0	0	0	0	0	0	0	0	0	0	1	1	5	5	8	8	10	11	11	11
APPROXIMATE EXPENDITURE	K45M	K74M	K116M	K149M	K225M	K170M	K80M	K60M	K70M	K117M	K190M	K258M	K120M	K144M	K157M	K238M	K194M	K156M	K70M	K80M	K285.6M	K507.9
EXPLORATION WELLS DRILLED (c)	3	7	10	27	21	11	7	4	10	4	5	9	5	5	2	0	3	7	2	3	3	10
DISCOVERY WELLS (c)	2	3	6	14	9	5	4	2	2	1	2	2	2	1	0	0	2	2	0	0	2	8
NEW FIELD DISCOVERIES (d)	1	2	2	1	4	3	2	1	0	0	1	0	0	1	0	0	2	2	0	0	2	5
CUMULATIVE FIELDS	9	11	13	14	18	21	23	24	24	24	25	25	25	26	26	26	28	30	30	30	32	37
CUMULATIVE WELLS	148	155	165	192	213	224	231	235	245	249	254	263	268	273	275	275	278	285	287	290	300	310
% SUCCESS RATE	6.1	7.1	7.9	7.3	8.5	9.4	10	10.2	9.8	9.6	9.8	9.5	9.3	9.5	9.5	9.5	10.1	10.5	9.5	9.7	8.7	8.7
GEOLOGICAL SURVEYS								4	4	6	4	5	2	1	4	1	1	2	1	1	4	4
SEISMIC SURVEYS	3	7	8	14	15	6	8	3	1	1	3	5	7	2	4	4	3	2	4	4	8	10
LINE KMS SEIMIC ONSHORE	208	423	700	1630	2901	744	751	43	35	16	446.2	321.2	28.2	142	147	109.8	49.75	105	124	247.15	587.66	536.43
OFFSHORE	229	4769	1878	1139	2576	661	879	2425	12568	0	0	0	5390	0	0	0	0	0	0	0	12972.38	0
TOTAL	437	5192	2578	2769	5477	1405	1630	2468	(e) 12603	16	446.2	321.2	5418.2	142	147	109.8	49.75	105	124	247.15	13560.04	536.43

NOTES (a)

PPL is a Petroleum Prospecting Licence PDL is a Petroleum Development Licence PPL is a Pipeline Licence

PRL is a Petroleum Retention Licence

(b) Figures at year end

(c) Excludes development wells but includes extension discoveries and purposeful sidetracks drilled and completed in calendar year 1986 = IAGIFU 1987 = SE HEDINIA, HIDES 1988 = HEDINIA, PANDORA 1989 = AGOGO 1990 = ANGORE, ELEVALA, PNYANG, USANO 1991 = KETU, SE MANANDA, SE GOBE 1992 = GOBE 2X, PANDORA B 1993 = GOBE MAIN 1996 = MORAN 1996 = KIMU 2002 = SAUNDERS, BILIP

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	THE IN	DEPENDEN	T STATE OF P	APUA NEW GU	UINEA PE	<b>FROLEUM PROSPECTIN</b>	G LICENCES A	AS AT 30 DECEMBER, 2006
LICENCE NO. (A = Applicatio (O = Offered)	BASIN on) (E (R = Refuse)	ON/OFF SHORE = Extension) (S = Surrender	PROVINCE r) (1 block = 81 sc	DATE GRANTED (Expiry) gkm approx')	NO. OF BLOCKS	LICENSEES (Op=operator)	% INTEREST HELD	CONTACT ADDRESS
•••••				PETRO	OLEUM PROS	SPECTING LICENCES (PPL)		
188 (E)	Papuan	On/Off	Gulf	30 Apr 2003 (29 Apr 2008)	57	Oil Search Ltd (Op) - Gedd (PNG) Ltd -	90.00% 10.00%	Oil Search Ltd P.O Box 842 Port Moresby, N.C.D Ph: 322 5599 Fax: 322 5566
190	Papuan	On	Gulf & S.H.P	19 May 2002 (18 May 2007)	11	Oil Search Ltd (Op) Murray Petroleum Co. Ltd Cue PNG Oil Co. Pty Ltd	62.56% 26.50% 10.95%	See PPL 188
219 (E)	Papuan	On	S.H.P	15 Feb 2006 (14 Feb 2011)	18	Orogen Exploration Inc. Ampolex (Highlands) Ltd Merlin Petroleum Company Oil Search Ltd Oil Search (PNG) Ltd (Op)	12.50% 18.733% 8.75% 35.02% 25.00%	See PPL 188
233	Papuan	On	S.H.P	11 Jun 2003 (10 June 2009)	12	Esso Highlands Ltd (Op) Oil Search (PNG) Ltd	27.50% 52.50%	Esso Highlands Ltd P.O Box 118 Port Moresby, N.C.D Ph: 322 2111 Fax: 320 3457
234	Papuan	Off	Gulf	25 Jul 2003 (24 Jul 2009)	32	Oil Search Ltd	100.00%	See PPL 188
235	Papuan	On	Western	29 Aug 2003 (28 Aug 2009)	34	Rift Oil PLC Trans-Orient Petroleum PNG Ltd Durum Energy (PNG) Ltd	50.00% 40.00% 10.00%	Level 8, Pacific Place Musgrave St, Port Moresby, N.C.D Ph: 321 2003 Fax: 321 2847

	THE IN	DEPENDI	ENT STATE OF PA	APUA NEW GI	UINEA PE	TROLEUM PROSPECTIN	G LICENCES A	S AT 30 DECEMBER, 2006
LICENCE NO.	BASIN	ON/OFF SHORE	PROVINCE	DATE GRANTED (Evniry)	NO. OF BLOCKS	LICENSEES (Op=operator)	% INTEREST HELD	CONTACT ADDRESS
(A = Application (O = Offered)	on) (H (R = Refuse)	E = Extension (S = Surren	) der )    (1 block = 81 sql	(Expiry) km approx')				
								<u>Or</u> P.O Box 17-258, 284 Karori Rd Wellington, New Zealand Ph: 64 4 476 2717 Fax: 64 4 476 0120
236	Papuan	On/Off	Gulf/Central	28 Mar 2003 (27 Mar 2009)	107	SPI (210) Interoil (Op)	100.00%	Interoil Limited P.O Box 1971 Port Moresby, N.C.D Ph: 320 2632/2663 Fax: 320 2599
237	Papuan	On/Off	Gulf	28 Mar 2003 (27 Mar 2009)	77	SPI (220) Interoil (Op)	100.00%	See PPL 236
238	Papuan	On	Gulf/Chimbu/EHP/ Morobe	7 Mar 2003 (6 Mar 2009)	198	SPI (208) Interoil (Op)	100.00%	See PPL 236
239	Papuan	On	Western	19 May 2004 (18 May 2010)	41	Oil Search Ltd (Op)	100.00%	See PPL 188
240	Papuan	On	Western & Gulf	19 May 2004 (18 May 2010)	36	Oil Search Ltd (Op) Gedd (PNG) Ltd Horizon Oil International Ltd	70.00 % 10.00 % 20.00 %	See PPL 188
244	Papuan	Off	Gulf	25 Feb 2005 (24 Feb 2011)	33	Talisman Oil Ltd (Op) Oil Search Ltd Interoil Australia (SPI 200) Ltd	35.00 % 50.00 % 15.00 %	Talisman Oil Limited Beltway Office Park Building A, 8 <sup>th</sup> Floor J1. T.B. Simatupang No. 41 Jakarta 12550

	THE INI	DEPENDENT	STATE OF PA	PUA NEW GU	INEA PE	<b>FROLEUM PROSPECTING</b>	LICENCES A	S AT 30 DECEMBER, 2006
LICENCE NO. (A = Applicatio (O = Offered)	BASIN m) (E (R = Refuse)	ON/OFF SHORE = Extension) (S = Surrender )	PROVINCE ) (1 block = 81 sqk1	DATE GRANTED (Expiry) m approx')	NO. OF BLOCKS	LICENSEES (Op=operator)	% INTEREST HELD	CONTACT ADDRESS
								Ph: (6221) 782 1001 Fax: (6221) 782 2002
245	Papuan	On	Gulf	17 Sep 2003 (16 Sep 2009)	125	Scotia Petroleum Ltd (Op)	100.00 %	Scotia Petroleum Incorporation C/- Cheetah Oil & Gas (PNG) Ltd PO Box 5703, BOROKO, NCD Ph: 325 1183 Fax: 323 1364 <u>Or</u> PO Box 172, Station A 17 Victoria Road Nanaimo, British Columbia, V9B 5K9, Canada Ph: 1-250-714-1101 Fax: 1-250-714-1186
246	Nth New Guinea	On	Gulf	15 Oct 2003 (14 Oct 2009)	27	Scotia Petroleum Ltd (Op)	100.00 %	See PPL 245
248	Nth New Guinea	On	Madang	27 Apr 2004 (26 Apr 2010)	68	SriGas Energy Group Asia Ltd (Op)	100.00 %	Sri-Gas Energy Group Asia Ltd Manggala Wanabakti Building 2nd Flr, Wing A, Suites 201-202 JI. Gatot Subroto, Senayan, Jakarta Pusat, 10270 Indonesia Ph: 62 21 570 0252 / 570 3790 Fax: 62 21 573 2764
249	Nth New Guinea	On	West Sepik	22 Jan 2004 (21 Jan 2010)	75	Cheetah Oil & Gas Ltd (Op)	100.00 %	Cheetah Oil & Gas (PNG) Ltd PO Box 5703 BOROKO, NCD Ph: 325 1183 Fax: 323 1364

		DEPENDE	NT STATE OF PA	PUA NEW GU	JINEA PE	TROLEUM PROSPECTING	LICENCES A	S AT 30 DECEMBER, 2006
LICENCE NO. (A = Applicatio (O = Offered)	BASIN on) (E (R = Refuse)	ON/OFF SHORE = Extension) (S = Surrenc	PROVINCE der ) (1 block = 81 sqk	DATE GRANTED (Expiry) m approx')	NO. OF BLOCKS	LICENSEES (Op=operator)	% INTEREST HELD	CONTACT ADDRESS
								<u>Or</u> PO Box 172, Station A 17 Victoria Road Nanaimo, British Columbia, V9B 5K9, Canada Ph: 1-250-714-1101 Fax: 1-250-714-1186
250	Papuan	On	WHP/Chimbu/EHP/S HP	22 Jan 2004 (21 Jan 2010)	100	Cheetah Oil & Gas Ltd (Op)	100.00 %	See PPL 249
252	Nth New Guinea	On	ESP & Madang	8 Apr 2004 (7 Apr 2010)	92	Cheetah Oil & Gas Ltd (Op)	100.00 %	See PPL 249
254	Papuan	Off	Central	17 Feb 2005 (16 Feb 2011)	201	Chinampa Exploration Ltd (Op)	100.00 %	Chinampa Exploration Pty Ltd C/- Fugro Geoscience House Level 2, 69 Outram St West Perth, WA 6005 PO Box 489, West Perth, WA 6872 Ph: (61 8) 9482 2966 Fax: (61 8) 9486 8675
255	Papuan	Off	Central	17 Feb 2005 (16 Feb 2011)	185	Chinampa Exploration Ltd (Op)	100.00 %	See PPL 254
256	Papuan	Off	Gulf & Central	17 Feb 2005 (16 Feb 2011)	139	Chinampa Exploration Ltd (Op)	100.00 %	See PPL 254
257	Cape Vogel	On/Off	Oro	20 Oct 2004	86	Transeuro Energy Corp (Op)	100.00 %	Transeuro Energy Corporation Ltd

	THE INE	DEPENDE	NT STATE OF PA	PUA NEW GU	JINEA PET	<b>FROLEUM PROSPECTIN</b>	G LICENCES A	S AT 30 DECEMBER, 2006
LICENCE NO. (A = Applicatior (O = Offered)	BASIN n) (E : (R = Refuse)	ON/OFF SHORE = Extension) (S = Surrenc	PROVINCE ler ) (1 block = 81 sqk	DATE GRANTED (Expiry) m approx')	NO. OF BLOCKS	LICENSEES (Op=operator)	% INTEREST HELD	CONTACT ADDRESS
				(19 Oct 2010)				PO Box 128 Port Moresby, NCD Ph: 321 0530/0460 Fax: 321 1512 <u>Or</u> The Managing Director 6th Avenue SW, Calgary Alberta, Canada Ph: 403 264 6161 Fax: 403 266 3069
258	Nth New Guinea	On	East & West Sepik	20 Oct 2004 (19 Oct 2010)	110	Transeuro Energy Corp (Op)	100.00%	See PPL 257
259	Papuan	On	Western	30 Jun 2005 (29 Jun 2011)	68	Transeuro Energy Corp (Op) Rockwell Exploration SA Ltd	95.00% 5.000%	See PPL 257
260	Papuan	On	SHP & WHP	14 Mar 2005 (13 Mar 2011)	77	Transeuro Energy Corp (Op) Rockwell Exploration SA Ltd	95.00% 5.000%	See PPL 257
266	Papuan	On	Western	15 Aug 2005 (14 Aug 2011)	98	Ladysmith Limited	100.00%	C/- New Guinea Energy Limited PO Box 592 PORT MORESBY, NCD Ph: 321 1765 Fax: 321 1782 <u>Or</u> Suite 1404 Level 14 Goldfields House, 1 Alfred St, Sydney, NSW 2000 Ph: 612 9250 1888 Fax: 612 9250 1838

								, 
LICENCE NO.	BASIN	ON/OFF SHORE	PROVINCE	DATE GRANTED (Expiry)	NO. OF BLOCKS	LICENSEES (Op=operator)	% INTEREST HELD	CONTACT ADDRESS
(A = Applicatio (O = Offered)	on) (E (R = Refuse)	= Extension) (S = Surrende	er )    (1 block = 81 sq	km approx')				
267	Papuan	On	Western	15 Aug 2005 (14 Aug 2011)	84	Roebuck Limited	100.00%	See PPL 266
268	Papuan	On	Western	15 Aug 2005 (14 Aug 2011)	50	Engelberg Limited	100.00%	See PPL 266
269	Papuan	On	Western	15 Aug 2005 (14 Aug 2011)	104	Kirkland Limited	100.00%	See PPL 266
261	Papuan	On	Western & SHP	24 Nov 2006 (23 Nov 2012)	47	Rockwell Ltd	100.00 %	Rockwell Ltd C/- Austral Pacific Ltd PO Box 17258 Karori, Wellington, NZ Ph: (64 4) 4762 717 Fax: (64 4) 4760 120
265	Papuan	On	Western	30 Nov 2006 (29 Nov 2012)	190	Taylor Limited	100.00%	See PPL 266
277	Papuan	On	SHP	30 Nov 2006 (29 Nov 2012)	94	Kingsbury Limited	100.00%	See PPL 266
281	Nth New Guinea	On	Madang	30 Nov 2006 (29 Nov 2012)	41	Aequs Oil & Gas (PNG) Ltd	100.00%	Aequs Oil & Gas Ltd PO Box 32 Port Moresby, NCD Ph: 320 0133 Fax: 321 0805

# THE INDEPENDENT STATE OF PAPUA NEW GUINEA PETROLEUM PROSPECTING LICENCES AS AT 30 DECEMBER, 2006
	THE INI	DEPENDEN	Γ STATE OF PA	APUA NEW GU	JINEA PEI	FROLEUM PROSPECTING	LICENCES A	S AT 30 DECEMBER, 2006
LICENCE NO. (A = Applicatio (O = Offered)	BASIN m) (E (R = Refuse)	ON/OFF SHORE = Extension) (S = Surrender	PROVINCE ) (1 block = 81 sq	DATE GRANTED (Expiry) km approx')	NO. OF BLOCKS	LICENSEES (Op=operator)	% INTEREST HELD	CONTACT ADDRESS
285	Papuan	On	Western	22 Dec 2006 (21 Dec 2012)	116	Bisset Limited (Papua Petroleum Ltd)	100.00%	Papua Petroelum Limited C/- Pacific Capital Limited Level 12, Pacific Place Champion Parade, Port Moresby PO Box 2064 Port Moresby, NCD Ph: 321 7277 Fax: 320 1819
286	Papuan	On	Western	22 Dec 2006 (21 Dec 2012)	144	Honner Limited (Papua Petroleum Ltd)	100.00%	See PPL 285
288	Papuan	On	Western	22 Dec 2006 (21 Dec 2012)	100	Rowell Limited (Papua Petroleum Ltd)	100.00%	See PPL 285
				APPLICATION FO	<u>R PETROLE</u>	UM PROSPECTING LICENSES (A)	<u>PPLS)</u>	
263 (A)	Papuan	On	Western	Pending	19	Oil Search Limited (Op)	70.00%	See PPL 188
264 (A)	Papuan	On	Gulf/ SHP	Pending	37	Lexaria Corp		C/- Leaonard A. MacMillan 25A 1030 Denman Street Vancouver, B.C. V6G 2M6, Canada
271 (A)	Papuan	Off	Gulf/Central	Pending	200	Energy Investment PNG Pty Ltd	100.00%	C/ Shane Doherty Unit 8/55 Hampden Road NEDLANDS, Western Australia 6009 Australia

LICENCE NO. (A = Applica (O = Offered	BASIN ntion) (E l) (R = Refuse)	ON/OFF SHORE = Extension (S = Surren	PROVINCE ) der ) (1 block = 81 sqk	DATE GRANTED (Expiry) xm approx')	NO. OF BLOCKS	LICENSEES (Op=operator)	% INTEREST HELD	CONTACT ADDRESS
272 (A)	Papuan	Off	Gulf/Central	Pending	200	Energy Investment PNG Pty Ltd	100.00%	See APPL 271
273 (A)	Papuan	Off	Gulf/Central	Pending	200	Energy Investment PNG Pty Ltd	100.00%	See APPL 271
274 (A)	Papuan	Off	Gulf/Central	Pending	199	Energy Investment PNG Pty Ltd	100.00%	See APPL 271
275 (A)	Papuan	Off	Gulf/Western	Pending	194	Transeuro Energy Corporation	100.00%	See PPL 257
276 (A)	Papuan	Off	Gulf/Western	Pending	185	Transeuro Energy Corporation	100.00%	See PPL 257
278 (A)	Papuan / NNewGuinea	On	Western/ West Sepik	Pending	61	PNG Land Gulf Oil Limited	100.00%	C/- Jimmy Tse P.O.Box 1886, Boroko, NCD
280 (A)	Papuan	On	Southern Highlands	Pending	42	Oil Search Limited & Others	100.00 %	See PPL 188 (E)

#### PETROLEUM DEVELOPMENT LICENCES (PDL)

#### THE INDEPENDENT STATE OF PAPUA NEW GUINEA PETROLEUM PROSPECTING LICENCES AS AT 30 DECEMBER, 2006 CONTACT ADDRESS LICENCE BASIN ON/OFF PROVINCE DATE NO. OF LICENSEES % INTEREST SHORE NO. GRANTED BLOCKS (Op=operator) HELD (Expiry) (A = Application) (E = Extension) (O = Offered) (R = Refuse) (S = Surrender) (1 block = 81 sqkm approx') Oil Search (Tumbudu) Ltd Oil Search (PNG) Ltd 01 Papuan On Southern H/Lands 27 Sept 1990 4 14.00% (26 Sept 2015) 7.500% P.O Box 842 **Oil Search Ltd** Prov. Esso Highlands Ltd (Op) 47.50% Port Moresby, N.C.D PIPELINE Zan Star Ltd 25.00% Ph: 322 5599 Fax: 322 5566/5588 LICENCES Lavana Ltd 6.000% (PLL) 10 Dec 1990 02 Papuan On Southern H/Lands 12 Ampolex (PNG Petroleum) Inc. 11.611825% See PDL 01 Merlin Pacific Oil Company Ltd Prov. (9 Dec 2015) 2.9062500% Oil Search (PNG) Limited (Op) 60.046458% Petroleum Resources Kutubu 6.7500000% Ltd 6.7812500% Merlin Petroleum Company 11.904217% AGL Gas Developments (PNG) Ptv Ltd 03 On **Gulf Province** 24 Dec 1996 1 Oil Search (Gobe) Limited (Op) 15.859740% See PDL 01 Papuan Barracuda Limited 15.921718% (23 Dec 2021) Cue PNG Oil Company Ptv Ltd 5.5688920% Orogen Minerals (Gobe) Ltd 20.500000% **Petroleum Resource Gobe Ltd** 2.000000% Southern Highlands Petroleum 40.149650% Co. Ltd 04 Papuan On Southern 24 Dec 1996 4 Oil Search (PNG) Limited (Op) 10.000000% See PDL 01 Highlands/ Gulf (23 Dec 2021) Ammpolex (Highlands) Limited 14.518075% Provinces Merlin Petroleum Company 6.7812500% Petroleum Resources Gobe Ltd 2.000000% AGL Gas Developments (PNG) 66.600675% Pty Ltd 17 Feb 2001 05 Southern H/Lands **Esso Highlands Limited** 47.5000% See PDL 01 Papuan On 1 Prov. (16 Feb 2026) Oil Search (Moran) Limited 45.0000% **Oil Search Limited** 7.50000%

LICENCE NO. (A = Applica (O = Offered	BASIN ntion) (F l) (R = Refuse)	ON/OFF SHORE E = Extension (S = Surren	PROVINCE ) .der) (1 block = 81 sql	DATE GRANTED (Expiry) km approx')	NO. OF BLOCKS	LICENSEES (Op=operator)	% INTEREST HELD	CONTACT ADDRESS
01	Papuan	On	Southern Highlands	27 Sept 1990 (26 Sept 2015)		Oil Search Limited Oil Search (Tumbudu) Pty Ltd	5.00% 95.00%	Oil Search Ltd P.O Box 842 Port Moresby, N.C.D Ph: 322 5599 Fax: 322 5566/5588
02	Papuan	On/Off	Southern Highlands & Gulf	10 Dec 1990 (9 Dec 2015)`		Ampolex (PNG Petroleum) Inc. Merlin Pacific Oil Company Ltd Oil Search (PNG) Ltd (Op) Petroleum Resources Kutubu Ltd Merlin Petroleum Company AGL Gas Developments (PNG) Pty Ltd	11.611825% 2.906250% 2.906251% 2.906252% 2.906253% 2.906254%	See PLL 01
03	Papuan	On	Southern Highlands & Gulf	24 Dec 1996 (23 Dec 2021)		Oil Search (PNG) Ltd (Op) Ampolex (Highlands) Ltd Merlin Petroleum Company Petroleum Resources Gobe Ltd Barracuda Ltd Southern H/lands Petroleum Co. Cue PNG Oil Company Pty Ltd AGL Gas Developments (PNG) Pty Ltd	17.776123% 10.235243% 4.780781% 2.000000% 4.696907% 4.696908% 4.696909% 4.696910%	See PLL 01
			-	APPLICATION FO	R PETROLE	UM DEVELOPMENT LICENCE (A	PDLS)	
06 (A)	Papuan	On	Southern H/Lands	Pending	1	Oil Search (PNG) Limited Ampolex (Highlands) Limited Merlin Petroleum Company Oil Search Limited	37.500000% 18.733000% 8.7500000% 35.017000%	See PDL 01

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LICENCE NO.	BASIN	ON/OFF SHORE	PROVINCE	DATE GRANTED (Expiry)	NO. OF BLOCKS	LICENSEES (Op=operator)	% INTEREST HELD	CONTACT ADDRESS
(A = Application (O = Offered)	n) ( (R = Refuse)	E = Extension) (S = Surrender)	) (1 block = 81 sqkr	n approx')				

#### PETROLEUM RETENTION LICENCES (PRLS)

01	Papuan	Off	Gulf (Pandora)	20 Feb 1998 (19 Feb 2003)	9	Taslisman Oil Ltd (Op) Ampolex (Pandora Reef) Command Pet. (Gulf) Claremont Pet. PNG Pacrim Energy Ltd Oil Search Ltd Secab Niugini P/L	48.1800% 16.3600% 12.7300% 6.3600% 5.000% 5.0000%	See PPL 244
02	Papuan	On	Western (Juha)	12 Apr 2000 (11 Apr 2005	10	Oil Search (PNG) Ltd Merlin Petroleum Company Esso Highlands Ltd (Op) Ampolex (PNG) Ltd Oil Search Ltd Orogen Minerals (Kutubu) Ltd	21.5000% 12.5000% 28.0100% 27.97980% 6.01020% 4.00000%	See PPL 233
03	Papuan	On	Western (P'nyang)	12 Apr 2000 (11 Apr 2005)	5	Orogen Minerals (Kutubu) Ltd Oil Search (PNG) Ltd Merlin Petroleum Company Ltd Ampolex (PNG) Ltd Oil Search Ltd Esso Highlands Ltd (Op)	7.50000 % 25.0000% 12.5000 % 27.979800 % 27.979801% 27.979802%	See PPL 233
04	Papuan	On	Western (Stanley)	1 Sept 2000 (31 Aug 2005)	4	Santos Niugini Exploration Ltd SPI (157) Limited Carnarvon Petroleum (NL) Trans Orient Petroleum (PNG) Ltd Bligh PNG Limited Green Slopes Limited	35.250% 20.000% 15.000% 7.5000% 7.2500% 15.000%	Santos Limited 91 King William Street Adelaide SA 5000 GPO 2455 Adelaide SA 5001 Australia

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	THE IN	NDEPENDI	ENT STATE OF P	APUA NEW G	UINEA PE	<b>FROLEUM PROSPECTING</b>	LICENCES A	S AT 30 DECEMBER, 2006
LICENCE NO.	BASIN	ON/OFF SHORE	PROVINCE	DATE GRANTED (Expiry)	NO. OF BLOCKS	LICENSEES (Op=operator)	% INTEREST HELD	CONTACT ADDRESS
(A = Applicat (O = Offered)	ion) ( (R = Refuse)	(E = Extension (S = Surren	) der ) (1 block = 81 sc	ıkm approx')				
								Ph: 61 8 8218 5111 Ph: 61 8 8218 5664 Fax: 61 8 8224 7578
05	Papuan	On	Western (Ketu/Elavala)	15 Feb 2000 (14 Feb 2005)	9	Santos Niugini Exploration Ltd SPI (157) Limited Greenslopes Ltd Carnarvon Petroleum (NL) Trans Orient Petroleum (PNG) Ltd Bligh PNG Limited	35.250 % 20.000 % 15.000 % 15.000 % 7.5000 % 7.2500 %	Santos Niugini Ltd C/- Barracuda Ltd PO Box 1159 Port Moresby, NCD Ph: 321 2633 Fax: 21 2847
08	Papuan	On	Gulf (Kimu)	18 Dec 2002 (17 Dec 2007)	6	Oil Search Ltd (Op) Mosaic Oil Niugini Ltd Gedd (PNG) Ltd Cue Energy Resources Ltd	44.600 % 28.600 % 16.100 % 10.700 %	Oil Search Ltd P.O Box 842 Port Moresby, N.C.D Ph: 322 5599 Fax: 322 5566/5588
09	Papuan	On	Gulf (Barikewa)	18 Dec 2002 (17 Dec 2007)	7	Barracuda Ltd Iona Pty Ltd Cue (PNG) Oil	42.553% 42.553% 14.894%	Barracuda Ltd PO Box 1159 Port Moresby, NCD Ph: 321 2633 Fax: 321 2847
10	Papuan	Off	Gulf (Uramu)	18 Dec 2002 (17 Dec 2007)	1	Oil Search Ltd (Op) Woodside Petroleum (PNG) Gedd Inc. (PNG) Ltd	49.550% 40.500% 10.000%	See PRL 8
11	Papuan	On	S.H.P (Angore)	21 Mar 2003 (20 Mar 2008)	7	Esso Highlands Ltd (Op) Oil Search Ltd	47.500% 52.500%	Esso Highlands Ltd GPO Box 400C Melbourne VIC 3001, Australia Ph: (3) 9270 3901 Fax: (3) 9270 3944

	THE IND	'EPENDEN'	<b>F STATE OF PA</b>	PUA NEW GU	JINEA PET	<b>FROLEUM PROSPECTING</b>	LICENCES A	5 AT 30 DECEMBER, 2006
LICENCE NO. (A = Applicatio (O = Offered)	BASIN n) (E = (R = Refuse) (	ON/OFF SHORE Extension) S = Surrender	PROVINCE ) (1 block = 81 sqk1	DATE GRANTED (Expiry) n approx')	NO. OF BLOCKS	LICENSEES (Op=operator)	% INTEREST HELD	CONTACT ADDRESS
								<i>Or</i> Esso Highlands Ltd PO Box 118, Port Moresby, NCD Ph: 322 2111 Fax: 320 3457
12	Papuan	On	S.H.P (Hides)	21 Mar 2003 (20 Mar 2008)	3	Esso Highlands Ltd (Op) Oil Search Ltd	47.500% 52.500%	See PRL 11
13	Papuan	On	Gulf (Kuru)	27 Jan 2005 (26 Jan 2010)	2	Scotia Petroleum Ltd (Op)	100.00 %	Scotia Petroleum Incorporation C/- Cheetah Oil & Gas (PNG) Ltd PO Box 5703, BOROKO, NCD PH: 325 1183 FX: 323 1364 Or PO Box 172, Station A 17 Victoria Road Nanaimo, British Columbia, V9B 5K9, Canada Ph: 1-250-714-1101 Fax: 1-250-714-1186

#### APPLICATION FOR PETROLEUM RETENTION LICENCES (APRLS)

none

### PETROLEUM PROCESSING FACILITY LICENCE (PPFLS)

PPFL 01

NCD (Napa Napa Refinery)

InterOil Ltd

See PPL 236

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LICENCE NO.	BASIN	ON/OFF SHORE	PROVINCE	DATE GRANTED (Expiry)	NO. OF BLOCKS	LICENSEES (Op=operator)	% INTEREST HELD	CONTACT ADDRESS	
(A = Application (O = Offered)	n) (R = Refuse)	(E = Extension) ) (S = Surrende	r ) (1 block = 81 sc	ıkm approx')					

# SUMMARY OF LICENCES

Number of PPLs	36
Number of Blocks	3137
Number of PDLs	5
Number of Blocks	22
Number of PRLs	11
Number of Blocks	63
Number of PPFL	1
Total number of Blocks under licence	3222
Total area under licence	260982 sq.km